Independent Review of Lancaster's Housing Needs

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This report has been prepared for a group of Lancaster residents

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Aim

i. This report reviews the estimate of Lancaster's full objectively assessed need for housing (FOAN) set out in "The Lancaster Independent Housing Requirements Study" by Turley Economics of October 2015 (the "IHRS"). It also discusses briefly the "Lancaster OAN Verification Study" produced by Turley in February 2018 (the Verification Study"). It is an updated version of a draft report first produced in December 2017.

Key findings

(a) The demographic estimate of housing needs

ii. The IHRS starts, as the Planning Practice Guidance (PPG) suggests, from what were at the time it was written the latest official population projections – the 2012-based DCLG household projections (2012 SNHP). As published these suggest a housing need of 341 homes a year over the plan period.

iii. The 5 and 6 year trend periods used for the 2014 SNHP include years that were affected by the recent economic downturn. To minimise the distortion this might have caused Turley adjust the DCLG projections so that they reflect trends over a longer period – 2003-13. This increases the estimate of homes needed to 521 homes a year.

iv. There is a significant discrepancy between the ONS's historical data for births, deaths and migration flows and the 2001 and 2011 census population estimates. This is referred to by the ONS as Unattributable Population Change (UPC). As the official projections are trend based any errors in the historical data from which the trends used are derived, in particular, the estimates of migration flows, could result in errors in the projections. Turley estimates that correcting in full for UPC would reduce their OAN estimate based on 10-year migration flows from 521 homes a year to 392, a very substantial reduction. However, Turley notes that the UPC errors may have occurred in the years before the trend periods used for the projections and as a consequence do not give weight to their UPC adjusted scenario in their conclusions.

v. The NMSS model has been used to verify these Turley's estimates and they have been found to be broadly accurate. However, given the large scale and potential impact of UPC, we believe that Turley is wrong to disregard UPC.

vi. The NMSS model has also been used to update the analysis carried out by Turley to reflect more recent DCLG household projections – the 2014 SNHP, the 2016 SNPP and the 2017 Mid-Year Estimates (2017 MYE). The last two of these incorporate significant changes in methodology and assumptions by the ONS. Analysis by NMSS has also included the use of 10-year trend periods for flows

within the UK (to minimise the impact of volatility) and scenarios in which adjustment has been made for UPC. In addition, in some of the 2014-based scenarios, further adjustments have been made to reflect the lower net international migration projections and higher mortality rates set out in the ONS's 2016-based National Population Projections (2016 NPP) published in October 2017 (and subsequently incorporated into the 2016 SNPP). These change the estimates of the number of homes needed substantially. The results are summarised in Figure 3.4, which is reproduced below:

Figure 3.4: Summary of demographic OAN scenarios	Change 2013-31		
	Population change	Household change	Dwellings a year
2012 SNHP	6974	5850	341
2012 SNHP 10YR	14071	8927	521
2012 SNHP 10YR UPC	7920	6710	392
2014 SNHP	11493	7049	413
2014 SNHP 10 YR	12753	7816	458
2014 SNHP 10 YR UPC	5656	5224	306
2014 SNHP 10 YR UPC NPP	3988	4183	245
2014 SNHP 10YR 50% UPC NPP	7107	5405	316
2016 SNPP	6525	4572	268
2016 SNPP 10 YR	7162	4933	289
2017 MYE - Version 1	7684	5237	307
2017 MYE Version 2	4756	4086	239
2017 Version 2 10YR	4895	4046	237

vii. Note that the scenarios which are based on the 2016 SNPP and the 2017 MYE are generally lower and similar to the scenarios which adjust for UPC.

(b) Unattributable Population Change (UPC)

viii. A review of the detailed data on UPC and statistics from Lancaster University on the destinations of their alumni suggests strongly that there has been substantial underestimation of out-migration flows in student age groups. This could well have accounted for 100% of UPC and it appears to have continued after the 2001 census. This suggests that considerable weight should be given to the scenarios that take account of UPC.

ix. As there are good reasons for believing that at least 50% and possibly as much as 100% of UPC is attributable to migration and analysis based on those assumptions produces result that are very similar to the numbers produced using the latest population estimates and projections it is reasonable to use the figures generated by the 50% and 100% assumptions as end points for the range of demographic OAN estimate. This suggests that we should take **240-320 homes a year (2013-31) as the demographically-based estimate of the OAN** as this range also encapsulates the results based on the 2016 SNPP and 2017 MYEs.

(c) Housing needed to support economic growth

x. The IHRS considers the implications for housing of a Baseline employment forecast produced by Experian that envisages that 6,848 new jobs will be created between 2013 and 2031 and a Baseline+ scenario that envisages 7,645 new jobs. It is estimated that 727 homes a year would need to be provided to attract a sufficiently large population to support the Baseline forecast and 765 homes a year to support the Baseline+ scenario.

xi. Any estimate of the number of homes needed to support a given number of jobs depends on the assumptions made about the proportion of the population which is available for work – the economic activity rate. Turley bases its estimates on OBR economic activity rates. These are different from those implicit in the forecasting model used by Experian in producing the Baseline forecast. Had Experian used OBR economic activity rates they would have reached a different conclusion about the number of jobs that are likely to be created, and probably a lower one. The estimates made by Turley of the homes needed to support the two jobs scenarios are therefore flawed.

xii. It should also be noted that the Experian forecasts pre-date the recent and lower population projections for Lancaster. As the number of jobs in some sectors such and education, health and retail depend on the size of the population, an updated forecast should suggest fewer jobs in these areas.

xiii. Without access to the full outputs from the Experian modelling only an approximate calculation can be made of number of homes needed to support the Baseline forecast. This suggest that the Turley calculations may have overestimated the number of homes needed by around 200 homes a year, and possibly significantly more. They should be redone based on more recent employment forecasts, the latest demographic data and economic activity rates consistent with the forecasts.

(d) Market signals

xiv. The housing market indicators for Lancaster do not suggest that the housing market is under particular stress as a result of an undersupply of new homes. The only potential area of concern identified in the IHRS analysis is the change in house prices. House prices in Lancaster have increased faster than in neighbouring authorities and the rest of England, but this has been from a very low base and mean prices remain lower than the England average and all but one of the chosen comparator authorities. Taking into account the fact that the rate of house building has been very low compared with the number of outstanding planning consents it seems unlikely that the increase in house prices is due to an imbalance between supply and demand. A more likely explanation is that there has been a degree of catching-up in Lancaster's house prices, perhaps as a result of people who have been priced out of neighbouring areas moving to the district to find somewhere they can afford.

xv. Turley compares past and projected household formation rates in Lancaster with national rates and note that rates have fallen for younger households. However, the comparison they make looks only at aggregate household formation rates for 5-year age groups and does not differentiate between the different types of

households. A more detailed analysis which looks separately at the household formation rates of couples, single people and those previously married shows that in all but one group, household formation rates for those aged 20-34 in Lancaster are higher (and in many cases significantly higher) than in the rest of England. This means that those aged 20-34 in Lancaster are more likely to be able form their own, separate household than these in similar groups in the rest of the country. That being so, there is no case for the adjustment to household formation rates suggested by Turley (which adds 30 – 40 homes a year to their estimates of the number of homes needed).

(e) The Verification Study

xvi. The Verification Study of February 2018 updates the IHRS to reflect the 2014 SNPP. However it pre-dates:

 a. The revision to the Mid-Year Estimates for the period 2012-16 which the ONS published in March 2018. This changes some of the historical data used in the 2014 SNPP and the scenarios produced for the Verification Study.

 b. The 2016 Sub-national Population Projections (2016 SNPP) published in May 2018 which incorporate new assumptions for fertility and mortality rates and a revised projection for net international migration.

 c. The 2017 Mid-Year Estimates (2017 MYE), published on 28 June 2018. These incorporate a number of methodological changes as well as providing a further year's data.

xvii. The Verification Study is therefore an update that is badly in need of further updating. In particular it pre-dates the data and projections used to create the last 5 of the scenarios shown in Figure 3.4 (reproduced above).

xviii. Given that the Verification Study needs updating there is little in it that remains relevant. However, it might be noted that:

 a. The conclusion that the Verification Study reaches on the demographic OAN depends on a longer term trend projection which, rather unusually, takes a 13-year period (2003-16) as its trend period. Had it taken a more conventional 10-year trend period it would have concluded that the demographic OAN was lower.

 b. The Verification Study continues to dismiss the need to adjust the projections for UPC despite the advice of Edge Analytics (who have produced the analysis on which Turley relies) that the official population estimates may be continuing to overestimate the population of Lancaster.

 c. The Verification Study includes advice from Edge Analytics that, "Forthcoming changes to the ONS's methodology for estimating domestic student moves and, most importantly, emigration flows, is likely to provide further evidence on the current robustness of Lancaster's MYE statistics." It is significant that those updates (which have been incorporated in the 2016 SNPP and the 2017 MYEs) result in housing need estimates that are similar to the figures obtained when the earlier projections are adjusted for UPC. This reinforces the case for adjusting those projections for UPC.

d. The Verification Study makes the same mistake in estimating the number of homes needed to support jobs forecasts as the IHRS in that it uses economic activity rates which are different from those in the forecasts being analysed. It uses OBR activity rates that have since been superseded and are not consistent with the bullish employment forecasts which have been adopted for Lancaster. The Verification Study's conclusion on the number of homes needed to support job growth are therefore fatally flawed.

Conclusions

xix. The key conclusions emerging from this review are:

a. Turley's demographically-based analysis of Lancaster's housing needs was largely sound when it was first produced but is based on projections that have been superseded. Moreover, they are wrong to discount an adjustment to correct for UPC. Updating to reflect the latest DCLG household and population projections (the 2014 SNHP and the 2016 SNPP) and the 2017 Mid-Year Estimates as well as taking proper account of UPC is necessary in order to provide a sound basis on which to assess Lancaster's housing needs.

b. Analysis of Experian's forecast for the number of jobs that are likely to be created in Lancaster suggests that more homes will be needed than suggested by the demographically-based estimates of housing need if there is to be a sufficiently large population to support the projected increase in jobs. However, the method used by Turley to estimate the number of homes needed to support job growth is flawed and may have overestimated the number of homes needed by 200 homes a year or more.

c. There is no case for a 'market signals uplift' to the housing need estimate. In particular, the proposed adjustment to return the household formation rates of those aged 20-34[1] to the levels they were at in 2001 where they are projected to fall below that level is not appropriate as all but one of the 15 age and marital status groups in this age range have higher household formation rates than their equivalents in the rest of England.

Overall conclusion

xx. Based on the data and analysis presented by Turley, Lancaster is an example of an authority for which the number of homes needed to support forecast job growth is higher than number of homes suggested by an analysis that assumes that past demographic trends continue. The number of homes needed to support jobs growth therefore determines the area's full objectively assessed need for housing i.e. the Full OAN is 'jobs-led'.

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It is not clear whether Turley intends the proposal to be for the age group 20-34 or 20-39. The analysis they present discusses the age groups between 20 and 34 but they then propose an adjustment for those aged 20-39.

xxi. **This means that the Full OAN is determined by two factors:**

a. **the estimate of the size of population needed to support the forecast job growth; and,**

b. **the assumptions made about household formation rates, which determine how many homes are needed to accommodate the estimated population.**

Turley's analysis in both of these areas is flawed. It follows that their conclusion that the Full OAN is 650 – 700 homes a year (2013-31) overestimates the housing need, possibly by 200 homes a year or more. A corrected and updated analysis is therefore needed before there is a sound basis on which to set the housing requirement in the local plan.

Independent Review of Lancaster's Housing Needs

1. Introduction

1.1. This report reviews estimate of Lancaster's full objectively assessed need for housing (FOAN) set out in "The Lancaster Independent Housing Requirements Study" by Turley Economics of October 2015 (the "IHRS") and in so doing reaches an independent view of Lancaster's housing needs. However, the scope and depth of the analysis possible has in several respects been limited by the data available to the author. This means that, whilst many of the conclusions are clear, others are necessarily tentative.

