

BRE Client Report

BRE Integrated Dwelling Level Housing Stock Modelling and Database for Sandwell Metropolitan Borough Council

Prepared for: Richard Norton, Environmental Health Manager

Date: 31 July 2018

Report Number: P104088-1042 Issue: 2

BRE
Watford, Herts
WD25 9XX

Customer Services 0333 321 8811

From outside the UK:
T + 44 (0) 1923 664000
F + 44 (0) 1923 664010
E enquiries@bre.co.uk
www.bre.co.uk

Prepared for:
Richard Norton, Environmental Health Manager
Court House
335-337 High Street
West Bromwich
West Midlands
B70 8LU



Prepared by

Name Ian Watson

Position Principal Consultant, Housing and Health

Date 31 July 2018

Signature

A handwritten signature in black ink, appearing to be 'I. Watson', is written over a thin horizontal line.

Authorised by

Name Rob Flynn

Position Director, Housing and Health

Date 31 July 2018

Signature

A handwritten signature in black ink, appearing to be 'R. Flynn', is written over a thin horizontal line.

This report is made on behalf of Building Research Establishment Ltd. (BRE) and may only be distributed in its entirety, without amendment, and with attribution to BRE to the extent permitted by the terms and conditions of the contract. BRE's liability in respect of this report and reliance thereupon shall be as per the terms and conditions of contract with the client and BRE shall have no liability to third parties to the extent permitted in law.



Executive summary

- Sandwell Metropolitan Borough Council commissioned BRE to undertake a series of modelling exercises on their housing stock which required BRE to produce an integrated stock model which includes Local Land and Property Gazetteer (LLPG), HMO, tenure and benefits data provided by the Council. The BRE models also integrate Energy Performance Certificate (EPC)¹ data. As a result of this, 61,495 addresses have had their imputed energy characteristics replaced with observed characteristics from the EPC data for the purposes of the energy model. The use of this observed data will lead to more accurate energy models for these cases, which account for 46.0% of the total stock in Sandwell.
- This report describes the work and the results obtained from the integrated model and Housing Stock Condition Database (HSCD). The database is also provided to the council to enable them to obtain specific information whenever required.
- The detailed housing stock information provided in this report will facilitate the delivery of Sandwell Metropolitan Borough Council's housing strategy and enable a targeted intervention approach to improving housing, particularly in the private rented sector. In addition to this there are also several relevant government policies – the Housing Act 2004, Housing Strategy Policy, Local Authority Housing Statistics (LAHS) and the Energy Companies Obligation (ECO).
- The main aims of this work were to provide estimates of:
 - The percentage of dwellings meeting each of the key indicators² for Sandwell overall and broken down by tenure and then mapped by Census Output Area (COA) (private sector stock only)
 - Information relating to LAHS reporting for the private sector stock - category 1 hazards and Houses in Multiple Occupation (HMOs) as well as information on EPC ratings
 - The council also requested additional analysis of data on the private rented stock to investigate the potential for licensing schemes in this sector.
- BRE Housing Stock Models were used to provide such estimates at dwelling level and focussing on private sector housing. The key indicators provide Sandwell with detailed information on the likely condition of the stock and the geographical distribution of properties of interest.
- A stock modelling approach has been developed and used by BRE for many years and the most recent 2017 models have been updated to make use of the results of the 2014 English Housing

¹ EPCs are an indication of how energy efficient a building is - with a rating from A (very efficient) to G (inefficient). They are required whenever a property is built, sold or rented.

² Presence of a HHSRS category 1 hazard, presence of a category 1 hazard for excess cold, presence of a category 1 hazard for falls, dwellings in disrepair, fuel poverty (10% and Low Income High Cost definitions), dwelling occupied by a low income household and SimpleSAP rating.



Survey (EHS)³. The models also make use of Experian and Ordnance Survey (OS) data. OS AddressBase Plus is used as a basis for the list of all dwellings in the authority, and applying improved geo-modelling⁴ is used to determine the dwelling type and floor area from OS Mastermap. The energy model that lies at the heart of the modelling process are based on the 2012 version of SAP, and the methods for imputing the inputs to this model incorporate information sources from additional sources. These include the age of postcodes (to improve dwelling age data) and data from Xoserve to determine whether the dwelling is on the gas network. These dwelling level models are used to estimate the likelihood of a particular dwelling meeting the criteria for each of the key indicators. These outputs can then be mapped to provide the authority with a geographical distribution of each of the key indicators which can then be used to target resources for improving the housing stock.

- Furthermore, Sandwell Metropolitan Borough Council provided various additional sources of “local data” – LLPG, tenure and benefits. Energy Performance Certificate (EPC) data is also integrated by BRE. These data sets were then incorporated into the BRE Housing Stock Model to produce an integrated Housing Stock Condition Database (HSCD).
- The headline results are provided on the following page:

³ 2014 is the latest available data. Prior to the 2017 models EHS 2012 data was used.

⁴ The OS data has been used to update a number of the model inputs – the main value of the OS data is the ability to determine the dwelling type with much greater confidence – see **Appendix B** for more information.



Headline results for Sandwell

There are 133,680 dwellings in Sandwell, 46% are owner occupied, 26% private rented and 28% social rented.

11,905 dwellings in the private sector have category 1 Housing Health and Safety Rating System (HHSRS) hazards. This equates to 12% of properties. *See full results*

4,422 dwellings in the private rented sector have category 1 HHSRS hazards. This equates to 13% of properties in the private rented sector. *See full results*

The highest concentrations of all HHSRS hazards in the private and private rented sector are found in the wards of Abbey, Smethwick and St. Pauls. *See full results*

The highest concentrations of fuel poverty (Low Income High Costs definition) in the private sector are found in the wards of Smethwick, Abbey and St. Pauls, and in Abbey and Smethwick in the private rented sector. For excess cold the highest concentrations are in Old Warley, Abbey and Smethwick for private stock with the highest rate in the private rented sector in Tividale. *See full results*

The average SimpleSAP rating for all private sector dwellings in Sandwell is 60, which is the same as England but better than West Midlands (58). For owner occupied stock the figure is 59 and for private rented stock it is 61. *See full results*

Maps by Census Output Area (COA) have been provided for the above key indicators. *See maps*

The total cost of mitigating category 1 hazards in Sandwell's private sector stock is estimated to be £51.7 million – with £28.3 million in the owner occupied sector, and £23.4 million in the private rented sector. *See full results*

4.1% (3,926) of *private sector* dwellings and 3.8% (1,319) of *private rented* dwellings in Sandwell are estimated to have an EPC rating below band E. *See full results*



Headline results for Sandwell – HMOs and licensing

There are an estimated 4,247 HMOs in Sandwell, of which approximately 92 come under the mandatory licensing scheme using the current definition. Using the proposed new mandatory licensing scheme definition, there are 464 HMOs. *See full results*

HMOs in the private rented sector in Sandwell are generally in poorer condition than non-HMOs. The levels of category 1 hazards are notable higher for HMOs (16% compared to 12% for non-HMOs), especially for fall hazards (13% compared to 10%). Levels of disrepair are also higher for HMOs (11% compared to 7% for non-HMOs). HMOs have lower rates of low income households (24% compared with 27% for non-HMOs). However, they also have lower energy efficiency levels compared to non-HMOs (average SimpleSAP score of 59 compared to 61), leading to higher levels of fuel poverty using the current definition (LIHC) (17% compared with 14%). *See full results*

Selective licensing

Private rented dwellings

Overall the percentage of dwellings in the private rented sector across Sandwell is 26% compared to the national average of 20%. A large proportion of wards (15 out of 24 wards) in Sandwell have a percentage of private rented sector dwellings greater than the national average.

Three types of area within Sandwell were identified based on levels of private rented stock which were a) 3 wards in excess of 35%, b) 6 wards with 25-35% stock privately rented, and c) 6 wards between 20-25% (i.e. above the national average of 20%).

70% of all HMOs in Sandwell are contained within these three areas, with the 6 wards of 25-35% private rented stock containing 34% of all HMOs.

See full results

Dwelling conditions in the private rented sector

The proportion of dwellings with a category 1 hazard in the private rented stock for the areas identified are: >35% PRS - 15%, 25-35% PRS- 13%, and 20-25% PRS – 12% compared to Sandwell overall – 13%

Deprivation

56% of private rented dwellings in the 3 wards with over 35% private rented stock, and 58% in the 6 wards with 25-35% private rented stock are located in the 20% most deprived LSOAs in England. This is higher than the figure for Sandwell as a whole (54%). *See full results*

In depth analysis on specific areas

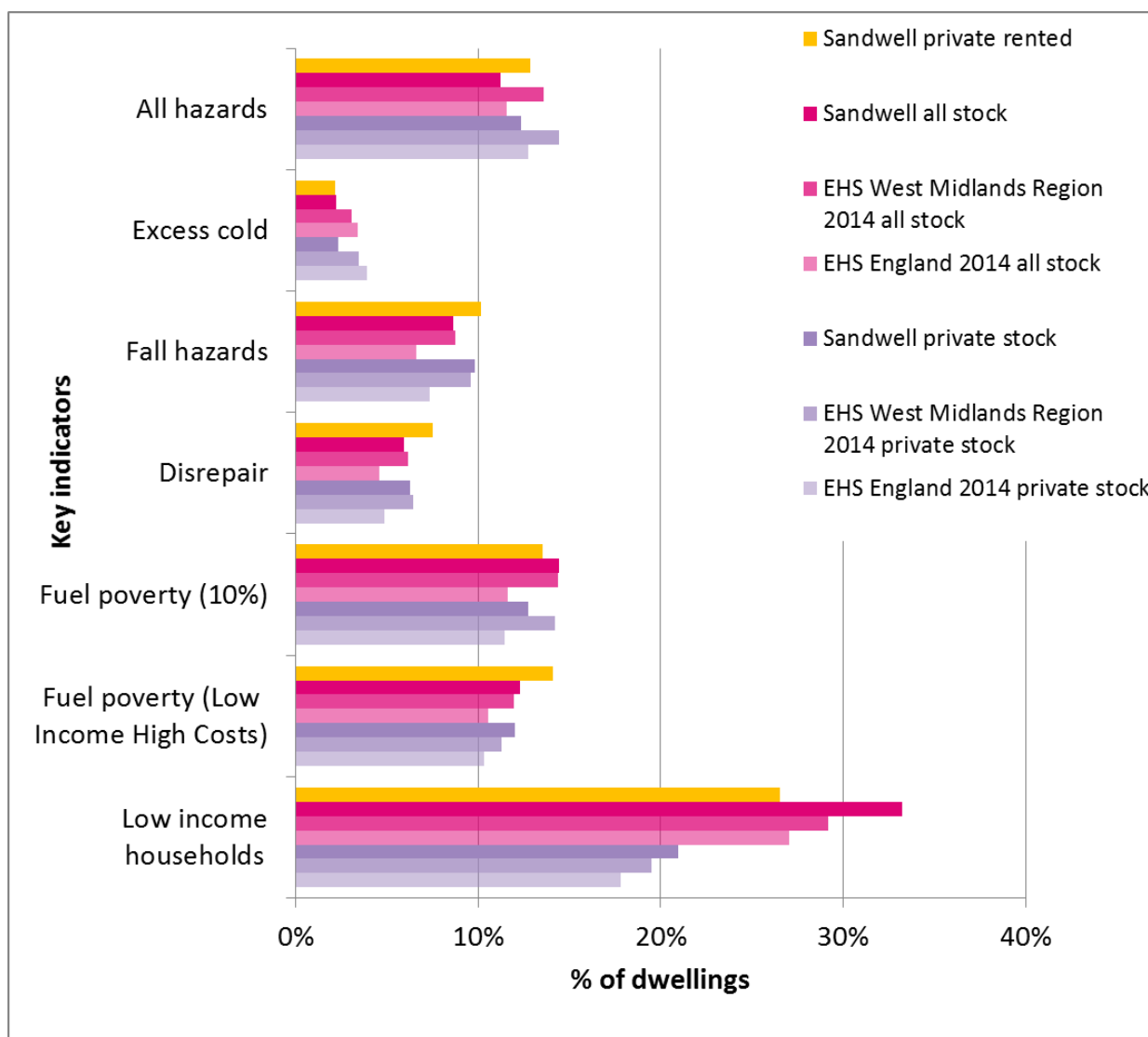
There are significant levels of HHSRS hazards and deprivation in some areas which could be considered targets for discretionary licensing. *See full results*



Key illustrations of headline results

- The table below shows the results for 7 of the key indicators in Sandwell compared to regional data and England (EHS 2014) - split into all stock and private sector stock. The data shows that the performance of the housing stock in Sandwell compared to the EHS England average is mixed with Sandwell performing slightly better for all hazards and excess cold, but worse for the remaining indicators. Compared to the regional average, there is a similar picture although Sandwell performs at a similar level to the regional average for fall hazards and disrepair. Looking at the private rented sector, there are higher rates of all hazards, falls hazards, disrepair and fuel poverty (LIHC) compared to all stock and private sector stock in Sandwell.

Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the housing stock models and database for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)





- The table below shows the number and percentage of Sandwell’s private rented stock falling into each of the EPC ratings bands (based on SimpleSAP). The number of private rented dwellings in Sandwell with a rating below band E (i.e. bands F and G), is estimated to be 1,319 (3.8%). Compared to England, there are a greater proportion of dwellings in band C to E, and lower proportions in bands F and G.

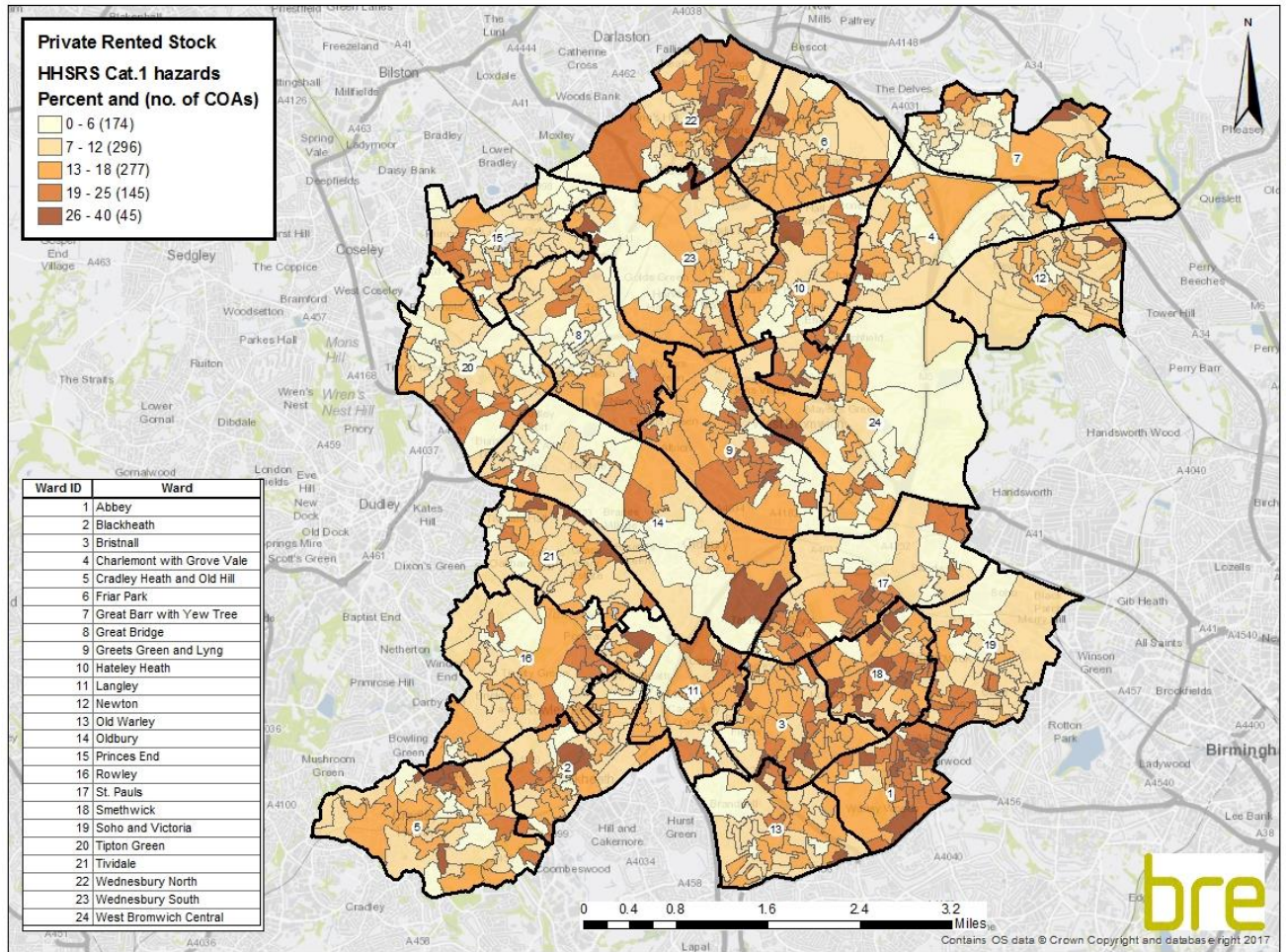
Number and percentage of Sandwell’s private rented stock falling into each of the EPC ratings bands (based on SimpleSAP)

	Sandwell		2014 EHS England
	Count	Percent	Percent
(92-100) A	0	0.0%	1.4%
(81-91) B	211	0.6%	
(69-80) C	8,983	26.1%	23.8%
(55-68) D	16,854	49.0%	48.9%
(39-54) E	7,019	20.4%	18.3%
(21-38) F	1,068	3.1%	5.4%
(1-20) G	251	0.7%	2.1%

- The map overleaf shows the distribution of category 1 hazards in the private rented sector, as defined by the Housing Health and Safety Rating System (HHSRS). The highest concentrations are scattered across the area, although the data behind the maps suggests the wards of Abbey, Smethwick and St Pauls have the highest concentrations.



Percentage of private rented sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard





Contents

1	Introduction	14
1.1	Project aims	16
2	Policy background	17
2.1	Housing Act 2004	17
2.2	Key housing strategy policy areas and legislation	17
2.3	Other policy areas	20
2.4	Local Authority Housing Statistics (LAHS) and EPC ratings	21
2.5	The Energy Company Obligation (ECO)	22
3	Overview of the BRE Dwelling Level Housing Stock Modelling approach	24
3.1	Overview	24
3.2	Breakdown of the housing stock by tenure - validation	27
4	Results from the BRE Dwelling Level Housing Stock Models and Housing Stock Condition Database (HSCD)	31
4.1	Overview of Sandwell	32
4.2	Key indicators	33
4.3	Information relating to LAHS reporting and EPC ratings	61
5	Houses in Multiple Occupation (HMOs) and licensing in the Sandwell private sector stock	65
5.1	HMO overview	65
5.2	Discretionary licensing schemes	66
5.3	Selective licensing	78
6	Conclusion and recommendations	97
6.1	Conclusion	97
6.2	Recommendations	98
6.3	HMO licensing conclusions	98
Appendix A	Definitions of the key indicators	101
Appendix B	Methodology for the BRE Integrated Dwelling Level Housing Stock Modelling approach	104
Appendix C	Using the BRE Integrated Dwelling Level Housing Stock Database	114
	Glossary of terms	116



List of tables

Table 1: Key indicators split into categories	15
Table 2: Comparison of MHCLG, ONS and BRE Database figures on tenure split for Sandwell <i>N.B. DCLG data does not break down private sector into owner occupied and private rented and ONS data does not provide an estimate for social stock</i>	30
Table 3: Estimates of the numbers and percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)	33
Table 4: Estimates of the numbers and percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database by tenure for Sandwell	35
Table 5: <i>Total stock</i> – number and percentage of dwellings failing each of the key indicators, and average SimpleSAP ratings by ward	53
Table 6: <i>Private sector stock</i> – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward	55
Table 7: <i>Owner occupied sector stock</i> – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward	57
Table 8: <i>Private rented sector stock</i> – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward	59
Table 9: Estimated costs to mitigate all category 1 hazards in private sector stock, split into tenure	61
Table 10: Summary of HMOs within the Sandwell private sector stock	67
Table 11: Number of HMOs, current mandatory licensable HMOs and proposed mandatory licensable HMOs by ward	68
Table 12: Estimates of the numbers and percentages of dwellings meeting the key indicator criteria by the Housing Stock Models and HSCD for the private rented sector split by non-HMOs and HMOs for Sandwell	73
Table 13: Number of HMOs, and percentage of those HMOs containing a category 1 hazard or being in disrepair, by ward	76
Table 14: Count and percentage of estimated privately rented dwellings across Sandwell (sorted by descending private rented proportion)	82
Table 15: Number and percentage of dwellings for each of the HHSRS indicators, disrepair and the most deprived 20% of LSOAs in England (IMD 2015) by ward – <i>private rented</i>	91



List of figures

Figure 1: Simplified flow diagram of overall BRE housing stock modelling approach (N.B. the EHS data is only used to inform the mathematical algorithms of the model – it does not provide data)	26
Figure 2: Tenure split – comparison of BRE Housing Stock Condition Database outputs with 2011 Census figures for Sandwell	27
Figure 3: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)	34
Figure 4: Average SimpleSAP ratings for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)	34
Figure 5: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database by tenure for Sandwell	36
Figure 6: Average SimpleSAP ratings by tenure for Sandwell	36
Figure 7: A representation of the Low Income High Costs definition of fuel poverty	44
Figure 8: Number and percentage of Sandwell's <i>private sector stock</i> falling into each of the EPC ratings bands (based on SimpleSAP), compared to England (EHS) figures <i>N.B. England figures report band A and B together</i>	62
Figure 9: Number and percentage of Sandwell's <i>private rented stock</i> falling into each of the EPC ratings bands (based on SimpleSAP), compared to England (EHS) figures <i>N.B. England figures report band A and B together</i>	63
Figure 10: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and HSCD for HMOs in Sandwell	74
Figure 11: Average SimpleSAP ratings for HMOs in Sandwell	74
Figure 12: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector over 35%	84
Figure 13: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector 25 - 35%	85
Figure 14: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector 20 - 25%	85
Figure 15: Percentage of privately rented dwellings in each ward in Sandwell which are in the 20% most deprived areas in England (IMD 2015)	88
Figure 18: Comparison of migration figures (international and internal) for Sandwell compare to the 10 largest cities in England and England overall for mid-2014 to mid-2015 (Source: ONS)	89



List of maps

Map 1: Distribution of estimated percentage of private rented dwellings in Sandwell – based on database28	
Map 2: Distribution of estimated percentage of private rented dwellings in Sandwell – based on 2011 Census Data (Neighbourhood Statistics)	28
Map 3: The wards in Sandwell	32
Map 4: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard	39
Map 5: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard for excess cold	40
Map 6: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard for falls	41
Map 7: Percentage of private sector dwellings in Sandwell in disrepair	43
Map 8: Percentage of private sector dwellings in Sandwell occupied by households in fuel poverty - Low Income High Costs definition	46
Map 9: Percentage of private sector dwellings in Sandwell occupied by households in fuel poverty – 10% definition	47
Map 10: Percentage of private sector dwellings in Sandwell occupied by low income households	49
Map 11: Percentage of private sector dwellings in Sandwell with both the presence of a HHSRS category 1 hazard for excess cold and occupied by low income households	50
Map 12: Average SimpleSAP ratings per dwelling in Sandwell private sector stock	52
Map 13: Distribution of dwellings with F or G EPC ratings in the private rented stock	64
Map 14: Count of HMOs	70
Map 15: Count of licensable HMOs	71
Map 16: Count of licensable HMOs under proposed definition	72
Map 17: Distribution of estimated percentage of private rented dwellings across Sandwell (over 20%) – based on HSCD	83
Map 18: Distribution of deprivation in Sandwell (1 - 2 = the 10% and 20% deciles (i.e. the most deprived), 3 – 4 = the 30% and 40% deciles, etc.) (Source: DCLG, Indices of Deprivation 2015)	87
Map 19: Distribution of category 1 HHSRS hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)	93
Map 20: Distribution of category 1 HHSRS Excess Cold hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)	94
Map 21: Distribution of category 1 HHSRS Fall hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)	95



Map 22: Distribution of Disrepair where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)

96



1 Introduction

Sandwell Metropolitan Borough Council commissioned BRE to undertake a series of modelling exercises on the housing stock in Sandwell. BRE have integrated data provided by the authority into the models to produce an integrated database and corresponding report. This report describes the modelling work and provides details of the results obtained from the integrated dwelling level model and database.

This current report covers the BRE Integrated Dwelling Level Stock Models and Database. Sandwell Metropolitan Borough Council provided Local Land and Property Gazetteer (LLPG), HMO, tenure and benefits data. The BRE Model also integrates Energy Performance Certificate (EPC) data and as a result of this, 61,495 addresses have had their imputed energy characteristics replaced with observed characteristics from the EPC data for the purposes of the energy model. The use of this observed data will lead to more accurate energy models for these cases, which account for 46.0% of the total housing stock in Sandwell.

This report describes that work and the results obtained from the integrated model and database. The integrated database is also provided to the council to enable them to obtain specific information whenever required. This database is now in an online format.

The stock models and database provide the council with dwelling level information on various key housing indicators, focussing on private sector housing. The key indicators provide Sandwell Metropolitan Borough Council with detailed information on the likely condition of the stock and the geographical distribution of properties of interest. These properties are likely to be suitable targets for energy efficiency improvements or other forms of intervention, such as mitigating Housing Health and Safety Rating System (HHSRS) hazards. The key indicators are split into categories related to house condition, energy efficiency and household vulnerability as shown in **Table 1** (see **0** for full definitions).

**Table 1:** Key indicators split into categories

Indicator	House condition indicators	Energy efficiency indicators	Household vulnerability indicators
Presence of HHSRS cat 1 hazard	✓		
Presence of cat 1 hazard for excess cold	✓	✓	
Presence of cat 1 hazard for falls	✓		
Dwellings in disrepair	✓		
Fuel Poverty (10% and Low income, High cost definitions)			✓
Dwellings occupied by low income households			✓
SimpleSAP rating		✓	

N.B. Presence of category 1 hazard for falls does NOT include the hazard of falling between levels

The single indicators shown in **Table 1** can also be combined within the database to provide powerful information on the housing stock, for example dwellings suffering from excess cold and also occupied by households on a low income. The true potential of the database lies in its ability to produce combined indicators such as this, as it allows council officers to explore the stock and to assess the likely scope of any programmes they might wish to implement.

It is also possible to extract other information from the database which is of use to local authorities. This information includes estimates relating to the Ministry of Housing, Communities and Local Government's (MHCLG) Local Authority Housing Statistics (LAHS) reporting of costs of mitigating hazards, numbers of Houses in Multiple Occupation (HMOs) as well as providing information relating to Energy Performance Certificate (EPC) ratings.

The key indicators and other information are derived from the Housing Stock Condition Database (HSCD) which is made up of a series of Dwelling Level Stock Models. The BRE Dwelling Level Stock Models have been used for many years to provide key housing indicators to local authorities. The most recent 2017 models have been updated to make use of the results of the 2014 English Housing Survey (EHS)⁵. The models also make use of Experian and Ordnance Survey (OS) data. OS AddressBase Plus is used as a basis for the list of all dwellings in the authority, and applying improved geo-modelling⁶ is used to determine the dwelling type and floor area from OS Mastermap. The energy model that lies at the heart of the modelling process is based on the 2012 version of SAP, and the methods for imputing the inputs to this model incorporate information sources from additional sources. These include the age of postcodes

⁵ 2014 is the latest available data. Prior to the 2017 models EHS 2012 data was used.

⁶ The OS data has been used to update a number of the model inputs – the main value of the OS data is the ability to determine the dwelling type with much greater confidence – see **Appendix B** for more information.



(to improve dwelling age data) and data from Xoserve to determine whether the dwelling is on the gas network. These dwelling level models are used to estimate the likelihood of a particular dwelling meeting the criteria for each of the key indicators. These outputs can then be mapped to provide the authority with a geographical distribution of each of the key indicators which can then be used to target resources for improving the housing stock.

As described above, in this particular case, the database was further enhanced by the addition of local data sources which were identified by Sandwell Metropolitan Borough Council. These local data sources were incorporated into the stock models to produce the integrated database.

The information in the database can be used to ensure the council meets various policy and reporting requirements. For example, local housing authorities are required to review housing conditions in their districts in accordance with the Housing Act 2004⁷.

Furthermore, having this information available will also help to facilitate the delivery of Sandwell Metropolitan Borough Council's housing strategy. It will enable a targeted intervention approach to improving housing – particularly in the private rented sector; therefore allowing the council to concentrate their resources on housing in the poorest condition or with the greatest health impact.

1.1 Project aims

The main aim of this project was to provide data on key private sector housing indicators for Sandwell. The main aims of this work were therefore to provide estimates of:

- The percentage of dwellings meeting each of the key indicators for Sandwell overall and broken down by tenure and then mapped by Census Output Area (COA) (private sector stock only)
- Information relating to LAHS reporting for the private sector stock - category 1 hazards and HMOs, plus information on EPC ratings
- The council also requested additional analysis of data on the private rented stock to investigate the potential for licensing schemes in this sector.

This report looks firstly at the policy background and why such information is important for local authorities. Secondly, it provides a brief description of the overall stock modelling approach and the integration of the local data sources. Finally, this report provides the modelling results for Sandwell covering each of the main aims above.

⁷ <http://www.legislation.gov.uk/ukpga/2004/34/contents>



2 Policy background

The detailed housing stock information provided in this report will facilitate the delivery of Sandwell Metropolitan Borough Council's housing strategy and enable a targeted intervention approach to improving housing. This strategy needs to be set in the context of relevant government policy and legislative requirements. These policies either require reporting of housing-related data by local authorities, or the use of such data to assist in meeting policy requirements. The main policies and legislative requirements are summarised in the following sub-sections.

2.1 Housing Act 2004

The Housing Act 2004⁷ requires local housing authorities to review housing statistics in their district. The requirements of the Act are wide-ranging and also refer to other legislation which between them covers the following:

- Dwellings that fail to meet the minimum standard for housings (i.e. dwellings with HHSRS category 1 hazards)
- Houses in Multiple Occupation (HMOs)
- Selective licensing of other houses
- Demolition and slum clearance
- The need for provision of assistance with housing renewal
- The need to assist with adaptation of dwellings for disabled persons

2.2 Key housing strategy policy areas and legislation

2.2.1 Private rented sector

In the report "Laying the Foundations: A Housing Strategy for England"⁸ Chapters 4 and 5 focus on the private rented sector and empty homes.

New measures are being developed to deal with rogue landlords and to encourage local authorities to make full use of enforcement powers for tackling dangerous and poorly maintained dwellings. The report encourages working closely with landlords whilst still operating a robust enforcement regime (e.g. Landlord Forums and Panels across the country).

There has been significant growth in the private rented sector in Sandwell in recent years from 5% of the total stock in 2001 to 15% in 2011⁹ - so that 10% of the stock has changed over that time period to be private rented. This is similar to the change of 9% seen in England as a whole. The analysis for this current report estimates that 26% of the stock in Sandwell is now privately rented, implying a further increase since 2011.

⁸ Laying the Foundations: A Housing Strategy for England, CLG, 2011

⁹ <https://www.ons.gov.uk/census#censusdataandbackground>



2.2.2 Health inequalities

The government's white paper "Choosing Health"¹⁰ states that the key to success in health inequalities will be effective local partnerships led by local government and the NHS working to a common purpose and reflecting local needs. Housing is a key determinant of health, and poor housing conditions continue to cause preventable deaths and contribute to health inequalities¹¹. An example in this area is the work carried out by Liverpool City Council in partnership with Liverpool Primary Care Trust – the "Healthy Homes Programme". This has identified over 3,800 hazards and led to an estimated £4.8 million investment by landlords, delivering sustainable health improvements and enhancing community wellbeing.

2.2.3 Integrated care

It has been recognised by central government that to fully address the health needs of the population, services need to become more integrated and there needs to be better communication between different providers. Housing is a key aspect of this:

"Many people with mental and physical disabilities, complex needs, long-term conditions and terminal illness also need to access different health care, social care, housing and other services, such as education, and often simultaneously"¹².

It is therefore essential that departments providing or regulating housing work with other council departments and health organisations to provide services that are integrated and take full account of the needs of the individual.

2.2.4 Public Health Outcomes Framework

The Public Health Outcomes Framework "Healthy lives, healthy people: Improving outcomes and supporting transparency"¹³ sets out desired outcomes for public health and how they will be measured. Many of the measurements have links to housing, some of the more relevant being:

- Falls and injuries in over 65's
- Fuel poverty
- Excess winter deaths

2.2.5 Joint Strategic Needs Assessment (JSNA) and Joint Health and Wellbeing Strategies

The JSNA and joint health and wellbeing strategy allow health and wellbeing boards to analyse the health needs of their local population and to decide how to make best use of collective resources to achieve the priorities that are formed from these. The Department of Health document "Joint Strategic Needs Assessment and joint health and wellbeing strategies explained - Commissioning for populations" says

¹⁰ Choosing Health: Making healthy choices easier, Department of Health, 2004

¹¹ The health impacts of poor private sector housing, LACORS, 2010

¹² Integrated Care: Our Shared Commitment, Department of Health, 2013

¹³ Healthy lives, healthy people: Improving outcomes and supporting transparency, Department of Health, 2013



“This will ensure better integration between public health and services such as housing and education that have considerable impact on the wider determinants of health”¹⁴.

2.2.6 Energy Act 2011

The Energy Act 2011 requires that from 2016 reasonable requests by tenants for energy efficiency improvements will not be able to be refused. Furthermore, from 2018 it will be unlawful for landlords to rent out properties that do not reach a minimum standard of energy efficiency (set at Energy Performance Certificate rating E¹⁵). While there will be various caveats to these powers, they will provide a new minimum standard for rented accommodation. Part of this current project for Sandwell Metropolitan Borough Council includes provision of a private rented sector variable that should assist in identifying such dwellings.

2.2.7 Empty homes

The need to bring empty private sector dwellings back into use is a key government objective that is part of a wider strategy to tackle housing affordability. It is generally accepted that in a time of housing shortage, empty dwellings represent a wasted resource.

Empty homes brought back into use will qualify for the New Homes Bonus where, for the following 6 years, the government will match fund the Council Tax on long term empty properties brought back into use. Between 2012-15, £100 million of capital funding was available from within the Affordable Homes Programme to tackle problematic¹⁶ empty homes. There is no longer any separate funding for empty homes under the 2015-18 Affordable Homes Programme, although they are legitimate forms of Affordable Rent provision that could be included in bids for the 2015-18 Affordable Homes Programme¹⁷.

There are a number of issues in dealing with private sector vacant dwellings including the transient nature of vacant dwellings and their difficulty of identification. Properties are being continually bought and sold, let and modernised, which means that at any given time a proportion of the stock will be naturally vacant. The only dwellings that tend to be of most interest to local authorities are those that are not turning over in the normal way.

Whilst the data provided by this project cannot necessarily assist with the actual identification of empty homes, the database provided would be the logical place for such information to be stored should it be gathered from other sources.

