

Portsmouth Water



FINAL WATER RESOURCES MANAGEMENT PLAN 2024

APPENDIX 4Cb – WRSE POPULATION AND PROPERTIES UPDATE

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October 2024



WRSE

FORECAST COMPARISON

June 2023



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Demographic statistics used in this report have been derived from data from the Office for National Statistics licensed under the Open Government Licence v.3.0.

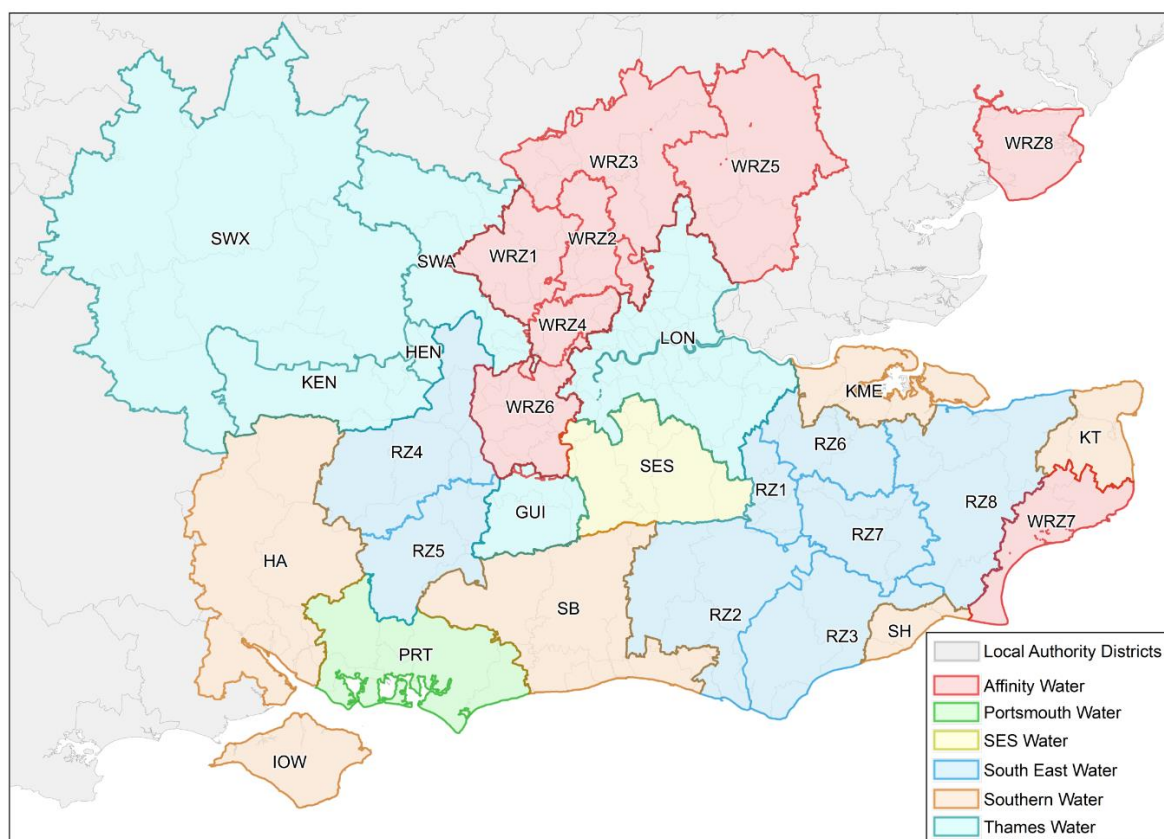
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1 INTRODUCTION

- 1.1 The Water Resources South East (WRSE) group is an alliance of the six water companies that cover the South East region of England: Affinity Water, Portsmouth Water, SES Water, South East Water, Southern Water, and Thames Water.



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Figure 1: WRSE Area Definition

- 1.2 In spring and summer 2020, Edge Analytics delivered a suite of demographic and housing evidence to WRSE to inform the development of their Water Resource Management Plans (WRMP). The deliverables included (amongst other items):

- Local Plan Housing Growth information, from the Edge Analytics Consilium database
- Population and housing forecasts generated using Edge Analytics' VICUS forecasting technology (for a forecast period **2020–2100** and a range of trend-based, housing-led and employment-led scenarios)¹.

¹ For the full list of scenarios refer to Appendix A.

- 1.3 Since the 2020 delivery, there have been a number of important data releases (e.g., Census 2021 results, more up-to-date Local Plan Housing Growth information), which highlighted the need to revisit the forecasts and update them in light of this new information.
- 1.4 In February 2023, WRSE commissioned Edge Analytics to produce updated population and property forecasts, taking account of the latest demographic and housing statistics². The outputs were produced for a **2021–2101** forecast period and for a sub-set of the 2020 scenarios, including:
- ONS-18-Rebased-P
 - ONS-18-Rebased-L
 - Housing-Plan-P
 - Housing-Need-H
 - OxCam-1a-r-P.
- 1.5 An additional scenario was also produced, which was not included in the 2020 forecasts:
- OxCam-1a-P.
- 1.6 A detailed description of each of the scenarios is provided in Section 3 of this document.
- 1.7 This concise report aims to help in understanding how the 2023 forecasts compare to those produced in 2020, summarising the key differences in terms of methods, data inputs and assumptions (Section 2). A side-by-side comparison of the forecast outcomes is also presented at regional and company level in Section 3. Section 4 of the document provides a timeline of expected future data releases which will provide additional intelligence which can feed into future updated population and housing forecasts.

² Note that the latest Local Plan Housing Growth data was used to inform the scenario forecast development in February 2023, but it did not form part of the 2023 deliverable to WRSE.

2 METHODS, DATA INPUTS & ASSUMPTIONS

- 2.1 The overall approach for the development of the 2023 forecasts remains the same as in 2020. A detailed description of the forecasting framework can be found in the earlier Edge Analytics' report: **VICUS - Methodology - Final - 31.07.2020**.
- 2.2 This section focuses on the key changes to the methods, data inputs and assumptions that were required for the 2023 update.
- 2.3 The main drivers of the differences between the 2020 and 2023 forecasts are different **base years** and changes to the **housing growth evidence** informing the Housing-Need and Housing-Plan scenarios. Other methodological/data changes have also had an impact on the forecast outcomes but to a lesser extent. All are discussed in more detail below.

Base Year

- 2.4 In the 2020 forecasts, the **2018** mid-year population estimates (MYE) provided the forecast base year. In the 2023 forecasts, the base year was updated to the **2021** MYEs, which were published by the Office for National Statistics (ONS) in December 2022. Importantly, the 2021 MYEs are the first MYEs to be underpinned by the Census 2021.
- 2.5 In the years in between the decennial Census, the population is estimated via an annual ONS MYE. This estimate takes account of registered births and deaths and estimates of domestic and international migration.
- 2.6 The output from the Census 2021 and the subsequent 2021 MYEs derived from it have shown differences in both the *population total* and the underlying *structure of the population* (its composition by age and sex) when compared to the MYEs that preceded it.

