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BRE Client Report

BRE Integrated Dwelling Level Housing Stock Modelling and Database for Leicester City Council

Prepared for: **Joanne Russell, Crime and ASB Manager/Selective Licensing Project Manager**

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Executive summary

- Leicester City 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), tenure, benefits, Houses in Multiple Occupation (HMO) and Housing Health and Safety Rating System (HHSRS) records data provided by Leicester City Council. The BRE models also integrate Energy Performance Certificate (EPC)[1] data. As a result of this, 78,757 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 55% of the total stock in Leicester. The council also commissioned the inclusion of Land Registry Commercial and Corporate Ownership Data (CCOD) and Overseas Companies Ownership Data (OCOD).

- Leicester City Council also commissioned BRE to undertake additional work to identify private rented stock in their local authority. This additional work involved an innovative approach to Private Rented Sector identification, using a variety of different data sources including the BRE Model, Tenancy Deposit Scheme, Council Tax, Ordnance Survey and Land Registry data. This approach resulted in improved accuracy in identifying private rented sector dwellings across the borough, with a particular focus on six wards, Braunstone Park & Rowley Fields, Castle, Fosse, Saffron, Stoneygate and Westcotes, where additional analysis was carried out using Council Tax Register and Land Registry data to provide evidence of tenure across the whole of these six wards and a sample of the remaining wards.

- This report describes the work and the results obtained from the integrated model and Housing Stock Condition Database (HSCD). Access to the HSCD 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 Leicester City Council's housing strategy and enable a targeted intervention approach to improving housing. 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:

    o The percentage of dwellings with the presence of each of the Housing Standards Variables[2] for Leicester overall and broken down by tenure and then mapped by Census Output Area (COA) (private sector stock only)

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[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.

- o Information relating to LAHS reporting for the private sector stock - category 1 hazards and information on EPC ratings

- Leicester City Council also requested analysis of the private rented sector including stock condition and deprivation. This includes an analysis of Houses in Multiple Occupation (HMOs).

- BRE Housing Stock Models were used to provide such estimates at dwelling level and focussing on private sector housing. The Housing Standards Variables provide Leicester 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 2018 models have been updated to make use of the results of the 2015 English Housing 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-modelling[4] 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 Housing Standards Variables. These outputs can then be mapped to provide the authority with a geographical distribution of each of the variables which can then be used to target resources for improving the housing stock.

- Furthermore, Leicester City Council provided additional sources of "local data" – Local Land LLPG, tenure, benefits, HMO and enforcement/grant records data. 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:

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[3] 2015 is the latest available data. Prior to the 2018 models EHS 2014 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 Leicester

There are 142,261 dwellings in Leicester, 43% are owner occupied, 35% private rented and 22% social rented.

The council requested 40,371 addresses from the Council Tax Register to be submitted to Land Registry for processing. The council highlighted six wards as areas of interest and requested a borough-wide sample from the remaining records. This analysis has resulted in 76,079 dwellings in Leicester having evidenced tenure information, either from TDS, CCOD/OCOD or Land Registry analysis. This is 53.5% of dwellings across all wards in Leicester. However, for the six wards where the entire ward was analysed, rather than only a sample, 83.2% of dwellings had evidenced tenure.

17,527 dwellings in the private sector have category 1 Housing Health and Safety Rating System (HHSRS) hazards. This equates to 16% of properties. *See full results*

8,541 dwellings in the private rented sector have category 1 HHSRS hazards. This equates to 17% of properties in the private rented sector. *See full results*

The highest concentrations of all HHSRS hazards in the private sector are found in the wards of Westcotes, Spinney Hills and Belgrave. *See full results*

The highest concentrations of fuel poverty (Low Income High Costs definition) in the private sector are found in the wards of Eyres Monsell, Braunstone Park & Rowley Fields and Saffron and for excess cold the highest concentrations are in Westcotes, Saffron and Stoneygate. *See full results*

The average SimpleSAP rating for all private sector dwellings in Leicester is 60, which is the same as both England and the East Midlands. For owner occupied stock the figure is 59 and for private rented stock it is 60. *See full results*

Maps by Census Output Area (COA) have been provided for the above Housing Standards Variables. *See maps*

The total cost of mitigating category 1 hazards in Leicester's private sector stock is estimated to be £48.0 million – with £24.6 million in the owner occupied sector, and £23.4 million in the private rented sector. *See full results*

4.3% (4,795) of *private sector* dwellings and 4.8% (2,378) of *private rented* dwellings in Leicester are estimated to have an EPC rating below band E. *See full results*

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Summary of private rented sector analysis

HMOs

There are an estimated 9,649 HMOs in Leicester, of which approximately 2,249 come under the mandatory licensing scheme. *See full results*

HMOs in Leicester have slightly higher levels of fall hazards, but the same levels of all hazards and excess cold compared to private rented sector non-HMOs. HMOs have higher levels of disrepair and notably higher levels of fuel poverty (Low Income High Costs definition). However, private rented stock which are non-HMOs have higher levels of fuel poverty (10% definition) and low income households. HMOs also have lower energy efficiency levels compared to non-HMOs (average SimpleSAP score of 58 compared to 61). *See full results*

Of the total 9,649 HMOs, 7,400 are non-licensable and 2,249 are mandatory licensable. Looking at the condition of dwellings within these two groups, mandatory licensable HMOs have a higher proportion of all hazards, excess cold and falls hazards. They also have notably higher levels of fuel poverty (particularly the Low Income High Costs definition). *See full results*

Westcotes ward has the highest number of HMOs (1,526 HMOs, 29% of private rented stock in that ward), followed by Castle ward (1,481 HMOs, 16%) Stoneygate ward (1,020 HMOs, 32%) and Fosse ward (845 HMOs, 25%). These same wards also have the highest numbers and proportions of licensable HMOs. *See full results*

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Summary of private rented sector analysis continued…

Private rented sector

Overall the percentage of dwellings in the private rented sector across Leicester is 35% compared to the national average of 19%. A large proportion of wards (19 out of 21 wards) in Leicester have a percentage of private rented sector dwellings greater than the national average, in particular Castle (64.4%) and Westcotes (68.7%). *See full results*

Three types of analysis area within Leicester were identified based on levels of private rented stock, which were a) 4 wards in excess of 44%, b) 5 wards with 31-44%, and c) 10 wards with 19-30% (i.e. above the national average of 19%). *See full results*

Around 48% of HMOs in Leicester are in the 4 wards with over 44% private rented stock.

Of the wards within Leicester with over 44% private rented stock, Westcotes ward stands out as having the highest level of all hazards (23%). However, Fosse ward has the highest levels of fall hazards (15%) and disrepair levels (10%) but excess cold is highest in Westcotes ward (7%). Compared to the figures for the Leicester private rented stock overall, these wards tend to have higher levels of each of the property condition indicators, with the exception of Castle ward. *See full results*

Of the wards in Leicester with 31–44% private rented stock, Spinney Hills ward has the highest level of hazards (24%). Levels of fall hazards across these wards span 8-14% and disrepair doesn't exceed 9%. *See full results*

Of the wards with 19-30% private rented stock Belgrave has the highest levels of hazards (22%) as well as falls hazards (15%) and disrepair (9%). Knighton ward has the highest level of excess cold at 4%. *See full results*

100% of private rented dwellings in Eyres Monsell ward are located in the 20% most deprived LSOAs in England, there are 67% in both Braunstone Park & Rowley Fields and Wycliffe wards, and 62% in Western ward. These are all notably higher than the figure for Leicester's private rented stock as a whole (36%). *See full results*

Incidents of ASB in recent years (2018 and 2019) have been highest in Castle, Western, Braunstone Park & Rowley Fields and Eyres Monsell wards. *See full results*

There are specific areas within the wards identified which have higher levels of private rented stock and deprivation and disrepair which could be considered for targeted interventions. *See full results including maps*

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Key illustrations of headline results

- The table below shows the results for 7 of the Housing Standards Variables in Leicester compared to regional data and England (EHS 2015) - split into all stock and private sector stock. The data shows that the performance of the housing stock in Leicester compared to the EHS England average is generally worse with the exception of excess cold which is slightly better in Leicester. Levels of all hazards and fall hazards are notably higher in Leicester, and the proportion of low income households is high compared to the England average. Compared to the regional average the picture is similar with Leicester generally performing worse with the exception of excess cold and Fuel poverty (10% definition).