The latest available information for Sandwell for 2016, collected by MHCLG¹⁸, identifies 3,264 vacant dwellings across all tenures. In 2014 the number of vacant dwellings was 4,051. These figures represent a vacancy rate of approximately 3% in Sandwell. Furthermore, around 1,171 (0.9%) dwellings are long-term vacant (6 months or more) in Sandwell.

¹⁴ Joint Strategic Needs Assessment and joint health and wellbeing strategies explained: Commissioning for populations, Department of Health, 2011

¹⁵ <http://www.legislation.gov.uk/ukxi/2015/962/contents/made>

¹⁶ Properties that are likely to remain empty without direct financial support from government.

¹⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/343896/affordable-homes-15-18-framework.pdf

¹⁸ <https://www.gov.uk/government/collections/dwelling-stock-including-vacants>



2.3 Other policy areas

The following policy areas, whilst not directly relating to environmental health services, will have an effect on demand and local authorities will need to be aware of the possible impact in their area.

2.3.1 The Housing and Planning Act 2016

The Housing and Planning Act 2016¹⁹ introduces legislation for government to implement the sale of higher value local authority homes, starter homes, pay to stay and a number of other measures, mainly intended to promote home ownership and boost levels of housebuilding in England. Although many of the measures have yet to be implemented or come into effect, the following policy changes will have a significant impact on the way councils deliver their Housing Services:

- The introduction of Pay to Stay where households earning over £31,000 have to pay higher levels of rent for their social housing
- Extension of the Right-to-Buy scheme to housing associations through a voluntary agreement, funded by the sale of higher value council properties when they become vacant
- The ending of lifetime tenancies – all new tenants will have to sign tenancies for a fixed term up to 10 years although there will be exemptions for people with disabilities and victims of domestic abuse, and families with children under nine years old can have a tenancy that lasts until the child's 19th birthday
- Changes to planning measures so that the government can intervene where councils have not adopted a Local Plan
- To replace the need for social rented and intermediate housing on new sites with the provision of Starter Homes that are sold at a reduced cost to first time buyers
- Changing the definition of 'affordable homes' to include starter homes
- Increasing the site size threshold before affordable housing can be requested

The Act also includes a package of measures to help tackle rogue landlords in the private rented sector. This includes:

- Allowing local authorities to apply for a banning order to prevent a particular landlord/letting agent from continuing to operate where they have committed certain housing offences
- Creating a national database of rogue landlords/letting agents, which will be maintained by local authorities
- Allowing tenants or local authorities to apply for a rent repayment order where a landlord has committed certain offences (for example continuing to operate while subject to a banning order or ignoring an improvement notice). If successful the tenant (or the authority if the tenant was receiving universal credit) may be repaid up to a maximum of 12 months' rent
- Introducing a new regime giving local authorities an alternative to prosecution for offences committed under the Housing Act 2004, including all HMO offences. Effectively, local authorities will have a choice whether to prosecute or impose a penalty with a maximum fine of £30,000. The local authority can also retain the money recovered, which is not currently the case with fines imposed in the magistrates' court

2.3.2 The Welfare Reform and Work Act 2016 and the Welfare Reform Act 2012

The Welfare Reform and Work Act 2016²⁰ gained royal assent in March 2016. The Act introduces a duty to report to Parliament on progress made towards achieving full employment and the three million

¹⁹ <http://www.legislation.gov.uk/ukpga/2016/22/contents/enacted/data.htm>

²⁰ <http://www.legislation.gov.uk/ukpga/2016/7/contents/enacted>



apprenticeships target in England. The Act also ensures reporting on the effect of support for troubled families and provision for social mobility, the benefit cap, social security and tax credits, loans for mortgage interest, and social housing rents. These include the following:

- Overall reduction in benefits – a four year freeze on a number of social security benefits
- Benefit cap reduction – the total amount of benefit which a family on out of work benefits can be entitled to in a year will not exceed £20,000 for couples and lone parents, and £13,400 for single claimants, except in Greater London where the cap is set at £23,000 and £15,410 respectively
- Local Housing Allowance rent cap – this is the locally agreed maximum benefit threshold for a dwelling or household type within a defined geographical area. Therefore, if rises in rent outstrip growth in income, renters may find it increasingly difficult to pay
- A 1% reduction in social rents per year for 4 years to reduce the housing benefit bill

In addition, the Welfare Reform Act 2012²¹ (which is in parts amended by the 2016 Act discussed above) covers areas of environmental health services – in particular the sections relating to the under occupation of social housing, and the benefit cap. Whilst this will mainly affect tenants in the social rented sector it will undoubtedly have an impact on private sector services. Social tenants may find themselves being displaced into the private sector, increasing demand in this area, and the tenants of Registered Providers (RP's) and some private landlords may have greater trouble affording rent payments. If tenants are in arrears on their rental payments then authorities may be met with reluctance from landlords when requiring improvements to properties.

2.3.3 Localism Act 2011

The Localism Act allows social housing providers to offer fixed term, rather than secure lifetime, tenancies. As with the Welfare Reform Act, this has a greater direct impact on the social rented sector, however, there is some concern this may lead to greater turnover of tenancies meaning such that some traditional social tenants may find themselves in the private rented sector.

Both of these policy changes above may increase the number of vulnerable persons in private sector properties. If this occurs any properties in this sector in poor condition are likely to have a far greater negative impact on the health of those occupiers.

2.3.4 Potential increase in private rented sector properties

Policies such as the Build to Rent and the New Homes Bonus are aimed at increasing the supply of properties. As the private rented sector is already growing, it is reasonable to assume that many of the new properties being built will be rented to private tenants. Local authorities will need to be aware of the potential impact on the demand for their services and how their perception of their local area may have to change if large numbers of properties are built.

2.4 Local Authority Housing Statistics (LAHS)²² and EPC ratings

The purpose of these statistics is twofold – firstly to provide central government with data with which to inform and monitor government strategies, policies and objectives as well as contributing to national statistics on housing, secondly, to the local authorities themselves to help manage their housing stock. Local authorities are required to complete an annual return which covers a wide range of housing-related

²¹ <http://www.legislation.gov.uk/ukpga/2012/5/contents/enacted>

²² <https://www.gov.uk/government/publications/completing-local-authority-housing-statistics-2012-to-2013-guidance-notes>



issues. Of particular relevance to this current project is “Section F: Condition of dwelling stock” which, amongst other things, requests the following information:

- Estimates of the number of HMOs and the number of mandatory licensable HMOs

Whilst the LAHS no longer requires reporting of total number of dwellings and number of private sector dwellings with category 1 HHSRS hazards and the estimated costs of mitigating these, this information is still of use to understand the extent of these hazards within a local authority.

The LAHS no longer requires reporting of average EPC ratings of the private sector stock and the proportion below a certain rating; however, this information remains pertinent due to the Energy Act 2011. Under this act new rules mean that from 2018 landlords must ensure that their properties meet a minimum energy efficiency standard - which has been set at band E - by 1 April 2018^{23, 24}. Furthermore, from 1 April 2016, tenants in F and G rated dwellings may legally request an upgrade to the dwelling to a minimum of a band E. Results relating to LAHS statistics and EPC ratings can be found in **Section 4.2**.

2.5 The Energy Company Obligation (ECO)

The Energy Companies Obligation (ECO) requires energy companies to assist in the installation of energy efficiency measures in Great Britain to low income and vulnerable households or those living in hard-to-treat (HTT) properties. Under the ECO, energy companies are obliged to meet targets expressed as carbon or costs saved. The 2 different ECO obligations are:

- Carbon Emissions Reduction Obligation (CERO)
- Home Heating Cost Reduction Obligation (HHCRO) or Affordable Warmth

The ECO obligation known as the Carbon Saving Community Obligation (CSCO) was terminated on 31st March 2017.

The first phase of the Energy Company Obligation (ECO), known as ECO1, ran from January 2013 to March 2015. The next obligation period, known as ECO2, launched on 1 April 2015 and ended on 31 March 2017.

In January 2017, following the ECO: Help to Heat consultation, it was announced that there would be an 18 month extension to the current ECO2 scheme until September 2018²⁵ as a transition (ECO2t²⁶) period between the end of ECO2 and a new scheme. Beyond ECO2t the government has confirmed that a supplier obligation will run until 2021-22 at least.

²³ <http://www.legislation.gov.uk/ukxi/2015/962/contents/made>

²⁴ Although landlords will still be able to rent out F and G rated properties after this date they will not be able to renew or sign a new contract.

²⁵ Energy Company Obligation (ECO): Help to Heat: <https://www.gov.uk/government/consultations/energy-company-obligation-eco-help-to-heat>

²⁶

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/586266/ECO_Transition_Final_Stage_IA__For_Publication_.pdf



An understanding of the ECO criteria is pivotal to building a local authority's strategy for leveraging in finance to improve the energy efficiency of the stock. Of particular interest under ECO2t are properties with solid walls. There is an expectation that around 32,000 solid wall properties will be insulated over the 18 month period of ECO2t. A new 'Rural Safeguard' requirement is also introduced to ensure that 15% of each Energy Company's CERO obligation is delivered in rural areas. From 1 April 2017 a deemed scoring system has been introduced²⁷ to determine the level of carbon and cost savings from ECO installations. Deemed scoring uses a matrix to estimate the carbon savings that can be achieved from energy efficiency improvements, replacing the previous system whereby RdSAP was used to produce an EPC. The deemed scores are "lifetime scores" which means that they include all applicable lifetimes, in-use factors, relevant HHCRO multipliers and a 30% uplift for all scores.

Other changes of note for ECO2t:

- The HHCRO funding stream will become the scheme's primary obligation and will account for 70% of all activity. Energy companies must collectively achieve £2.76 billion in life time savings.
- The CERO funding stream will account for the remaining 30% of activity. Energy companies must collectively achieve savings of 7.3MtCO₂.
- Local authorities will be able to refer certain vulnerable residents for support under HHCRO regardless of their benefit entitlements through 'Flexible Eligibility'.
- For solid wall insulation projects, local authorities can also refer non-vulnerable residents for support through HHCRO providing at least two thirds of the project consist of vulnerable residents.

The government recently issued a consultation document for ECO3 which is due to run from October 2018 to April 2022²⁸.

The results for the basic energy efficiency variables are covered in this report and assist in the identification of dwellings which may benefit from energy efficiency improvements. Such information also provides a valuable contribution to the evidence base increasingly being required to support competitive funding bids to central government for housing improvements.

²⁷ https://www.ofgem.gov.uk/system/files/docs/2016/05/deemed_scores_consultation_-_main_0.pdf

²⁸ <https://www.gov.uk/government/consultations/energy-company-obligation-eco3-2018-to-2022>



3 Overview of the BRE Dwelling Level Housing Stock Modelling approach

3.1 Overview

This section provides a simplified overview of the BRE dwelling level housing stock modelling approach. More detail on the methodology is provided in **Appendix B**.

A stock modelling approach has been developed and used by BRE for many years and dwelling level models are used to estimate the likelihood of a particular dwelling meeting the criteria for each of the key indicators (and other outputs of interest). These outputs can then be mapped to provide the council with a geographical distribution of each of the key indicators which can then be used to target resources for improving the housing stock. The process itself is actually made up of a variety of data sources, calculations and models.

The models are principally informed by the Ministry of Housing, Communities and Local Government's (MHCLG) English Housing Survey (EHS)²⁹. The survey is not used to supply data for the database, but rather it allows the identification of patterns in the housing stock, so that this knowledge can be applied, in the form of mathematical algorithms, to impute key indicators and energy characteristics from other data available at the national level. The particular approach for Sandwell, however, makes significant use of the Experian UK Consumer Dynamics Database of dwelling and household indicators as inputs to the models. One example is the BRE SimpleCO₂ Model which is based on dwelling level inputs from Experian and expands on these using imputation techniques to provide sufficient information to calculate the likely energy efficiency of each dwelling in the stock. Some of the key housing indicators, such as HHSRS excess cold category 1 hazards and BRE's SimpleSAP³⁰, can be directly inferred from this data.

Furthermore, Sandwell Metropolitan Borough Council provided additional sources of local data which were then incorporated into the BRE Housing Stock Model and Database, as well as EPC data, to produce an integrated housing stock model and database. The additional data provided and how it was used is as follows:

- **EPC data** – EPCs contain data on key dwelling energy characteristics (e.g. wall type and insulation, loft insulation, heating types etc.) and where these were available they were used in preference to the modelled data. It should be noted that to comply with bulk EPC data licencing requirements the EPC data is only used to inform the energy efficiency aspects of the model.
- **LLPG data** – the Unique Property Reference Number (UPRN) from the LLPG was used to uniquely identify all properties, while the address details from the LLPG were used to merge the BRE Models and the EPC data using address matching.
- **HMO data** – the council provided a list of licensed HMOs which were used to inform the HMO Models.

²⁹ The most recent survey used in the housing stock models is 2014.

³⁰ A Simplified version of the SAP model that produces an output broadly comparable to SAP. The SimpleSAP model is distinct from both full SAP and RD SAP in that it uses a smaller, simplified set of inputs.



- **Tenure data** – the council provided lists of addresses from tenancy deposit schemes and this data was used to inform the tenure variable. In addition, the council provided a list of properties owned by Sandwell Homes and Riverside which were used to identify social properties. The licensed HMO list and the potential licensable HMO list were also used to update the tenure information.
- **Benefits data** – this provides a list of addresses in receipt of various benefits. This was matched into the BRE Model using the UPRN and these addresses were assigned to low income households. The BRE Low Income Households Model was then used to assign the remaining low income households since housing and council tax reductions are only a proportion of total low income households.

Figure 1 shows a simplified flow diagram of the overall BRE housing stock modelling approach and how the additional data is incorporated to produce the integrated Housing Stock Condition Database (HSCD).

The process is made up of a series of data sources and models which, combined with various imputation and regression techniques and the application of other formulae, make up the final database. The database is essentially the main output of the modelling and provides information on the key indicators and other data requirements (e.g. energy efficiency variables). More detailed information on the data sources and models is provided in **Appendix B**, but to summarise:

The data sources are:

EHS, EPC, Experian, Ordnance Survey (OS) MasterMap, other local data (if available)

The Models are:

SimpleSAP, Fuel Poverty, HHSRS (all hazards, falls hazards and excess cold), Disrepair and Low Income Households.

The data sources and models are linked as shown in the flow diagram and the modelling process itself can be divided into “energy inputs” and “other inputs”, which are summarised as follows:

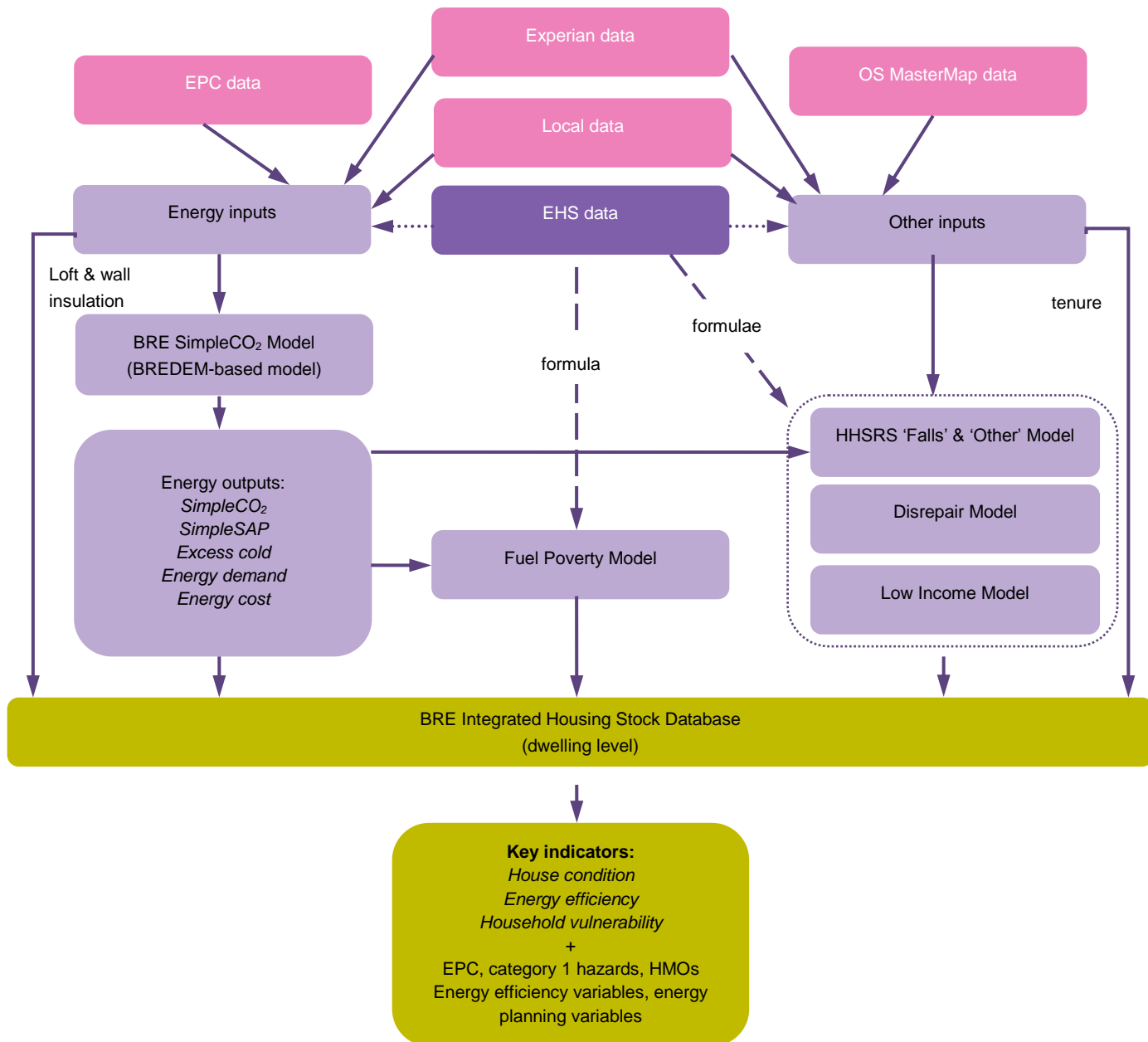
Energy inputs - are developed from Experian, EPC and other local data sources (if available). The EHS data is used to impute (using cold deck imputation³¹) and interpolate where there are gaps in the data. The “energy inputs” are then fed into the SimpleCO₂ Model to produce the “energy outputs” for the database plus information on excess cold for the HHSRS Model and information on energy costs for the Fuel Poverty Model.

Other inputs – are developed from Experian, OS MasterMap and other local data sources. The EHS data is used to impute (using cold deck imputation³¹) and interpolate where there are gaps in the data. The “other inputs” are then fed into the HHSRS, Disrepair, and Low Income Models (note that tenure data is fed directly into the database). Information from the EHS also feeds into the Fuel Poverty, HHSRS, Disrepair and Low Income Models.

³¹ Cold deck imputation is a process of assigning values in accordance with their known proportions in the stock.



Figure 1: Simplified flow diagram of overall BRE housing stock modelling approach (N.B. the EHS data is only used to inform the mathematical algorithms of the model – it does not provide data)



- BRE housing stock modelling process
- Integration of additional data
- Data used for imputation & interpolation
- Outputs
- Data
- Imputed (cold deck)
- Information



3.2 Breakdown of the housing stock by tenure - validation

Providing the results split by tenure is useful since it can have an effect on how resources and improvement policies are targeted. This report is particularly focussed on private sector stock which is made up of owner occupied and private rented dwellings. The remainder of the housing stock consists of social housing.

The total number of dwellings in Sandwell from the integrated housing stock condition database is based on LLPG data; therefore the model is based on this value. The tenure split within the integrated database is derived from the purchased Experian tenure variable for addresses where tenure has not been supplied by the council.

Since it is possible for private rented dwellings to become owner occupied and vice versa relatively easily, it is difficult to accurately predict the actual tenure split at any given point in time. A validation process was undertaken to compare the tenure split from the database to the 2011 Census figures³². The results of the validation exercise show the differences between the tenure split from the database compared to the Census figures. There has been a noticeable increase in the size of the stock, mainly comprised of increases in the size of the private rented and social tenures, whilst the owner occupied stock has decreased (see **Figure 2**). However, **Maps 1** and **2** show the geographical distributions of the private rented sector which look similar, again giving confidence that the integrated database provides a good overview of the housing stock in Sandwell.

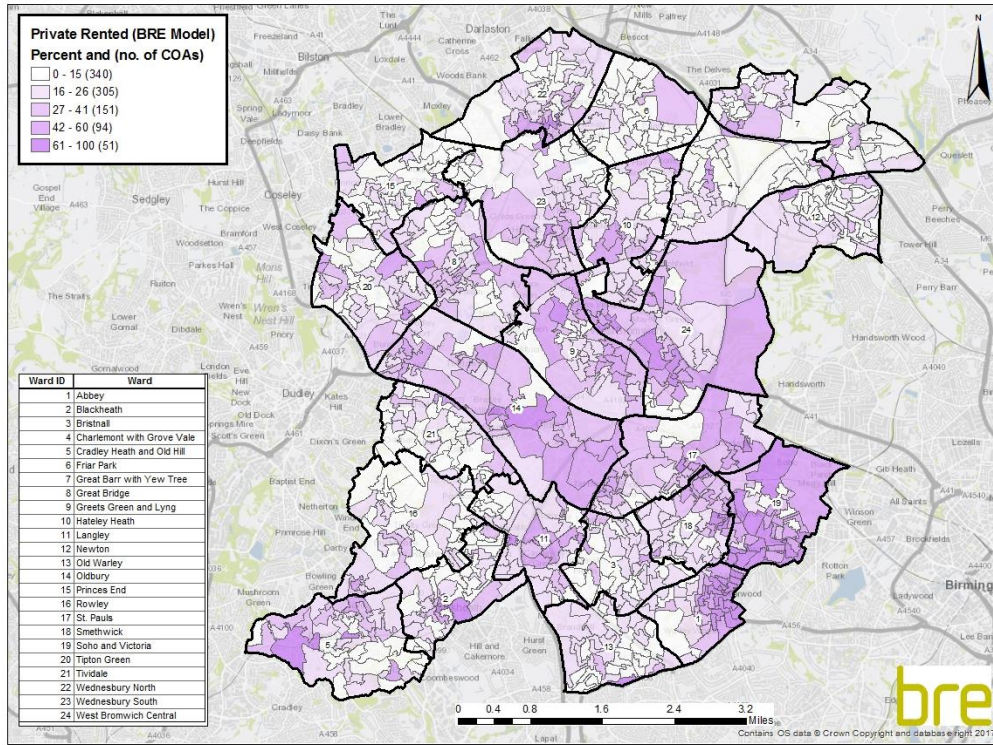
Figure 2: Tenure split – comparison of BRE Housing Stock Condition Database outputs with 2011 Census figures for Sandwell



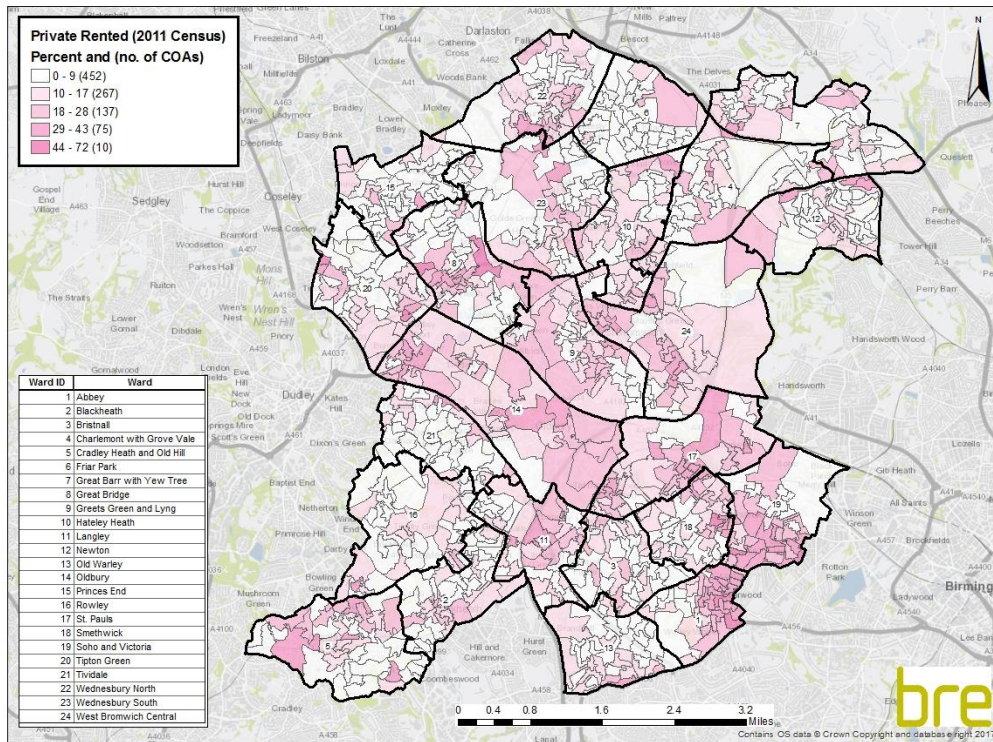
³² <http://www.ons.gov.uk/ons/datasets-and-tables/index.html>



Map 1: Distribution of estimated percentage of private rented dwellings in Sandwell – based on database



Map 2: Distribution of estimated percentage of private rented dwellings in Sandwell – based on 2011 Census Data (Neighbourhood Statistics)





3.2.1 Other national datasets relating to tenure

In addition to the Census data there are other national datasets available which provide information on tenure; these are MHCLG returns³³ and Office for National Statistics (ONS) data³⁴. These datasets are not used directly in the model but are reported here for the purposes of comparison.

The MHCLG returns provide estimates of the tenure split by private sector and social sector only, with the former being based on projections from the 2011 census as a starting point, and the latter being based on Local Authority Housing Statistics. The tenure split used in the BRE Housing Stock Model is compared to the most recent release of this at an early stage of the project in order to ensure the tenure split is consistent³⁵.

The ONS data provides subnational (local authority level) data on the dwelling stock broken down into tenure. The ONS split between owner occupied and private rented stock is based on their Annual Population Survey (APS)³⁶ which is then benchmarked to the MHCLG returns. The APS is based on “persons who regard the sample address as their main address and also those who have lived in the dwelling for more than 6 consecutive months, even if they do not regard this as their principal dwelling”. This methodology may under-estimate the proportion of private rented dwellings for several reasons:

1. By only including those people who have lived in a dwelling for more than 6 consecutive months, the number of private rented households may be under-estimated as there tends to be a higher turnover in this sector.
2. By only including persons who regard the sample address as their main address there are two groups where this may have an impact on the estimated figures:
 - a. Students renting away from home who assume their parents’ address to be their main residence.
 - b. Commuter areas where households may have a city flat during the week and also have a suburban family home which they class as their first residence. Commuter towns close to large cities may also have higher levels of private rented stock with a high turnover of tenants near rail stations for example.

In addition, the ONS dataset uses EHS data but this is limited to using the occupancy rate to allow for vacant dwellings as their APS is based on individuals and therefore does not account for vacant dwellings.

³³ <https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants>

³⁴

<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/researchoutputssubnationaldwellingstockbytenureestimatesengland2012to2015/2017-12-04#methodology>

³⁵ This comparison is checked early on in the project through email correspondence with the authority.

³⁶

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi>



It is important to note that the ONS data is not an official statistic and that a disclaimer³⁷ must be used when reproducing the data (note that the “**dwelling stock by tenure**” in the disclaimer refers to the MHCLG returns data).

Table 2 shows the latest tenure splits for the DCLG and the ONS data for Sandwell. Since the ONS data is benchmarked to the MHCLG returns, the figures for the private sector stock match. Both the numbers, and the proportions, are very similar to the BRE Model estimates.

Table 2: Comparison of MHCLG, ONS and BRE Database figures on tenure split for Sandwell *N.B.* DCLG data does not break down private sector into owner occupied and private rented and ONS data does not provide an estimate for social stock

Tenure	Number of dwellings			% of all stock		
	2015 MHCLG	2015 ONS	BRE Database	2015 MHCLG	2015 ONS	BRE Database
Owner occupied	93,340	72,637	61,864	72%	56%	46%
Private rented		20,703	34,386		16%	26%
Social	36,360	-	37,430	28%	-	28%

³⁷ ONS Disclaimer: “We are producing these Research Outputs to provide the tenure breakdown of dwellings within the private sector at the subnational level, which are currently only available at the country level. However, these Research Outputs are not official statistics and must not be reproduced without this disclaimer. Research Outputs are produced to provide information about new methods and data sources being investigated. There are official statistics available on **dwelling stock by tenure**³³ for local authorities, which you should refer to if you require official statistics. These provide the total private sector stock for each area, but do not provide a breakdown of owner-occupied and privately-rented dwellings.”



4 Results from the BRE Dwelling Level Housing Stock Models and Housing Stock Condition Database (HSCD)

As described in the previous section, the housing stock modelling process consists of a series of different stock models with the main output being the database. The results in this section have been obtained from interrogating the database at the level of the local authority as a whole to give a useful overview for Sandwell. Information at ward level, however, is provided in the maps, in **Section 4.2.4** and can also be obtained from the database which has been supplied as part of this project (see **Appendix C** for instructions). The database can be interrogated at local authority, ward, medium super output area (MSOA), lower super output area (LSOA), census output area (COA), postcode or dwelling level.

The first sub-section below provides a map of the wards in Sandwell. The results are then displayed in the following sub-sections:

- Key indicators:
 - Sandwell – regional and national comparisons
 - Key indicators by tenure for Sandwell
 - Key indicators mapped by COA for Sandwell private sector stock
 - Ward level results for the key indicators

- Information relating to LAHS reporting and EPC ratings:
 - Category 1 hazards
 - HMOs
 - EPC ratings

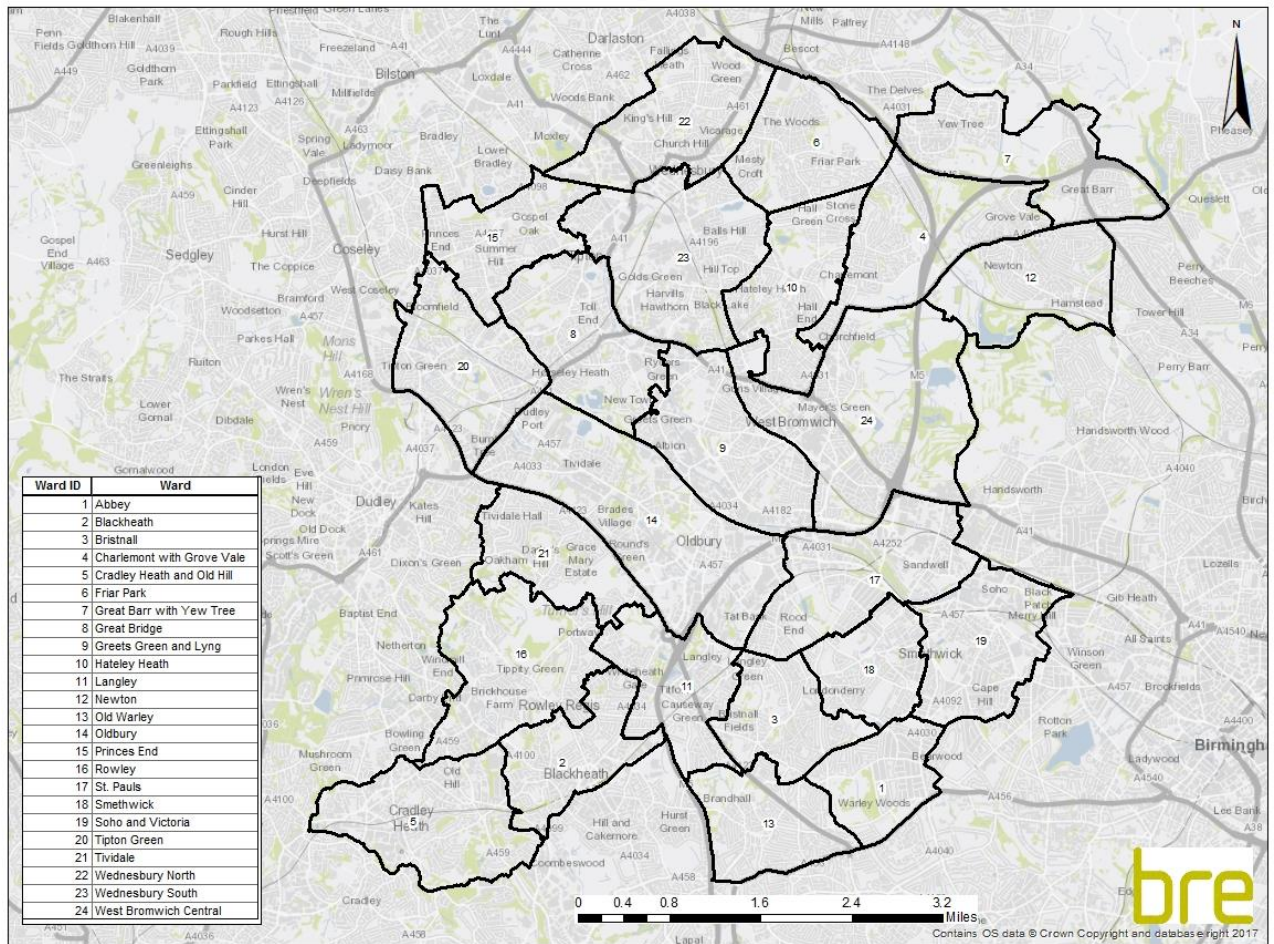


4.1 Overview of Sandwell

Map 3 below shows the 24 wards in Sandwell. The data in the report is separated into wards and then further divided into Census Output Areas (COAs). These typically comprise around 125 households and usually include whole postcodes, which have populations that are largely similar. Where the COAs are smaller in size on the map this typically represents a more densely populated area since each COA represents a similar number of dwellings.

It should be noted that some residential addresses are not considered suitable for modelling and these have been removed. These include caravans and house boats which, whilst covered by the EHS, are quite uncommon, and the energy models and other housing indicators were not developed with dwellings such as these in mind. Residential institutions (e.g. care homes) have also been removed as it is not entirely appropriate to apply the usual models to these dwellings. The removal of these addresses may result in a COA not appearing to contain any dwellings due to the fact that all c.125 households are made up of caravans for example.

Map 3: The wards in Sandwell





4.2 Key indicators

4.2.1 Sandwell – regional and national comparisons

Table 3 and **Figure 3** show the results for each of the key indicators in Sandwell compared to the West Midlands region and to England (EHS 2014) and split into all stock and private sector stock. **Figure 4** shows the results of the SimpleSAP ratings.

For all stock, the performance of the housing stock in Sandwell compared to the EHS England average is mixed. Sandwell performs slightly better for all hazards (11% compared to 12%) and excess cold (2% compared to 3%), but worse for the remaining indicators, in particular low income households (33% compared to 27%).

Compared with the regional average, Sandwell performs much better for all hazards, (11% compared with 14%), better for excess cold (2% compared with 3%), then comparable for all other indicators apart from low income households where Sandwell has higher rates (33% compared to 29%).

For private stock, comparing Sandwell to the EHS England average figures there is a very similar picture with Sandwell performing better for all hazards and excess cold, but worse for the other indicators.