Local Plan Housing Growth Data

- 2.7 Local Plan Housing Growth data provides the housing growth trajectories that drive population growth under the Housing-Need and Housing-Plan scenarios. In addition, it is the source of the housing development site information that further enhances the Housing-Plan scenario, ensuring that the growth forecasts are distributed in line with the location and phasing of future housing developments.
- 2.8 In both sets of the forecasts (2020 and 2023), the 'Need' and 'Plan' housing trajectories were drawn from the Edge Analytics Consilium Local Plan Housing Growth database. However, the information used in the 2020 forecasts was last updated in **March–April 2020**, whereas in the 2023 forecasts this data was last updated in **January–February 2023**.

Other Changes

2.9 A number of other methodological/data changes were required for the 2023 update, including:

- Coercion of historical demographic inputs (population, households, population not-in-households, etc.) to a Census 2021 Output Area (OA21) geography.
- Alignment of the Census 2021 population, households and population not-in-households at district and small area level.
- Use of the Census/2021 MYE data to devise population by single year of age and sex constraints at OA21 level (not available from official releases).
- Modelling of population not-in-households data by age groups and sex from available partial Census 2021 data, aligning it with 2021 MYE.
- Updating/estimating other model inputs, such as household, vacancy, and properties to an OA21 basis, utilising Census 2021 where available.
- Rescaling Sub-National Population Projection (SNPP) trajectories to a 2021 MYE starting point and extending them to 2050.
- Rescaling of household headship rates to a rebased Census 2021 value.
- Reformulation of all models to accept the new Census/2021 MYE data.

3 SCENARIO OUTCOMES

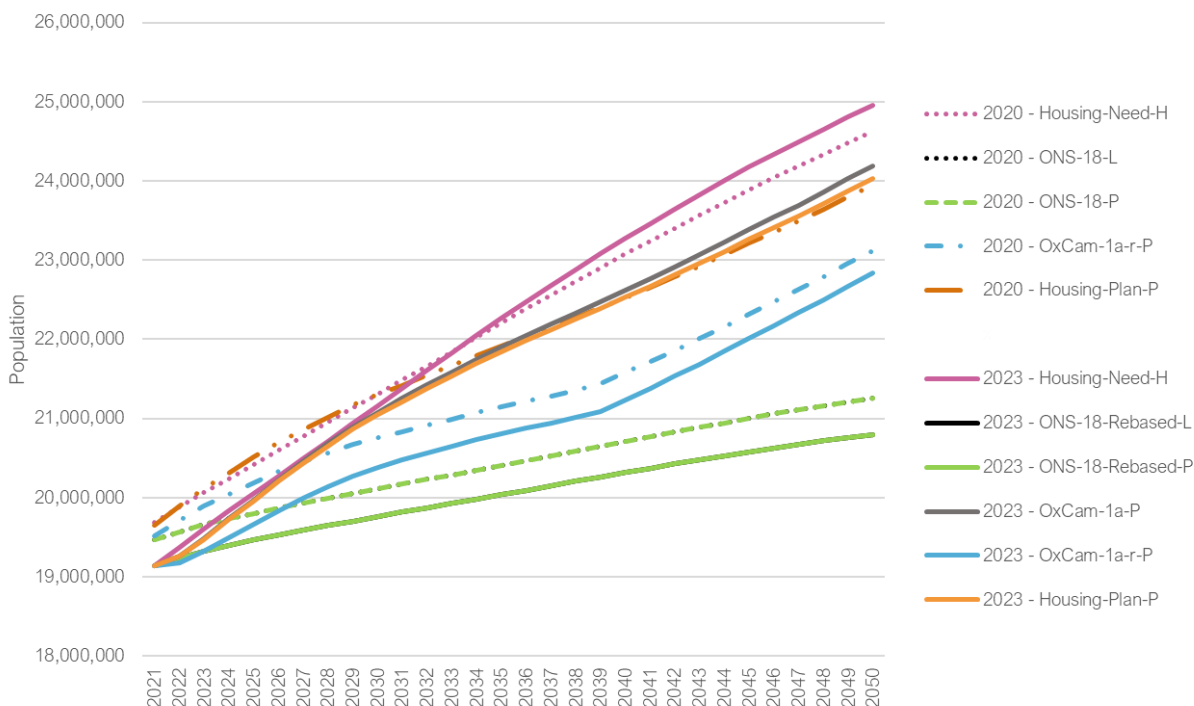
3.1 The 2023 forecasts were produced for the following scenarios:

| ID | SCENARIO | DESCRIPTION |
|----|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1a | ONS-18-Rebased-P | <p>ONS 2018-based <i>Principal</i> sub-national population projection (SNPP), using a five-year history (2013–2018) to derive local fertility & mortality assumptions and a long-term UK net international migration assumption of +190k. Unlike earlier rounds of SNPP, the 2018-based <i>Principal</i> projection uses a two-year history (2016–2018) of internal migration assumptions, following recent changes to the methodology used for its estimation, which have only covered the latest 2 years. This scenario has been rebased to the 2021 MYE.</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>Principal</i> (-P) 2018-based national population projection (NPP) from ONS.</p> |
| 1b | ONS-18-Rebased-L | <p>ONS 2018-based <i>Principal</i> SNPP using a five-year history (2013–2018) to derive local fertility & mortality assumptions and a long-term UK net international migration assumption of +190k. Unlike earlier rounds of SNPP, the 2018-based <i>Principal</i> projection uses a two-year history (2016–2018) of internal migration assumptions, following recent changes to the methodology used for its estimation, which have only covered the latest 2 years. This scenario has been rebased to the 2021 MYE.</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>Low migration</i> (-L) variant of the ONS 2018-based NPP.</p> |
| 2 | Housing-Need-H | <p>A Housing-led scenario, with population growth underpinned by the trajectory of housing growth associated with each local authority's Local Housing Need (LHN) or Objectively Assessed Housing Need (OAHN). Following the final year of data, projected housing growth in non-London areas returns to the average of ONS-14 & ONS-16 long-term annual growth average by 2050. For London Boroughs, housing growth returns to the GLA Central scenario long-term annual average by 2050.</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>High migration</i> (-H) variant of the ONS 2018-based NPP.</p> |
| 3 | Housing-Plan-P | <p>A Housing-led scenario, with population growth underpinned by each local authority's Local Plan housing growth trajectory. Following the final year of data, projected housing growth in non-London areas returns to the average of ONS-14 & ONS-16 long-term annual growth average by 2050. For London Boroughs, housing growth returns to the GLA Central scenario long-term annual average by 2050.</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>Principal</i> (-P) 2018-based NPP from ONS.</p> |
| 4 | OxCam-1a-P | <p>'New Settlement' 23k dpa scenario, with c.3.8k dpa above Housing-Plan distributed between Cherwell (20%), Aylesbury Vale (20%), Central Bedfordshire (40%), South Cambridgeshire (20%).</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>Principal</i> (-P) 2018-based NPP from ONS.</p> |
| 5 | OxCam-1a-r-P | <p>A Housing-led scenario, consistent with the OxCam-1a scenario, but with household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter.</p> <p>From 2050 to 2101, growth under this scenario is trended in line with the <i>Principal</i> (-P) 2018-based NPP from ONS.</p> |

3.2 Scenario outcomes for these scenarios, compared to the equivalent scenarios from the 2020 forecasts, are presented below. Note that an additional OxCam scenario was included in the 2023 projections (OxCam-1a-P) that was not delivered as part of the 2020 scenarios.

