

Appendix 3 The affordability model

This Appendix provides a detailed description of the model used to provide estimates of affordable housing requirements in the North West.

PPS3 requires housing market assessments to include estimates of the requirement for affordable housing. Looking across the region, there were substantial variations in the extent to which local housing need assessments were up to date and reflected recent market trends. Many studies were carried out before the most recent official good practice guidance was issued and did not fully reflect its requirements. In most cases, local studies reflected local authority rather than housing market area boundaries.

To overcome these problems, a model was developed to provide estimates of affordable housing requirements for housing market areas across the North West region using only secondary data sources which were available on a consistent basis across the region, as distinct from local survey data.

The outputs from the model are not intended as a substitute for local assessments of affordable requirements where these are up to date and in compliance with official guidance. Rather, they are intended to provide a consistent framework at housing market area level which can be used to support local assessments where appropriate.

The model was developed in an Excel workbook, using data apportioned to housing markets as described in Appendix 1. Chapter 5 describes the main findings, and Appendix 2 presents the main outputs from the model for each housing market area.

The main steps in the model are set out in the table below.

Step 1: Estimate backlog need from secondary data		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Add together the number of households on housing registers, number of homeless acceptances, number of overcrowded 	<ul style="list-style-type: none"> ▪ Housing register data from Local Authority HSSA returns ▪ Regional data from Survey of English Housing on households with person on a housing 	<ul style="list-style-type: none"> ▪ Housing registers can be out of date and so over or underestimate true need, and can contain duplicate entries ▪ Secondary data sources do not break

<p>households, and estimated numbers of concealed households.</p> <ul style="list-style-type: none"> ▪ Reduce total backlog need by a factor of one third to allow for overlap between these groups. This factor scales HSSA data on housing registers to regional data from the Survey of English Housing 	<p>register</p> <ul style="list-style-type: none"> ▪ Overcrowded households from 2001 Census, adjusted using Survey of English housing trends 2001-2006 ▪ Numbers of homeless acceptances from Local Authority homelessness returns ▪ Estimates of concealed households from CLG household forecasts 	<p>down backlog need into the detailed categories specified in official guidance so this estimate is an approximation of true backlog need</p>
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Step 2: Estimate gross number of newly forming households		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Approach recommended in Strategic Housing Market Assessment Guidance version 2 (August 2007) (Chapter 5, Step 2.1 and Annex B) 	<ul style="list-style-type: none"> ▪ CLG household projections 	<ul style="list-style-type: none"> ▪ Accuracy of data source

Step 3: Estimate total number of existing households falling into need		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Flows onto housing registers averaged over the period 2001-2006 as recommended in Strategic Housing Market Assessment Guidance version 2 (August 2007) (Chapter 5, Step 2.3 and Annex B) 	<ul style="list-style-type: none"> ▪ Local Authority HSSA returns 	<p>Housing registers can be out of date and so over or under-estimate true need, and can contain duplicate entries, but averaging data over five year period increases accuracy</p>

Step 4: Separately estimate the income distribution of the three groups of households in need identified in Steps 1-3 at national level		
Methodology	Data sources	Data limitations

<ul style="list-style-type: none"> ▪ Extract data on the national distribution of incomes of households on waiting lists, newly forming households and existing households moving into owner occupation from the Survey of English Housing ▪ Compare the distribution of incomes for these groups with the distribution of incomes for all households to identify differences in average incomes and distribution of incomes 	<ul style="list-style-type: none"> ▪ Survey of English Housing 	<ul style="list-style-type: none"> ▪ Incomes of households on waiting lists used to represent those in backlog need ▪ Incomes of existing households moving into owner occupation with a head aged under 45 used to represent existing households falling into need
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Step 5: Estimate average incomes and distribution of incomes for the three groups of households in need in steps 1, 2 and 3 for each housing market area.

Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Separately for each of the three need groups in Steps 1-3 above, apply data on average incomes and the distribution of incomes derived in Step 4 to local data on average incomes and the distribution of incomes for all households 	<ul style="list-style-type: none"> ▪ CACI Paycheck income estimates aggregated to housing market area level 	<ul style="list-style-type: none"> ▪ Accuracy of data source ▪ Relies on assumption that differences between incomes of the three need groups and incomes of all households at national level will be the same as at housing market area level

Step 6: Estimate purchasing power of each household in need

Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Assume a loan to income ratio (ratio 	<ul style="list-style-type: none"> ▪ From Steps 1-5 ▪ Assumptions on 	<ul style="list-style-type: none"> ▪ CLG good practice guidance

<p>of 3.3 assumed but can be varied)</p> <ul style="list-style-type: none"> ▪ Assume deposits to be 0.33 times gross household income ▪ Estimate the purchasing power of each household in need identified in Steps 1, 2 and 3 by applying these assumptions to income estimated from Step 5 	<p>loan to income ratio and deposit derived from CML Mortgage Lending statistics on first time buyer borrowing in 2008.</p>	<p>advises using ratios of 2.9 (single person household) and 3.5 (two person household) but model does not include a breakdown by household size so overall rate of 3.3 (derived from CML data) applied.</p> <ul style="list-style-type: none"> ▪ Possible area for future refinement of the model
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Step 7: Identify households in affordable need in each need group

Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Identify lower quartile dwelling price for each housing market area, to use as entry level price in calculation of affordable housing requirements, as recommended in Strategic Housing Market Assessment Guidance version 2 (August 2007) (Chapter 5, Step 5.1) ▪ Compare purchasing power of each household in need in Steps 1, 2 and 3 with lower quartile threshold price to calculate number of households in each group in affordable housing need 	<ul style="list-style-type: none"> ▪ HM Land Registry house price data ▪ From Step 6 	

Step 8: Estimate gross number of households in need of affordable

housing		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Reduce number of households in backlog affordable need to 20% of total, to allow for meeting backlog needs over a five year period, as recommended in Strategic Housing Market Assessment Guidance version 2 (August 2007) (Chapter 5, Step 3.1) ▪ Obtain estimate of gross households in affordable need by adding together households unable to afford lower quartile threshold priced dwelling from households in backlog need, newly emerging households, and existing households coming into need 	<ul style="list-style-type: none"> ▪ From Step 7 	<ul style="list-style-type: none"> ▪ Authorities may seek to meet backlog need more quickly or slowly

Step 9: Estimate affordable supply		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Assume a proportion of those in backlog need who are rehoused will release an affordable unit for the use of others in affordable need, as recommended in Strategic Housing Market Assessment Guidance version 2 (August 2007). 	<ul style="list-style-type: none"> ▪ Survey of English Housing ▪ Local Authority HSSA returns ▪ CACI Paycheck income estimates ▪ HM Land Registry house price data 	<ul style="list-style-type: none"> ▪ Assumption on release of affordable units by those in backlog need who are rehoused may under or over estimate actual release of affordable units ▪ Assumption of 2006/07 social housing relets may

<p>Proportion based on Survey of English Housing data on those on waiting lists in the region who live in social rented housing (excluding cases where a concealed household is on the list), adjusted to take account of HMA level variations in the level of social rented housing in the area</p> <ul style="list-style-type: none"> ▪ Estimate social housing relets (assumed 2006-2007 relets, but can be varied). 		<p>over-estimate supply as relets are on downward trend.</p>
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Step 10: Obtain net affordable housing requirement

Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Deduct affordable supply (Step 9) from gross affordable housing requirement (Step 8) 	<ul style="list-style-type: none"> ▪ From Steps 8 and 9 	

Step 11: Divide gross affordable housing requirements into need for social rented and intermediate housing, and calculate net need for social rented housing

Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Examine purchasing power of households in affordable need from each need group relative to the lower quartile threshold price, and divide those in affordable need into those able and 	<ul style="list-style-type: none"> ▪ From Steps 6 and 7 	<p>Actual costs of intermediate housing can vary substantially depending on the product. This approach assumes an average level of 60% shared ownership or equity loan, together with an allowance of 15% for rent (shared</p>

