Pembrokeshire

Additional Scenario Analysis

An addendum to the July 2018 report

December 2018

edge analytics

Leeds Innovation Centre | 103 Clarendon Road | Leeds | LS2 9DF
0113 384 6087 | www.edgeanalytics.co.uk

Acknowledgements

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1 Introduction

Context & Requirements

1.1 In July 2018[1], Edge Analytics provided Pembrokeshire County Council (PCC) with demographic forecasts and analysis to support the review of its Local Development Plan (LDP), and inform its LDP2[2], covering the 2017–2033 plan period. The demographic report included analysis on Pembrokeshire County's historical population to 2016; including components of change (births, deaths and migration) and age profile, housing completions and the official Welsh Government (WG) population and household projections.

1.2 For comparison with the WG 2014-based population projection (rebased to the 2016 mid-year population estimate), three trend scenarios were developed using alternative migration assumptions; PG Long Term, PG 10yr and Net Nil. In addition, three dwelling-led scenarios were developed to consider the impact of housing growth based on the previous LDP target, a five-year and ten-year average of historical completions.

1.3 The relationship between population and household growth was estimated using assumptions from the WG 2014-based and 2008-based household projection models, combined with an 8.1% dwelling vacancy rate for Pembrokeshire.

1.4 PCC has commissioned Edge Analytics to develop two additional scenarios to consider the potential impact of dwelling and employment growth, on population change within the area of Pembrokeshire that excludes the National Park (Pembrokeshire-out); (i) dwelling-led scenario using an annual dwelling growth target of +425 per annum, (ii) employment-led scenario using an annual employment growth target from the Experian (September 2018) economic forecasts for Pembrokeshire Unitary Authority (UA).

1.5 The scenario outcomes are presented for the 2017–2033 and 2021–2033 plan periods. Under all scenarios, the relationship between population and household change has been estimated using assumptions from the WG 2014-based household projection model. In addition, the potential impact of higher household formation on housing growth under the employment-led scenario has been evaluated using the WG 2008-based household projection model.

1.6 This addendum presents the two additional scenarios configured for Pembrokeshire-out, alongside the scenario outcomes presented in the Edge Analytics (July 2018) report; within which detail on data inputs and assumptions are provided.

[1] https://www.sir-benfro.gov.uk/objview.asp?object_id=4741&language=CYM
[2] LDP2 refers to the Local Development Plan (LDP) that is due to be adopted in 2021.

2 Scenarios

Definition

2.1 For consistency with the scenarios presented in the July 2018 report, the two additional dwelling-led and employment-led scenarios include historical population for the 2001–2016 period. The demographic trend (WG and PG) and dwelling-led (LDP, 10yr and 5yr Average) scenarios presented in this section are consistent with those presented in the July 2018 report.

2.2 Under the **Dwelling-led (425 dpa)** scenario, population change is driven by the annual change in dwellings (i.e. +425 dpa over the forecast period). The relationship between the annual change in dwellings and population change is estimated using the 2011 Census vacancy rate for Pembrokeshire-out[3] and assumptions from the WG 2014-based household model. Higher net in-migration is estimated if there is insufficient resident population to meet the dwelling growth target.

2.3 The **Employment-led** scenario estimates the population growth and dwelling requirement associated with a (Experian) forecast of employment growth. The **Employment-led** scenario has been configured for the UA in total (i.e. Pembrokeshire including the National Park); with estimated population growth apportioned between the Pembrokeshire-out and Pembrokeshire Coast National Park areas.

2.4 Under the **Employment-led** scenario, the link between employment growth and population change is estimated using three key economic assumptions; economic activity rates, commuting ratio and unemployment rate. The latter two assumptions have been derived directly from the Experian (September 2018) forecast, whilst the economic activity rate adjustments have been made in line with the 2018 Office for Budget Responsibility's (OBR) labour market forecasts. Under the Experian forecasts, the unemployment rate is estimated to reduce from 4.5% in 2017 to 3.2% by 2033, whilst maintaining a relatively stable commuting ratio of 1.04 throughout the forecast period (i.e. a greater number of resident workers than employment, thus resulting in a net out-commute).

