

CARDIFF DEMOGRAPHIC EVIDENCE UPDATE

Population Profile & Growth Scenarios

May 2026

EDGE
ANALYTICS

ACKNOWLEDGEMENTS

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I INTRODUCTION

Context

- 1.1 Cardiff Council submitted its Replacement Local Development Plan (RLDP) in December 2025. The RLDP makes provision for 1,600 dwellings per year over the 2021–2036 plan period (26,400 in total with a 10% flexibility allowance). This target is based on modelling undertaken by Edge Analytics in 2020 and 2021.
- 1.2 Following the publication of the Welsh Government (WG) subnational population¹ and household² projections in November 2025, Cardiff Council requires a demographic report that considers the new official projections within the context of the submitted RLDP. Commentary is also required on the latest available population statistics for Cardiff, to enable the Council to be fully informed on recent demographic trends ahead of going to Examination in 2026.
- 1.3 Edge Analytics has previously produced demographic evidence and growth scenarios for Cardiff, the most recent of which (2021) informed the development of the RLDP housing requirement. Within the 2021 study, the 2018-based WG population and household projections provided the official benchmark. Scenarios were configured using a 2020 mid-year population estimates (MYE) base year and the then-available historical MYE and component of change statistics (births, deaths, migration).
- 1.4 Since this evidence was produced, the 2022-based official WG projections have been released, as have the post-2021 Census ‘rebased’ MYE from the Office for National Statistics (ONS), which changed the historical intercensal population growth profile for Cardiff. A further three years of post-Census MYE evidence is also available, up to mid-year 2024.

This Report

- 1.5 As the leading UK specialist in demographic analysis and forecasting, Edge Analytics has unrivalled experience in the delivery of robust, detailed, and defensible evidence to support planning in critical sectors of the economy, including housing, education, and utilities.
- 1.6 This report presents a concise **demographic profile** of Cardiff (Section 2), including the 2021 Census headlines and the latest historical mid-year population estimates (MYE) from the Office for National Statistics (ONS). The latest 2022-based WG **official population and household projections** are presented in Section 3, with comparison made to the previous 2018-based round of projections.
- 1.7 In Section 4, a range of **demographic scenarios** are presented for the RLDP plan period (2021–2036). These have been developed using the latest demographic statistics from ONS and WG and Edge Analytics’ VICUS forecasting technology. With variant assumptions, each of the demographic scenarios presents an alternative growth outcome for Cardiff, for comparison with the 2022-based WG projections and the previously-produced evidence. Section 5 summarises the implications for the RLDP. Appendix A provides details on the VICUS forecasting methodology, along with the scenario inputs and assumptions.

¹ WG (November 2025) [Local authority population projections: 2022-based](#)

² WG (November 2025) [Local authority household projections: 2022-based](#)

2 DEMOGRAPHIC PROFILE

Census Overview

Population

- 2.1 At the 2021 Census, the population of Cardiff was 362,312, a 4.7% increase since the 2011 Census. The growth rate 2011–2021 was lower than that seen between 2001 and 2011, during which time Cardiff’s population grew by 13.3%. Compared to the South East Wales region and Wales as a whole, Cardiff has seen higher intercensal growth rates since 1981 (Figure 1).

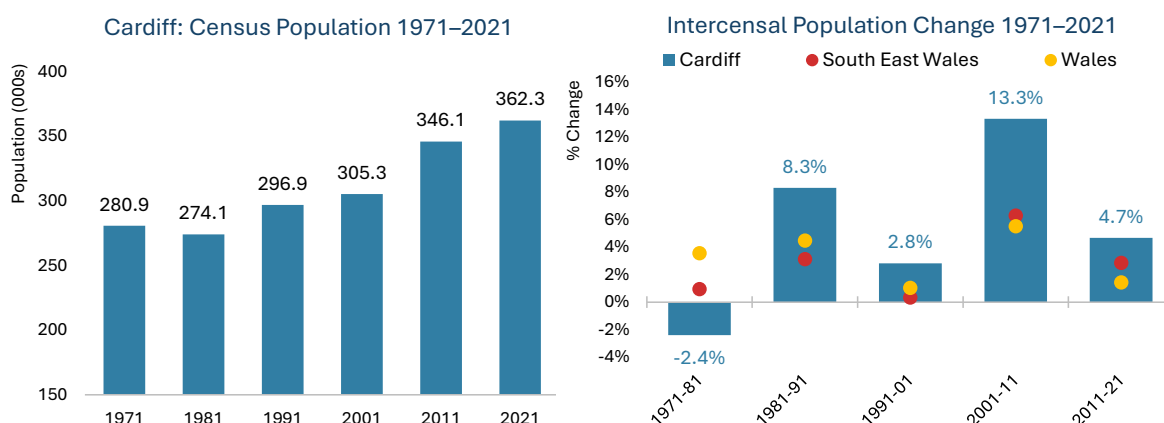


Figure 1: Cardiff Census population (left) and intercensal population change (right)
Source: ONS

- 2.2 Cardiff has a relatively youthful population; the median ages at both the 2011 Census and the 2021 Census were lower than the comparable regional and national figures (Table 1), reflective of its large student and working-age population.
- 2.3 The population has aged over this time, as illustrated by an increase in the old age dependency ratio (OAD), which is a measure of the population aged 65+ compared to the population aged 16–64.³ With an OAD of 21 in 2021, this means that there are 21 people aged 65+ for every 100 people of working age (16–64). This is, however, considerably lower than the regional (30) and national (34) OADs.

Table 1: Census Median Age and Old Age Dependency Ratio Comparison

Area	Median Age		OAD	
	2011	2021	2011	2021
Cardiff	33	34	19	21
South East Wales	39	40	25	30
Wales	41	42	28	34

Source: ONS

³ Old Age Dependency Ratio = $\left(\frac{\text{Population aged 65+}}{\text{Population aged 16 to 64}}\right) \times 100$

Households

2.4 At the 2021 Census, there were an estimated 147,333 households in Cardiff, an increase of 3.4% since 2011 (Figure 2). Average household size is higher in Cardiff (2.35) than across the wider South East Wales region (2.30) and the national average (2.27); this is likely a result of the more youthful population and large student population. This is also reflected in the household tenure, with a larger proportion of households in private rent (25%) compared to the region and national proportion (17%) (Table 2).

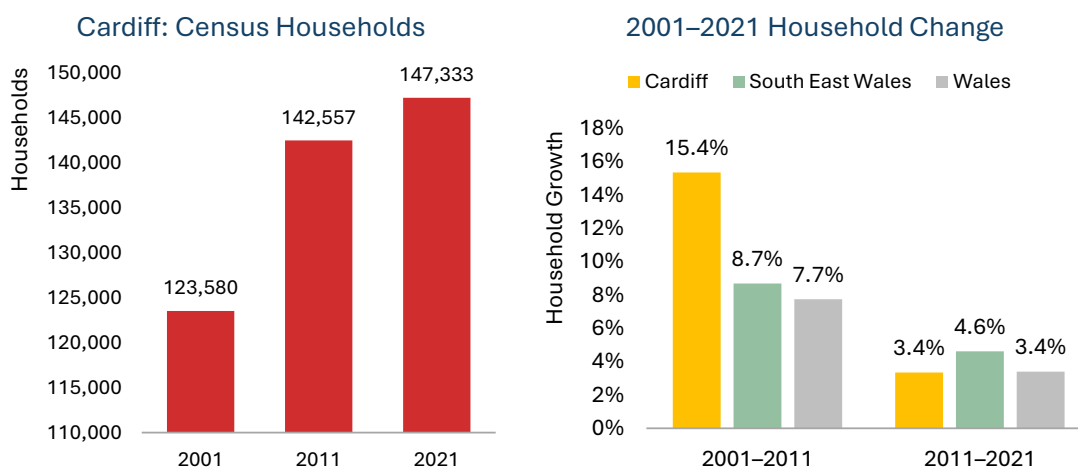


Figure 2: Cardiff Census household growth

Source: ONS

Table 2: Census households by tenure

Tenure	% of Households		
	Cardiff	South East Wales	Wales
Owned outright	29%	35%	38%
Owned with mortgage, loan or SO	30%	31%	28%
Social rented	17%	17%	16%
Private rented or lives rent free	25%	17%	17%

Source: ONS

2021 Census & MYE

2.5 The 2021 Census provided an important update to our understanding of population characteristics at a local, regional and national level. It is, however, a snapshot in time; between successive Censuses, population estimation is necessary. The size and structure of the UK population is estimated by the ONS each year in its mid-year estimates (MYE). The MYE are key official statistics, used to inform (amongst other things) the derivation of future population projections, including those produced by ONS and WG (and those presented in this report).

2.6 The ONS MYE are produced by ‘rolling-forward’ the population from a Census estimate to mid-year, by adding the births, subtracting the deaths (referred to as ‘natural change’), and estimating the levels of in- and out-migration, both internal (domestic) and international (overseas). In subsequent years, the same process is applied to produce each MYE until another Census is carried out.

- 2.7 Following a Census, the ONS reviews the intercensal MYE and completes a reconciliation and rebasing exercise, adjusting the components of change and MYE to better align the Census estimates. It is important to note that the timing of the 2021 Census during the COVID-19 pandemic influenced living arrangements and population mobility, particularly for young adult and student age groups. However, ONS reports a high Census response rate (97%) and changes were made to the student enumeration and processing to ensure that accurate estimates of students were generated.⁴
- 2.8 In Cardiff, the 2021 Census population was *lower* than the trajectory of growth implied by the rolled-forward pre-Census MYE (Figure 3), resulting in a downwards adjustment to the 2012–2021 MYE. This is a pattern seen across Wales, with the exception of Newport (where the Census population was higher than that implied by the intercensal MYE).

Pre-2021 Census MYE & 2021 Census Estimate, Cardiff

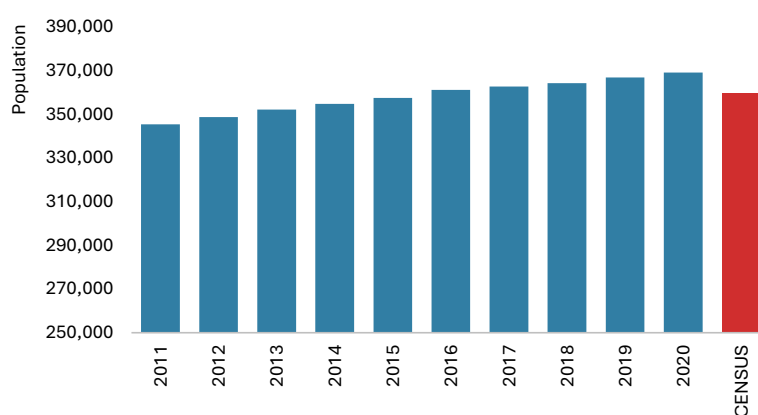


Figure 3: Cardiff pre-Census MYEs vs. Census

Source: ONS

- 2.9 A level of ‘drift’ is expected between the MYE and the subsequent Census. At a national level, the differences between the previous (pre-Census) rolled-forward MYE and rebased MYE are largely attributed to international migration flows, which are consistently the most challenging aspect of population change to estimate. At a regional and local authority-level, the misestimation of internal migration has also contributed to the observed differences. Natural change is typically subject to limited revisions during the rebasing exercise as births and deaths are recorded in each year (although ONS made some adjustment to account for delayed births registrations due to the COVID-19 pandemic, and the late registration of some deaths referred to coroners).
- 2.10 Once adjustments to the components of change are accounted for, there remains some residual difference between the rolled-forward MYE and the Census estimate. ONS considers it likely that this ‘unattributable population change’ (UPC) is associated with migration, either internal and/or international, although it does not assign it to any flow in particular.

