HOW THE ORS HOUSING MIX MODEL WORKS

1. The Model works via a series of inter-connected **individual model components**, each of which is designed to derive outputs that feed into the overall assessment of housing requirements.

Establishing the Affordability of Owner Occupation

2. The first stage of the model separates households into two groups - owners and non-owners - using household projection and Census data. The data sources do not provide information about changing tenure patterns; therefore the model seeks to divide additional households into owners and non-owners. In addition other factors are considered:

   • Tenure change: although many households remain in a particular tenure, an allowance has to be made for change – for example, as households progress through life, some tenants will become owners.

   • Affordability assessment: the ability of newly forming households to afford market housing is important, as is the changing patterns of existing households to afford their housing costs. Many newly forming households will not be able to afford to buy 'today' but changing circumstances may enable them to buy later. For this reason, the affordability assessment considers wider affordability across the full income distribution rather than focussing only on the income of newly forming households at the time that they form. The analysis assumes that the income distribution of non-owners remains constant over time so the same proportion of non-owners will have incomes in any income band at any point in time.

   • Equity: equity is also a factor to consider. Many existing owners would be unable to afford to purchase a home when moving on the basis of their current income alone, but can do so with the help of the equity they have in current homes.

   • Household dissolution of existing owners: these are projected to occur over the household projection period and are offset against any new owners identified

3. The outcome of this stage of the analysis is to establish the number of households who are owners and non-owners at each stage of the given household projection.

4. Note: This balance will be sensitive to assumptions about _affordability_ and the _long-term relationship between house prices and incomes_.

Establishing the Income Threshold for Market Housing

5. Secondary data is used to model the income distribution profile of households. Next, the cost of private sector housing (from secondary sources - in this case Land Registry) is used to profile the distribution of purchase prices for properties across a given area. Combining the Land Registry data with information from Census **on the balance between owner occupiers and private renters** (specific to the location and property type of each sale) the model establishes the likelihood of any transaction being a property to be occupied by a purchaser or to be let privately.

- Private renting: two key assumptions are used

    o areas with historic higher levels of private renting are assumed to contain more private rented dwelling now

    o the private rented sector is assumed to turn over more quickly than owner occupied dwellings.

- The Model translates private rented property purchase prices into the household income that would be required to rent each property by taking assumptions about *rental yield* and *income multipliers relating to the proportion of weekly or monthly household income to be spent on rent*. The profile of required incomes is sensitive to these assumptions about affordability and rental yield

- Owned properties: for properties likely to be owner occupied, the Housing Mix Model translates the recorded purchase prices into the household income that would be required to purchase each property by taking assumptions about *mortgage income multipliers*. The profile of required incomes is sensitive to these assumptions about affordability.

6. The Model considers both housing cost distribution profiles (private rent and owned) to establish the distribution of incomes required to access private sector housing. This profile is also considered alongside the income distribution profile for non-owners.

7. The income threshold for market housing is set at the level where there is sufficient private housing available to house all of the identified non-owners within the income group. If there is less private housing available than households seeking that housing, affordable housing will be required to address the shortfall and therefore the threshold price for market housing must be set above this level.

8. NB "Sub market Housing": There will be some private housing affordable to households with incomes *below* the income threshold for market housing adopted by the Model. This is consistent with Guidance, which suggests the use of private sector lowest quartile prices as thresholds for market housing – therefore (by definition) leaving a quarter of private sector housing below the market threshold. The Model considers all private sector housing which is affordable to households with incomes below the income threshold for market housing as "Sub-market Housing".

Establishing the Requirement for Market Housing

9. Once the Income Threshold for Market Housing has been established, the Model can establish the number of households who are non-owners that can afford market housing. Combining this with the projected number of owner occupiers establishes the total number of households requiring market housing within the area.

10. The total number of market homes required can then be estimated by considering the overall number of households requiring market housing alongside assumptions about the *proportion of*

dwelling stock that is vacant or occupied by second home owners who are not counted within the number of households normally resident.

Establishing the Requirement for Affordable Housing

11. The requirement for Affordable Housing can be established by offsetting the total number of households requiring market housing from the overall household projections.

12. The Model considers the need for Social Rented Housing on the basis of social trends. By considering each type of household within the household projections individually, the model establishes the way in which their dependency on social housing has progressively changed over the preceding 20-year period on the basis of tenure data from the last three Censuses. The model is, therefore, underwritten by long-term social trends rather than short-term affordability considerations - it considers the collective requirement for all households to establish a total requirement for Social Rented Housing.

13. The overall social trend is compared to tenure data from secondary sources to confirm the accuracy of the model projections:

    - **Social rent:** The social trends for each household type are then applied to the household projection data to establish the level of social rented requirement for future years for each type of household.

      Note: The model for social rented requirement does not require an understanding of dissolution and formation rates among households because it is based on demographic trends and not affordability.

    - **Intermediate Affordable Housing requirement:** this is established by offsetting the total number of households requiring Social Rented Housing from the projected number of households requiring Affordable Housing overall.

      Essentially, the Intermediate Affordable Housing represents a residual obtained by calculating the number of households who can afford market housing and those requiring social housing and subtracting these numbers from the total housing requirement. If affordability changes the intermediate and market housing requirement will move in opposite directions, but the social housing requirement remains unchanged as it is controlled by demographic factors.

14. Once again, assumptions can be taken about *vacancy rates within the affordable housing stock* to establish the overall affordable housing requirement.

Establishing the Housing Stock Profile

15. To establish the housing stock profile, the Model considers the baseline housing stock broken down by tenure and supplements this information with data on housing completions broken down by tenure reported within Local Authority Annual Monitoring Reports.

16. The Model also considers data on losses from the affordable housing stock based on Local Authority returns about Right-to-Buy sales, and projects the likely future losses from stock on the basis of trends in sales since the change in legislation.

17. The private sector housing stock is divided into Market Housing and Sub-market Housing on the basis of the analysis employed for Establishing the Income Threshold for Market Housing – where any private sector property that is affordable to households with incomes below this threshold point is considered Sub-market Housing and all other private sector housing is considered Market Housing.

Establishing the Tenure Mix for Additional Housing Provision

18. The Model considers the future requirement for Market Housing alongside the existing stock of Market Housing to establish the net additional dwellings that are required to be provided as Market Housing.

19. The future requirement for Intermediate Affordable Housing is considered alongside the stock of existing Intermediate Affordable Housing and also the stock of Sub-market Housing (which is affordable to households on incomes below the Income Threshold for Market Housing) to establish the net additional dwellings that are required to be provided as Intermediate Affordable Housing.

20. The future requirement for Social Rented Housing is considered alongside the stock of existing Social Rented Housing to establish the net additional dwellings that are required to be provided as Social Rented Housing.

Establishing the Size Mix for Additional Housing Provision

21. The Model considers the nature of housing that was occupied by different household types in terms of size and tenure on the basis of information from Census, which recognises that many households will under-occupy their homes (and choose to live in larger properties than they technically need on the basis of any bedroom standards) – although housing allocation policies will mean that social tenants will tend to be less likely to under-occupy their homes.

22. This trend-based occupancy profile is applied to the projected household mix in terms of the type of household in each housing tenure to establish an overall size mix of future housing requirements. This is then set alongside information about the existing housing stock to establish the net additional dwellings that are required to be provided within each tenure split by size. This information is provided on the basis of the total number of rooms, due to limitations of outputs from the Census data, and then converted to the number of bedrooms needed through apply a conversion factor from rooms to bedrooms..