Estimates of the percentage of dwellings with the presence of each of the Housing Standards Variables criteria assessed by the housing stock models and HSCD for all stock and private sector stock – Leicester compared to the East Midlands and England (EHS 2015)
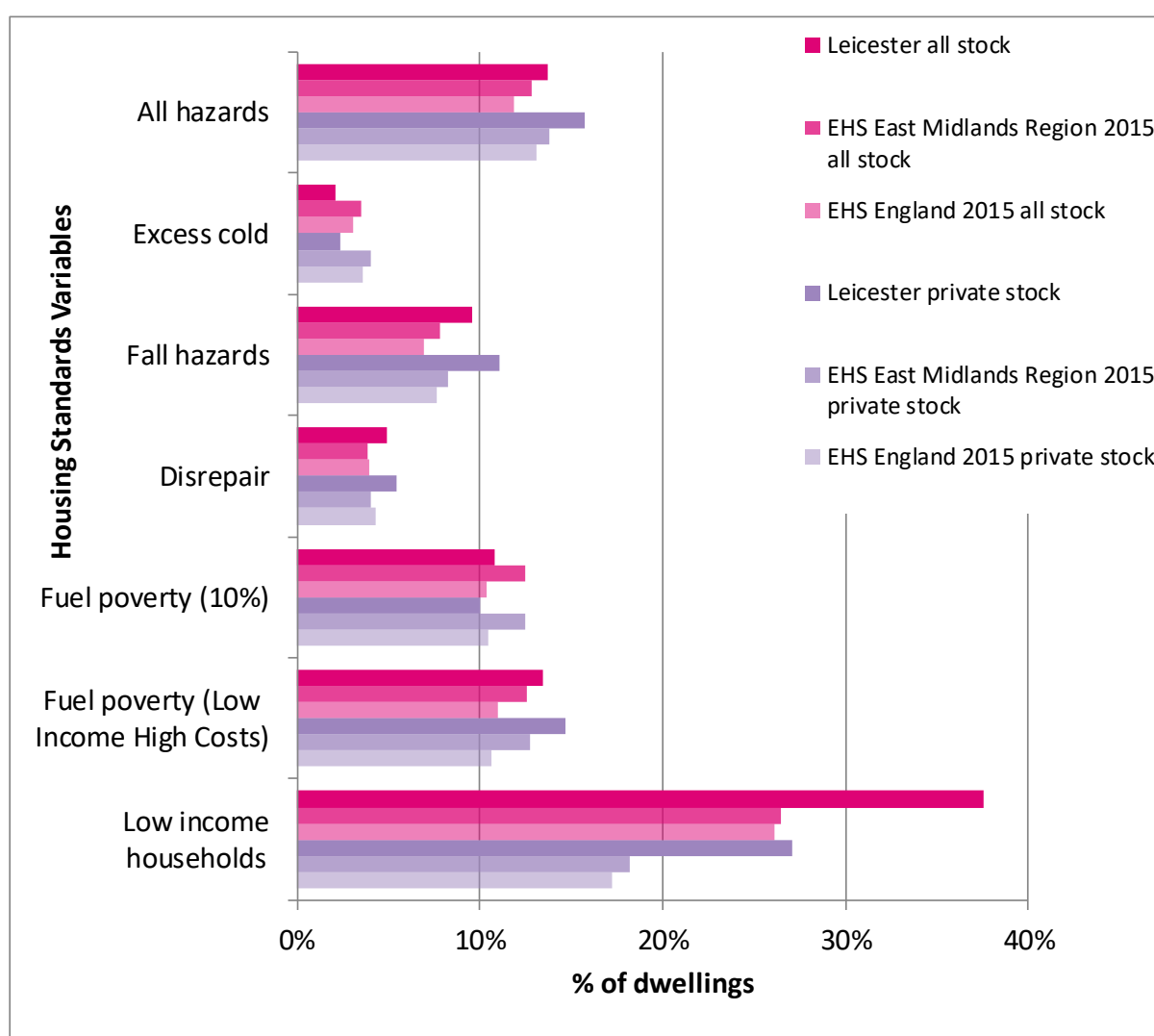
- The table below shows the number and percentage of Leicester's private rented stock falling into each of the EPC ratings bands (based on SimpleSAP). The number of private rented dwellings in Leicester with a rating below band E (i.e. bands F and G), is estimated to be 2,378 (4.8%). Compared to England, there is a greater proportion of dwellings in band E, and a slightly lower proportion in band D.
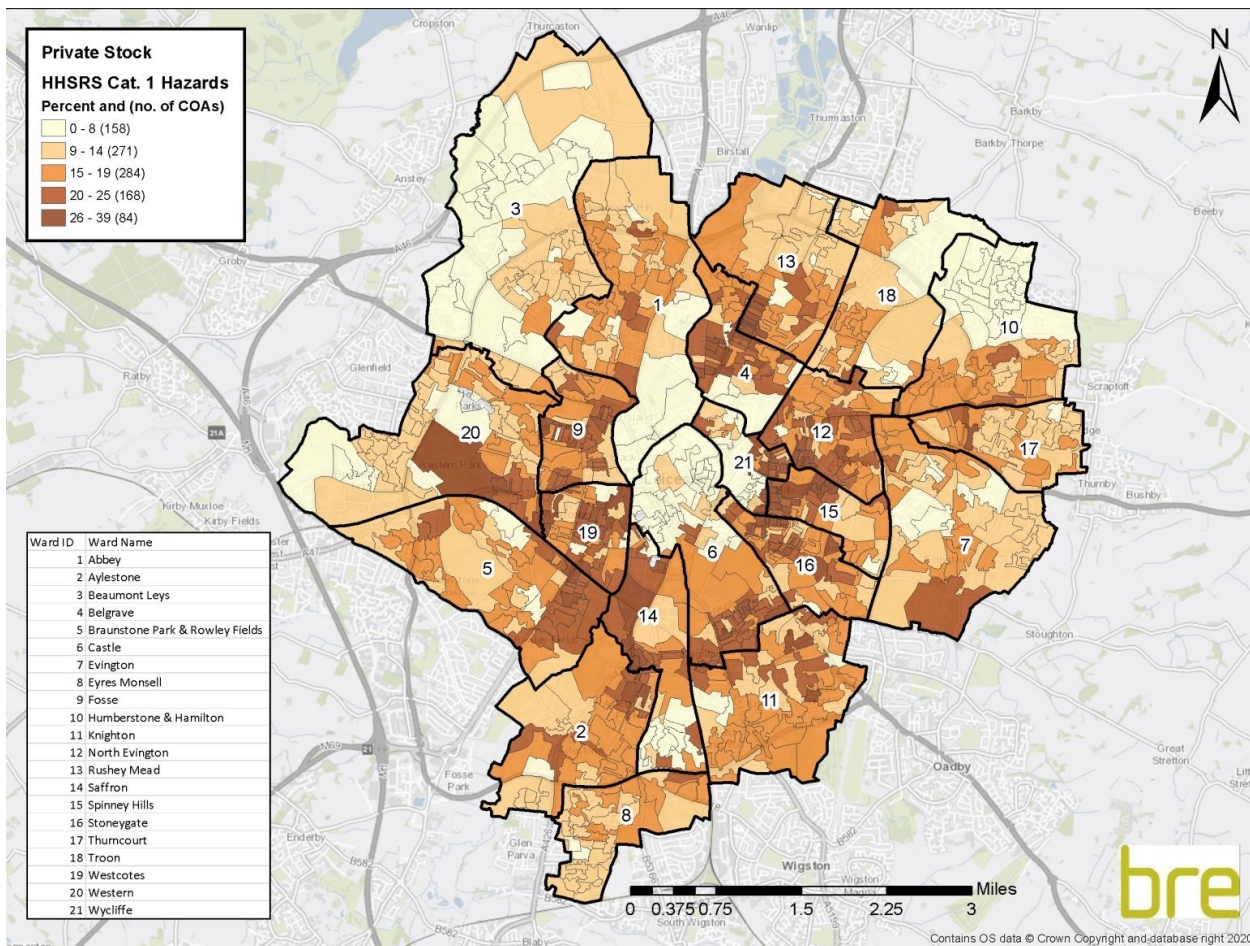
Number and percentage of Leicester's private rented stock falling into each of the EPC ratings bands (based on SimpleSAP)

	Leicester		2015 EHS England
	Count	**Percent**	**Percent**
(92-100) A	0	0.0%	1.2%
(81-91) B	722	1.5%	
(69-80) C	12,617	25.5%	25.3%
(55-68) D	22,345	45.1%	49.1%
(39-54) E	11,439	23.1%	18.1%
(21-38) F	1,993	4.0%	4.5%
(1-20) G	385	0.8%	1.8%

- The map overleaf shows the distribution of category 1 hazards, as defined by the Housing Health and Safety Rating System (HHSRS). The highest concentrations are scattered across the Leicester area with a tendency towards the outer urban areas of the city, although the area to the north of the city has lower levels of hazards. The data behind the map shows that the highest levels overall are in the more urban wards of Westcotes, Spinney Hills and Belgrave.

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

Private Stock

HHSRS Cat. 1 Hazards
Percent and (no. of COAs)

- 0 - 8 (158)
- 9 - 14 (271)
- 15 - 19 (284)
- 20 - 25 (168)
- 26 - 39 (84)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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1   Introduction

Leicester City Council commissioned BRE to undertake a series of modelling exercises on their housing stock. 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.

Leicester City Council provided Local Land and Property Gazetteer (LLPG), tenure, benefits, Houses in Multiple Occupation (HMO) and Housing Health and Safety Ratings System (HHSRS) records data. The BRE Model also integrates Energy Performance Certificate (EPC) data and, as a result of this, 78,757 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 55% of the total housing stock in Leicester. The council also commissioned the inclusion of Land Registry Commercial and Corporate Ownership Data (CCOD) and Overseas Companies Ownership Data (CCOD and OCOD).

Furthermore, Leicester City Council commissioned BRE to undertake additional work to identify private rented stock in their local authority. This additional work involved an innovative approach to Private Rented Sector identification, using a variety of different data sources including the BRE Model, Tenancy Deposit Scheme, Council Tax, Ordnance Survey and Land Registry data. This approach resulted in improved accuracy in identifying private rented sector dwellings through additional analysis using Council Tax Register and Land Registry data to provide evidence of tenure across the borough and with a particular focus on the six wards of interest – Braunstone Park & Rowley Fields, Castle, Fosse, Saffron, Stoneygate and Westcotes wards.

The BRE Housing Stock Model data is provided to the council via the online Housing Stock Condition Database (HSCD) to enable them to obtain specific information whenever required.