Compared with the regional average, the picture is slightly different with Sandwell performing better for all hazards (12% compared with 14%), excess cold (2% compared with 3%) and fuel poverty (10% definition) (12% compared with 11%), similarly for falls hazards (10%) and disrepair (6%), and worse for fuel poverty (LIHC) (12% compared with 11%) and low income households (21% compared to 20%).

The average SimpleSAP ratings for all stock in Sandwell (**Figure 4**) are the same as the regional average and slightly lower than the England average. For the private stock, the average SimpleSAP rating in Sandwell is the same as the England average and slightly higher than the regional average.

Table 3: Estimates of the numbers and percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)

Indicator	All stock				Private sector stock				
	Sandwell (no.)	Sandwell (%)	2014 EHS Regional (%)	2014 EHS England (%)	Sandwell (no.)	Sandwell (%)	2014 EHS Regional (%)	2014 EHS England (%)	
No. of dwellings	133,680	-	-	-	96,250	-	-	-	
HHSRS category 1 hazards	All hazards	14,993	11%	14%	12%	11,905	12%	14%	13%
	Excess cold	2,920	2%	3%	3%	2,237	2%	3%	4%
	Fall hazards	11,556	9%	9%	7%	9,471	10%	10%	7%
Disrepair	7,905	6%	6%	5%	6,023	6%	6%	5%	
Fuel poverty (10%)	19,305	14%	14%	12%	12,275	13%	14%	11%	
Fuel poverty (Low Income High Costs)	16,426	12%	12%	11%	11,533	12%	11%	10%	
Low income households	44,428	33%	29%	27%	20,171	21%	20%	18%	

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



Figure 3: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)

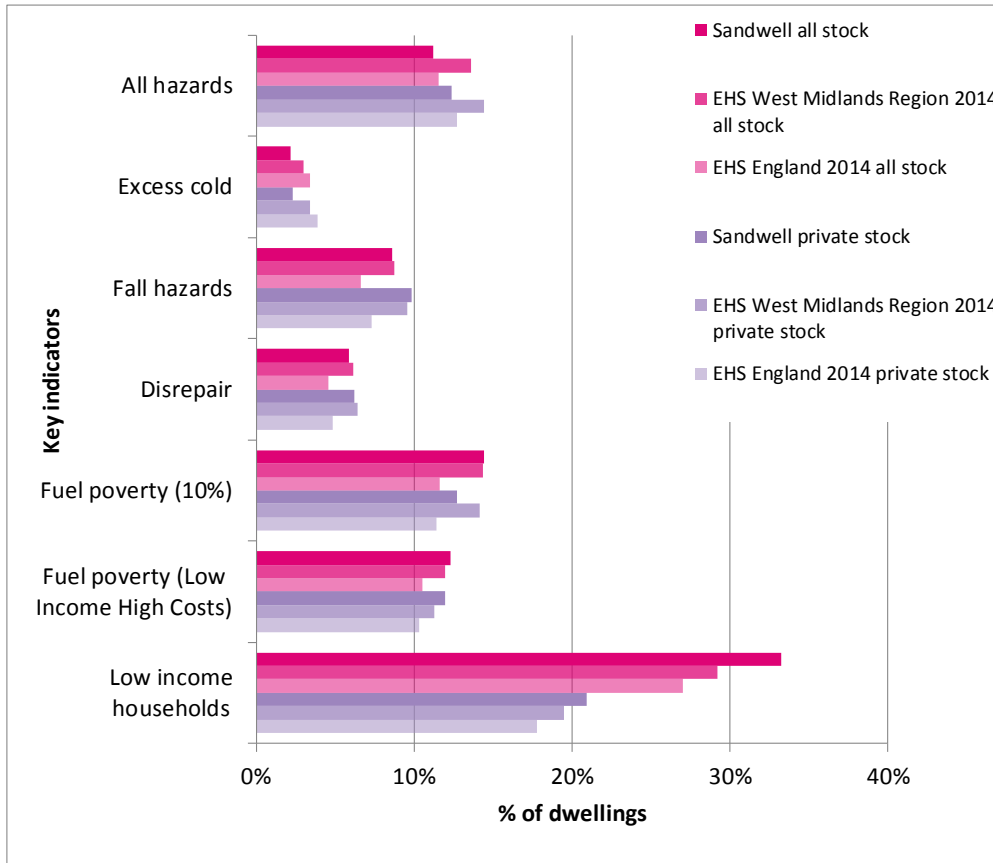
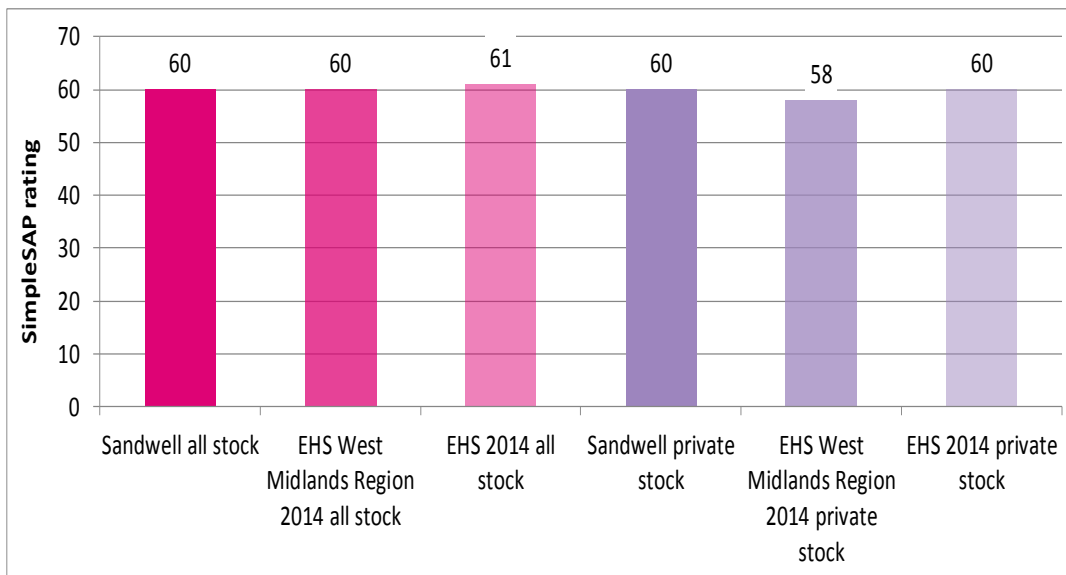


Figure 4: Average SimpleSAP ratings for all stock and private sector stock – Sandwell compared to the West Midlands and England (EHS 2014)





4.2.2 Key indicators by tenure – Sandwell

The private sector stock can be further split by tenure – owner occupied and private rented - with the difference between total private sector stock and total housing stock being the social housing stock.

Table 4 and **Figure 5** below show the results for each of the key indicators split by tenure and **Figure 6** shows the SimpleSAP ratings by tenure.

The social stock is generally better than the private sector stock across the majority of indicators including SimpleSAP. Social stock tends to be more thermally efficient than the private stock partly due to the prevalence of flats, and partly due to being better insulated owing to the requirements placed on social housing providers, for example through the Decent Homes Programme. As would be expected, the social stock is significantly worse than the private sector stock for the low income households indicator. For fuel poverty, however, the social tenure shows the highest levels for the Low Income High Costs definition.

The social data should be treated with some caution as the social rented stock, particularly when largely comprising stock owned by a single landlord, is more difficult to model than the private sector. This is because the decisions of an individual property owner usually only affect a single dwelling out of the thousands of private sector stock whereas the policies and decisions of a single landlord can have a very great effect on a large proportion of the social stock. The social rented results are therefore best considered as a benchmark which takes account of the age, type, size and tenure against which the landlord's own data could be compared.

Focussing on the tenures within the private sector stock, the private rented stock and the owner occupied stock have similar levels of all hazards, excess cold hazards and fall hazards. The private rented stock has higher levels of disrepair, fuel poverty (both definitions) and low income households.

Table 4: Estimates of the numbers and percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database by tenure for Sandwell

Indicator	Private sector stock				Social stock		
	Owner occupied		Private rented		No.	%	
	No.	%	No.	%			
No. of dwellings	61,864	-	34,386	-	37,430	-	
HHSRS category 1 hazards	All hazards	7,483	12%	4,422	13%	3,088	8%
	Excess cold	1,495	2%	742	2%	683	2%
	Fall hazards	5,980	10%	3,491	10%	2,085	6%
Disrepair	3,446	6%	2,577	7%	1,882	5%	
Fuel poverty (10%)	7,615	12%	4,660	14%	7,030	19%	
Fuel poverty (Low Income High Costs)	6,694	11%	4,839	14%	4,893	13%	
Low income households	11,048	18%	9,123	27%	24,257	65%	

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards, but this dwelling would only be represented once under 'all hazards'. The number of dwellings under 'all hazards' can therefore be less than the sum of the excess cold plus fall hazards.



Figure 5: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and Housing Stock Condition Database by tenure for Sandwell

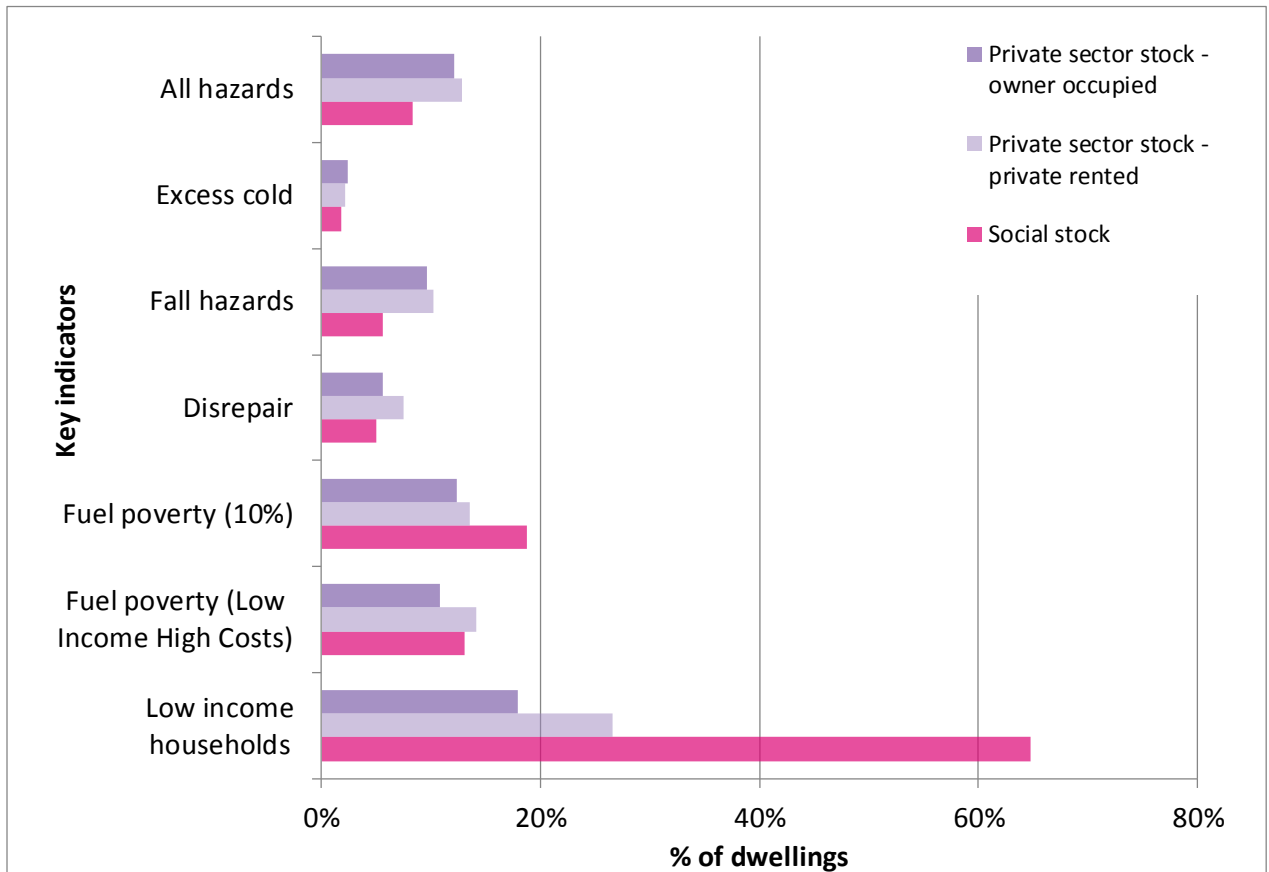
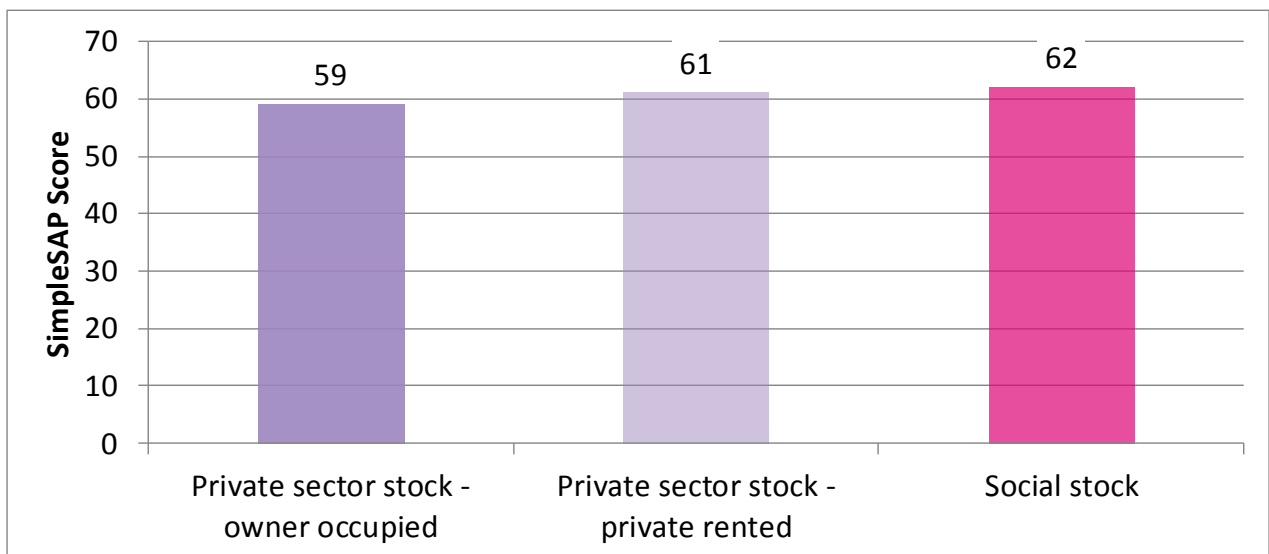


Figure 6: Average SimpleSAP ratings by tenure for Sandwell





4.2.3 Key indicators mapped by Census Output Area (COA) – Sandwell private sector stock

Some of the key indicators are also provided in map form below along with a brief description of each indicator³⁸, thus enabling quick observation of the geographical distribution of properties of interest. The maps show the percentages of private sector dwellings in each Census Output Area (COA) that are estimated to have each of the key indicators.

The ranges shown in the map keys are defined based on the Jenks' Natural Breaks algorithm of the COA statistics³⁹. The outputs in the lightest and darkest colours on the maps show the extreme ends of the range, highlighting the best and the worst areas.

Maps at COA level are provided for the following key indicators in **Map 4** to **Map 12** below:

- **HHSRS**
 - The presence of a category 1 HHSRS hazard
 - The presence of a category 1 hazard for excess cold
 - The presence of a category 1 hazard for falls
- **Levels of disrepair**
- **Levels of fuel poverty** (Low Income High Costs and 10% definitions)
- **Low income households**
 - Dwellings occupied by low income households
 - Dwellings with a category 1 excess cold hazard that are occupied by a low income household
- **The average SimpleSAP⁴⁰ rating**

In addition, maps have been provided for HMOs and EPC ratings.

These maps are extremely useful in showing the geographical distribution for single key indicators. Maps can also be produced for a combination of indicators, such as dwellings with an excess cold hazard which are also occupied by low income households, as shown in **Map 11**.

The maps are produced at COA level, which is typically made up of 125 households, usually including whole postcodes and having similar sized populations. Using the first map below (**Map 4**) as an example,

³⁸ See **0** for full definitions.

³⁹ The natural breaks classification method is a data clustering method determining the best arrangement of values into different classes. It is achieved through minimising each class's average deviation from the class mean while maximising each class's deviation from the means of the other groups. The method seeks to reduce the variance within classes and maximise variance between classes thus ensuring groups are distinctive.

⁴⁰ Important note: Whilst it is possible to provide "SimpleSAP" ratings from the "SimpleCO₂" software, under no circumstances must these be referred to as "SAP" as the input data is insufficient to produce an estimate of SAP or even RdSAP for an individual dwelling that meets the standards required by these methodologies.



it can be seen that each ward is split into several COAs and, in this instance there are 71 COAs that have 22 – 30% of private sector dwellings estimated to have the presence of a category 1 hazard.

The maps also highlight the differences between areas, showing that the results for some areas are much worse than for others and these are the specific areas which might warrant attention. The maps also show that even within wards there can be large differences between the results at COA level.

4.2.3.1 HHSRS

The Housing Health and Safety Rating System (HHSRS) is a risk-based evaluation tool to help local authorities identify and protect against potential risks and hazards to health and safety from any deficiencies identified in dwellings. It was introduced under the Housing Act 2004⁷ and applies to residential properties in England and Wales.

The HHSRS assesses 29 categories of housing hazard. Each hazard has a weighting which will help determine whether the property is rated as having a category 1 (serious) hazard⁴¹.

The HHSRS category 1 hazards map (**Map 4**) shows no obvious pattern to the distribution of hazards, although there appears to be an area of higher levels of hazards in the Smethwick area to the south east corner. The data behind the map shows that the wards with the highest levels overall are Abbey, Smethwick and St. Pauls, although there are still pockets with higher levels elsewhere, such as the West Bromwich area (central parts of Greets Green and Lyng ward) and the Wednesbury area (to eastern parts of Wednesbury North ward).

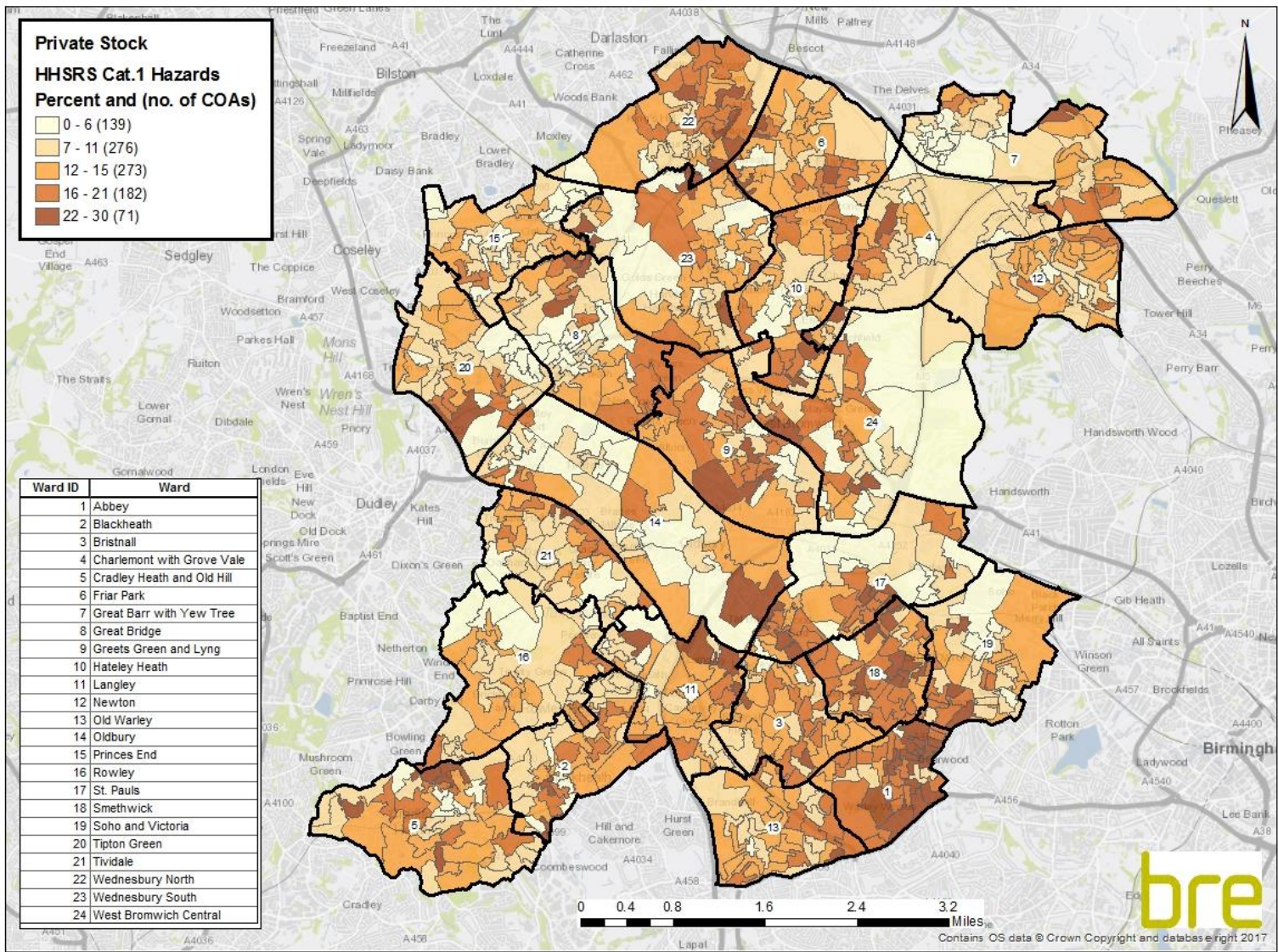
Looking at the hazard of excess cold in Sandwell there are again higher concentrations scattered across the area with no obvious pattern to the distribution – see **Map 5**. The data behind the map shows that the highest levels overall are again concentrated in the south east corner and Smethwick area in the wards of Old Warley, Abbey and Smethwick.

The distribution of fall hazards is shown in **Map 6** which indicates that the high concentrations are scattered across the district, with some of the higher concentrations found again to the south east corner as well as in central and central/northern parts of the area. The data behind this shows that the wards with the highest levels of fall hazards are Abbey, Smethwick and St. Pauls, but there are also COAs with high levels in other areas; for example central parts of Greets Green and Lyng ward and eastern parts of Wednesbury North ward.

⁴¹ Housing Health and Safety Rating System Operating Guidance, ODPM, 2006

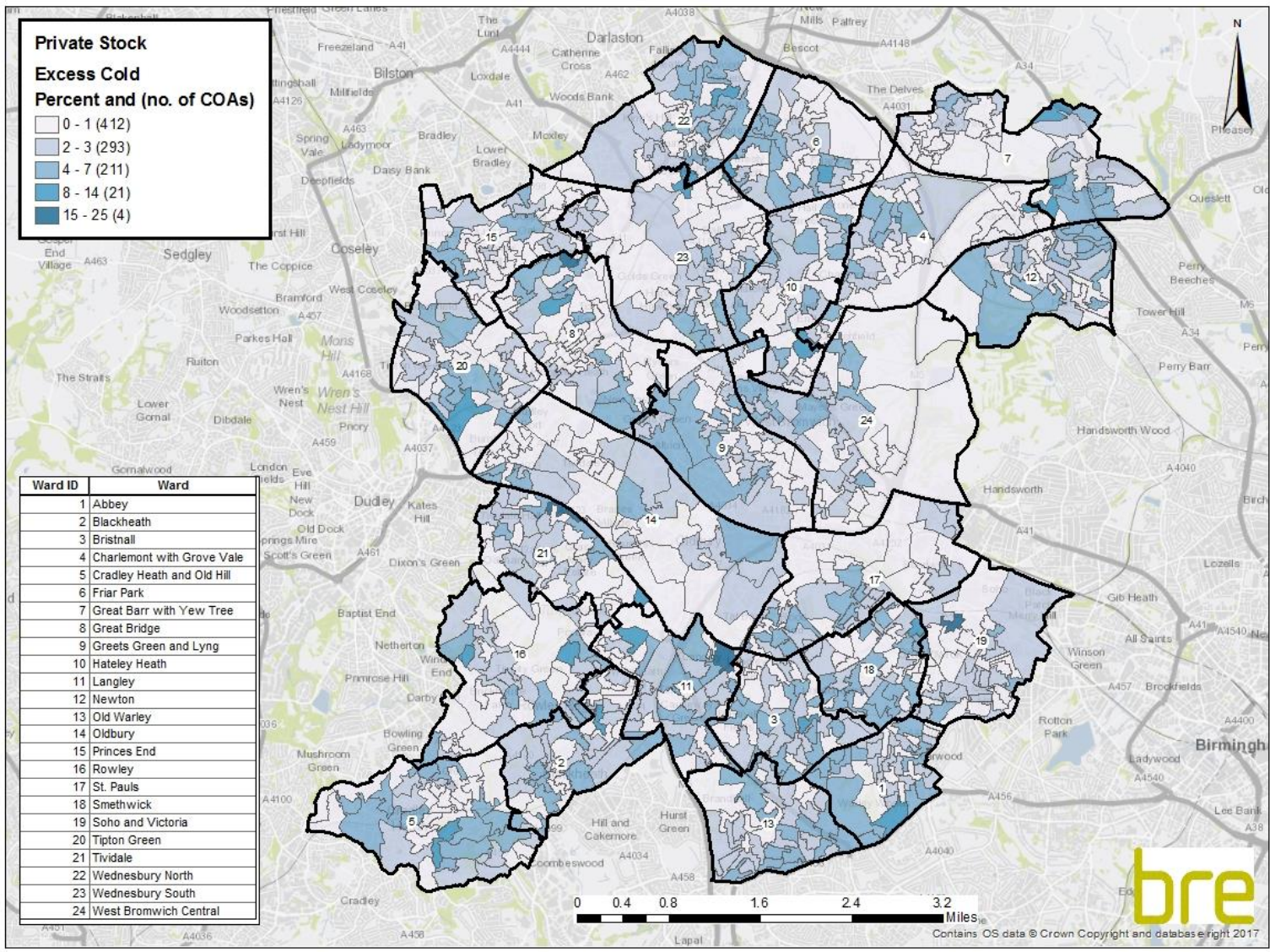


Map 4: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard



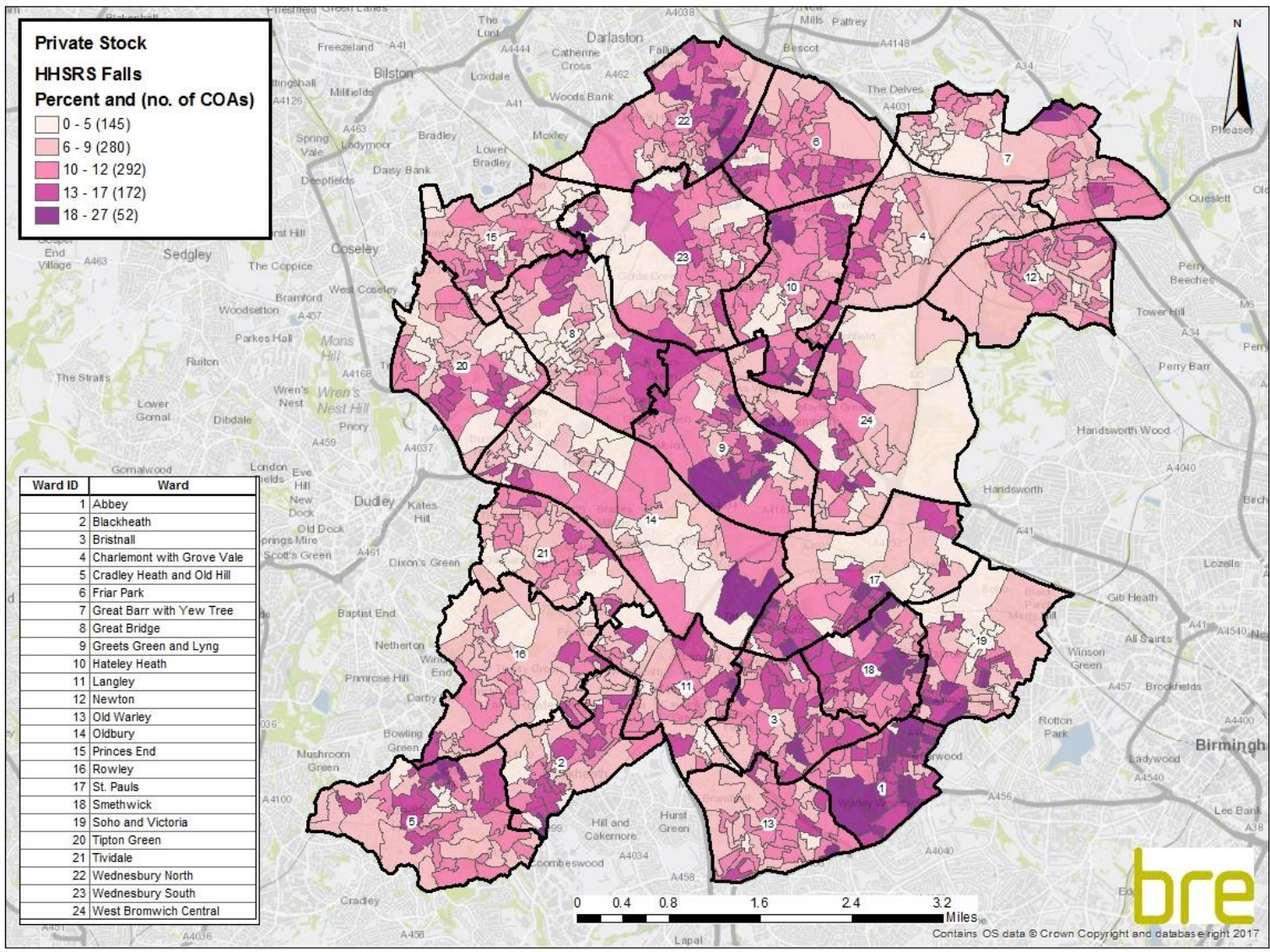


Map 5: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard for excess cold





Map 6: Percentage of private sector dwellings in Sandwell with the presence of a HHSRS category 1 hazard for falls





4.2.3.2 Disrepair

The disrepair indicator used in this report is based on the disrepair component of the Decent Homes Standard^{42,43}. A dwelling fails the disrepair component if:

- One or more key building components are old and, because of their condition, need replacing or major repair; or
- Two or more other building components are old and, because of their condition, need replacement or major repair.

Key building components are those which, if in poor condition, could have an immediate impact on the integrity of the building and cause further deterioration in other components. They are the external components plus internal components that have potential safety implications and include:

- External walls
- Roof structure and covering
- Windows/doors
- Chimneys
- Central heating boilers
- Electrics

If any of these components are old, and need replacing or require major repair, then the dwelling is not in a reasonable state of repair.

Other building components are those that have a less immediate impact on the integrity of the dwelling. Their combined effect is therefore considered, with a dwelling failing the disrepair standard if two or more elements are old and need replacing or require immediate major repair.

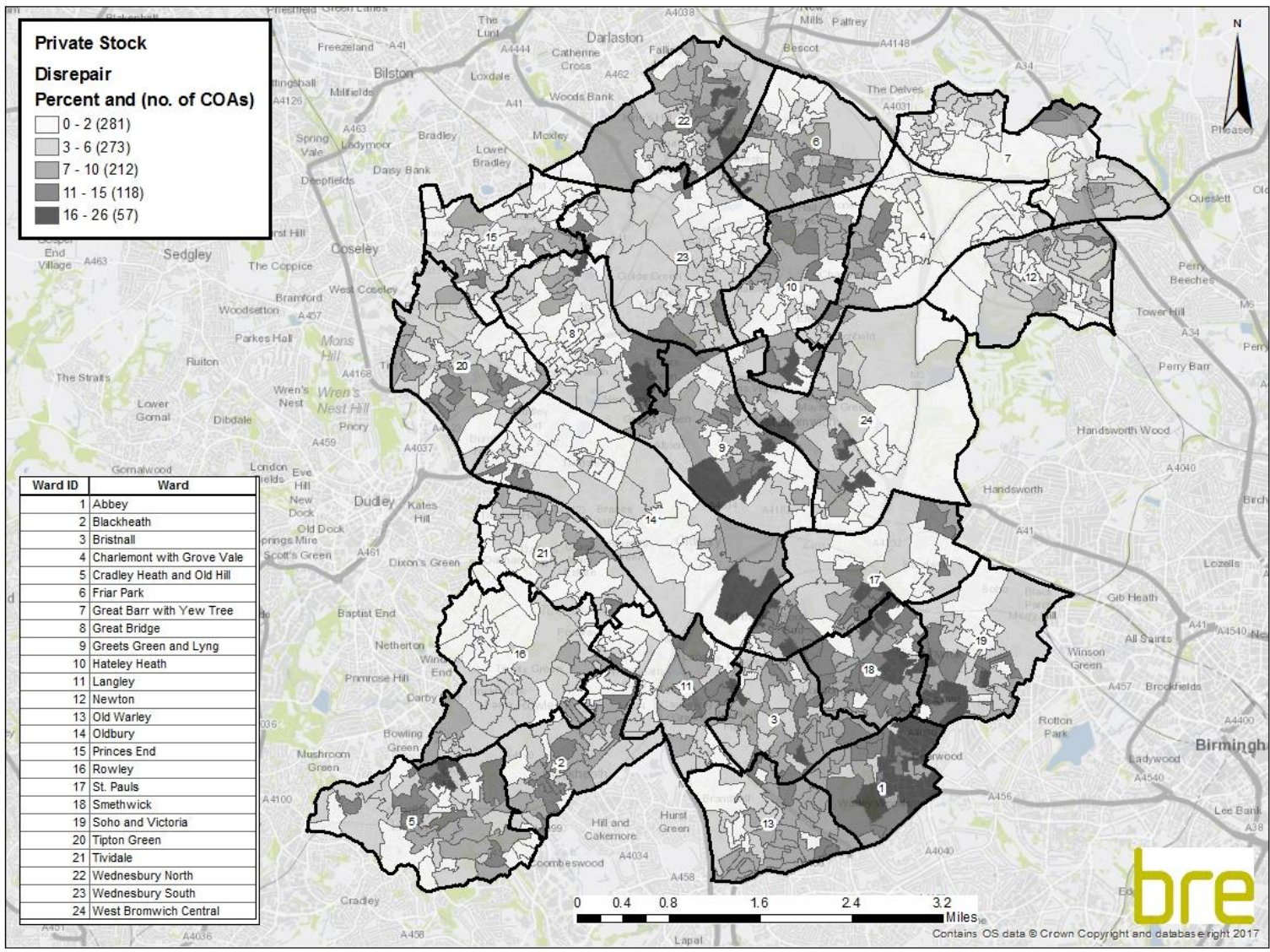
Map 7 shows the distribution of dwellings estimated to be in disrepair in Sandwell and indicates that there are pockets of higher levels of disrepair across the area, particularly in the Smethwick area, as well as in some parts of central (West Bromwich) and northern (Wednesbury) parts of Sandwell. The data behind the map shows that the highest levels overall are in the wards of Abbey, Smethwick and Soho and Victoria.

