

Modelling the economic implications of the proposed housing requirement

Calderdale Council

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1. Introduction and scope

- 1.1 Calderdale Council ('the Council') has commissioned Turley, as authors of its recent Strategic Housing Market Assessments¹ (SHMAs), to produce further technical evidence on housing need and requirements in the context of the ongoing examination of its Local Plan.
- 1.2 The Council has proposed a requirement for 840 dwellings per annum² (dpa) within the submitted Local Plan, over the period from 2018 to 2032. This was derived from the standard method for assessing housing needs, which was introduced through revisions to the National Planning Policy Framework³ (NPPF) and applies for the purposes of examining plans submitted after 24 January 2019. The Calderdale Local Plan was submitted to the Planning Inspectorate on 11 January 2019, and as such it is being examined against the policies of the former NPPF and its related guidance. The Inspector has nonetheless advised, through her letter following Stage 1 hearings, that *'the use of the standard method for assessing local housing need could, in principle, be appropriate for transitional plans where particular circumstances are demonstrated'*⁴.
- 1.3 The Inspector has, however, noted the availability of evidence which *'indicates that actual housing need is higher than the standard method indicates, and that an uplift above the minimum figure is warranted to support likely employment growth'*⁵. Reference has been made to the 2018 SHMA, which:

*"...identifies the amount of housing needed to support likely future job growth, amounting to some 1001 dpa to support baseline employment growth and 1,129 dpa in connection with the Council's 'policy on plus transport' scenario. The study highlights the ageing nature of the population in Calderdale, and the role that additional housing plays in providing further working age residents to support jobs growth. In order to support future employment growth in the borough, the SHMA concludes overall that the OAN for Calderdale is 1001dpa, but that the Council should take into account 'policy-on' factors relating to LEP priorities and the effects of infrastructure investment when translating the OAN into a housing requirement in the Local Plan"*⁶

- 1.4 Accordingly, the Inspector considers that:

"...housing need in the borough is higher than 840 dpa and is likely to amount to at least 1001 dpa. This would support baseline employment growth as a minimum, and aligns with the SHMA recommendations. It would also provide a better balance between identified OAN for housing and employment in the submitted Plan. Although the SHMA indicates that a higher housing figure of 1,129 dpa is needed to support the 'policy on plus transport' employment growth scenario, the relationship between

¹ Turley (2015) Shaping the Housing Future of Calderdale – Strategic Housing Market Assessment [EV 35]; Turley (2018) Updated Review of Objectively Assessed Housing Needs in Calderdale [EV 36]

² Calderdale Council (2018) Calderdale Local Plan Publication Draft [SD 01.1] Policy SD3

³ MHCLG (2018/19) National Planning Policy Framework, Annex 1

⁴ Inspector's Stage 1 Post Hearings Letter to the Council, 16 July 2019 [INS 07]

⁵ *Ibid*, paragraph 11

⁶ *Ibid*, paragraph 9

employment growth and new housing is complex, and I note that the Council is actively seeking to increase participation rates through its Inclusive Economic Strategy (2018). It is also possible that other interventions may affect the labour force in addition to net migration”⁷ (emphasis added)

- 1.5 On this basis, the Inspector has expressed concern that *‘the Plan’s provision for housing would not adequately support the employment growth advanced by the Plan, and could result in higher rates of in-commuting or conversely impact on the ability of businesses to grow and develop’⁸*. The Council has therefore been *‘requested to consider the implications of the above conclusions for the housing need and housing requirement figures in the submitted Plan, and confirm how it wishes to proceed’⁹*. The Inspector has noted that this may require *‘further work...to assess the implications of housing need and requirement figures which align more closely with the Plan’s economic strategy’¹⁰*.
- 1.6 This technical report has been commissioned to inform the Council’s response to these initial conclusions, as advised in its recent letter to the Inspector¹¹. It seeks to ensure that the relationship between housing provision and planned job growth can be fully and clearly understood on the basis of the latest available information in accordance with the PPG¹², and over a consistent timeframe given that the plan period was changed after the latest SHMA was completed. This provides an up-to-date position on the number of homes required over the chosen plan period to support job growth, and transparently provides further detail on how the labour force is assumed to behave within the modelling. This recognises the inherent complexity of relating new housing provision with employment growth, as highlighted by the Inspector.
- 1.7 Furthermore, this report fills a gap in the Council’s evidence base by estimating the job growth that could be reasonably expected where the proposed housing requirement of 840 homes per annum is retained and delivered. This shows the likely long-term economic impact of such a level of provision, and provides the Council with a fuller understanding as to the relationship with planned job growth.
- 1.8 On this basis, this short report is structured as follows:
- **Section 2 – Homes needed to support future job growth** – the conclusions of the 2018 SHMA are introduced and updated where appropriate, to fully align with the selected plan period and take account of the latest available information. The section also provides the Council with additional outputs to understand how the labour force is assumed to respond to job growth within the modelling to inform its judgement in considering an appropriate housing requirement;