The BRE Housing Stock Models provide the council with dwelling level information on various Housing Standards Variables, focussing on private sector housing. These variables provide Leicester City 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 variables are split into categories related to house condition, energy efficiency and household vulnerability as shown in **Table 1** (see **Appendix A** for full definitions).

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Table 1: Housing Standards Variables split into categories

Housing Standards Variable	House condition variables	Energy efficiency variables	Household vulnerability variables
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% & 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 variables shown in **Table 1** can also be brought together within the HSCD to provide powerful information on the housing stock; for example, dwellings suffering from excess cold and also occupied by households on a low income. This enables council officers to explore the stock and to assess the likely scope of any programmes they might wish to implement.

The information in this report 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 Housing Standards Variables and other information are derived from the BRE Dwelling Level Stock Models. These Models have been used for many years to provide key Housing Standards Variables to local authorities. The most recent 2018 models have been updated to make use of the results of the 2015 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 residential dwellings in the authority. OS Mastermap is also linked to OS AddressBase to allow dwelling type and floor area to be determined through geographical modelling[6]. Other national data sources used by the Model 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 dwelling meeting the criteria for each of the Housing Standards Variables. These outputs can then be mapped to provide the authority with a geographical distribution of each of the variables which can then be used to target resources for improving the housing stock.

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[5] 2015 is the latest available data. Prior to the 2018 models EHS 2014 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.

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

The information in the HSCD 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 2004[7].

Furthermore, having this information available will also help to facilitate the delivery of Leicester City Council's housing strategy. It will enable a targeted intervention approach to improving housing; 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 purpose of this project was to provide data on key private sector housing variables for Leicester The main aims were therefore to provide estimates of:

- The percentage of dwellings with the presence of each of the Housing Standards Variables for Leicester overall, broken down by tenure and mapped by Census Output Area (COA) (private sector stock only)
- Information relating to LAHS reporting for the private sector stock - category 1 hazards and information on EPC ratings

Additional work was also undertaken to identify private rented stock involving an innovative approach to Private Rented Sector identification, using a variety of different data sources including the BRE Model, Tenancy Deposit Scheme, Council Tax, Ordnance Survey and Land Registry data.

Leicester City Council also requested analysis of the private rented sector including stock condition and deprivation. This includes analysis of Houses in Multiple Occupation (HMOs).

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 Leicester covering each of the main aims above.

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[7] http://www.legislation.gov.uk/ukpga/2004/34/contents

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2   Policy background

The detailed housing stock information provided in this report will facilitate the delivery of Leicester City 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 2004[7] 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 Leicester in the 10 years between 2001 and 2011 - from 12% of the total stock in 2001 to 24% in 2011[9] - so that 12% of the stock has changed over that time period to now be private rented. This is higher than the change of 9% seen in England as a whole. The analysis for this current report estimates that 35% of the stock in Leicester is now privately rented, implying a further increase since 2011.

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

[9] https://www.ons.gov.uk/census#censusdataandbackground

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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 inequalities[11]. 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 65s
- Fuel poverty
- Excess winter deaths

There have been minor indicator changes for 2019-2022, incorporating moderate to severe falls

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

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[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

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"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, since 1 April 2018 it became unlawful for landlords to grant a new tenancy or renew an existing tenancy for a property that does not reach a minimum energy efficiency standard (MEES) of Energy Performance Certificate rating band E[15]. While there will be various caveats to these powers, they provide a new minimum standard for rented accommodation. If the EPC rating is an F or G, the landlord must improve the rating to a minimum of EPC E or register an exemption (if applicable) before they are able to let the property. From 1 April 2020, the regulations will apply to all domestic rented properties regardless of whether or not there has been a change in tenancy (again exemptions may apply but these must be registered by the landlord on the PRS exemptions register). Part of this current project for Leicester City 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 4 years, the Government will match the Council Tax raised on long term empty properties brought back into use. This was previously set at 5 years in 2017-19 and 6 years prior to that. Between 2012-15, £100 million of capital funding was available from within the Affordable Homes Programme to tackle problematic[16] 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 Programme[17].

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 HSCD would be the logical place for such information to be stored should it be gathered from other sources.

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

[15] https://www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents

[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

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Information for Leicester for 2019 collected by MHCLG[18], identifies 4,013 vacant dwellings across all tenures. This represents a vacancy rate of approximately 3% in Leicester. In 2018 the number of vacant dwellings was 3,975, and 5 years prior to that, in 2013 the figure was 4,202. Furthermore, around 1,424 (1.0%) dwellings are long-term vacant (6 months or more) in Leicester (2019 figures).

The Affordable Homes Programme was replaced by the Shared Ownership and Affordable Homes Programme (2016-2021), supporting increased home ownership and aiming to expand supply of affordable homes in England. A total of £4.7 billion is available for the development of Shared Ownership and other affordable homes.[19]

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 2016[20] 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:

- 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

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[18] https://www.gov.uk/government/collections/dwelling-stock-including-vacants

[19] https://www.gov.uk/government/collections/shared-ownership-and-affordable-homes-programme-2016-to-2021-guidance

[20] http://www.legislation.gov.uk/ukpga/2016/22/contents/enacted/data.htm

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 2016[21] 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 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 2012[22] (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.

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[21] http://www.legislation.gov.uk/ukpga/2016/7/contents/enacted

[22] http://www.legislation.gov.uk/ukpga/2012/5/contents/enacted

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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)[23] 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 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, from 1 April 2018 landlords must ensure that their properties meet a minimum energy efficiency standard when they grant a tenancy to new or existing tenants - which has been set at band E [24], [25]. From 1 April 2020, landlords can no longer continue letting a property which is already let if it has an EPC rating of F or G[26]. 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. There have been several ECO schemes to date, with the current scheme starting in October 2018:

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[23] https://www.gov.uk/government/publications/completing-local-authority-housing-statistics-2012-to-2013-guidance-notes

[24] http://www.legislation.gov.uk/uksi/2015/962/contents/made

[25] 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.

[26]

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794253/domestic-prs-minimum-standard-guidance.pdf

- ECO1 - ran from January 2013 to March 2015
- ECO2 - launched on 1 April 2015 and ended on 31 March 2017
- ECO2t - was an 18 month extension to the ECO2 scheme until September 2018[27, 28] as a transition period between the end of ECO2 and a new scheme.
- ECO3[29]- launched in October 2018 and will run for 3.5 years to the end of March 2022

Current scheme – ECO3

ECO3 has 4 phases terminating in March of each year (2019-2022). The scheme focusses on Affordable Warmth (the Carbon Emissions Reduction Obligation – CERO – has been removed) so that low income and vulnerable households are the recipients of the main benefits. The scope of the Affordable Warmth group will be expanded to include other benefits (e.g. Child Benefit, Personal Independence Payment, etc.).

In terms of measures and improvements, the focus is on replacing electric storage heaters with central heating, improving 17,000 solid wall dwellings every year, replacing broken heating systems (maximum of 35,000 per year), encouraging the replacement of heating systems only when also installing certain types of insulation. In addition, Renewable Heat Incentive measures would not be eligible under ECO3, and suppliers will be able to meet up to 10 – 20% of their obligation through "innovative measures".

Energy companies can also use the local authority Flexible Eligibility mechanism to achieve up to 25% of their obligation – allowing councils to outline personal criteria to maximise inclusion of vulnerable people in funding for domestic heating and insulation upgrades.

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.

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

[28]

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

[29] https://www.gov.uk/government/consultations/energy-company-obligation-eco3-2018-to-2022

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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 Housing Standard Variables (and other outputs of interest). These outputs can then be mapped to provide the council with a geographical distribution of each of the variables which can then be used to target resources for improving the housing stock. The process is 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)[30]. The EHS dataset is used to identify patterns in the housing stock for those which fail a given indicator, for example HHSRS. This knowledge can be applied, using statistical methods, to impute Housing Standards Variables and energy characteristics from other data available at dwelling level which cover the whole of England. To model the energy efficiency of dwellings, BRE have developed a variant of the BREDEM[31] software, named "SimpleCO$_2$", that can calculate energy outputs from a reduced set of input variables.

The modelled dwelling level data provided for Leicester makes significant use of the Experian UK Consumer Dynamics Database of dwelling and household indicators, as well as OS datasets as inputs to the models.

Leicester City Council also provided additional sources of local data which was/were incorporated into the BRE Housing Stock Model and Database, as well as the 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.

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[30] The most recent survey used in the housing stock models is 2015.

[31] 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.

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- **Tenure data –** the council provided lists of addresses from the tenancy deposit schemes and this was used to inform the tenure variable.

- **HMO data –** the council provided data for HMOs which were added to the modelled HMOs.

- **Benefits data** – the council provided a list of addresses in receipt of benefits. This was matched into the BRE Model 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.

- **Enforcement/grant records (HHSRS) data** – the council provided a list of properties with category 1 hazards. Where a completion date has been entered is was assumed that these hazards had been fixed and no longer exists and that the property would also be free from disrepair. Where there was no completion date, it was assumed that the hazard was still present.

- **CCOD and OCOD data** – HM Land Registry Commercial and Corporate Ownership Data (CCOD) and Overseas Companies Ownership Data (OCOD) was used to inform the tenure variable. For houses with a title number owned by a Registered Provider the dwelling is assumed to be social. This is not the case for flats due to the fact that the leasehold ownership may not correspond to the title ownership so no such assumption can be made.

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 Housing Standards Variables 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 imputation[32]) and interpolate where there are gaps in the data. The "energy inputs" are then fed into the SimpleCO$_2$ 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.

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

Other inputs – are developed from Experian, OS MasterMap and other local data sources. The EHS data is used to impute (using cold deck imputation[32]) 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.