MYE Population 2001–2024

- 2.11 Figure 4 illustrates the latest MYE and components of change for Cardiff, including the rebased MYE (2012–2021), as well as the 2022, 2023 and 2024 MYE. The previous 2012–2021 pre-Census MYE

⁴ ONS (2022) [Maximising the quality of Census 2021 population estimates](#)

(indicated by a red dotted line in the top image) are included for context. As of mid-year 2024, the population of Cardiff was estimated at 383,919, a 24% increase since mid-year 2001. Since 2021, population growth has accelerated, a pattern seen across the UK.

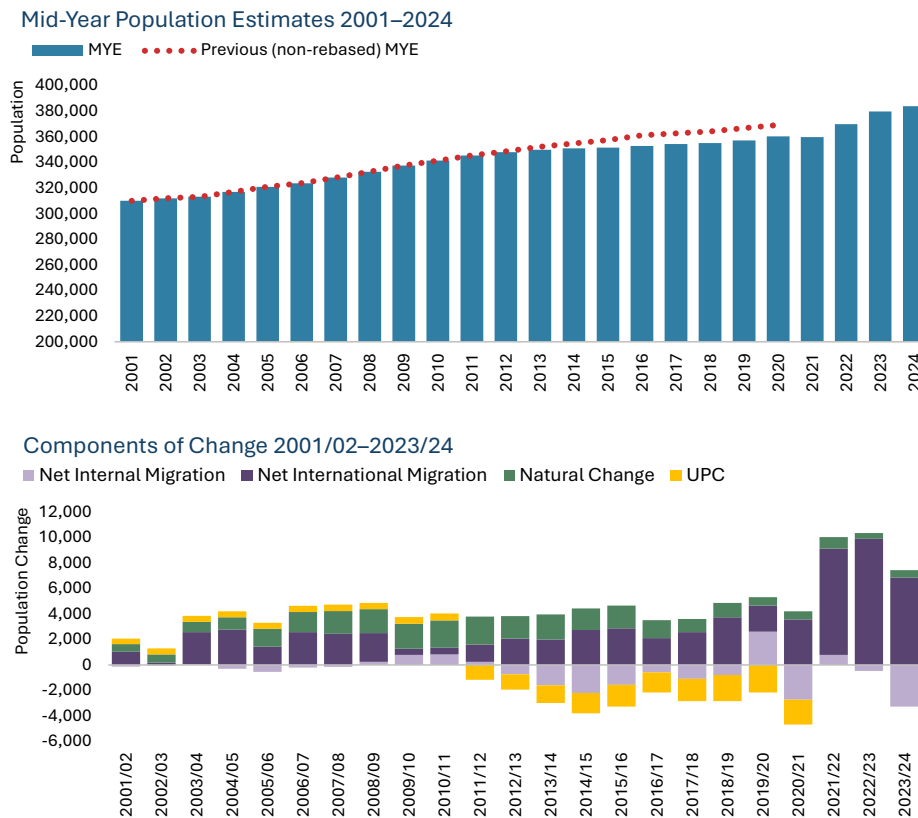


Figure 4: Cardiff MYEs (top) and components of change (bottom)
Source: ONS

- 2.12 Population growth since 2001 has been driven by positive natural change (the balance between births and deaths) and international (overseas) migration, particularly in recent years. The UPC adjustment between 2011 and 2021 is *negative*, whereas it was positive (albeit a smaller adjustment) between 2001 and 2011. Although ONS has not assigned UPC to any one of the components of change, it is considered most likely to be associated with the misestimation of international migration, as this is the component that is the most challenging to estimate.
- 2.13 Each of the components of change are considered in turn below. It is this evidence, together with the MYE, that WG uses to generate its official population projections. The latest MYE evidence and associated components of change have also been used to generate up to date trend scenarios, presented in Section 4.

Natural Change

- 2.14 With an excess of births over deaths, natural change in Cardiff has contributed positively to population growth in all years since 2001 (Figure 5).

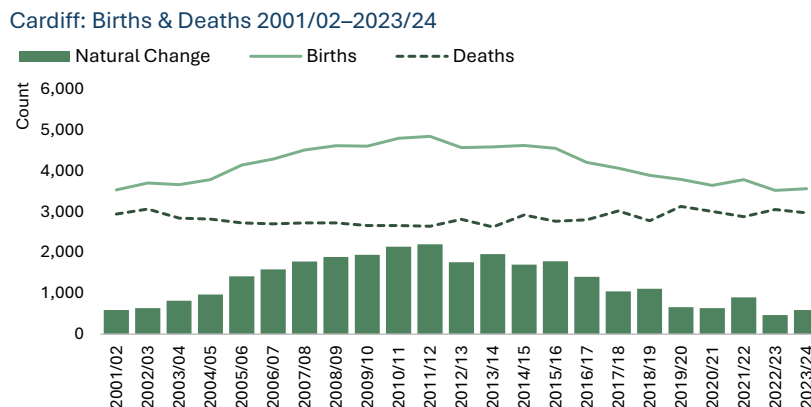


Figure 5: Cardiff births and deaths

Source: ONS

- 2.15 Births have averaged 4,145 per year since 2001/02, reaching a peak in 2011/12, reflective of the relatively youthful population of Cardiff. Since then, births have declined, in line with national trends: the Total Fertility Rate (TFR) across England and Wales reached 1.41 in 2024, its lowest value since records began in 1938.⁵ In Cardiff, the TFR was lower than the national average in 2024, at 1.19.
- 2.16 Deaths have averaged 2,840 per year since 2001/02, peaking at 3,133 in 2019/20 during the height of the COVID-19 pandemic (this was the leading cause of deaths in England and Wales in 2020 and 2021).⁶

Migration

- 2.17 Net internal migration (moves between Cardiff and elsewhere in the UK) has typically contributed to population decline in Cardiff (Figure 6). The positive growth in 2019/20 is likely linked to changes to population mobility linked to the COVID-19 pandemic, which impacted the location of students and young adults in particular.
- 2.18 The net population change through internal migration has averaged -471 per year since 2001, although this masks the considerable in- and out-flows: on average, around 22,000 people migrate to and from Cardiff each year. This reflects Cardiff's status as a key university city and employment centre.
- 2.19 This is emphasised by the age profile of internal (domestic) migrants (Figure 7). The 15–24 age group is the only age group that has contributed to population growth in Cardiff since 2001/02: all other age groups have routinely seen a net outflow over this time period. 2019/20 is an outlier over this time period, across all age groups, due to the changes to population mobility linked to the COVID-19 pandemic.

⁵ ONS (August 2025) [Births in England and Wales](#)

⁶ ONS (July 2022) [Deaths registered in England and Wales: 2021](#)

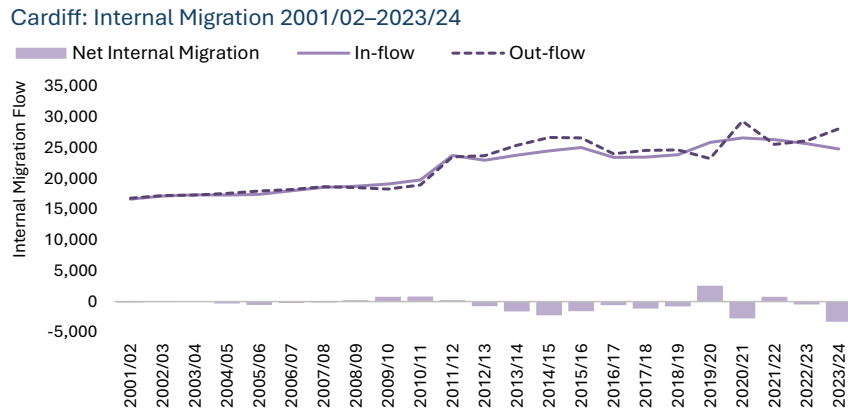


Figure 6: Cardiff internal migration flows
Source: ONS

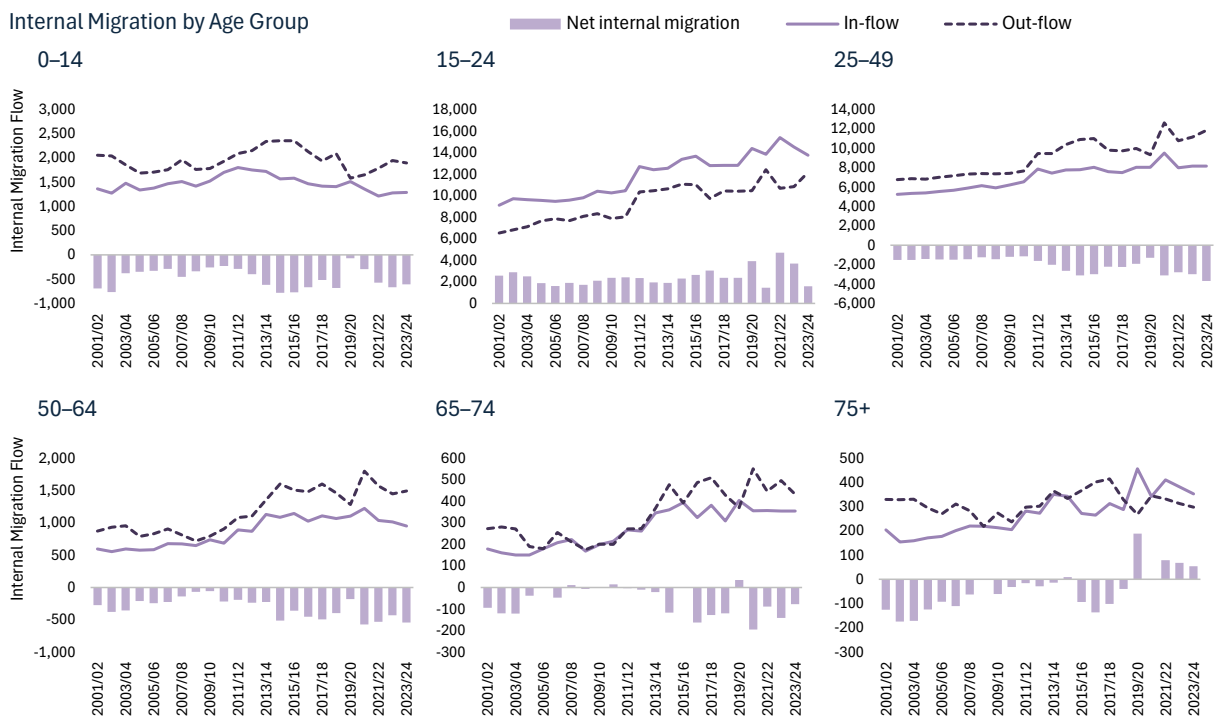


Figure 7: Cardiff net internal migration flows by age
Source: ONS. Note scale change between age groups.

