Modelling the demographic implications of the proposed housing requirement for Lancaster District

Technical Note for Lancaster City Council

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Contents

1. Introduction and Scope

1.1 This technical note has been prepared by Turley, on behalf of Lancaster City Council ('the Council'), to model the demographic implications of the housing requirement proposed in the Submission Version of the Local Plan[1] using common assumptions to those used in the OAN Verification Study[2].

1.2 The context for this analysis is the Council's proposed requirement for 522 dwellings per annum, over the period from 2011 to 2034. On an annual basis, this falls below the narrow range of objectively assessed needs (OAN) recommended in the Independent Housing Requirements Study[3] (IHRS), from 650 to 700 dwellings per annum between 2011 and 2031. It also deviates from the conclusions of the OAN Verification Study, which reviewed the latest available information in February 2018 and concluded that at least 605 dwellings per annum would be needed in Lancaster District over this period (2011 – 2031) to support the Baseline job growth scenario from the Review of the Employment Land Position[4] (RELP), accommodate projected demographic growth and respond to market signals. The Verification Study also concluded that 620 homes per annum would be needed to support the slightly higher levels of job growth associated with the Baseline+ scenario in the RELP. The Verification Study did not seek to arrive at an updated OAN.

1.3 This report does not represent a further assessment of housing need in Lancaster District, or a verification of the conclusions of these evidence base documents noting that such an exercise was completed only twelve months ago. Equally, the report does not seek to evidentially justify the Council's proposed housing requirement. Instead, the report solely examines the *implications* of the proposed requirement, using an approach which is fully consistent with the modelling presented in the Verification Study. In this context, the report does not introduce or incorporate new demographic datasets that have been released in the past year[5].

Report Structure

1.4 This report is structured as follows:

- **Section 2 – Approach to the Modelling** – an overview of the approach taken in modelling the implications of the proposed housing requirement for the demographics of Lancaster District, and the datasets which have been taken into account;

[1] Lancaster City Council (May 2018) A Local Plan for Lancaster District 2011-2031 Part One: Strategic Policies and Land Allocations DPD, Submission Version

[2] Turley (February 2018) OAN Verification Study for Lancaster City Council

[3] Turley (October 2015) Lancaster Independent Housing Requirements Study 2015

[4] Turley (2014/15) Review of the Employment Land Position for Lancaster District

[5] New datasets include: the revised mid-year population estimates, released by the Office for National Statistics (ONS) in March 2018; and the 2016-based sub-national population and household projections (SNPP/SNHP) which were released by the ONS in May 2018 and September 2018 respectively

- **Section 3 – Modelling Outcomes** – the outputs of the modelling are presented, in terms of population, household and employment growth over the emerging plan period; and

- **Section 4 – Summary** – a concise summary of the demographic implications of the proposed housing requirement, including consideration as to the projected changes to the district's labour force and by association its capacity to support job growth.

2. Approach to the Modelling

2.1 Over successive studies, the assessment of housing needs in Lancaster District has drawn upon demographic modelling provided by Edge Analytics, which has been produced using the POPGROUP model. A range of future growth scenarios have been developed as outputs of the modelling. It is noted that the Council's proposed requirement for 522 dwellings per annum does not precisely align with any such scenario. To date, this has restricted a direct and exact consideration of the demographic and associated economic impacts of providing for such a level of housing growth, with the commissioning of this technical note aiming to fill this gap in the evidence base. It is intended to show the impact of providing 522 dwellings per annum at a consistent rate throughout the plan period (2011 – 2031).

2.2 In order to allow these impacts to be directly compared with the preceding evidence base, and the demographic modelling presented therein, the POPGROUP model constructed for the purposes of the Verification Study has been used as the basis for the analysis. This means that the majority of data inputs to the model remain consistent, including:

- Age-specific fertility and mortality assumptions derived from the 2014-based sub-national population projections (SNPP);
- An assumption that the profile of internal and international migrants aligns with that suggested by the 2014-based SNPP;
- The conversion of population to households through the application of official 2014-based headship rates. Separate variants apply unadjusted headship rates, and adjusted rates which allow for a long-term recovery in younger household formation[6];
- The conversion of households to dwellings through the application of the vacancy rate recorded in Lancaster District by the 2011 Census (4.8%);
- The application of age- and gender-specific economic activity rates from the 2011 Census, with the local rates for all age groups adjusted to reflect national forecasts produced by the Office for Budget Responsibility[7] (OBR). As shown at Figure 5 of Appendix 1 to the Verification Study, this allows for an increase in levels of economic participation amongst females and older cohorts in particular;
- An assumption that the commuting ratio remains fixed with a small net out commute from Lancaster District, as recorded by the 2011 Census;
- An assumption that there is no change in the unemployment rate from that recorded in 2016 (4.6%), on the basis that this fell below the pre-recession