⁴² <https://www.gov.uk/government/publications/a-decent-home-definition-and-guidance>

⁴³ There are 4 components to the Decent Homes Standard – HHSRS, disrepair, modernisation and thermal comfort



Map 7: Percentage of private sector dwellings in Sandwell in disrepair



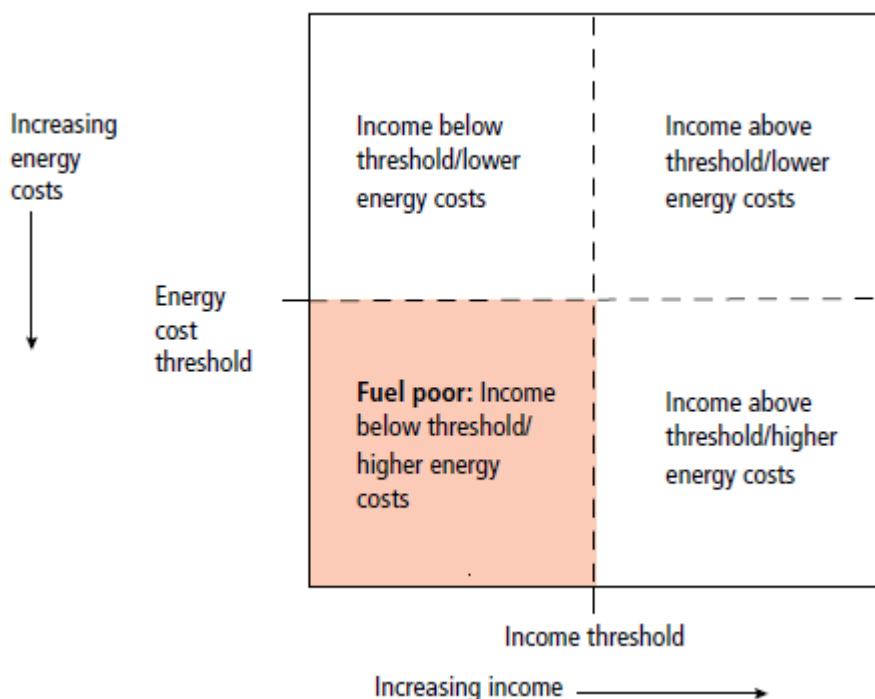


4.2.3.3 Fuel poverty

This report covers both the original definition and the more recent definition of fuel poverty. The original definition states that a household is said to be in fuel poverty if it spends more than 10% of its income on fuel to maintain an adequate level of warmth (defined as 21°C for the main living area, and 18°C for other occupied rooms in the 2012 Hills Fuel Poverty Review)⁴⁴. For the purposes of this report this is termed “fuel poverty (10%)”.

Under the Low Income High Costs definition, a household is said to be in fuel poverty if they have required fuel costs that are above average (the national median level) and were they to spend that amount they would be left with a residual income below the official poverty line (see the shaded area in **Figure 7** below). For the purposes of this report this is termed “fuel poverty (Low Income High Costs)”.

Figure 7: A representation of the Low Income High Costs definition of fuel poverty⁴⁴



A report produced by DECC⁴⁵ states that under the 10% fuel poverty indicator, increasing household income potentially removes households from fuel poverty as they will be spending a smaller proportion of their income on fuel. Reducing income has the opposite effect potentially pushing households into fuel poverty. Decreasing fuel prices and/or improvements made to the energy efficiency of the home can remove households from fuel poverty, while rising prices will have the opposite effect.

As the low income high cost indicator is a relative measure, it provides a much steadier trend in the number of fuel poor households over time than the 10% indicator. Whereas an increase in income is likely to reduce the extent of fuel poverty under the 10% definition, under the low income high cost indicator, a

⁴⁴ Hills, J. Getting the measure of fuel poverty - Final Report of the Fuel Poverty Review, London: LSE., 2012

⁴⁵ Fuel Poverty Report – Updated August 2013, Department of Energy and Climate Change, 2013



change in income will only have an impact on fuel poverty if households with low incomes and high costs see relatively larger income changes (increases or decreases) than the overall average change in income.

The 10% indicator tends to be very responsive to changes in prices, such that these usually dominate the indicator, outweighing other factors such as income and energy efficiency.

Map 8 shows that, based on the Low Income High Costs definition, there are areas of higher concentrations scattered across Sandwell. The wards with the highest concentrations overall are Smethwick, Abbey and St. Pauls.

For comparison, **Map 9** shows that there is a similar distribution when considering the results based on the fuel poverty 10% definition.

4.2.3.3.1 What type of property is in fuel poverty under the Low Income High Costs Definition?

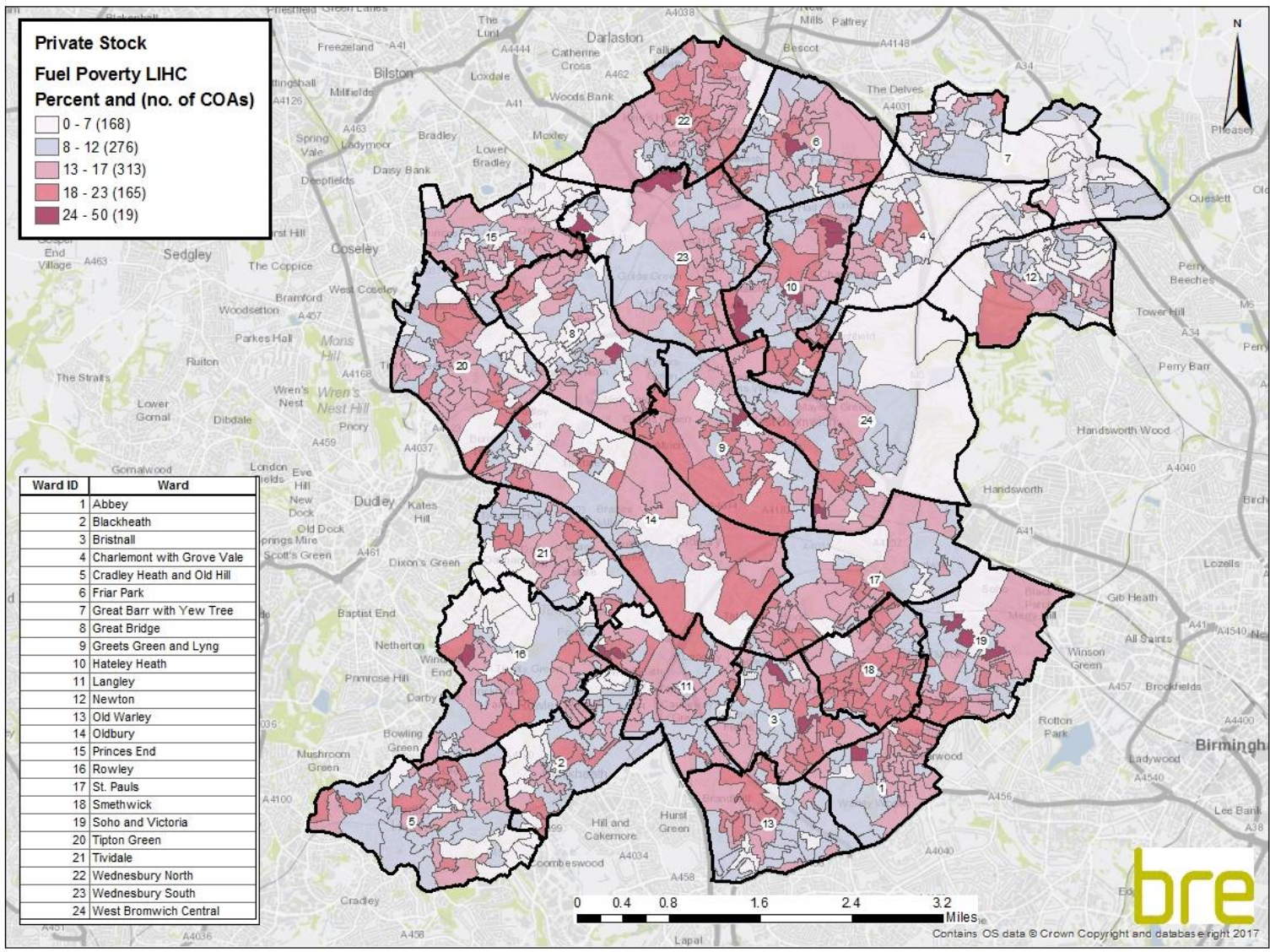
The Hills Fuel Poverty Review⁴⁴ provides useful figures that show the likely composition of a fuel poor household under this definition:

- 76% of fuel poor households have an EPC rating of E to G
- 20% of fuel poor households are rural
- 82% of fuel poor households live in houses as opposed to flats or bungalows
- A third of fuel poor households are found in a fifth of the most deprived households
- Fuel poverty is spread fairly evenly between regions, including London
- 34% of fuel poor households contain a person with a long term illness or disability
- 10% of fuel poor households contain a person over the age of 75
- 20% of fuel poor households contain a person under the age of 5

These figures should be considered when analysing the map showing the percentage of private sector dwellings in Sandwell occupied by households in fuel poverty under the Low Income High Costs definition.

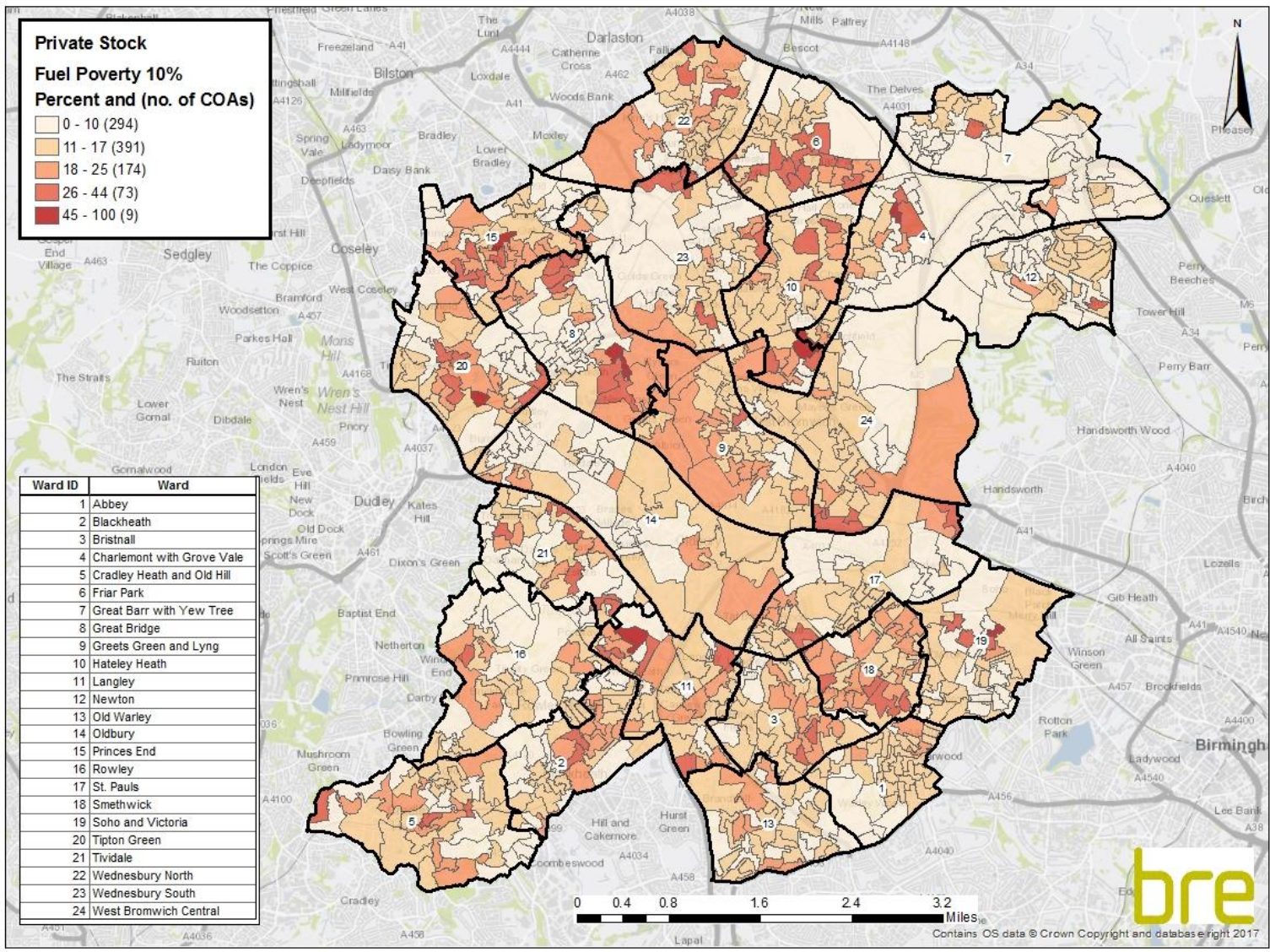


Map 8: Percentage of private sector dwellings in Sandwell occupied by households in fuel poverty - Low Income High Costs definition





Map 9: Percentage of private sector dwellings in Sandwell occupied by households in fuel poverty – 10% definition





4.2.3.4 Low income households

A low income household is defined as a household in receipt of:

- Income support
- Housing benefit
- Attendance allowance
- Disability living allowance
- Industrial injuries disablement benefit
- War disablement pension
- Pension credit
- Child tax credit
- Working credit

For child tax credit and working tax credit, the household is only considered a low income household if it has a relevant income of less than £15,860.

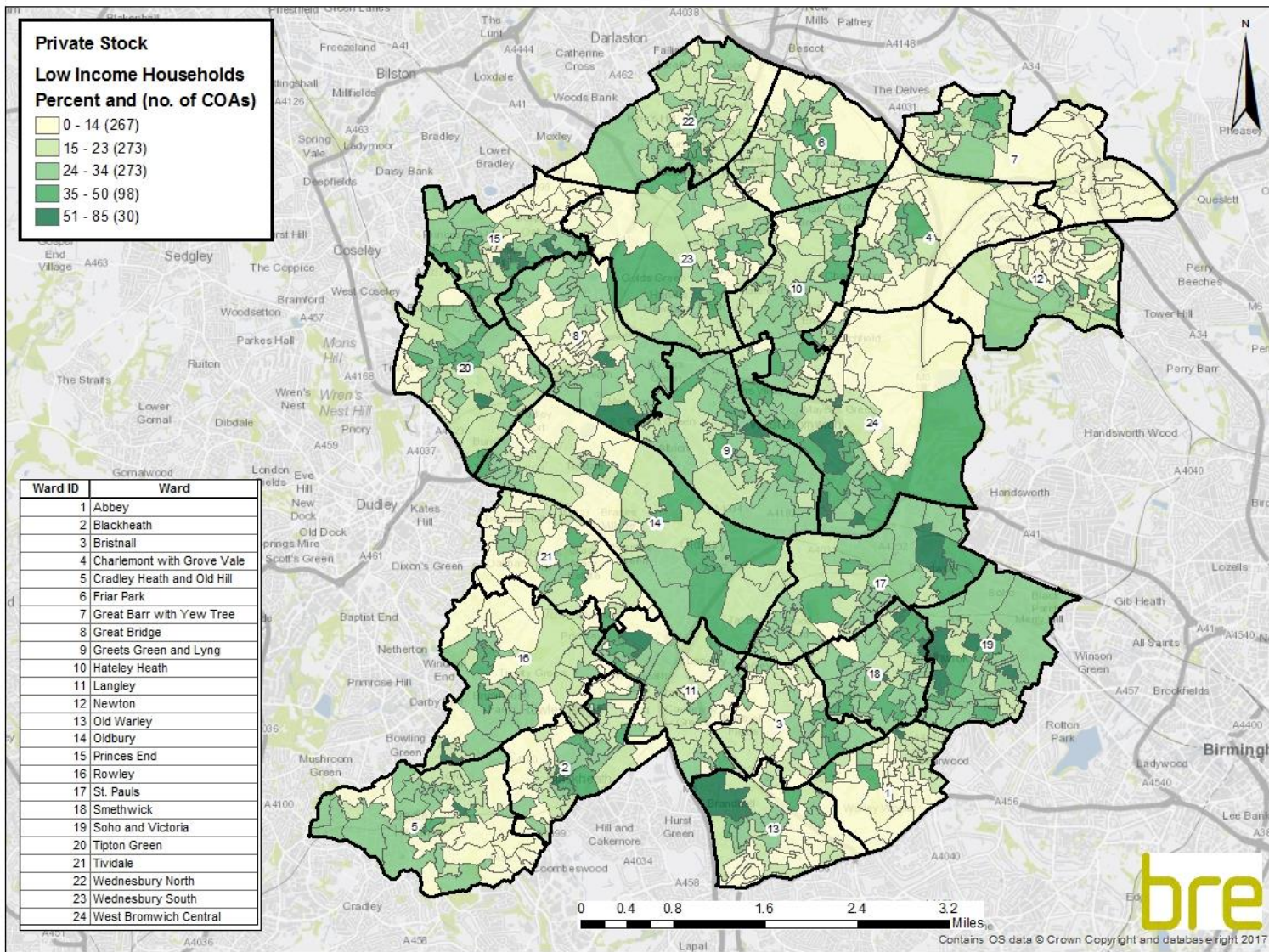
The definition also includes households in receipt of Council Tax reduction and income based Job Seekers Allowance.

Map 10 shows that concentrations of low income households are clustered around the centre and north of Sandwell. The highest levels overall are found in Soho and Victoria, Greet Green and Lyng and Smethwick ward. However, there are other areas which also have high concentrations of low income households; for example, to the south and west of West Bromwich Central ward and to the south of Princes End ward.

Map 11 provides an additional layer of information, with the data for low income households being combined with HHSRS excess cold data. This provides a vital picture of where vulnerable people are likely to be living in poor housing. The map indicates that there are pockets of both low income and excess cold scattered across the area.

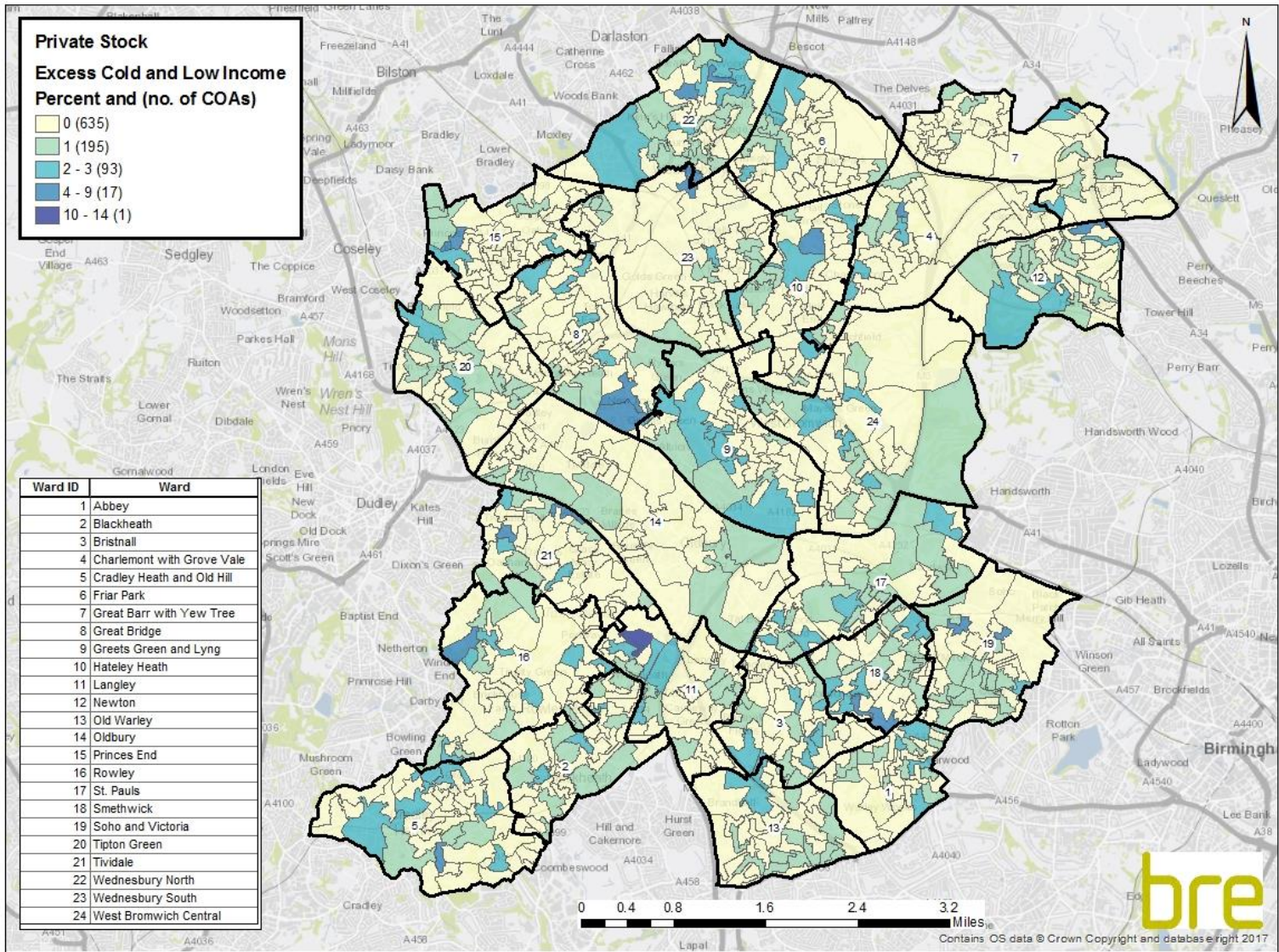


Map 10: Percentage of private sector dwellings in Sandwell occupied by low income households





Map 11: Percentage of private sector dwellings in Sandwell with both the presence of a HHSRS category 1 hazard for excess cold and occupied by low income households





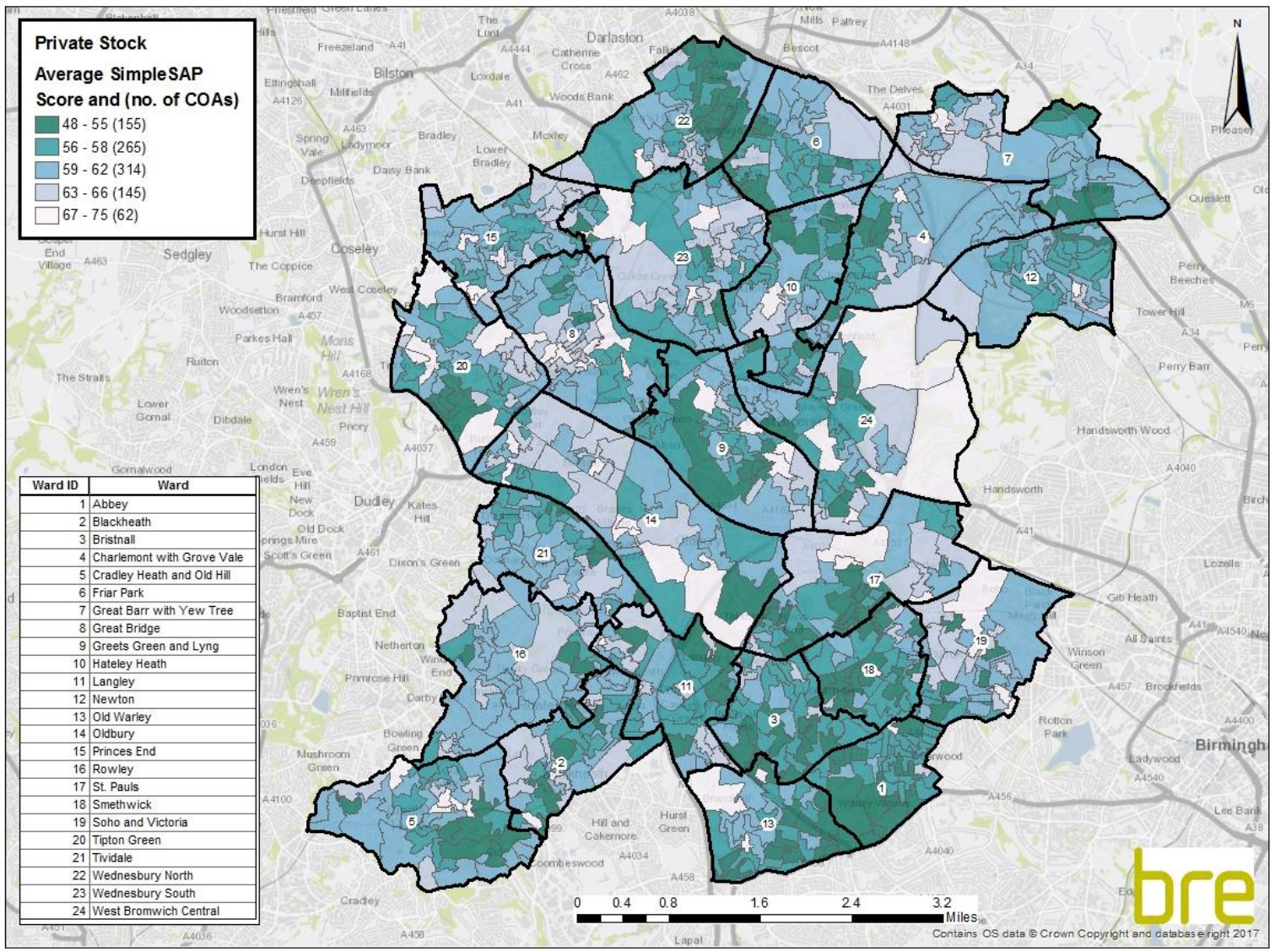
4.2.3.5 SimpleSAP

The average SimpleSAP map (**Map 12**) shows that areas with lower average SimpleSAP ratings are clustered throughout the area with a tendency towards the south east corner (Smethwick) and the northern parts of the area (Wednesbury). Whilst no particular ward obviously dominates, the data behind the map shows that the wards with the lowest average SimpleSAP ratings are Abbey, Bristnall and Old Warley.

Lower SimpleSAP ratings can occur in areas with larger, older homes where little work has been done by the occupiers to improve energy performance. The size of the home itself is not a factor in SimpleSAP, but these homes are more likely to be semi-detached or detached, and therefore have larger heat loss areas.



Map 12: Average SimpleSAP ratings per dwelling in Sandwell private sector stock





4.2.4 Ward level results for the key indicators

The previous maps have provided a visual representation of the key indicators at Census Output Area (COA) level. The following tables provide the complete set of figures at ward level for the key indicators; firstly, for the total stock (**Table 5**) and secondly, for the private sector stock (**Table 6**), owner occupied sector stock (**Table 7**) and private rented sector stock (**Table 8**). This allows a direct comparison between the wards in Sandwell.

Table 5: Total stock – number and percentage of dwellings failing each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
Abbey	5,486	1,016 (19%)	160 (3%)	810 (15%)	770 (14%)	744 (14%)	804 (15%)	1,046 (19%)	57
Blackheath	5,526	602 (11%)	121 (2%)	471 (9%)	330 (6%)	796 (14%)	592 (11%)	1,689 (31%)	61
Bristnall	5,055	620 (12%)	130 (3%)	486 (10%)	368 (7%)	777 (15%)	699 (14%)	1,690 (33%)	58
Charlemont with Grove Vale	5,396	549 (10%)	108 (2%)	421 (8%)	198 (4%)	718 (13%)	507 (9%)	1,353 (25%)	61
Cradley Heath and Old Hill	6,174	689 (11%)	146 (2%)	517 (8%)	374 (6%)	894 (14%)	725 (12%)	2,066 (33%)	61
Friar Park	5,091	583 (11%)	118 (2%)	448 (9%)	306 (6%)	870 (17%)	651 (13%)	2,091 (41%)	59
Great Barr with Yew Tree	5,375	523 (10%)	113 (2%)	405 (8%)	164 (3%)	552 (10%)	492 (9%)	1,233 (23%)	61
Great Bridge	5,653	487 (9%)	97 (2%)	359 (6%)	211 (4%)	817 (14%)	649 (11%)	1,989 (35%)	62
Greets Green and Lyng	5,328	613 (12%)	111 (2%)	473 (9%)	361 (7%)	889 (17%)	692 (13%)	2,250 (42%)	61
Hateley Heath	5,698	606 (11%)	105 (2%)	482 (8%)	347 (6%)	924 (16%)	767 (13%)	2,203 (39%)	60
Langley	5,870	622 (11%)	141 (2%)	465 (8%)	318 (5%)	949 (16%)	741 (13%)	2,161 (37%)	61
Newton	5,042	581 (12%)	132 (3%)	450 (9%)	204 (4%)	586 (12%)	492 (10%)	1,076 (21%)	59
Old Warley	5,294	662 (13%)	154 (3%)	496 (9%)	352 (7%)	743 (14%)	632 (12%)	1,385 (26%)	58
Oldbury	6,089	480 (8%)	81 (1%)	378 (6%)	167 (3%)	672 (11%)	651 (11%)	1,751 (29%)	63
Princes End	5,634	472 (8%)	96 (2%)	353 (6%)	209 (4%)	888 (16%)	617 (11%)	2,315 (41%)	62
Rowley	5,299	525 (10%)	108 (2%)	395 (7%)	194 (4%)	709 (13%)	666 (13%)	1,740 (33%)	61
Smethwick	5,518	851 (15%)	159 (3%)	650 (12%)	566 (10%)	1,029 (19%)	910 (16%)	2,224 (40%)	58
Soho and Victoria	6,503	747 (11%)	133 (2%)	584 (9%)	497 (8%)	883 (14%)	895 (14%)	2,613 (40%)	62



Table 5 cont.: Total stock – number and percentage of dwellings failing each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
St. Pauls	5,180	714 (14%)	115 (2%)	575 (11%)	435 (8%)	671 (13%)	743 (14%)	1,734 (33%)	59
Tipton Green	6,119	554 (9%)	102 (2%)	429 (7%)	290 (5%)	855 (14%)	692 (11%)	2,245 (37%)	62
Tividale	5,240	557 (11%)	128 (2%)	418 (8%)	248 (5%)	758 (14%)	631 (12%)	1,475 (28%)	59
Wednesbury North	5,162	683 (13%)	130 (3%)	515 (10%)	396 (8%)	811 (16%)	753 (15%)	1,799 (35%)	59
Wednesbury South	5,795	594 (10%)	109 (2%)	464 (8%)	244 (4%)	856 (15%)	692 (12%)	2,041 (35%)	61
West Bromwich Central	6,153	663 (11%)	123 (2%)	512 (8%)	356 (6%)	914 (15%)	733 (12%)	2,259 (37%)	62

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards, but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



Table 6: Private sector stock – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
Abbey	5,033	981 (19%)	154 (3%)	786 (16%)	734 (15%)	675 (13%)	733 (15%)	738 (15%)	56
Blackheath	4,178	484 (12%)	100 (2%)	389 (9%)	246 (6%)	523 (13%)	416 (10%)	832 (20%)	60
Bristnall	3,503	469 (13%)	92 (3%)	380 (11%)	260 (7%)	478 (14%)	475 (14%)	659 (19%)	57
Charlemont with Grove Vale	4,274	485 (11%)	97 (2%)	376 (9%)	167 (4%)	518 (12%)	407 (10%)	627 (15%)	59
Cradley Heath and Old Hill	4,279	548 (13%)	115 (3%)	423 (10%)	293 (7%)	554 (13%)	494 (12%)	748 (17%)	60
Friar Park	2,511	343 (14%)	66 (3%)	273 (11%)	141 (6%)	384 (15%)	312 (12%)	473 (19%)	59
Great Barr with Yew Tree	4,476	455 (10%)	99 (2%)	360 (8%)	140 (3%)	415 (9%)	370 (8%)	671 (15%)	60
Great Bridge	3,509	301 (9%)	56 (2%)	239 (7%)	104 (3%)	384 (11%)	356 (10%)	631 (18%)	63
Greets Green and Lyng	3,468	460 (13%)	79 (2%)	364 (10%)	253 (7%)	540 (16%)	478 (14%)	1,053 (30%)	61
Hateley Heath	3,312	411 (12%)	68 (2%)	339 (10%)	211 (6%)	486 (15%)	455 (14%)	756 (23%)	60
Langley	4,065	506 (12%)	118 (3%)	386 (9%)	265 (7%)	603 (15%)	518 (13%)	888 (22%)	59
Newton	4,378	529 (12%)	118 (3%)	419 (10%)	182 (4%)	479 (11%)	423 (10%)	674 (15%)	59
Old Warley	4,295	578 (13%)	135 (3%)	442 (10%)	307 (7%)	559 (13%)	488 (11%)	694 (16%)	57
Oldbury	5,099	418 (8%)	66 (1%)	338 (7%)	139 (3%)	487 (10%)	554 (11%)	1,055 (21%)	63
Princes End	3,011	265 (9%)	47 (2%)	213 (7%)	82 (3%)	384 (13%)	275 (9%)	650 (22%)	62
Rowley	3,623	377 (10%)	73 (2%)	298 (8%)	128 (4%)	406 (11%)	407 (11%)	710 (20%)	61
Smethwick	3,736	656 (18%)	110 (3%)	519 (14%)	417 (11%)	653 (17%)	611 (16%)	1,055 (28%)	57
Soho and Victoria	4,967	621 (13%)	88 (2%)	517 (10%)	445 (9%)	612 (12%)	672 (14%)	1,645 (33%)	61



Table 6 cont.: Private sector stock – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
St. Pauls	4,335	645 (15%)	105 (2%)	528 (12%)	386 (9%)	551 (13%)	613 (14%)	1,157 (27%)	58
Tipton Green	4,212	407 (10%)	76 (2%)	328 (8%)	193 (5%)	504 (12%)	475 (11%)	964 (23%)	62
Tividale	3,616	417 (12%)	98 (3%)	321 (9%)	159 (4%)	460 (13%)	400 (11%)	520 (14%)	59
Wednesbury North	3,524	497 (14%)	88 (2%)	394 (11%)	273 (8%)	492 (14%)	496 (14%)	781 (22%)	59
Wednesbury South	4,026	457 (11%)	80 (2%)	371 (9%)	177 (4%)	483 (12%)	483 (12%)	868 (22%)	61
West Bromwich Central	4,820	595 (12%)	109 (2%)	468 (10%)	321 (7%)	645 (13%)	622 (13%)	1,322 (27%)	60

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards, but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