2.20 Cardiff has consistently seen its largest internal migration flows between its neighbouring authorities. The largest average annual inflow since 2001/02 has been from Rhondda Cynon Taf, averaging 1,229 per year. The largest outflow has been to Vale of Glamorgan, averaging 1,903 per year (Figure 8). The greatest *net* exchanges have also been with neighbouring authorities, as well as with authorities in south west England (e.g. Bristol, Cornwall, Somerset and Dorset).

Cardiff: Internal Migration Flow Summary

Top Ten Inflows		Top Ten Outflows	
average 2001/02-2023/24		average 2001/02-2023/24	
Rhondda Cynon Taf	1,229	Vale of Glamorgan	1,903
Vale of Glamorgan	1,138	Rhondda Cynon Taf	1,516
Swansea	842	Caerphilly	950
Caerphilly	691	Newport	908
Newport	682	Bristol, City of	696
Bristol, City of	574	Swansea	691
Carmarthenshire	530	Bridgend	570
Bridgend	432	Carmarthenshire	422
Somerset	363	Birmingham	359
Pembrokeshire	360	Pembrokeshire	309

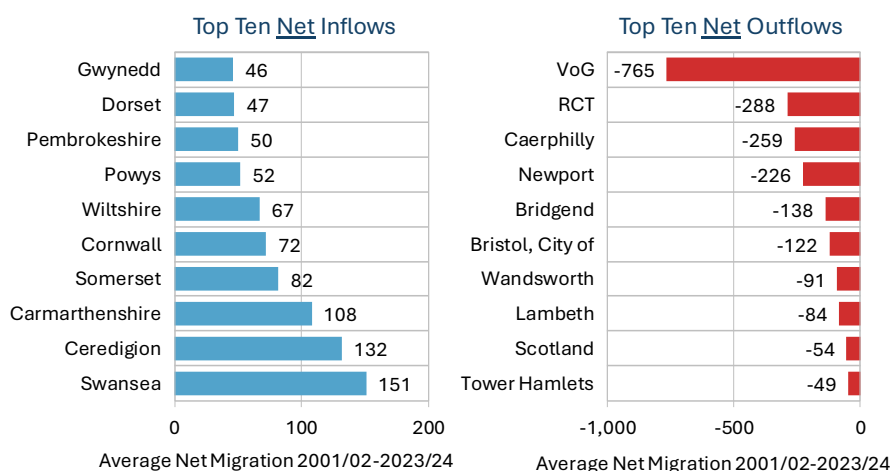


Figure 8: Cardiff net internal migration flows
Source: ONS

International Migration

2.21 International migration has historically contributed to population growth in Cardiff and has increased in recent years (Figure 9). It is important to acknowledge, however, the UPC component of the MYE, as illustrated in Figure 4. Although this is not assigned to any one component of change, it is considered most likely to be associated with the misestimation of international migration (although it could also partly be due to the misestimation of domestic (internal) migration and/or errors with the Census estimates). If the UPC component is included within the net international migration estimates in the intercensal years, the net inflow between 2011 and 2021 would decrease in Cardiff.

2.22 The recent post-Census growth in net international migration mirrors changes seen at a regional and national level: since 2021, the UK has seen unprecedented levels of net international migration.⁷ This growth has been linked to migration through humanitarian routes (e.g. the Russia-Ukraine war), non-EU work-related migration in the health and social care sector and an increase in the number of dependents arriving with non-EU workers on long-term work visas.⁸ The ONS highlights that pent-up demand for study following the COVID-19 pandemic also impacted the net migration figures.

⁷ ONS (Nov 2024) [Long-term international migration, provisional: year ending June 2024](#)
⁸ ONS (Nov 2023) [Long-term international migration, provisional: year ending June 2023](#)

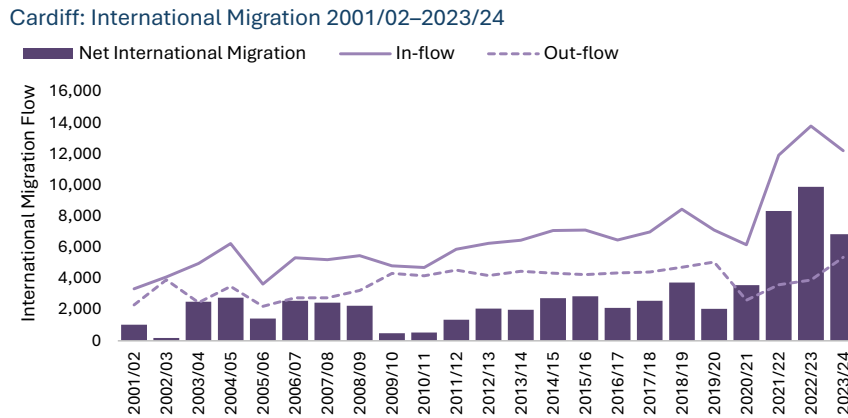


Figure 9: Cardiff international migration
Source: ONS

2.23 Data from the Department for Work and Pensions (DWP) indicates that National Insurance Number (NINo) registrations in Cardiff have risen in recent years (Figure 10), linked in particular to applicants from India, Nigeria, Pakistan, Bangladesh and China.

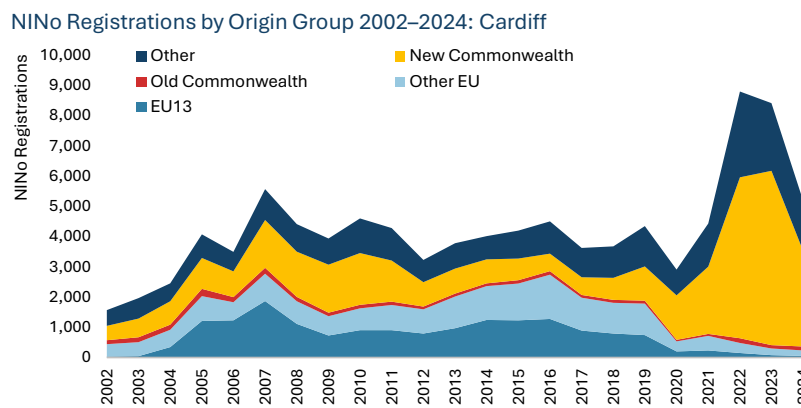


Figure 10: Cardiff NINo registrations by origin group
Source: DWP

2.24 Within the estimates for year ending December 2024, net international migration to the UK was estimated to have nearly halved from its 2023 peak.⁹ ONS stated that this is linked to a reduction in the number of people arriving on work and study visas, and an increase in the number of people leaving the UK who came here post-pandemic on study visas. Changes to the rules around international students bringing dependents in January 2024 are also likely to have had an impact.

2.25 In November 2025, ONS further revised the December 2024 UK estimate downwards from 431,000 to 345,000. This adjustment has been made following changes to the methods used to estimate EU+ and British national migration.¹⁰ The estimate for year ending June 2025 was 204,000, driven by a continued gradual long-term increase in emigration and a decrease in immigration for study and work.¹¹

⁹ ONS (May 2025) [Long-term international migration, provisional: year ending December 2024](#)

¹⁰ ONS November 2025 [Improving long-term international migration statistics](#)

¹¹ ONS November 2025 [Long-term international migration, provisional: year ending June 2025](#)

3 OFFICIAL PROJECTIONS

2022-based Data Release

- 3.1 Released in November 2025, the Welsh Government’s 2022-based local authority projections provide statistics on the future potential size and structure of the population, as well as the number and type of households that might form between 2022 and 2047.^{12,13}
- 3.2 As in previous rounds of projections, a central or ‘principal’ scenario has been produced, together with a range of population projections variants (Table 3). Each population growth scenario has a 2022 mid-year estimate (MYE) base year; for Cardiff, this is 369,851 people. WG has derived future trends in fertility, mortality and migration from the historical MYE evidence up to mid-year 2022.

Table 3: Welsh Government projection variants

Scenario Variant	Description
Principal	Principal ‘central’ projection, using 5-year migration trends (internal and international) and 5-year fertility and mortality trends.
High population	High fertility and high life expectancy, migration assumptions aligned with the principal projection.
Low population	Low fertility and low life expectancy, migration assumptions aligned with the principal projection.
10-year migration	10-year average migration (internal and international).
15-year migration	15-year average migration (internal and international).
Zero migration	Natural change only (the balance between births and deaths).

Source: WG

- 3.3 For each population projection, there is a corresponding household projection, derived through the application of household ‘membership rates’ to the each of the variant population projections. WG has updated its method for household projections, incorporating the household composition data from the 2021 Census.¹⁴ The household figure in the 2022 base year for Cardiff is 152,086, aligning with published Welsh Government household estimates.
- 3.4 As of May 2026, Welsh Government has not yet released its detailed technical report, which is expected to provide detail on the methods and assumptions used in the production of the 2022-based projections.
- 3.5 In the paragraphs below, the 2022-based population and household projection evidence is presented, with comparison to the 2018-based projections. In the following section, the latest 2022-

¹² WG 2025 [Local authority population projections: 2022-based](#)

¹³ WG 2025 [Local authority household projections for Wales: 2022-based](#)

¹⁴ WG 2025 [Chief Statistician’s update: new local authority population and household projections](#)

based official growth outcomes are compared to updated trend scenarios produced by Edge Analytics for the 2021–2036 RLDP plan period.

Population Projections

Growth Overview

3.6 Figure 11 presents the population trajectories for the principal projection and the five variants, together with the MYE up to the 2022 base year (and including the latest 2023 and 2024 MYE shaded in light blue for reference). The variant projections include a ‘High’ and ‘Low’ alternative (which apply high/low fertility and life expectancy assumptions) and two alternative migration trend scenarios, based on a 10-year and 15-year history. The Zero migration variant highlights the impact of natural change (the balance between births and deaths) in the absence of migration.