[6] Turley (2018) OAN Verification Study, paragraph 4.28. A gradual improvement is assumed between 2018 and 2031, for females aged 25 to 29 and males aged 25 to 29, 30 to 34, 35 to 39 and 40 to 44

[7] Office for Budget Responsibility (2017) Fiscal Sustainability Report

average and was the lowest annual rate recorded in the district since at least 2003; and

- Allowance for a fixed proportion of employed people to occupy more than one job ('double jobbing'), based on the long-term average recorded in Lancaster District by the Annual Population Survey.

2.3 The purpose of this report is to consider the implications of providing for a defined level of housing growth from the beginning of the plan period (2011). While the above assumptions are consistent with the previous modelling, in order to explicitly test the impact of the proposed housing requirement, the model has not sought to integrate any population estimates within the plan period. While this is a different approach than used previously, it allows for a simple understanding of the demographic impact of meeting the housing requirement in full throughout the plan period.

2.4 It is acknowledged that new data, specifically relating to demographics, has been released in the intervening year since the Verification Study was completed. This includes the 2016-based sub-national population and household projections, which were published in the last twelve months. However, the incorporation of such data at this point in time would remove, or inhibit, the Council's ability to directly compare with the previous modelling produced for Lancaster District. This would create a situation where changes from previous scenarios are attributable *not* to the level of housing provision – the focus of this technical note – but to other assumptions, elsewhere in the model. Such a situation is not considered to be conducive to the focused scope or purpose of this report.

2.5 Furthermore, in the case of the 2016-based projections, such an approach would increase exposure to datasets that have been identified as being potentially unreliable for the purposes of assessing housing need by the Government[8].

[8] The Ministry of Housing, Communities and Local Government (MHCLG) expressed concern around the official 2016-based household projections within its "Technical consultation on updates to national planning policy and guidance", released in October 2018. These concerns have led to the issuing of revised Planning Practice Guidance on the standard method for assessing housing need which explicitly requires the continued use of the 2014-based projections *'to provide stability for planning authorities and communities, ensure that historic under-delivery and declining affordability are reflected, and to be consistent with the Government's objective of significantly boosting the supply of homes'* (PPG Reference ID: 2a-005-20190220). It is notable that MHCLG directly referenced its concerns with the 2016-based household projections in a submission to the London Plan Examination, which – like the Lancaster Local Plan – is also being examined under the 2012 NPPF. This confirms the Government's view that issues with the 2016-based projections are of relevance in these circumstances (https://www.london.gov.uk/sites/default/files/m17_mhclg_2631.pdf)

3. Modelling Outcomes

3.1 This section provides an overview of the modelling outcomes provided by Edge Analytics, to show the demographic and associated economic impact of providing 522 dwellings per annum in Lancaster District throughout the plan period (2011 – 2034).

Population Growth

3.2 The modelling indicates that the provision of 522 dwellings per annum throughout the plan period could accommodate the formation of 11,425 additional households in Lancaster District, when allowing for vacancy. Circa 9,935 households could be accommodated over the slightly shorter period covered to date in the evidence base (2011 – 2031).

3.3 In estimating how many people may live within these households, the assumed rate at which individuals form households is a key consideration. The 2014-based household projections provide assumptions on household formation rates for Lancaster District by age group. The Verification Study indicated that the projected rates of several younger age groups in Lancaster District would remain suppressed when compared to the historic position[9]. This reduced tendency to form independent households leads to a larger average household size being projected.

3.4 The Verification Study and IHRS, in responding to the PPG[10], justified the application of positive adjustments to younger household formation rates, assuming a gradual return to the higher historic rates achieved in 2001. Relative to the unadjusted rates, such a return, where realised, would lead to a smaller average household size, meaning that the same number of dwellings would accommodate *fewer* people than would have been the case if no improvement was assumed.