⁷ *Ibid*, paragraph 11

⁸ *Ibid*, paragraph 12

⁹ *Ibid*, paragraph 12

¹⁰ *Ibid*, paragraph 12

¹¹ Calderdale Council Response – Inspectors Post Hearings Letter [CC 16]

¹² As noted the Local Plan was submitted under the transitional arrangements and so reference should be made to the now archived PPG in the methodology to be followed for the calculation of housing need within this report. This also ensures consistency with the approach followed in the 2018 SHMA.

- **Section 3 – Job growth supported by the submitted Local Plan proposed housing requirement** – the job growth that could be supported through the provision of 840 dwellings per annum is estimated, recognising that this has not previously been modelled within the Council’s evidence base being based not on a scenario in the 2018 SHMA but on the Council’s application of the standard method calculation; and
- **Section 4 – Summary** – a concise summary of the findings of this report.

2. Homes needed to support future job growth

- 2.1 The 2018 SHMA considered the homes needed to support “baseline” and “policy-on” forecasts of job growth in Calderdale, over the period from 2016 to 2035. These job growth scenarios are common to those used within the Council’s 2018 Employment Land Study¹³ (ELS), albeit the assessment of housing needs is concerned with *total* employment rather than full-time equivalent (FTE) because one FTE job could be filled by two or more people working part-time who would be expected to require separate housing. The ELS is based on FTE employment, because the same amount of employment land is required to accommodate a job irrespective of whether it is filled by one full-time worker or two or more part-time workers. The absolute scale of job growth may therefore appear inconsistent when comparing the ELS and the SHMA, but they are ultimately underpinned by the same economic forecasts.
- 2.2 The Inspector’s letter refers to the average annual housing need that would be expected under each of the employment growth scenarios, as summarised in the introduction to this report. This section further describes the basis of these conclusions, which are reviewed to ensure that the latest available information is taken into account and fully align with the plan period that has since been used by the Council (2018-33) in its submitted plan. It also provides further details on how the labour force is assumed to respond to job growth within the modelling.

Supporting baseline employment growth

- 2.3 Based on POPGROUP¹⁴ modelling configured by Edge Analytics, the SHMA estimated that 1,001 dwellings per annum would be needed to grow the labour force and support the creation of 9,430 new jobs between 2016 and 2035. This drew upon baseline forecasts produced through the Regional Econometric Model (REM), which is developed for the West Yorkshire Combined Authority (WYCA) by forecasting house Experian. As noted above, the same forecasts also featured within the Council’s ELS albeit this was required to focus on FTE jobs rather than *all* jobs. It also considered needs over a shorter period to 2032. The consistent use of the same employment forecast is considered to provide the integration required by the relevant NPPF¹⁵.
- 2.4 The modelling presented in the SHMA indicated that higher levels of net in-migration beyond the long-term historic trend, though not without recent precedent, would be necessary to grow the labour force and support this baseline job growth¹⁶. In modelling the relationship between job growth and population change, a series of assumptions

¹³ Lichfields (2018) Calderdale Employment Land Study [EV 01]

¹⁴ POPGROUP is a family of demographic models that enables forecasts to be derived for population, households and the labour force. The main POPGROUP model is a cohort component model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions. The model is widely used by local authorities and private sector users to support Local Plan development across the UK

¹⁵ DCLG (2012) National Planning Policy Framework, paragraph 158

¹⁶ Turley (2018) Updated Review of Objectively Assessed Housing Needs in Calderdale [EV 36] Table 5.3 and Figure 5.2

around the behaviour of the existing and future labour force were required to be made¹⁷, with:

