



# Ards and North Down

DATA INPUTS & ASSUMPTIONS

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## ACKNOWLEDGEMENTS

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# 1 POPGROUP METHODOLOGY

- 1.1 POPGROUP is a suite of demographic models used to derive forecasts of populations, households and labour force, for areas and social groups. The main POPGROUP model (Figure 1) is a 'cohort component' model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.

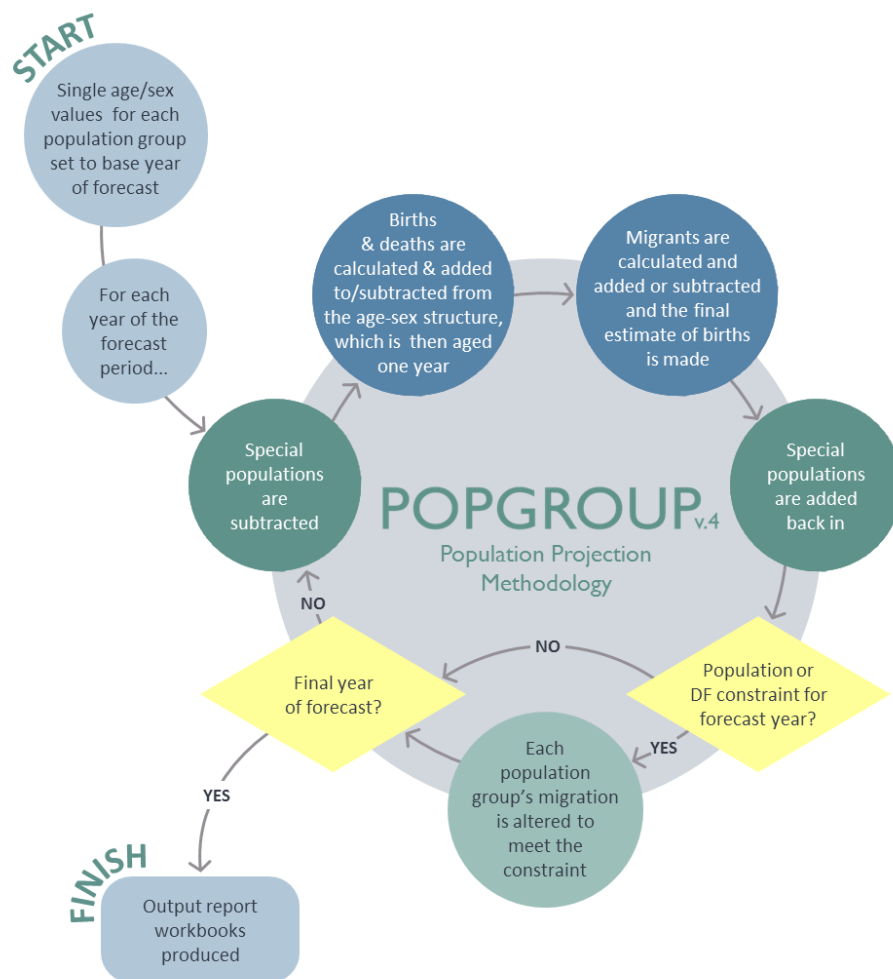


Figure 1: POPGROUP population projection methodology

- 1.2 The Derived Forecast (DF) model sits alongside the population model (Figure 2), providing a membership rate model for household and dwelling projections and an economic activity rate model for labour force and employment projections.