3.5 On this basis, the modelling has considered the population change that could be accommodated with or without the return to higher levels of household formation for younger people. The outputs of this modelling are summarised at Table 3.1, initially over the period covered by the evidence base (2011 – 2031) to allow direct comparison with the scenarios modelled to inform the Verification Study. Comparison is also made with the demographic scenarios presented in the IHRS, albeit it should be noted that these scenarios applied 2012-based household formation rates and as such care should be taken in directly comparing modelling outputs[11].

[9] Turley (2018) OAN Verification Study, paragraph 4.28

[10] PPG Reference ID 2a-015-20140306 notes that *'formation rates may have been suppressed historically by under-supply and worsening affordability of housing'*

[11] *Ibid*, Table 4.1. This presents scenarios from the Verification Study and IHRS over a consistent period (2011 – 2031)

Table 3.1: Population Growth Supported by Proposed Requirement (2011 – 2031)

	Population change 2011 – 2031	% population change 2011 – 2031
Job growth – Baseline+	21,706	15.7%
Job growth – Baseline	20,108	14.6%
Planned (unadjusted rates)	**18,806**	**13.6%**
13yr past growth trend	17,799	12.9%
Planned (adjusted rates)	**17,153**	**12.4%**
10yr past growth trend*	16,823	12.2%
2014-based SNPP	14,245	10.3%
2012-based SNPP*	8,906	6.5%

Source: ONS; Edge Analytics, 2018/19 ** IHRS scenarios*

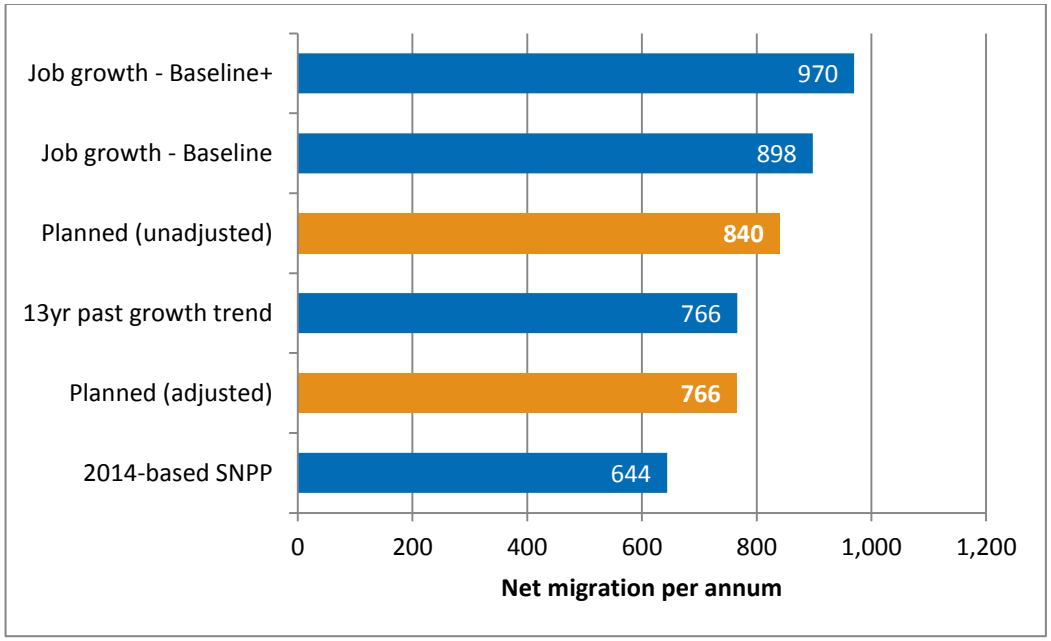
3.6 As shown, planned provision over the period to 2031 can be expected to support a higher level of population growth than suggested by the 2014-based SNPP and the upper end of the range of demographic projections presented in the IHRS. Where there is assumed to be no recovery in younger household formation rates, population growth could also exceed the level suggested by a continuation of long-term past growth trends as updated in the Verification Study, albeit this would not quite be the case where younger household formation rates did indeed see a return to the position recorded in 2001 (although the difference is comparatively marginal).

3.7 Regardless of whether such a recovery occurs, the population growth accommodated through planned housing provision in Lancaster District to 2031 would, on the basis of the modelled assumptions, fall short of that needed to support the RELP's Baseline level of job growth, or indeed the Baseline+ scenario.