2022-based Welsh Government Population Projections: Cardiff

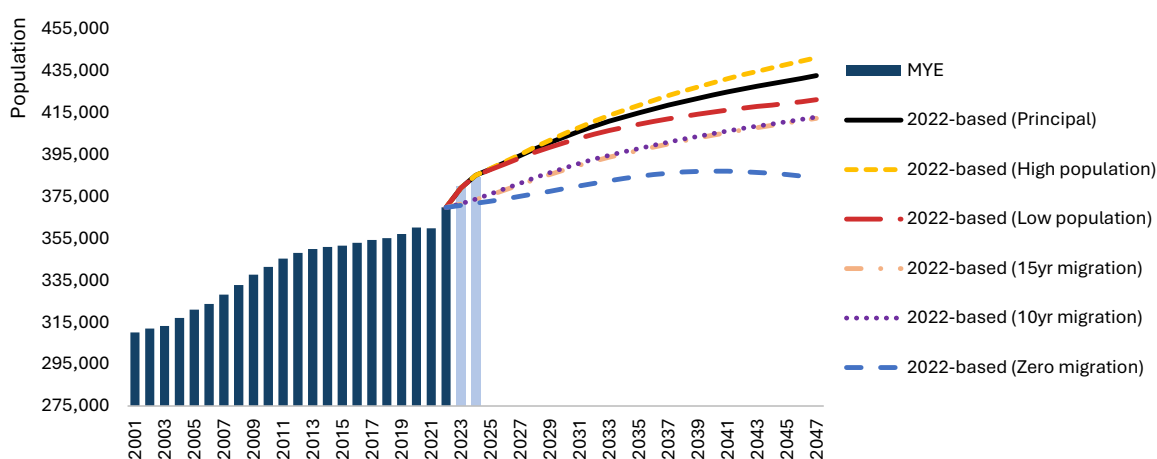


Figure 11: WG 2022-based population projections & ONS MYE, Cardiff

Source: ONS, WG

3.7 Between 2022 and 2047, population growth in Cardiff is projected to range from 3.8% under the *Zero migration* scenario, to over 19% under the *High population* variant (Table 4). The *Principal* projection results in 17% growth.

Table 4: WG 2022-based population projection summary, Cardiff

Scenario Variant	Population Growth 2022–2047		Average Annual Change	
	Change	% Change	Natural Change	Net Migration
High population	71,485	19.3%	1,480	1,380
Principal	62,886	17.0%	1,005	1,511
Low population	51,380	13.9%	404	1,651
10-year migration	43,115	11.7%	800	924
15-year migration	42,572	11.5%	774	929
Zero migration	14,123	3.8%	565	0

Source: WG. Scenarios are ranked in order of population change.

- 3.8 The differing growth outcomes are a result of the assumptions made and the historical time periods from which these assumptions have been derived. The components of change for each of the 2022-based projection variants are illustrated in Figure 12 with the 2007/08–2021/22 MYE components included for reference.
- 3.9 In the *Zero migration* scenario, population growth is driven by births and deaths only. With its relatively youthful population, growth is projected in Cardiff until 2040, after which time the population begins to decline as the population ages and the number of deaths exceeds the number of births. Whilst entirely hypothetical, this scenario highlights the importance of migration in maintaining the size and structure of Cardiff’s population.

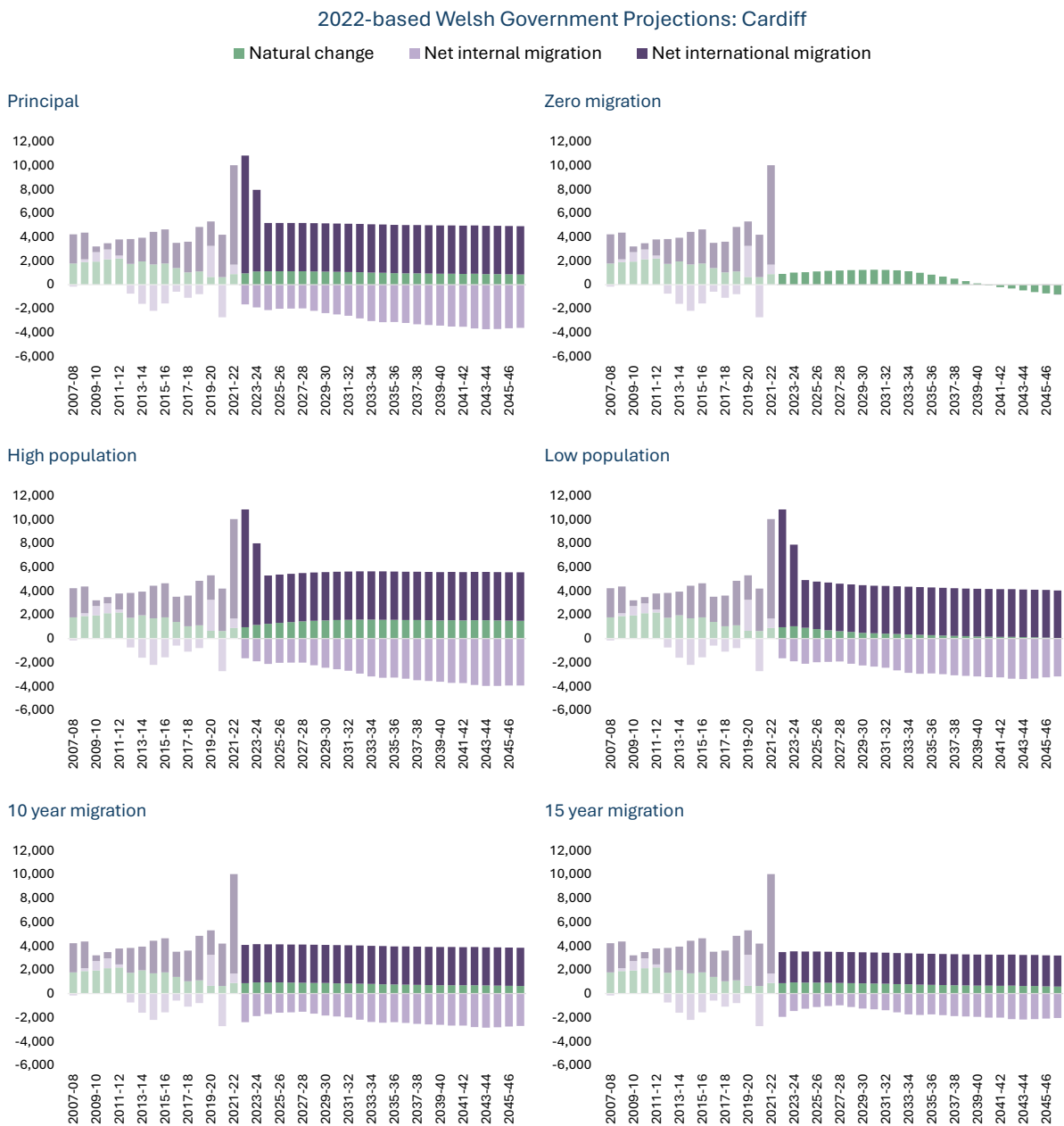


Figure 12: 2022-based population projection components of change, Cardiff

Source: WG

- 3.10 In the *Principal* projection and in the *High population* and *Low population* variants, WG has aligned the international migration estimates with the published estimates for the period mid-2022 to mid-2024. This is evident in charts in Figure 12 where the international migration (dark purple) is higher in the first two years of these scenarios. These differences result in the *High population*, *Principal* and *Low population* projection being broadly aligned with the MYE in 2023 and 2024. The same approach has not been taken in the *10-year migration* and *15-year migration* scenarios, where fixed international migration assumptions have been applied from 2022 onwards.
- 3.11 The *10-year migration* and *15-year migration* scenarios result in similar growth outcomes: net migration averages 924 per year using a 10-year trend and 929 per year using a 15-year trend, although the balance of internal and international migration is slightly different in each variant.
- 3.12 The *Principal*, *High population* and *Low population* all utilise a 5-year historical trend, over which time the population loss through net internal migration was reduced and the average international in-migration flows were higher. With the two years of higher net international migration in 2022/23 and 2023/24 included in these variants, net migration over the 25-year projection period is higher, at over 1,000 per year (see Table 4).
- 3.13 Although not explicitly stated within the published information on the 2022-based subnational population projections, it is assumed that the unattributable population change (UPC) adjustment has not been included by Welsh Government in their calibration of future growth assumptions. This would align with the previous projections produced by Welsh Government.¹⁵

Comparison to Previous Projections

- 3.14 The 2022-based principal population projection results in a higher growth outlook for Cardiff compared to the previous 2018-based projection (Figure 13). Over its 25-year projection period, the 2018-based *Principal* projection for Cardiff estimated a 6.8% increase in the size of the population, lower than the 17% projected under the 2022 *Principal* projection.

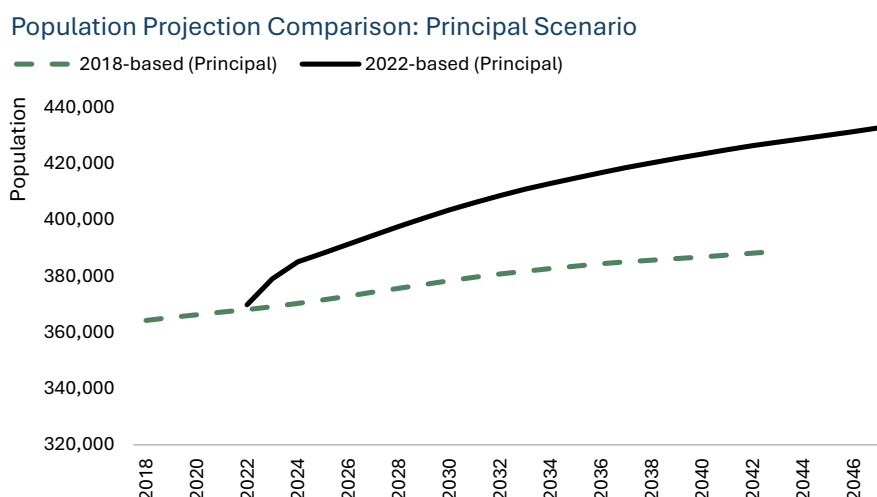


Figure 13: Principal projection comparison: 2018-based and 2022-based, Cardiff
Source: WG

¹⁵ WG (2017) [Subnational population projections for Wales](#)

- 3.15 WG states that the differences between the 2022-based round of projections and the previous projections are the result of the following: the change in demographic trends seen in recent years, changes in the methods used to generate the projections, and the rebasing of the historical MYE.¹⁶ As outlined above, the WG technical methodology not is not yet available; it is therefore not possible to provide commentary on any forecasting methodology changes that have been made in the 2022-based round of projections.
- 3.16 Regarding the underpinning MYE evidence, the previous 2018-based projections were based on the pre-Census and now out-dated MYE, whereas the 2022-based projections have been informed by the rebased MYE (as well as utilising the post-Census 2022 MYE as the projection base year). Combined with the higher levels of net international migration seen in the post-Census MYE up to mid-year 2024, this results in different component of change profiles, illustrated below for both of the *Principal* projections (Figure 14).