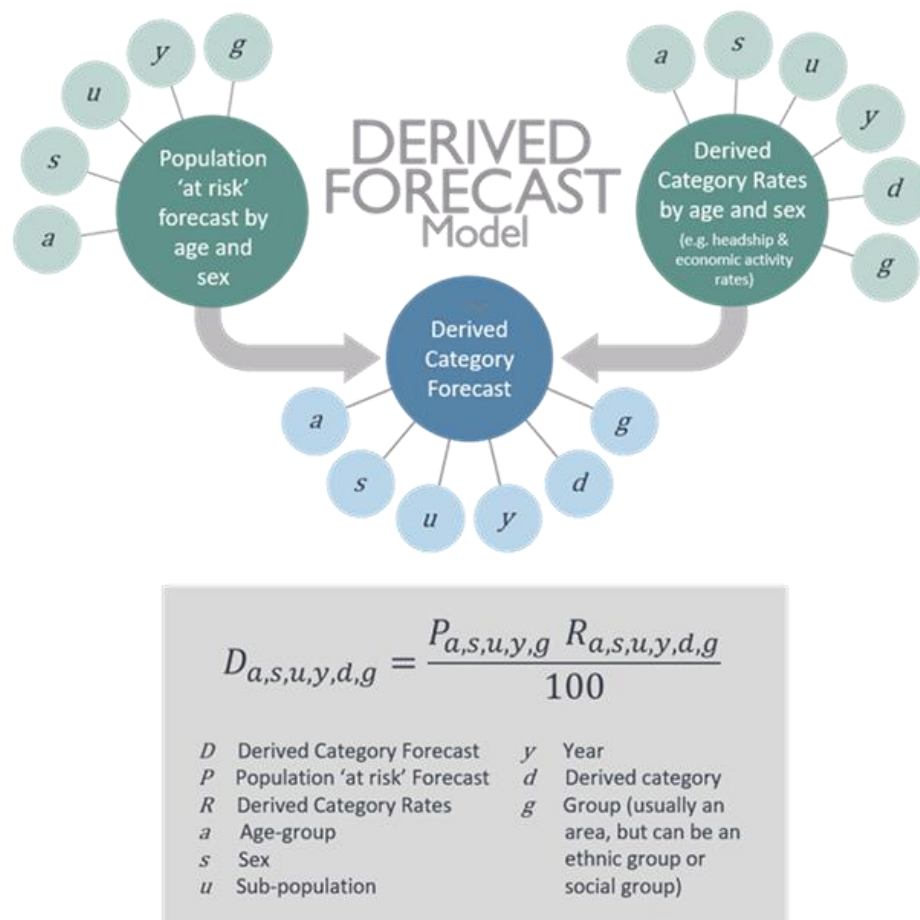


Figure 2: Derived Forecast (DF) methodology

## 2 DATA INPUTS & ASSUMPTIONS

### Introduction

- 2.1 Edge Analytics has developed a suite of demographic scenarios for Ards and North Down using POPGROUP v4 and the Derived Forecast model. The POPGROUP suite of demographic models draws data from a number of sources, building a historical picture of population, households, fertility, mortality and migration on which to base its scenario forecasts.
- 2.2 Using historical data evidence from the Northern Ireland Statistics and Research Agency (NISRA) for 2001–2021, in conjunction with information from the latest sub-national population projections (SNPPs) and household projections, a series of assumptions have been derived which drive the scenario forecasts.

### Scenario Definitions

- 2.3 Edge Analytics has developed one trend scenario and two employment-led scenarios for Ards and North Down, taking into account the latest demographic and economic evidence.
- 2.4 The following scenarios have been configured for this analysis:
- **SNPP-2018** – Replicates the NISRA 2018-based SNPP, using historical population evidence up to its 2018 base year.
  - **Employment-led (Success)** – Models the population growth impact of annual employment growth of 604 per year (following application of a double jobbing adjustment), based on the Council's 'success' scenario aspiration. Employment growth targets are applied from 2021 onwards.
  - **Employment-led (High Growth)** – Models the population growth impact of annual employment growth of 363 per year (following application of a double jobbing adjustment), based on the Council's 'high growth' scenario. Employment growth targets are applied from 2021 onwards.
- 2.5 Under an 'employment-led' scenario, population growth is determined by the annual change in employment using key assumptions on economic activity rates, commuting ratio and unemployment rates. Internal (domestic) migration is used to balance between population and employment growth; if the resident population is insufficient in size and structure to support the additional employment, a higher level of net in-migration will result.