1.2. This report also discusses briefly the "Lancaster OAN Verification Study" produced by Turley in February 2018 (the Verification Study"). Where page and paragraph references are given to Turley's work these are to the IHRS unless otherwise stated.

1.3. The report is an updated version of a draft first produced in December 2017 – updated to reflect new projections and data recently released by the ONS.

2. Background

2.1. Lancaster City Council is in the process of preparing a new local plan. The National Planning Policy Framework (NPPF) stipulates that local plans should seek to meet the full objectively assessed needs for market and affordable housing as far as is consistent with the policies set out in the Framework. The Government's Planning Practice Guidance (PPG) advises on how housing needs can be assessed objectively. It sets out what is, in effect, a standard method, although this allows a substantial degree of discretion and in some areas is open to a range of different interpretations.

2.2. The starting point specified by the PPG is the latest official household projections. The PPG suggests that it may be necessary to adjust those projections to take account of factors not reflected in the trend data on which they are based. Once any such adjustments have been made the result is a trend-based demographic assessment of housing needs, i.e. an assessment of housing needs that assumes that recent demographic trends continue.

2.3. The next step is to consider whether market indicators suggest that the housing market has been undersupplied and, if so, whether additional housing should be provided above that suggested by the demographic assessment to compensate for this.

2.4. In addition, consideration should be given to whether additional homes are needed to ensure that the area can accommodate sufficient workers to support the projected level of economic growth.

2.5. The IHRS follows these steps. They are discussed in turn in this review.

3.   The Turley/Edge Analytics demographic assessment of housing need

3.1.   Chapter 4 of the IHRS sets out their demographically-based assessment of housing need in Lancaster. That assessment is based on the Department for Communities and Local Government's (DCLG's) 2012-based Household Projections (the '2012 SNHP). Those are no longer the most recent official household projections: the most recent set are DCLG's 2014-based Household Projections[2] (the '2014 SNHP'). This section will first review Turley's conclusions in the context of the 2012 SNHP and then consider how those conclusions would change if they were updated to reflect the 2014 SNHP and other more recent datasets.

2012 Sub-national Population and Household Projections

3.2.   Turleys summarise the 2012 SNHP figures in their Figure 4.1 on Page 26:

Figure 4.1:   2012 Population and Household Projections 2013 – 2031

	Change 2013 – 2031		Average per year	
	Population change	Households change	Net migration	Dwellings
SNHP 2012	6,974	5,850	333	341

Source: Edge Analytics, 2015

3.3.   These figures are accurate on the assumption made by Turley that 4.8% of dwellings are empty or used as second homes[3].

2008-based Household Projections

3.4.   In Figure 4.4 (Page 27) Turley compares the 2012-based household projections with the 2008 based set:

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The *2014-based Household Projections: England, 2014-2039* were published on 12 July 2016 and are available at https://www.gov.uk/government/statistics/2012-based-household-projections-in-england-2012-to-2037

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The 4.8% empty and second homes assumption is quoted in paragraph 4.7 of the Turley's Report (Page 25). No source is given. The 3-year average rate from the 2014-2016 Council Tax Base is 5.10%. That would produce dwelling numbers that were only 0.3% higher, a difference of a home a year on the figure quoted.

Figure 4.4: Change in Projected Annual Household Formation

	Total change in households 2013 – 2031	Average annual change
2012-based	5,850	325
2008-based	11,125	618

Source: DCLG, 2015

3.5. The figures for the 2008-based projections are accurate. However, as Turley notes, they were based on different population and household formation projections which are now 9 years old and pre-date the economic downturn. The world has change irreversibly since then. NMSS believe that the 2008 projections are of little relevance now.

Using longer trend periods for the projections

3.6. Turley queries[4] the 2012 SNPP projection for flows out to the rest of the UK and, as part of exploring this, show the results obtained by using a 10-year trend period (2003-13) for migration flows rather than the 5 and 6-year trend periods used by the ONS. The result is a dramatically increased projection for both population and household change, as shown in their Figure 4.9 (Page 34):

Figure 4.9: 10 Year Past Growth 2013 – 2031

	Change 2013 – 2031		Average per year	
	Population change	Households change	Net migration	Dwellings
SNHP 2012	6,974	5,850	333	341
10yr Past Growth	14,071	8,927	604	521

Source: Edge Analytics, 2015

3.7. The NMSS model is not set up to produce 10-year trend estimates for 2003-13 but the results it produces for 2002-12 are very similar. It therefore seems highly likely that these numbers are reliable. However, using different 10-year trend periods can produce significantly different results.

### Errors in the historical data: Unattributable Population Change (UPC)

3.8. Turley then discusses 'Unattributable Population Change' or UPC. UPC is the discrepancy between the census population estimates and the ONS statistics for births, deaths and migration flows between two censuses. In a statistically perfect world, the population change suggest by the difference between two successive censuses would equal the change obtained by adding births to net

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Paragraph 4.19 and Figure 4.6, both on Page 29

migration flows and subtracting deaths.   Figure 3.1 compares the population projection obtained by adding births and net migration flows to the 2001 census population and subtracting deaths with the figures published by ONS in their Mid-Year Estimates that include the UPC adjustment in order to make them consistent with the 2011 census.   The yellow circles are the census estimates.

Figure 3.1: Comparison of historic population data with and without UPC adjustment
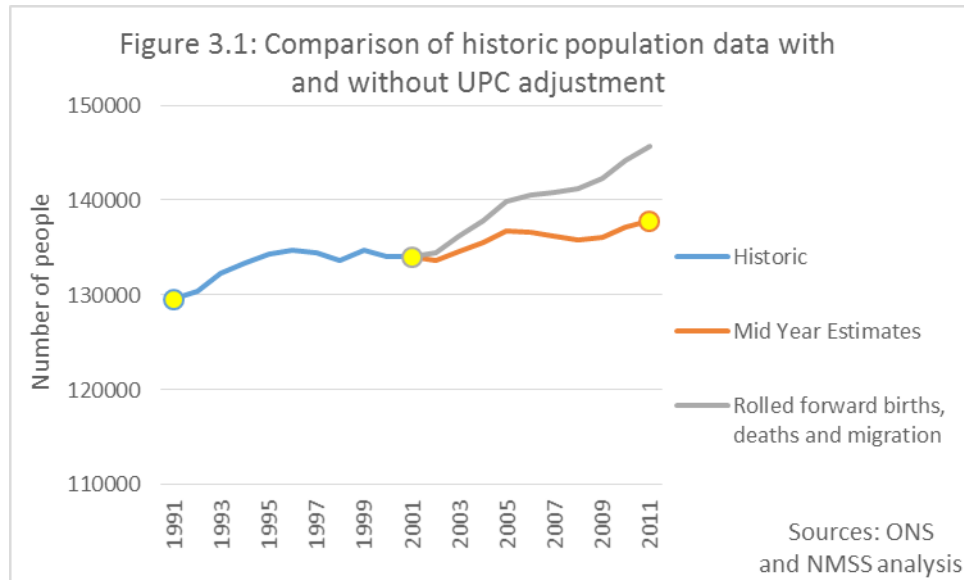
3.9. As can be seen from the chart, the discrepancy is large both in absolute terms and compared with the population change suggested by the census counts.

- The difference between the 2001 census rolled forward using the births, death and migration flow estimates and the 2011 census population estimate is 7,883 people.   That is 5.7% of the 2011 census population estimate.

- The census-based figures suggest a population change of 3,774 between mid-2001 and mid-2011 whilst the births, deaths and migration data suggest the change was 11,657. The latter figure three times the former.

3.10. Both comparisons indicate that UPC is major factor in Lancaster.

3.11. As Turley explains, we have high quality systems in this country for recording births and deaths so the estimates for the population changes they cause should be accurate.   This means that UPC is likely to be caused by either errors in the migration flow estimates (both for flows within the UK and internationally) or by inaccuracies in the census counts, or a combination of the two. The relevance of this to this review is that, insofar as the inaccuracies were in migration estimates that were taken into account in producing the population projections (which are trend based), those projections will also be inaccurate. ONS make no allowance for UPC in producing their projections. This means that those projections could either over- or underestimate the population change that is likely to occur. In some cases those inaccuracies can be very substantial.

3.12. Turley presents an estimate of the impact UPC may have had on the projections in their Figure 4.10 on Page 35:

Figure 4.10: 10 Year Past Growth (including UPC) 2013 – 2031

	Change 2013 – 2031		Average per year	
	Population change	Households change	Net migration	Dwellings
SNHP 2012	6,974	5,850	333	341
10yr Past Growth	14,071	8,927	604	521
10yr PG with UPC	**7,920**	**6,710**	**325**	**392**

Source: Edge Analytics, 2015

3.13. The NMSS model produces similar results by adjusting the 2012 SNHP so these figures can be regarded as an accurate indication of the potential impact of UPC.

3.14. Turley's Figure 4.10 speaks for itself. Adjusting for UPC reduces the housing need estimate from 521 homes a year to 392. That is a reduction of 25%, a highly significant difference. Turley notes that the UPC errors may have occurred in the earlier part decade between the censuses and so would not have affected the projections, although this argument is, at best, weak when reliance is placed on 10-year trend periods dating back to 2003. NMSS believe that, given the large scale and potential impact of UPC, Turley is wrong to disregard it in reaching their conclusions on the housing needs of Lancaster.

Updating the analysis to reflect the latest projections and more recent data

3.15. The most recent official household projections are the DCLG's 2014-based projections (the '2014 SNHP'). These are similar to the 2012 SNHP but with the base year and trend periods rolled forward by 2 years. The Planning Practice Guidance advocates using the most recent projections. Any local plan inspector would regard the latest set as the most authoritative and expect to see an update showing the results obtained from using them.

3.16. Figure 3.2 compares the 2014 SNHP for Lancaster with the 2012 SNHP (using Turley's figures for the latter).

Figure 3.2: Comparison of 2014 SNHP and 2012 SNHP for Lancaster	Change 2013-31		Average per year	
	Population change	Household change	Net migration	Dwellings
2012 SNHP	6974	5850	333	341
2014 SNHP	11493	7049	600	413

Note: figures shaded grey have been produced by Turleys/Edge Analytics; the remainder are NMSS

3.17. As can be seen from Figure 3.2, the 2014 SNHP is based on a substantially larger population growth projection, resulting in a faster increase in the number of households and hence a larger housing need. The reason for this is the highly erratic nature of the estimates of past net migration into Lancaster (see Figure 3.3 and the discussion of it in paragraph 3.19). Rolling forward a 5 or 6-year trend period by 2 years can and does produce a significant difference in the average flow rates used to estimate future migration flows.

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Figure 3.3: Net migration: estimates of historic flows and projections
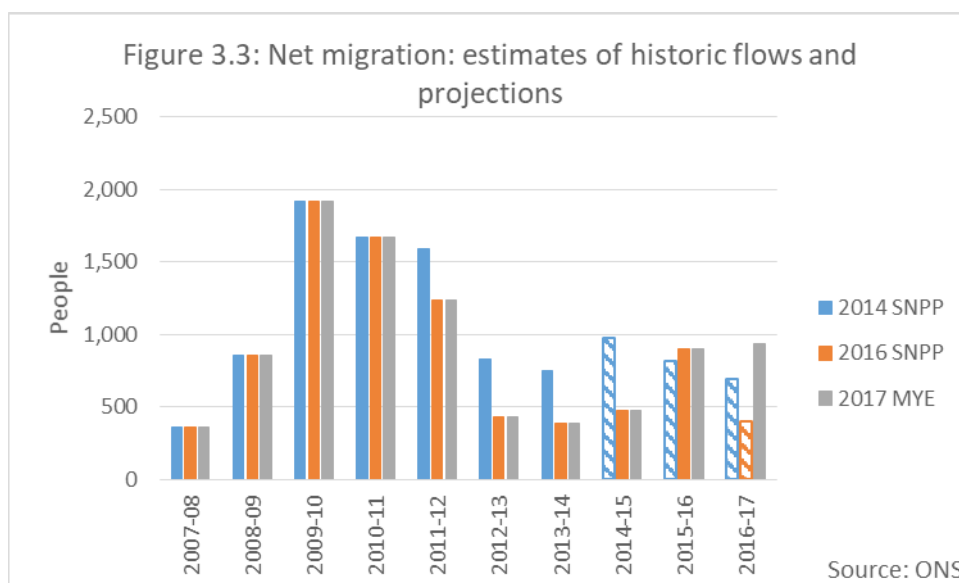
3.18. Although the 2014 SNHP are the most recent household projections (and will remain so until September 2018), they are based on the 2014-based population projections (the '2014 SNPP') which have been superseded by the 2016-based projections (the '2016 SNPP[5]') released in May 2018. In addition, the ONS published in June new population estimates for 2016-17[6] (the '2017 MYE'). These use new methods to estimate aspects of the internal migration flows, including the "Higher Education Leavers Methodology" (HELM). The result for many authorities, including Lancaster, is migration estimates for 2016-17 that are significantly different from previous years and the flows projected for that year as recently as in the 2016 SNPP published in May 2018.