- **Unemployment** assumed to remain fixed at 4.4%, reflecting the improving rate recorded in 2016 which was lower than the pre-recession average;
- The **economic activity rates** recorded in Calderdale by the 2011 Census assumed to change thereafter in line with the then-latest national forecasts produced by the Office for Budget Responsibility (OBR) in 2017. Such forecasts are relied upon by the Government to inform future long-term budgetary planning, providing a consistent and robust source of information which ensures that reasonable assumptions are applied for the purposes of considering the wide range of factors – including, but not limited to, changes in the state pension age – that may influence participation rates over the long-term. The use of OBR rates has been accepted by a number of Local Plan and S78 Inspectors, as referenced in the SHMA¹⁸;
- **Double jobbing** remaining in line with the average recorded in Calderdale over the past decade, as recorded by the Annual Population Survey (APS), such that 3.7% of residents are assumed to hold a second job; and
- **Commuting** held fixed at the rate recorded at the 2011 Census, with a small net out commute. Such an approach is widely considered appropriate when objectively evidencing the need for housing, as noted in the SHMA, because strategies of recalling or attracting commuters require cross-boundary agreement with affected authorities and cannot be implemented unilaterally¹⁹.

2.5 These assumptions and their underlying justification remain largely valid, though – with the exception of commuting – can be slightly updated to take into account the latest available informing datasets as follows:

- The OBR released new forecasts²⁰ in July 2018, which – as previously – can be applied to estimate future changes in **economic activity rates**. This is again considered to provide the most robust and consistent source of information on the long-term changes that may affect participation;
- Further data released since the modelling in the SHMA was produced confirms that the recent trend of falling **unemployment** has continued, reaching 4.1% in both 2017 and 2018. Following the principle applied in the 2018 SHMA, unemployment can be assumed to remain fixed at this slightly lower rate throughout the plan period, and should not be relied upon to fall further given that a lower rate has been recorded in Calderdale only once since 2004 (3.9% in 2005); and

¹⁷ *Ibid*, paragraph 5.7

¹⁸ *Ibid*, paragraph 5.7

¹⁹ Planning Advisory Service (2015) Objectively Assessed Need and Housing Targets: technical advice note, paragraph 8.16

²⁰ OBR (2018) Fiscal Sustainability Report

- The rate of **double jobbing** in Calderdale fell in 2018, marginally reducing the long-term average to 3.6% when consistently calculated over the most recent ten year period for which data is available.
- 2.6 The opportunity has been taken in revising the modelling to ensure alignment with the period over which the Local Plan makes provision for housing, to enable a direct comparison with the proposed housing requirement and remove unnecessary inconsistency in this regard. In estimating the relationship between changes to the population and forecast employment growth, the modelling also takes full account of the 2016-based sub-national population projections (SNPP) and its more up-to-date assumptions on fertility and mortality rates and the likely profile of migrants, which reflect recent trends and ONS updates to the historic population estimates for Calderdale.
- 2.7 No account is taken of the 2016-based household projections, however, given the Government’s clear concerns around the reliability of this dataset specifically and particularly its new ‘*method for converting population change into estimates of household formation*’²¹. Household formation rates continue to be derived from the 2014-based projections, albeit with adjustments to allow for improvements from suppressed rates of younger household formation²². These adjusted rates were applied in the modelled estimates of housing need under the employment-led scenarios presented in the SHMA and referenced by the Inspector in her post-hearings letter.
- 2.8 When taking account of the latest available information using assumptions that are further detailed at **Appendix 1**, and fully aligning with the chosen plan period, the updated modelling suggests that **910 dwellings per annum** would be needed in Calderdale to support the baseline employment forecast between 2018 and 2033. This level of need represents a slightly lower level of housing provision than modelled within the 2018 SHMA (1,001 dwellings per annum), on an average annual basis noting the different plan period for which the need is calculated. It remains higher than the Council’s proposed requirement for 840 dwellings per annum over the same period, however.

Table 2.1: Supporting Baseline Employment Growth in Calderdale (2018-33)

	Change 2018 – 2033				Average per year		
	Population change	%	Households change	%	Net migration	Dwellings	Jobs
Baseline	17,827	8.5%	13,127	14.1%	830	910	519