# Inputs & Assumptions

## Population

- 2.6 Historical population statistics are provided by NISRA mid-year estimates (MYE), with all data disaggregated by single year of age and sex. MYEs are used up to the respective base years of each scenario. From the base year onwards, future population counts are estimated by single year of age and sex, using assumptions outlined below. The **SNPP-2018** scenario uses the MYEs up until the 2018 base year. The **Employment-led** scenarios use the NISRA 2021 MYE as their base year. Note that as the components of change data associated with the 2021 MYE is not yet available, relevant migration assumptions are derived from the period up to mid-year 2020.

### *Births & Fertility*

- 2.7 Historical mid-year to mid-year counts of births have been sourced from NISRA MYEs.
- 2.8 Under the **SNPP** scenario, historical counts of births have been used up until 2017/18. The future counts of births are reproduced from 2018/19 onwards to ensure consistency with the 2018-based official projection.
- 2.9 For the **Employment-led** scenarios, historical birth counts are applied up to 2019/20.

### *Deaths & Mortality*

- 2.10 Historical mid-year to mid-year counts of deaths have been sourced from NISRA MYEs.
- 2.11 Under the **SNPP** scenario, historical counts of deaths have been used up until 2017/18. The future counts of deaths are reproduced from 2018/19 onwards to ensure consistency with the 2018-based official projection.
- 2.12 For the **Employment-led** scenarios, historical death counts are applied up to 2019/20.

### *Internal Migration*

- 2.13 Internal migration includes flows within Northern Ireland. Historical mid-year to mid-year estimates of internal in- and out-migration have been sourced from NISRA MYEs.
- 2.14 Under the **SNPP** scenario, historical estimates are used up to 2017/18, with future counts of migrants defined to remain consistent with the official projection.
- 2.15 Under the **Employment-led** scenarios, an area and age-specific migration rate (ASMigR) schedule is derived from five years of historical internal migration data (2015/16–2019/20), which then determines the future number of internal in- and out-migrants from 2020/21.

### *External Migration*

- 2.16 External migration includes flows between Northern Ireland and the rest of the UK and flows between Northern Ireland and the rest of the world. Historical mid-year to mid-year estimates of external in- and out-migration have been sourced from NISRA MYEs.

- 2.17 Under the **SNPP** scenario, historical estimates are used up to 2017/18, with future counts of migrants defined to remain consistent with the official projection.
- 2.18 Under the **Employment-led** scenarios, from 2020/21, future external migration counts are based on a five-year history of area-specific migration data (2015/16–2019/20). An AS MigR schedule of rates is derived from the migration history and used to distribute the future counts by single year of age and sex.

## Households & Dwellings

- 2.19 The 2011 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 area”. In POPGROUP, a dwelling is defined as a unit of accommodation which can either be occupied by one household or vacant.
- 2.20 The household and dwelling growth implications of each scenario are estimated through the application of household membership rates, average household size, communal population statistics and a dwelling vacancy rate. These assumptions have been sourced from the 2011 Census and the latest 2016-based household projection model from NISRA.

### *Household Membership Rates*

- 2.21 The NISRA household projections are derived through the application of projected household membership probabilities to a projection of the private household population. The 2016-based membership rates have been estimated to ensure NISRA’s published household totals by household size and year are reproduced. The derived rates determine the likelihood of a person being a member of a household of a particular size in a particular year, given the age-sex structure of the population.

### *Communal Population Statistics*

- 2.22 Household projections in POPGROUP exclude the population ‘not-in-households’ (i.e., the communal/institutional population). These data are drawn from the 2011 Census. Example of communal establishments include prisons, residential care homes and student halls of residence.
- 2.23 Using the 2011 Census, proportions of communal population by sex and age group have been calculated. Using proportions rather than counts allows communal populations to vary across the forecast period depending on the size of the total population. For the 75+ age groups, the initial proportions have been further adjusted to ensure consistency with NISRA’s 2016-based household projection methodology.

### *Vacancy Rate*

- 2.24 The relationship between households and dwellings is modelled using a ‘vacancy rate’, derived from the 2011 Census, using statistics on households (occupied, second homes and vacant) and dwellings (shared and unshared) for Ards and North Down.
- 2.25 In all scenarios, a vacancy rate of 5.8% has been applied and fixed throughout the forecast period. Using the vacancy rate, the number of dwellings needed to meet the household growth trajectory has been estimated.



