

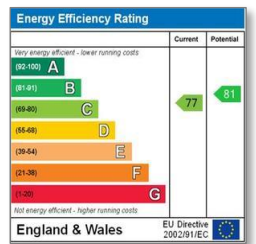


Milton Keynes 2050

Growth Study: Demographic Modelling Analysis

Technical Summary

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Technical Summary

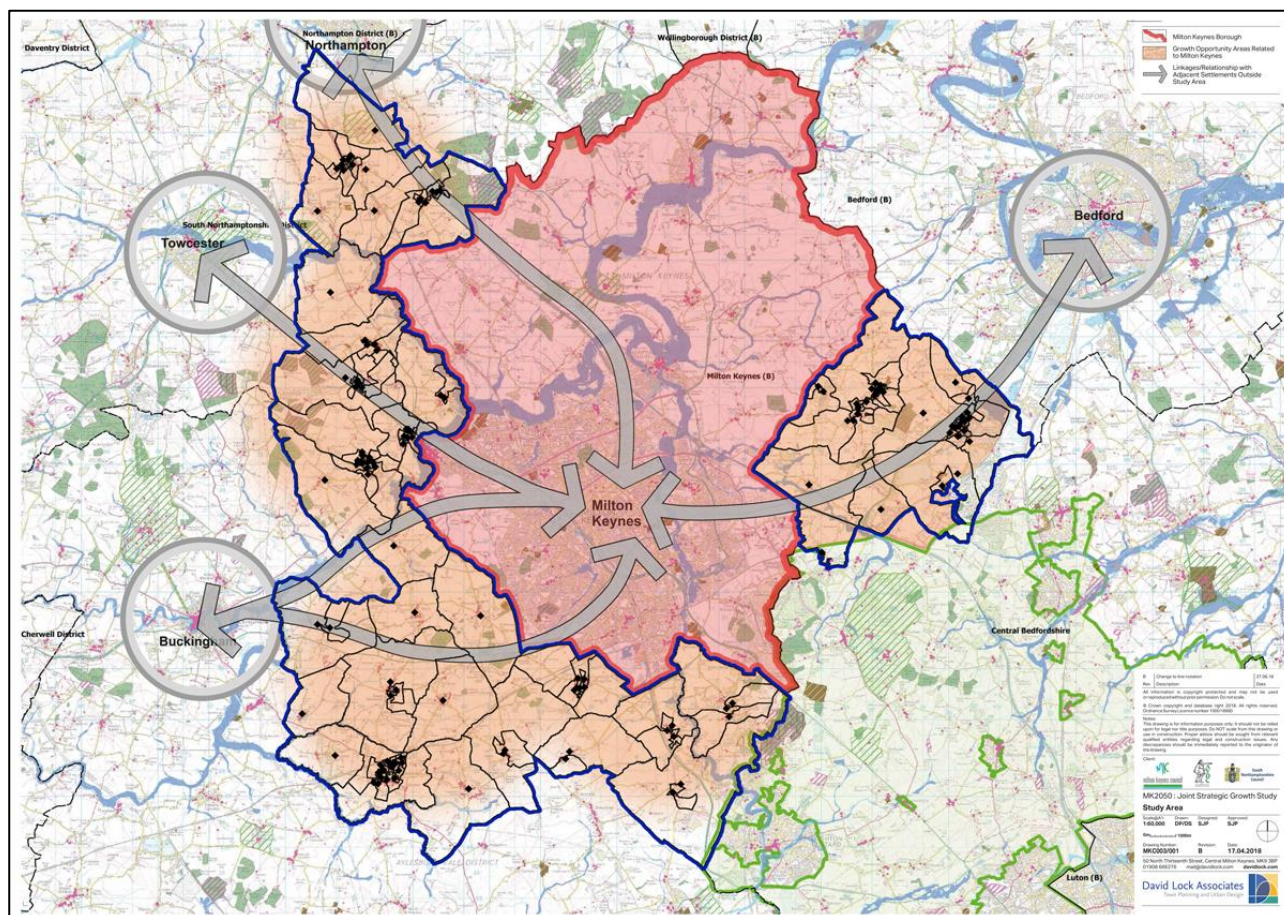
Summary of the Demographic Modelling Analysis