Table 7: Owner occupied sector stock – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
Abbey	2,484	446 (18%)	80 (3%)	365 (15%)	316 (13%)	330 (13%)	275 (11%)	306 (12%)	56
Blackheath	3,048	350 (11%)	79 (3%)	277 (9%)	163 (5%)	375 (12%)	280 (9%)	497 (16%)	60
Bristnall	2,623	341 (13%)	73 (3%)	277 (11%)	186 (7%)	343 (13%)	340 (13%)	448 (17%)	57
Charlemont with Grove Vale	3,286	370 (11%)	66 (2%)	297 (9%)	130 (4%)	296 (9%)	254 (8%)	401 (12%)	59
Cradley Heath and Old Hill	2,826	348 (12%)	71 (3%)	275 (10%)	176 (6%)	346 (12%)	287 (10%)	407 (14%)	59
Friar Park	1,859	258 (14%)	55 (3%)	200 (11%)	99 (5%)	282 (15%)	214 (12%)	295 (16%)	58
Great Barr with Yew Tree	3,489	365 (10%)	78 (2%)	295 (8%)	114 (3%)	327 (9%)	279 (8%)	464 (13%)	59
Great Bridge	2,233	191 (9%)	41 (2%)	150 (7%)	60 (3%)	227 (10%)	217 (10%)	363 (16%)	62
Greets Green and Lyng	1,805	253 (14%)	42 (2%)	200 (11%)	134 (7%)	310 (17%)	259 (14%)	501 (28%)	59
Hateley Heath	1,950	252 (13%)	40 (2%)	211 (11%)	128 (7%)	286 (15%)	273 (14%)	400 (21%)	58
Langley	2,587	320 (12%)	73 (3%)	250 (10%)	167 (6%)	370 (14%)	305 (12%)	513 (20%)	58
Newton	3,514	429 (12%)	103 (3%)	337 (10%)	139 (4%)	385 (11%)	297 (8%)	510 (15%)	58
Old Warley	3,295	453 (14%)	118 (4%)	338 (10%)	231 (7%)	406 (12%)	326 (10%)	517 (16%)	57
Oldbury	2,988	245 (8%)	38 (1%)	202 (7%)	73 (2%)	296 (10%)	326 (11%)	610 (20%)	62
Princes End	2,073	181 (9%)	35 (2%)	143 (7%)	46 (2%)	234 (11%)	174 (8%)	342 (16%)	61
Rowley	2,620	263 (10%)	52 (2%)	207 (8%)	82 (3%)	267 (10%)	253 (10%)	460 (18%)	61
Smethwick	1,893	316 (17%)	66 (3%)	244 (13%)	187 (10%)	345 (18%)	285 (15%)	476 (25%)	57
Soho and Victoria	1,684	211 (13%)	20 (1%)	184 (11%)	140 (8%)	208 (12%)	199 (12%)	548 (33%)	60



Table 7 cont.: *Owner occupied sector stock – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward*

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
St. Pauls	2,525	360 (14%)	68 (3%)	291 (12%)	199 (8%)	334 (13%)	317 (13%)	596 (24%)	58
Tipton Green	2,640	270 (10%)	52 (2%)	213 (8%)	117 (4%)	319 (12%)	302 (11%)	523 (20%)	61
Tivdale	2,794	302 (11%)	65 (2%)	245 (9%)	118 (4%)	322 (12%)	279 (10%)	359 (13%)	59
Wednesbury North	2,360	328 (14%)	61 (3%)	263 (11%)	174 (7%)	331 (14%)	326 (14%)	456 (19%)	58
Wednesbury South	2,763	320 (12%)	61 (2%)	262 (9%)	115 (4%)	333 (12%)	333 (12%)	475 (17%)	60
West Bromwich Central	2,525	311 (12%)	58 (2%)	254 (10%)	152 (6%)	343 (14%)	294 (12%)	581 (23%)	59

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards, but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



Table 8: Private rented sector stock – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
Abbey	2,549	535 (21%)	74 (3%)	421 (16%)	418 (16%)	345 (14%)	458 (18%)	432 (17%)	56
Blackheath	1,130	134 (12%)	21 (2%)	112 (7%)	83 (7%)	148 (13%)	136 (12%)	335 (30%)	62
Bristnall	880	128 (15%)	19 (2%)	103 (8%)	74 (8%)	135 (15%)	135 (15%)	211 (24%)	58
Charlemont with Grove Vale	988	115 (12%)	31 (3%)	79 (4%)	37 (4%)	222 (22%)	153 (15%)	226 (23%)	60
Cradley Heath and Old Hill	1,453	200 (14%)	44 (3%)	148 (10%)	117 (8%)	208 (14%)	207 (14%)	341 (23%)	61
Friar Park	652	85 (13%)	11 (2%)	73 (11%)	42 (6%)	102 (16%)	98 (15%)	178 (27%)	60
Great Barr with Yew Tree	987	90 (9%)	21 (2%)	65 (7%)	26 (3%)	88 (9%)	91 (9%)	207 (21%)	63
Great Bridge	1,276	110 (9%)	15 (1%)	89 (7%)	44 (3%)	157 (12%)	139 (11%)	268 (21%)	64
Greets Green and Lyng	1,663	207 (12%)	37 (2%)	164 (10%)	119 (7%)	230 (14%)	219 (13%)	552 (33%)	62
Hateley Heath	1,362	159 (12%)	28 (2%)	128 (9%)	83 (6%)	200 (15%)	182 (13%)	356 (26%)	61
Langley	1,478	186 (13%)	45 (3%)	136 (9%)	98 (7%)	233 (16%)	213 (14%)	375 (25%)	60
Newton	864	100 (12%)	15 (2%)	82 (9%)	43 (5%)	94 (11%)	126 (15%)	164 (19%)	60
Old Warley	1,000	125 (13%)	17 (2%)	104 (10%)	76 (8%)	153 (15%)	162 (16%)	177 (18%)	59
Oldbury	2,111	173 (8%)	28 (1%)	136 (6%)	66 (3%)	191 (9%)	228 (11%)	445 (21%)	64
Princes End	938	84 (9%)	12 (1%)	70 (7%)	36 (4%)	150 (16%)	101 (11%)	308 (33%)	62
Rowley	1,003	114 (11%)	21 (2%)	91 (9%)	46 (5%)	139 (14%)	154 (15%)	250 (25%)	60
Smethwick	1,843	340 (18%)	44 (2%)	275 (15%)	230 (12%)	308 (17%)	326 (18%)	579 (31%)	57
Soho and Victoria	3,283	410 (12%)	68 (2%)	333 (10%)	305 (9%)	404 (12%)	473 (14%)	1,097 (33%)	62



Table 8 cont.: *Private rented sector stock* – number and percentage of dwellings for each of the key indicators, and average SimpleSAP ratings by ward

Ward	Dwellings	HHSRS category 1 hazards			Disrepair	Fuel poverty		Low income households	Average SimpleSAP
		All hazards	Excess cold	Fall hazards		10%	LIHC		
St. Pauls	1,810	285 (16%)	37 (2%)	237 (13%)	187 (10%)	217 (12%)	296 (16%)	561 (31%)	59
Tipton Green	1,572	137 (9%)	24 (2%)	115 (7%)	76 (5%)	185 (12%)	173 (11%)	441 (28%)	64
Tivdale	822	115 (14%)	33 (4%)	76 (9%)	41 (5%)	138 (17%)	121 (15%)	161 (20%)	58
Wednesbury North	1,164	169 (15%)	27 (2%)	131 (11%)	99 (9%)	161 (14%)	170 (15%)	325 (28%)	60
Wednesbury South	1,263	137 (11%)	19 (2%)	109 (9%)	62 (5%)	150 (12%)	150 (12%)	393 (31%)	63
West Bromwich Central	2,295	284 (12%)	51 (2%)	214 (9%)	169 (7%)	302 (13%)	328 (14%)	741 (32%)	62

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards, but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



4.3 Information relating to LAHS reporting and EPC ratings

4.3.1 Cost of mitigating category 1 hazards in the Sandwell private sector stock

Table 9 shows the total number of dwellings with HHSRS category 1 hazards in Sandwell's private sector stock, the average cost of mitigating hazards per dwelling and the total cost for mitigating all hazards within those dwellings. The costs are based on the average cost of mitigating category 1 hazards for the region using EHS 2014 data. The EHS costs are determined following a surveyor's assessment of the hazard. For each hazard the surveyor is given a range of common treatments that they can specify in order to treat the hazard. Where quantities are required the surveyor may specify them. The treatment recommended by the surveyor is then costed using a standard set of prices.

Table 9: Estimated costs to mitigate all category 1 hazards in private sector stock, split into tenure

Tenure	No. of hazards	Total cost (£)
Private Sector	28,116	51,683,393
Owner occupied	15,977	28,321,209
Private rented	12,139	23,362,184

4.3.2 EPC ratings in the Sandwell private sector stock

An Energy Performance Certificate (EPC) is required whenever a new building is constructed, or an existing building is sold or rented out. An EPC is a measure of the energy efficiency performance of a building and is rated from band A – G, with A representing the best performance. The EPC ratings correspond to a range of SAP ratings from 1 – 100, with 100 being the best. It is possible, therefore, to give a dwelling an EPC rating based on the SAP rating.

Figure 8 below shows the bands A – G and corresponding SAP ratings in brackets. The first two columns show the number and percentage of Sandwell's private sector stock falling into each of the EPC ratings bands. The third column shows the comparable figures for the private sector stock in England.

The estimated average SimpleSAP for the private sector stock in Sandwell is 60 which corresponds to an EPC rating of D. The number of private sector dwellings with an EPC rating below band E is estimated to be 3,926 (4.1%). Sandwell has a higher proportion of dwellings in band D and E and lower proportions in the other bands.



Figure 8: Number and percentage of Sandwell’s *private sector stock* falling into each of the EPC ratings bands (based on SimpleSAP), compared to England (EHS) figures *N.B. England figures report band A and B together*

		Sandwell		2014 EHS England
		Count	Percent	Percent
(92-100)	A	0	0.0%	1.0%
(81-91)	B	282	0.3%	
(69-80)	C	18,767	19.5%	20.9%
(55-68)	D	52,623	54.7%	52.6%
(39-54)	E	20,652	21.5%	19.1%
(21-38)	F	3,289	3.4%	5.0%
(1-20)	G	637	0.7%	1.5%

Under the Energy Act 2011, new rules mean that from 2018 landlords must ensure that their properties meet a minimum energy efficiency standard - which has been set at band E - by 1 April 2018^{15, 46}.

Figure 9 shows the breakdown of SimpleSAP results into the A – G bands for the private rented stock only and compared to the figures for this tenure in England as a whole. The number of private rented dwellings in Sandwell with a rating below band E (i.e. bands F and G), is estimated to be 1,319 (3.8%). Compared to England, there are a greater proportion of dwellings in band C to E, and lower proportions in bands F and G.

The distribution of dwellings with EPC ratings below band E is shown in **Map 13**. These are for the private rented stock only, since this is affected by the new rules on minimum standards. Under the legislation these properties would not be eligible to be rented out after 2018.

⁴⁶ Although landlords will still be able to rent out F and G rated properties after this date they will not be able to renew or sign a new contract.

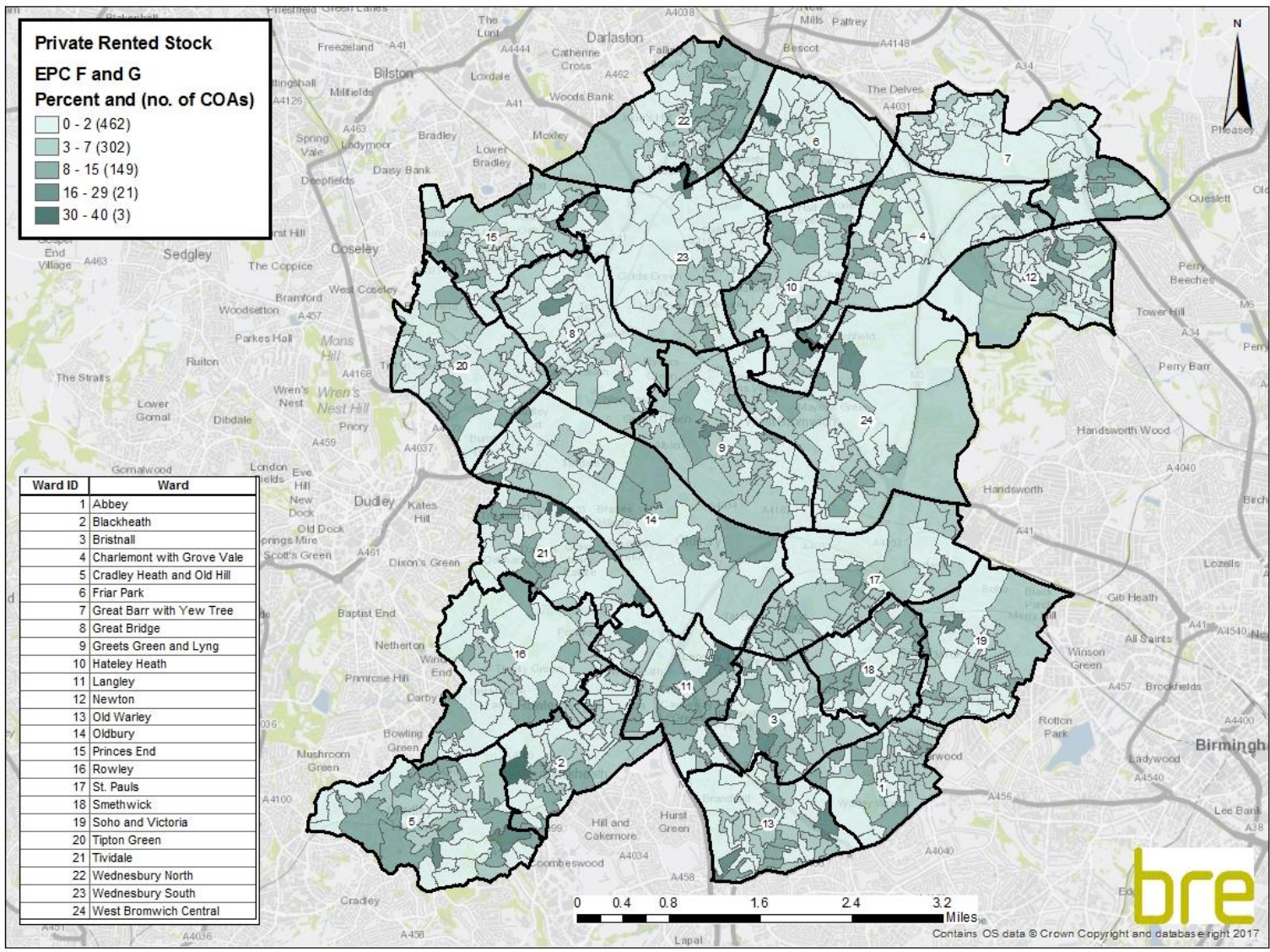


Figure 9: Number and percentage of Sandwell’s *private rented stock* falling into each of the EPC ratings bands (based on SimpleSAP), compared to England (EHS) figures *N.B. England figures report band A and B together*

		Sandwell		2014 EHS England
		Count	Percent	Percent
(92-100)	A	0	0.0%	1.4%
(81-91)	B	211	0.6%	
(69-80)	C	8,983	26.1%	23.8%
(55-68)	D	16,854	49.0%	48.9%
(39-54)	E	7,019	20.4%	18.3%
(21-38)	F	1,068	3.1%	5.4%
(1-20)	G	251	0.7%	2.1%



Map 13: Distribution of dwellings with F or G EPC ratings in the private rented stock





5 Houses in Multiple Occupation (HMOs) and licensing in Sandwell private sector stock

5.1 HMO overview

A house in multiple occupation (HMO) is a property rented out by 3 or more people in 2 or more households (e.g. a family) but share facilities such as the bathroom and kitchen. For the purposes of HMOs, a household refers to husband, wife, co-habitee, child, step-child, foster-child, grandchild, parent, step-parent, grandparent, brother, half-brother, sister, half-sister, aunt, uncle, niece, nephew, cousin, live-in-au-pair, housekeeper, maid, etc. . There are various types of HMOs defined by Section 254 of the Housing Act 2004. Depending on the house size, and number of occupants, particular HMOs may fall within the criteria for mandatory licensing or additional licensing. These are described in more detail in the following sub-sections.

5.1.1 Section 254 HMOs

The Housing Act 2004 introduced a new set of definitions for HMOs in England from 6 April 2006⁴⁷. The definition is a complex one and the bullet points below, which are adapted from web pages provided by the National HMO Network⁴⁸, provide a summary:

- An entire house or flat which is let to 3 or more tenants who form 2 or more households and who share a kitchen, bathroom or toilet
- A house which has been converted entirely into bedsits or other non-self-contained accommodation and which is let to 3 or more tenants who form two or more households and who share kitchen, bathroom or toilet facilities
- A converted house which contains one or more flats which are not wholly self-contained (i.e. the flat does not contain within it a kitchen, bathroom and toilet) and which is occupied by 3 or more tenants who form two or more households
- A building which is converted entirely into self-contained flats if the conversion did not meet the standards of the 1991 Building Regulations and more than one-third of the flats are let on short-term tenancies

5.1.2 HMOs subject to mandatory licensing

The Government proposes to extend mandatory licensing to cover all relevant HMOs regardless of the number of storeys⁴⁹. The requirement for the HMO to be occupied by five or more persons in two or more households will remain. As it now seems likely that the definition for licensable HMOs will change, the figures for the proposed new definition have been included in this report.

⁴⁷ See Sections 254-258 of the Housing Act (<http://www.legislation.gov.uk/ukpga/2004/34/contents>)

⁴⁸ National HMO Network <http://www.nationalhmonetwork.com/definition.php>

⁴⁹

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/560777/HMO_Tech_Disc_RESPONSE_DOC.pdf



To be classified as an HMO the property must be used as the tenants' only or main residence and it should be used solely or mainly to house tenants. Properties let to students and migrant workers will be treated as their only or main residence and the same will apply to properties which are used as domestic refuges.

The LAHS requires estimates of the number of HMOs and the number of mandatory licensable HMOs.

- Number of private sector HMOs
 - Modelled using specific criteria from a number of Experian data sources and information derived from the SimpleCO₂ model. The criteria include privately rented dwellings with 3 or more bedrooms occupied by male/female/mixed home sharers, mixed occupancy dwellings or classified as the following Experian Mosaic classifications:
 - Renting a room
 - Career Builders
 - Flexible Workforce
 - Bus Route Renters
 - Learners and earners
 - Student scene
- Number of mandatory licensing scheme HMOs
 - This has been modelled using the above criteria for HMOs plus the dwelling must have 3 or more storeys and 4 or more bedrooms.
 - Flats where there are 4 or more bedrooms and two or more storeys in the dwelling which is within a building of 3 or more storeys containing a non-residential element.
- Number of licensable HMOs under the Government's proposed new definition
 - This has been modelled using the above criteria for HMOs plus the dwelling must have 4 or more bedrooms.
 - Flats where there are 4 or more bedrooms which is within a building of 2 or more storeys containing a non-residential element.

The council provided a list of licensed HMOs which were used to inform the HMO Models. The licensed HMO list and the potential licensable HMO list were also used to update the tenure information.

5.2 Discretionary licensing schemes

There are two types of discretionary licensing schemes; Additional and Selective. Additional applies to HMOs not included under mandatory licensing and selective can apply to any private rented property. The Housing Act 2004 provides councils with powers to introduce licensing of privately rented housing in certain areas. The aim of these schemes is to improve conditions for local occupiers and the surrounding communities.

5.2.1 Additional licensing

Additional licensing applies to HMOs only with the aim of improving conditions for local occupiers and the surrounding communities.

As discussed earlier in this section, local authorities already have to license HMOs that have 3 or more storeys and have 5 or more occupiers under the current mandatory licensing scheme and the proposed scheme will extend this to cover HMOs with 5 or more people regardless of the number of storeys.

Before making an additional HMO licensing designation for a particular type of HMO, or for a particular area, a local authority must do the following:



- Consider that a significant proportion of the HMOs of that description in the area are being managed sufficiently ineffectively as to give rise, or to be likely to give rise, to one or more particular problems either for those occupying the HMOs or for members of the public
- Have regard to any information regarding the extent to which any codes of practice approved under section 233 have been complied with by persons managing HMOs in the area in question
- Consider whether there are any other courses of action available to them (of whatever nature) that might provide an effective method of dealing with the problem or problems in question
- Ensure that the exercise of the power is consistent with its overall housing strategy
- Consider that making the designation will significantly assist them to deal with the problem or problems (whether or not they take any other course of action as well)
- Consult persons likely to be affected by the designation

5.2.2 HMO results for Sandwell

Table 10 and **Table 11** summarise the results for the private sector stock in Sandwell and at ward level respectively. **Map 14** shows the geographic distribution of HMOs, **Map 15** shows the distribution of licensable HMOs and **Map 16** shows the distribution of licensable HMOs under the proposed definition. The maps show the majority of HMOs to be concentrated towards central and south eastern parts of Sandwell in the urban areas of Smethwick and West Bromwich. There are notable concentrations across Soho and Victoria ward, to the east of Abbey ward, to the west of West Bromwich Central ward. Licensable HMOs (current definition) are mainly in the Smethwick area but there are a few scattered elsewhere – e.g. central COAs in Charlemont with Grove Vale ward. Licensable HMOs (proposed definition) are more obviously concentrated in the ward of Soho and Victoria. As previously mentioned, ward level data on HMOs is available in the accompanying Housing Stock Condition Database (HSCD) and **Appendix C** provides guidance on how to use the database. **Table 11** shows that Soho and Victoria ward has the highest number of HMOs (605), followed by Abbey ward (417).

Table 10: Summary of HMOs within the Sandwell private sector stock

	No. of private sector dwellings	HMOs	Mandatory Licensing Scheme HMOs	Proposed Licensing Scheme HMOs
	96,250	4,247	92	464



Table 11: Number of HMOs, current mandatory licensable HMOs and proposed mandatory licensable HMOs by ward

Ward	Dwellings - private rented stock	HMOs	Current Mandatory Licensable HMOs	Proposed Mandatory Licensable HMOs
Abbey	2,549	417 (16%)	6 (0%)	31 (1%)
Blackheath	1,130	61 (5%)	0 (0%)	9 (1%)
Bristnall	880	99 (11%)	5 (1%)	13 (1%)
Charlemont with Grove Vale	988	94 (10%)	6 (1%)	12 (1%)
Cradley Heath and Old Hill	1,453	151 (10%)	1 (0%)	10 (1%)
Friar Park	652	48 (7%)	0 (0%)	1 (0%)
Great Barr with Yew Tree	987	55 (6%)	0 (0%)	12 (1%)
Great Bridge	1,276	78 (6%)	6 (0%)	14 (1%)
Greets Green and Lyng	1,663	281 (17%)	0 (0%)	15 (1%)
Hateley Heath	1,362	181 (13%)	4 (0%)	26 (2%)
Langley	1,478	143 (10%)	7 (0%)	13 (1%)
Newton	864	73 (8%)	4 (0%)	8 (1%)
Old Warley	1,000	86 (9%)	4 (0%)	11 (1%)
Oldbury	2,111	231 (11%)	2 (0%)	23 (1%)
Princes End	938	82 (9%)	0 (0%)	4 (0%)
Rowley	1,003	75 (7%)	0 (0%)	6 (1%)
Smethwick	1,843	325 (18%)	4 (0%)	31 (2%)
Soho and Victoria	3,283	605 (18%)	21 (1%)	122 (4%)

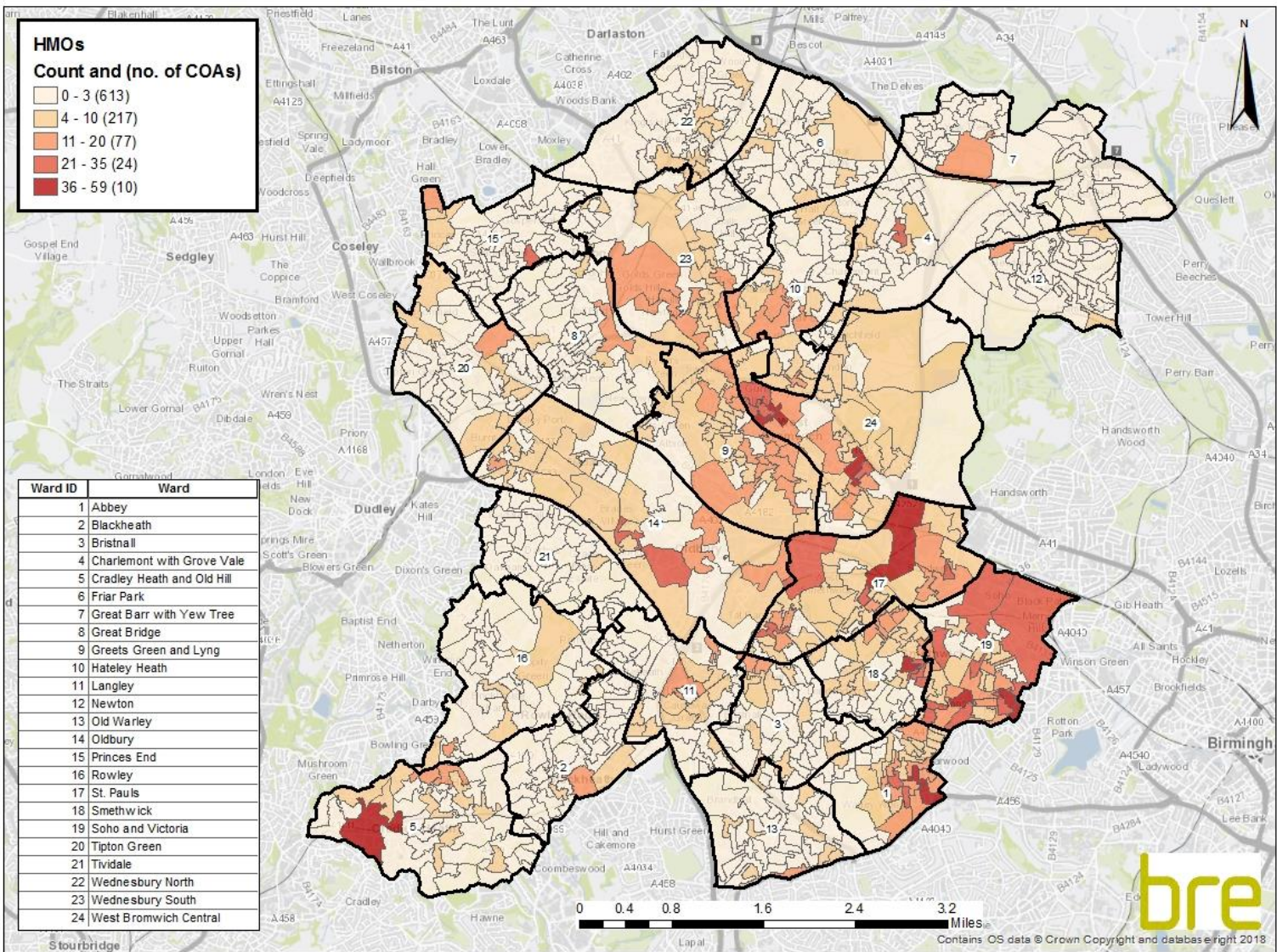


Table 11 cont.: Number of HMOs, current mandatory licensable HMOs and proposed mandatory licensable HMOs by ward

Ward	Dwellings - private rented stock	HMOs	Current Mandatory Licensable HMOs	Proposed Mandatory Licensable HMOs
St. Pauls	1,810	385 (21%)	3 (0%)	33 (2%)
Tipton Green	1,572	85 (5%)	1 (0%)	9 (1%)
Tividale	822	51 (6%)	0 (0%)	6 (1%)
Wednesbury North	1,164	102 (9%)	1 (0%)	6 (1%)
Wednesbury South	1,263	163 (13%)	1 (0%)	8 (1%)
West Bromwich Central	2,295	376 (16%)	16 (1%)	41 (2%)

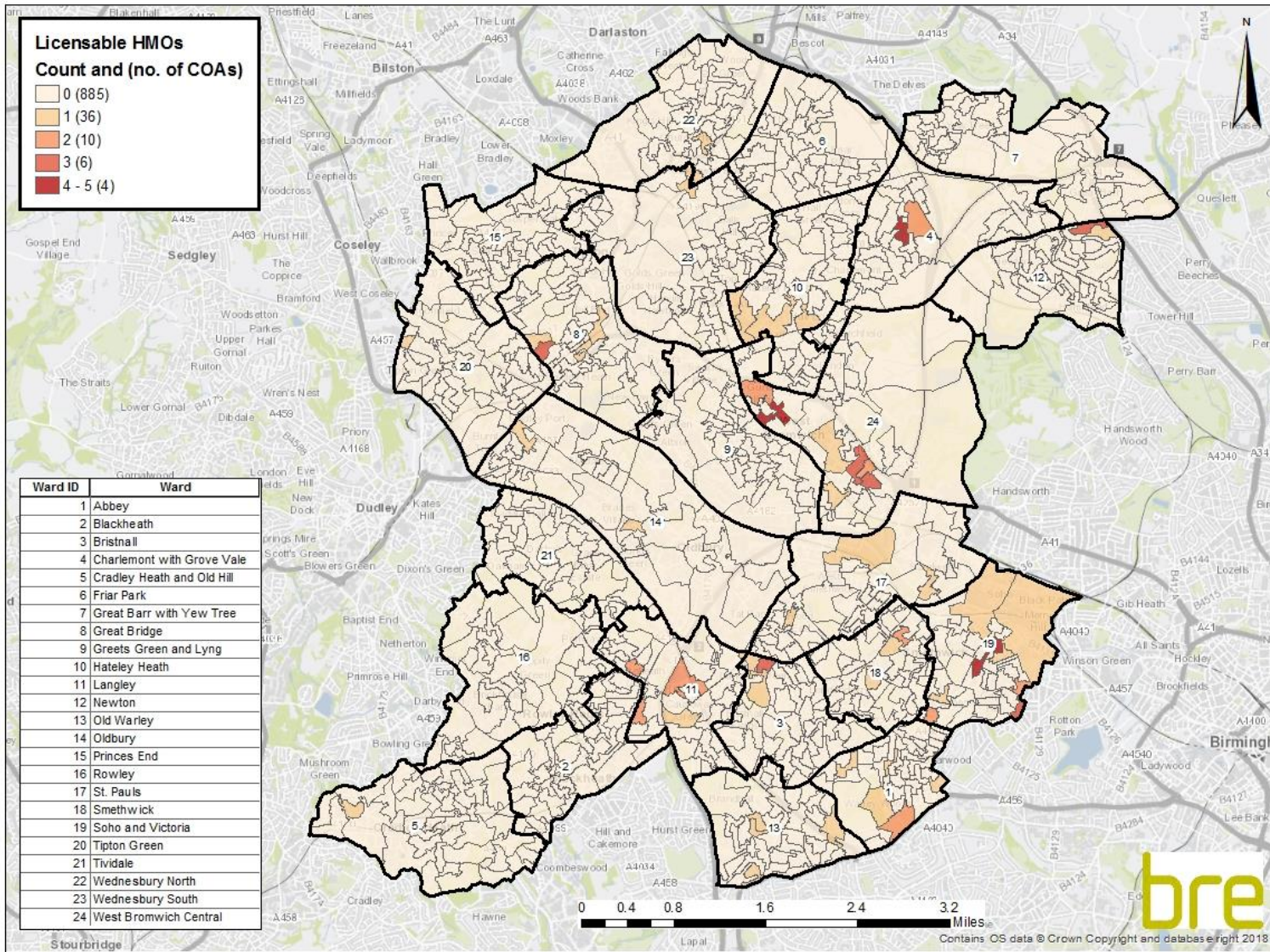


Map 14: Count of HMOs



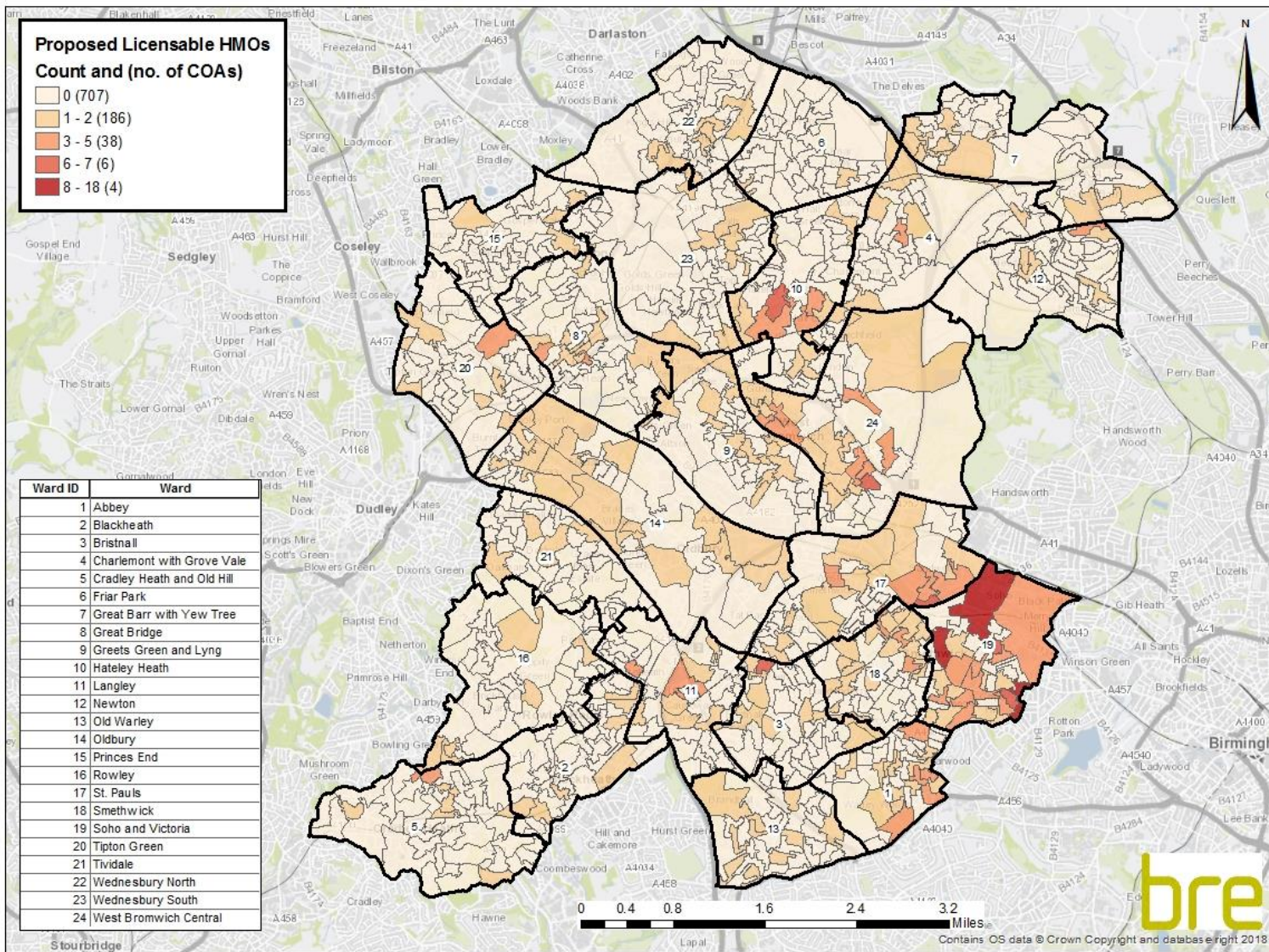


Map 15: Count of licensable HMOs





Map 16: Count of licensable HMOs under proposed definition





5.2.2.1 Key indicators for HMOs

Table 12 and **Figure 10** show the results for each of the key indicators in Sandwell for the private rented sector split into non-HMOs and HMOs. **Figure 11** shows the SimpleSAP ratings for non-HMOs and HMOs.