## Labour Force & Jobs

- 2.26 The labour force and employment growth implication of each scenario are estimated through the application of economic activity rates, an unemployment rate and a commuting ratio. In an **Employment-led** scenario, these assumptions are used to derive the level of population growth required to support the level of employment growth.

### *Economic Activity Rates*

- 2.27 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.
- 2.28 In all scenarios, economic activity rates by age group (16–75+) and sex have been derived from 2011 Census statistics, with adjustments made in line with the Office for Budget Responsibility's (OBR) analysis of labour market trends in its 2018 Fiscal Sustainability Report.<sup>1</sup>

### *Commuting Ratio*

- 2.29 The difference between the level of employment in an area and the size of the resident workforce (i.e., residents in employment) can be used to infer a 'commuting ratio'. A ratio of higher than 1.00 indicates a net out-commute (the number of resident workers exceeds the level of employment in the area). A commuting ratio lower than 1.00 indicates the reverse: a net in-commute (the level of employment in the area exceeds the size of the resident workforce). The closer the ratio is to 1.00, the greater the balance between the size of the resident workforce and the level of employment.
- 2.30 Using 2011 Census statistics, a commuting ratio of 1.64 has been derived for Ards and North Down, indicating a high net out-commute out of the area to elsewhere in Northern Ireland. This commuting ratio has been applied and fixed throughout the forecast period.

### *Unemployment Rates*

- 2.31 Unemployment rates measure the proportion of unemployed people within the economically active population. Historical unemployment rates have been calculated using data from the Labour Force Survey (LFS). For Ards and North Down, the 2021 rate of 4.0% has been applied in each scenario and fixed throughout the forecast period.

### *Employment Forecasts*

- 2.32 The **Employment-led (Success)** and **Employment-led (High Growth)** scenarios model the demographic impact of projected levels of annual employment growth, drawn from the Integrated Tourism, Regeneration and Economic Development Strategy for Ards and North Down.
- 2.33 To account for 'double jobbing' (i.e., people who may have more than one job), an adjustment has been made to the annual jobs target, to calculate the level of employment from the forecast number of jobs. A double jobbing adjustment of 3.4% has been derived from Annual Population Survey (APS) data on the proportion of people with second jobs in Northern Ireland, averaged over the 2017–2021 period.

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<sup>1</sup> OBR [Fiscal Sustainability Report, July 2018](#)



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## Growth Scenarios

### SNPP-2018

Population	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
0-4	8,902	8,650	8,407	8,279	8,038	7,926	7,902	7,857	7,781	7,712	7,650	7,592	7,532	7,478	7,428	7,386
5-10	11,978	11,909	11,779	11,632	11,610	11,389	11,090	10,875	10,668	10,504	10,247	10,106	10,047	9,977	9,883	9,790
11-15	9,237	9,580	9,902	10,044	10,177	10,332	10,317	10,184	10,102	9,992	9,910	9,724	9,507	9,290	9,143	8,901
16-17	3,575	3,511	3,584	3,742	3,834	3,847	4,019	4,204	4,211	4,131	4,146	4,169	4,072	4,003	3,946	3,960
18-64	93,304	93,459	93,359	93,300	93,189	93,041	92,817	92,638	92,493	92,325	92,083	91,700	91,367	91,006	90,633	90,226
65-74	19,240	19,315	19,416	19,316	19,295	19,318	19,350	19,439	19,708	20,053	20,440	20,891	21,351	21,833	22,181	22,472
75-84	9,902	10,448	11,087	11,753	12,407	13,062	13,714	14,242	14,685	15,069	15,273	15,353	15,420	15,397	15,454	15,556
85+	3,960	3,992	4,048	4,109	4,164	4,274	4,405	4,536	4,635	4,754	4,986	5,321	5,645	5,990	6,308	6,648
Total	160,098	160,864	161,582	162,171	162,714	163,184	163,614	163,975	164,283	164,540	164,735	164,856	164,941	164,972	164,976	164,939