3.8 This reflects the more limited allowance for net migration to increase into the district, with the employment-led scenarios in the Verification Study predicated upon the greater retention and attraction of working age residents to support likely job growth. This reflects the ageing demographic of Lancaster District under the trend-based projections. While the modelling indicates that these jobs-led scenarios would require an inflow of at least 898 people each year to support even Baseline job growth, the planned level of housing provision could at best accommodate an average inflow of 840 persons per annum, falling to 766 per annum where an improvement in younger household formation is assumed. The latter precisely aligns with the long-term demographic trend-based scenario presented in the Verification Study, as shown at Figure 3.1. Whilst lower than the employment-led scenarios, the planned level of

housing provision evidently allows for a stronger level of net migration than the official projections, or indeed the demographic scenarios from the IHRS[12].

Figure 3.1: Benchmarking Annual Net Migration Assumptions (2011 – 2031)



Source: ONS; Edge Analytics, 2018/19

3.9 While the comparator scenarios were modelled over the period to 2031, the Council has subsequently proposed a plan period which runs to 2034. For completeness, the following table confirms the population growth that could occur over the plan period through the proposed level of housing provision. As would be anticipated, a slightly higher level of population growth could be accommodated over this extended period, relative to that considered at Table 3.1.

Table 3.2: Population Growth Supported by Proposed Requirement over Plan Period (2011 – 2034)

	Population change 2011 – 2034	% change 2011 – 2034	Annual net migration
Unadjusted 2014-based	21,136	15.3%	832
Adjusted rates	19,449	14.1%	768

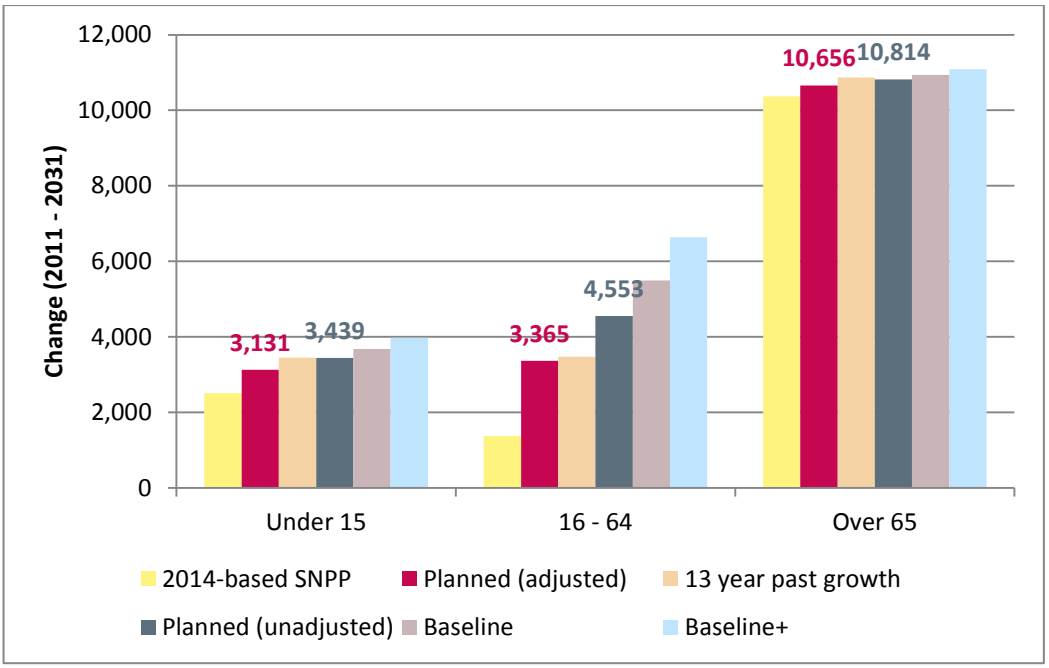
Source: ONS; Edge Analytics, 2019

[12] Table 4.1 of the Verification Study – which presents modelling over this period from 2011 to 2031 – confirms that the IHRS scenarios assume net migration of 385 to 674 persons per annum under the 2012-based SNPP and 10yr past growth trend respectively

Age Profile

3.10 Modelled population change has also been broken down by age, and compared with previously developed scenarios over the former assessment period[13] (2011 – 2031). As shown in the following chart, the working age population (16 – 64) is assumed to grow under all scenarios, but to varying extents. The provision of 522 dwellings per annum would be expected to grow this cohort beyond the modest level suggested by the 2014-based SNPP, but not to the extent the model suggests is required to support the Baseline or Baseline+ scenarios. More limited variance is seen between scenarios for the other older population (65+) and younger age groupings, with these having a less direct relationship with changing employment levels.