3.19. Figure 3.3 seeks to summarise how the data on which the projections for Lancaster are based has changed over the last 2-3 years. This shows the historical data which was available when the 2014 and 2016 SNPPs were compiled and the data published in the 2017 MYE. The historical data is shown as solid bars with the years projected in the 2014 and 2016 SNPPs shown as striped bars.

3.20. Key points to note are:

- The latest estimates for the net migration flows in the years 2011-12 to 2013-14 are much lower than the estimates that were available when the

2014 SNPP was prepared. This is the result of the changes made when the 2016 MYEs were revised in March 2018[7].

- The net migration estimate for 2016-17 in the 2017 MYEs is over twice that projected in the 2016 SNPP and significantly higher than that in the 2014 SNPP.

- The 2016 SNPP also made revised assumptions about fertility and mortality rates and the England-wide net international migration (which the individual local authority figures are constrained to add up to).

3.21. In Lancaster's case the changes brought about as a result of the various changes which the ONS has brought in need to be seen in the context of historic flows (or, at least, the estimates of them) that have fluctuated considerably in recent years: This means that some of the changes evident in the recent projections are due to trend periods being moved forward, causing average flow rates to move up or down, not because of changes which the ONS has made to the way in which they construct the estimates or projections.

3.22. It is straightforward to estimate the consequences of the 2016 SNPP by applying the household formation rates to the population projections (after deducting the institutional population). To estimate the implications of the 2017 MYEs it is first necessary to consider how they would affect the 2016 SNPP. There are two fairly obvious ways of doing this given that the ONS has not produced a revised 'back series' to reflect the methodological changes in the 2017 MYEs.

- **Version 1 (2017 V1):** Ignore any impact which the revised methods used to calculate migration flows in the year 2016-17 would have had on earlier years and use the published 2016-17 flows to calculate trend rates for the period 2012-17 – the trend period that the ONS would use if they were to produce a '2017 SNPP'.

- **Version 2(2017 V2):** Adjust the published figures for internal migration flows for the period 2011-16 to reflect as far as possible the ONS's new methodology. The ONS has published with the 2017 MYE tables showing what the internal migration flows would have been had they not introduced their new 'Higher Education Levers Methodology' (HELM) – the main change in the way in which internal migration flows have been estimated for 2016-17. Those figures can be used to calculate the differences made by HELM in each year of age and sex group for each authority. Those differences can then be used to adjust the published internal migration flows for 2012-16.
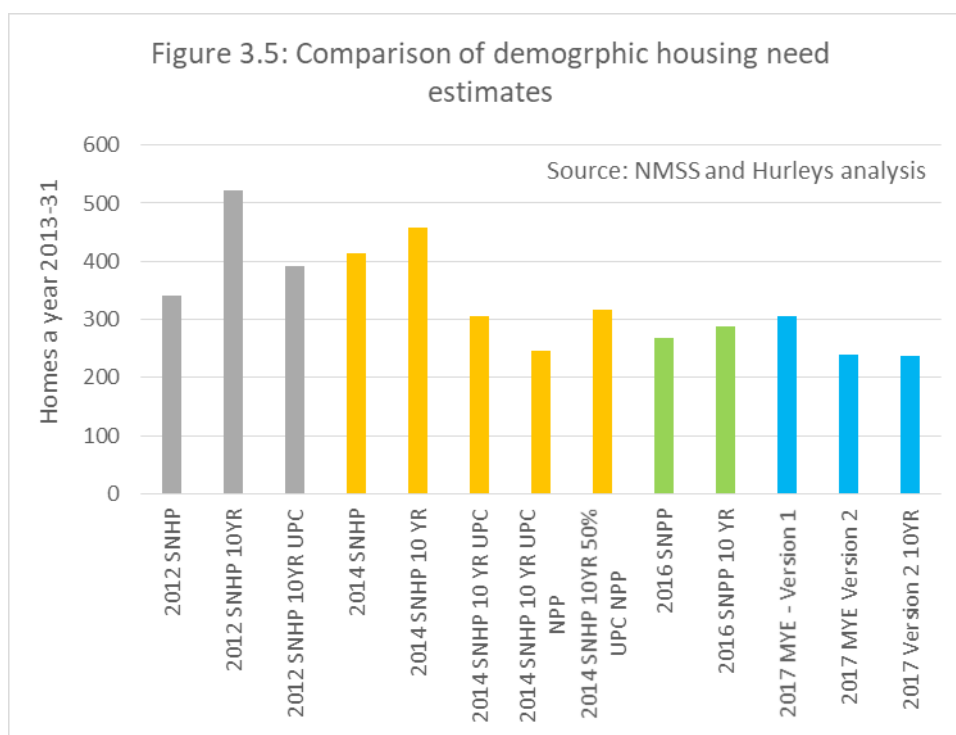

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Revised population estimates for England and Wales: mid-2012 to mid-2016, ONS, 22 March. See: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2012tomid2016

3.23. Version 1 potentially underestimates the impact of the changes made in the 2017 MYE which are substantial and would have changed the flow estimates for earlier years. Version 2 assumes that the correction made in earlier years would have been the same as in 2016-17. This might be an exaggeration (although there is no obvious reason why the corrections in those years would not have been as large or even larger).

3.24. There is also a case for considering projections based on 10-year trend periods (as Turley has done) to minimise the impact of year to year fluctuations in the migration flow figures. This can also be done for the estimates of the impact of the 2016 SNPP and the 2017 MYE.

3.25. For completeness it is appropriate to mention here that modelling has also been done to assess the impact of adjusting the projections to reflect UPC and the changes to mortality rates and international migration assumptions introduced in the 2016 SNPP. The case for adjusting for UPC is discussed in the next chapter.

3.26. The result of this analysis is a bewildering array of scenarios summarised in the table in Figure 3.4 and shown graphically in Figure 3.5. To aid understanding the different groups of scenarios (2012-based, 2014-based, 2016-based and 2017-based) have been coloured differently in both figures.

Figure 3.4: Summary of demographic OAN scenarios	Change 2013-31		
	Population change	Household change	Dwellings a year
2012 SNHP	6974	5850	341
2012 SNHP 10YR	14071	8927	521
2012 SNHP 10YR UPC	7920	6710	392
2014 SNHP	11493	7049	413
2014 SNHP 10 YR	12753	7816	458
2014 SNHP 10 YR UPC	5656	5224	306
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2016 SNPP 10 YR	7162	4933	289
2017 MYE - Version 1	7684	5237	307
2017 MYE Version 2	4756	4086	239
2017 Version 2 10YR	4895	4046	237

Figure 3.5: Comparison of demogrphic housing need estimates

3.27. Given the volatility of the historical migration data a degree of variation between the scenarios is inevitable and not too much should be read into differences between the various individual scenarios. However, the overall picture is clear, the latest scenarios – based on 2016 and 2017 base data – show lower housing need than the earlier scenarios. Moreover, the 2016 and 2017-based scenarios are broadly similar to the UPC-adjusted 2014-based scenarios. This may or may not be because the latest ONS methods and assumptions have picked up the issues which gave rise to UPC.

Lancaster OAN Verification Study

3.28. Reference should be made here to the "OAN Verification Study" (the "Verification Study") produced by Turley for Lancaster City Council in February 2018. This updated "The Lancaster Independent Housing Requirements Study" by Turley Economics of October 2015 (referred to in this note as the "IHRS"). With the benefit of hindsight, the timing of that update was particularly unfortunate as, since it was produced the ONS have made two significant changes to their methods for estimating the populations of local authorities (including one which adjusts historical data used in the Verification Study); released a new set of population projections and produced another set of Mid-Year Estimates (MYEs). As a consequence the update report is badly in need of a further update. Nevertheless, a brief review of its conclusions on the demographic OAN may be helpful.

3.29. The main update in the Verification Study is to take the 2014 SNPP as the starting point rather than the 2012 SNPP, which was used for the IHRS. Table 3.1 (Page 15) reports that the 2014 SNPP implies a need for 426 homes a year 2011-31 rather than the 346 indicated by the 2012 SNPP. This compares with 413 homes a year 2013-31 shown in Figure 3.4 above, the difference being almost

certainly due to different period (2011-31 rather than 2013-31) used in the Verification Study.

3.30. The Verification Study then discusses the fluctuations in migration flows and house building in recent years and concludes that it is reasonable and justified to estimate future housing needs in Lancaster by drawing on demographic trends over a longer-term historic period"[8] than used in the official projections. This is fairly standard practice. However, rather than rolling forward the 10 year-trend period used in the original IHRS, the start date of the trend period (2003) is retained and the trend period is extended to 13 years "to ensure consistency with the IHRS"[9]. The effect of this is to retain within the trend period two years of high net migration (2003-04 and 2004-05) which would otherwise have dropped out of the trend period. Had Turley simply rolled forward the ten year period to 2006-16 they would have calculated a lower demographic housing need. As it is, their choice of a rather strange 13 year trend period has the effect of increasing the housing need figure from 426 to 542, an increase of more than a quarter (27%). In marked contrast, NMSS analysis suggests (see figure 3.4 above) that a more conventional 10 year trend period using the latest 10 years increases the housing need figure from 413 homes a year (2013-31) to 458, an increase of only 11%. This much lower increase casts real doubt on whether the rather unusual 13-year trend period provides a reliable basis on which to estimate housing need.

3.31. The final step in the Verification Study's estimate of the demographic OAN is to return the household formation rates of several younger age groups to their 2001 levels. This is discussed in Section 6 below where it is concluded that the adjustment is not appropriate. The impact of the adjustment is to increase the estimate of housing need by 6% from 542 homes a year (2011-31) to 576.

3.32. Updating to reflect the 2014-based household projections was appropriate when the Verification Study was produced, but, as has already been noted, data and projections published since then have rendered those projections out of date (although they have yet to be replaced by up to date official household projections – due in the second half of September 2018). These include:

- Revised population estimates for England and Wales: mid-2012 to mid-2016, ONS, published on 22 March 2018. These revised historic migration estimates that were used by the ONS in generating the 2014 SNPP and by Turley in creating their 13-year trend version of the 2014 SNPP.

- The 2016 SNPP, published on 24 May 2018. These incorporate the revised migration estimates published in March and also include revised assumptions about fertility and mortality rates and a lower net international migration forecast for England as a whole.

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[8]

Paragraph 4.16, Page 20

[9]

Paragraph 4.19, Page 21

- The 2017 Mid-Year Estimates (2017 MYE), published on 28 June 2018. These incorporate a number of methodological changes including the new Higher Education Leavers Methodology (HELM - see Paragraph 3.18 above) which has a significant impact on Lancaster.

3.33. It is unusual to have so many updates of such significance in a four month period, but the effect has been to render the Verification Study significantly out of date in a very short period of time.

Conclusion on the demographic estimate of the OAN

3.34. The broad conclusion on the demographically-based OAN is that the Turley/Edge Analytics analysis was sound when it was produced with the exception of the dismissal of an adjustment for UPC. However, updating the analysis to reflect the latest population estimates and projections affects the numbers considerably. Both the Independent Housing Requirements Study and the Verification Study are now clear badly out of date and, as a result, Turley overestimates the demographic housing need of Lancaster.