2.5 Table 1 summarises the demographic and dwelling-led scenarios presented in the July 2018 report, together with the two new dwelling-led and employment-led scenarios.

[3] Using 2011 Census statistics, an 8.1% vacancy rate has been calculated for Pembrokeshire-out.

Table 1: Scenario Summary

Scenario	Definition
WG-2014 (Rebased)	Welsh Government 2014-based population projection for Pembrokeshire, rebased to the latest 2016 MYE.
PG 10yr	Migration assumptions based on the last ten-years of migration history (2006/07–2015/16).
PG Long Term	Migration assumptions based on the last fifteen-years of migration history (2001/02–2015/16).
Net Nil	Migration inflows and outflows are balanced over the forecast period, resulting in zero net migration.
Dwelling-led *(LDP Target)*	Annual dwelling growth target of +572 dpa is applied in each year of the forecast period, based on the LDP target.
Dwelling-led *(10yr Average)*	Average dwelling growth of +416 dpa is applied in each year of the forecast period, based on the last ten years of completions data.
Dwelling-led *(5yr Average)*	Average dwelling growth of +443 dpa is applied in each year of the forecast period, based on the last five years of completions data.
Dwelling-led *(425 dpa)*	Average dwelling growth of +425 dpa is applied in each year of the forecast period.
Employment-led	Annual employment growth under the Experian (September 2018) forecast is applied in each year of the forecast period for the UA. This estimates an average annual employment growth of +6 pa over the 2017/18–2032/33 plan period

New scenarios are highlighted in blue; all other scenarios were included in the July 2018 report.

2.6 The full suite of population growth trajectories are presented in Figure 1. In Table 2, each of the scenarios is summarised in terms of population and household growth for the 2017–2033 plan period, together with the average annual dwelling growth outcomes. Table 3 presents outcomes for the 2021–2033 adoption plan period. The relationship between household and population growth has been estimated using assumptions from the WG 2014-based household projection model.