3.3 For WRSE in total and each constituent water company, the summaries include a chart showing population growth between 2021 and 2050 and two tables contrasting population change and average dwellings per annum for the medium- (2021–2050) and long-term (2021–2100) forecast periods.

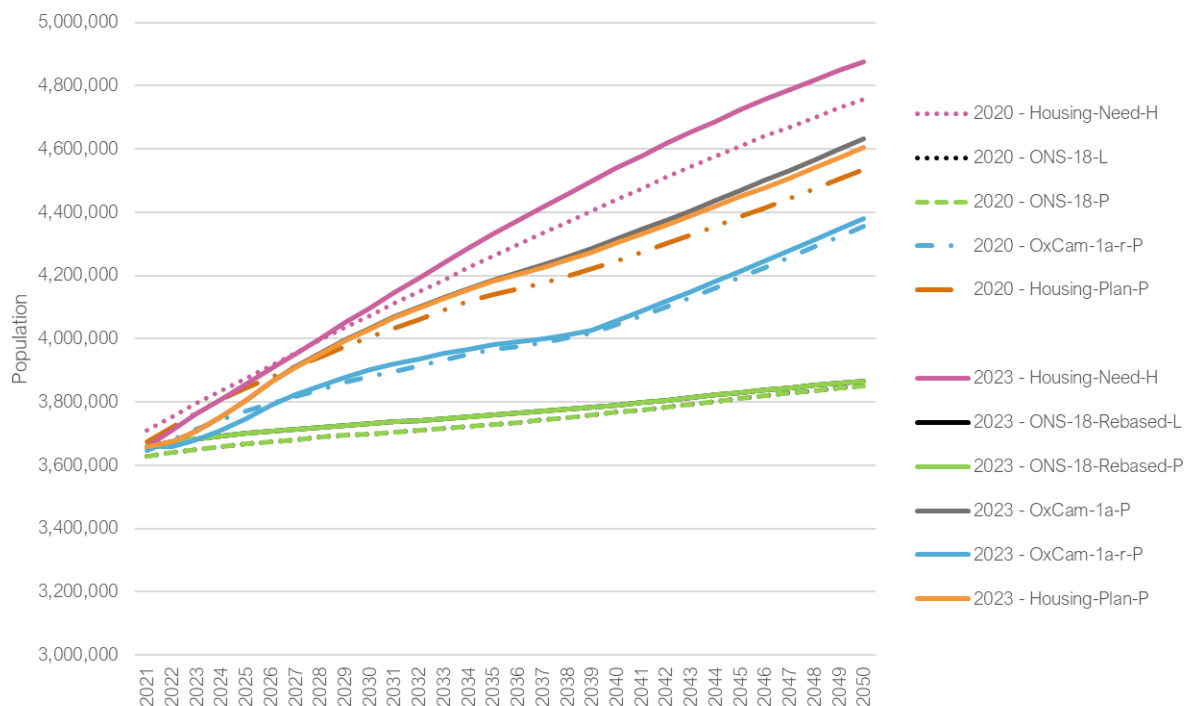
WRSE



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|------------|-------------------|---------------------|----------------|------------|------------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 19,692,433 | 24,628,751 | 4,936,318 | 25.1% | 99,131 | 19,692,433 | 29,805,795 | 10,113,361 | 51.4% | 75,819 |
| Housing-Plan-P | 19,648,395 | 23,945,684 | 4,297,290 | 21.9% | 89,688 | 19,648,395 | 27,011,856 | 7,363,461 | 37.5% | 58,558 |
| ONS-18-L | 19,473,684 | 21,251,483 | 1,777,798 | 9.1% | 51,770 | 19,473,684 | 22,074,570 | 2,600,886 | 13.4% | 29,409 |
| ONS-18-P | 19,473,684 | 21,251,483 | 1,777,798 | 9.1% | 51,770 | 19,473,684 | 24,031,005 | 4,557,320 | 23.4% | 42,021 |
| OxCam-1a-r-P | 19,514,665 | 23,117,138 | 3,602,473 | 18.5% | 91,761 | 19,514,665 | 26,092,542 | 6,577,877 | 33.7% | 59,484 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|------------|-------------------|---------------------|----------------|------------|------------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 19,136,248 | 24,959,131 | 5,822,883 | 30.4% | 105,433 | 19,136,248 | 29,243,867 | 10,107,619 | 52.8% | 69,438 |
| Housing-Plan-P | 19,136,298 | 24,028,276 | 4,891,978 | 25.6% | 91,840 | 19,136,298 | 25,884,596 | 6,748,298 | 35.3% | 49,432 |
| ONS-18-Rebased-L | 19,136,248 | 20,799,731 | 1,663,482 | 8.7% | 46,074 | 19,136,248 | 20,231,861 | 1,095,613 | 5.7% | 17,364 |
| ONS-18-Rebased-P | 19,136,248 | 20,799,731 | 1,663,482 | 8.7% | 46,074 | 19,136,248 | 22,442,699 | 3,306,451 | 17.3% | 30,832 |
| OxCam-1a-P | 19,136,248 | 24,193,687 | 5,057,439 | 26.4% | 94,542 | 19,136,248 | 26,060,611 | 6,924,363 | 36.2% | 50,562 |
| OxCam-1a-r-P | 19,136,248 | 22,842,472 | 3,706,224 | 19.4% | 94,469 | 19,136,248 | 24,629,081 | 5,492,833 | 28.7% | 50,533 |