3.35. The next section considers further whether an adjustment should be made for UPC before reaching a view on the demographically-based estimate of Lancaster's OAN.

4. Unattributable Population Change (UPC)

4.1. As noted in paragraph 3.8 above, UPC is the discrepancy between the population change suggested by two successive censuses and the population change suggested by the ONS's statistics for births, deaths and migration flows in the period between the two censuses. UPC is large for Lancaster with the population change suggested by the births, deaths and net migration statistics being three times that suggested by the census population estimates.

4.2. A useful technique for understanding the causes of UPC is to disaggregate the total discrepancy by cohort using the detailed statistics which the ONS publish with their mid-year population estimates. These enable us to, for example, start with the 25-29 year olds in 2001 and then follow that group through year by year to 2011 when they will have become the 35-39 year olds. Each year we 'age on' the cohort by one year so in 2001-02 we look at deaths and migration flows for the group that becomes the 26-30 year olds in 2002; in the 2002-03 we look at the deaths and migration flows for the group that becomes the 27-31 year olds in 2003 and so on. Adding up the effects (where relevant) of births and deaths and the various flows in each of the years shows us what the ONS statistics suggest has happened to the cohort in the years between the censuses.

4.3. Figure 4.1 shows the result of a cohort analysis for Lancaster. Note that the ages shown are the ages of the cohorts in 2011. UPC – the adjustment that the ONS has to make to reconcile the 2011 census population plus births and net migration flows less deaths with the 2011 census population estimate – is highlighted in orange.

| Figure 4.1					Comparison of components of change with census population estimates by cohort: Lancaster: age shown is age in 2011												
Persons	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+
Population in 2001	0	0	7277	7690	8357	10275	11198	7423	9023	9334	8737	7892	8853	7518	6608	6377	17487
Births	7410	6536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deaths	34	54	12	16	22	45	49	76	116	163	265	333	579	750	1009	1438	10134
Internal in	938	1921	2549	5589	19804	20744	7038	4618	3881	3257	2540	2190	2364	1894	1371	865	1922
Internal out	980	1903	1993	2783	15385	24223	11565	4717	3482	2849	2246	1748	1781	1334	1015	721	1885
International in	97	247	211	584	3817	5820	3541	1714	970	592	342	230	122	123	84	21	5
International out	58	165	138	113	733	2034	1875	1104	670	439	258	259	176	200	125	54	6
Special	0	0	0	52	57	-84	-84	-44	-21	-21	-5	-1	-3	2	0	-2	0
UPC	-146	-121	-315	-292	-2492	-2477	-885	-256	-398	-58	-100	-160	-92	73	74	-70	-168
Other	0	0	0	-2	-26	0	0	0	0	0	0	0	0	0	0	0	0
Population in 2011	7227	6461	7579	10709	13377	7976	7319	7558	9187	9653	8745	7811	8708	7326	5988	4978	7221

4.4. To take the cohort that became the 25-29 year olds in 2011 as an example, the results in Figure 1 suggest:

- The cohort has 10,275 people in it in 2001 when it was aged 15-19

- There were 45 deaths in the years between the censuses

- The biggest flows were the internal migration flows, with flows to the rest of the UK (24,223) exceeding inflows from the rest of the UK (20,744)

- International inflows (5820) were more than double international outflows (2034). In this age group these flows are likely to be international students. The mis-match between inflows and outflows suggest that international students returning home may have been undercounted. We will return to
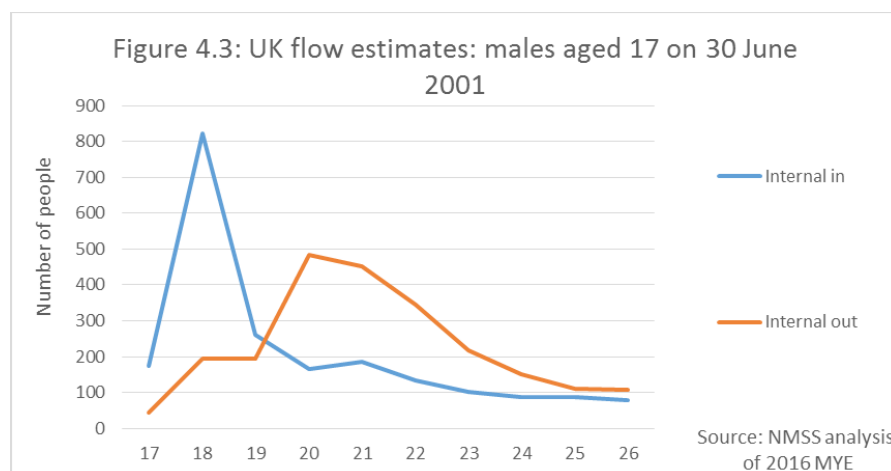
this below.

- UPC is -2477. This is 31% of the census population estimate for the cohort in 2011 and 24% of the census population estimate in 2001. Errors of that scale in census population estimates are virtually inconceivable, which implies that there must have been substantial errors in the ONS estimates of the migration flows.
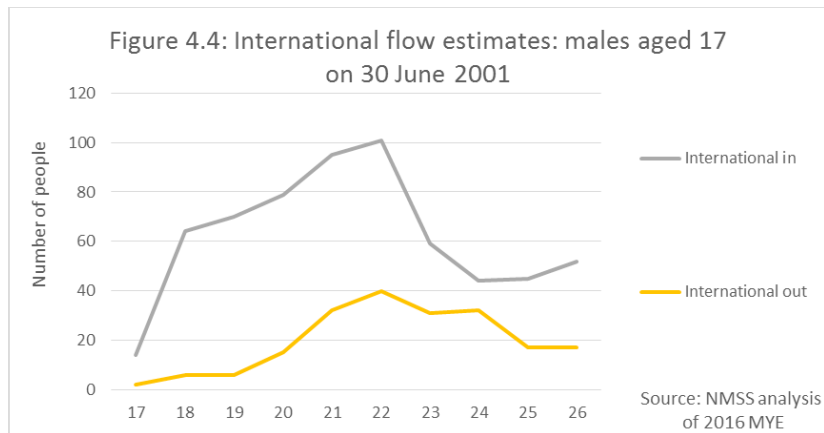
4.5. Figure 4.2 shows UPC by age group in 2011 but with the figures for males and females separated:

Figure 4.2: UPC in Lancaster by age in 2011
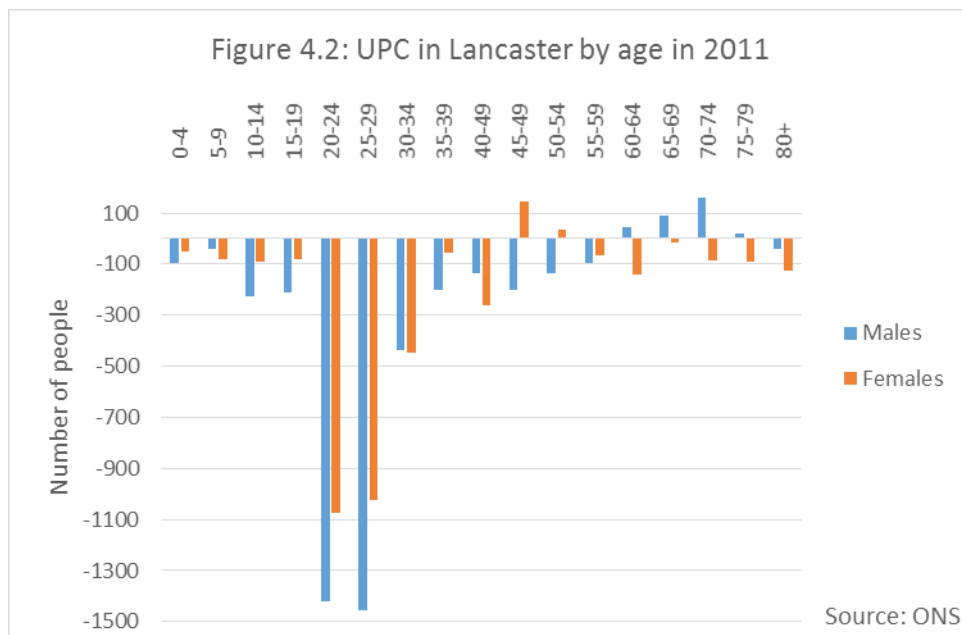
4.6. This distribution of UPC is typical of an authority which contains a university and suggest that the flows of students leaving the area after their studies have been undercounted.

4.7. An examination of individual 'year of age' and gender groups gives further weight to the suggestion that outflows have been under recorded. Figure 4.3 shows the flows to and from the rest of the UK for the cohort that was 17 at the end of June in 2001 and Figure 4.4 shows the international flows for the same cohort:

Figure 4.3: UK flow estimates: males aged 17 on 30 June 2001

Figure 4.4: International flow estimates: males aged 17 on 30 June 2001

Source: NMSS analysis of 2016 MYE

4.8. In both charts the data plotted are the flows in and out in successive years. The first pair of data points are inflows and outflows of those aged 17 on 30 June 2001 in the year from 1 July 2001 to 30 June 2002. The second pair of data points are the inflows and outflows of those aged 18 on 30 June 2002 i.e. the same cohort, one year older. The final pair of data points are for the same cohort, aged 26 on 30 June 2010 and shows flows in the ensuing 12 months i.e. to 30 June 2011 when the cohort was aged 27. As the same cohort is followed as you progress across the chart from left to right, if all those who came to study in Lancaster left by the time they were 27 and there were no other in- or outflows (which, of course, there were), the area under the in- and outflow lines should be the same and you would expect to see a peak in the outflows 3-4 years after the peak in the inflows.

4.9. The UK flows in Figure 4.3 follow this patterns at least approximately and do not necessarily indicate any undercounting of outflows if you allow for a proportion of students taking 4-year courses and others staying on for further studies after their degree. The fact that there is quite a 'tail' to the outflows may also reflect the practical reality that many students (particularly men) do not re-register with a GP immediately after leaving university.

4.10. The international flows in Figure 4.4 do, however, strongly suggest that there is a problem with international outflows. Although there is a rise in outflows 3-4 years after the rise in inflows (which would reflect some international students returning home after completing their courses), the outflows in all ages up to 26 remain below the inflows and are only a fraction of the inflows in the peak years. Whilst it is possible that some international students will have stayed on in Lancaster and others will have left for other parts of the UK (and hence have been counted as part of the flow out to the rest of the UK), it seems unlikely that this accounts for such a large proportion the incoming international students.

4.11. The fact that for males aged 22-27 there is a net international flow into Lancaster for all years between 2001-02 and 2015-16 suggests that there is a persisting problem in counting the departure of international students.

4.12. Statistics from the university suggest that, of the alumni from the years 2012 – 2017, at least 11,700 are living abroad, implying an outflow of 1950 a year[10]. This compares with the ONS's international outflow estimates for the year 2012-

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16 which average some 600 people a year of all ages. Even allowing for the possibility that some international students may have given their home address but not yet returned there, the discrepancy is extremely large, reinforcing the suggestion that international outflows have been undercounted by a large margin.

4.13. Moreover, as UPC averaged 788 people a year over the period between the censuses, the size of the discrepancy between the university's alumni statistics and the ONS international migration estimates is such as to suggest that it is entirely plausible that 100% of UPC was due to under-counting of out-migration.

4.14. The probability that most if not all of UPC was due to the undercounting of out-migration has a number of implications. In particular:

- The under-counting of outflows will mean that the trend periods on which the population projections are based will have outflow rates that are too low, leading to projections with outflows that are too low. As too few people will have been projected to leave Lancaster, the population projections will exaggerate the likely increase in the population.

- In the years between censuses the ONS's mid-year population estimates are based on adding births and net migration flows to the last census figures and subtracting deaths. The likelihood that outflows have been undercounted in the period since the 2011 census will mean that all subsequent population estimates are too high as people who have left will have been assumed to be still living in the area.