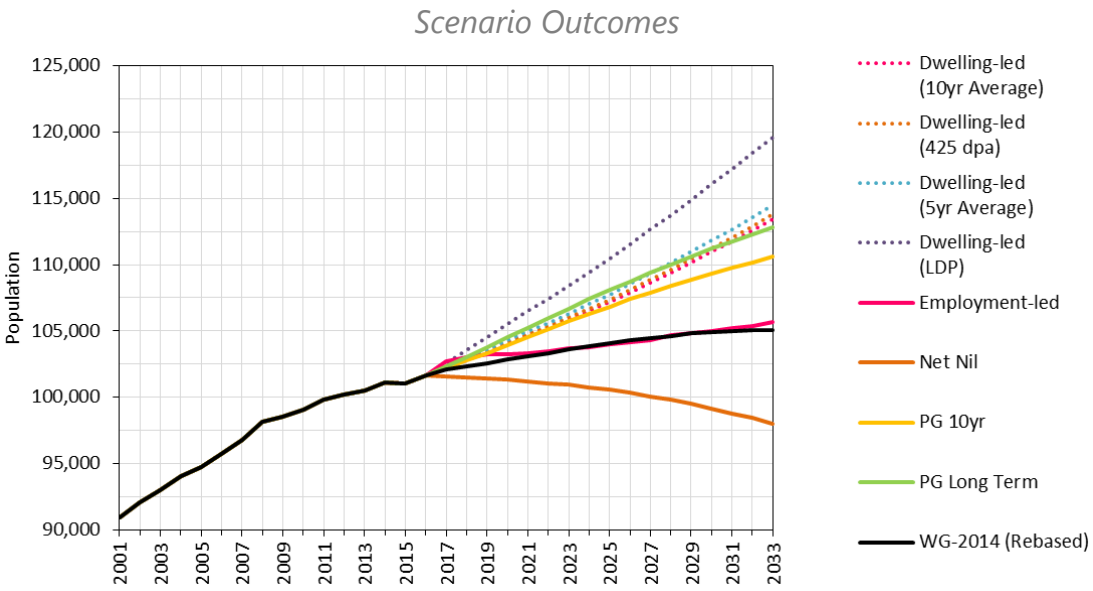

Figure 1: Pembrokeshire-Out population growth outcomes 2001–2033

Table 2: Pembrokeshire-Out scenario outcomes 2017–2033

Scenario		Change 2017–2033				Average per year	
		Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings
Dwelling-led	LDP	17,032	16.6%	8,408	18.7%	1,099	572
	5yr Average	12,222	12.0%	6,509	14.5%	842	443
	425 dpa	11,559	11.3%	6,247	13.9%	807	425
	10yr Average	11,228	11.0%	6,116	13.7%	789	416
Demographic & Employment	PG Long Term	10,500	10.3%	5,998	13.4%	767	408
	PG 10yr	8,405	8.2%	5,003	11.2%	626	340
	WG-2014 (Rebased)	**3,008**	**2.9%**	**2,878**	**6.4%**	**386**	**196**
	Employment-led	2,959	2.9%	2,815	6.3%	330	191
	Net Nil	-3,529	-3.5%	85	0.2%	0	6

Table 3: Pembrokeshire-Out scenario outcomes 2021–2033

Scenario		Change 2021–2033				Average per year	
		Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings
Dwelling-led	LDP	13,109	12.3%	6,306	13.4%	1,132	572
	5yr Average	9,505	9.1%	4,882	10.5%	886	443
	425 dpa	9,008	8.6%	4,685	10.1%	852	425
	10yr Average	8,760	8.4%	4,587	9.9%	835	416
Demographic & Employment	PG Long Term	7,588	7.2%	4,267	9.2%	767	387
	PG 10yr	6,051	5.8%	3,519	7.6%	626	319
	Employment-led	2,345	2.3%	2,009	4.4%	374	182
	WG-2014 (Rebased)	**1,979**	**1.9%**	**1,898**	**4.2%**	**391**	**172**
	Net Nil	-3,174	-3.1%	-270	-0.6%	0	-25

2.7 The **Dwelling-led (425 dpa)** scenario results in population growth of 11.3% over the 2017–2033 plan period and +8.6% over the 2021–2033 plan period. This is slightly higher than the **Dwelling-led (10yr Average)** scenario which is driven by a lower annual dwelling growth of +416 pa, but remains lower than both the **Dwelling-led (5yr Average)** and **Dwelling-led (LDP)** scenarios.

2.8 Over the 2017–2033 plan period, the **Employment-led** scenarios results in similar population growth (2.9%) to the **WG-2014 (Rebased)** scenario, underpinned by the Experian forecasts and assumptions. The estimated population growth trajectory under the **Employment-led** scenario could support an estimated average annual dwelling growth of +191 dpa and +182 dpa over the 2017–2033 and 2021–2033 plan periods respectively.

2.9 Assuming consistency of economic assumptions across all scenarios, each of the dwelling-led and PG trend scenarios could support higher employment growth than that estimated under the Experian forecast. In addition, the estimated dwelling growth and targets under the PG and dwelling-led scenarios, exceed the housing growth associated with the Experian forecast.

2.10 Similar to the demographic trend and dwelling-led scenarios presented in the July 2018 report, the **Dwelling-led (425 pa)** and **Employment-led** scenarios estimate an increase in the 60+ age groups and a continued decline in the 50–59 age groups. Under the **Dwelling-led (425 pa)** scenario, growth in the 0–44 age groups (notwithstanding 25–29) is estimated over the 2017–2033 plan period, driven by increased net in-migration flows to the area to support the annual change in dwellings.

2.11 Conversely, the **Employment-led** scenario estimates a decline in the 0–34 age groups, together with lower growth in the 35–44 age groups over the 2017–2033 plan period. The change in age profile under the **Employment-led** scenario is similar to that estimated under the **WG 2014 (Rebased)** scenario (refer to Figure 17 of the Edge Analytics July 2018 report).