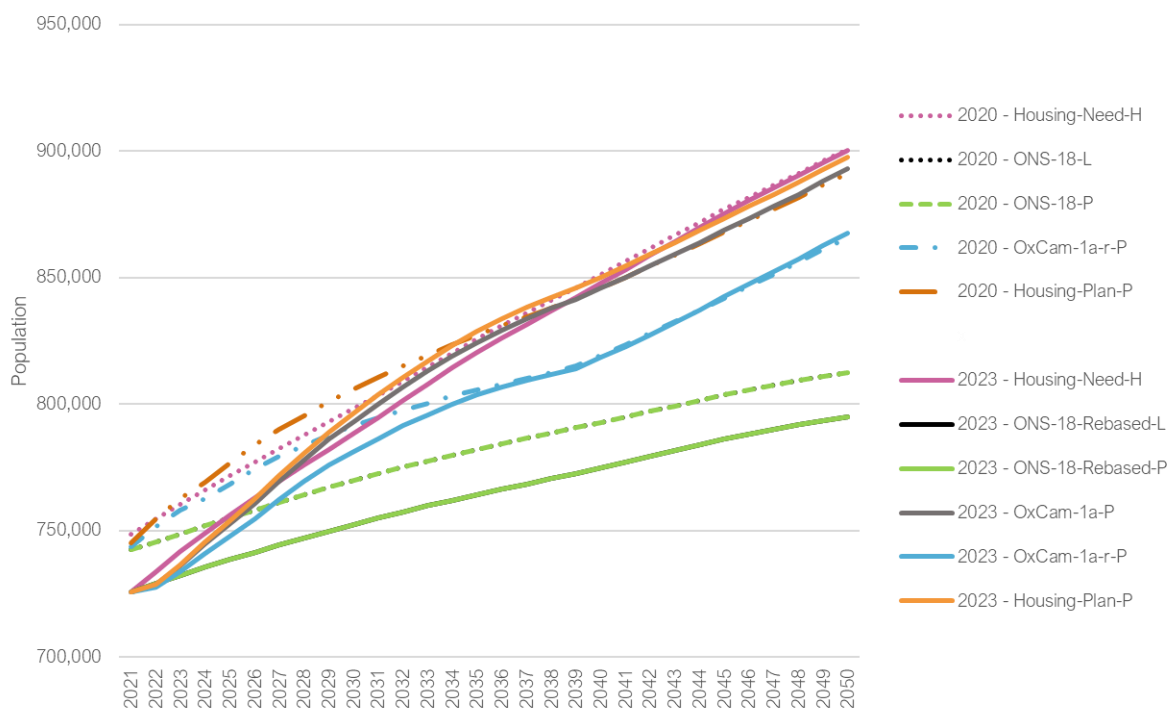
Affinity Water (WRZ 1–7)



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 3,712,322 | 4,756,450 | 1,044,128 | 28.1% | 20,185 | 3,712,322 | 5,757,125 | 2,044,803 | 55.1% | 14,996 |
| Housing-Plan-P | 3,675,735 | 4,534,814 | 859,079 | 23.4% | 21,776 | 3,675,735 | 5,108,527 | 1,432,793 | 39.0% | 13,576 |
| ONS-18-L | 3,627,846 | 3,851,581 | 223,735 | 6.2% | 7,979 | 3,627,846 | 3,988,751 | 360,905 | 9.9% | 4,814 |
| ONS-18-P | 3,627,846 | 3,851,581 | 223,735 | 6.2% | 7,979 | 3,627,846 | 4,352,547 | 724,701 | 20.0% | 7,087 |
| OxCam-1a-r-P | 3,645,711 | 4,356,258 | 710,547 | 19.5% | 17,418 | 3,645,711 | 4,912,389 | 1,266,677 | 34.7% | 11,232 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 3,659,990 | 4,876,354 | 1,216,364 | 33.2% | 21,484 | 3,659,990 | 5,675,305 | 2,015,315 | 55.1% | 13,517 |
| Housing-Plan-P | 3,659,509 | 4,603,991 | 944,483 | 25.8% | 17,540 | 3,659,509 | 4,923,200 | 1,263,692 | 34.5% | 9,113 |
| ONS-18-Rebased-L | 3,659,990 | 3,867,145 | 207,156 | 5.7% | 7,115 | 3,659,990 | 3,730,791 | 70,801 | 1.9% | 2,478 |
| ONS-18-Rebased-P | 3,659,990 | 3,867,145 | 207,156 | 5.7% | 7,115 | 3,659,990 | 4,140,910 | 480,920 | 13.1% | 4,914 |
| OxCam-1a-P | 3,659,990 | 4,633,982 | 973,992 | 26.6% | 18,169 | 3,659,990 | 4,955,098 | 1,295,109 | 35.4% | 9,389 |
| OxCam-1a-r-P | 3,659,990 | 4,381,606 | 721,617 | 19.7% | 18,108 | 3,659,990 | 4,689,747 | 1,029,757 | 28.1% | 9,365 |