Comments in the Verification Study on UPC

4.15. The Verification Study follows the line taken in the IHRS that an adjustment for UPC is unnecessary. However, the analysis by Edge Analytics on which Turley relies (and which is reported in Appendix 1) is much more open about the possibility that the errors which gave rise to UPC are continuing after 2011. Edge compare the ONS estimates of Lancaster population in the MYEs with other dataset and comment as follows:

> 2.49 Administrative datasets provide a useful comparison to the ONS MYEs. The latest version of ONS' Statistical Population Dataset (SPD) uses a combination of NHS Patient Register, School Census, DWP/HMRC statistics and HESA student data to derive an alternative population estimate for each local authority in England. For Lancaster, the 2016 MYE records a higher population in the young adult age groups (22–26), compared to the 2016 SPD dataset, with lower populations in the majority of other adult age-groups (Figure 10). This might suggest a degree of over-estimation of the MYE in these age-groups, although might also reflect biases in the underpinning administrative datasets.

4.16. The conclusion that Edge reaches is that there may be a continuing overestimation of Lancaster's population:

This assumes the figures relate to the graduates from each of the six years 2012 to 2017 inclusive. Those described as being "in unknown countries" have not been included.

2.50 Examination of Lancaster's population data suggest that a continuation of previous over-estimation may be a feature of its MYE. However, validating the extent of this over-estimation is a challenge in the light of two recent trends: (i) a recent growth in international student numbers: (ii) a growth in migrant worker registrations. Evidence from the SPD suggests that any over-estimation is likely to be concentrated in young adult age-groups. Forthcoming changes to the ONS' methodology for estimating domestic student moves and, most importantly emigration flows, is likely to provide further evidence on the current robustness of Lancaster's MYE statistics.

4.17. This conclusion suggests that more weight should be given to the UPC-adjusted estimates of Lancaster's population projections than Turley gives in either the IHRS or the Verification Study. In the Verification Study Turley relegates mention of the UPC-adjusted 13-year trend scenario to a footnote on Page 23:

[38] For completeness, a comparable scenario has again been modelled which includes UPC, and therefore directly accounts for the overestimation of the population between Census years. This suggests a lower need for 462 dwellings per annum over the plan period

4.18. The 'without UPC' scenario suggests a housing need of 542 homes a year so the UPC-adjusted scenario (462 homes a year) represents a 15% reduction – a not insignificant change. Relegating this information to a footnote and giving it no weight at all is questionable when the analysts on whom Turley is relying report that the overestimation which gave rise to UPC may be continuing.

4.19. Edge's reference in their paragraph 2.50 (reproduced above) to "Forthcoming changes to the ONS' methodology" is prescient. As noted in Section 3 (Figure 3.4 and paragraph 3.27), the 2016 SNPP and updates to reflect the 2017 MYE suggest housing need figures very similar to the UPC-adjusted scenario. This does suggest strongly that, prior to the recent methodological changes by the ONS, the overestimation was continuing and that, contrary to Turley's view, an adjustment for UPC was appropriate.

Conclusion on Unattributable Population Change (UPC)

4.20. Given the size of UPC and the strong probability that it is due to under-counting of out-migrants, substantial weight should be given to population and household projections adjusted for UPC in estimating Lancaster's housing needs.

4.21. If it is assumed that all of UPC is attributable to errors in the migration flows and the 2014 SNHP are updated for the 10-year trend period 2006-16 and international flows and mortality rates set out in the 2016 National Population Projections, the **demographic OAN would be 240 homes a year 2013-31(rounded to the nearest 10 to avoid suggesting spurious accuracy).** That may seem a very low figure, but over the period 2006-16 the trend period used for the calculation DCLG's statistics[11] suggest that an average of 193 homes a year were added to the housing stock in Lancaster.

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DCLG Live Table 122: Net additional dwellings by local authority district, England 2001-02 to 2016-17

4.22. If, alternatively, it is assumed that only 50% of UPC was due to migration errors, the demographically based OAN would be 320 homes a year 2013-31.

4.23. As the 2016- and 2017-based analysis reported in the previous chapter suggest housing need figures in the range 240 – 310 homes a it would be reasonable to take 240-320 homes a year as the demographic OAN.

5.   Housing needed to support economic growth

5.1.   Section 5 of the Turley Report discusses the likely future jobs growth in Lancaster and the implications that this would have for the number of homes that need to be provided. This is on the assumption, implicit in the Planning Practice Guidance (PPG), that it is not acceptable to plan on the basis that any increase in jobs will be met by an increase in in-commuting or a reduction in out-commuting.

5.2.   Two job growth scenarios are considered:

- The **Baseline** scenario which is based on an Experian forecast released in June 2014. This envisages that 6,848 additional FTE jobs will be created between 2013 and 2031, an average of 380 jobs a year. Turley estimates that 727 homes a year would be needed to attract a sufficiently large population to support this number of additional jobs.

- The **Baseline+** scenario which assumes that an additional 797 FTE jobs (44 a year) will be created above the Baseline scenario i.e. that an additional 7,645 FTE jobs will be created between 2013 and 2031, an average of 425 jobs a year. 765 homes a year are estimated to be needed to support thus number of additional jobs.

5.3.   NMSS is not able to comment on the realism of these job forecasts. However, we would note that they are based on forecasts that are now over three years old and pre-date the Brexit vote. There can be little doubt that more up to date forecasts would suggest different growth rates, almost certainly lower than those envisaged in 2014.

5.4.   Assessing the housing implications of a jobs forecast involves taking a view on the size of population needed to provide the workforce to fill the jobs envisaged (and hence the number of homes needed to house those people). To do this it is necessary to make assumptions about the proportion of the population that will be available to work and, of those, how many will be unemployed and how many will have more than one job.

5.5.   It is generally accepted that, as the state pension age is increased, pensions become less generous and health improves, more people will work longer i.e. the economic activity rates of those over 55 will increase. There is, however, considerable room for debate about how large the likely changes in economic activity rates might be.   Some have queried the assumptions made by the economic forecasters about how economic activity rates will change. However, it is important to note that the relationship between the size of a population and the number of jobs it can support is integral to economic and employment forecasts such as those produced by Experian, Oxford Economic and Cambridge Econometrics even if it is not an explicit input assumption. Their local authority level forecasts disaggregate a national forecast, sharing out the workforce and jobs which they believe will exist in the UK economy. Had they taken a different view about economic activity rates – the relationship between the size of the population and the number of people available for work – they would have reached different conclusions about the number of jobs that are likely to exist in

the economy nationally. There would therefore have been a different number of jobs to share out between local authorities and the individual local authority jobs forecasts would have been different.

5.6.   It follows that, in assessing the size of population (and hence the number of homes needed) to support a forecast jobs increase, the economic activity rates implicit in the model that produces the jobs forecast must be used. Using different economic activity rates produces numbers that are meaningless. If it is felt that the economic activity rates implicit in a particular jobs forecast are too high the only appropriate course of action is to ask the forecaster to re-work the forecast with whatever economic activity rates are thought to be realistic. If those are lower than the rates implicit in the forecasting model, the revised forecast will be based on the assumption that the population can support fewer jobs and a smaller jobs increase will be forecast.

5.7.   IHRS shows some awareness of these issues but nevertheless makes the mistake of seeking to estimate the housing implications of jobs forecasts produced by Experian using very different economic activity rate assumptions. The result is estimates of the number of homes needed to support job growth that exaggerate the number of homes needed by a very large margin.

5.8.   In the second bullet of paragraph 5.13 Turley explains that the economic activity rates they (and Edge Analytics) have used are *"based on the 2011 Census, and held constant for those aged 16 to 60. Modifications have be made to the economic activity rates for those aged 60 to 69, in order to take account of planned changes to the state pension age…"*. That may be a reasonable set of assumptions to use if you were setting out to produce an economic forecast, but they are not the assumptions used by Experian. This is acknowledged in paragraphs 5.17 and 5.18 and Figure 5.4:

> 5.17   As explained earlier, the POPGROUP modelling undertaken by Edge Analytics[46] integrates a number of prudent assumptions around factors which impact the alignment of the labour force and change in jobs. However, it should be acknowledged that the Experian forecasts referenced in the RELP are themselves underpinned by population projections, with short-term adjustments made to the labour supply in response to demand conditions. This reflects the economic reality that when demand is high, the participation rate rises, as potential workers are drawn into the labour force by the relatively buoyant conditions. When demand is low, the participation rate declines as disillusioned workers leave the labour force due to poor job market conditions.

> 5.18   Experian also factor in known changes to state pension ages[47], and apply assumptions to economic activity rates to offset the impacts of the ageing population. Indeed, as the following chart shows[48], a continuation of current participation rates at a national level ('flat') would result in a fall in overall economic participation, and this implies that some changes would be required to maintain current participation levels. The green line ('pension only') illustrates the impact that known changes to state pension ages (SPA) would have on participation rates in the future, with Experian's analysis highlighting that this is considered to have only a marginal impact. The blue line ('baseline') shows the assumptions currently made by Experian to broadly maintain current levels of participation, although it should be noted that similarly detailed information is not available for the June 2014 forecast on which the RELP was based.

Figure 5.4:   Counterfactual vs Forecast Participation Rate 16+
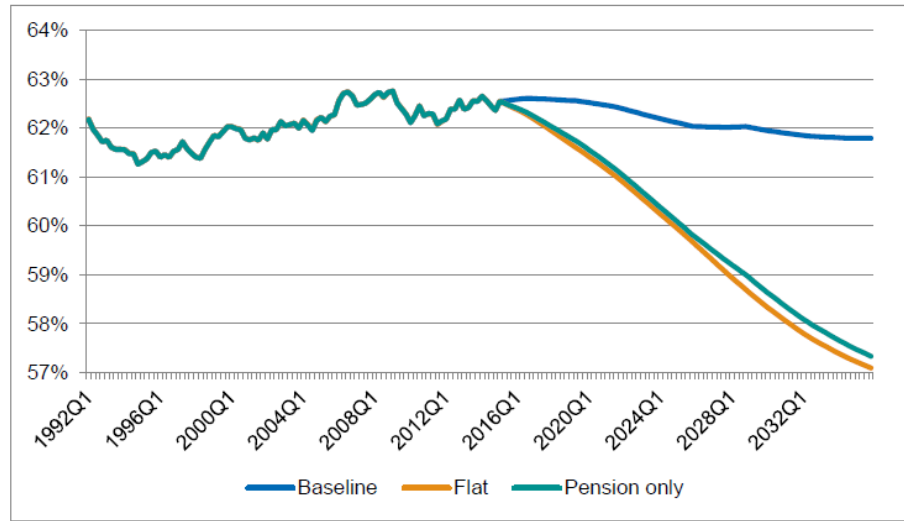
Source: Experian, 2015

5.9. Turley's Figure 5.4 shows how dramatic the difference is between the 'Pension only' approach they use and the 'Baseline' approach used by Experian. They recognise that this has a large impact on the estimate of the number of homes needed in their paragraph 5.24 in which they comment that, *"A departure from these recent trends – with increased participation levels amongst older people in particular, as forecast by Experian and the Office for Budget Responsibility – would result in a greater utilisation of the existing labour force, thereby requiring a lower level of population growth to support [the] job creation associated with each of the employment-led scenarios."* They then go on to illustrate how large the impact of using different and higher economic activity rates would be in Figure 5.9, which shows the effect of using the OBR activity rates:

Figure 5.9:   Employment-led Modelling Outputs – Impact of OBR Economic Activity Rate Sensitivities

	Change 2013 – 2031		Average per year	
	Population	Households	Net migration	Dwellings
Baseline	23,817	12,449	1,130	727
Baseline (OBR)	19,926	10,947	934	639

Source: Edge Analytics, 2015

5.10. As can be seen, using the OBR rates reduces the number of homes needed by 88 homes a year or 12%. Unfortunately, Turley does not show the impact of using the Experian economic activity rates. NMSS analysis based on the an estimate of the working age population increase assumed by Experian (drawn from Turley's Figure 5.10) suggests that number of homes needed is in fact in the range 460 – 500 homes a year. That is 227 – 267 homes a year less than suggested by the Turley analysis.