Source: Edge Analytics, 2019

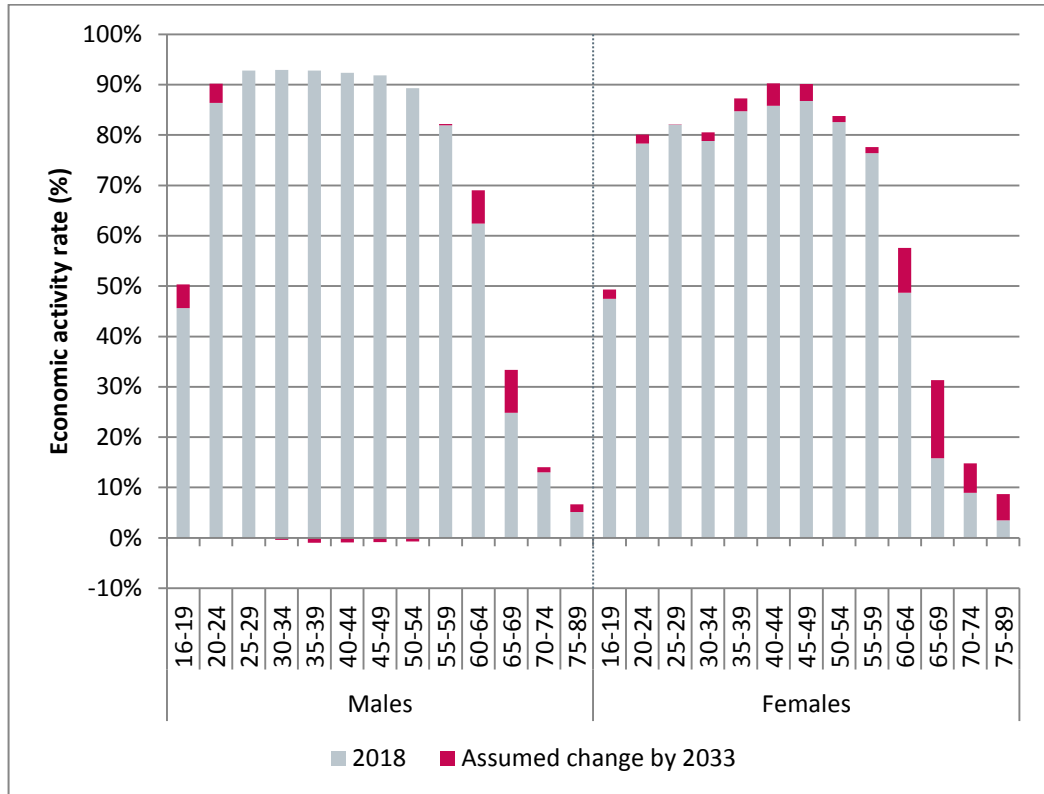
- 2.9 The labour force behaviours assumed within this modelling allow for the fact that some residents will not be economically active, or will be unemployed. This recognises the current operation of the local labour market and the current strength of Calderdale’s

²¹ MHCLG (2018) Technical consultation on updates to national planning policy and guidance, paragraph 11

²² Turley (2018) Updated Review of Objectively Assessed Housing Needs in Calderdale [EV 36] paragraphs 4.34 – 4.39

economy. The chart below shows, however, that the economic participation of most cohorts is assumed to rise over the plan period, reflecting the OBR forecasts, with the exception of males aged 25 to 54 which already have the highest rates of participation in Calderdale.

Figure 2.1: Assumed Change in Economic Participation by Age and Sex (2018-33)



Source: Edge Analytics; OBR; Turley analysis

- 2.10 A fixed proportion of this economically active labour force is assumed to remain unemployed, thereby allowing for a rise in the absolute *number* of unemployed residents of Calderdale over the plan period. Circa 4,771 people are assumed to be unemployed in 2033 within the model, representing a 7% increase from the 4,443 unemployed residents estimated in 2018.
- 2.11 In accordance with the 2018 SHMA these assumptions are considered robust for the purposes of presenting an objective assessment of housing need and recognise current local circumstances. They do not seek to take account of changes associated with the Council’s Inclusive Economic Strategy. This would require separate judgement to be made as to the likelihood of the success of proposed interventions and their alignment with the types of jobs forecast to be created.

Supporting “policy-on” employment growth

2.12 The SHMA similarly estimated the housing that would be needed to support a “policy-on” scenario, since described as the “Policy On Plus Transport” scenario within the ELS and the Inspector’s post-hearings letter²³. As described in the SHMA, this scenario:

“...accounts for likely growth beyond the baseline in key sectors targeted by the Leeds City Region Local Enterprise Partnership (LEP) as well as the direct and indirect job growth likely to be generated by infrastructure investment through the West Yorkshire Plus Transport Fund”²⁴

2.13 While 9,430 jobs were anticipated under the baseline, during the period covered in the SHMA (2016-35), this increased to 12,468 jobs where such policy-on factors were taken into account. Growing the labour force to support this rate of job growth was found to require a still further uplift from historic levels of in-migration, beyond that required to support the baseline forecast. The modelling presented in the SHMA indicated that 1,129 dwellings per annum would be required on average to support the policy-on scenario, between 2016 and 2035. This applied the original labour force assumptions summarised earlier in this section.