1. There is a strategic ambition for the Milton Keynes Growth Area to reach a population of half a million residents by 2050. Given this context, Opinion Research Services (ORS) was commissioned by Milton Keynes Council to identify the overall number of homes likely to be required to achieve this ambition.
2. The study comprised a number of stages:
 - » Establishing a boundary for the proposed Milton Keynes Growth Area based on a statistical geography built up from the Office for National Statistics (ONS) Lower-layer Super Output Areas (LSOAs)
 - » Based on this boundary, establishing a baseline population estimate for mid-2018 using the ONS Small Area Population Estimates
 - » Preparing a baseline population projection for the period to mid-2050 based on current demographic trends
 - » Considering the impact of the current housing trajectory of actual and projected dwelling completions based on existing plans for the Growth Area
 - » Developing scenarios to identify the additional dwelling provision likely to be needed in future years to achieve the strategic objective of half a million residents by 2050.
3. This technical summary sets out the key outputs from each of these stages, together with information about the methodological approach and assumptions.

Establishing the Geography

4. The Milton Keynes Growth Area covers the administrative area of Milton Keynes together with growth areas in Aylesbury Vale, Central Bedfordshire and South Northamptonshire. Nevertheless, the Growth Area does not currently have a precise boundary. Instead, the Growth Area has a fuzzy boundary which recognises that specific locations for growth over the longer-term have yet to be established and agreed.
5. For the purposes of the demographic modelling analysis, it is necessary to establish a baseline population; therefore, a “best fit” boundary was established using the statistical area building-blocks that the ONS use when publishing various statistics, including data relating to resident population.
6. Figure 1 provides an overview of the Milton Keynes Growth Area, with the Milton Keynes administrative area shaded in red and the “Growth Opportunity Areas Related to Milton Keynes” shaded in peach. The “best fit” statistical boundary that was established for the purpose of this study is identified by the solid dark blue line for those areas outside the administrative area.
7. For the purposes of the demographic modelling, the population is based on those residents either living within the Milton Keynes administrative area or within the blue line in one of the adjoining areas. Note that this boundary has only been used for the purposes of the demographic analysis in this study and it does not represent a formal border for future growth.

Figure 1: Overview of the Milton Keynes Growth Area, showing the statistical boundary used for the demographic modelling