5.11. The mistake that Turley has made in interpreting the Experian jobs forecast is,

unfortunately, not an uncommon one. Such approaches have recently been challenged in a number of planning appeals and rejected by inspectors. An example is an appeal relating to a site known as Nipsells Farm Lodge in Maldon District in Essex[12]. The decision letter contained the following. The reference to "this view" in the first line is to the appellant's view on the number of additional homes needed to support job growth:

> 29. The appellant has come to this view by taking the average of three projections made by Cambridge Econometrics, Oxford Econometrics and Experian Econometrics. These three projections differ significantly in their forecasts from 3153 jobs to 934 jobs. To a large degree, this is likely to be because they apply different economic activity rates. The appellant has averaged these three forecasts and then applied a nationally derived Office of Budget Responsibility Rate (OBR) of economic activity. I agree with the Council that this approach appears to ignore the fact that the three forecasts above already contain views of the relationship between the number of people in an area and the number of jobs. The appellant's approach attempts to estimate the number of people needed to support a forecasted increase in jobs by applying assumptions about the relationship between jobs and population that are different to those used in the original forecasts. This does not seem a robust approach in my view, as it has the potential to over-inflate the projection of homes to meet future job growth.

5.12. The NMSS conclusion on the Turley analysis is the same as the Inspector's conclusion on the appellant's analysis in the Nipsells Farm appeal i.e. that the approach taken by Turley has over-inflated the estimate of the number of homes needed to support job growth and done so by a margin of more than 200 homes a year.

5.13. The above discussion is fairly technical and an alternative way of looking at the issues may be helpful. An up to date demographically-based estimate of Lancaster's housing needs produces a range of 240 – 320[13] homes a year, depending on the assumptions made. That can be taken as an indication of the homes needed if the population develops in line with past trends. Turley's analysis suggests that a much larger increase in population will be needed and that 727 homes a year are required. This additional population and workforce will have to come from somewhere else in the UK. The implication is that people who, if past trends had been followed would have been living somewhere else, will instead choose to come to Lancaster. Is it plausible that the Lancaster economy will so outperform the rest of the UK that the number of homes needed will rise from 240-320 to 720?

5.14. The interaction between the jobs forecasts for the area and the latest (lower) population projections should not be overlooked. In some sectors such as health, education, accommodation and food and retail the number of jobs is likely to be related to the size of the population. For example, if there are fewer children, fewer school teachers will be needed. This means that the Experian forecast

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   Appeal Ref: APP/X1545/W15/3139154. Decision letter dated 7 December 2016

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   See paragraph 4.18.

which are based on earlier and higher population projections are likely to exaggerate the likely jobs growth. This is further reason why updated jobs forecasts should be obtained.

The Verification Study

5.15. The Verification Study continues to make the same mistake as the IHRS in applying a different set of economic activity rates in interpreting jobs forecast than those used in creating those forecasts. The results achieve are therefore fundamentally flawed.

5.16. This fundamental flaw makes further analysis of the Verification Study discussion of the housing needed to support jobs growth of little value, but the following points might be noted.

- The (flawed) analysis in the IHRS is updated to reflect the new demographic scenarios based on the 2014 SNPP. That analysis now needs to be further updated reflect the 2016 SNPP and the 2017 MYE.

- The Verification Study uses a different set of economic activity rates from those adopted in the IHRS – those provided with the OBR's 2017 Fiscal Sustainability Report (2017 FSR). Those economic activity rates have now been superseded by the 2018 FSR, which suggest higher economic activity rates. This is therefore a further aspect of the Verification Study that is out of date.

- The OBR economic activity rates are not consistent with the bullish job growth rates envisaged for Lancaster. The 2018 FSR rates, for example, are consistent with an annual jobs increase of only 0.23%. (It should be noted here that the 2018 FSR takes it as self-evident that population growth, economic activity rates and job growth are directly interrelated. To put it in simple terms, if you assume a low increase in economic activity rates you must necessarily have a lower jobs increase forecast than you could have had had you assumed a higher increase in economic activity rates simply because, for a given size of future population fewer jobs can be filled. The Turley approach of adopting a lower economic activity rate assumption and a high jobs increase would, if replicated on a national scale, result in the working population of the country being fully spoken for before all of the jobs envisaged had been filled.)

Conclusion on homes needed to support economic growth

5.17. **The approach used in estimating the number of homes needed to support job growth is very seriously flawed in the Turley analysis**. **It is likely to have resulted in an estimate of the OAN that exaggerates the area's housing need by more than 200 homes a year.**

5.18. **However, the above analysis also suggests that an analysis that uses economic activity rates consistent with the baseline Experian job forecast would require significantly more homes than indicated by the**

demographically-based analysis. In the absence of access to all of the necessary data only an approximate estimate can be made, but this suggests that 460 to 500 homes a year might be needed.

5.19. Finally it should be noted that all of the Turley analysis of the homes needed to support job growth takes as its starting point demographic analysis that is, as discussed in Chapter 3, now badly out of date. The analysis should be thoroughly updated using the latest demographic data; and more recent employment forecasts (which take account of the lower population growth now forecast); and economic activity rates that are consistent with the forecasts used.

6.   Market signals

6.1.   Section 6 of the IHRS reviews market signals. This report reviews the evidence presented there and assumes that the data used has been accurately extracted; a free-standing review of latest market signals data has not been carried out.

**6.2.**   Turley's Figure 6.1 presents selected data for mean house prices:

Figure 6.1:   Change in Mean House Prices 2001 – 2014

	2001	2007	2014	% Change
Lancaster	£67,460	£157,719	£162,401	140.7%
Ribble Valley	£104,483	£230,802	£228,048	118.3%
England	£121,768	£218,959	£264,350	117.1%
Craven	£99,060	£215,430	£210,169	112.2%
South Lakeland	£114,149	£242,856	£238,879	109.3%
Wyre	£78,641	£172,271	£159,373	102.7%

Source: Land Registry, 2015

6.3.   There are dangers in comparing house prices based on individual years as house prices in different districts fluctuate relative to one another from year to year. This means that the choice of the beginning and end of the period used to compare house price changes can have a significant effect on the picture that emerges of the relative movement in prices. In some cases by choosing one period you can show that prices in Authority A have risen faster than in Authority B and by choosing a slightly different period you can show that the reverse is true! A better approach to comparing house prices (and other market indicators) is to present the data graphically so the overall picture can be seen, not just the picture that emerges from individual years.

6.4.   Notwithstanding this reservation, it is clear from the data presented that house prices in Lancaster are low relative to England and the comparators chosen. Indeed, mean house prices in Lancaster are lower than in the comparator areas shown in all cases except Wyre in 2014.

6.5.   Turley notes that Lancaster has seen the highest percentage house price growth. This is the case but, as Turley notes, the percentage increase is from a low base and the house price in 2014 remains below the England mean and most of the chosen comparators. That being so the Turley conclusion that "this rate of growth may be indicative of a potential imbalance between supply and demand in Lancaster" is highly doubtful, particularly when other evidence such as the mis-match between completions and outstanding consents is taken into account. It may simply be that there has been a degree of 'catching up' in Lancaster's house prices, perhaps as a result of people who have been priced out of nearby areas have moved to the district to find somewhere they can afford.

6.6.   The evidence on rents and rent increase is clear: neither suggests any imbalance between supply and demand.

6.7.   As far as the lower quartile house price affordability ratio is concerned Turley's Figure 6.4 shows that Lancaster's ratio is below that of the comparators by a modest margin and has moved in line with those comparators:

Figure 6.4: Ratio of Lower Quartile House Price to Earnings (1997 – 2013)
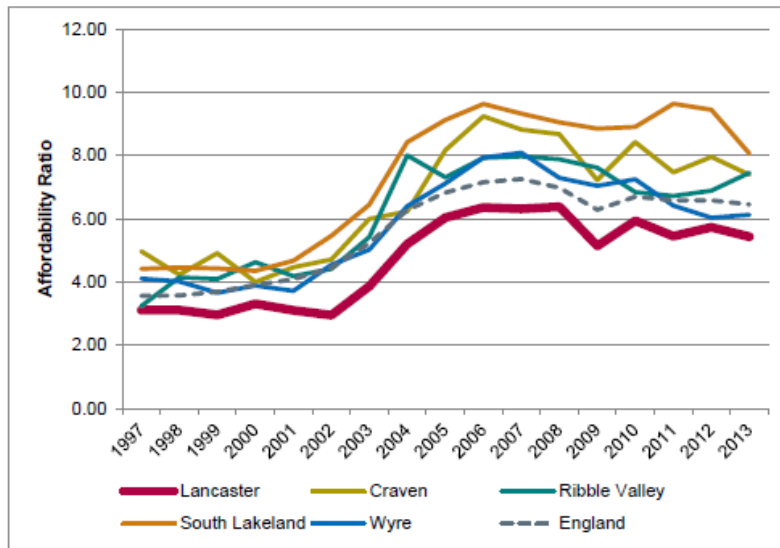
Source: DCLG, 2014

6.8. Again there is no indication of an imbalance between supply and demand.

6.9. The need for affordable housing is discussed next in the IHRS but is not listed in the PPG as a market indicator and so will not be discussed here.

6.10. Turley's Figure 6.6 compares net completions with the housing requirements set first in the Structure Plan and the in the Regional Spatial Strategy:

**Figure 6.6: Net Completions 1999/2000 – 2014/15**
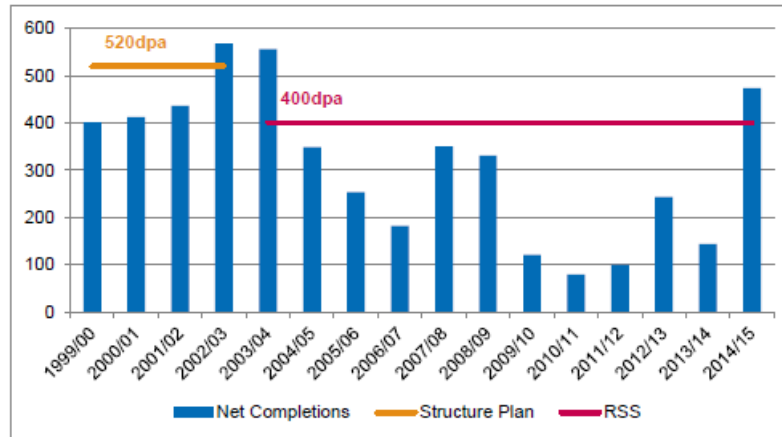
Source: Lancaster City Council, 2015

6.11. The key point to note is that neither the Structure Plan not the Regional Spatial Strategy were prepared on a basis that is consistent with the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG). This means that the housing requirements that they set are not necessarily reliable indications of need as it should be understood in the context of the (NPPF) and the (PPG). It follows that the failure to deliver houses and the rates indicated in those documents does not necessarily mean that the market was undersupplied.

6.12. Reference is also made to a 'policy of constraint' which is said to have *"....sought to promote urban regeneration in urban areas by reducing the potential for*

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dwelling completions to exceed the housing requirement."   Turley says that the exact impact of this policy is difficult to quantify but that it was cited as a reason for refusal in a number of applications and may have deterred potential developers from submitting applications.   However, Figure 6.8, which compares new and extant planning permissions with net completions, is hardly consistent with a housing market that has been constrained by planning policies.