In general, HMOs in Sandwell are in poorer condition than non-HMOs in the private rented sector. The levels of HHSRS category 1 hazards are higher for HMOs (16% compared to 12% for non-HMOs), especially for fall hazards (13% compared to 10%), rather than for excess cold hazards. Levels of disrepair are also higher for HMOs (11% compared to 7% for non-HMOs). Levels of low income are actually lower in HMOs (24% compared to 27%). However, as HMOs have lower energy efficiency levels compared to non-HMOs (average SimpleSAP score of 59 compared to 61), the levels of fuel poverty are higher for HMOs for the Low Income High Costs definition, but lower for the 10% definition.

Table 12: Estimates of the numbers and percentages of dwellings meeting the key indicator criteria by the Housing Stock Models and HSCD for the private rented sector split by non-HMOs and HMOs for Sandwell

Indicator		Private rented sector stock			
		Non HMOs		HMOs	
		No.	%	No.	%
No. of dwellings		30,147	-	4,247	-
HHSRS category 1 hazards	All hazards	3,751	12%	671	16%
	Excess cold	631	2%	111	3%
	Fall hazards	2,948	10%	543	13%
Disrepair		2,131	7%	446	11%
Fuel poverty (10%)		4,325	14%	335	8%
Fuel poverty (Low Income High Costs)		4,124	14%	715	17%
Low income households		8,115	27%	1,008	24%

N.B. the information on hazards refers to the number of dwellings with a hazard of the stated type. Because of this there is likely to be some overlap – for example, some dwellings are likely to have excess cold and fall hazards but this dwelling would only be represented once under ‘all hazards’. The number of dwellings under ‘all hazards’ can therefore be less than the sum of the excess cold plus fall hazards.



Figure 10: Estimates of the percentage of dwellings meeting the key indicator criteria assessed by the Housing Stock Models and HSCD for HMOs in Sandwell

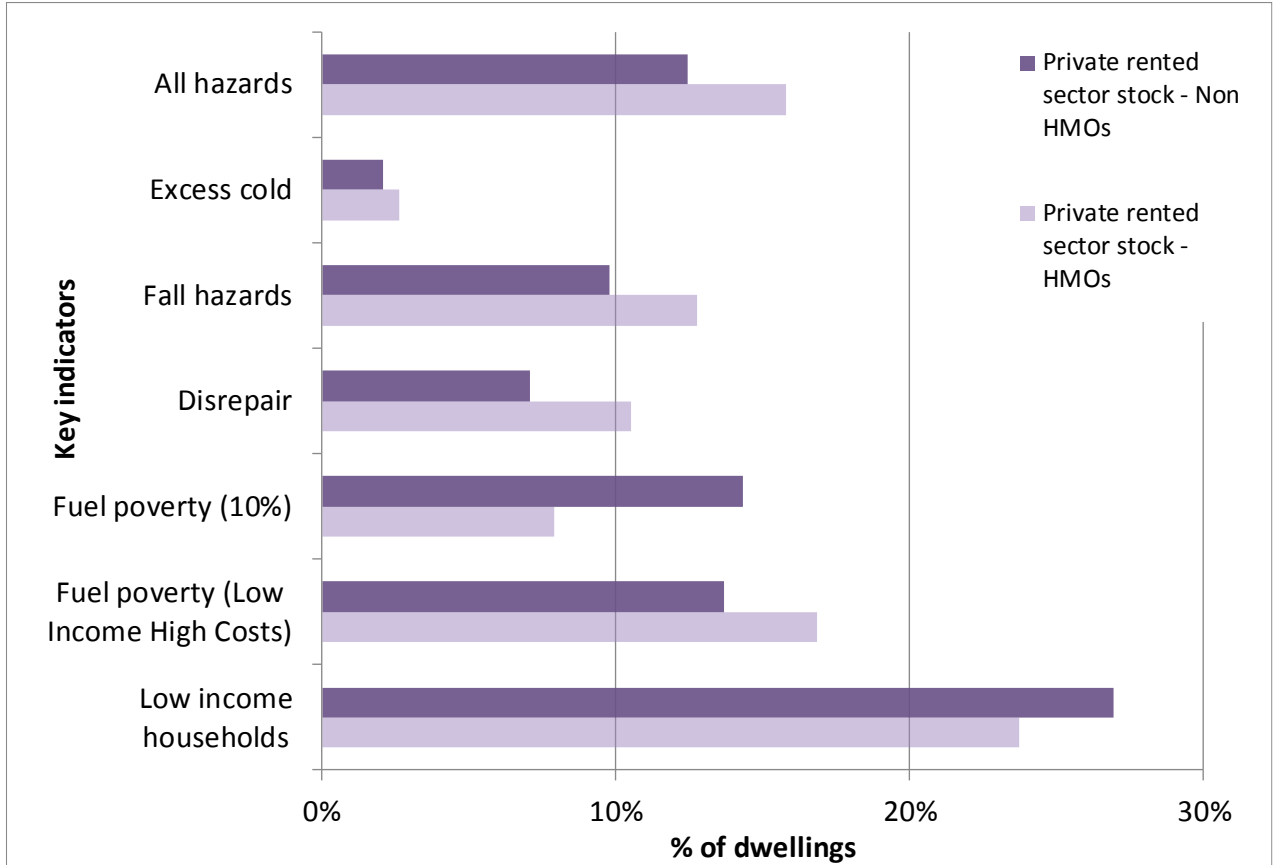
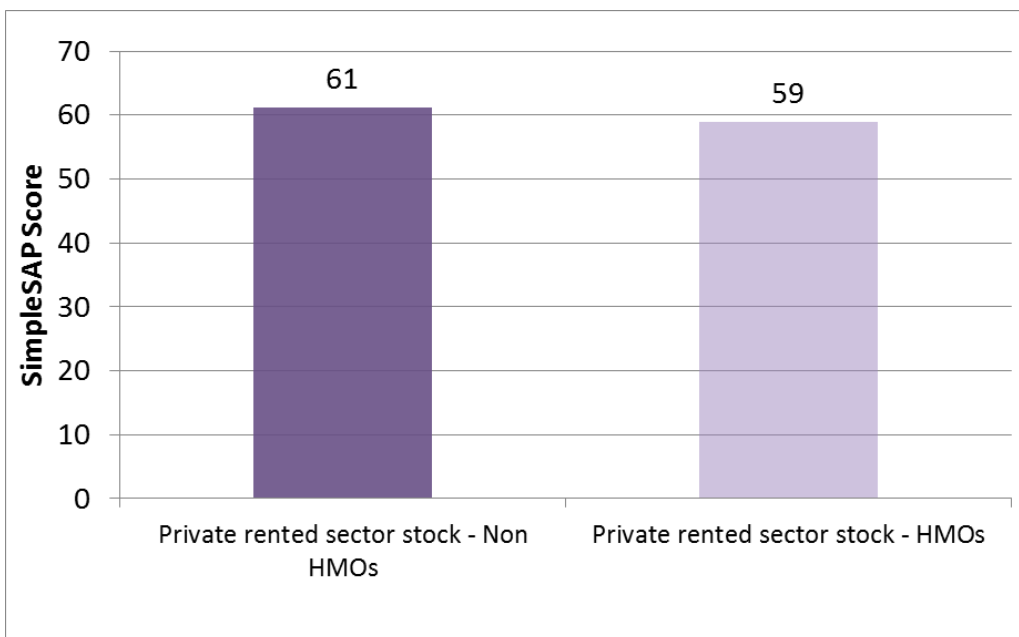


Figure 11: Average SimpleSAP ratings for HMOs in Sandwell





5.2.2.2 Potential areas for investigation within Sandwell – additional HMO licensing

Table 13 shows the number of HMOs in each ward as well as the proportion of those HMOs containing a category 1 hazard or being in disrepair. Wards with high levels of HMOs and with high proportions of hazards or in disrepair may be a starting point when considering areas which could be suitable for Additional HMO licensing.



Table 13: Number of HMOs, and percentage of those HMOs containing a category 1 hazard or being in disrepair, by ward

Ward	HMOs	HHSRS category 1 hazards			Disrepair
		All hazards	Excess cold	Fall hazards	
Abbey	417	64 (15%)	10 (2%)	47 (11%)	74 (18%)
Blackheath	61	10 (16%)	3 (5%)	7 (11%)	3 (5%)
Bristnall	99	17 (17%)	2 (2%)	15 (15%)	10 (10%)
Charlemont with Grove Vale	94	12 (13%)	2 (2%)	10 (11%)	6 (6%)
Cradley Heath and Old Hill	151	38 (25%)	10 (7%)	26 (17%)	22 (15%)
Friar Park	48	5 (10%)	0 (0%)	5 (10%)	6 (13%)
Great Barr with Yew Tree	55	8 (15%)	1 (2%)	7 (13%)	3 (5%)
Great Bridge	78	10 (13%)	1 (1%)	7 (9%)	4 (5%)
Greets Green and Lyng	281	46 (16%)	7 (2%)	40 (14%)	26 (9%)
Hateley Heath	181	27 (15%)	1 (1%)	25 (14%)	11 (6%)
Langley	143	22 (15%)	6 (4%)	16 (11%)	13 (9%)
Newton	73	18 (25%)	3 (4%)	15 (21%)	4 (5%)
Old Warley	86	15 (17%)	3 (3%)	13 (15%)	10 (12%)
Oldbury	231	31 (13%)	3 (1%)	29 (13%)	14 (6%)
Princes End	82	10 (12%)	2 (2%)	9 (11%)	3 (4%)
Rowley	75	10 (13%)	2 (3%)	8 (11%)	2 (3%)
Smethwick	325	66 (20%)	11 (3%)	51 (16%)	51 (16%)
Soho and Victoria	605	98 (16%)	15 (2%)	81 (13%)	84 (14%)



Table 13 cont: Number of HMOs, and percentage of those HMOs containing a category 1 hazard or being in disrepair, by ward

Ward	HMOs	HHSRS category 1 hazards			Disrepair
		All hazards	Excess cold	Fall hazards	
St. Pauls	385	62 (16%)	13 (3%)	50 (13%)	48 (12%)
Tipton Green	85	7 (8%)	1 (1%)	7 (8%)	4 (5%)
Tividale	51	1 (2%)	1 (2%)	0 (0%)	2 (4%)
Wednesbury North	102	22 (22%)	3 (3%)	19 (19%)	10 (10%)
Wednesbury South	163	18 (11%)	3 (2%)	13 (8%)	5 (3%)
West Bromwich Central	376	55 (15%)	8 (2%)	44 (12%)	31 (8%)



5.3 Selective licensing

Selective licensing is different to additional licensing as it covers all private rented sector properties (excluding any HMOs already licensed under HMO schemes). Selective licensing must be part of the overall strategic approach taken by an authority. The main aim of selective licensing is to address the problems caused by poor quality private rented accommodation⁵⁰.

Section 80 of the 2004 Housing Act⁵¹ gives powers to Local Housing Authorities (LHAs) to designate geographical areas to be licensed, provided certain conditions are met. The power does not permit LHAs to require licensing of houses that have been exempted under the Selective Licensing of Houses (Specified exemptions) (England) Order 2006, or a property that is subject to a tenancy or licence granted by a body which is registered as a social landlord under Part 1 of the Housing Act 1996. Furthermore, a local housing authority will need to apply to the Secretary of State for confirmation of any scheme which covers more than 20% of their geographical area, or that would affect more than 20% of privately rented homes in the local authority area. Prior to the introduction of a licensing scheme, there must be a consultation with local residents, landlords and tenants and any others likely to be affected. If the selective licensing scheme is adopted then landlords who rent out properties in that area will be required to obtain a licence from the local authority for each of their properties. Failure to do so, or if they fail to achieve minimum standards the authority can take enforcement action. More details can be found in the DCLG document “Selective licensing in the private rented sector: A guide for local authorities”⁵².

The conditions which apply to Selective licensing areas are split into 3 “sets”, each of which has several conditions. Any of the three sets needs to be met in order for a local authority to designate a selective licensing area. The requirements of each of the sets are summarised as follows:

Set one:

- The area has low housing demand (or is likely to become such an area)
- Selective licensing will contribute to the improvement of the social or economic conditions in the area, when combined with other measures taken in the area

Set two:

- The area has a significant and persistent problem cause by anti-social behaviour
- Some or all of the private landlords letting dwellings in the area are failing to take appropriate action to combat the problem
- Selective licensing will lead to a reduction/elimination of the problem, when combined with other measures taken in the area

⁵⁰ <http://researchbriefings.files.parliament.uk/documents/SN04634/SN04634.pdf>

⁵¹ http://www.legislation.gov.uk/ukpga/2004/34/pdfs/ukpga_20040034_en.pdf

⁵²

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418551/150327_Guidance_on_selective_licensing_applications_FINAL_updated_isbn.pdf



Set three:

- The area has a high proportion of properties in the private rented sector, compared to the total number of properties in the area – this is suggested as being the national average as reported in the latest available English Housing Survey (currently 20%)⁵²
- These properties are occupied under either assured tenancies or licences to occupy
- One or more of the following conditions is satisfied:
 - **Housing conditions** – the authority has reviewed housing conditions in the area and that it considers it would be appropriate for a significant number of properties in the area to be inspected to determine presence of category 1 or 2 hazards, or the authority intends to carry out inspections with a view to carrying out enforcement action; selective licensing, combined with other measures, will contribute to an improvement in general housing conditions in the area.
 - **Migration** – the area has recently or is experiencing high levels of migration, a significant number of properties in the area are occupied by migrants; selective licensing will contribute to an improvement in the social or economic conditions in the area and ensuring that properties are properly managed and overcrowding is prevented.
 - **Deprivation** – the area has high levels of deprivation which affects a significant number of the occupiers; selective licensing, combined with other measures, will contribute to a reduction in deprivation levels in the area. To determine if an area has high levels of deprivation the authority can look at: employment status, average income, health, access to education, training and services, housing conditions, physical environment, crime levels.
 - **Crime** – the area has high levels of crime which affects those living in the area; selective licensing, combined with other measures, will contribute to a reduction in crime levels in the area for the benefit of those living in the area.

5.3.1 Indicators for investigation

As detailed, there are various criteria which can be used to designate areas for Selective licensing. The criteria which were investigated in more detail are:

- The proportion of dwellings that are privately rented
- Information on property condition - proportion of dwellings:
 - With a category 1 Housing Health and Safety Rating System (HHSRS) hazard – this is the presence of one or more of the 29 hazards covered by the HHSRS⁵³
 - With a category 1 HHSRS hazard for excess cold

⁵³ For a full list of hazards see - Housing Health and Safety Rating System Operating Guidance, ODPM, 2006 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf



- With a category 1 HHSRS fall hazard – these include those fall hazards where the vulnerable person is 60 or over i.e. the presence of falls associated with baths, falling on the level and falling on stairs
 - In disrepair – this is based on the former Decent Homes Standard criteria for disrepair which states that a dwelling fails this criterion if it is not found to be in a reasonable state of repair. This is assessed by looking at the age of the dwellings and the condition of a range of building components including walls, roofs, windows, doors, electrics and heating systems)
- Information on deprivation based on the 2015 Indices of Multiple Deprivation (IMD)⁵⁴
 - Information on migration

⁵⁴ <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015>



5.3.2 Potential areas for investigation within Sandwell – selective licensing

Areas with considerably higher levels of private rented stock in Sandwell, compared to the national average, were identified. The percentage of private rented stock for Sandwell is 26%.

Table 14 shows that there are 15 wards in Sandwell with private rented proportions in excess of the national average (20%)⁵⁵ depicted by the dashed line.

Two wards have considerably higher proportions of private rented dwellings – Soho and Victoria at 50% and Abbey at 46%. **Map 17** shows the distribution of the wards with over 20% of dwellings in the private rented sector.

Therefore, the specific areas for investigation were defined as follows:

Wards with PRS in excess of 35%:

- Soho and Victoria
- Abbey
- West Bromwich Central

Wards with PRS between 25-35%:

- St. Pauls
- Oldbury
- Smethwick
- Greet Green and Lyng
- Tipton Green
- Langleigh

Wards with PRS between 20-25% (above national average of 20%):

- Hateley Heath
- Cradley Heath and Old Hill
- Great Bridge
- Wednesbury North
- Wednesbury South
- Blackheath

Map 17 shows the distribution of the above wards.

⁵⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/595785/2015-16_EHS_Headline_Report.pdf

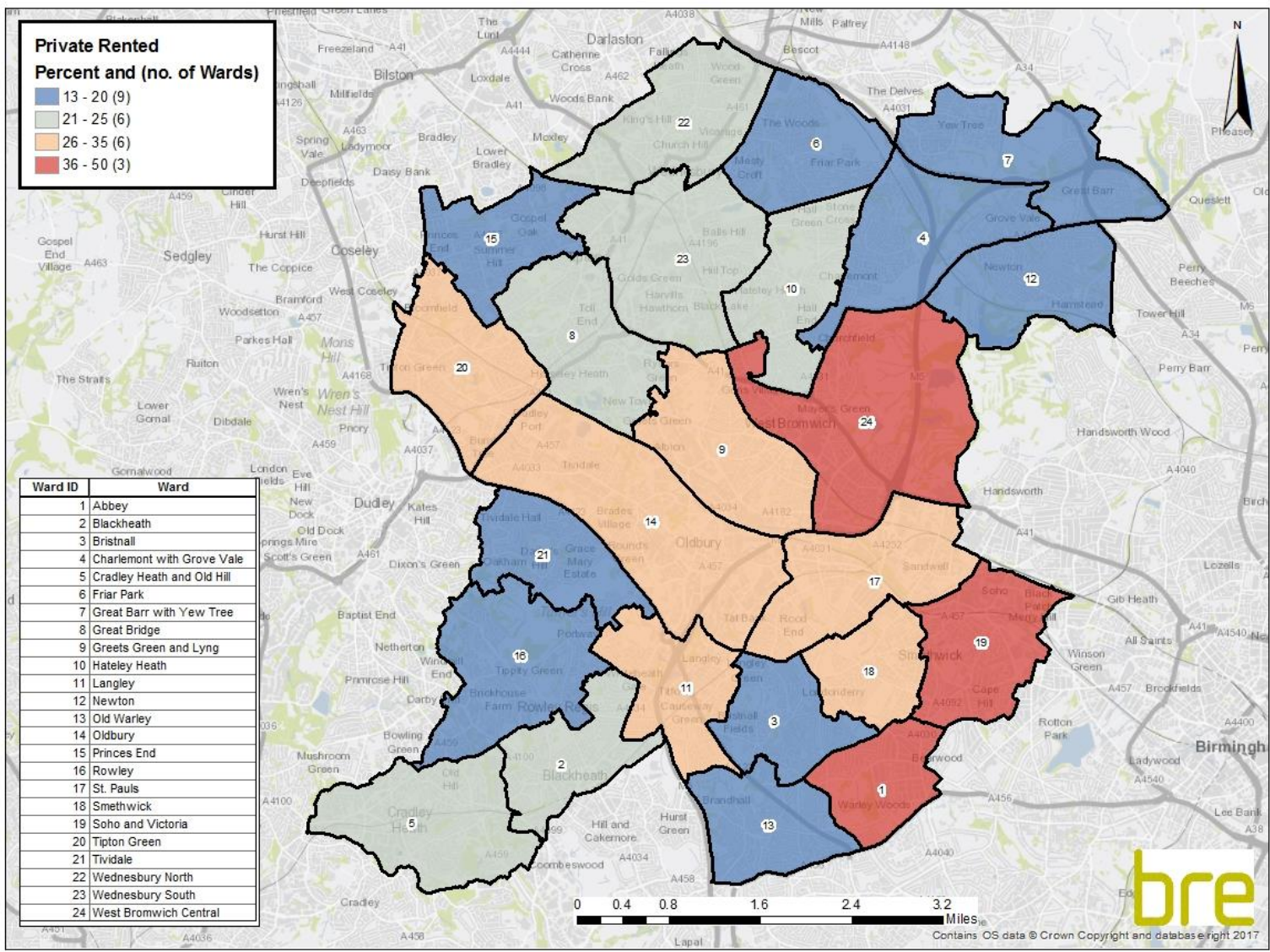


Table 14: Count and percentage of estimated privately rented dwellings across Sandwell (sorted by descending private rented proportion)

Ward	Dwellings - all stock	Dwellings - private rented	
		Count	Percentage
Soho and Victoria	6,503	3,283	50%
Abbey	5,486	2,549	46%
West Bromwich Central	6,153	2,295	37%
St. Pauls	5,180	1,810	35%
Oldbury	6,089	2,111	35%
Smethwick	5,518	1,843	33%
Greets Green and Lyng	5,328	1,663	31%
Tipton Green	6,119	1,572	26%
Langley	5,870	1,478	25%
Hateley Heath	5,698	1,362	24%
Cradley Heath and Old Hill	6,174	1,453	24%
Great Bridge	5,653	1,276	23%
Wednesbury North	5,162	1,164	23%
Wednesbury South	5,795	1,263	22%
Blackheath	5,526	1,130	20%
Rowley	5,299	1,003	19%
Old Warley	5,294	1,000	19%
Great Barr with Yew Tree	5,375	987	18%
Charlemont with Grove Vale	5,396	988	18%
Bristnall	5,055	880	17%
Newton	5,042	864	17%
Princes End	5,634	938	17%
Tividale	5,240	822	16%
Friar Park	5,091	652	13%



Map 17: Distribution of estimated percentage of private rented dwellings across Sandwell (over 20%) – based on HSCD



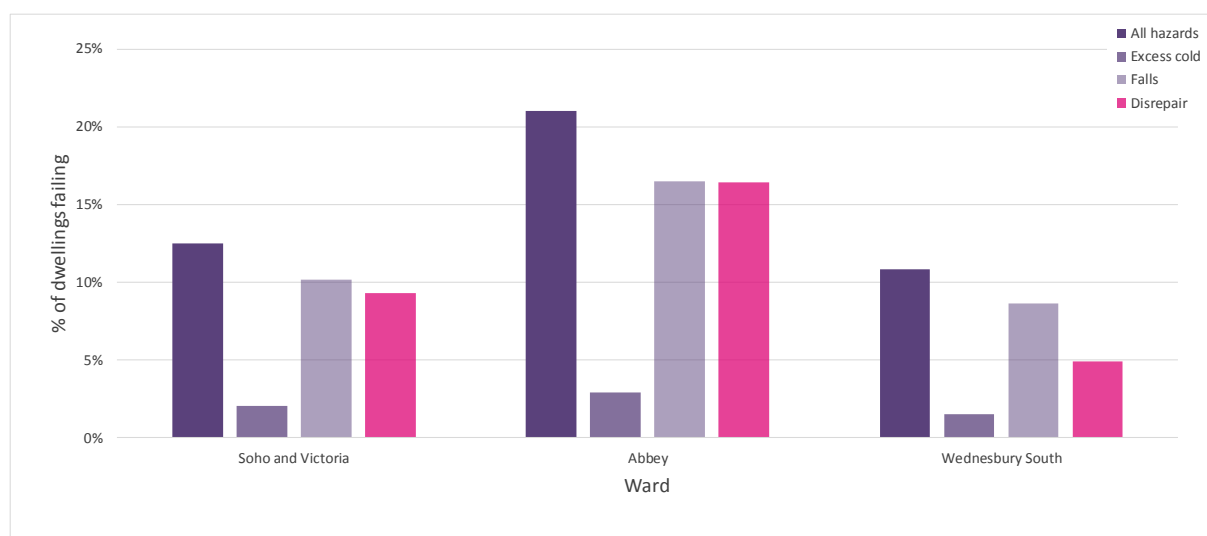


5.3.2.1 Information on property condition

Information on property condition is based on the presence of a category 1 HHSRS hazard (one or more of the 29 covered by the HHSRS⁵⁶), a category 1 hazard for excess cold and a category 1 hazard for falls (these are fall hazards where the vulnerable person is over 60 and includes falls associated with baths, falling on the level and falling on stairs). Property condition also includes proportions of dwellings in disrepair. This is based on the former Decent Homes Standard and assesses the age of the dwelling and the condition of a range of building components – e.g. walls, roofs, electrics and heating systems.

Figure 12 to Figure 14 compare these property condition indicators across the three groups of wards with over 20% of the stock being private rented. For wards with over 35% of the stock being private rented, Abbey ward stands out as also having the highest levels of all hazards (21%), fall hazards (17%) and dwellings in disrepair (16%). Of the six wards where 25-35% of the stock is estimated to be private rented, Smethwick has the highest rates of all hazards (18%), falls hazards (15%) and dwellings in disrepair (12%). For the six wards with 20-25% private rented stock, Wednesbury North has the highest rates of all hazards (15%), falls hazards (11%) and dwellings in disrepair (9%).

Figure 12: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector over 35%



⁵⁶ For a full list of hazards see - Housing Health and Safety Rating System Operating Guidance, ODPM, 2006 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf



Figure 13: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector 25 -35%

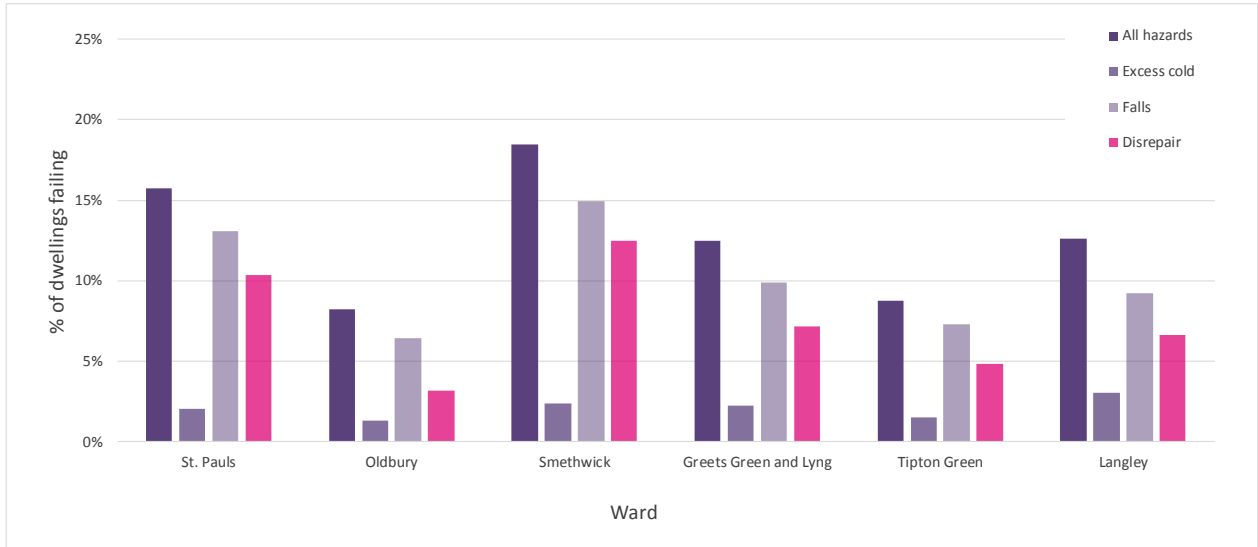
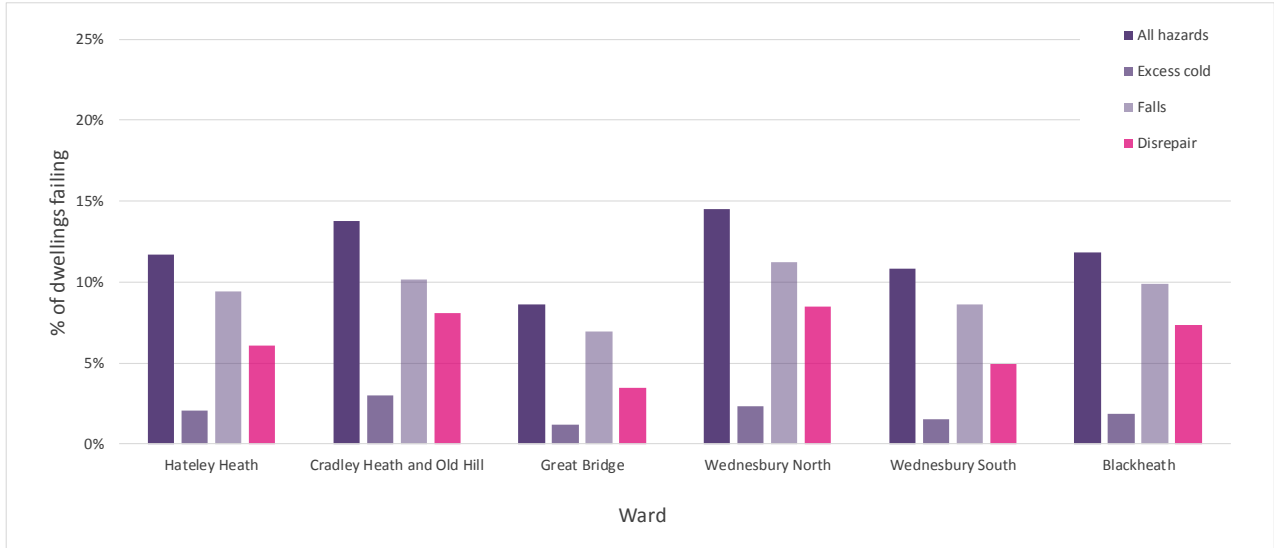


Figure 14: Comparison of percentage of dwellings failing the housing condition indicators across the Central Wards and the areas of interest for selective licensing in Sandwell – private rented sector 20 -25%





5.3.2.2 Information on deprivation

The 2015 Indices of Multiple Deprivation (IMD)⁵⁷ take account of seven “domains” to produce an overall relative measure of deprivation. The domains and their weighting are as follows:

- Income deprivation (22.5%)
- Employment deprivation (22.5%)
- Education, skills and training deprivation (13.5%)
- Health deprivation and disability (13.5%)
- Crime (9.3%)
- Barriers to housing and services (9.3%)
- Living environment deprivation (9.3%)

The indices are produced at Lower Super Output Area (LSOA) and provide statistics on relative deprivation in England by ranking every LSOA from 1 (most deprived) to 32,844 (least deprived). To determine whether an area is deprived or not for the purposes of this study, the 20% most deprived LSOAs have been used.

Map 18 shows the distribution of deprivation across Sandwell at LSOA level with the wards shown over the top (N.B. some LSOAs span more than one ward). The darker colours indicate the most deprived areas – for example, looking at the key there are 108 LSOAs which fall into the 20% most deprived areas in England.

To enable a comparison between wards the dwellings have been aggregated from dwelling level based on the LSOA and ward they are contained within. **Figure 15** shows the results of this analysis. In Soho and Victoria ward 88% of the dwellings are in the 20% of the most deprived LSOAs in England. For Hateley Heath ward the figure is 80%. At the other end of the scale, there are a number of wards with no dwellings in the 20% most deprived LSOAs - Abbey and Great Barr with Yew Tree wards.