2.14 This scenario has been similarly remodelled to align with the plan period chosen by the Council and take account of the same updated datasets used to re-model the baseline scenario above. The outputs of this remodelling are summarised in the following table, and indicate that **1,040 dwellings per annum** would be needed in Calderdale to support “policy-on” employment growth between 2018 and 2033. As with the baseline, this slightly lowers the average annual housing need suggested as being associated with supporting job growth under this scenario within the SHMA (1,129 dwellings per annum).

Table 2.2: Supporting Baseline Employment Growth in Calderdale (2018-33)

	Change 2018 – 2033				Average per year		
	Population change	%	Households change	%	Net migration	Dwellings	Jobs
Baseline	17,827	8.5%	13,127	14.1%	830	910	519
Policy-on	22,318	10.6%	15,001	16.1%	1,098	1,040	688

Source: Edge Analytics, 2019

2.15 In referring to the annual housing need implied under the previous iteration of this scenario, the Inspector²⁵ has clearly appreciated that ‘*the relationship between employment growth and new housing is complex*’. The Council’s ambition to increase participation rates has been noted within this context, alongside recognition of the possibility that ‘*other interventions may affect the labour force*’.

²³ Lichfields (2018) Calderdale Employment Land Study [EV 01] paragraph 7.29; Inspector’s Stage 1 Post Hearings Letter to the Council, 16 July 2019 [INS 07]

²⁴ Turley (2018) Updated Review of Objectively Assessed Housing Needs in Calderdale [EV 36] paragraphs 5.14

²⁵ Inspector’s Stage 1 Post Hearings Letter to the Council, 16 July 2019 [INS 07] paragraph 11

- 2.16 In order to maintain consistency in objectively modelling the relationship between job growth and labour-force change, however, the modelling of this scenario continues to adjust economic participation rates based on OBR forecasts, as shown at Figure 2.1. This allows for increased participation in the majority of cohorts with the exception of those that already have the highest level of economic activity in Calderdale but does not attempt to apply separate judgements on the impact of the Council's Inclusive Economic Strategy.
- 2.17 A common approach is also applied with regards to the modelling assumption regarding future unemployment rates. The application of a fixed unemployment rate to a growing labour force also leads to an assumed rise in the absolute *number* of unemployed residents, with circa 4,878 such residents assumed under this scenario by 2033. This represents a circa 10% increase from the number of unemployed residents estimated in 2018.

Summary

- 2.18 The Inspector's post-hearings letter has referenced the findings of the SHMA, which previously evidenced a need for 1,001 dwellings per annum to support baseline job growth and 1,129 dwellings per annum to support a higher, "policy-on" scenario. These average annual figures were calculated over a timeframe which no longer aligns with the plan period chosen by the Council, and they were also predicated upon underlying assumptions that can now be revised to take account of the latest available informing datasets. The presentation of updated modelling in this section is intended to assist the Council by providing an understanding of the important relationship between housing provision and planned job growth in Calderdale over a time period which aligns with the submitted plan.
- 2.19 This remodelling continues to reinforce the conclusions of the SHMA that in order to support job growth, a higher level of population growth will be required than the starting-point projections. This translates into higher levels of housing need albeit with the updated modelling suggesting that a slightly lower rate of annual housing provision (910dpa) could support baseline employment growth in Calderdale between 2018 and 2033. It similarly lowers the housing growth likely to be needed to support the "policy-on" scenario (1,040dpa) over the same period.
- 2.20 Each of these scenarios allows for increased economic participation in the majority of cohorts, with the exception of those groups that already have the highest level of economic activity (males aged 25 – 54). It also assumes that a fixed proportion of the labour force will be unemployed, thereby growing the *absolute* number of unemployed people by between 7-10% over the duration of the plan period. The modelling assumptions around future labour-force behaviours are based on robust and commonly used datasets and do not seek to separately take account of changes associated with the Council's Inclusive Economic Strategy.