Figure 6.8:   Annual New and Extant Planning Permissions 20003/04 – 2014/15
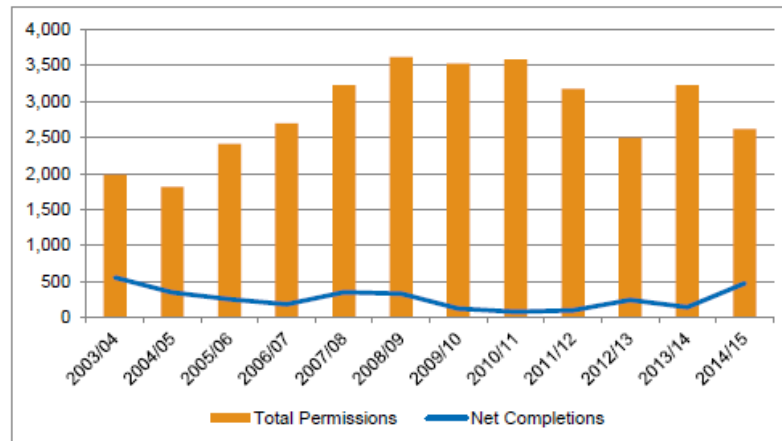
Source: Lancaster City Council, 2015

6.13. Turley notes that the completion rate represents only 10% of all units with permission each year and comment that, *"...this could suggest market factors affecting the rate of delivery rather than a prohibitive policy approach*."   Indeed, it suggests that factors such as the lack of appetite for development or viability could be much larger issues than the availability of planning consents.

6.14. In paragraphs 6.31 to 6.36 Turley reviews the (limited) data on land prices and conclude that, "*there is little evidence to suggest a significant price premium for residential land in Lancaster*".

6.15. On overcrowding Turley concludes that the proportion of overcrowded households is higher than the chosen comparators but below the England proportion.   Similarly, the increase in overcrowding between 2001 and 2011 is above that in all but one of the comparators, but below the England increase.

6.16. The picture is very similar on concealed households with the 2011 proportion of concealed households being above that in the comparators and below the England level.   However, the percentage increase in the number of concealed households between 2001 and 2011 was below that in all but one of the comparators and little more than half the England percentage.

6.17. Turley's analysis is brought to together in the summary table in Figure 6.15, reproduced below for ease of reference).   In this table a score of 1 indicates that an authority was worst of the chosen comparators and a score of 6 that it had the least indication of a problem.

Figure 6.15: Market Signals Summary

	Lancaster	Craven	Ribble Valley	South Lakeland	Wyre	England
House prices						
Change (mean) 2001 – 2014	1	4	2	5	6	3
Change (LQ) 2001 – 2014	1	5	2	4	6	3
Rents						
Change (mean) 2011 – 2014 (2 beds)	5	2	3	4	6	1
Change (LQ) 2011 – 2014 (2 beds)	5	1	3	2	6	3
Affordability						
Change 1997 – 2013	4	6	1	2	5	3
Overcrowding						
Change 2001 – 2011	3	4	5	2	6	1
Concealed families						
Change 2001 – 2011	5	3	6	4	2	1

Source: Turley, 2015

6.18. As can be seen from this table, the only area highlighted is the change in house prices. However, as mean house prices are low and remain below both the England average and all but one of the comparators, the faster rate of increase probably represents a degree of catching-up rather than anything that suggests a significant market imbalance. As this is the only basis on which there could potentially be a case for a market signals adjustment, it is surprising that Turley goes on to explore a possible adjustment in the shape of a household formation rate 'floor'.

6.19. Turley then reviews past and projected household formation rates for Lancaster and compare these with the rates for England as whole – their figure 6.16, part of which is reproduced here for ease of reference.

Figure 6.16: 2012 Headship Rates in Lancaster and England
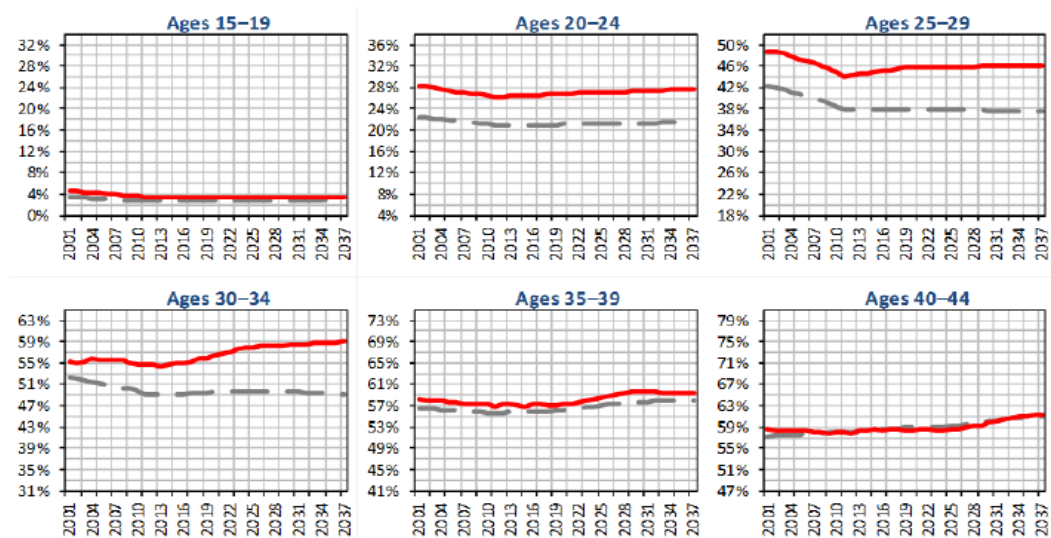
6.20. Turley comments that, "*….it is clear that household formation rates have fallen in younger households in particular.*" It is the case that there has been a fall in household formation rates, but the comparison which their charts suggest with national household formation rates is misleadingly oversimplified.   This is because they compare the aggregate household formation rates for 5-year age groups for all 'marital status groups' i.e. lumping together couples, single people and those who have previously been married and, ignoring the fact that some age groups in Lancaster are likely to have a different mix of couples, single people and those previously married than England as a whole. This matters because couples generally have higher household formation rates than single people and those previously married. That means that if a 5-year age group in Lancaster has a lower proportion of couples in it than in the country as a whole (as might be expected in age groups with significant numbers of students) then the aggregate household formation rate for Lancaster is likely to be lower than the aggregate rate for England as a whole, even if the rates for couples, single people and those previously married are the same as or higher than those for England.

6.21. The charts in Turley's Figure 6.16 suggest that household formation rates in the 20-24, 25-29 and 30-34 age groups are significantly higher than for England as a whole but that in the 20-24 and 25-29 age groups Lancaster has shared in the national decline in household formation rates. What Turley seems to overlook is that in these age groups and in the 30-34 age group Lancaster is projected to fare significantly better than England as a whole. This becomes even clearer if you look at the different marital status groups separately. While this may be true for the aggregate household formation rates, it is not the case if you look separately at the position for couples, single people and those previously married. For example, Figure 6.1 compares the household formation rates for couples aged between 20 and 34:


Figure 6.1: Comparison of Stage 1 household formation rates: Lancaster and England: Couples
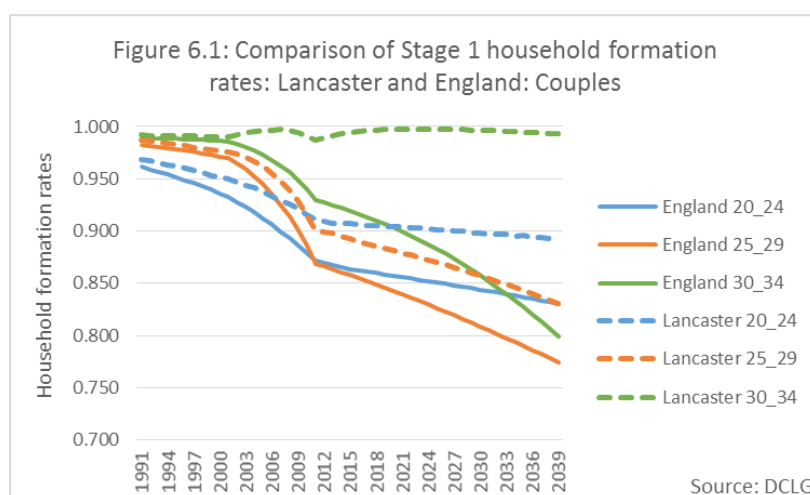
6.22. As Figure 6.1 shows, for each age group the household formation rate for couples in Lancaster is significantly higher than for England as a whole. Moreover, for those aged 30-34, the household formation rate is projected to remain close to 1 (i.e. 100%) in Lancaster rather than falling steeply as in the rest of the country.

This means that, in these age groups, a couple in Lancaster has a higher probability of having its own household than the average for couples elsewhere in the country.

6.23. Figure 6.2 shows the equivalent charts for the other 'relationship groups': single men and single women and previously married men and women. Note that with one exception (single men aged 30-34) the household formation rates for Lancaster are higher than in the rest of the country. In the case of single men aged 30-34 they appear to have been lower than the rest of the country since at least 1991. It is strange that there is this one exception: it may perhaps be due to some local demographic peculiarity. However, for this group household formation rates are projected to rise steadily from 2011.

Figure 6.2: Household formation rate comparisons for singles and previously married people in Lancaster and England
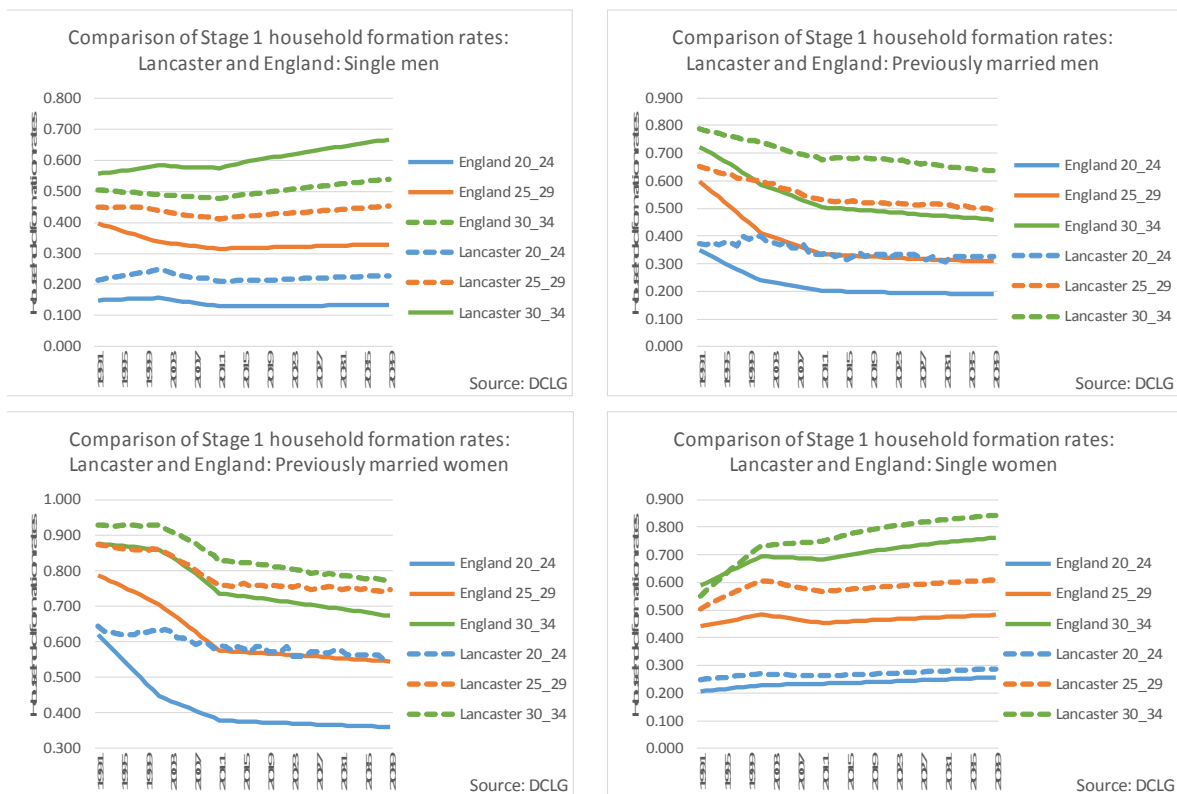
6.24. Given that, with that one exception, the probability that someone in Lancaster aged 20-34 will form a separate household is projected to be better than in the rest of the country, there is no need to make a household formation rate adjustment along the lines proposed (i.e. applying a 'floor' so that by the end of the plan period no group has a lower household formation rate than it had in 2001). Indeed, there are instances in which planning appeal inspectors have rejected such adjustments.