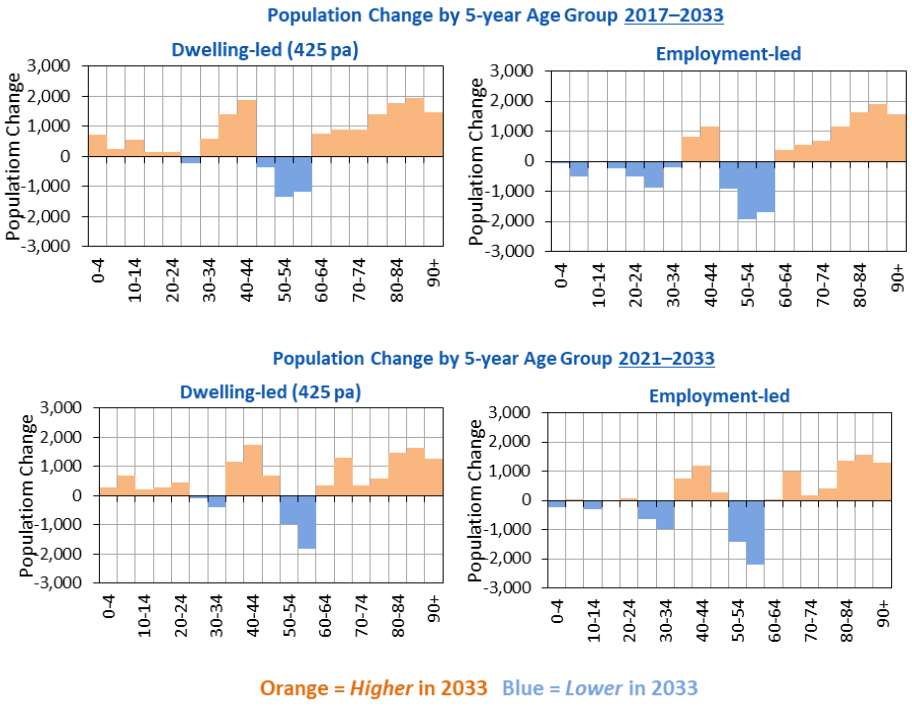

Figure 2: Pembrokeshire-Out population change by 5-year age group (2017–2033 & 2021–2033)

Membership Rate Sensitivity

2.12 To evaluate the potential impact of significantly higher rates of household formation (lower average occupancy) on dwelling growth, the employment-led scenario has been configured using assumptions from the 2008-based household model assumptions. The average annual dwelling growth is presented in Table 4 for 2017–2033 and in Table 5 for 2021–2033.

2.13 Under the **Employment-led** scenario, the average annual dwelling growth increases from +191 dpa under the 2014-based household projection model, to +313 dpa under the 2008-based model assumptions, an uplift of +118 (2017–2033). Over the 2021–2033 period, the average annual dwelling growth under the **Employment-led** scenario increases from +182 dpa to 305 dpa, a +123 uplift.

Table 4: Membership rate sensitivity scenario outcomes 2017–2033

Scenario	2017–2033			
	Population Change	Population Change %	Average Annual Dwelling Growth	
			2014-based	2008-based
PG Long Term	10,500	10.3%	408	552
PG 10yr	8,405	8.2%	340	478
WG-2014 (Rebased)	3,008	2.9%	196	314
Employment-led	2,959	2.9%	191	313
Net Nil	-3,529	-3.5%	6	99

Table 5: Membership rate sensitivity scenario outcomes 2021–2033

Scenario	2021–2033			
	Population Change	Population Change %	Average Annual Dwelling Growth	
			2014-based	2008-based
PG Long Term	7,588	7.2%	387	533
PG 10yr	6,051	5.8%	319	457
Employment-led	2,345	2.3%	182	305
WG-2014 (Rebased)	1,979	1.9%	172	289
Net Nil	-3,174	-3.1%	-25	67

3 Summary

Approach

3.1 Two additional scenarios have been formulated and presented alongside the suite of demographic scenarios provided in the July 2018 report. An **Employment-led** scenario has been developed using an Experian (September 2018) economic forecast for the UA. This estimates population growth of 3% over the 2017–2033 plan period, closely aligned to the **WG-2014 (Rebased)** scenario (Figure 3). The **Dwelling-led (425 dpa)** scenario estimates population change of 11% over the same plan period.