An additional part of this project was to use further available evidence to identify private rented stock in Leicester. More information about this part of the project is provided in the following section.

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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)
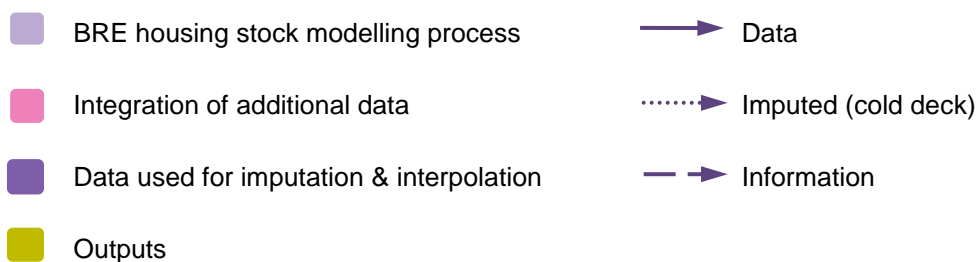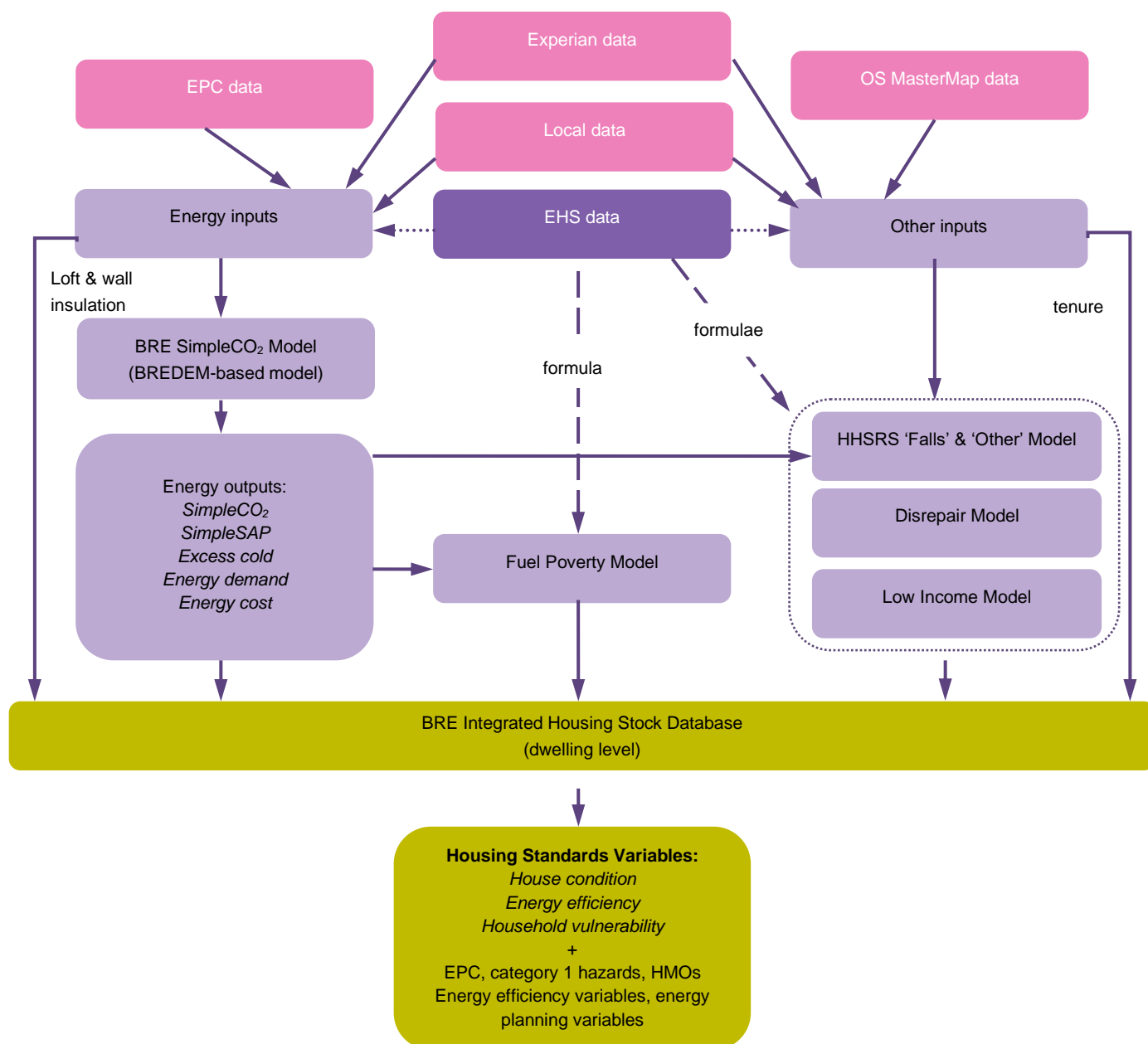
3.2 Additional Private Rented Sector identification

An additional part of this project was to use further available evidence to identify private rented stock in Leicester.

As previously mentioned, HM Land Registry Commercial and Corporate Ownership Data (CCOD) and Overseas Companies Ownership Data (OCOD) were used to inform social tenure[33].

The method used for this part of the project also included a cross-reference of the liable person name on the Council Tax Register address list to determine if this matched with the ownership data held by Land Registry. Where the names did not match between the two datasets, it was assumed that the properties were privately rented.

The council requested 40,371 addresses from the Council Tax Register to be submitted to the Land Registry for processing. The council highlighted six wards as areas of interest and requested a borough-wide sample from remaining records.

For the six wards of interest - Braunstone Park & Rowley Fields, Castle, Fosse, Saffron, Stoneygate and Westcotes wards - all addresses were sent to Land Registry for processing where there was no evidence of tenure from other data sets (e.g. Tenancy Deposit Scheme data or where the CCOD had identified a social rented provider). There were a total of 49,654 addresses in the six wards. Once those with other evidence of tenure were removed, this left 35,143 addresses and a total of 33,865 could be address-matched with the Council Tax Register. Records where commercial companies were responsible for paying the Council Tax were then removed. A total of 30,198 records from within these six wards were sent to Land Registry for processing. For these six wards, therefore, the aim was to obtain evidence of tenure for as many addresses as possible. The analysis has resulted in 40,118 (83.2%) dwellings in the six wards of interest having evidenced tenure information, either from TDS, HMOs, using commercial ownership information or Land Registry analysis.

Table 2 shows the results of the analysis for the six wards of interest.

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[33] For houses with a title number owned by a Registered Provider the dwelling is logically assumed to be social rented tenure. This assumption does not always hold true for flats as the leasehold ownership may not correspond to the title ownership information available on CCOD which is freehold based. This issue means the CCOD cannot definitively identify individual flats as being social rented stock even though the freehold is owned by a registered provider. It is, however, a reasonable assumption that the majority of the stock where the freehold remains with the Council will not have been sold leasehold and so it is assumed these are also social rented (unless otherwise instructed).

Table 2: Summary of results of the estimated tenure distribution based on the Land Registry analysis and other evidence of tenure for six wards of interest

Ward	All stock	Owner occupied	Private rented	Social
Braunstone Park & Rowley Fields	8,092	37.6%	23.8%	38.6%
Castle	13,980	26.6%	64.4%	9.0%
Fosse	6,551	36.9%	51.1%	12.0%
Saffron	6,007	20.3%	47.0%	32.8%
Stoneygate	7,303	42.9%	43.6%	13.5%
Westcotes	7,721	25.5%	68.7%	5.7%

For the borough wide sample, the remaining addresses were split equally across the remaining 15 wards. This resulted in a total sample of 900 addresses from each ward. Where evidence of tenure was available from other sources, these addresses were removed. This resulted in a number of addresses for each ward which did not have evidence of tenure and where these could be matched to the Council Tax Register data, these addresses were sent to Land Registry for processing. **Table 3** shows these figures for each ward; for example, in Abbey ward from the initial sample of 900 addresses, 228 already had evidence of tenure from other sources, leaving 672 with no evidence of tenure. 651 of these could be matched to the Council Tax Register and therefore, this was the number of records for that ward that were sent to Land Registry.

The aim of the borough wide sampling work was to obtain evidence of tenure for a representative sample of addresses in each ward (with the exception of the six wards of interest) which could then be used to inform the tenure distribution at ward level. This tenure distribution based on the evidence from the samples was then applied across each of the wards.

This analysis has resulted in 76,079 dwellings in Leicester having evidenced tenure information, either from TDS, CCOD/OCOD or Land Registry analysis. This is 53.5% of dwellings across all wards in Leicester. However, for the six wards of interest where the entire ward was analysed rather than only a sample, 83.2% of dwellings had evidenced tenure.

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Table 3: Summary of ward-level samples of addresses sent to Land Registry *(N.B. excluding the six wards of interest where the entire ward was evidenced rather than a sample)*

Ward	All stock	Initial Sample	Tenure evidence provided	No Tenure Evidence	Matched to Council Tax Register
Abbey	9,501	900	228	672	651
Aylestone	5,326	900	116	784	760
Beaumont Leys	7,318	900	216	684	658
Belgrave	6,322	900	185	715	693
Evington	6,450	900	152	748	726
Eyres Monsell	4,895	900	358	542	528
Humberstone & Hamilton	7,344	900	202	698	680
Knighton	6,987	900	79	821	794
North Evington	6,573	900	177	723	704
Rushey Mead	5,738	900	154	746	732
Spinney Hills	3,781	900	139	761	732
Thurncourt	4,419	900	245	655	641
Troon	5,176	900	153	747	728
Western	8,179	900	256	644	624
Wycliffe	4,598	900	97	803	780
Total	92,607	13,500	2,757	10,743	10,431

Table 4 shows the results of the tenure distribution based on the sample analysis and other evidence of tenure (i.e. TDS, CCOD/OCOD data) at ward level (excluding the six wards of interest). For example, in Abbey ward there were 845 addresses which had tenure evidence from TDS, CCOD/OCOD or the Land Registry analysis. The tenure evidence for this sample of 845 addresses indicated that 47.0% of the stock was owner occupied, 27.5% private rented and 25.5% social stock.