Figure 3.2: Comparing Population Change by Age (2011 – 2031)



Source: Edge Analytics, 2018/19

3.11 Noting that the above presents change in three age cohorts for clarity, Appendix 1 of this report presents scenario outputs based on groupings that are more directly comparable with the IHRS (Figure 7.1) and the Verification Study (Figure 5.1).

3.12 Table 3.3 provides a comparable breakdown over the new plan period (2011 – 2034). This confirms that the planned level of provision would allow for the growth of the working age population in Lancaster District as well as the growth of other age cohorts. It is of note that Lancaster District's older population cohorts are projected to see the strongest absolute levels of growth across all of the modelled scenarios.

[13] The Verification Study did not present a breakdown by age for the Baseline and Baseline+ scenarios, but such a breakdown for these unmodified scenarios has been obtained from Edge Analytics and presented here for completeness

Table 3.3: Age Profile of Population Growth Supported by Proposed Requirement (2011 – 2034)

	Under 15	16 – 64	Over 65	**Total**
Unadjusted 2014-based	3,534	4,937	12,665	**21,136**
Adjusted rates	3,174	3,799	12,476	**19,449**

Source: Edge Analytics, 2019

Labour Force and Job Growth

3.13 The labour force that could result from the provision of 522 dwellings per annum in Lancaster District has been estimated by Edge Analytics, based on the assumptions that were applied in the Verification Study and summarised in section 2 of this report. This allows for an understanding as to the scale of job growth that could reasonably be expected to be supported where the level of housing provision was delivered, taking into account the anticipated change in the age profile of the population as detailed above (Figure 3.2 and Table 3.3).

3.14 The outputs of this modelling are set out at Table 3.4. This is initially presented over the period from 2011 to 2031, to allow direct comparison with the job growth anticipated under the "Baseline" and "Baseline+" scenarios developed through the Review of the Employment Land Position for Lancaster District[14] (RELP). The scale of population change under each scenario is shown for context, sourced from Table 3.1 of this report.

Table 3.4: Job Growth Supported by Proposed Requirement (2011 – 2031)

	Population change 2011 – 2031	Jobs supported 2011 – 2031	Average annual jobs supported 2011 – 2031
Baseline+	21,706	10,348	517
Baseline	20,108	9,551	478
Planned (unadjusted rates)	**18,806**	**9,155**	**458**
Planned (adjusted rates)	**17,153**	**8,290**	**415**

Source: Edge Analytics, 2019

3.15 The modelling indicates that the proposed housing requirement could grow the labour force of Lancaster District and support the creation of at least 8,290 jobs by 2031, increasing to 9,155 jobs where the modelled assumption of a recovery in younger household formation is not realised[15].

[14] Turley (2014/15) Review of the Employment Land Position for Lancaster District

[15] As explained at paragraph 3.4 of this Technical Note this is because the population is able to grow to a greater extent within the same number of houses as it is assumed that the average household size is larger.

3.16 The potential capacity to support job growth of this order is enabled within the modelling by an assumed growth in the working age population (Figure 3.2), in combination with an increased participation of specific cohorts including older age groups and females as detailed in section 2.

3.17 The implied level of growth does, however, fall short of the 9,551 jobs envisaged under the Baseline scenario over this period, and is still further short of the 10,348 jobs suggested under the Baseline+ scenario. The modelling therefore indicates that the proposed scale of housing provision could serve as a constraint to achieving these levels of job growth. Alternatively, where the higher levels of job growth were achieved without parallel levels of housing provision, a potential outcome could be a change in commuting relationships with surrounding authorities.

3.18 For completeness, the table below shows the scale of job growth that could be supported through a changing population over the proposed plan period (2011 – 2034). Over the full plan period, this indicates that in the order of 8,721 to 9,545 jobs could be supported by the planned level of housing provision. The Baseline and Baseline+ scenarios do not extend to cover this longer period and run only to 2031, and as such no direct comparison is able to be made here.

Table 3.5: Job Growth Supported by Proposed Requirement over Plan Period (2011 – 2034)

	Population change 2011 – 2034	Jobs supported 2011 – 2034	Average annual jobs supported 2011 – 2034
Planned (unadjusted rates)	21,136	9,545	435
Planned (adjusted rates)	19,449	8,721	398

Source: Edge Analytics, 2019

4. Summary

4.1 This technical note has been prepared by Turley, on behalf of Lancaster City Council, to model the demographic implications of its proposed requirement for 522 dwellings per annum (2011 – 2034) within the Submission Version of the Local Plan, using common assumptions to those used in the OAN Verification Study. This recognises that this level of housing provision does not directly correspond with any single scenario modelled within the housing need evidence base to date.