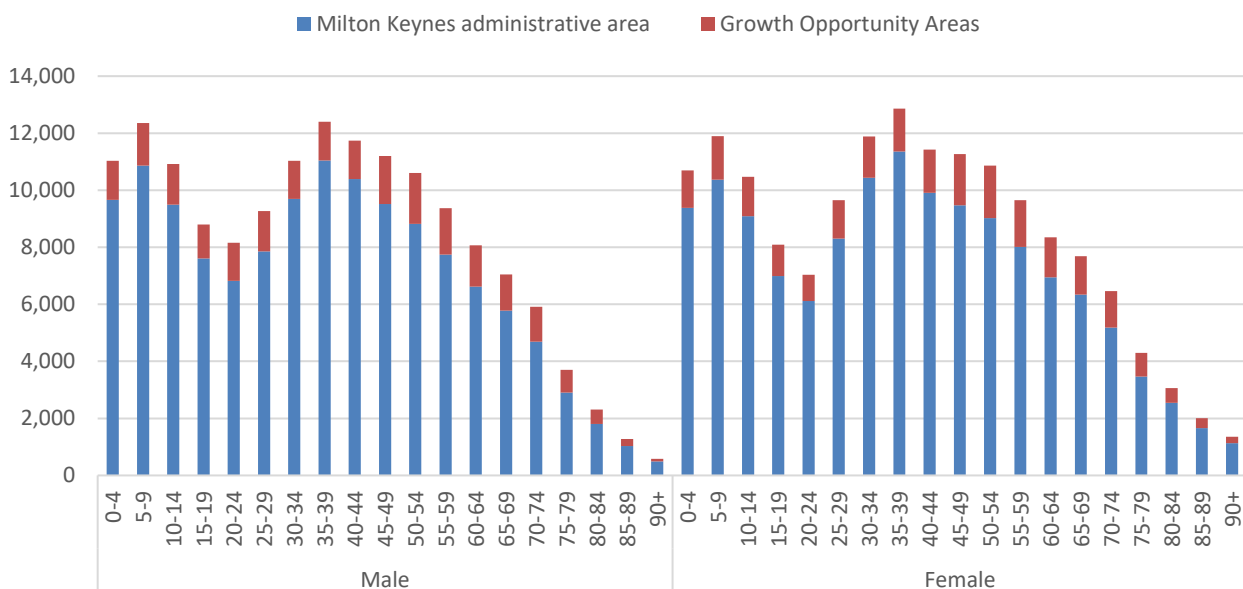


Establishing the Baseline Population

8. The baseline for the demographic modelling analysis was the resident population at mid-2018 based on the ONS mid-year population estimates. Figure 2 summarises the population estimates by age and gender for Milton Keynes administrative area and the Growth Opportunity Areas, together with overall totals for the whole of the Milton Keynes Growth Area.

Figure 2: Population estimates for mid-2018 by area, gender and age group (Source: ONS mid-year population estimates)

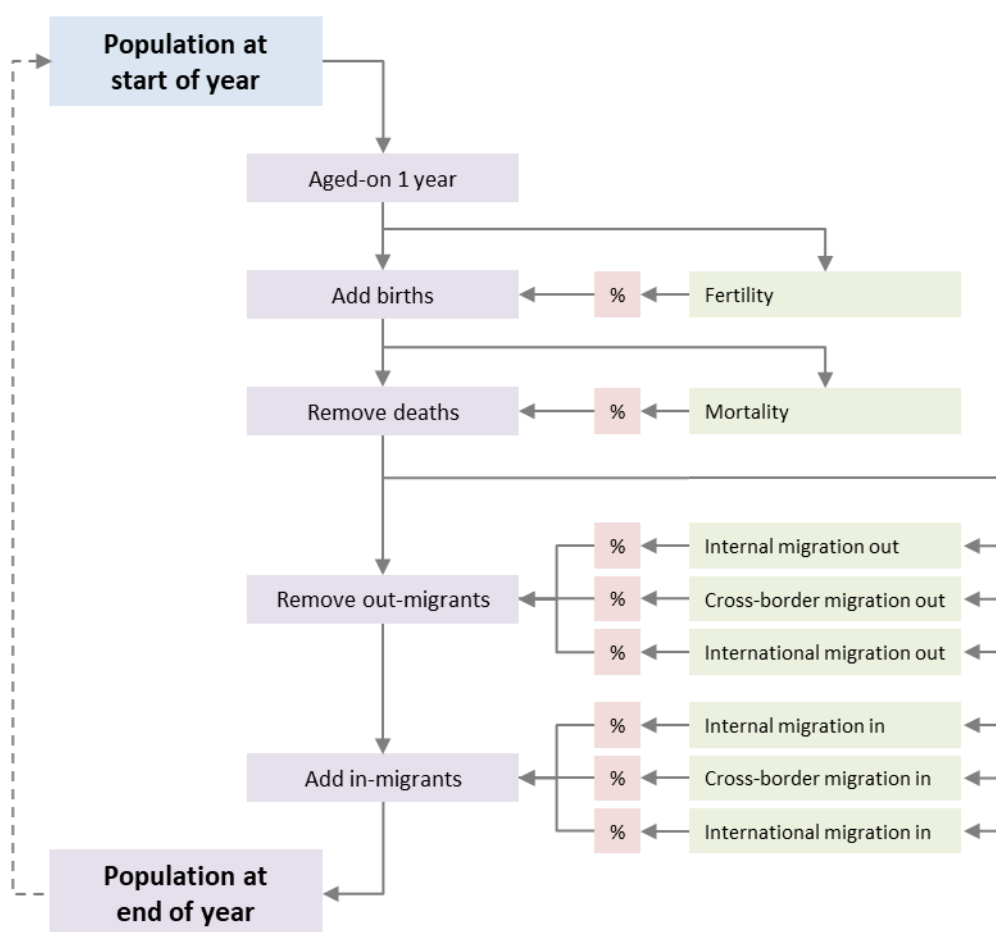
Age	Milton Keynes Administrative Area			Growth Opportunity Areas Related to Milton Keynes			Milton Keynes Growth Area		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Aged 0-4	9,666	9,382	19,048	1,368	1,308	2,676	11,034	10,690	21,724
Aged 5-9	10,863	10,372	21,235	1,489	1,522	3,011	12,352	11,894	24,246
Aged 10-14	9,493	9,087	18,580	1,427	1,387	2,814	10,920	10,474	21,394
Aged 15-19	7,611	6,995	14,606	1,192	1,099	2,291	8,803	8,094	16,897
Aged 20-24	6,818	6,115	12,933	1,345	926	2,271	8,163	7,041	15,204
Aged 25-29	7,855	8,304	16,159	1,414	1,347	2,761	9,269	9,651	18,920
Aged 30-34	9,701	10,441	20,142	1,327	1,446	2,773	11,028	11,887	22,915
Aged 35-39	11,049	11,357	22,406	1,356	1,509	2,865	12,405	12,866	25,271
Aged 40-44	10,394	9,911	20,305	1,348	1,513	2,861	11,742	11,424	23,166
Aged 45-49	9,520	9,474	18,994	1,678	1,797	3,475	11,198	11,271	22,469
Aged 50-54	8,826	9,026	17,852	1,781	1,841	3,622	10,607	10,867	21,474
Aged 55-59	7,742	8,008	15,750	1,624	1,646	3,270	9,366	9,654	19,020
Aged 60-64	6,617	6,948	13,565	1,447	1,400	2,847	8,064	8,348	16,412
Aged 65-69	5,778	6,341	12,119	1,269	1,350	2,619	7,047	7,691	14,738
Aged 70-74	4,685	5,185	9,870	1,227	1,274	2,501	5,912	6,459	12,371
Aged 75-79	2,911	3,463	6,374	792	832	1,624	3,703	4,295	7,998
Aged 80-84	1,810	2,549	4,359	504	517	1,021	2,314	3,066	5,380
Aged 85-89	1,027	1,659	2,686	254	346	600	1,281	2,005	3,286
Aged 90 or over	490	1,134	1,624	93	226	319	583	1,360	1,943
TOTAL	132,856	135,751	268,607	22,935	23,286	46,221	155,791	159,037	314,828