Components of Change	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Natural Change	-158	-14	-96	-125	-177	-216	-251	-289	-330	-379	-417	-460	-497	-530	-569
Net Internal Migration	+613	+615	+473	+459	+470	+449	+441	+438	+458	+434	+438	+439	+440	+439	+451
Net External Migration	+311	+117	+212	+209	+177	+197	+171	+159	+129	+140	+100	+106	+88	+95	+81

Households & Dwellings	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Households	66,154	66,570	66,969	67,385	67,799	68,226	68,677	69,084	69,428	69,717	69,995	70,219	70,403	70,540	70,639	70,756
Change in Households over previous year		+416	+399	+416	+414	+427	+451	+406	+345	+289	+278	+224	+184	+137	+99	+117
Number of Dwellings	70,197	70,638	71,062	71,502	71,942	72,396	72,874	73,305	73,671	73,977	74,272	74,510	74,705	74,850	74,956	75,080
Change in Dwellings over previous year		+441	+423	+441	+440	+453	+479	+431	+366	+306	+295	+237	+195	+145	+105	+124

Labour Force & Employment	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Labour Force	78,974	79,412	79,770	80,130	80,352	80,482	80,605	80,768	80,923	81,058	81,218	81,264	81,278	81,270	81,245	81,221
Change in Labour Force over previous year		+438	+358	+360	+222	+130	+123	+163	+155	+135	+160	+47	+13	-7	-25	-24
Number of Employment	47,073	47,902	47,468	47,610	47,142	47,218	47,290	47,386	47,477	47,556	47,650	47,678	47,685	47,681	47,666	47,652
Change in Employment over previous year		+829	-434	+142	-468	+76	+72	+96	+91	+79	+94	+27	+8	-4	-15	-14

### Employment-led (High Growth)

Population	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
0-4	8,902	8,650	8,476	8,279	7,988	8,096	8,254	8,389	8,587	8,797	8,810	8,830	8,857	8,890	8,931	8,984
5-10	11,978	11,909	11,831	11,684	11,678	11,500	11,290	11,172	10,982	10,778	10,704	10,784	10,925	11,055	11,243	11,444
11-15	9,237	9,580	9,874	10,036	9,972	10,230	10,321	10,214	10,173	10,195	10,168	10,013	9,884	9,760	9,569	9,310
16-17	3,575	3,511	3,571	3,704	3,830	3,804	3,916	4,172	4,232	4,182	4,266	4,167	4,266	4,099	4,113	4,180
18-64	93,304	93,459	93,432	93,256	93,862	94,386	94,735	95,020	95,351	95,799	96,071	96,320	96,669	97,068	97,368	97,646
65-74	19,240	19,315	19,399	19,333	19,325	19,308	19,393	19,568	19,870	20,239	20,695	21,159	21,717	22,205	22,638	23,014
75-84	9,902	10,448	11,068	11,626	12,790	13,505	14,131	14,566	15,031	15,376	15,547	15,589	15,598	15,597	15,642	15,722
85+	3,960	3,992	4,074	4,138	4,382	4,514	4,719	4,935	5,053	5,254	5,550	5,979	6,422	6,834	7,230	7,670
Total	160,098	160,864	161,725	162,056	163,827	165,342	166,759	168,037	169,270	170,565	171,726	172,939	174,241	175,508	176,735	177,969

Components of Change	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Natural Change	-158	+62	-138	+54	-27	-54	-79	-106	-136	-169	-198	-227	-252	-276	-300
Net Internal Migration	+613	+543	+824	+653	+1,522	+1,451	+1,339	+1,329	+1,403	+1,311	+1,392	+1,509	+1,500	+1,483	+1,515
Net External Migration	+311	+256	-355	+1,064	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19

Households & Dwellings	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Households	66,154	66,570	67,026	67,335	68,252	69,116	69,983	70,780	71,524	72,253	72,948	73,643	74,352	75,026	75,655	76,328
Change in Households over previous year		+416	+456	+308	+917	+865	+867	+797	+744	+729	+696	+709	+674	+630	+672	+672
Number of Dwellings	70,197	70,638	71,122	71,449	72,423	73,340	74,260	75,105	75,894	76,668	77,406	78,143	78,896	79,611	80,279	80,992
Change in Dwellings over previous year		+441	+484	+327	+973	+917	+920	+846	+789	+774	+738	+737	+752	+715	+668	+713