⁵⁷ <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015>



Map 18: Distribution of deprivation in Sandwell (1 - 2 = the 10% and 20% deciles (i.e. the most deprived), 3 – 4 = the 30% and 40% deciles, etc.) (Source: DCLG, Indices of Deprivation 2015)

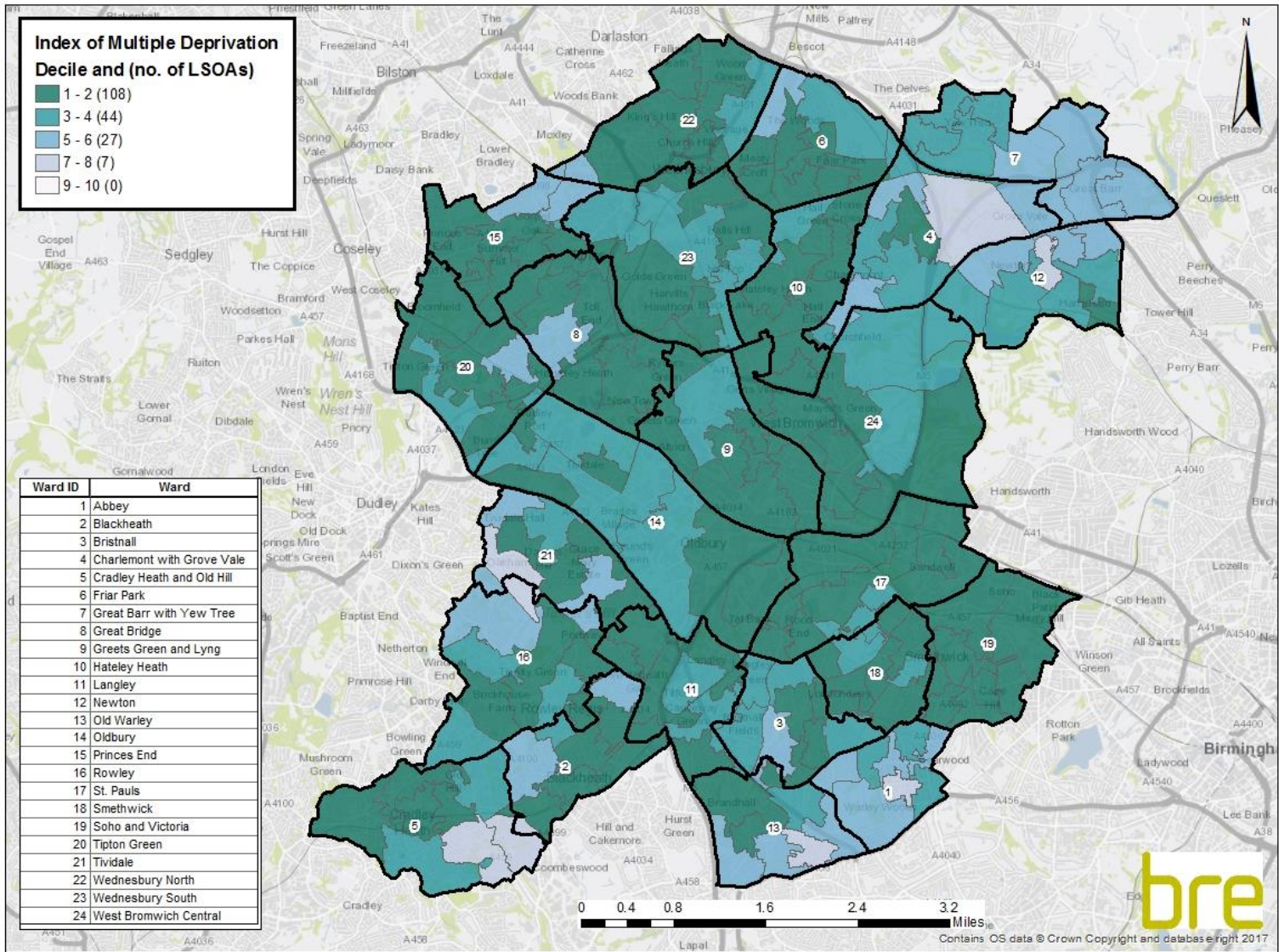
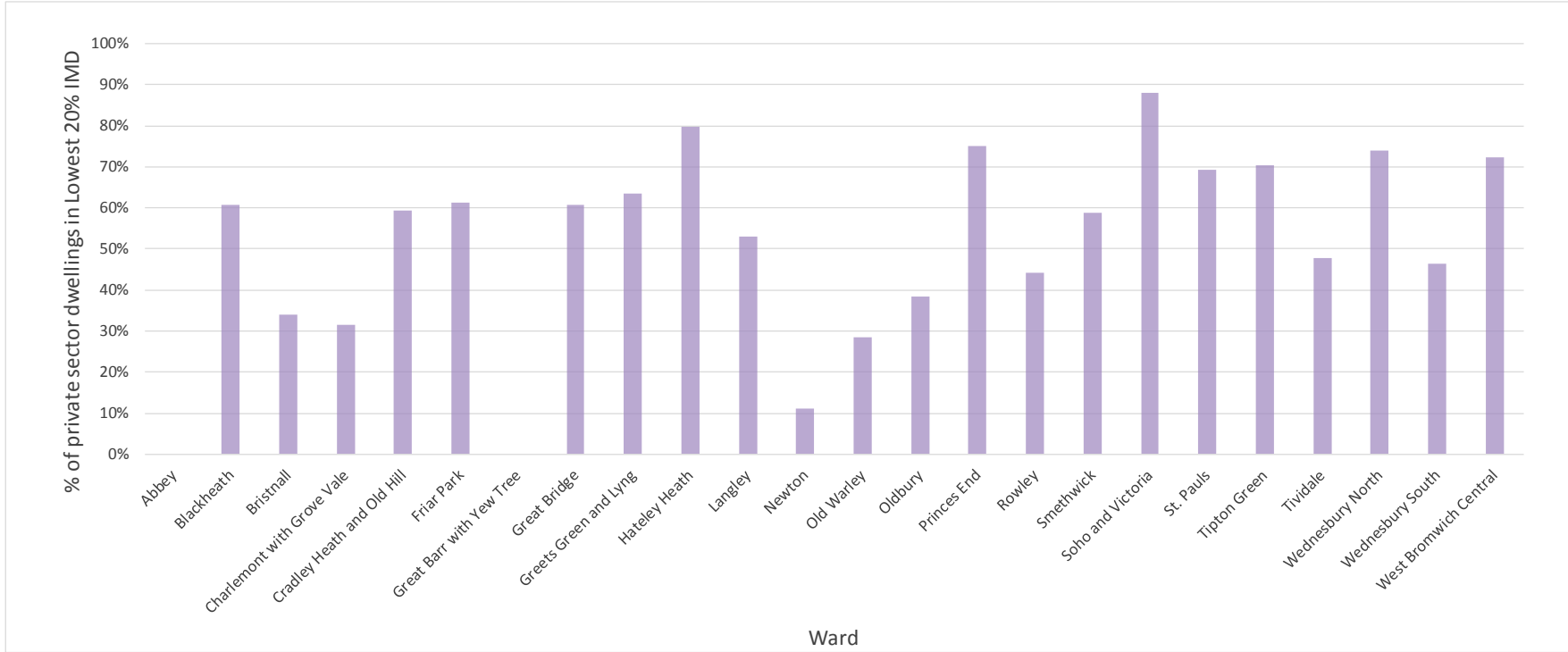




Figure 15: Percentage of privately rented dwellings in each ward in Sandwell which are in the 20% most deprived areas in England (IMD 2015)



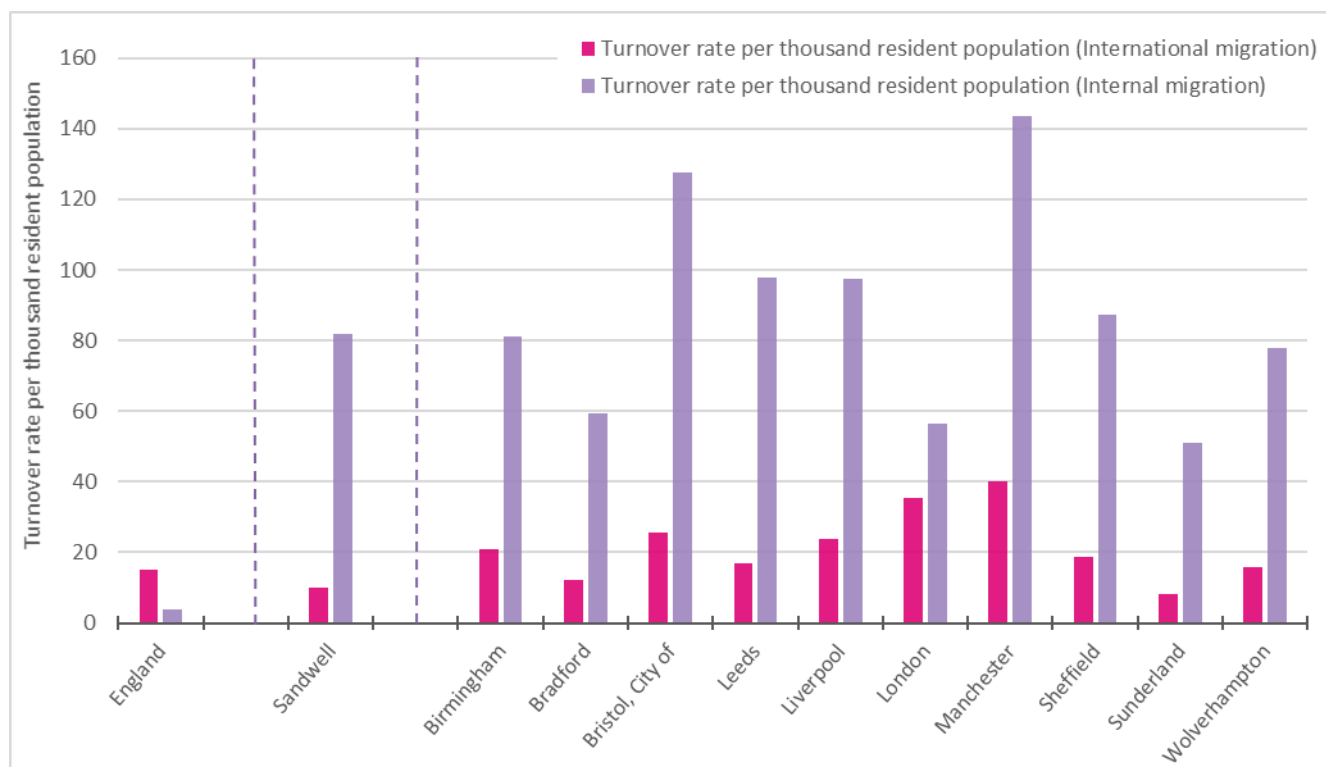
N.B. where no IMD 20 exists on the graph for an area, this is due to there being no properties within the 20% most deprived LSOAs for England.



5.3.2.3 Information on migration

Data on migration is only available at the local authority level⁵⁸, therefore migration figures for Sandwell have been compared to the 10 largest cities in England and England overall for mid-2014 to mid-2015 – see **Figure 16**. The data uses the long-term⁵⁹ international and internal (within UK) migration component of population change data to calculate the rates for turnover and is therefore split into international migration and internal migration. The data shows that for international migration the greatest turnover rate is in Manchester, followed by London and Sandwell has a relatively low level compared to the 10 largest cities in England. Looking at internal migration, Sandwell has the sixth highest level and is slightly higher than large cities such as Birmingham and Wolverhampton (the highest level overall can be seen in Manchester).

Figure 16: Comparison of migration figures (international and internal) for Sandwell compare to the 10 largest cities in England and England overall for mid-2014 to mid-2015 (Source: ONS⁵⁸)



58

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/migrationwithintheuk/datasets/localareamigrationindicatorsunitedkingdom>

59 A person who moves from their country of usual residence for a period of at least 12 months -

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/methodologies/migrationstatisticsfirsttimeuserguide/glossaryandlistofproducts>



5.3.3 In-depth analysis on specific areas

5.3.3.1 Wards of interest

Areas with proportions of private rented stock above the national average (20%) were examined more closely. **Map 19** shows the levels of HHSRS category 1 combined with the worst 20% Index of Multiple Deprivation. Nationally the average proportion of HHSRS cat. 1 hazard is 17% for the private rented sector⁵⁵.

Focussing on the darkest colours on the map (i.e. those meeting higher than national average private rented proportions and higher than national average HHSRS cat. 1 hazards), combined with the LSOA areas of deprivation, there are parts of wards that may merit further investigation; pockets to the north east of Wednesbury South ward and across parts of Wednesbury North ward.

Map 20 to Map 22 illustrate the distributions of the excess cold, falls and disrepair hazards across Sandwell combined with the worst 20% Index of Multiple Deprivation. Pockets of higher rates of excess cold and deprivation can be seen in Wednesbury North and Wednesbury South, higher rates of falls hazards and deprivation in Wednesbury North, Smethwick, and Greets Green and Lyng, and higher levels of disrepair and deprivation in Wednesbury North, Soho and Victoria and Greets Green and Lyng.

Table 15 provides the figures behind the maps. While Abbey ward has the highest estimated rate of private rented sector category 1 hazard (21%) and disrepair (16%), it has lower levels of deprivation. Soho and Victoria ward has the highest proportion of private rented dwellings in deprivation, but slightly lower rates of category 1 hazard than the Sandwell private rented sector average (12% compared with 13%), although disrepair is higher than the Sandwell average (9% compared with 7.5%). Of the wards with higher than national average proportions for private rented stock, St Pauls, Smethwick, Langley, Cradley Heath and Old Hill, and Wednesbury North wards with higher than Sandwell average for category 1 hazards and contain significant proportions of private rented properties in deprived areas.



Table 15: Number and percentage of dwellings for each of the HHSRS indicators, disrepair and the most deprived 20% of LSOAs in England (IMD 2015) by ward – *private rented*

Ward	Dwellings - private rented stock	HHSRS category 1 hazards			Disrepair	Index of Multiple Deprivation (20%)
		All hazards	Excess cold	Fall hazards		
Abbey	2,549	535 (21%)	74 (3%)	421 (17%)	418 (16%)	0 (0%)
Blackheath	1,130	134 (12%)	21 (2%)	112 (10%)	83 (7%)	685 (61%)
Bristnall	880	128 (15%)	19 (2%)	103 (12%)	74 (8%)	298 (34%)
Charlemont with Grove Vale	988	115 (12%)	31 (3%)	79 (8%)	37 (4%)	311 (31%)
Cradley Heath and Old Hill	1,453	200 (14%)	44 (3%)	148 (10%)	117 (8%)	861 (59%)
Friar Park	652	85 (13%)	11 (2%)	73 (11%)	42 (6%)	400 (61%)
Great Barr with Yew Tree	987	90 (9%)	21 (2%)	65 (7%)	26 (3%)	0 (0%)
Great Bridge	1,276	110 (9%)	15 (1%)	89 (7%)	44 (3%)	774 (61%)
Greets Green and Lyng	1,663	207 (12%)	37 (2%)	164 (10%)	119 (7%)	1,054 (63%)
Hateley Heath	1,362	159 (12%)	28 (2%)	128 (9%)	83 (6%)	1,086 (80%)
Langley	1,478	186 (13%)	45 (3%)	136 (9%)	98 (7%)	782 (53%)
Newton	864	100 (12%)	15 (2%)	82 (9%)	43 (5%)	97 (11%)
Old Warley	1,000	125 (13%)	17 (2%)	104 (10%)	76 (8%)	284 (28%)
Oldbury	2,111	173 (8%)	28 (1%)	136 (6%)	66 (3%)	810 (38%)
Princes End	938	84 (9%)	12 (1%)	70 (7%)	36 (4%)	704 (75%)
Rowley	1,003	114 (11%)	21 (2%)	91 (9%)	46 (5%)	444 (44%)
Smethwick	1,843	340 (18%)	44 (2%)	275 (15%)	230 (12%)	1,082 (59%)
Soho and Victoria	3,283	410 (12%)	68 (2%)	333 (10%)	305 (9%)	2,889 (88%)

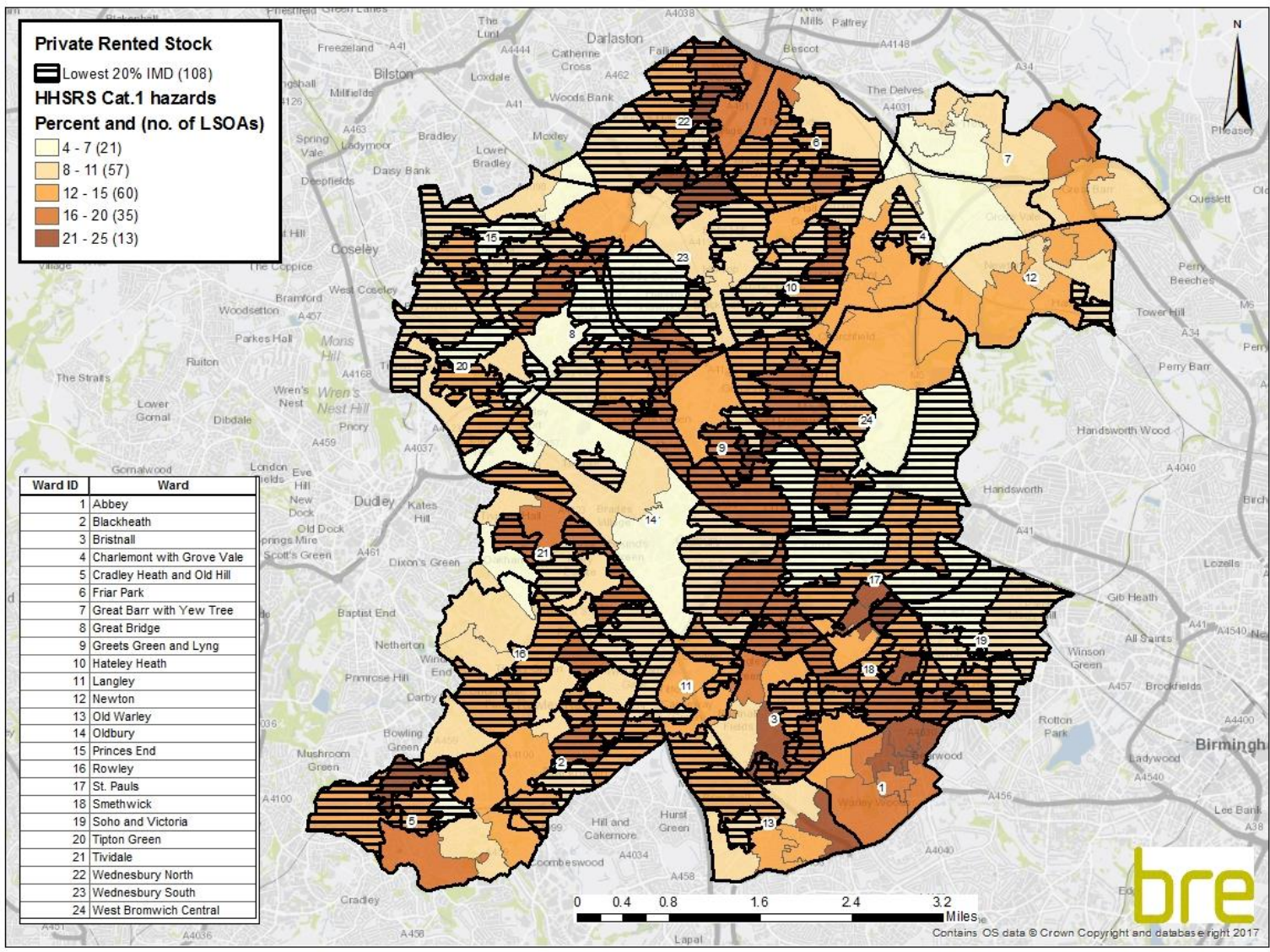


Table 15 cont: Number and percentage of dwellings for each of the HHSRS indicators, disrepair and the most deprived 20% of LSOAs in England (IMD 2015) by ward – *private rented*

Ward	Dwellings - private rented stock	HHSRS category 1 hazards			Disrepair	Index of Multiple Deprivation (20%)
		All hazards	Excess cold	Fall hazards		
St. Pauls	1,810	285 (16%)	37 (2%)	237 (13%)	187 (10%)	1,254 (69%)
Tipton Green	1,572	137 (9%)	24 (2%)	115 (7%)	76 (5%)	1,108 (70%)
Tividale	822	115 (14%)	33 (4%)	76 (9%)	41 (5%)	393 (48%)
Wednesbury North	1,164	169 (15%)	27 (2%)	131 (11%)	99 (9%)	861 (74%)
Wednesbury South	1,263	137 (11%)	19 (2%)	109 (9%)	62 (5%)	586 (46%)
West Bromwich Central	2,295	284 (12%)	51 (2%)	214 (9%)	169 (7%)	1,662 (72%)

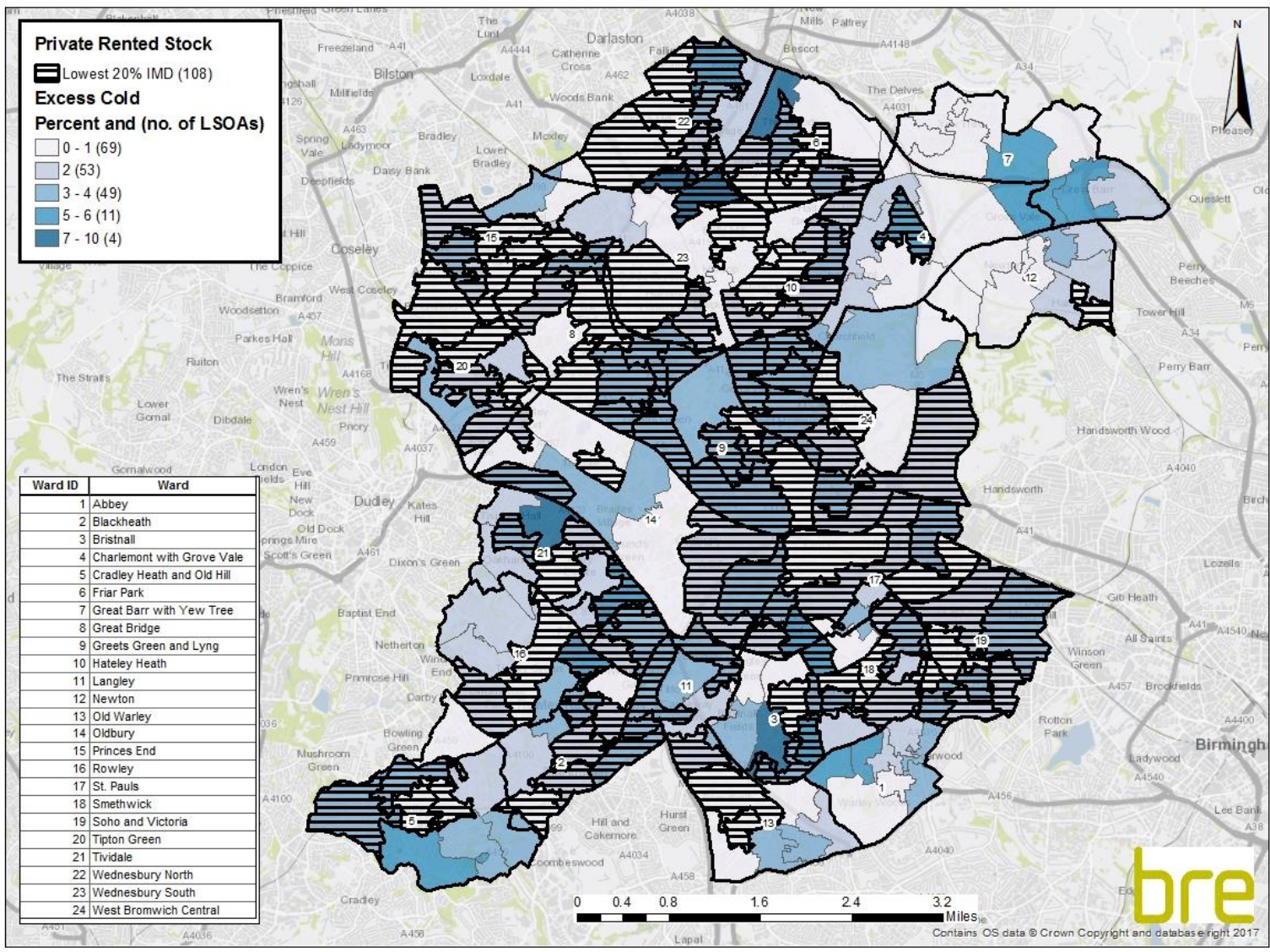


Map 19: Distribution of category 1 HHSRS hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)



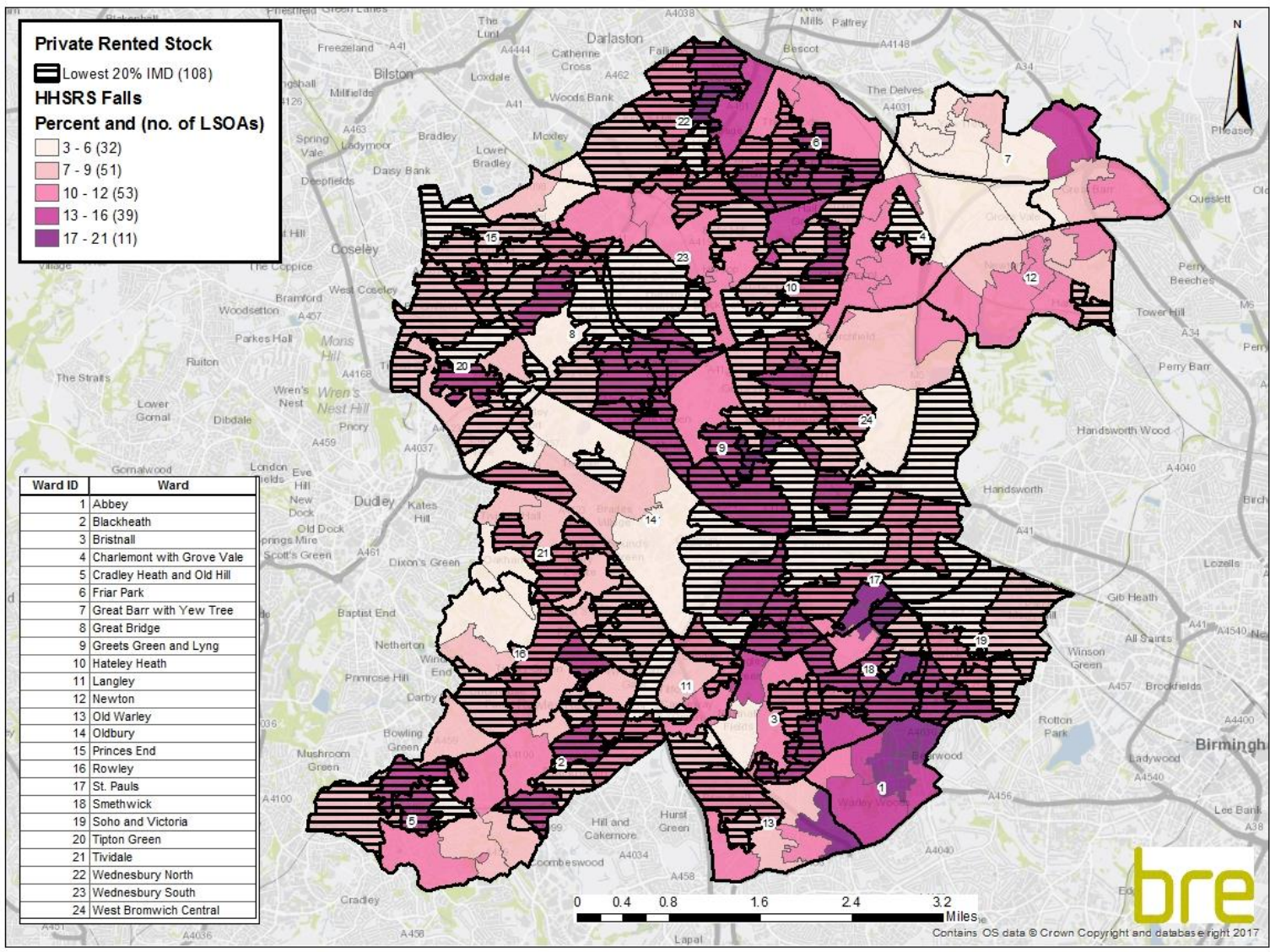


Map 20: Distribution of category 1 HHSRS Excess Cold hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)



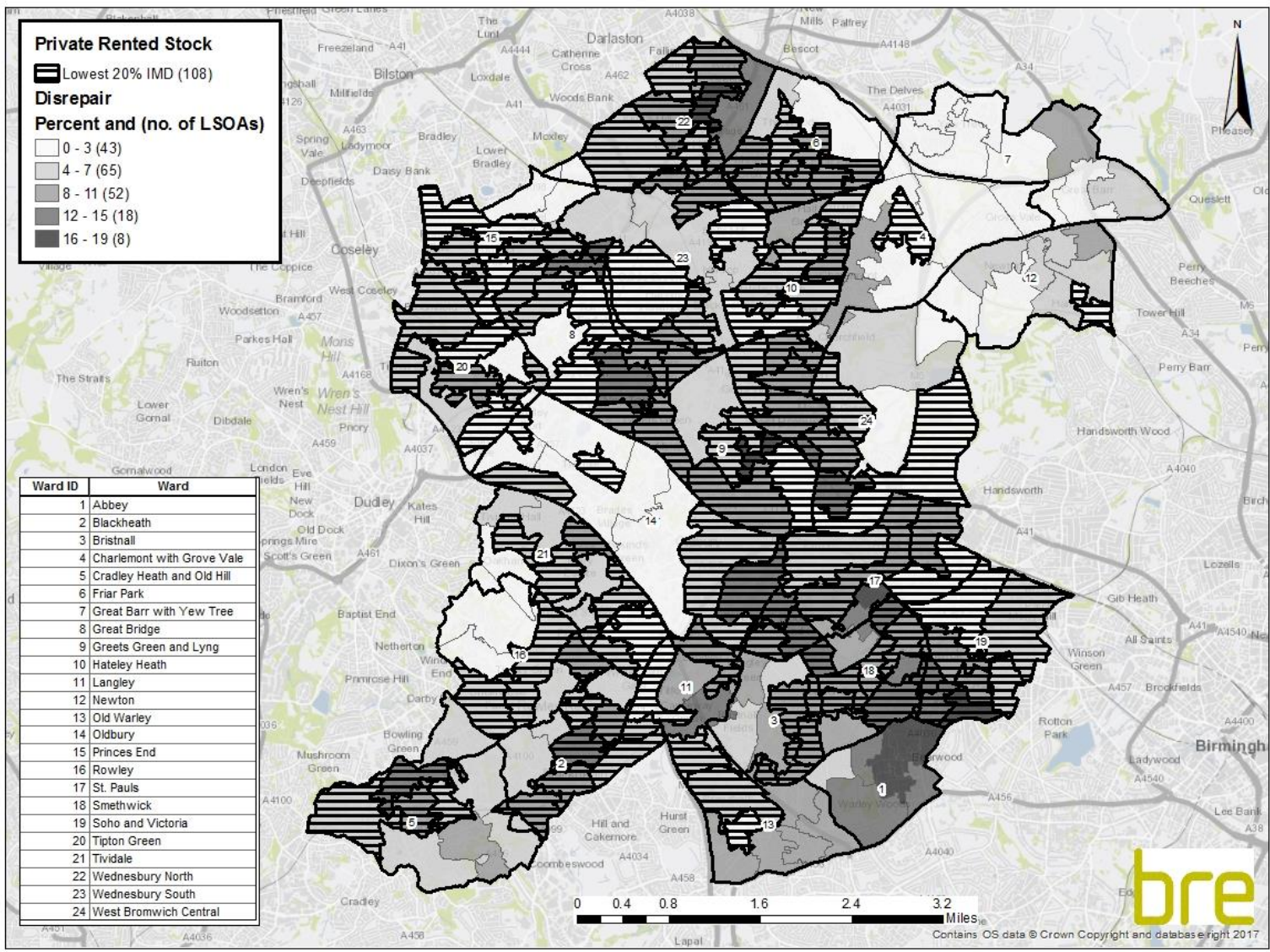


Map 21: Distribution of category 1 HHSRS Fall hazards where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)





Map 22: Distribution of Disrepair where proportions of private rented stock is above national average (20%), with areas in the most deprived 20% of LSOAs in England highlighted (source: DCLG, Indices of Deprivation 2015)





6 Conclusion and recommendations

6.1 Conclusion

Sandwell Metropolitan Borough Council commissioned BRE to undertake a series of modelling exercises on their housing stock to provide an integrated housing stock condition database, making use of available local data sources (Local Land and Property Gazetteer (LLPG), HMO, tenure and benefits data) plus the EPC data which have been integrated into BRE's standard housing stock condition database. The integration of this data source serves to further increase the accuracy of the models by removing the need to rely on imputed data for the 61,495 cases where EPC data is available, and instead using observed data from the surveys. This leads to more accurate SimpleSAP ratings, more accurate excess cold data (and therefore HHSRS data), and more accurate fuel poverty data for around 46.0% of the stock in Sandwell.

This report describes the modelling work and provides details of the results obtained from the dwelling level model and database. The housing stock condition database is also provided to the council to enable them to obtain specific information whenever required. This database is now in an online format.

The integrated stock models and database provide the council with dwelling level information, focussing on private sector housing, for the following:

- The percentage of dwellings meeting each of the key indicators for Sandwell overall and broken down by tenure and then mapped by COA (private sector stock only)
- Information relating to LAHS reporting for the private sector stock - category 1 hazards and HMOs as well as information on EPC ratings
- The council also requested additional analysis of data on the private rented stock to investigate the potential for licensing schemes in this sector

Some of the key findings of this report are as follows:

- The performance of the housing stock in Sandwell compared to the EHS England average is mixed with Sandwell performing slightly better for all hazards and excess cold, but worse for the other indicators particularly low income households (33% compared to 27%).
- The private rented sector generally performs worse than other tenures (except for fuel poverty 10% definition and low income households where the social sector is worse).
- 3.8% of dwellings in the private rented sector are estimated to have an EPC below band E. Under proposed legislation these properties would not be eligible to be rented out after 2018.

Such information will facilitate the decision making process for targeting resources to improve the condition of housing and to prevent ill health resulting from poor housing conditions. Furthermore, the results of this project provide Sandwell with information which will assist in housing policy and strategy development whether these are inspired locally, arise from obligations under the Housing Act 2004 or as responses to government initiatives such as MHCLG's Housing Strategy Policy and ECO.



6.2 Recommendations

Programmes designed to tackle disrepair for example group repair schemes, regeneration or enforcement interventions could be considered with a focus on areas of greatest disrepair such as Abbey ward with 15% disrepair and 19% containing category 1 hazards, or Smethwick ward with an estimated 11% of private sector homes in disrepair and 18% with category 1 hazards. These findings could be combined with local intelligence to help identify areas for targeting assistance for physical improvements to private sector stock and the environment. Furthermore, programmes aimed at increasing household income through job creation, benefit entitlement checks and other initiatives should also be considered, with a particular focus on areas containing high proportions of low income households like Soho and Victoria (33%), Greets Green and Lyng (30%) and Smethwick (28%).

The use of additional local data in this project has enhanced the housing stock models and Housing Stock Condition Database (HSCD). The addition of any further local data, were it to become available, would potentially further enhance the models and database.

Examples of such data are:

- **Local repair schemes**

Data from any local repair schemes, including the use of repair grants, could be used to enhance the Disrepair Model.

- **Local energy improvement schemes**

Any local schemes to improve the energy efficiency of dwellings, including national schemes for which local data has been made available to Sandwell Council, could be used to further enhance the energy models (SimpleSAP, excess cold, fuel poverty).

Furthermore, it would be possible to commission BRE to carry out an analysis of the condition of the housing stock and its health impact, through a Health Impact Assessment (HIA). The results of this would be provided in a separate report which provides a cost benefit analysis of mitigating Housing Health and Safety hazards within the stock.

6.3 HMO licensing conclusions

The main results of the analysis are as follows:

Additional HMO licensing

The data covering HHSRS hazards in the private rented stock shows that HMOs have higher rates of hazards than non-HMOs. In particular 16% of HMOs contain category 1 HHSRS hazards compared to 12% in non-HMOs.

In terms of concentration of HMOs, Soho and Victoria, Abbey, West Bromwich Central and Smethwick wards have the highest numbers. Of these, the highest rates of category 1 hazard are in Smethwick (20%), and disrepair in Abbey (18%).



Selective licensing

Overall the percentage of dwellings in the private rented sector across Sandwell is 26% compared to the national average of 20%⁶⁰. A large proportion of wards (15 out of 24 wards) in Sandwell have a percentage of private rented sector dwellings in excess of the national average.

Dwelling condition in the private rented sector

The proportion of HHSRS category 1 hazards in the private rented stock for the areas covered by this report is as follows:

- The 3 wards with greater than 35% PRS - 15%
- The 6 wards with 25-35% PRS- 13%
- The 6 wards with 20-25% PRS – 12%
- Sandwell overall – 13%

The DCLG document “Selective licensing in the private rented sector: A guide for local authorities”⁶¹ states that to meet the criteria relating to dwelling condition for selective licensing, the local authority needs to consider that a ‘significant’ number of properties in the private rented sector need to be inspected to determine whether any of them contain category 1 or 2 hazards. In this case ‘significant’ is said to be more than a small number but it does not need to be a majority.

Given the numbers of category 1 hazards modelled in the areas specified, it is reasonable to assume that there will also be a significant percentage of high category 2 hazards present. The data in this report shows that there are therefore likely to be a significant number of properties in the areas specified that would require inspection to determine whether category 1 or 2 hazards are present.

It is stated in the DCLG document referenced above that any selective licensing scheme aiming to improve poor property conditions should “state what action the authority intends to take under Part 1 of the Act if it identifies there are serious deficiencies with properties, including the timescale for taking the appropriate action and its enforcement plan for noncompliance with improvement notices or prohibition orders it serves.”

Deprivation

56% of private rented dwellings in the 3 wards with excess of 35% private rented stock, 58% in the 6 wards with 25-35% private rented stock, and 63% in the 6 wards with 20-25% private rented stock are located in the 20% most deprived LSOAs in England. This is more than the figure for Sandwell as a whole (54%).

⁶⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/595785/2015-16_EHS_Headline_Report.pdf

⁶¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418551/150327_Guidance_on_selective_licensing_applications_FINAL_updated_isbn.pdf



As stated in the DCLG document “Selective licensing in the private rented sector: A guide for local authorities”⁶², should the local authority proceed with a selective licensing scheme under this condition it should “state what actions the local housing authority intends to take to combat housing problems associated with the deprivation; including, for example, through licence conditions to ensure properties are managed properly, and can contribute to an improvement in the well-being of the occupants and wider community.”

The guidance goes on to state “The outcome of the designation should be (together with other measures) a reduction of the problems with housing in the private rented sector contributing to the high level of deprivation.”

In depth analysis on specific areas

The in depth analysis carried out shows that there are significant levels of HHSRS hazards and deprivation in a number of areas which could be considered targets for discretionary licensing.

62

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418551/150327_Guidance_on_selective_licensing_applications_FINAL_updated_isbn.pdf



Appendix A Definitions of the key indicators

1. House condition indicators

a. The presence of a category 1 hazard under the Housing Health and Safety Rating System (HHSRS) – reflecting both condition and thermal efficiency

Homes posing a category 1 hazard under the HHSRS – the system includes 29 hazards in the home categorised into category 1 – band A to C (serious) or category 2 – band D onwards (other) based on a weighted evaluation tool. Note that this includes the hazard of excess cold which is also included as one of the energy efficiency indicators.