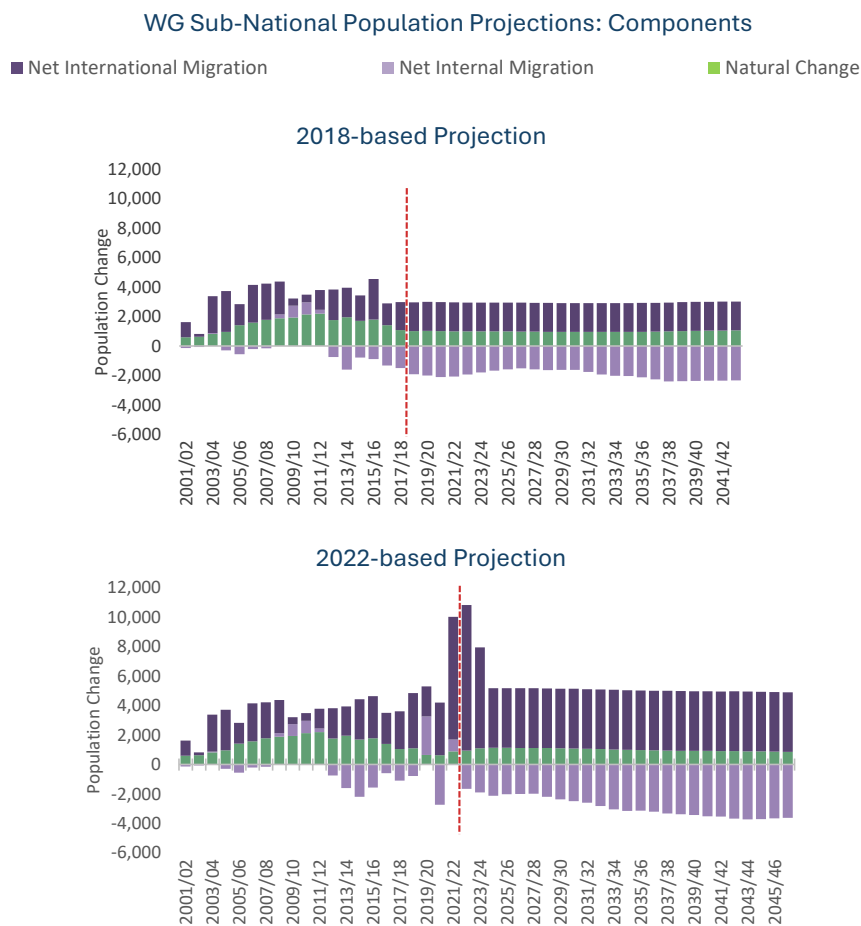


Figure 14: Principal projection comparison: 2018-based and 2022-based components, Cardiff
Source: WG

- 3.17 The net outflow through internal (i.e. domestic) migration is higher under the 2022-based *Principal* projection (at -2,886 per year, compared to -1,967 per year under the 2018 *Principal* projection). However, combined with a higher net inflow through international migration, net migration is positive

¹⁶ WG (November 2025) [Local authority population projections: 2022-based](#)

over the 2022–2047 projection period. Under the 2018-based *Principal* projection, net migration averages -10 per year 2018–2043.

- 3.18 A further difference between the two projections is the underpinning fertility assumptions. Under the 2018-based *Principal* projection, the total fertility rate (TFR) was projected to increase from around 1.45 in the 2022 base year to around 1.58 by the end of the 25-year projection period (2043). The 2022-based *Principal* projection for Cardiff has a TFR of 1.33 in its 2022 base year, increasing to only 1.39 by 2047. Whilst lower than the previous projections, the TFR under the 2022-based *Principal* projection is still higher than the current (2024) estimate of 1.19.

Household Projections

Growth Overview

- 3.19 For each of the population projections generated by WG there is a corresponding household projection. These are generated through the application of household ‘membership rates’ (derived from Census evidence) to each of the population projections (see Appendix). The projections provide an estimate of the future number of households in an area and of the number of people who live in them.
- 3.20 With the highest level of population growth, household growth is highest under the *High population* variant, at 20.8% (Figure 15 and Table 5). The *Principal* projection results in household growth of 19.1%, equivalent to an additional 28,973 households over the 2022–2047 projection period.

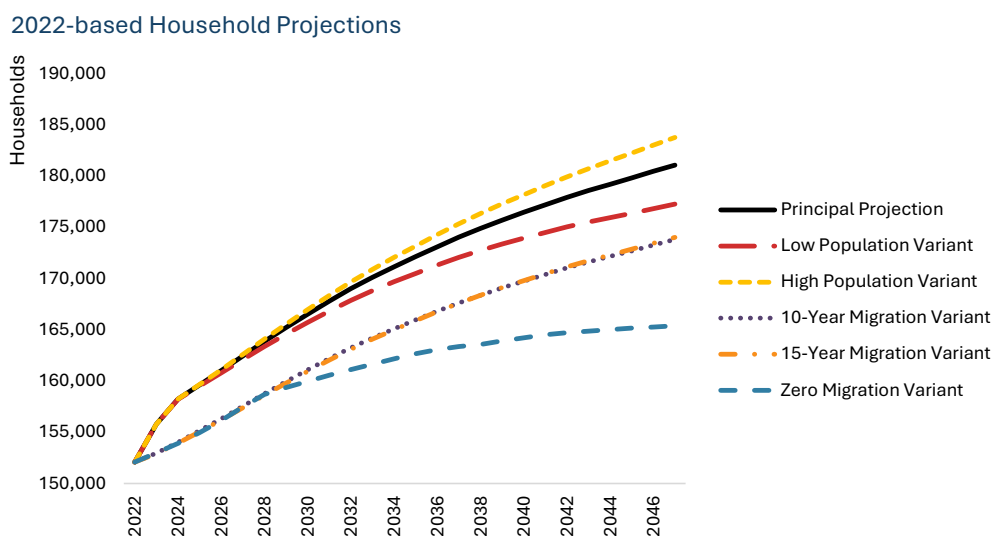


Figure 15: WG 2022-based household projections and WG household estimates, Cardiff
Source: WG

- 3.21 Household growth is projected in all household sizes under the *Principal* projection for Cardiff, with the highest growth in 1 person households (23%) and 3 person households (25%). The number of households with children is projected to increase by 7,193 (17%) between 2022 and 2047.

Table 5: WG 2022-based household projection summary, Cardiff

Scenario Variant	Household Growth 2022–2047	
	Change	% Change
High population	31,673	20.8%
Principal	28,973	19.1%
Low population	25,166	16.5%
15-year migration	21,912	14.4%
10-year migration	21,704	14.3%
Zero migration	13,283	8.7%

Source: WG. Scenarios are ranked in order of household change.

Table 6: WG 2022-based *Principal* household projection summary by size, Cardiff

Household Size	Household Growth 2022–2047	
	Change	% Change
1 person	11,468	23%
2 person	7,652	16%
3 person	5,680	25%
4 person	3,173	17%
5+ person	998	9%

Source: WG

Comparison to Previous Projections

3.22 The 2022-based and previous 2018-based household projections are summarised below in Figure 16 and Table 7. Over its 25-year projection period, the 2022-based projection results in a higher level of household growth, at 19.1%, compared to 12.7% under the 2018-based projection.

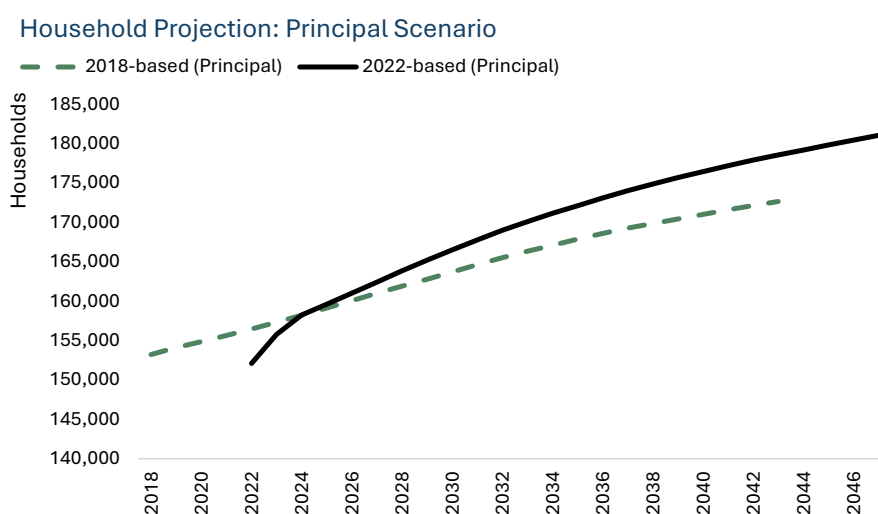


Figure 16: *Principal* household projection comparison: 2018-based and 2022-based, Cardiff

Source: WG

- 3.23 A key difference between the two projections is the average household size and how this changes over time. In the 2018-based projection, average household size is lower in the start year (2.30), reducing to 2.18 by 2043. In the 2022-based projection, the average household size is *higher*, starting at 2.33 in 2022 and only reducing to 2.30 by 2047.
- 3.24 The differences between the two rounds of projection are a result of methodological and demographic changes, including the revisions to the MYE, the recent decline in fertility and increase in international migration, as well as an updated projection base year. The methodology used to generate the household membership rates has also been updated by WG, utilising data from the 2001, 2011 and 2021 Censuses (rather than just 2001 and 2011 as was used in the 2018-based round).¹⁷

Table 7: WG Principal household projection comparison, Cardiff

Projection	Household Growth		Household Population Growth		Average Household Size		
	Change	% Change	Change	% Change	Start	End	Change
2018-based	19,448	12.7%	23,843	6.8%	2.30	2.18	-0.12
2022-based	28,974	19.1%	62,006	17.5%	2.33	2.30	-0.03

Source: WG

- 3.25 The result of these changes is that the 2022-based projection estimates an overall lower level of one-person household growth compared to the previous 2018-based projection (Figure 17). However, growth is higher in all other household sizes compared to the 2018-based projections.

Household Growth Comparison

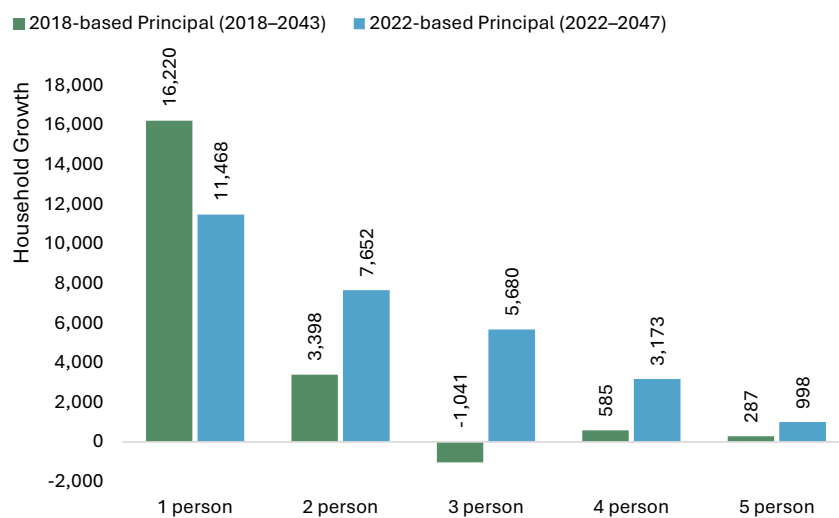


Figure 17: Household growth comparison by household size, Cardiff

Source: WG

¹⁷ WG (November 2025) [Local authority household projections: 2022-based](#)

- 3.26 These differences, together with the projected average household size changes, are likely linked to the inclusion of updated demographics and the changes in patterns of household occupancy and household formation that have been seen between the 2001, 2011 and 2021 Censuses. As with the population projections, the 2022-based household projection technical methodology has yet to be released by WG, so it is not possible to comment on the assumptions used by WG to inform the latest round of projections.