4.2 This report does not represent a further assessment of housing need in Lancaster District, or a verification of the conclusions of these evidence base documents noting that such an exercise was completed only twelve months ago through the Verification Study.

4.3 Equally, the report does not seek to evidentially justify the Council's proposed housing requirement. Instead, the report solely examines the demographic and associated economic impacts of providing for such a level of housing growth, using an approach which is methodologically consistent with the modelling presented in the Verification Study.

4.4 By providing 522 dwellings per annum throughout the emerging plan period (2011 – 2034), the modelling presented in this report indicates that:

- **An additional 11,425 households could form in Lancaster District**;

- **Population growth of between 19,449 to 21,136 persons would be accommodated within these households.** A range of potential growth is generated as a result of the housing need evidence identifying that it is reasonable to allow for a positive improvement in the rate at which younger households form. This contrasts with the official household projections, which assume a continuation of a worsening trend influenced at least in part by the issues facing such households in accessing housing associated with evidence of worsening market signals in Lancaster District. The lower estimate of population growth therefore reflects this improvement being realised, with a gradual return to higher levels of younger household formation over the long-term. This means that household sizes fall for younger households, and that fewer people are ultimately accommodated in the same number of extra households.

- **This range of population growth would exceed that projected under the 2014-based SNPP, which was the '*starting point*' in the most recent Verification Study.** It is also higher than the level of population growth indicated by the range of demographic projections informing the concluded OAN in the IHRS and aligns closely with the demographic scenario presented within the Verification Study based upon longer-term historic trends;

- **The working age population of Lancaster District would be expected to grow, beyond the level suggested by the 2014-based SNPP**. Looking at the profile of change by age group, the strongest growth would still continue to be in the

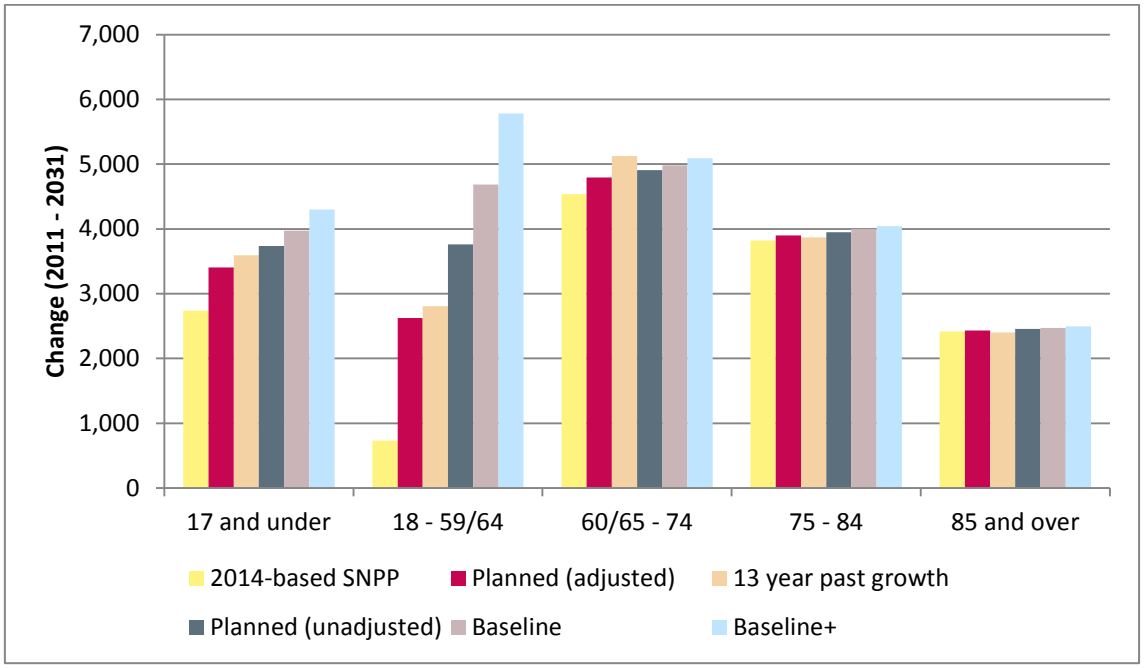
district's older population**.** This ageing trend is a defining feature of all scenarios modelled in the IHRS and the Verification Study; and