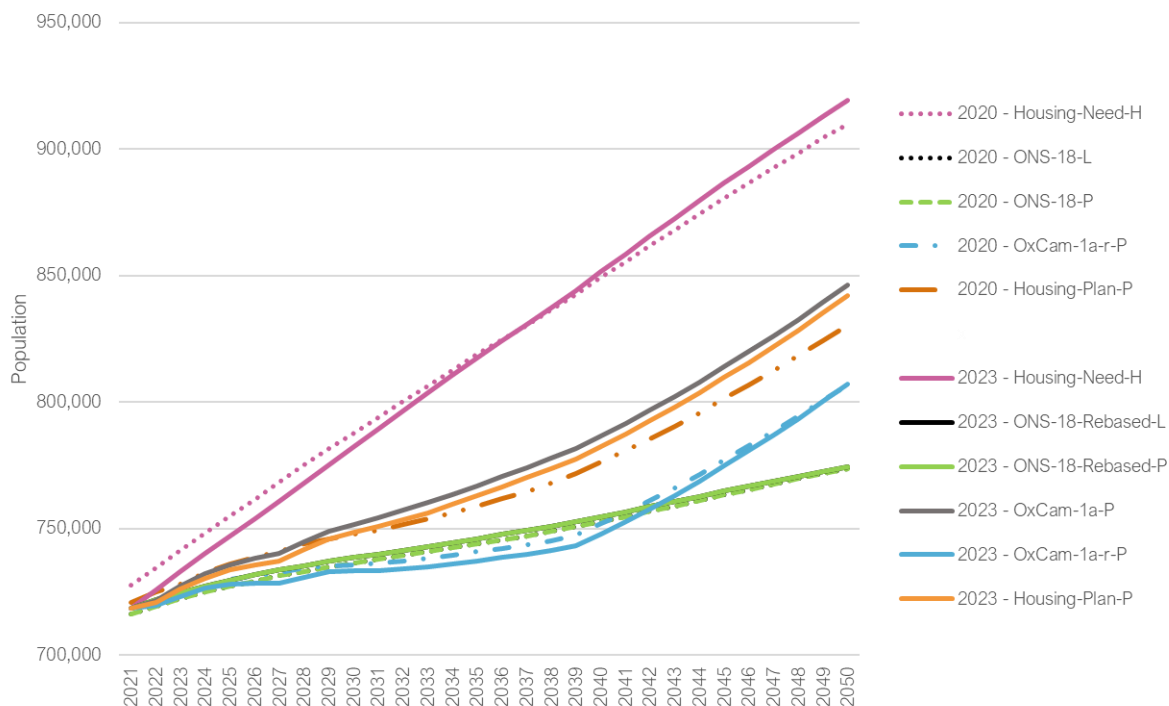
Portsmouth Water



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|---------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 748,387 | 900,486 | 152,099 | 20.3% | 3,066 | 748,387 | 1,085,645 | 337,258 | 45.1% | 2,532 |
| Housing-Plan-P | 745,237 | 891,292 | 146,055 | 19.6% | 3,880 | 745,237 | 1,008,361 | 263,124 | 35.3% | 2,721 |
| ONS-18-L | 742,427 | 812,532 | 70,105 | 9.4% | 1,794 | 742,427 | 853,492 | 111,065 | 15.0% | 1,111 |
| ONS-18-P | 742,427 | 812,532 | 70,105 | 9.4% | 1,794 | 742,427 | 920,393 | 177,966 | 24.0% | 1,542 |
| OxCam-1a-r-P | 743,456 | 865,817 | 122,361 | 16.5% | 2,881 | 743,456 | 979,714 | 236,258 | 31.8% | 2,014 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|---------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 725,553 | 900,343 | 174,789 | 24.1% | 3,127 | 725,553 | 1,075,251 | 349,698 | 48.2% | 2,406 |
| Housing-Plan-P | 725,539 | 897,778 | 172,239 | 23.7% | 3,140 | 725,539 | 985,527 | 259,988 | 35.8% | 1,872 |
| ONS-18-Rebased-L | 725,553 | 795,045 | 69,492 | 9.6% | 1,704 | 725,553 | 790,037 | 64,484 | 8.9% | 752 |
| ONS-18-Rebased-P | 725,553 | 795,045 | 69,492 | 9.6% | 1,704 | 725,553 | 874,172 | 148,619 | 20.5% | 1,276 |
| OxCam-1a-P | 725,553 | 892,887 | 167,333 | 23.1% | 3,022 | 725,553 | 980,087 | 254,533 | 35.1% | 1,824 |
| OxCam-1a-r-P | 725,553 | 867,562 | 142,009 | 19.6% | 3,023 | 725,553 | 952,748 | 227,194 | 31.3% | 1,825 |

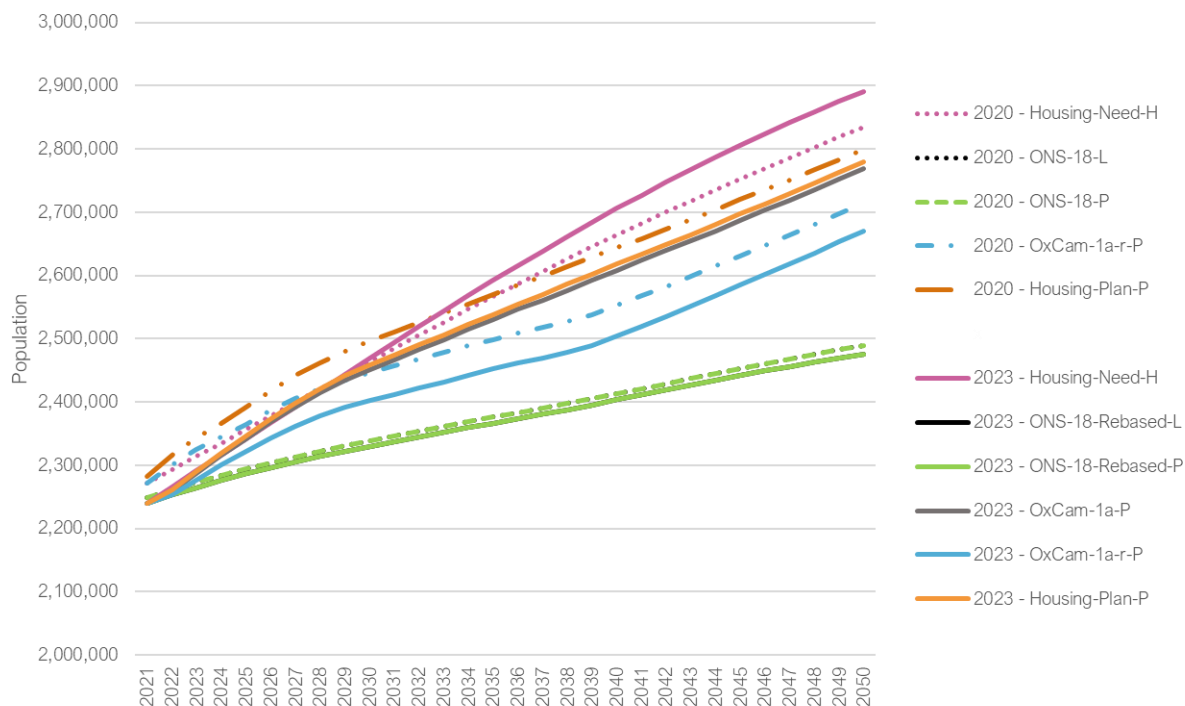
SES Water



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|---------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 727,523 | 909,839 | 182,316 | 25.1% | 3,682 | 727,523 | 1,113,103 | 385,581 | 53.0% | 2,872 |
| Housing-Plan-P | 720,607 | 830,416 | 109,809 | 15.2% | 2,432 | 720,607 | 943,989 | 223,382 | 31.0% | 1,797 |
| ONS-18-L | 716,189 | 773,534 | 57,344 | 8.0% | 1,772 | 716,189 | 805,858 | 89,669 | 12.5% | 1,052 |
| ONS-18-P | 716,189 | 773,534 | 57,344 | 8.0% | 1,772 | 716,189 | 880,331 | 164,142 | 22.9% | 1,520 |
| OxCam-1a-r-P | 718,493 | 806,816 | 88,323 | 12.3% | 2,564 | 718,493 | 917,366 | 198,873 | 27.7% | 1,875 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|---------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 718,414 | 919,290 | 200,876 | 28.0% | 3,822 | 718,414 | 1,082,268 | 363,854 | 50.6% | 2,569 |
| Housing-Plan-P | 718,411 | 841,948 | 123,537 | 17.2% | 2,561 | 718,411 | 908,215 | 189,804 | 26.4% | 1,490 |
| ONS-18-Rebased-L | 718,414 | 774,239 | 55,825 | 7.8% | 1,647 | 718,414 | 750,752 | 32,338 | 4.5% | 615 |
| ONS-18-Rebased-P | 718,414 | 774,239 | 55,825 | 7.8% | 1,647 | 718,414 | 835,422 | 117,008 | 16.3% | 1,122 |
| OxCam-1a-P | 718,414 | 846,313 | 127,899 | 17.8% | 2,766 | 718,414 | 912,751 | 194,337 | 27.1% | 1,582 |
| OxCam-1a-r-P | 718,414 | 807,012 | 88,598 | 12.3% | 2,726 | 718,414 | 870,926 | 152,512 | 21.2% | 1,566 |