The 29 hazards are:

1 Damp and mould growth	16 Food safety
2 Excess cold	17 Personal hygiene, Sanitation and Drainage
3 Excess heat	18 Water supply
4 Asbestos	19 Falls associated with baths etc.
5 Biocides	20 Falling on level surfaces etc.
6 Carbon Monoxide and fuel combustion products	21 Falling on stairs etc.
7 Lead	22 Falling between levels
8 Radiation	23 Electrical hazards
9 Uncombusted fuel gas	24 Fire
10 Volatile Organic Compounds	25 Flames, hot surfaces etc.
11 Crowding and space	26 Collision and entrapment
12 Entry by intruders	27 Explosions
13 Lighting	28 Position and operability of amenities etc.
14 Noise	29 Structural collapse and falling elements
15 Domestic hygiene, Pests and Refuse	

b. The presence of a category 1 hazard for falls (includes “falls associated with baths”, “falling on the level” and “falling on stairs”)

The HHSRS Falls Model includes the 3 different falls hazards where the vulnerable person is over 60 as listed above.

c. Dwellings in disrepair (based on the former Decent Homes Standard criteria for Disrepair)

The previous Decent Homes Standard states that a dwelling fails this criterion if it is not found to be in a reasonable state of repair. This is assessed by looking at the age of the dwelling and the condition of a range of building components including walls, roofs, windows, doors, electrics and heating systems).



2. Energy efficiency indicators:

a. The presence of a category 1 hazard for excess cold (using SAP ratings as a proxy measure in the same manner as the English House Condition Survey)

This hazard looks at households where there is a threat to health arising from sub-optimal indoor temperatures. The HHSRS assessment is based on the most low income group for this hazard – persons aged 65 years or over (note that the assessment requires the hazard to be present and potentially affect a person in the low income age group should they occupy that dwelling. The assessment does not take account of the age of the person actually occupying that dwelling at that particular point in time).

The English Housing Survey (EHS) does not measure the actual temperatures achieved in each dwelling and therefore the presence of this hazard is measured by using the SAP rating as a proxy. Dwellings with a SAP rating of less than 33.52 (SAP 2012 methodology) are considered to be suffering from a category 1 excess cold hazard.

b. An estimate of the SAP rating which, to emphasise its origin from a reduced set of input variables, is referred to as “SimpleSAP”

The Standard Assessment Procedure (SAP) is the UK Government’s standard methodology for home energy cost ratings. SAP ratings allow comparisons of energy efficiency to be made, and can show the likely improvements to a dwelling in terms of energy use. The Building Regulations require a SAP assessment to be carried out for all new dwellings and conversions. Local authorities, housing associations, and other landlords also use SAP ratings to estimate the energy efficiency of existing housing. The version on which the Average SAP rating model is based is SAP 2012.

The SAP ratings give a measure of the annual unit energy cost of space and water heating for the dwelling under a standard regime, assuming specific heating patterns and room temperatures. The fuel prices used are the same as those specified in SAP 2012. The SAP takes into account a range of factors that contribute to energy efficiency, which include:

- Thermal insulation of the building fabric
- The shape and exposed surfaces of the dwelling
- Efficiency and control of the heating system
- The fuel used for space and water heating
- Ventilation and solar gain characteristics of the dwelling

3. Household vulnerability indicators:

a. Fuel poverty - 10% definition

This definition states that a household is said to be in fuel poverty if it spends more than 10% of its income on fuel to maintain an adequate level of warmth (usually defined as 21°C for the main living area, and 18°C for other occupied rooms). This broad definition of fuel costs also includes modelled spending on water heating, lights, appliances and cooking.

The fuel poverty ratio is defined as:

$$\text{Fuel poverty ratio} = \frac{\text{Fuel costs (usage * price)}}{\text{Full income}}$$



If this ratio is greater than 0.1 then the household is in fuel poverty.

The definition of full income is the official headline figure and in addition to the basic income measure, it includes income related directly to housing (i.e. Housing Benefit, Income Support for Mortgage Interest (ISMI), Mortgage Payment Protection Insurance (MPPI), Council Tax reduction).

Fuel costs are modelled, rather than based on actual spending. They are calculated by combining the fuel requirements of the household with the corresponding fuel prices. The key goal in the modelling is to ensure that the household achieves the adequate level of warmth set out in the definition of fuel poverty whilst also meeting their other domestic fuel requirements.

b. Fuel poverty - Low Income High Costs definition

The government has recently set out a new definition of fuel poverty which it intends to adopt under the Low Income High Costs (LIHC) framework⁶³. Under the new definition, a household is said to be in fuel poverty if:

- They have required fuel costs that are above average (the national median level)
- Were they to spend that amount they would be left with a residual income below the official poverty line

c. Dwellings occupied by a low income household

A household in receipt of:

- Income support
- Housing benefit
- Attendance allowance
- Disability living allowance
- Industrial injuries disablement benefit
- War disablement pension
- Pension credit
- Child tax credit
- Working credit

For child tax credit and working tax credit, the household is only considered a low income household if it has a relevant income of less than £15,860.

The definition also includes households in receipt of Council Tax reduction and income based Job Seekers Allowance.

⁶³ <https://www.gov.uk/government/collections/fuel-poverty-statistics>



Appendix B Methodology for the BRE Integrated Dwelling Level Housing Stock Modelling approach

This Appendix provides a more detailed description of the models which make up the overall housing stock modelling approach and feed into the housing stock condition database. The process is made up of a series of data sources and Models which, combined with various imputation and regression techniques and the application of other formulae, make up the final Housing Stock Condition Database (HSCD). The database is essentially the main output of the modelling and provides information on the key indicators and other data requirements (e.g. energy efficiency variables). An overview of the approach and a simplified flow diagram are provided in **Section 3** of this report.

The models making up the overall housing stock modelling approach are:

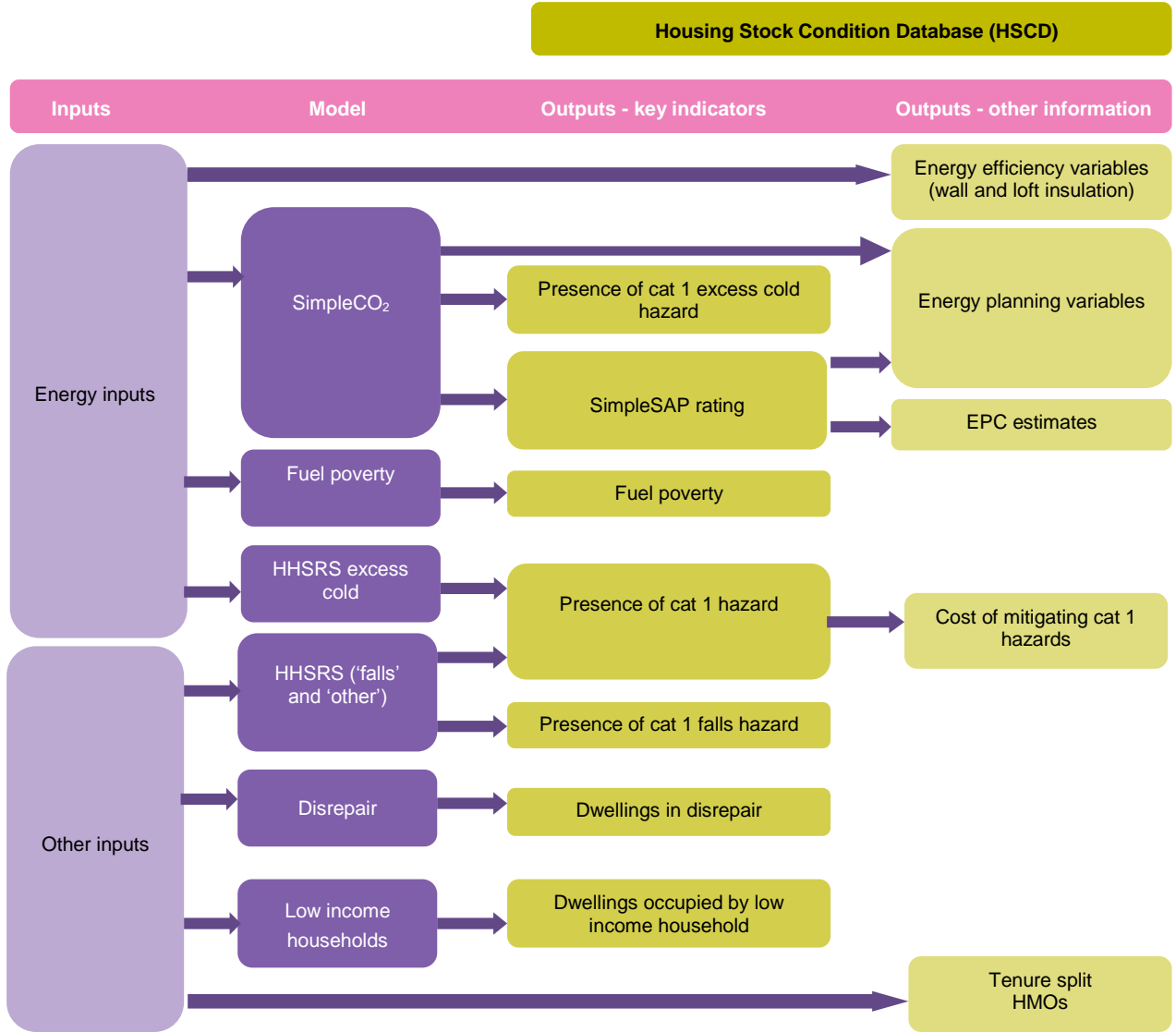
- SimpleCO₂ Model
- Fuel Poverty Model
- HHSRS (all hazards, falls hazards and excess cold) Models
- Disrepair Model
- Low Income Households Model

Figure B.1 shows the data flows for the stock modelling approach, showing which models each of the outputs in the database (split into the key indicators and other information) come from. The exception is the energy efficiency variables (if used) which come directly from the energy inputs, and the tenure and HMO data (if used) which come directly from the other inputs.

Section B.1 describes the SimpleCO₂ Model in more detail, **Section B.2** provides more information on the other four models and **Section B.3** gives details of the OS MasterMap/geomodelling approach.



Figure B.1: Simplified data flow for the housing stock modelling approach





B.1 BRE SimpleCO₂ Model

BRE have developed a variant of the BREDEM⁶⁴ software, named “SimpleCO₂”, that can calculate outputs from a reduced set of input variables. These outputs are indicative of the full BREDEM outputs and the minimum set of variables the software accepts is information on:

- Tenure
- Dwelling type
- Location of flat (if a flat)
- Dwelling age
- Number of storeys
- Number of rooms
- Loft insulation
- Level of double glazing
- Main heating type
- Boiler type (if a boiler driven system)
- Heating fuel
- Heating system
- Heating controls
- Water heating
- Hot water cylinder insulation
- Solar hot water
- PV panels
- Internal floor area

The Experian UK Consumer Dynamics Database is used as a source for some of these variables (tenure, dwelling age) and they are converted into a suitable format for the SimpleCO₂ software. The dwelling type is derived using information from OS Mastermap and the number of storeys from OS experimental height data. The remaining pieces of data are inferred from the EHS using other tenure, dwelling age and type, other Experian data (number of bedrooms), other OS data (i.e. dwelling footprint) and data from Xoserve⁶⁵ which indicates whether the dwelling is in a postcode which is on the gas network. As the characteristics of a dwelling cannot be determined through access to observed data, a technique known as cold deck imputation is undertaken. This is a process of assigning values in accordance with their known proportions in the stock. For example, this technique is used for predicting heating fuels because the Xoserve data only confirms whether a dwelling is on the gas network or not. Fuel used by dwellings not on the gas network is unknown, so in most cases this information will be assigned using probabilistic

⁶⁴ Building Research Establishment Domestic Energy Model, BRE are the original developers of this model which calculates the energy costs of a dwelling based on measures of building characteristics (assuming a standard heating and living regime). The model has a number of outputs including an estimate of the SAP rating and carbon emissions.

⁶⁵ Xoserve is jointly owned by the five major gas distribution Network companies and National Grid's gas transmission business. It provides transportation transactional services on behalf of all the major gas Network transportation companies.



methods. The process is actually far more complex e.g. dwellings with particular characteristics such as larger dwellings are more likely to be assigned with oil as a fuel than smaller dwellings.

The reason for taking this approach is to ensure that the national proportions in the data source are the same as those found in the stock nationally (as predicted by the EHS or other national survey). Whilst there is the possibility that some values assigned will be incorrect for a particular dwelling (as part of the assignment process has to be random) they ensure that examples of some of the more unusual types of dwelling that will be present in the stock are included.

Whilst this approach is an entirely sensible and commonly adopted approach to dealing with missing data in databases intended for strategic use, it raises issues where one of the intended uses is planning implementation measures. It must therefore be kept in mind at all times that the data provided represents the most likely status of the dwelling, but that the actual status may be quite different. That said, where EPC data has been used, the energy models (which use EPC data) are likely to be more accurate.

It is important to note that some variables have been entirely assigned using cold decking imputation techniques. These include presence of cavity wall insulation and thickness of loft insulation as there is no reliable database with national coverage for these variables.

The “SimpleCO₂” software takes the combination of Experian and imputed data and calculates the “SimpleSAP” rating for each dwelling in the national database. The calculated “SimpleSAP” ratings are the basis of the estimates of SAP and excess cold. How the other key variables are derived is discussed later in this Appendix.

Because the estimates of “SimpleSAP” etc. are calculated from modelled data it is not possible to guarantee the figures. They do, however, provide the best estimates that we are aware can be achieved from a data source with national coverage and ready availability. The input data could, however, be improved in its:

- accuracy for example through correcting erroneous values,
- depth of coverage, for example by providing more detailed information on age of dwellings,
- breadth by providing additional input variables such as insulation.

Improving any of these would enhance the accuracy of the output variables and for this reason it is always worth considering utilising additional information sources where they are available. Using EPC data will go some way towards meeting these improvements by providing more accurate data.

B.2 Housing Condition and Low Income Household Models

This section provides further information on the remaining four models – fuel poverty, HHSRS, disrepair and low income households. These models are discussed together since the approach used for each one is broadly the same.

These models are not based solely on the thermal characteristics of the dwelling, and in some cases are not based on these characteristics at all. A top down methodology has been employed for these models, using data from the EHS and statistical techniques, such as logistic regression, to determine the combination of variables which are most strongly associated with failure of each standard. Formulae have been developed by BRE to predict the likelihood of failure based on certain inputs. The formulae are then applied to the variables in the national Experian dataset to provide a likelihood of failure for each dwelling. Each individual case is then assigned a failure/compliance indicator based on its likelihood of failure and



on the expected number of dwellings that will fail the standard within a given geographic area. Thus if the aggregate values for a census output area are that 60% of the dwellings in the area fail a particular standard then 60% of the dwellings with the highest failure probabilities will be assigned as failures and the remaining 40% as passes.

The presence of a category 1 hazard failure is the only exception to this as it is found by combining excess cold, fall hazards and other hazards such that failure of any one of these hazards leads to failure of the standard.

B.3 Integrating local data sources

As mentioned in the main body of the report, Sandwell identified a number sources of data which were used to update the BRE dwelling level models to provide an integrated housing stock condition database. Their data sources are shown in **Table B.1**.

To allow these data sources to be linked to the BRE Dwelling Level Stock Models, an address matching exercise was required to link each address to the Experian address key. Address matching is rarely 100% successful due to a number of factors including:

- Incomplete address or postcodes
- Variations in how the address is written e.g. Flat 1 or Ground floor flat
- Additions to the main dwelling e.g. annexes or out-buildings

Experience indicates that, for address files in good order, match rates are around 75% - 95%. **Table B.1** provides the address matching results for the three data sources provided by Sandwell and the resulting impact on the modelling process.

**Table B.1:** Address matching results and impact on the modelling process

Data source	No. (and % of the stock)	Notes
LLPG data	133,680	Number of records received – 133,845 BLPU classes checked and duplicate UPRNs removed – 133,703 remaining Remaining cases once address fields checked – 133,680
EPC data	61,495 (46% of the stock)	Number of records received – 79,627 Data de-duplicated for multiple EPCs – 63,170 remaining Final number matched to modelled data and useable – 61,495
Licensed HMO data	2	Number of records received – 26
Possible unlicensed HMO	618	Number of records received – 920 Remaining cases once records with no UPRN removed – 907 Final number matched to modelled data and useable - 618
My Deposits	494	Number of records received – 634 Final number matched to modelled data and useable – 494
Tenancy Deposit Scheme data	982	Number of records received – 1,302 Final number matched to modelled data and useable – 982
The Deposit Protection Service	4,873	Number of records received – 5,833 Final number matched to modelled data and useable – 4,873
Riverside with UPRNs	1,067	Number of records received – 1,074 Final number matched to modelled data and useable – 1,067
Sandwell Homes	28,211	Number of records received – 28,884 Final number matched to modelled data and useable – 28,211
Total tenure data	35,627 (26% of the stock)	
Benefits data	37,764	Number of records received – 38,622 Remaining cases once records with no UPRN removed – 38,545 Data de-duplicated for multiple UPRNs – 37,955 Final number matched to modelled data and useable – 37,764



The Housing Stock Condition Database (HSCD) was also updated using the Ordnance Survey (OS) MasterMap data which enables the measurement of the footprint of the building and provides information on the number of residential addresses within the building, and to see which other buildings each address is attached to or geographically close to.

The stage at which the local data sources are included in the modelling process depends on whether or not the data includes information which can be used as an input into the SimpleCO₂ model. The simplified flow diagram in **Figure 1** in the main report shows how these data sources are integrated into the standard modelling approach.

The following sections consider each of the data sources and how they are used to update the SimpleCO₂ inputs and/or stock model outputs.

EPC data

If there are discrepancies in the energy data for the same dwelling case, arising from different energy data sources, then, if available, the EPC data will be used. If no EPC data source is available for that case, then the data with the most recent date will be taken.

Some of the energy data provided includes tenure data, in which case the housing stock condition database has been updated accordingly. However EPC cases do not include tenure data, they only include the reason for the EPC.

Therefore:

- If the reason given was a sale then the dwelling was assumed to be owner occupied.
- If the reason given was re-letting and the tenure of the let was specified (i.e. private or social) then the tenure was changed to that indicated.
- If the reason for the sale did not indicate tenure then the tenure was left unchanged.

It is important to note that the modified tenure created from the EPC data should only ever be used for work relating to energy efficiency and carbon reduction. This is a legal requirement stemming from the collection of the data, and is a licence condition of the data suppliers, Landmark. For this reason the tenure variable supplied in the database is NOT based on EPC data; however, the calculations used to determine the SimpleSAP rating and other energy characteristics of the dwelling do make use of the EPC tenure.

Where the energy data provides information on loft insulation, wall insulation, the location of a flat within a block and floor area this information will be used in favour of any imputed information, as long as the OS data is in agreement with the dwelling type.

Where energy data on wall type is present for a dwelling in a block of flats, terrace or semi-detached, that data is extrapolated to the rest of the block or terrace. If multiple dwellings with energy data are present then the most common wall type is used. Note that where the energy data indicates a wall type that is not the predominant one, this data will not be overwritten with the predominant type – the data reported in the energy database will always be used even if this results in two different wall types being present in a terrace or a block of flats.

For flats it is assumed that all flats in the block will have the same level of double glazing and as the case for which we have energy data for. If there are multiple flats in the block with energy data showing different levels of double glazing, an average will be used.



It is assumed that all flats in a block share the same heating type, boiler type if present, fuel type and heating controls. Where there are multiple types present, the predominant type is used. Flats are assumed to have the same hot water source, and if one flat benefits from solar hot water it is assumed that all flats in the block do.

B.4 OS MasterMap information

The OS data has been used to update a number of the SimpleCO₂ model inputs. The most valuable use of the OS data is the ability to determine the dwelling type with much greater confidence.

The existing dwelling type is replaced with a new dwelling type derived from OS data. By looking at the number of residential address points it can be inferred whether the building is a house or block of flats (houses have one residential address point and blocks of flats have two or more).

Houses - where the dwelling is a house the number of other buildings it is attached to can be observed and the following assumptions made:

- If there are no other dwellings attached, the house is detached.
- If two dwellings are joined to one another, but not to any other dwellings, they are semi-detached.
- If they are attached to two or more other dwellings, they are mid terraced.
- If they are attached to only one dwelling, but that dwelling is a mid-terrace, they are an end-terrace.

Flats - if the building is a block of flats, its exact nature is determined by its age and the number of flats in the block and the following assumptions made:

- If there are between two and four flats in the block (inclusive) and the dwelling was built before 1980 then it is a conversion.
- Otherwise it is purpose built.

This information can also be used to reconcile discrepancies within blocks of flats, terraced and semi-detached houses. These discrepancies occur in variables such as dwelling age, location of flat in block, number of storeys, loft insulation, wall insulation, wall type and floor area.

Looking at dwelling age, although the OS data does not itself provide any information on age, it does allow reconciliation of age data within semi-detached, terraces and blocks of flats.

Where a group of buildings are all attached in some way, such as a terrace, it is logical to assume that they were built at the same time. Therefore the age of each building is replaced with the most common age among those present. Where the most common age occurs in equal numbers, this is resolved by looking at the average age of houses in the same postcode.

If one dwelling has an age that is notably newer than its neighbours, then the age is not changed, as it is assumed that the original dwelling was destroyed and rebuilt.

Figure B. 2 and **Figure B. 3** below show how the initial base data is adjusted using the OS data to produce more consistent and reliable results.

Considering the number of storeys and the location of a flat in its block, if the OS data reveals that the dwelling type is significantly different from the original value – specifically if a house becomes a flat, or vice versa then the variables are adjusted. If this is the case a new location for the flat within the block or the number of storeys will be imputed using the same method as before, but taking into account the revised dwelling type.



Similarly with floor area, loft insulation and wall type - if the dwelling type or location of a flat within a block changes as a result of OS data then the variables are calculated using the same method of imputation as the original models, but taking into account the new data.



Figure B. 2: Dwelling level map showing the base data, prior to using the OS data

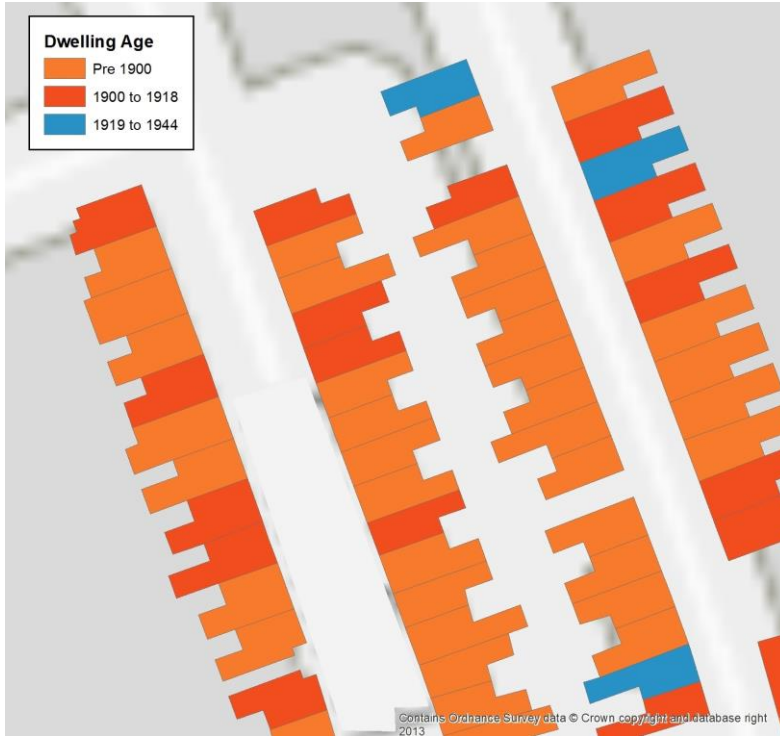
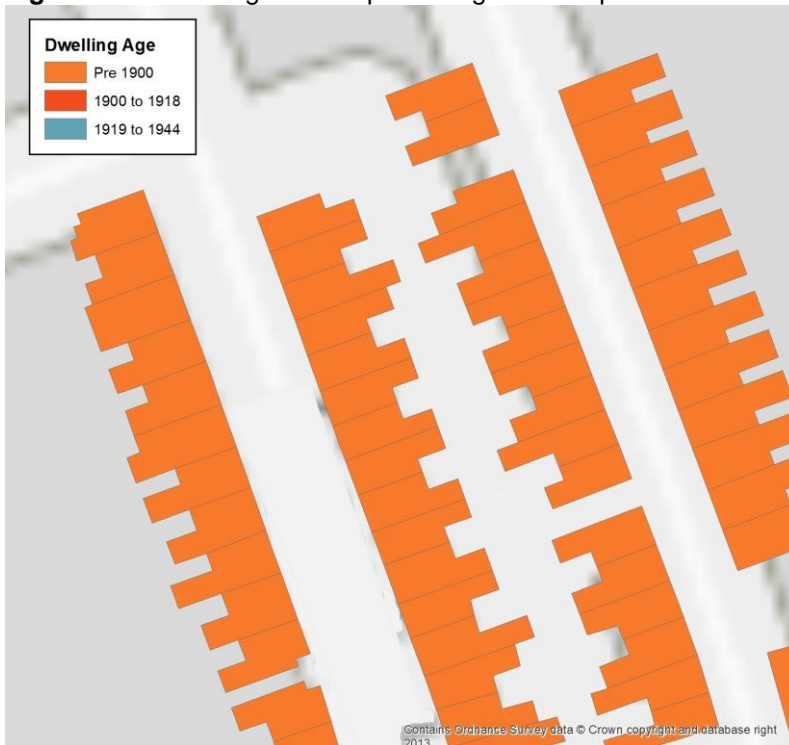


Figure B. 3: Dwelling level map showing the OS updated data





Appendix C Using the BRE Integrated Dwelling Level Housing Stock Database

The BRE Housing Stock Condition Database (HSCD) is the final output of the overall stock modelling approach described in **Section 3** and **Appendix B**. The HSCD has been designed to allow local authorities to access their local area data. There are a number of different options for summarising or investigating the data and generating lists of properties of interest.

C.1 Overview

The Housing Stock Condition Database (HSCD) is now online. You can access it in www.hscd.bre.co.uk with the credentials sent to you by email.

To ensure data security the interface will automatically open on the login page shown in **Figure C. 1**. Should you forget your password details, these can be reset and emailed to you using the function provided on the login page.

Upon login, the home page will open with a dashboard showing the key indicators for your housing stock, similar to that shown in

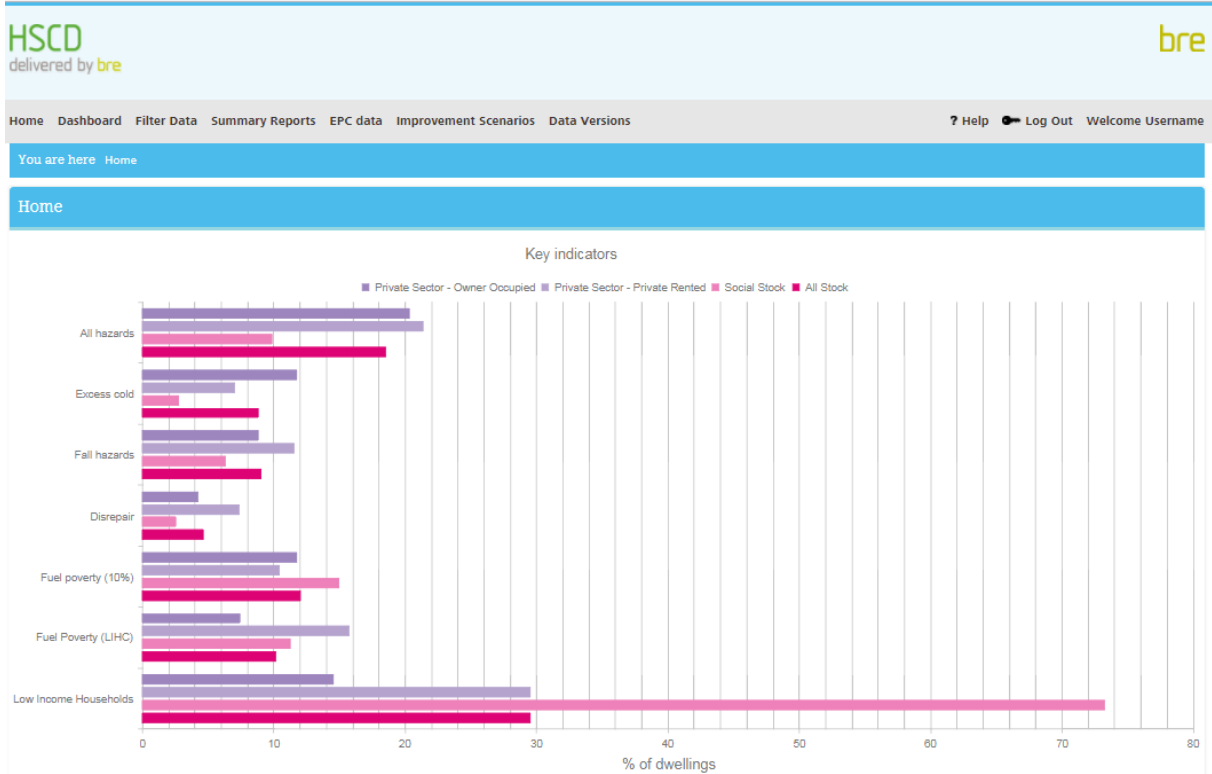
Figure C. 2. The navigation pane is along the top and is visible on all pages; the options shown on the navigation pane will depend upon the options purchased.

Figure C. 1: Login screen

The screenshot shows the login interface for the HSCD. At the top left, it says 'HSCD delivered by bre'. At the top right is the 'bre' logo. Below the header is a grey bar with a help icon and 'Log In' text. The main content area has a blue header 'Log in' and the instruction 'Enter your Email and password'. There are two input fields: 'Username' and 'Password'. Below the password field is a link: 'Forgotten your password? We can reset it for you.' At the bottom right is a blue 'Login' button with a play icon.



Figure C. 2 Home page (note screenshot below is sample data)



Please refer to the user guide accessible via the log in page under the [help](#) button.



Glossary of terms

BREDEM	BRE Domestic Energy Model
Category 1 hazard	Hazards with a HHSRS score of > 1,000. A dwelling with a category 1 hazard is considered to fail the minimum statutory standard for housing
CLG	Department for Communities and Local Government
COA	Census Output Area Designed for statistical purposes, built from postcode units, approximately 125 households
Disrepair	Based on former Decent Homes Standard criteria which states that a dwelling fails this if it is not in a reasonable state of repair – this is based on the dwelling age and condition of a range of building components including walls, roofs, windows, doors, electrics and heating systems
ECO	Energy Companies Obligation Places legal obligations on the larger energy suppliers to deliver energy efficiency measures to domestic energy users
EHS	English Housing Survey A continuous national survey commissioned by the Ministry of Housing, Communities and Local Government (MHCLG). It collects information about people's housing circumstances and the condition and energy efficiency of housing in England
EPC	Energy Performance Certificate Present the energy efficiency of domestic properties on a scale of A (most efficient) to G (least efficient)
Fuel poverty	The original definition of fuel poverty states that a household is in fuel poverty if it needs to spend more than 10% of their income on fuel to maintain an adequate level of warmth (10% definition). The new definition now adopted by government is that a household is said to be in fuel poverty if they have fuel costs that are above average and were they to spend that amount they would be left with a residual income below the official poverty line (Low Income High Costs definition)
GIS	Geographic Information System A system designed to capture, store, manipulate, analyse, manage and present spatial or geographical data
HHSRS	Housing Health and Safety Rating System A risk assessment tool to help local authorities identify and protect against potential risks and hazards to health and safety related deficiencies in dwellings, covering 29 categories of hazards



HIA	<p>Health Impact Assessment</p> <p>A formal method of assessing the impact of a project, procedure or strategy on the health of a population</p>
HMO	<p>Houses in Multiple Occupation</p> <p>An entire house or flat which is let to 3 or more tenants who form 2 or more households and who share a kitchen, bathroom or toilet</p> <p>A house which has been converted entirely into bedsits or other non-self-contained accommodation and which is let to 3 or more tenants who form two or more households and who share kitchen, bathroom or toilet facilities</p> <p>A converted house which contains one or more flats which are not wholly self-contained (i.e. the flat does not contain within it a kitchen, bathroom and toilet) and which is occupied by 3 or more tenants who form two or more households</p> <p>A building which is converted entirely into self-contained flats if the conversion did not meet the standards of the 1991 Building Regulations and more than one-third of the flats are let on short-term tenancies</p> <p>In order to be an HMO the property must be used as the tenants' only or main residence and it should be used solely or mainly to house tenants. Properties let to students and migrant workers will be treated as their only or main residence and the same will apply to properties which are used as domestic refuges</p>
HSM	<p>Housing Stock Model</p> <p>Desktop based modelling used to determine the condition of the housing stock</p>
Jenks' Natural Breaks	<p>The natural breaks classification method is a data clustering method determining the best arrangement of values into different classes. It is achieved through minimising each class's average deviation from the class mean while maximising each class's deviation from the means of the other groups. The method seeks to reduce the variance within classes and maximise variance between classes thus ensuring groups are distinctive</p>
JSNA	<p>Joint Strategic Needs Assessment</p> <p>An assessment of the current and future health and social care needs of the local community</p>
LACORs	<p>Local Authority Coordinators of Regulatory Services – now renamed Local Government Regulation</p>
LAHS	<p>Local Authority Housing Statistics</p> <p>National statistics on housing owned and managed by local authorities</p>



LIHC	Low Income High Cost Measure of fuel poverty, considers a household to be in fuel poverty if required fuel costs are above average, or if they were to spend that amount they would be left with a residual income below the official poverty line
LLPG	Local Land and Property Gazetteer An address database maintained by local authorities
LSOA	Lower Super Output Area Designed for statistical purposes, built from census output areas, approximately 400 households
MHCLG	Ministry of Housing, Communities and Local Government
MSOA	Medium Super Output Area Designed for statistical purposes, built from lower super output areas, approximately 2,000 households
NHS	National Health Service
Older people	People over 65 for the excess cold hazard, people over 60 for the fire and fall hazards (excl. falling between levels)
OS	Ordnance Survey
Poor housing	Dwellings where a category 1 hazard is present
Private sector housing	Housing not owned by the local authority or a housing association
SAP	Standard Assessment Procedure Method system for measurement of energy rating of residential buildings.
SimpleSAP	An estimate of a residential dwelling's likely SAP score, it is not based on the full required range of data for a SAP calculation or a reduced data SAP calculation (RDSAP), it should only ever be considered an estimate of the SAP score, and used as a guide
UPRN	Unique Property Reference Number A unique 12 digit number assigned to every unit of land and property recorded by local authorities as part of their LLPG
Vulnerable persons	Persons who are more likely to be affected by the particular hazard as defined by the HHSRS Operating Guidance