Overview of the Demographic Modelling – Population

9. The demographic modelling analysis that has been undertaken for this study provides an indication of the possible size and structure of the future population. The analysis projects the population for each year from the base year of 2018 up to 2050 using a cohort component methodology.
10. The cohort component method is a standard demographic method comparable to that used by the ONS to produce the official national and sub-national population projections. Figure 3 provides an overview of the population projection process.

Figure 3: Overview of the population projection process



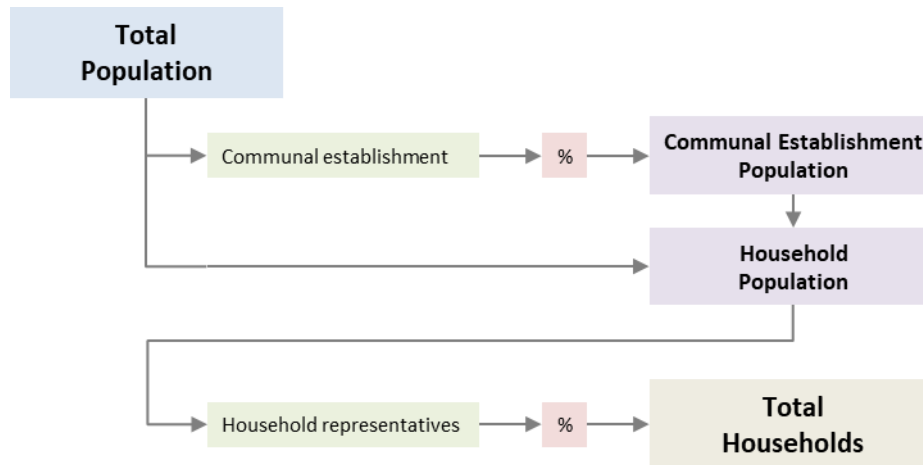
11. For each year of the projection, the population at the start of the year is aged-on 1 year, the number of births is established through applying age-specific fertility rates to the female population and the number of deaths is established through applying age-gender-specific mortality rates to the whole population.
12. These stages project the natural growth and are entirely consistent with the ONS approach for the official projections.
13. The fertility and mortality rates used for the modelling analysis are based on data from the ONS 2016-based sub-national population projections for Milton Keynes administrative area for the periods 2018-19 through to 2040-41. For the periods 2041-42 through to 2049-50, the individual age-gender-specific rates have been projected forwards using a linear trend based on the immediately preceding 10 years in each case.