- **The growth in the district's population could support the creation of 8,290 to 9,155 jobs by 2031.** The potential capacity to support job growth of this order is enabled within the modelling by an assumed growth in the working age population, in combination with an increased participation of specific cohorts including older components of the workforce and females. The modelling indicates that whilst this would represent a positive growth in the economy of Lancaster District it would fall short of the job growth that has been concluded as likely in the district (9,551 – 10,348) within the RELP. The proposed scale of housing provision may therefore constrain this job growth, or lead to a change in commuting relationships with surrounding authorities. While the RELP does not present job forecasts which extend beyond 2031, the modelling indicates that a slightly higher level of job growth could be supported as a result of the demographic growth assumed to be facilitated by planned housing provision over the new plan period to 2034. The extension of the projection period suggests that between 8,721 and 9,545 jobs could be supported to 2034.

Appendix 1: Population Change by Age

Figure 7.1 of the IHRS directly replicated the POPGROUP modelling outputs provided by Edge Analytics, with age groupings that reflected the different pension ages for males and females (60/65). To enable comparison, a similar chart is presented below for the scenarios presented in the Verification Study and the additional modelling presented in this report.

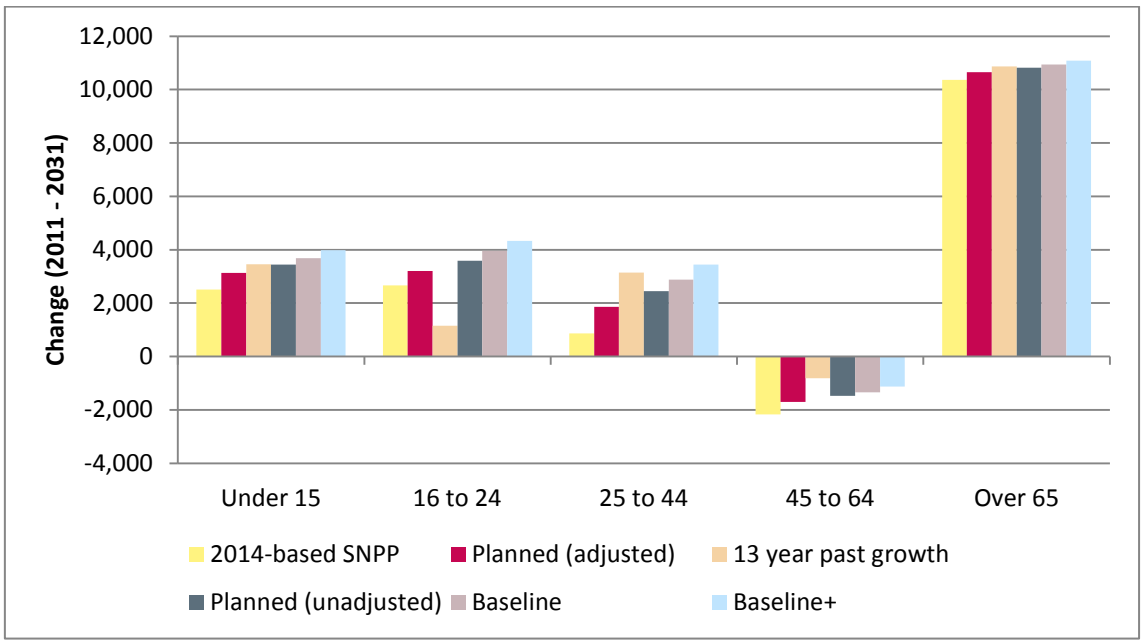
Figure 1.1 Comparing Population Change by Age, with IHRS Cohorts (2011 – 2031)



Source: Edge Analytics, 2018/19

Figure 5.1 of the Verification Study was based on more detailed modelling outputs, with a breakdown by single year of age enabling aggregation based on simpler groupings. Figure 3.2 of this report is based on similar data, albeit with the working age cohort (16 – 64) aggregated for clarity. For completeness, however, and to enable direct comparison with the Verification Study, a breakdown for the age cohorts presented therein is provided overleaf.

Figure 1.2 Comparing Population Change by Age, with Verification Study Cohorts (2011 – 2031)



Source: Edge Analytics, 2018/19

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