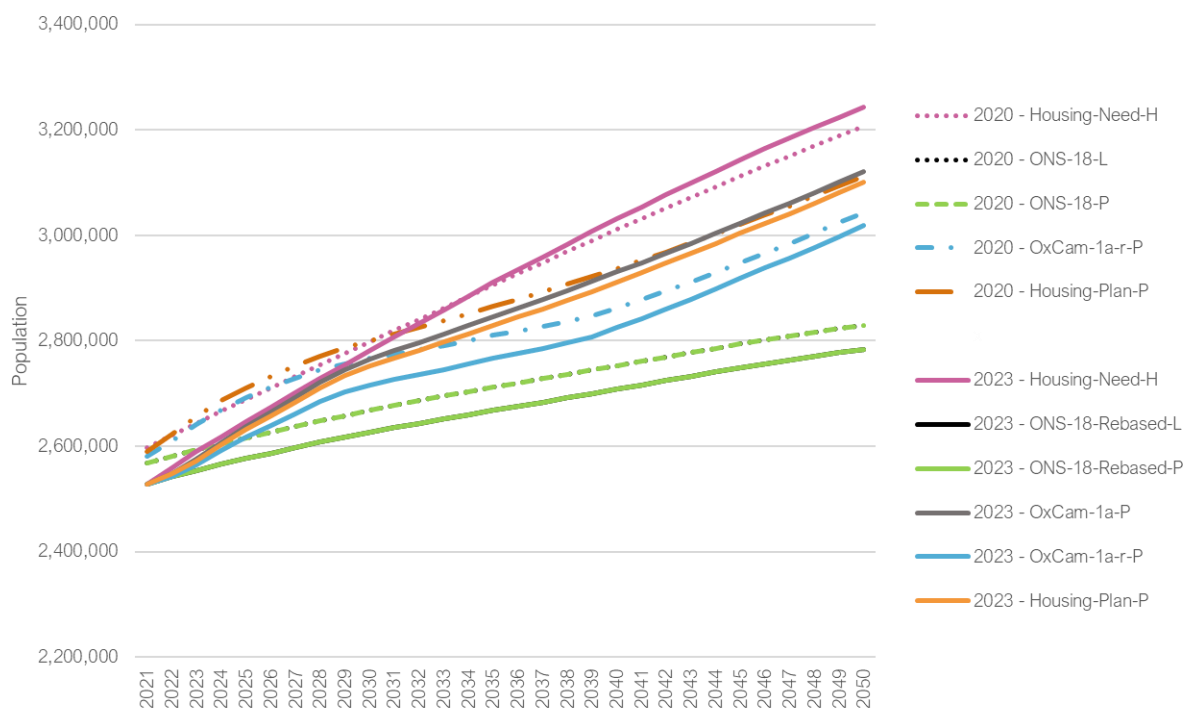
South East Water



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 2,271,042 | 2,834,703 | 563,661 | 24.8% | 10,703 | 2,271,042 | 3,456,943 | 1,185,901 | 52.2% | 8,592 |
| Housing-Plan-P | 2,282,131 | 2,799,709 | 517,578 | 22.7% | 9,479 | 2,282,131 | 3,192,214 | 910,083 | 39.9% | 6,473 |
| ONS-18-L | 2,248,224 | 2,489,172 | 240,948 | 10.7% | 5,863 | 2,248,224 | 2,629,952 | 381,728 | 17.0% | 3,730 |
| ONS-18-P | 2,248,224 | 2,489,172 | 240,948 | 10.7% | 5,863 | 2,248,224 | 2,845,650 | 597,426 | 26.6% | 5,064 |
| OxCam-1a-r-P | 2,271,558 | 2,714,652 | 443,094 | 19.5% | 10,041 | 2,271,558 | 3,097,239 | 825,681 | 36.3% | 6,915 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 2,239,920 | 2,891,603 | 651,683 | 29.1% | 11,689 | 2,239,920 | 3,436,782 | 1,196,862 | 53.4% | 8,237 |
| Housing-Plan-P | 2,239,978 | 2,779,534 | 539,556 | 24.1% | 10,040 | 2,239,978 | 3,034,274 | 794,296 | 35.5% | 5,846 |
| ONS-18-Rebased-L | 2,239,920 | 2,475,501 | 235,580 | 10.5% | 5,573 | 2,239,920 | 2,444,097 | 204,177 | 9.1% | 2,429 |
| ONS-18-Rebased-P | 2,239,920 | 2,475,501 | 235,580 | 10.5% | 5,573 | 2,239,920 | 2,706,523 | 466,603 | 20.8% | 4,002 |
| OxCam-1a-P | 2,239,920 | 2,769,517 | 529,597 | 23.6% | 9,852 | 2,239,920 | 3,023,315 | 783,394 | 35.0% | 5,771 |
| OxCam-1a-r-P | 2,239,920 | 2,670,687 | 430,767 | 19.2% | 9,858 | 2,239,920 | 2,917,194 | 677,274 | 30.2% | 5,773 |