4 DEMOGRAPHIC SCENARIOS

Scenario Definition

- 4.1 A range of demographic growth scenarios has been configured for Cardiff (Table 8) using Edge Analytics' VICUS forecast technology and the latest demographic statistics from the 2021 Census and WG, and the rebased ONS MYEs.

Table 8: Scenario Definition

Scenario	Description
WG-2018-Principal	Replicates the WG 2018-based <i>Principal</i> projection (2018 base year)
WG-2022-Principal	Replicates the WG 2022-based <i>Principal</i> projection (2022 base year)
WG-2022-HighPop	Replicates the WG 2022-based <i>High Population</i> projection (2022 base year)
WG-2022-LowPop	Replicates the WG 2022-based <i>Low Population</i> projection (2022 base year)
WG-2022-10yrMig	Replicates the WG 2022-based <i>10-year migration</i> variant (2022 base year)
WG-2022-15yrMig	Replicates the WG 2022-based <i>15-year migration</i> variant (2022 base year)
WG-2022-ZeroMig	Replicates the WG 2022-based <i>Zero Migration</i> variant (2022 base year)
Trend-5yr	Migration assumptions calibrated from a 5-year historical period (2019/20–2023/24), including the UPC adjustment in the international migration component of the MYE (2001/02–2020/21). Scenario has a base year of 2024. Fertility and mortality assumptions derived from the last 5 years of MYE evidence, with long-term changes drawn from the 2022-based WG Principal projection for Cardiff.
Trend-15yr	Migration assumptions calibrated from a 15-year historical period (2009/10–2023/24), including the UPC adjustment in the international migration component of the MYE (2001/02–2020/21). Scenario has a base year of 2024. Fertility and mortality assumptions derived from the last 5 years of MYE evidence, with long-term changes drawn from the 2022-based WG Principal projection for Cardiff.
<i>Dwelling-led 1600</i> , (RLDP Preferred Growth Option)	Replicates the scenario utilised by Cardiff City Council as its RLDP preferred growth option, based on an annual dwelling growth target of +1,600 per year 2021 to 2036. Migration assumptions based on a long-term 19-year history and fertility/mortality on a 5-year trend (pre-2021 Census MYE). No changes have been made to this scenario; all assumptions from the 2021 study have been retained. This scenario has a 2020 MYE base year.

- 4.2 The scenarios produce a range of population, household, dwelling, labour force and employment growth outcomes for comparison with the demographic evidence used to inform Cardiff's RLDP. The RLDP preferred option scenario is included within the range of outputs (note that this scenario has

not been updated/re-run; the outputs presented here replicate those presented in the 2021 Edge Analytics report).

- 4.3 Each of the **WG 2022-based projection variants** have been replicated, together with the previous 2018-based *Principal* projection (which was the official benchmark in the previously produced Edge Analytics evidence).
- 4.4 Two **alternative trend scenarios** have been generated by Edge Analytics, using the latest MYE evidence up to mid-year 2024. The first scenario considers a 5-year migration history (*Trend-5yr*), in line with the projection methodology utilised by ONS and WG. Acknowledging the uncertainty around future rates of international migration and the considerably higher levels estimated over the last few years, a long-term 15-year trend has also been utilised (*Trend-15yr*).
- 4.5 Note that in both of the Edge Analytics alternative *Trend* scenarios, the UPC adjustment has been included within the historical international migration estimates (as this is the driver of growth it is most likely associated with – see paragraph 2.21. This approach is consistent with that adopted in the previous round of projections produced by Edge Analytics in 2021). Although WG has not yet released its technical methodology, the published projection data suggests that UPC has not been accounted for in the configuration of the future international migration counts in any of its scenarios. If the UPC adjustment were to be excluded from the calibration of future assumptions, the two Edge Analytics *Trend* scenarios would assume a higher level of net international migration over the projection period.
- 4.6 In all but the WG-2018 scenario (and the *Preferred Growth Option Dwelling-led* scenario, which retains its original assumptions), the latest 2022-based household membership rates have been applied to derive the level of **household growth** implied by each of the population trajectories. In the WG-2018 scenario, the 2018-based membership rates have been applied.
- 4.7 The projected household growth for each scenario has been converted to an **annualised dwelling growth figure** through the application of a 2021 Census household to dwelling conversion (vacancy rate, at 5.5%). Note that in the demographic evidence previously produced for Cardiff, the 2011 Census vacancy rate of 3.7% was applied (this has been maintained in the *Preferred Growth Option Dwelling-led* scenario included here). The application of the lower 2011 Census vacancy rate in each of WG scenarios and the Edge Analytics *Trend* scenarios would act to slightly *reduce* the dwelling growth outcomes.
- 4.8 The **labour force** implications of each population trajectory have also been derived, through the application of 2021 Census economic activity rates, with adjustment from the Office for Budget Responsibility (OBR) to account for changes to the state pension age. Employment growth outcomes have been derived through the application of a commuting balance and unemployment rate.
- 4.9 Appendix A contains detail on the forecasting methodology and the data inputs and assumptions used in the forecast development.

Scenario Outcomes

Population Growth

4.10 The MYE and population growth trajectories are summarised in Figure 18. Table 9 provides a summary of the population growth as well as annualised natural change and net migration outcomes. Both natural change and net migration are positive in all scenarios, resulting in population growth ranging from 4.7% under the 2018-based Principal projection (*WG-2018-Principal*), to 17.6% under the *Trend-5yr* scenario. This is reflective of Cardiff’s relatively youthful population.

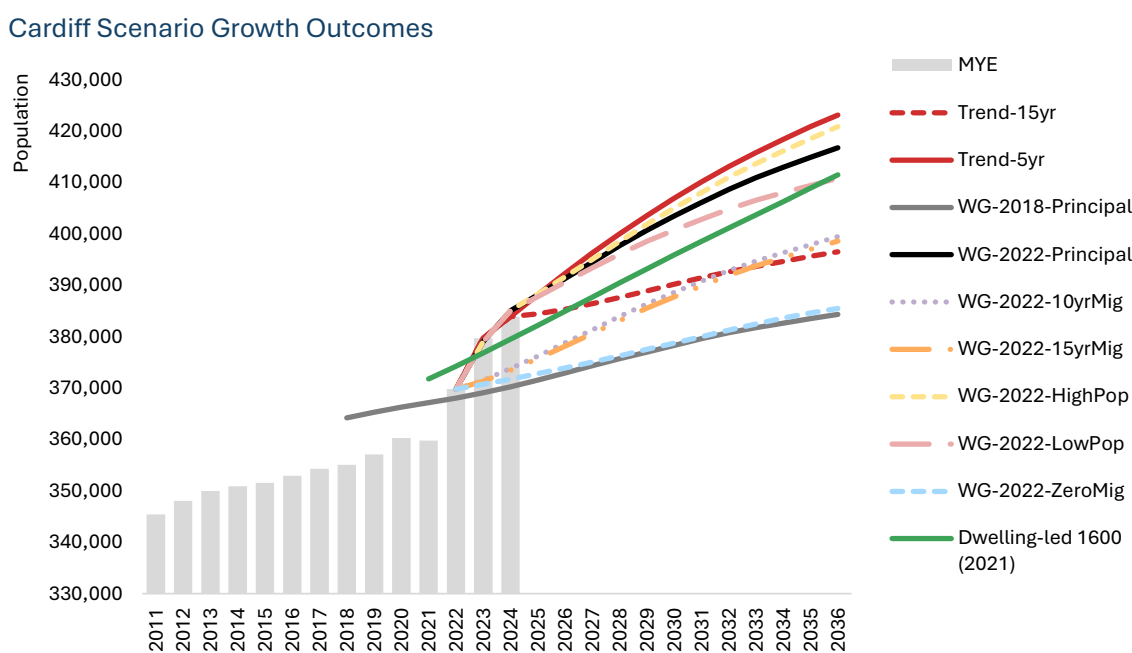


Figure 18: Cardiff population growth outcomes

Table 9: Cardiff scenario population growth outcomes

Scenario	Change 2021–2036		Average per year 2021–2036	
	Population Change	Population % Change	Net Migration	Natural Change
Trend-5yr	63,346	17.6%	3,464	759
WG-2022-HighPop	61,115	17.0%	2,678	1,396
WG-2022-Principal	56,992	15.8%	2,737	1,063
WG-2022-LowPop	51,024	14.2%	2,785	616
Dwelling-led 1600 (2021 report)	39,742	10.7%	1,390	1,260
WG-2022-10yrMig	39,679	11.0%	1,766	879
WG-2022-15yrMig	38,796	10.8%	1,725	862
Trend-15yr	36,723	10.2%	1,831	618
WG-2022-ZeroMig	25,679	7.1%	608	1,104
WG-2018-Principal	17,194	4.7%	171	976

Scenarios are ranked in order of population change.