Table 4: Summary of results of the estimated tenure distribution based on the sample analysis and other evidence of tenure at ward level *(N.B. excluding the six wards of interest where the entire ward was evidenced rather than a sample)*

Ward	Sample size	Owner Occupied	Private Rented	Social
Abbey	845	47.0%	27.5%	25.5%
Aylestone	859	58.5%	28.7%	12.9%
Beaumont Leys	853	42.4%	23.1%	34.4%
Belgrave	857	44.4%	30.3%	25.3%
Evington	849	54.7%	21.4%	23.9%
Eyres Monsell	878	38.4%	19.6%	42.0%
Humberstone & Hamilton	828	48.1%	32.6%	19.3%
Knighton	815	69.8%	24.0%	6.2%
North Evington	861	41.0%	34.3%	24.7%
Rushey Mead	864	57.1%	32.8%	10.1%
Spinney Hills	854	60.0%	33.9%	6.1%
Thurncourt	876	56.3%	15.9%	27.8%
Troon	841	60.1%	26.5%	13.4%
Western	862	43.6%	16.8%	39.6%
Wycliffe	878	31.2%	19.0%	49.7%

3.2.1   Impact of analysis on data integrated within the model

The results from the analysis described above were used to inform tenure in the BRE integrated model, the results of which are provided in the remainder of this report. This sub-section provides a summary of the impacts of the analysis on the data overall and looks at the results of tenure distribution for all wards.

While the key objective of this part of the project was to identify private rented sector stock, this has an impact on the overall tenure estimates, resulting in the changes to the tenure data in the model shown in **Table 5**.

Table 5: Impact of analysis on tenure data

Tenure	Total no. of records	%	Increase/Decrease	Previous total no. of records	Previous %
Owner Occupied	61,644	43.3%	this is a decrease of 1.5% from the baseline	63,839	44.9%
Social Rented	31,116	21.9%	this is a decrease of 3.2% from the baseline	35,658	25.1%
Private Rented	49,501	34.8%	this is an increase of 4.7% from the baseline	42,763	30.1%

Table 6 shows the tenure results at ward level as well as giving the percentage of dwellings in each ward with evidence of tenure after the private rented sector identification analysis. For example, in Abbey ward, there is now tenure evidence for 38.4% of dwellings. For those wards which were based on samples sent to Land Registry, the proportion of dwellings with evidenced tenure varies from around 20% up to over 60%. For the six wards of interest the proportion of dwellings with evidenced tenure varies from around 70% up to over 95%.

Table 6: Summary of tenure distribution after PRS identification and % of all dwellings in each ward with evidence of tenure after this exercise

Ward	Tenure						% of dwellings with evidenced tenure
	Owner occupied		Private rented		Social		
	No.	%	No.	%	No.	%	
Abbey	4,463	47.0%	2,616	27.5%	2,422	25.5%	38.4%
Aylestone	3,115	58.5%	1,526	28.7%	685	12.9%	30.3%
Beaumont Leys	3,103	42.4%	1,694	23.1%	2,521	34.4%	46.2%
Belgrave	2,804	44.4%	1,916	30.3%	1,602	25.3%	42.0%
Braunstone Park & Rowley Fields	3,043	37.6%	1,924	23.8%	3,125	38.6%	97.4%
Castle	3,713	26.6%	9,004	64.4%	1,263	9.0%	65.6%
Evington	3,526	54.7%	1,381	21.4%	1,543	23.9%	36.0%
Eyres Monsell	1,880	38.4%	959	19.6%	2,056	42.0%	53.7%
Fosse	2,417	36.9%	3,350	51.1%	784	12.0%	89.5%
Humberstone & Hamilton	3,534	48.1%	2,396	32.6%	1,414	19.3%	33.4%
Knighton	4,876	69.8%	1,679	24.0%	432	6.2%	23.2%
North Evington	2,694	41.0%	2,257	34.3%	1,622	24.7%	38.8%
Rushey Mead	3,278	57.1%	1,881	32.8%	579	10.1%	28.9%
Saffron	1,218	20.3%	2,821	47.0%	1,968	32.8%	88.0%
Spinney Hills	2,270	60.0%	1,280	33.9%	231	6.1%	31.8%
Stoneygate	3,135	42.9%	3,183	43.6%	985	13.5%	86.7%
Thurncourt	2,488	56.3%	703	15.9%	1,228	27.8%	43.1%
Troon	3,113	60.1%	1,370	26.5%	693	13.4%	32.9%
Westcotes	1,972	25.5%	5,308	68.7%	441	5.7%	69.8%
Western	3,566	43.6%	1,378	16.8%	3,235	39.6%	48.4%
Wycliffe	1,436	31.2%	875	19.0%	2,287	49.7%	62.2%

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3.3   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 Leicester 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 figures[34]. 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 tenure (see **Figure 2**). Furthermore, **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 Leicester. Comparing these maps shows that the distribution of private stock in the central parts of Leicester is similar; however, it is also clear that the growth of the private rented stock has also been seen in other, surrounding areas.

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

	Owner occupied	Private rented	Social	Total
Database	61,644	49,501	31,116	142,261
2011 Census	61,944	29,911	31,270	123,125

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[34] http://www.ons.gov.uk/ons/datasets-and-tables/index.html
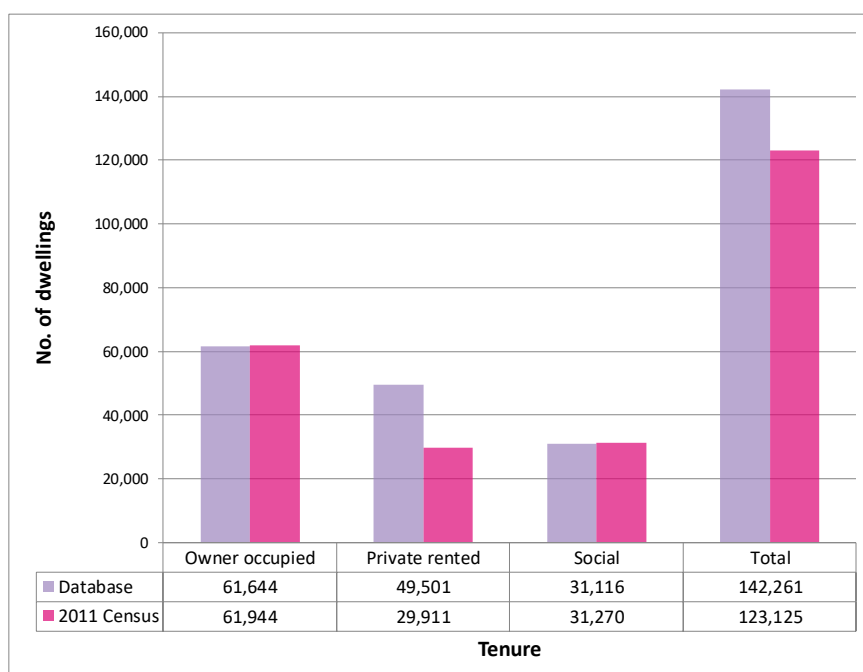
Map 1: Distribution of estimated percentage of private rented dwellings in Leicester – based on database
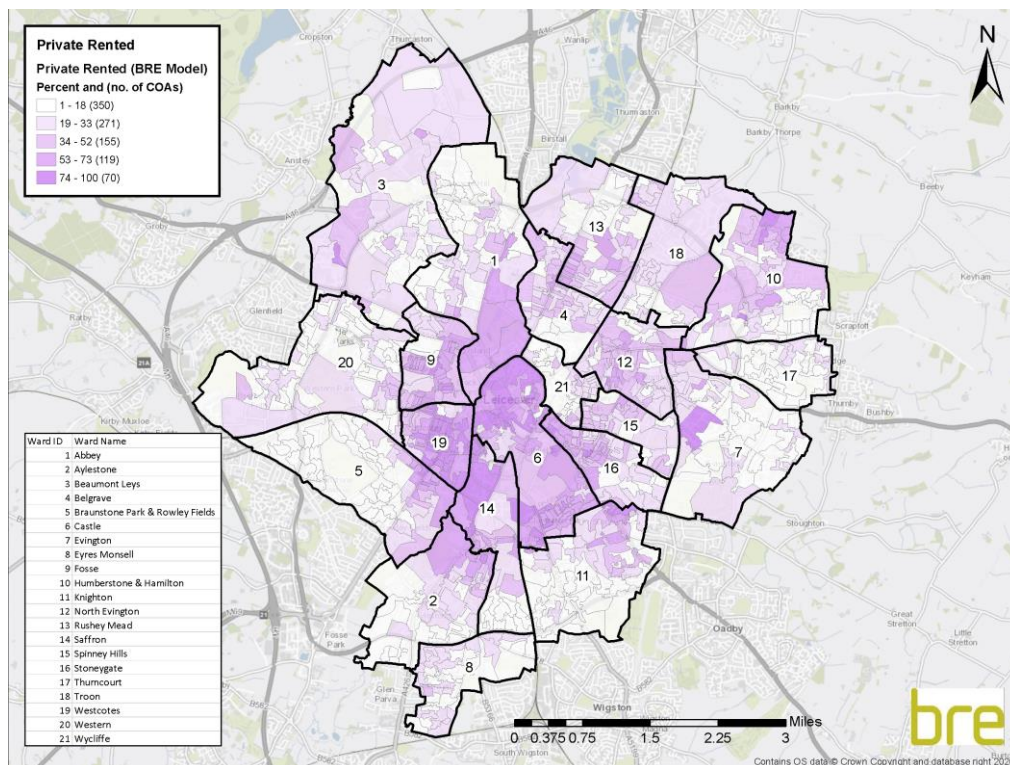
Map 2: Distribution of estimated percentage of private rented dwellings in Leicester – based on 2011 Census Data (Neighbourhood Statistics)
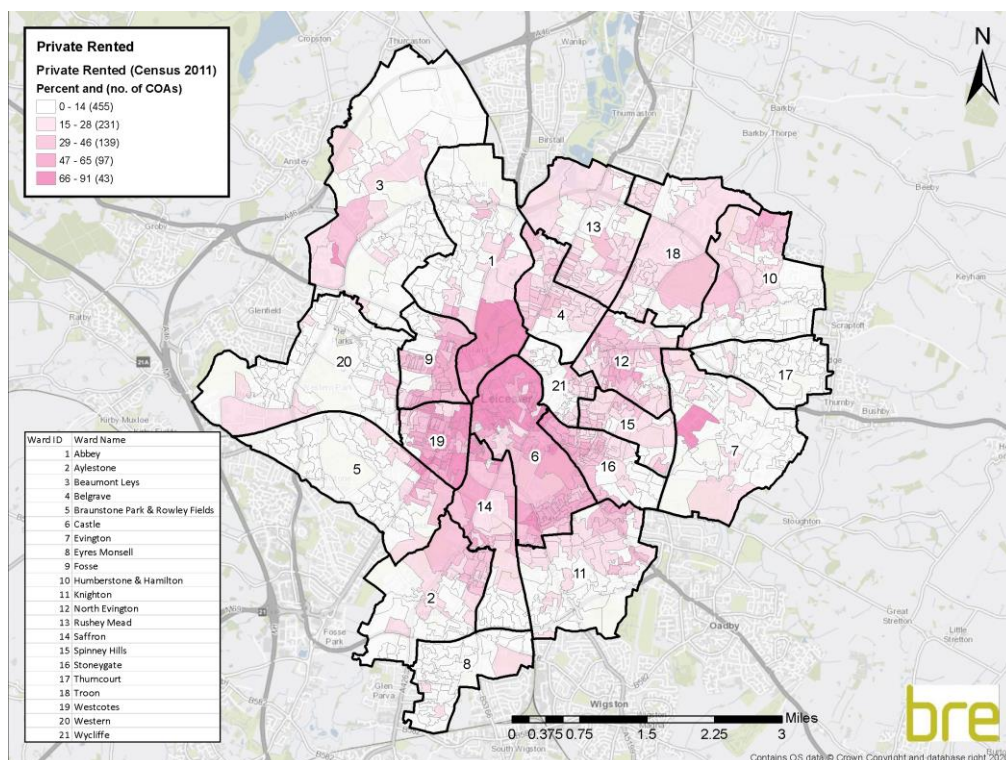
3.3.1 Other national datasets relating to tenure