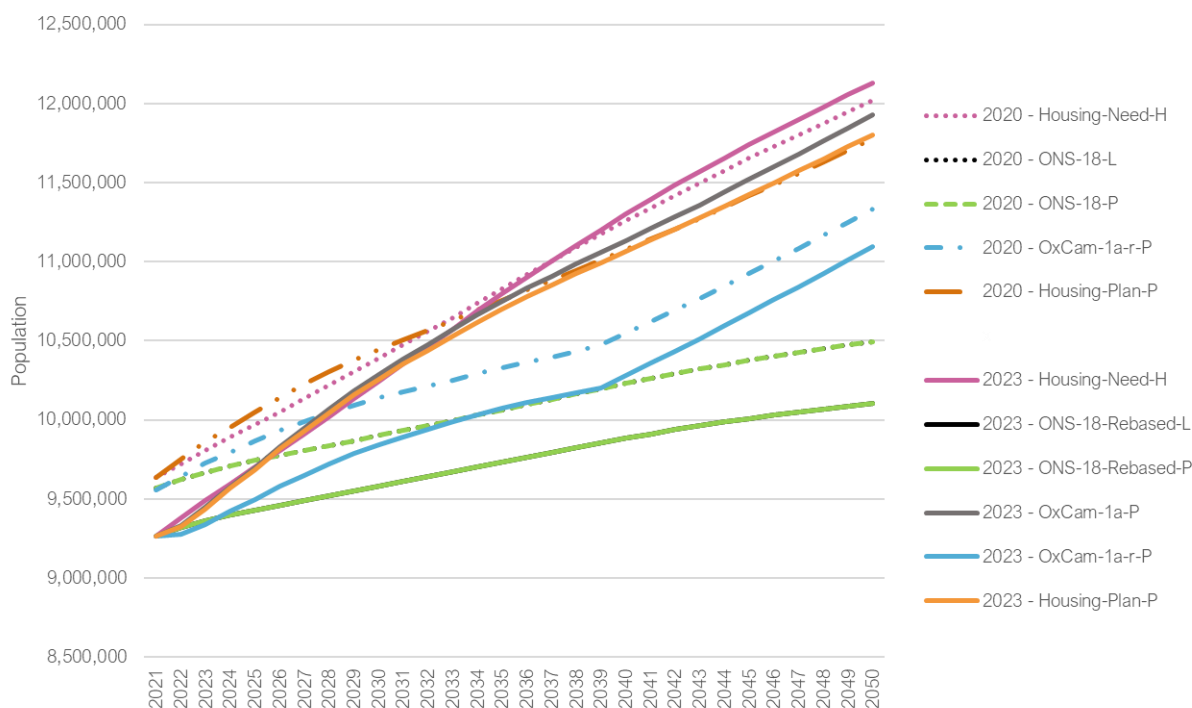
Southern Water



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 2,596,809 | 3,207,317 | 610,509 | 23.5% | 11,837 | 2,596,809 | 3,934,210 | 1,337,401 | 51.5% | 9,825 |
| Housing-Plan-P | 2,589,291 | 3,112,693 | 523,402 | 20.2% | 10,330 | 2,589,291 | 3,578,632 | 989,341 | 38.2% | 7,477 |
| ONS-18-L | 2,568,914 | 2,829,776 | 260,862 | 10.2% | 6,459 | 2,568,914 | 3,014,022 | 445,108 | 17.3% | 4,265 |
| ONS-18-P | 2,568,914 | 2,829,776 | 260,862 | 10.2% | 6,459 | 2,568,914 | 3,256,305 | 687,392 | 26.8% | 5,817 |
| OxCam-1a-r-P | 2,580,275 | 3,043,213 | 462,938 | 17.9% | 10,648 | 2,580,275 | 3,499,841 | 919,565 | 35.6% | 7,699 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|-----------|-------------------|---------------------|----------------|------------|-----------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 2,528,359 | 3,243,223 | 714,864 | 28.3% | 12,541 | 2,528,359 | 3,851,253 | 1,322,894 | 52.3% | 8,952 |
| Housing-Plan-P | 2,528,327 | 3,100,327 | 572,000 | 22.6% | 10,358 | 2,528,327 | 3,385,798 | 857,471 | 33.9% | 6,147 |
| ONS-18-Rebased-L | 2,528,359 | 2,783,869 | 255,511 | 10.1% | 6,170 | 2,528,359 | 2,748,969 | 220,610 | 8.7% | 2,588 |
| ONS-18-Rebased-P | 2,528,359 | 2,783,869 | 255,511 | 10.1% | 6,170 | 2,528,359 | 3,044,246 | 515,888 | 20.4% | 4,411 |
| OxCam-1a-P | 2,528,359 | 3,120,341 | 591,983 | 23.4% | 10,746 | 2,528,359 | 3,407,774 | 879,416 | 34.8% | 6,306 |
| OxCam-1a-r-P | 2,528,359 | 3,018,091 | 489,732 | 19.4% | 10,741 | 2,528,359 | 3,298,060 | 769,701 | 30.4% | 6,305 |

Thames Water



| 2020 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|----------------|------------|------------|-------------------|---------------------|----------------|------------|------------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 9,636,351 | 12,019,956 | 2,383,605 | 24.7% | 49,658 | 9,636,351 | 14,458,769 | 4,822,417 | 50.0% | 37,003 |
| Housing-Plan-P | 9,635,394 | 11,776,760 | 2,141,366 | 22.2% | 41,790 | 9,635,394 | 13,180,132 | 3,544,738 | 36.8% | 26,513 |
| ONS-18-L | 9,570,084 | 10,494,887 | 924,804 | 9.7% | 27,903 | 9,570,084 | 10,782,495 | 1,212,411 | 12.7% | 14,437 |
| ONS-18-P | 9,570,084 | 10,494,887 | 924,804 | 9.7% | 27,903 | 9,570,084 | 11,775,778 | 2,205,694 | 23.0% | 20,991 |
| OxCam-1a-r-P | 9,555,172 | 11,330,382 | 1,775,210 | 18.6% | 48,209 | 9,555,172 | 12,685,994 | 3,130,822 | 32.8% | 29,749 |

| 2023 Scenarios | Population | | Population Change | Population Change % | Dwellings p.a. | Population | | Population Change | Population Change % | Dwellings p.a. |
|------------------|------------|------------|-------------------|---------------------|----------------|------------|------------|-------------------|---------------------|----------------|
| | 2021 | 2050 | | | | 2021 | 2100 | | | |
| Housing-Need-H | 9,264,012 | 12,128,318 | 2,864,306 | 30.9% | 52,770 | 9,264,012 | 14,123,008 | 4,858,996 | 52.5% | 33,757 |
| Housing-Plan-P | 9,264,534 | 11,804,698 | 2,540,164 | 27.4% | 48,201 | 9,264,534 | 12,647,581 | 3,383,048 | 36.5% | 24,964 |
| ONS-18-Rebased-L | 9,264,012 | 10,103,932 | 839,920 | 9.1% | 23,865 | 9,264,012 | 9,767,215 | 503,203 | 5.4% | 8,502 |
| ONS-18-Rebased-P | 9,264,012 | 10,103,932 | 839,920 | 9.1% | 23,865 | 9,264,012 | 10,841,426 | 1,577,414 | 17.0% | 15,107 |
| OxCam-1a-P | 9,264,012 | 11,930,647 | 2,666,635 | 28.8% | 49,987 | 9,264,012 | 12,781,586 | 3,517,574 | 38.0% | 25,689 |
| OxCam-1a-r-P | 9,264,012 | 11,097,513 | 1,833,500 | 19.8% | 50,012 | 9,264,012 | 11,900,407 | 2,636,395 | 28.5% | 25,699 |

4 FUTURE DATA RELEASES

- 4.1 All forecasts are dependent on the data inputs and assumptions used in their configuration, so it is important to monitor future data releases to understand when it may be needed to revisit and update the forecasts in the light of more up-to-date evidence.
- 4.2 The following table details the key forthcoming data from ONS which will provide additional intelligence to inform future forecasts:

| Data release | Release date |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Revised official 2021 MYE for the UK, its constituent countries and local authority districts. | September 2023 (provisional) |
| Rebasing of MYEs following Census 2021, England and Wales This release contains the rebased MYEs for the period 2012 to 2020 to align with Census 2021 results. | September 2023 (provisional) |
| Population estimates for England and Wales: mid-2022 National and sub-national mid-year population estimates for England and Wales by administrative area, age and sex. | September 2023 (provisional) |
| National population projections: 2021-based | December 2023 (provisional) |
| Sub-national population projections: 2021-based | Will follow on from 2021-based national population projections in 2024, but release timescale unknown |
| Household projections: 2021-based | Unknown |

- 4.3 Due to uncertainty around the 2021 Census estimates and the intercensal MYEs, it is recommended that, once the updated MYEs are released in September 2023, a refresh of the scenario evidence is considered.