- 4.11 The *Dwelling-led 1600* scenario from the 2021 Edge Analytics study sits in the middle of the range of population growth outcomes, at 10.7% growth 2021–2036. In this scenario, growth is driven by a balance of net migration and natural change, whereas in the 2022-based WG and 2024-based (Edge Analytics *Trend*) scenarios, growth is largely driven by net migration. These differences reflect the demographic changes that have occurred since the previous evidence was prepared in 2021, as well as the rebasing of the MYE. Based on now out-dated MYE evidence, the *WG-2018-Principal* scenario sits at the bottom of the scenario range, with population growth driven largely by natural change rather than net migration (see paragraphs 3.14 to 3.18).
- 4.12 The *Trend-5yr* scenario results in the highest level of population growth due to the characteristics of the historical period from which its migration assumptions are drawn. As outlined above, population growth in recent years has been driven by higher levels of net international migration in particular. Growth under this short-term trend scenario is more aligned with the highest of the 2022-based WG scenarios (*High Population*, *Low Population* and the *Principal* projection).
- 4.13 With the inclusion of the high international migration estimates for the years 2021/22 to 2023/24, the *Trend-5yr* scenario averages growth of 5,924 per year through international migration. The WG 2022-based *High Population*, *Low Population* and the *Principal* scenarios project forward a slightly lower level of growth through international migration, at around 4,900 per year. For reference, net international migration in Cardiff averaged around 2,000 per year between 2001/02 and 2020/21. With the inclusion of UPC, net international migration over this time is lower, averaging around 1,500 per year.
- 4.14 As highlighted in paragraph 2.24-2.25, the latest evidence from ONS suggests that net international migration has continued to fall across the UK from its peak in 2023. It is for this reason that the *Trend-5yr* scenario is not considered a robust basis for planning, as it is unlikely that population growth rates will return to the highs of the 2021/22–2023/24 period given the continued recent reduction in net international migration. It is also important to note, however, that there is uncertainty around international migration estimates, as highlighted by the intercensal UPC adjustment (which Edge Analytics considers likely associated with overseas migration), and the revisions and continuous improvements ONS makes to its international migration estimates.
- 4.15 The 2022-based *High Population* and *Low Population* variants adopt the same migration assumptions as the *Principal* projection, based on a five-year history to mid-year 2022 (the differences between the *High* and *Low* variants are a result of higher/lower life expectancy and fertility). As outlined previously, the international migration projections for the 2022/23 and 2023/24 years have been overwritten by WG with the MYE international migration estimates. This results in higher levels of growth over the 2021–2036 time period compared to the *WG-2022-10yrMig* and *WG-2022-15yrMig* scenarios, both of which do not have the MYE international migration estimates included in the first two years of the projection.
- 4.16 For each of these WG scenarios, the projected level of net international migration over the 2021–2036 plan period for Cardiff averages approximately 4,900 per year, well in excess of net international migration levels seen pre-2021. Between 2001/02 and 2020/21, net international migration averaged around 2,000 per year excluding UPC and 1,500 per year including UPC.
- 4.17 The *WG-2022-10yrMig* and *WG-2022-15yrMig* scenarios result in outcomes that are comparable to the *Dwelling-led 1600* scenario, at around +39,000 people over the 2021–2036 plan period. As noted

above, whilst the overall level of growth is comparable, the balance between net migration and natural change is different, due to the different MYE and time periods used to configure the scenarios.

- 4.18 The *WG-2022-10yrMig* and *WG-2022-15yrMig* scenarios both produce outcomes higher than the Edge Analytics *Trend-15yr* scenario. This at face value seems counterintuitive, as the 2022-based WG projections do not include the higher international migration estimates that the *Trend-15yr* scenario does (with its 2024 MYE base year). The lower growth outcome of the *Trend-15yr* scenario is a result of the changes to fertility and mortality that have been seen in recent years, which result in lower growth through natural change than the assumptions used by WG. With an extra two years of historical data, the annual net migration figure is higher under the *Trend-15yr* scenario.

Household & Dwelling Growth

- 4.19 The change in the number of households over the 2021–2036 period, along with the average modelled dwelling growth, is presented in Table 10 for all scenarios. Dwelling growth ranges from 915 per year under the *WG-2018-Principal* scenario (with the latest household to dwelling vacancy rate applied from the 2021 Census), to 1,931 under the *Trend-5yr* scenario. Note that in all years, the dwelling figure in each scenario has been derived from the modelled household figure; no account has been taken of known dwelling completions for the historical years of the 2021–2036 plan period.

Table 10: Cardiff scenario household and dwelling growth outcomes

Scenario	Change 2021–2036		Annual Average Modelled Dwelling Growth 2021–2036*
	Households Change	Households % Change	
Trend-5yr	27,372	18.5%	1,931
WG-2022-HighPop	26,100	17.6%	1,842
WG-2022-Principal	24,916	16.8%	1,758
WG-2022-LowPop	23,125	15.6%	1,632
Dwelling-led 1600 (2021 report)	23,103	14.6%	1,600
WG-2022-10yrMig	18,625	12.6%	1,314
WG-2022-15yrMig	18,578	12.5%	1,311
Trend-15yr	17,340	11.7%	1,223
WG-2022-ZeroMig	14,886	10.0%	1,050
WG-2018-Principal	12,962	8.3%	915

*Note that the dwelling growth figures (excluding the *Dwelling-led 1600* scenario) have been derived through the application of the 2021 Census vacancy rate (5.5%). If a lower vacancy rate were to be applied (e.g. the 2011 Census vacancy rate of 3.7%), the annual dwelling growth figures would be approximately 2% lower than those presented here. The *Dwelling-led 1600* scenario utilises the 2011 Census dwelling vacancy rate (3.7%); if the higher 2021 Census rate (5.5%) was applied to this scenario, a slightly lower level of household and population growth would result, a result of a larger proportion of all dwellings being vacant.

- 4.20 The household and dwelling growth outcomes of the *Dwelling-led 1600* scenario are comparable to the *WG-2022-LowPop* scenario (c.23,000 households and c.1,600 dwellings per year), despite these two scenarios having different population growth outcomes, at 10.7% and 14.2% respectively (see Table 9). The *Dwelling-led 1600* scenario used the 2018-based WG household membership rate assumptions. As outlined in the previous section, the 2018-based household projections modelled a

smaller average household size compared to the 2022-based projections that declined by a greater amount over the projection period, and higher growth in one-person households. The application of the 2018-based rates to a projection with lower population growth and a different age/sex structure (as under the *Dwelling-led 1600* scenario) results in a smaller average household size and a comparatively higher level of household growth than if the 2022-based rates were applied to the same projection.

- 4.21 Dwelling growth is slightly lower than the RLDP figure of 1,600 per year under the *WG-2022-10yrMig* and *WG-2022-15yrMig* scenarios, and the Edge Analytics *Trend-15yr* scenario, at around 1,200–1,300 dwellings per year. It is important to note that if rates of household formation were to improve (for example, as a result of improved affordability and supply) household growth outcomes could be higher, resulting in higher dwelling growth figures.

Labour Force & Employment

- 4.22 The employment growth outcomes of each scenario have been derived through modelling the size and structure of the resident labour force in Cardiff. Economic activity rates, drawn from the 2021 Census, are adjusted using the OBR 2025 labour force participation forecast to account for changes to the state pension age. Applying these to each scenario results in a modelled labour force, from which a people-based employment figure is derived through the application of an unemployment rate and a commuting balance. These outcomes are summarised below in Table 11.
- 4.23 As with the population and household growth, the *Dwelling-led 1600* scenario sits within the middle of the range of outcomes, producing comparable employment figures to the *WG-2022-10yrMig* and *WG-2022-15yrMig* scenarios, at just over 2,100 per year. Note that the *Dwelling-led 1600* scenario has the previous 2011 Census economic activity rates applied (with appropriate OBR state pension age adjustments); the 2021 Census rates are generally lower than the 2011 Census rates.

Table 11: Cardiff scenario labour force & employment growth outcomes

Scenario	Change 2021–2036		Annual Average Modelled Employment Growth 2021–2036
	Labour Force Change	Labour Force % Change	
Trend-5yr	37,879	22.1%	3,191
WG-2022-HighPop	33,310	19.4%	2,825
WG-2022-Principal	33,279	19.4%	2,822
WG-2022-LowPop	32,877	19.1%	2,790
Dwelling-led 1600 (2021 report)	26,801	13.7%	2,151
WG-2022-10yrMig	24,695	14.4%	2,135
WG-2022-15yrMig	24,397	14.2%	2,111
Trend-15yr	24,067	14.0%	2,085
WG-2022-ZeroMig	18,825	11.0%	1,665
WG-2018-Principal	8,402	4.8%	833

5 IMPLICATIONS FOR THE RLDP

5.1 The demographic evidence and scenario analysis presented above has highlighted the following:

- The **rebasings of the MYE** was an important demographic update for Cardiff, resulting in a slight downwards adjustment to the 2011–2021 intercensal MYE as the 2021 Census population estimate was lower than anticipated.
- Post-Census, population growth has accelerated in Cardiff, driven largely by substantially **higher net international migration**, a pattern that has been seen across the UK. However, within the latest UK estimates, net international migration has decreased, returning to levels more comparable to those seen before the Census (excluding the years impacted by the COVID-19 pandemic). At the same time, fertility rates have dropped to a historic low.
- The **2022-based population projections** from Welsh Government project a higher level of growth compared to the previous 2018-based projections for Cardiff; the Principal 2018-based projection estimates a 6.8% growth over its 2018–2043 projection period, compared to 17% under the 2022-based Principal projection (2022–2047). These differences have been driven by demographic changes (e.g. reducing fertility rates, international migration changes) and the revisions to the intercensal MYE.
- Importantly, the 2022-based WG population projections are based on the **rebased MYE** and one year (2021/22) of post-Census MYE evidence. The *Principal, High Population* and *Low Population* scenarios align their international migration estimates with the ONS estimates for 2022/23 and 2023/24 (the other 2022-based variants do not). The international migration outcomes of these scenarios are therefore in excess of the pre-2021 Census net international migration averages, either including or excluding UPC. For this reason, it is suggested that caution should be exercised when relying on these scenarios as a basis for planning. Furthermore, the continued reduction in fertility rates highlights the risk of relying on a scenario with higher rates of fertility (as in the *High Population* variant).
- The **2022-based household projections** from Welsh Government similarly produce a higher level of household growth than the previous 2018-based projections, driven by the higher projected levels of population growth that underpin these projections. Average household size is higher under the 2022-based projections, reflecting updated Census data and demographic trends.
- WG has yet to release its **technical methodology** note to accompany the 2022-based population and household projections. It is assumed that the downwards adjustment applied by Edge Analytics to the intercensal MYE (2011–2021) to account for UPC has not been similarly applied by WG in its projections.
- Two **alternative trend scenarios** have been developed by Edge Analytics utilising the latest MYE evidence to mid-year 2024 (and including the UPC adjustment in the historical international migration estimates) and considering a short (5-year) and longer-term (15-year) trend. The *Trend-5yr* scenario results in the highest of the growth

outcomes as it carries forward the high levels of net international migration seen in recent years. For this reason, it is not considered to be a reasonable basis for planning. The *Trend-15yr* scenario smooths the recent anomalous years of international migration, providing a more appropriate trend scenario for planning purposes.

- The previous **Dwelling-led 1600 scenario** that is utilised by the RLDP sits in the middle of the range of scenario outcomes, in terms of population, household and labour force growth, and the average annual dwelling growth (Figure 19).