In addition to the Census data there are other national datasets available which provide information on tenure; these are MHCLG returns[35] and Office for National Statistics (ONS) data[36]. 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 this at an early stage of the project in order to ensure the tenure split is consistent[37].

The ONS data provides subnational (local authority level) data on the dwelling stock broken down by tenure. The ONS split between owner occupied and private rented stock is based on their Annual Population Survey (APS)[38] 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.

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[35] https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants

[36] https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/researchoutputssubnationaldwellingstockbytenureestimatesengland2012to2015/2017-12-04#methodology

[37] This comparison is checked early on in the project through email correspondence with the authority.

[38] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi

bre

It is important to note that the ONS data is not an official statistic and that a disclaimer[39] must be used when reproducing the data (note that the "***dwelling stock by tenure***" in the disclaimer refers to the MHCLG returns data).

Table 7 shows the latest tenure splits from the MHCLG data for Leicester. Since the ONS data is benchmarked to the MHCLG returns, the figures for the private sector stock match. The MHCLG and BRE database figures are similar, with the proportion of private sector stock estimated as being 76% and 78%, respectively. The difference in the ONS and BRE private rented stock percentages is likely to be due to Leicester being a university city with students likely to assume their parents' address to be their main residence.

As previously mentioned in **Section 2.2.1**, the proportion of private rented stock in Leicester from the 2011 Census figures[40] was 24%, and the BRE Database figure of 35% ties in with this given that there is more likely to have been an increase in the private rented stock since 2011.

Table 7: Comparison of MHCLG, ONS and BRE Database figures on tenure split for Leicester *N.B. MHCLG data does not break down private sector into owner occupied and private rented stock and ONS data does not provide an estimate for social stock*

Tenure	Number of dwellings			% of all stock		
	2017 MHCLG	2017 ONS	BRE Database	2017 MHCLG	2017 ONS	BRE Database
Owner occupied	101,530	67,832	61,644	76%	51%	43%
Private rented		33,698	49,501		25%	35%
Social	32,190	-	31,116	24%	-	22%

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[39] ONS Disclaimer: *"We have published these Research outputs to provide an indication of the tenure breakdown of dwellings within the private sector at the subnational level. Research Outputs are produced to provide information about new methods and data sources being investigated. Official statistics on private dwellings by tenure are currently only available at the country level. Statistics on **dwelling stock by tenure**[35] are available for local authorities but do not provide a breakdown of owner-occupied and privately rented dwellings. These statistics are subject to marginal error as they are estimates based on a survey, therefore users should refer to the coefficient of variation (CV) and confidence intervals when making interpretations."*

[40] http://www.ons.gov.uk/ons/datasets-and-tables/index.html

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 HSCD. 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 Leicester. Information at ward level, however, is provided in the maps in **Section 4.2.4** and can also be obtained from the HSCD which has been supplied as part of this project (see **Appendix C** for instructions). The HSCD 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 Leicester. The results are then displayed in the following sub-sections:

- Housing Standards Variables:
    - Leicester – regional and national comparisons
    - Housing Standards Variables by tenure for Leicester
    - Housing Standards Variables mapped by COA for Leicester private sector stock
    - Ward level results for the Housing Standards Variables

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

![bre logo]

4.1   Overview of Leicester

Map 3 below shows the 21 wards in Leicester. 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 key variables 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 Leicester

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe
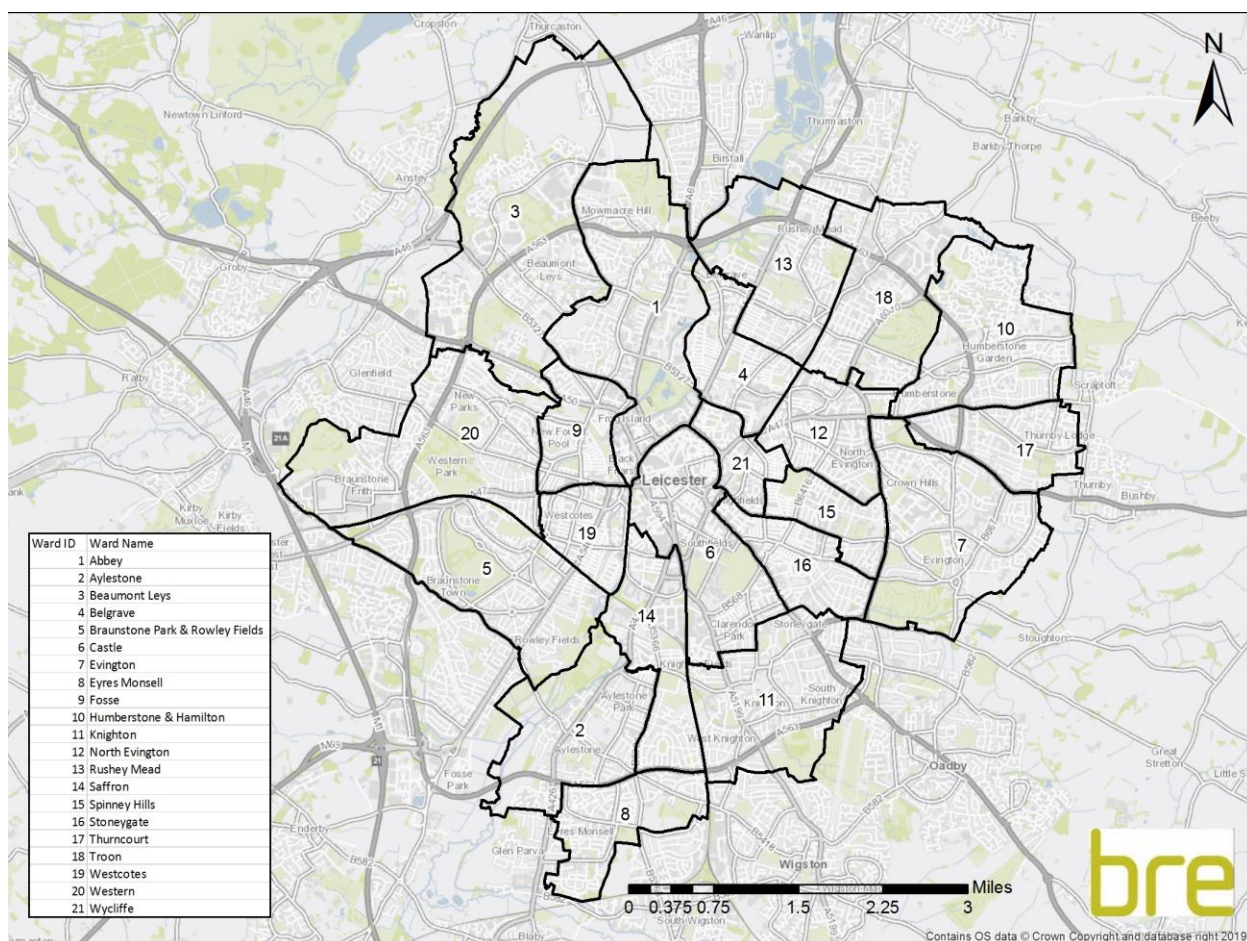
4.2 Housing Standards Variables