Appendix A

SCENARIO DEFINITION 2020

A.1 The table below provides a list of all 2020–2050 scenarios that were delivered to WRSE in 2020:

| ID | SCENARIO | DESCRIPTION |
|----|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | ONS-14 | ONS 2014-based sub-national population projection (SNPP), using a six-year history (2008–2014) to derive local fertility, mortality and internal migration assumptions, with a long-term UK net international migration assumption of +185k p.a. |
| 2 | ONS-16 | ONS 2016-based Principal sub-national population projection (SNPP), using a five-year history (2011–2016) to derive local fertility, mortality and internal migration assumptions, and a long-term UK net international migration assumption of +165k. In line with the ONS 2016-based national population projection (NPP), this round of projections includes a reduced UK fertility outlook compared to ONS-14 and a dampened rate of improvement in life expectancy compared to ONS-14. |
| 3 | ONS-18 | ONS 2018-based Principal sub-national population projection (SNPP), using a five-year history (2013–2018) to derive local fertility & mortality assumptions and a long-term UK net international migration assumption of +190k. Unlike earlier rounds of SNPP, the 2018-based Principal projection uses a two-year history (2016–2018) of internal migration assumptions, following recent changes to the methodology used for its estimation, which have only covered the latest 2 years. In line with the ONS 2018-based national population projection (NPP), this round of projections includes a reduced UK fertility outlook compared to ONS-16 and a dampened rate of improvement in life expectancy compared to ONS-16. |
| 4 | ONS-18-Alt | ONS 2018-based Alternative Internal Migration sub-national population projection (SNPP), produced by ONS as a comparison with the Principal projection. It uses a five-year average of internal migration (2013–2018), combining 3 years of data based on the old methodology and 2 years based on the new methodology. All other assumptions are consistent with ONS-18. |
| 5 | ONS-18-High | ONS 2018-based High International Migration sub-national population projection (SNPP), incorporating a High long-term UK net international migration assumption of +290k p.a., with all other assumptions consistent with ONS-18. |
| 6 | ONS-18-Low | ONS 2018-based Low International Migration sub-national population projection (SNPP), incorporating a Low long-term UK net international migration assumption of +90k p.a., with all other assumptions consistent with ONS-18. |
| 7 | ONS-18-10Y | ONS 2016-based 10yr Migration (all types) sub-national population projection, using a ten-year history (2008–2018) to derive internal migration assumptions, with all other assumptions consistent with ONS-18. |
| 8 | GLA-18-Central | Greater London Authority (GLA) 2018-based Central population projection, incorporating: GLA's own adjustments to the mid-year population estimates of London Boroughs; local fertility and mortality assumptions, trended in line with the ONS 2018-based NPP assumptions; internal and international migration assumptions derived from a 10-year history (2008–2018). This scenario includes projections for London Boroughs and for all other local authority areas. |
| 9 | GLA-18-15Y | GLA 2018-based long-term trend projection, incorporating internal and international migration assumptions derived from a 15-year history (2003–2018), with all other assumptions consistent with the Central scenario. This scenario includes projections for London Boroughs and for all other local authority areas. |
| 10 | GLA-18-5Y | GLA 2018-based short-term trend projection, incorporating internal and international migration assumptions derived from a 5-year history (2013–2018), with all other assumptions consistent with the Central scenario. This scenario includes projections for London Boroughs and for all other local authority areas. |

| ID | SCENARIO | DESCRIPTION |
|----|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | GLA-Housing | GLA 2018-based Housing-led projection, based on data from the 2016 Strategic Housing Land Availability Assessment (SHLAA). Beyond 2041, housing growth is aligned to the 2035–2041 average. Whilst the housing-led approach is applied to each London Borough, the population projection for Greater London, in total, remains consistent with the Central scenario. This scenario includes projections for London Boroughs only and is combined with the Central scenario for all other local authority areas when aggregated to WRZ geographies. |
| 12 | Completions-18Y | A Housing-led scenario, with population growth underpinned by a continuation of the rate of housing growth recorded in each local authority's 18-year completions history (2001–2019). |
| 13 | Completions-5Y | A Housing-led scenario, with population growth underpinned by a continuation of the rate of housing growth recorded in each local authority's 5-year completions history (2014–2019). |
| 14 | Housing-Need | A Housing-led scenario, with population growth underpinned by the trajectory of housing growth associated with each local authority's Local Housing Need (LHN) or Objectively Assessed Housing Need (OAHN). Following the final year of data, projected housing growth in non-London areas returns to the ONS-14 & ONS-16 long-term annual growth average by 2050. For London Boroughs, housing growth returns to the GLA Central scenario long-term annual average by 2050. |
| 15 | Housing-Need-r | A Housing-led scenario, consistent with the Housing-Need scenario, but with household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |
| 16 | Housing-Req | A Housing-led scenario, with population growth underpinned by the trajectory of housing growth associated with each local authority's housing Requirement. Following the final year of data, projected housing growth in non-London areas returns to the ONS-14 & ONS-16 long-term annual growth average by 2050. For London Boroughs, housing growth returns to the GLA Central scenario long-term annual average by 2050. |
| 17 | Housing-Req-r | A Housing-led scenario, consistent with the Housing-Req scenario, but with household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |
| 18 | Housing-Plan | A Housing-led scenario, with population growth underpinned by each local authority's Local Plan housing growth trajectory. Following the final year of data, projected housing growth in non-London areas returns to the ONS-14 & ONS-16 long-term annual growth average by 2050. For London Boroughs, housing growth returns to the GLA Central scenario long-term annual average by 2050. |
| 19 | Housing-Plan-r | A Housing-led scenario, consistent with the Housing-Plan scenario, but with household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |
| 20 | Employment-1 | An Employment-led scenario with 1.0% pa growth in London to 2030 and 0.5% pa thereafter; 0.8% pa growth in the South East and East of England to 2030, 0.4% thereafter. |
| 21 | Employment-2 | An Employment-led scenario with 0.5% pa growth in London to 2030 and 0.25% pa thereafter; 0.4% pa growth in the South East and East of England to 2030, 0.2% thereafter. |
| 22 | OxCam-1a-r | 'New Settlement' 23k dpa scenario, with c.4.2k dpa above Housing Plan distributed between Cherwell (20%), Aylesbury Vale (20%), Central Bedfordshire (40%), South Cambridgeshire (20%). Household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |
| 23 | OxCam-1b-r | 'Expansion' 23k dpa scenario, with c 4.2k dpa distributed between: Milton Keynes: (30%) Luton (15%), Bedford (15%), Oxford (10%), Cambridge (10%), Northampton (10%), and Peterborough (10%). Household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |
| 24 | OxCam-2a-r | 'New Settlement' 30k dpa scenario, with c.11.2k dpa above Housing Plan distributed between Cherwell (20%), Aylesbury Vale (20%), Central Bedfordshire (40%), South Cambridgeshire (20%). Household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |

| ID | SCENARIO | DESCRIPTION |
|----|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25 | OxCam-2b-r | 'Expansion' 30k dpa scenario, with c 11.2k dpa distributed between: Milton Keynes: (30%) Luton (15%), Bedford (15%), Oxford (10%), Cambridge (10%), Northampton (10%), and Peterborough (10%). Household representative rates for young adults returning to (higher) 2001 levels by 2039, remaining fixed thereafter. |



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