Annualised Dwelling Growth 2021–2036

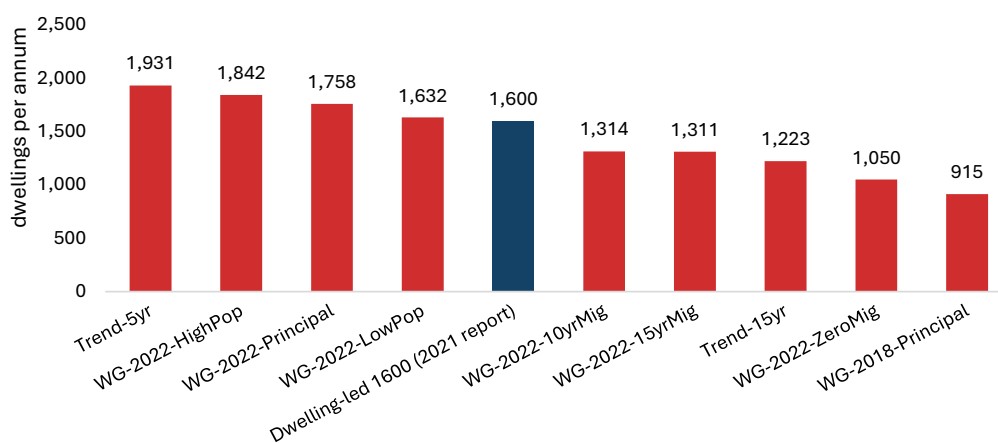


Figure 19: Annualised dwelling growth outcomes 2021–2036

- **Caution should be exercised in relation to the highest growth scenario outcomes due to their dependence upon the unprecedented levels of international migration recorded in recent years.** This applies to the Edge Analytics *Trend-5yr* scenario, as well as the *WG-2022 Principal*, *High Population* and *Low Population* scenarios. The latest evidence suggests that international migration has begun to return to pre-Census/Covid levels, and policy/visa changes are not expected to enable a return to the higher levels seen between 2021 and 2024. There is therefore a potential risk in relying on these higher scenarios for planning purposes.
- On the basis of the above, **the dwelling growth target of 1,600 dwellings per year is still considered a reasonable basis for planning in Cardiff.** Its growth is slightly higher than the more realistic of the 2022-based Welsh Government projections that do not carry forwards the higher levels of net international migration seen in recent years, as well as being higher than the dwelling growth figure from the *Trend-15yr* scenario (at 1,223 per year). The *Trend-15yr* scenario is, however, considered to be towards the more prudent end of the growth spectrum and the 1,600 dwellings per year would accommodate this level of population growth and any improvements to rates of household formation that could occur (e.g. through improved housing supply and affordability).

APPENDIX A FORECASTING METHODOLOGY & ASSUMPTIONS

Forecasting Methodology

- A.1 Edge Analytics has used its VICUS forecasting models to generate a range of demographic growth projections for Cardiff.
- A.2 The forecasting model utilises a population ‘cohort-component’ methodology for the projection of population by single year of age and sex using assumptions related to fertility, mortality and migration (internal and international in and out flows), in line with the methodology used by the ONS, WG and other statistical agencies (Figure 20).

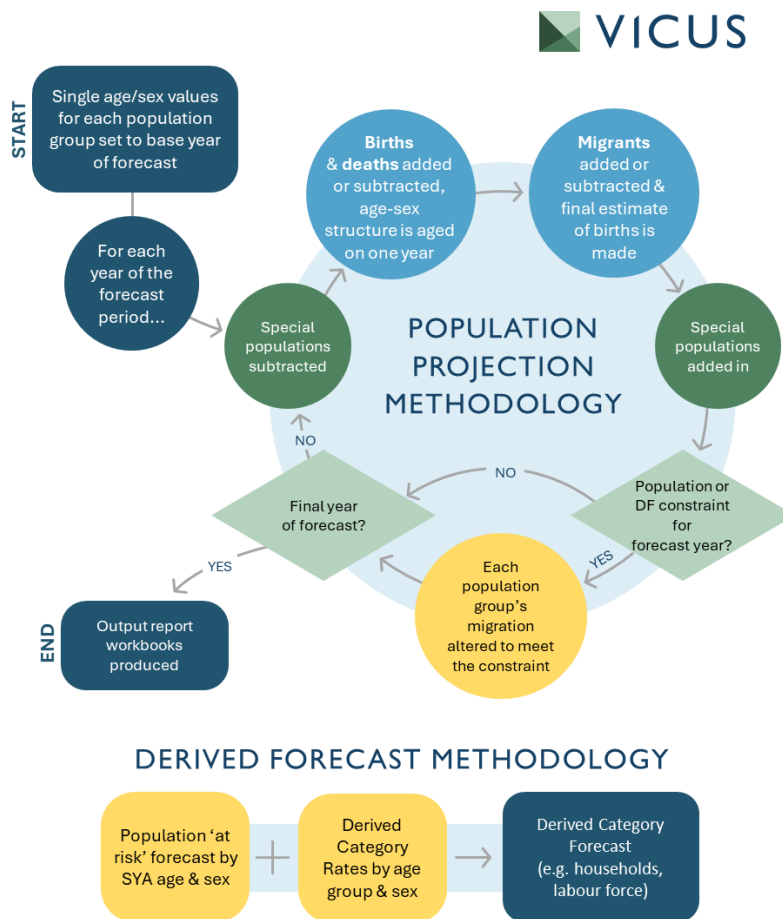


Figure 20: VICUS forecasting methodology

- A.3 Linked to this model is the ‘derived forecast’ model, which provides a headship/membership rate model for household and dwelling projections and an economic activity rate model for labour force and employment projections.

Scenario Inputs & Assumptions

Population

- A.4 In the *Trend* scenarios, the projection base year is the 2024 ONS MYE, disaggregated by single year of age and sex. From 2024 onwards, future population counts are estimated by single year of age and sex, using the defined assumptions on fertility, mortality, and migration (as described below).
- A.5 In the *WG-2022-Principal* scenario and associated variants, the 2022 base year and growth trajectories are drawn directly from the official 2022-based projections for Cardiff.

Births & Fertility

- A.6 In the *WG-2022* scenarios, projected birth counts are applied from the relevant base year to ensure consistency with the official projections
- A.7 In the *Trend* scenarios, an area-specific and age-specific fertility rate (ASFR) schedule is derived from a 5-year history of historical small area births data (2019/20–2023/24). In combination with the ‘population at risk’ (i.e. all women between the age of 15–49), the ASFR assumptions provide the basis for the calculation of births in each year from 2024 onwards. Over the forecast period, the ASFR is adjusted to reflect the annual rate of change in the long-term fertility assumptions of the 2022-based *WG Principal* projection.

Deaths & Mortality

- A.8 In the *WG-2022* scenarios, projected counts of deaths by 5-year age group and sex are applied from the respective base years to ensure consistency with the official projections
- A.9 In the *Trend* scenarios, an area-specific and age-specific mortality rate (ASMR) schedule is derived from a 5-year history of historical small area deaths data by sex (2019/20–2023/24). In combination with the ‘population at risk’ (i.e. the total population), these ASMR assumptions provide the basis for the calculation of deaths in each year of the forecast period. Over the forecast period, the ASMR is adjusted to reflect the annual rate of change in the long-term mortality assumptions of the 2022-based *WG* projection.

Internal Migration

- A.10 In the *WG-2022* scenarios, projected counts of internal in- and out-migration by 5-year age group and sex are applied from the respective base years to ensure consistency with the official projections.
- A.11 In the *Trend-5yr* scenarios, an area-specific and age-specific migration rate (ASMigR) schedule is derived from the latest 5 years of historical internal migration data (2019/20–2023/24), which then determines the future number of internal in- and out-migrants for the remainder of the plan period. In the *Trend-15yr* scenario, a fifteen-year history is used.

International Migration

- A.12 In the *WG-2022* scenarios, projected counts of international in- and out-migration by 5-year age-group and sex are applied from the respective base years to ensure consistency with the official projections.
- A.13 Under the *Trend-5yr* scenario, future counts of international in- and out-migration have been derived from the latest 5 years of historical international migration data (2019/20–2023/24), including UPC. In the *Trend-15yr* scenario, a fifteen-year history is used (again including UPC). An ASMigR schedule of rates is derived from the relevant migration history and used to distribute the future counts by single year of age.

Households & Dwellings

- A.14 The Census defines a household as “one person living alone, or a group of people (not necessarily related) living at the same address who share cooking facilities and share a living room or sitting room or dining room area”.
- A.15 In the forecasting models, a dwelling is defined as a unit of accommodation which can either be occupied by one household or can be vacant.
- A.16 The household and dwelling growth outcomes in the *WG-2022* and *Trend* scenarios have been estimated through the application of communal population statistics, household membership rates, and a household to dwelling conversion factor (vacancy rate).

Communal Population

- A.17 Within the forecasting models, household projections exclude the population ‘not-in-households’ (i.e. the communal/institutional population). This data is drawn from 2021 Census. Examples of communal establishments include prisons, residential care homes, student hall of residence, and certain armed forces accommodation.
- A.18 For ages 0–74, the number of people in each age group ‘not-in-households’ is fixed throughout the forecast period. For ages 75–85+, the population ‘not-in-households’ varies across the forecast period depending on the size of the population. The communal population statistics are used to derive the size of the private household population in each scenario.

Household Membership Rates

- A.19 Household membership rates are used to calculate the proportion of the household population in each household category by age group and sex, drawn from the *WG 2022*-based household projection model for Cardiff (Table 12).

Table 12: WG 2022-based household categories

Household Category	
1 person	4 person (No children)
2 person (No children)	4 person (2+ adults, 1+ children)
2 person (1 adult, 1 child)	4 person (1 adult, 3 children)
3 person (No children)	5+ person (No children)
3 person (2 adults, 1 child)	5+ person (2+ adults, 1+ children)
3 person (1 adult, 2 children)	5+ person (1 adult, 4+ children)

Source: WG

- A.20 The household population is then converted into households using average household size assumptions, again drawn from the WG 2022-based household model.

Household to Dwelling Conversion

- A.21 The relationship between households and dwellings has been modelled using ‘conversion factors’ derived from 2021 Census evidence. A figure of 5.5% has been applied for Cardiff.

Labour Force & Employment

- A.22 Economic activity rates, an unemployment rate and a commuting ratio have been applied to the population growth trajectory to derive the size of the resident labour force, and the level of employment growth that could be supported.

Economic Activity Rates

- A.23 Economic activity rates are the proportion of the population that is actively involved in the labour force, either employed or unemployed and looking for work.
- A.24 Economic activity rates by five-year age group (ages 16–89) and sex have been derived from 2021 Census statistics. To take account of changes to the state pension age, adjustments have been made to the Census rates in line with the Office for Budget Responsibility’s (OBR) participation rate long-term forecast published in 2025.¹⁸

Commuting Ratio

- A.25 The commuting ratio defines the balance between the level of employment in an area and the number of resident workers. A commuting ratio greater than 1.00 indicates that the size of the resident workforce exceeds the level of employment available in the area, resulting in a net out-commute. A commuting ratio of less than 1.00 indicates that employment in the area exceeds the size of the labour force, resulting in a net in-commute.

¹⁸ OBR [Forecasting participation trends: the cohort model](#)

- A.26 In all scenarios, the 2011 Census commuting ratio of 0.80 has been applied; due to the timing of the 2021 Census during the COVID-19 pandemic and the associated disruption to workplace patterns, the earlier Census figure has been applied.

Unemployment Rate

- A.27 The unemployment rate determines the proportion of unemployed people within the labour force. An unemployment rate of 4% has been applied (based on a five-year average of the ONS model-based estimates), fixed throughout the forecast period.

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