14. Having established the natural growth, the projected out-migrants are removed and in-migrants are added. To establish each of the out-migrant flows, age-gender-specific rates are applied to the resident population. Once again, these rates are based on data from the ONS 2016-based sub-national population projections for Milton Keynes administrative area for the periods 2018-19 through to 2040-41, with later periods projected forwards using a 10-year linear trend.
15. To establish each of the in-migrant flows, the age-gender distribution is fixed based on the distributions identified by the ONS 2016-based sub-national population projections for Milton Keynes administrative area. However, the overall number of inward migrant persons varies in proportion to the total resident population. In other words, it is assumed that the number of migrants moving to the area will grow pro-rata to the size of the population.
16. This approach to inward migration differs from that used by the official projections, where the internal flows (i.e. moves between areas within England) are based on outward flows from other areas, and the overall cross-border and international flows are constrained to the national population projections. This is due to the modelling analysis only covering the Milton Keynes Growth Area, and the assumption that inward migration levels are likely to increase as the area grows.

Overview of the Demographic Modelling – Households

17. Having established the total population for each year, Figure 4 provides an overview of the conversion from population to households.

Figure 4: Overview of the household projection process



18. Firstly, the population is separated between those living in communal establishments and those living in households. Household representative rates are then applied to the household population to establish the number of households. Two different methodologies have been used: one based on the legacy approach that was used most recently for the CLG 2014-based household projections,¹ the other based on a new approach developed by the ONS for the 2016-based household projections.²
19. Both methods assume that the population aged under 75 that is resident in communal establishments will remain constant, with rates applied to specific groups of the population aged 75 or over. Both methods also apply household representative rates to specific groups of the household population to establish the number of households; but the rates have been derived differently and different population groups are used.
20. For the demographic modelling analysis, the communal establishment population has been derived using data for the Milton Keynes administrative area from both the CLG 2014-based and ONS 2016-based household projections, together with Census data for the whole of the Milton Keynes Growth Area.
21. The household representative rates are based on age-gender-relationship rates from the CLG 2014-based and age-gender rates from the ONS 2016-based household projections for Milton Keynes administrative area. These cover the years from 2018 through to 2039 (in the case of the CLG data) and 2041 (for the ONS data). For later years of the projection through to 2050, each of the specific rates have been projected forwards using a linear trend based on the immediately preceding 10 years in each case.
22. The total households has been converted to a dwelling number based on the percentage of household spaces with a usually resident household identified by Census data for the whole of the Milton Keynes Growth Area.