6.25. An example concerns a site in Mickleton, in Cotswold District[14]. In this case the

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  Appeal Ref: APP/F1610/A/14/2228762. Land to the east of Broad Marston Road, Mickleton, Gloucestershire, GL55 6R9. Decision letter dated 23 September 2015

appellant had argue that, for the purposes of determining whether the local authority had a 5-year housing land supply, the OAN should be calculated for those aged 25-34 on the same basis as proposed by Turley. The inspector was clear that it was not necessary to make such an adjustment, commenting that it was not clear why the headship rates for the 25-34 cohort should return to the highest level achieved in the last quarter of a century. The key extract from the decision letter is below.

6.26. This is, of course, a case in which the appellant rather than the council was arguing that the adjustment should be made. It is a different matter for a local authority to <u>choose</u> to set a housing requirement which takes account of the impact of a '2001 floor' on household formation rates, but we should be clear that this is a choice, not something that is required by the Planning Practice Guidance. Moreover, even if an authority chooses to make such an adjustment, the Cotswold inspector's comment on it not being clear why headship rates should return to the highest levels seen in the last quarter of century are still relevant.

23. Both assessments concur that an average of some 320dpa would be required to meet the demographically induced housing needs of the District up to 2031. But, the assumptions behind that concurrence are quite different. For the Council the 2012-based projections are adjusted by 'smoothing' out migration levels to reflect the last 10 years rather than rely on the trends derived from the steeper falls experienced during the recent recession; that seems reasonable to me. For the appellants, the 2012-based projections are adjusted by assuming that the household headship rates for the 25-34 year old cohort departs from the trend projected to achieve a level last attained in 2001 by the end of the plan period. And (though with less impact) that the household headship rates for the 35-44 year old cohort reverts to the modestly increasing trend evident in the 2000s.

24. I fear that both those assumptions are baseless. The proffered explanation that past trends will return as constraints caused by the recession and housing unaffordability ease, fails to address either the evident onset of declining headship rates some 8 years before the 'crash' (during which time the markets, awash with mortgage finance, staged a mini house building boom) or the foreseeable continuation of further severe constraints manifest in the added burden of financing higher education, the absence of previously available welfare benefits and the post-recession tightening of mortgages. Nor is it clear why the headship rates for the 25-34 year old cohort should return to the highest level achieved in the last quarter of a century, which is what the level attained in 2001 actually is. And, since the only credible explanation for the adjustments to the headship rates in the 35-44 year old cohort is to reflect the 'cohort effects' of the 25-34 year olds, the adjustment must be equally unwarranted. In any case, it is not clear that either of these adjustments reflects any local demographic departure not captured in past national trends, as the Guidance suggests.

Verification Study

6.27. The Verification Study presents some updated analysis of market signals. This includes the use of a widen set of comparator authorities which strangely includes some south east authorities which are in very different areas. The analysis is brought together in a new summary table.

6.28. As in the Turley Report, this highlights the change in house prices as an indicator on which Lancaster performs badly (discussed above). The new feature is the change in affordability where Lancaster ranks second worse out of ten. On this it might be noted that:

- In the equivalent analysis in the Turley report Lancaster was ranked fourth

out of six but that the period over which change was compared in that report was 1997-2013 rather than 2001-16 used in the Verification Study. This change in ranking may simply be an example of how choosing a different trend period can produce a radically different impression of relative performance.

- Lancaster is the most affordable of the comparator areas.

- The change in affordability represents (as Turley acknowledges) an increase from a particularly low base as a result of a degree of realignment with the national picture on house prices and affordability.

6.29. In short, there is nothing in the Verification Study that contradicts the self-evident fact that Lancaster is one of the authorities in the country for which there is least case for a market signals adjustment.

Conclusion on market signals

6.30. The clear conclusion from the evidence assembled by Turley is that there is not a case for a market signals adjustment for Lancaster. In particular, there is no requirement in the Planning Practice Guidance that headship rates should be assumed to return to some previous level and no justification for making such an adjustment given that in the 20-34 year old age groups there is generally a higher chance of forming a separate household than there is in the rest of the country.

7. Summary and conclusions.

(a) The demographic estimate of housing needs

7.1. The review has found that Turley's demographically-based estimates were broadly accurate when they were first produced. However, given the large scale and potential impact of UPC, we believe that Turley is wrong to disregard UPC.

7.2. The NMSS model has also been used to update the analysis carried out by Turley to reflect more recent DCLG household projections – the 2014 SNHP, the 2016 SNPP and the 2017 Mid-Year Estimates (2017 MYE). The last two of these incorporate significant changes in methodology and assumptions by the ONS. Analysis has also included the use of 10-year trend periods for flows within the UK (to minimise the impact of volatility) and scenarios in which adjustment has been made for UPC. These change the estimates of the number of homes needed substantially. The results are summarised in Figure 3.4, which is reproduced below:

Figure 3.4: Summary of demographic OAN scenarios	Change 2013-31		
	Population change	Household change	Dwellings a year
2012 SNHP	6974	5850	341
2012 SNHP 10YR	14071	8927	521
2012 SNHP 10YR UPC	7920	6710	392
2014 SNHP	11493	7049	413
2014 SNHP 10 YR	12753	7816	458
2014 SNHP 10 YR UPC	5656	5224	306
2014 SNHP 10 YR UPC NPP	3988	4183	245
2014 SNHP 10YR 50% UPC NPP	7107	5405	316
2016 SNPP	6525	4572	268
2016 SNPP 10 YR	7162	4933	289
2017 MYE - Version 1	7684	5237	307
2017 MYE Version 2	4756	4086	239
2017 Version 2 10YR	4895	4046	237

7.3. Note that the scenarios which are based on the 2016 SNPP and the 2017 MYE are generally lower and similar to the scenarios which adjust for UPC.

(b) Unattributable Population Change (UPC)

7.4. A review of the detailed data on UPC and statistics from Lancaster University on the destinations of their alumni suggests strongly that there has been substantial underestimation of out-migration flows in student age groups. This could well have accounted for 100% of UPC and it appears to have continued after the 2001 census. This suggests that considerable weight should be given to the scenarios that take account of UPC.

7.5. As there are good reasons for believing that at least 50% and possibly as much as 100% of UPC is attributable to migration and analysis based on those

assumptions produces result that are very similar to the numbers produced using the latest population estimates and projections, it is reasonable to use the figures generated by the 50% and 100% assumptions as end points for the range of demographic OAN estimate. This suggests that we should take 240-320 homes a year (2013-31) as the demographically-based estimate of the OAN as this range also encapsulates the results based on the 2016 SNPP and 2017 MYEs.

(c) Housing needed to support economic growth

7.6. The IHRS considers the implications for housing of a Baseline employment forecast produced by Experian that envisages that 6,848 new jobs will be created between 2013 and 2031 and a Baseline+ scenario that envisages 7,645 new jobs. It is estimated that 727 homes a year would need to be provided to attract a sufficiently large population to support the Baseline forecast and 765 homes a year to support the Baseline+ scenario.

7.7. Turley uses economic activity rates produced by the OBR in estimating the size of population (and hence the number of homes) needed to support the number of jobs envisaged in the two economic scenarios. Those economic activity rates are different from those implicit in the forecasting model used by Experian in producing the Baseline forecast. Had Experian used OBR economic activity rates they would have reached a different conclusion about the number of jobs that are likely to be created, and probably a lower one. The estimates made by Turley of the homes needed to support the two jobs scenarios are therefore flawed.

7.8. It should also be noted that the Experian forecasts pre-date the recent and lower population projections for Lancaster. As the number of jobs in some sectors such and education, health and retail depend on the size of the population, updated forecast should suggest fewer jobs in these areas.

7.9. Without access to the full outputs from the Experian modelling only an approximate calculation can be made of number of homes needed to support the Baseline forecast. This suggest that the Turley calculations may have overestimated the number of homes needed by around 200 homes a year, and possibly significantly more. They should be redone based on more recent employment forecasts, and the latest demographic data and economic activity rates consistent with the forecasts.

(d) Market signals

7.10. The housing market indicators for Lancaster do not suggest that the housing market is under particular stress as a result of an undersupply of new homes.

7.11. Turley compares past and projected household formation rates in Lancaster with national rates and note that rates have fallen for younger households. However, the comparison they make is misleading as they looks only at aggregate household formation rates for 5-year age groups and does not differentiate between the different types of households. A more detailed analysis which looks separately at the household formation rates of couples, single people and those previously married shows that in all but one group, household formation rates

for those aged 20-34 in Lancaster are higher (and in many cases significantly higher) than in the rest of England. This means that those aged 20-34 in Lancaster are more likely to be able form their own, separate household than these in similar groups in the rest of the country – the reverse of what is suggested by the graphs included in the Turley report. That being so, there is no case for the adjustment to household formation rates suggested by Turley (which adds 30 – 40 homes a year to their estimates of the number of homes needed).

(e) The Verification Study

7.12. The Verification Study of February 2018 updates the IHRS to reflect the 2014 SNPP. However it pre-dates:

    a. The revision to the Mid-Year Estimates for the period 2012-16 which the ONS published in March 2018. This changes some of the historical data used in the 2014 SNPP and the scenarios produced for the Verification Study.

    a. The 2016 Sub-national Population Projections (2016 SNPP) published in May 2018 which incorporate new assumptions for fertility and mortality rates and a revised projection for net international migration.

    b. The 2017 Mid-Year Estimates (2017 MYE), published on 28 June 2018. These incorporate a number of methodological changes as well as providing a further year's data.

7.13. The Verification Study is therefore an update that is badly in need of further updating. In particular it pre-dates the data and projections used to create the last 5 of the scenarios shown in Figure 3.4 (reproduced above).

7.14. Given that the Verification Study needs updating there is little in it that remains relevant. However, it might be noted that:

    a. The conclusion that the Verification Study reaches on the demographic OAN depends on a longer term trend projection which, rather unusually, takes a 13-year period (2003-16) as its trend period. Had it taken a more conventional 10-year trend period it would have concluded that the demographic OAN was lower.

    b. The Verification Study continues to dismiss the need to adjust the projections for UPC despite the advice of Edge Analytics (who have produced the analysis on which Turley relies) that the official population estimates may be continuing to overestimate the population of Lancaster.

    c. The Verification Study includes advice from Edge Analytics that, "Forthcoming changes to the ONS's methodology for estimating domestic student moves and, most importantly, emigration flows, is likely to provide further evidence on the current robustness of Lancaster's MYE statistics." It is significant that those updates (which have been incorporated in the 2016 SNPP and the 2017 MYEs) result in housing need estimates that are similar to the figures obtained when the earlier projections are adjusted for UPC. This reinforces the case for adjusting those projections for UPC.

7.15. The Verification Study makes the same mistake in estimating the number of homes needed to support jobs forecasts as the IHRS in that it uses economic activity rates which are different from those in the forecasts being analysed. It uses OBR activity rates that have since been superseded and are not consistent with the bullish employment forecasts which have been adopted for Lancaster. The Verification Study's conclusion on the number of homes needed to support job growth are therefore fatally flawed.

Conclusions

7.16. Based on the data and analysis presented by Turley, Lancaster is an example of an authority for which the number of homes needed to support forecast job growth is higher than number of homes suggested by an analysis that assumes that past demographic trends continue. The number of homes needed to support jobs growth therefore determines the area's full objectively assessed need for housing i.e. the Full OAN is 'jobs-led'.

7.17. This means that the Full OAN is determined by two factors:

   a. the estimate of the size of population needed to support the forecast job growth; and,

   b. the assumptions made about household formation rates, which determine how many homes are needed to accommodate the estimated population.

Turley's analysis in both of these areas is flawed. It follows that their conclusion that the Full OAN is 650 – 700 homes a year (2013-31) overestimates the housing need, possibly by 200 homes a year or more. A corrected and updated analysis is therefore needed before there is a sound basis on which to set the housing requirement in the Local Plan.

September 2018