4.2.1 Leicester – regional and national comparisons

Table 8 and **Figure 3** show the results for each of the Housing Standards Variables in Leicester compared to the East Midlands region and to England (EHS 2015) 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 Leicester compared to the EHS England average is generally worse, with the exception of excess cold which is slightly better (2% compared to 3%). Levels of all hazards and fall hazards are notably higher in Leicester (14% compared to 12% and 10% compared to 7%, respectively). The proportion of low income households is high compared to the England average (38% compared to 26%). For the remaining variables, levels in Leicester are estimated to be slightly higher - disrepair (5% compared to 4%), fuel poverty (10% definition) (11% compared to 10%) and fuel poverty (low income high cost definition) (13% compared to 11%).

When comparing Leicester to the East Midlands region, the picture is similar with Leicester performing worse with the exception of excess cold and fuel poverty (10% definition).

Comparing Leicester to the EHS England average figures for the private sector stock, Leicester performs slightly better for excess cold, similar for fuel poverty (10% definition), but worse for all hazards, fall hazards, disrepair, fuel poverty (Low Income High Costs definition) and low income households. Again, levels of low income households are notably higher in Leicester.

Compared with the regional average, Leicester private stock has higher rates of all hazards, fall hazards, disrepair, fuel poverty (Low Income High Costs definition) and low income households, but slightly lower rates of excess cold and fuel poverty (10% definition).

The average SimpleSAP ratings in Leicester (**Figure 4**) are slightly lower than the England average but the same as the regional average. For the private sector stock, the average SimpleSAP ratings are the same for Leicester, the regional average and the England average.

Table 8: Estimates of the numbers and percentage of dwellings with the presence of each of the Housing Standards Variables assessed by the Housing Stock Models and HSCD for all stock and private sector stock – Leicester compared to the East Midlands and England (EHS 2015)

Variable		All stock				Private sector stock			
		Leicester (no.)	Leicester (%)	2015 EHS Regional (%)	2015 EHS England (%)	Leicester (no.)	Leicester (%)	2015 EHS Regional (%)	2015 EHS England (%)
No. of dwellings		142,261	-	-	-	111,145	-	-	-
HHSRS category 1 hazards	All hazards	19,471	14%	13%	12%	17,527	16%	14%	13%
	Excess cold	2,938	2%	4%	3%	2,667	2%	4%	4%
	Fall hazards	13,647	10%	8%	7%	12,270	11%	8%	8%
Disrepair		6,943	5%	4%	4%	6,090	5%	4%	4%
Fuel poverty (10%)		15,395	11%	13%	10%	11,155	10%	12%	10%
Fuel poverty (Low Income High Costs)		19,131	13%	13%	11%	16,331	15%	13%	11%
Low income households		53,388	38%	26%	26%	30,106	27%	18%	17%

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.

bre

Figure 3: Estimates of the percentage of dwellings with the presence of each pf the Housing Standards Variables assessed by the Housing Stock Models and HSCD for all stock and private sector stock – Leicester compared to the East Midlands and England (EHS 2015)
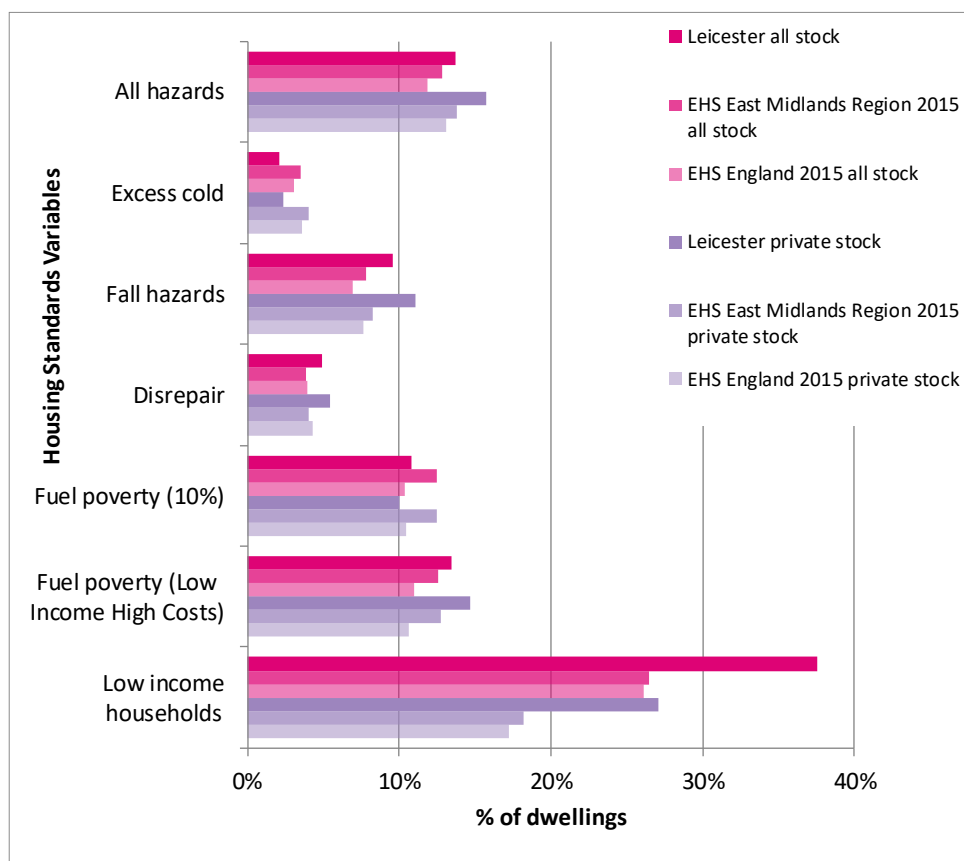
Figure 4: Average SimpleSAP ratings for all stock and private sector stock – Leicester compared to the East Midlands and England (EHS 2015)
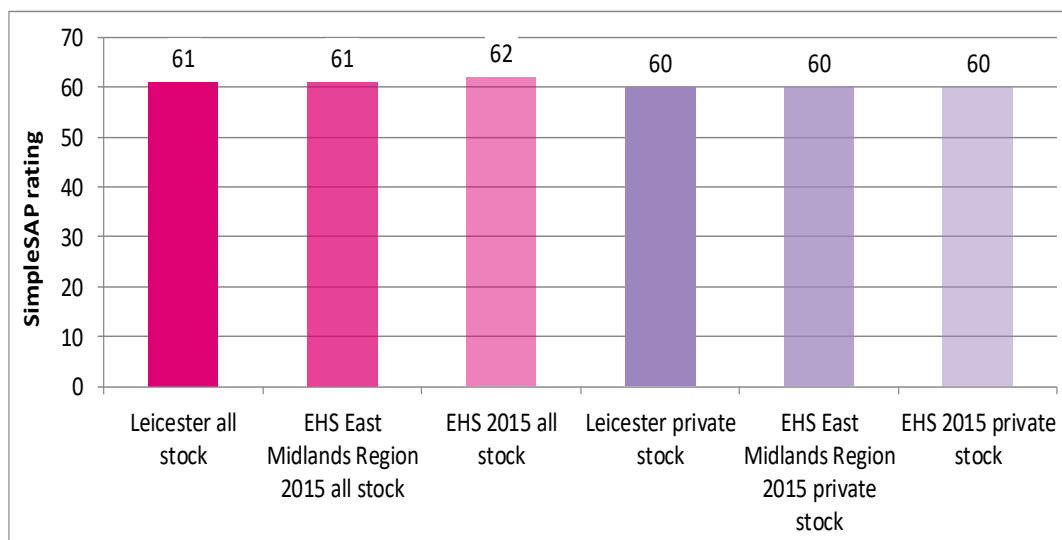
4.2.2 Housing Standards Variables by tenure – Leicester

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 9 and **Figure 5** below show the results for each of the Housing Standards Variables 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 variables including SimpleSAP. Social stock tends 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 variable. For fuel poverty, however, the social tenure shows the highest levels for the 10% definition but the private rented 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, the private rented stock has a higher proportion of all hazards, excess cold, disrepair, fuel poverty (Low Income High Costs definition) and low income households compared to the owner occupied stock.