3. Job growth supported by proposed housing requirement

- 3.1 The Council selected its proposed housing requirement of 840 dwellings per annum following the completion of analysis presented in the 2018 SHMA, with this level of provision linked to the standard method rather than the scenarios presented therein. As a result, it is currently unable to accurately evidence the job growth that could be supported through such a level of housing provision throughout the chosen plan period.
- 3.2 This section fills this gap in the Council’s evidence base, by estimating the job growth that could be reasonably expected where the proposed housing requirement of 840 homes per annum is retained and delivered. This shows the likely long-term economic impact of such a level of provision, and allows this to be fully considered in the context of planned job growth.
- 3.3 A further scenario has been configured by Edge Analytics using the POPGROUP model, which has been consistently used to develop each of the scenarios presented in the Council’s SHMAs and the updated modelling described in the previous section. This incorporates official population estimates up to the start of the plan period (2018) but thereafter estimates how the population would change if 840 homes were provided each year. The assumptions applied in this “dwelling-led” scenario – to convert households into population, and population into labour force and jobs – are consistent with the updated modelling described in the previous section, and are further detailed in **Appendix 1**.
- 3.4 As summarised in the following table, this modelling suggests that delivering the proposed housing requirement would grow the population of Calderdale by circa 15,400 persons over the plan period, equivalent to growth of around 7%. This would allow for a net inflow of around 685 people each year, which is slightly higher than the long-term historic trend identified in the SHMA²⁶. The modelling further indicates that such a level of population growth would provide a labour force capable of supporting growth of around 6,441 jobs in total over the plan period, or circa 429 jobs per annum on average. This represents *total* employment, and should not be directly compared with the FTE employment figures presented elsewhere in the Council’s evidence base.

Table 3.1: Supporting Baseline Employment Growth in Calderdale (2018-33)

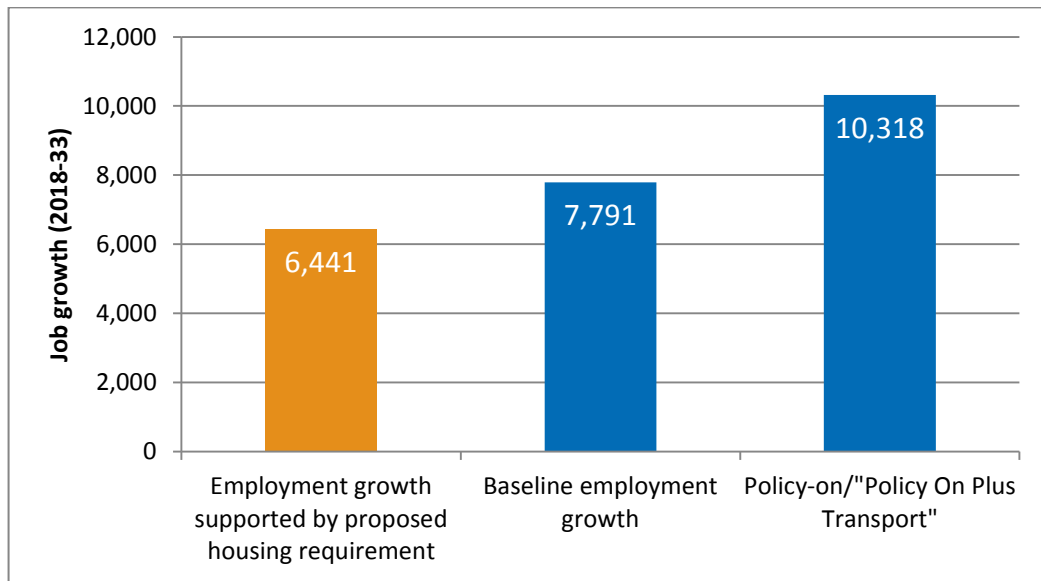
	Change 2018 – 2033				Average per year		
	Population change	%	Households change	%	Net migration	Dwellings	Jobs
840dpa	15,408	7.3%	12,114	13.0%	685	840	429

Source: Edge Analytics, 2019

²⁶ Turley (2018) Updated Review of Objectively Assessed Housing Needs in Calderdale [EV 36] Table 4.4 albeit note this is presented over a different time period

3.5 The proposed housing requirement falls below the level of provision likely to be needed to support the “baseline” and “policy-on” scenarios over the same period based on the updated modelling in section 2(910/1,040dpa; Table 2.2). As would be anticipated, it therefore would not be expected to provide the labour force needed to support this job growth in full, based on the assumptions that have been consistently applied within the modelling. It would, however, be expected to support a level of job growth in Calderdale, equivalent to around 83% of the baseline forecast or 62% of the “policy-on” forecast.