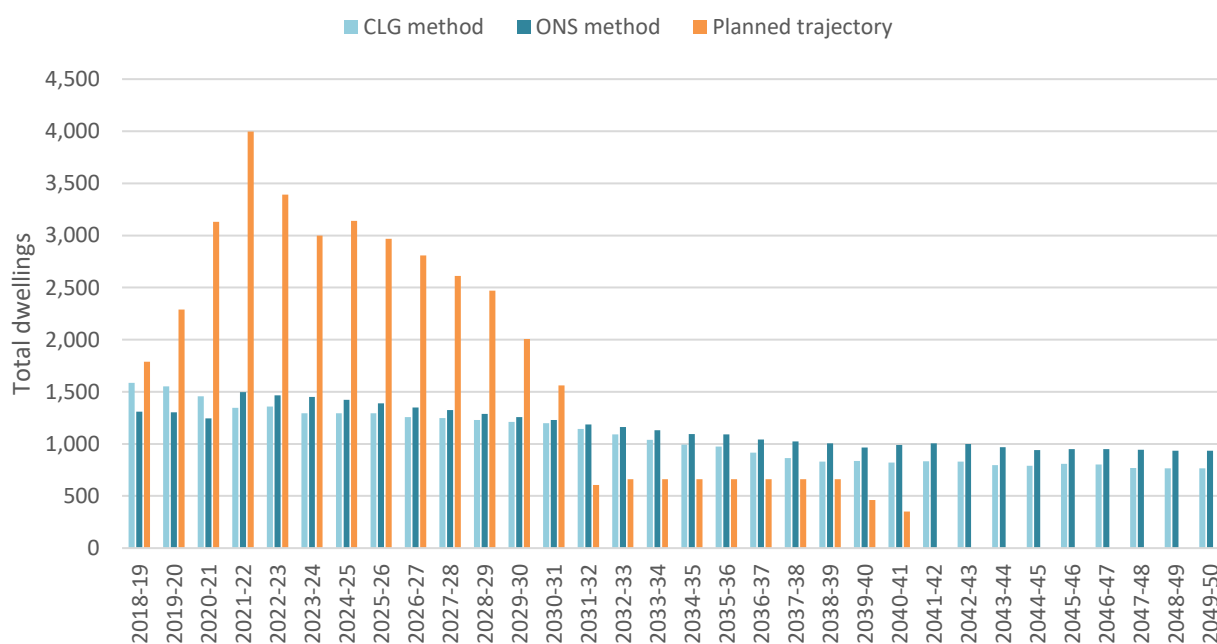
¹ <https://www.gov.uk/government/statistics/2014-based-household-projections-methodology>

² <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/methodologies/methodologyusedtoproducehouseholdprojectionsforengland2016based>

Baseline Projection – Current Demographic Trends

23. Taking the mid-2018 population set out in Figure 2 as the starting point, an initial baseline projection has been established on the basis of a continuation of current demographic trends. The overall population is projected to increase from around 314,800 persons in 2018 to around 343,400 persons by 2030; 359,600 persons by 2040 and 376,700 persons by 2050.
24. Using the CLG household formation method, this population yielded around 127,600 households with an average household size of 2.44 persons at the base date in 2018. This was projected to increase to around 160,400 households with an average household size of 2.31 persons by 2050, equivalent to a growth of 32,800 households over the period 2018-2050. This represents a housing need of 34,000 dwellings.
25. Using the ONS household formation method, the same population yielded around 124,800 households with an average household size of 2.50 persons at the base date in 2018. This was projected to increase to around 160,400 households with an average household size of 2.31 persons by 2050, equivalent to a growth of 35,600 households over the period 2018-2050. This represents a housing need of 36,900 dwellings.
26. It is notable that whilst the new ONS household formation method yields a lower household growth than the legacy CLG method across England as a whole, application of the new ONS method in this context yields a higher household growth than the previous CLG method. For the baseline projection, both methods identify the same number of households and the same average household size by 2050, but the ONS method assumes that fewer households exist at the 2018 base date.
27. Figure 5 illustrates the annual housing need identified from the baseline population projection using both household formation methods alongside the planned housing trajectory. It is clear that over the period up to 2030-31 the planned trajectory exceeds the identified housing need, which will allow for a higher rate of net migration and/or a higher rate of household formation. However, a larger number of dwellings will need to be planned for from 2031-32 onwards to provide for the projected household growth.