Labour Force & Employment	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Labour Force	78,974	79,412	79,883	80,097	80,984	81,602	82,220	82,839	83,457	84,075	84,693	85,311	85,929	86,547	87,165	87,783
Change in Labour Force over previous year		+438	+471	+214	+888	+618	+618	+618	+618	+618	+618	+618	+618	+618	+618	+618
Number of Employment	47,073	47,902	47,535	47,591	47,513	47,876	48,238	48,601	48,964	49,326	49,689	50,052	50,414	50,777	51,139	51,502
Change in Employment over previous year		+829	-367	+56	-77	+363	+363	+363	+363	+363	+363	+363	+363	+363	+363	+363

### Employment-led (Success)

Population	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
0-4	8,902	8,650	8,476	8,279	7,988	8,131	8,329	8,510	8,758	9,026	9,102	9,187	9,279	9,377	9,485	9,604
5-10	11,978	11,909	11,831	11,684	11,678	11,527	11,348	11,263	11,111	10,945	10,910	11,036	11,230	11,417	11,669	11,938
11-15	9,237	9,580	9,874	10,036	9,972	10,251	10,362	10,277	10,258	10,303	10,299	10,166	10,062	9,966	9,804	9,575
16-17	3,575	3,511	3,571	3,704	3,830	3,814	3,934	4,200	4,269	4,172	4,236	4,329	4,238	4,178	4,202	4,281
18-64	93,304	93,459	93,432	93,256	93,862	94,866	95,689	96,444	97,243	98,157	98,892	99,599	100,406	101,262	102,017	102,748
65-74	19,240	19,315	19,399	19,333	19,325	19,333	19,445	19,649	19,983	20,387	20,881	21,387	21,990	22,525	23,007	23,433
75-84	9,902	10,448	11,068	11,626	12,790	13,526	14,171	14,627	15,114	15,480	15,673	15,737	15,767	15,787	15,856	15,959
85+	3,960	3,992	4,074	4,138	4,382	4,532	4,757	4,991	5,126	5,344	5,658	6,106	6,569	7,001	7,417	7,879
Total	160,098	160,864	161,725	162,056	163,827	165,980	168,035	169,962	171,861	173,814	175,650	177,546	179,541	181,514	183,456	185,416

Components of Change	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Natural Change	-158	+62	-138	+54	-27	-46	-63	-82	-103	-127	-147	-167	-183	-198	-213
Net Internal Migration	+613	+543	+824	+653	+2,160	+2,082	+1,971	+1,961	+2,037	+1,944	+2,024	+2,143	+2,136	+2,121	+2,154
Net External Migration	+311	+256	-355	+1,064	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19

Households & Dwellings	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Households	66,154	66,570	67,026	67,335	68,252	69,382	70,517	71,588	72,611	73,626	74,613	75,603	76,614	77,594	78,535	79,526
Change in Households over previous year		+416	+456	+308	+917	+1,130	+1,135	+1,071	+1,023	+1,015	+987	+991	+1,010	+980	+941	+991
Number of Dwellings	70,197	70,638	71,122	71,449	72,423	73,622	74,826	75,963	77,049	78,125	79,172	80,224	81,296	82,336	83,334	84,386
Change in Dwellings over previous year		+441	+484	+327	+973	+1,199	+1,204	+1,137	+1,086	+1,077	+1,047	+1,051	+1,072	+1,040	+998	+1,051

Labour Force & Employment	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Number of Labour Force	78,974	79,412	79,883	80,097	80,984	82,014	83,045	84,075	85,105	86,135	87,165	88,195	89,225	90,255	91,285	92,315
Change in Labour Force over previous year		+438	+471	+214	+888	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030	+1,030
Number of Employment	47,073	47,902	47,535	47,591	47,513	48,118	48,722	49,326	49,931	50,535	51,139	51,744	52,348	52,952	53,557	54,161
Change in Employment over previous year		+829	-367	+56	-77	+604	+604	+604	+604	+604	+604	+604	+604	+604	+604	+604