Figure 3.1: Comparing Job Growth Forecast and Supported by Proposed Housing Requirement (2018-33)



Source: Edge Analytics; Experian/WYCA

3.6 As noted in the previous section, this assumes that economic participation amongst most cohorts of the population will rise over the plan period (Figure 2.1). Circa 4,715 people are assumed to remain unemployed in 2033 under this scenario, increasing by circa 6% over the plan period in absolute terms though keeping the *rate* of unemployment fixed near its historic low.

Summary

3.7 This section fills a gap in the Council’s evidence base by estimating the job growth that could be reasonably expected where the proposed housing requirement of 840 homes per annum is retained and delivered over the plan period (2018-33).

3.8 Further modelling indicates that such a level of provision would grow the population of Calderdale by circa 15,400 persons, allowing for a slightly higher level of net migration than the long-term historic average. It would be expected to support a level of job growth, albeit falling below the baseline forecast, by providing a labour force capable of supporting the creation of around 6,441 jobs in total over the plan period or 429 jobs per annum.

4. Summary

- 4.1 The Council has commissioned Turley, as authors of its recent SHMAs, to produce further technical evidence on housing need and requirements in the context of the ongoing examination of its Local Plan. This follows the receipt of a letter from the Inspector after the first stage of hearings, in which concerns were raised that the proposed requirement for 840 dwellings per annum would not adequately support planned employment growth.
- 4.2 This report was commissioned to inform the Council's responses to these initial conclusions, as advised in its recent letter to the Inspector. It seeks to ensure that the relationship between housing provision and planned job growth can be fully and clearly understood on the basis of the latest available information, and over a consistent timeframe given that the plan period was changed after the latest SHMA was completed. It also fills a gap in the Council's evidence base by estimating the job growth that could be reasonably expected where the proposed housing requirement of 840 dwellings per annum is retained and delivered. It is important to recognise that this is based on *total* jobs, rather than the full-time equivalent (FTE) figures that are necessarily presented in the Council's Employment Land Study.
- 4.3 The modelling presented in this report indicates that the provision of 840 dwellings per annum between 2018 and 2033 could grow the population of Calderdale by circa 15,400 persons, allowing for a slightly higher level of net migration than the long-term historic average. This would be expected to provide a labour force capable of supporting the creation of around 6,441 jobs over the plan period, or 429 jobs per annum.
- 4.4 Whilst job growth could clearly be supported through such a level of housing provision, it would likely fail to support the job growth that is forecast and targeted by the Council in full. Circa 7,791 additional jobs are anticipated in total during this period under the "baseline" scenario, and the updated modelling presented in this report estimates that a higher level of provision for 910 dwellings per annum would be needed to support this job growth between 2018 and 2033. This slightly lowers the average annual housing need concluded in the 2018 SHMA (1,001dpa), which was calculated over a timeframe that no longer aligns with the plan period and was predicated upon underlying assumptions that can now be revised to take account of the latest available informing datasets.
- 4.5 A still higher level of provision would likely be needed to support the "policy-on" employment forecast, which anticipates the creation of circa 10,318 jobs in total between 2018 and 2033 and would be expected to require 1,040 dwellings per annum during this period to accommodate a growing labour force.
- 4.6 These scenarios are summarised in the table overleaf, identifying the housing provided or needed between 2018 and 2033 under each of the modelling scenarios and confirming the likely level of related job growth.

Table 4.1: Summary of Modelling Scenarios (2018-33)

	Proposed housing requirement	Baseline job growth	“Policy-on” job growth
Total housing provision	12,600	13,653	15,602
Dwellings per annum	840	910	1,040
Total job growth*	6,441	7,791	10,318
Jobs per annum*	429	519	688

Source: Edge Analytics, 2019

* total jobs, not FTE

- 4.7 The Inspector has recognised that the relationship between employment growth and new housing is complex, and this report therefore provides further detail on how the labour force is assumed to behave within the modelling, with specific reference levels of economic participation. It confirms that all scenarios allow for increased economic participation in the majority of age and gender cohorts, with the exception of those that already see the highest level of economic activity (males aged 25 – 54). It also assumes that the absolute number of unemployed people rises over the plan period, albeit keeping the existing *rate* of unemployment fixed near to the recent historic low. The modelling assumptions around future labour-force behaviours are based on robust and commonly used datasets and do not seek to separately take account of changes associated with the Council’s Inclusive Economic Strategy.