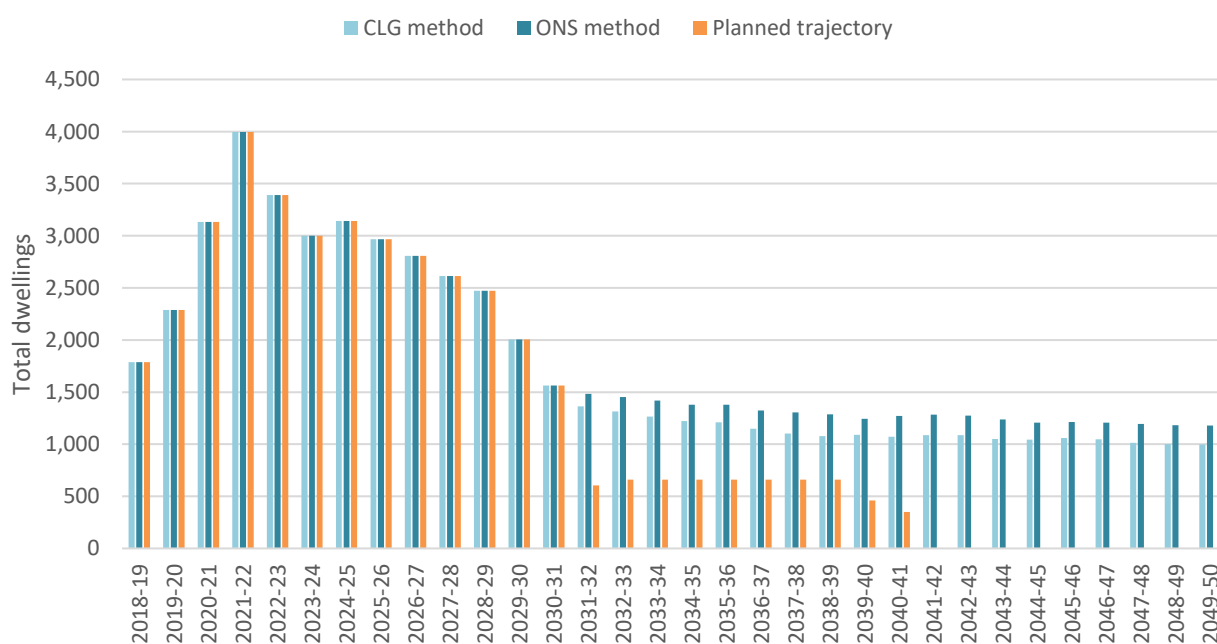
Figure 5: Annual housing need based on the baseline projection compared to the planned trajectory



Dwelling-led Projection – Current Housing Trajectory

28. Taking the mid-2018 population set out in Figure 2 and the initial baseline projection with a continuation of current demographic trends as the starting point, dwelling-led projections have been established using actual and projected dwelling completions based on existing plans for the Growth Area. In each projection, it is assumed that any additional dwellings are occupied through an increase in the level of inward migration to the Milton Keynes Growth Area, but if the number of dwellings needed for household growth is higher than the current trajectory then no constraint is applied. In other words, the trajectory is used to uplift the projection, rather than constrain the projection. Within the model, the overall level of “internal migration in” is increased with the same age-gender structure being maintained.
29. Using the CLG household formation method, the overall population is projected to increase from around 314,800 persons in 2018 to around 388,000 persons by 2030, which is 44,600 persons more than projected by the baseline scenario. On this scenario, the population is projected to reach 409,400 persons by 2040 and 429,600 persons by 2050; and by 2050 there would be need to provide 15,200 dwellings in addition to the 41,200 dwellings within the existing housing trajectory.
30. Using the ONS household formation method, the overall population is projected to increase from around 314,800 persons in 2018 to around 389,200 persons by 2030, which is 45,800 persons more than projected by the baseline scenario. On this scenario, the population is projected to reach 410,300 persons by 2040 and 430,500 persons by 2050; and by 2050 there would be need to provide 18,500 dwellings in addition to the 41,200 dwellings within the existing housing trajectory.
31. Figure 6 illustrates the annual housing need identified from the dwelling-led projection using both household formation methods alongside the planned housing trajectory. On both scenarios, the housing need aligns with the trajectory for the period up to 2030-31, but from 2031-32 onwards the projected population and household growth yields a higher housing need than is currently planned for.