<p>those unable to buy at 75% of the lower quartile threshold. Assume those unable to buy at this level require social rented housing and those able to buy require intermediate housing</p> <ul style="list-style-type: none"> ▪ The net need for social rented housing can be obtained by deducting the affordable supply obtained at Step 9 		<p>ownership) or annual fees (equity loan).</p>
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Step 12: Estimate the requirement for new affordable housing		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Estimate proportion of market units below lower quartile threshold which are affordable, assuming 25% of sales in lower quartile in each housing market area ▪ Estimate proportion private rented sector lettings affordable. Number of annual private sector lettings at regional level estimated from the Survey of English Housing and apportioned to housing market areas on basis of size of private rented sector in 2001. Assume that 40% of new private rented sector lettings are 	<ul style="list-style-type: none"> ▪ HM Land Registry house price data ▪ HM Land Registry house price data, Survey of English Housing, Dataspring. 	<ul style="list-style-type: none"> ▪ Assumption on supply of affordable low cost market dwellings may under or over estimate actual affordable supply ▪ Assumption on supply of affordable private rented lettings may under or over estimate actual affordable supply

<p>affordable at regional level, based on income profile of private tenants from Survey of English Housing. Apportion this to housing market areas based on size of private rented sector, and ratio of average private sector rent in each housing market area (from Dataspring) to the rent which a household unable to buy at the lower quartile price threshold could afford (assuming 25% of income devoted to rent).</p> <ul style="list-style-type: none"> ▪ Deduct estimate of affordable low cost market and private rented supply from net affordable need (Step 10) to derive estimate of new affordable housing requirement. Where necessary, constrain estimate of new affordable housing requirement to a range between a minimum of 10% of the required new housing supply across all tenures under Scenario A and a maximum of 60% of this figure (estimates of the overall requirement for new housing do 	<p>□</p>	
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not form part of the model).		
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Step 13: Estimate the requirement for new market housing supply		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Deduct affordable new housing requirements (Step 12) from overall housing requirements (estimates of the latter do not form part of the model) 	<ul style="list-style-type: none"> ▪ From Step 12 and using estimates of overall housing requirements developed for this study 	

Step 14: Estimate the requirement for affordable and market housing by size of unit		
Methodology	Data sources	Data limitations
<ul style="list-style-type: none"> ▪ Obtain national data on the household size distribution of the three household need groups. ▪ Sub-divide each group into two, on the basis of whether their household income was above or below £25,000 per annum. Those with a household income below £25,000 per annum were assumed to be representative of those likely to require affordable housing, and those with an income above this level were assumed 	<ul style="list-style-type: none"> ▪ Survey of English Housing 	<ul style="list-style-type: none"> ▪ Incomes of households on waiting lists used to represent those in backlog need ▪ Incomes of all existing households moving in last year used to represent existing households falling into need

<p>to be representative of those likely to be able to afford market housing</p> <ul style="list-style-type: none"> ▪ Assume 50% of single person households require a one-bedroomed dwelling, with the remainder requiring two bedrooms. ▪ Assume 50% of two person households require a two bedroomed dwelling with the remainder requiring three bedrooms. ▪ Assume all three and four person households require three bedrooms and all larger households four bedrooms 		<ul style="list-style-type: none"> ▪ Arbitrary split of households by income into those requiring affordable and market housing. This could be avoided if the model is refined at a later stage to take account of household size. ▪ Arbitrary assumptions on dwelling size requirements of households of different sizes
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All the assumptions within the model can be varied by changing the necessary inputs and examining the impact on outputs.

For convenience, an additional element of the model enables key assumptions to be tested in terms of their impact on the level of net affordable need over an extended time period without direct modification to inputs. This provides a convenient way of assessing the impact of alternative scenarios. The key factors which can be varied are:

- Annual percentage change in lower quartile dwelling threshold
- Annual percentage change in average household income
- Annual percentage change in supply of affordable housing
- Annual percentage divergence of household formation from 2004-based CLG projection
- Period over which backlog affordable need is met
- Assumptions on purchasing power, based on loan to income ratio and deposit