Appendix 1: Modelling assumptions

As in the previous iterations of the SHMA, this report has drawn upon a demographic cohort model configured by Edge Analytics using the industry-standard POPGROUP suite of software. Scenarios have been developed to explore:

- The population and housing growth that would be required in Calderdale to support the “baseline” and “policy-on” employment forecasts, developed through the Regional Econometric Model (REM) by Experian. This report continues to draw upon the forecasts referenced in the 2018 SHMA, though alters the period over which change is considered to reflect the plan period that was subsequently chosen by the Council (2018-33); and
- The population and job growth that could be expected in Calderdale where 840 dwellings per annum are assumed to be provided between 2018 and 2033, reflecting the requirement proposed in the submitted Local Plan. This is often termed a “dwelling-led” scenario, differing from the “jobs-led” nature of the scenarios above.

In developing these scenarios, the following assumptions have been applied:

- The population at the start of the plan period (2018) is based on the official mid-year estimate produced by the Office for National Statistics (ONS), with earlier population estimates also integrated within the model.
- Age-specific fertility and mortality assumptions are derived from the 2016-based sub-national population projections (SNPP) under each scenario. These represent the latest such assumptions to have been published by the ONS, and are based on recent population trends in Calderdale.
- From 2018 onwards, population changes to the extent that is either:
 - Required to support the specified level of annual employment growth, under the jobs-led scenarios. A higher level of net internal migration is assumed to occur if there is insufficient population and resident labour force within the model to meet the forecast change in employment in a given year. The model therefore makes its own assumptions on internal migration flows into and out of Calderdale; or
 - Likely to result from the specified level of housing provision, under the dwelling-led scenario. Net internal migration can therefore increase or reduce each year depending upon the availability of housing, taking account of other changes to the population. As above, the model makes its own assumptions on internal migration flows into and out of Calderdale.
- While the model makes its own assumptions on the number of internal migrants, the profile of internal and international migrants aligns with that suggested by the 2016-based SNPP. The assumed count of future international migrants to and from Calderdale is also taken from this projection.

- Economic activity rates recorded in Calderdale at the 2011 Census, by age and sex, have initially been applied, but the latest rates for those aged 16 to 89 have been adjusted to reflect the latest national forecasts²⁷ published by the Office for Budget Responsibility (OBR) in July 2018. When applied in Calderdale, these forecasts allow for increased participation rates amongst all but the most economically active cohorts, namely males aged 25 to 54, as shown at Figure 2.1 of this report. The 2018 SHMA similarly adjusted economic activity rates through reference to OBR forecasts, albeit referred to an earlier publication from 2017 that has since been superseded.
- As in the 2018 SHMA, there is assumed to be no change from the commuting ratio of 1.02 recorded by the 2011 Census, thereby allowing for a continuation of a small net out-commute.
- The unemployment rate is assumed to remain fixed at its 2018 level (4.1%), noting that this sustained the rate of unemployment recorded in 2017. This is a slightly lower rate than was assumed in the 2018 SHMA (4.4%), reflecting a continuing trend of reducing unemployment.
- A fixed proportion of employed people are assumed to occupy more than one job ('double jobbing'), based on evidence from the Annual Population Survey that 3.6% of employed Calderdale residents have on average had a second job over the past ten years (2009-18). This is marginally lower than the allowance made in the 2018 SHMA (3.7%) based on the then-latest ten years of data.
- In line with the approach taken in the official projections, and the 2018 SHMA, the number of people aged 74 and under that are not living in private households but in communal establishments (e.g. residential care homes) is assumed to remain fixed throughout the modelling period. A different approach is taken for those aged 75 and over, fixing the *proportion* of residents living in communal establishments and thereby allowing for change in the absolute number of such residents over the modelling period.
- The private household population is initially converted to households through the application of official 2014-based headship rates, although these rates are adjusted to facilitate a full return to the higher rates of younger household formation recorded in Calderdale in 2001 where this is not already assumed by the end of the plan period²⁸ (2033). This is consistent with the approach taken in the 2018 SHMA.
- Households are converted to dwellings by applying a vacancy rate of 3.9%, derived from the 2011 Census for Calderdale. This is unchanged from the 2018 SHMA.

²⁷ Office for Budget Responsibility (July 2018) Fiscal Sustainability Report

²⁸ Adjustments applied for males aged 25-29, 30-34 and 35-39. No adjustments have been made for females.

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