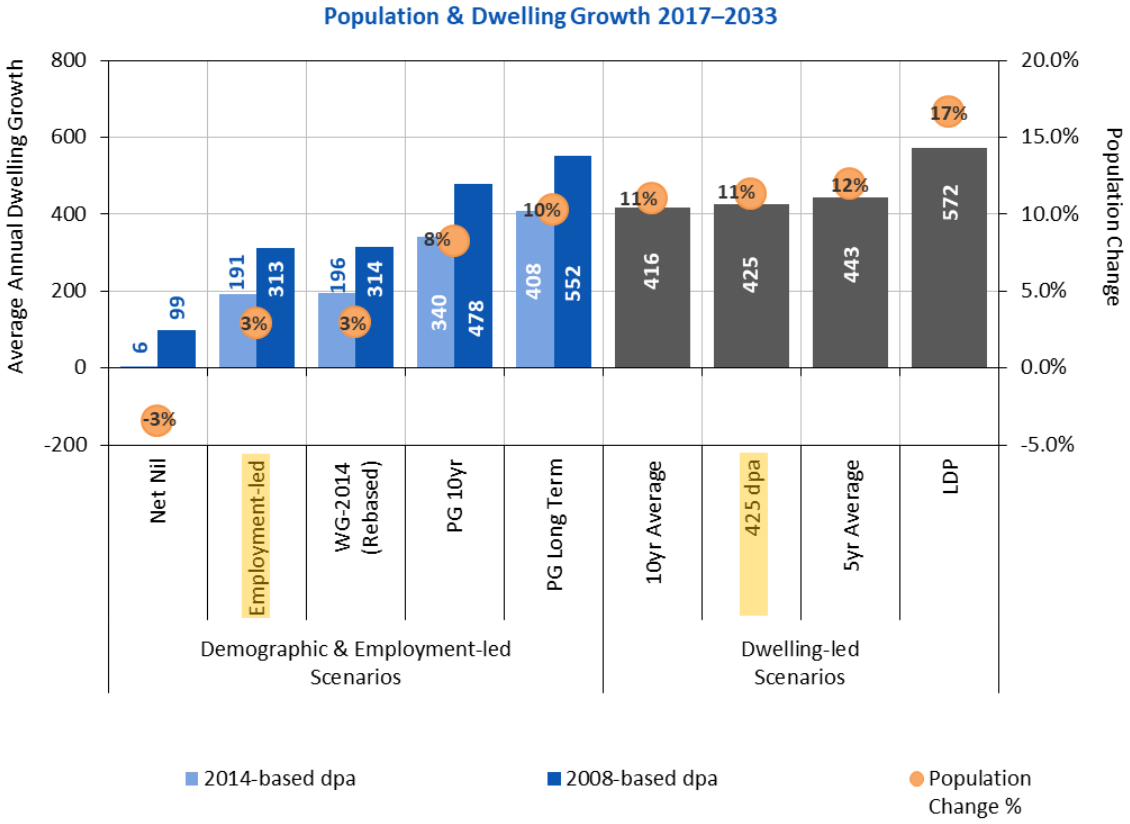

Figure 3: Pembrokeshire-Out population change and average annual dwelling growth under the demographic, employment-led and dwelling-led scenarios (2017–2033)

3.2 The **Employment-led** scenario represents the lower end of the dwelling growth range (+191 dpa), closely aligned to the **WG-2014 (Rebased)** scenario (+196 dpa). The dwelling-led scenarios present the upper end of the population growth range, reflecting the higher net in-migration required to support the dwelling growth targets. The **Dwelling-led (425 dpa)** scenario results in a similar population growth outcome to the **Dwelling-led (10yr Average)** scenarios, driven by a similar annual housing growth target.

3.3 Under the 2008-based household projection model, a smaller average household size is assumed driven by higher rates of household formation. These alternative assumptions result in a significantly higher estimated housing growth, up to 60% higher in the case of the **Employment-led** scenario.