Figure 6: Annual housing need based on the dwelling-led projection compared to the planned trajectory



Population-target Projection – 500,000 Residents by 2050

32. Taking the mid-2018 population set out in Figure 2 and the dwelling-led projection based on the current housing trajectory as the starting point, population projections have been established which each reach a target of 500,000 residents by 2050. In each projection, it is assumed that additional population is achieved through an increase in the level of inward migration to the Milton Keynes Growth Area. The inward migration flows in the early years are constrained to the increases needed to meet the planned housing trajectory. The inward migration flows in later years are increased by the same percentage uplift in each year. Within the model, the overall level of “internal migration in” is increased with the same age-gender structure being maintained.
33. Using the CLG household formation method, the overall population is projected to increase from around 314,800 persons in 2018 to around 389,200 persons by 2030, which is only marginally higher than projected by the equivalent dwelling-led scenario. On this scenario, the population is projected to reach 441,200 persons by 2040 and 500,000 persons by 2050. There would be a need to provide 42,600 dwellings in addition to the 41,200 dwellings within the existing housing trajectory.
34. Using the ONS household formation method, the overall population is projected to increase from around 314,800 persons in 2018 to around 390,800 persons by 2030, again only marginally higher than projected by the equivalent dwelling-led scenario. On this scenario, the population is projected to reach 442,100 persons by 2040 and 500,000 persons by 2050. There would be need to provide 45,500 dwellings in addition to the 41,200 dwellings within the existing housing trajectory.
35. Figure 7 illustrates the annual housing need identified from the population-target projection using both household formation methods alongside the planned housing trajectory. On both scenarios, the housing need aligns with the trajectory for the period up to 2027-28, but from 2028-29 onwards the projected population and household growth yields a notably higher housing need than is currently planned for.

Figure 7: Annual housing need based on the population-target projection compared to the planned trajectory

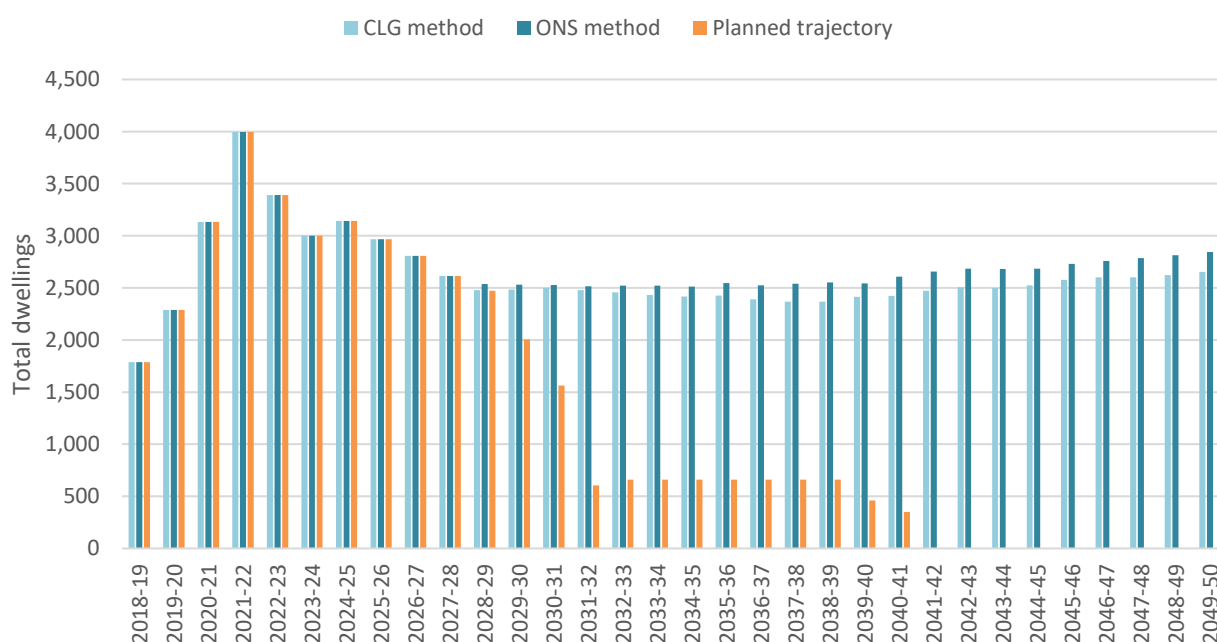


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