Table 9: Estimates of the numbers and percentage of dwellings with the presence of each of the Housing Standards Variables assessed by the Housing Stock Models and HSCD by tenure for Leicester

Variable		Private sector stock				Social stock	
		Owner occupied		Private rented			
		No.	%	No.	%	No.	%
No. of dwellings		61,644	-	49,501	-	31,116	-
HHSRS category 1 hazards	All hazards	8,986	15%	8,541	17%	1,944	6%
	Excess cold	1,219	2%	1,448	3%	271	1%
	Fall hazards	6,803	11%	5,467	11%	1,377	4%
Disrepair		2,677	4%	3,413	7%	853	3%
Fuel poverty (10%)		7,015	11%	4,140	8%	4,240	14%
Fuel poverty (Low Income High Costs)		7,014	11%	9,317	19%	2,800	9%
Low income households		12,701	21%	17,405	35%	23,282	75%

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.

bre

Figure 5: Estimates of the percentage of dwellings with the presence of each of the Housing Standards Variables assessed by the Housing Stock Models and HSCD by tenure for Leicester
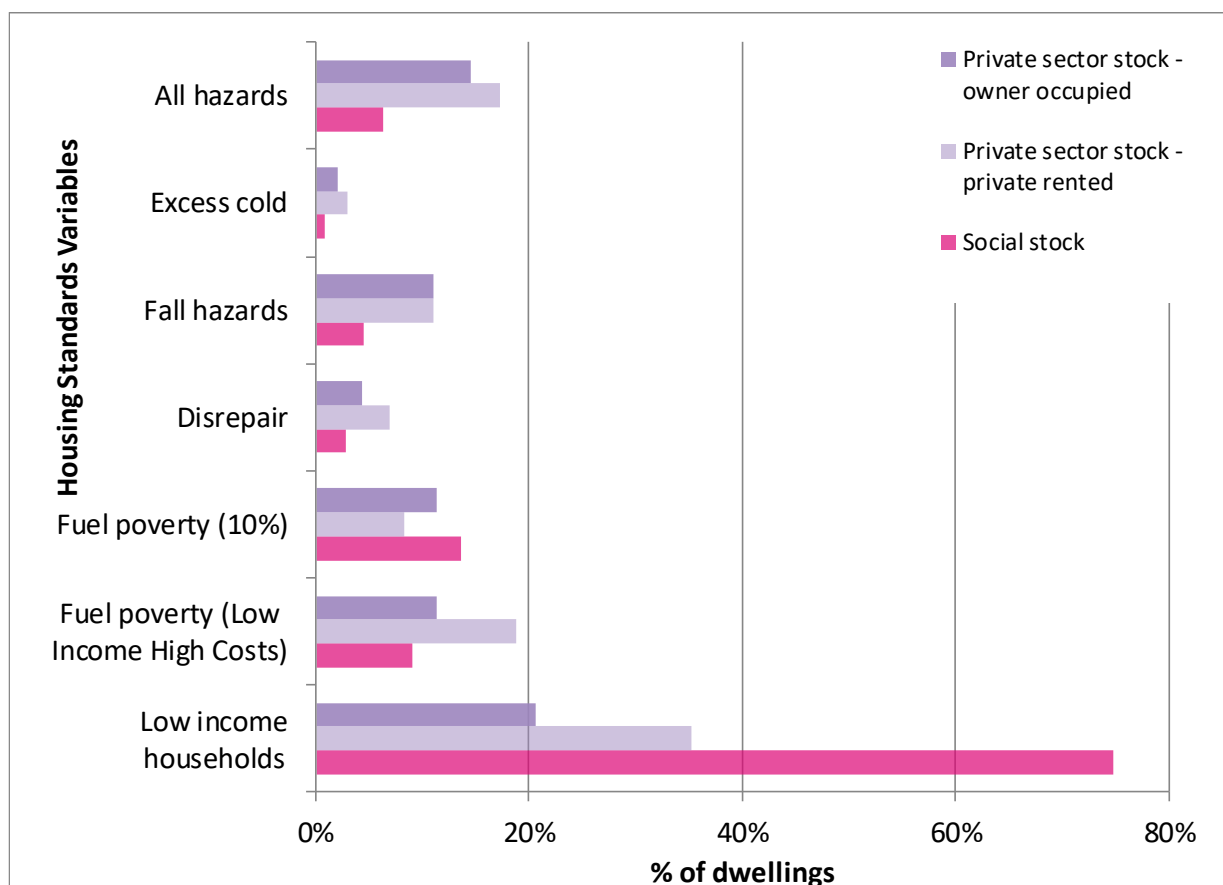
Figure 6: Average SimpleSAP ratings by tenure for Leicester
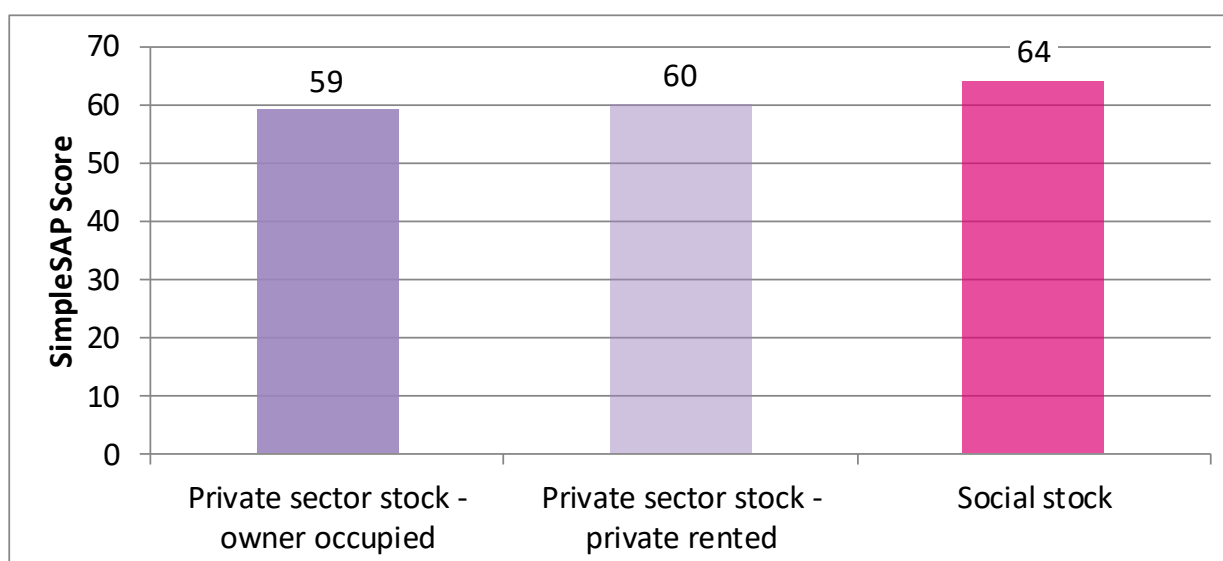
4.2.3 Housing Standards Variables mapped by Census Output Area (COA) – Leicester private sector stock

Some of the Housing Standards Variables are also provided in map form below along with a brief description of each variable[41], 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 Housing Standards Variables.

The ranges shown in the map keys are defined based on the Jenks' Natural Breaks algorithm of the COA statistics[42]. 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 variables 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 SimpleSAP[43] rating**

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

These maps are extremely useful in showing the geographical distribution for single variables. Maps can also be produced for a combination of variables, 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,

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[41] See **Appendix A** for full definitions.

[42] 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.

[43] Important note: Whilst it is possible to provide "SimpleSAP" ratings from the "SimpleCO$_2$" 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 84 COAs that have 26-39% 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 2004[7] 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) hazard[44].

The HHSRS category 1 hazards map (**Map 4**) shows that there are concentrations of high levels of category 1 hazards scattered across the area with a tendency towards the outer urban areas of the city, although the area to the north of the city has lower levels of hazards. The data behind the map shows that the wards with the highest levels overall are Westcotes, Spinney Hills and Belgrave.

Looking at the hazard of excess cold in Leicester there are higher concentrations scattered across the area but with slightly higher levels towards the south of the city centre – see **Map 5**. The data behind the map shows that the highest levels overall are in Westcotes, Saffron and Stoneygate but there are also higher concentrations elsewhere – for example southern parts of Western ward.

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 across the outer urban areas. The data behind this shows that the wards with the highest levels of fall hazards are Fosse, Belgrave and Aylestone.

There are generally lower levels of all hazards in the city centre which may be a result of more flats and purpose built student accommodation in these areas, to meet the demand from commuter and student populations, which are less likely to contain hazards due to their age, construction and modernised amenities.

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[44] Housing Health and Safety Rating System Operating Guidance, ODPM, 2006

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

Private Stock

HHSRS Cat. 1 Hazards
Percent and (no. of COAs)

	0 - 8 (158)
	9 - 14 (271)
	15 - 19 (284)
	20 - 25 (168)
	26 - 39 (84)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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

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Private Stock

HHSRS Excess Cold
Percent and (no. of COAs)
- 0 - 1 (480)
- 2 - 3 (304)
- 4 - 7 (152)
- 8 - 15 (26)
- 16 - 25 (3)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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

Integrated Dwelling Level Housing Stock Modelling and Database

Private Stock

HHSRS Falls Hazards
Percent and (no. of COAs)

- 0 - 5 (132)
- 6 - 9 (170)
- 10 - 13 (377)
- 14 - 17 (195)
- 18 - 25 (91)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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4.2.3.2   Disrepair

The disrepair variable used in this report is based on the disrepair component of the Decent Homes Standard[45,46]. 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 Leicester and indicates that there are pockets of higher levels of disrepair across the area, again particularly the outer urban areas of Leicester. The data behind the map shows that the highest levels overall are in the wards of Westcotes, Fosse and Belgrave.

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[45] https://www.gov.uk/government/publications/a-decent-home-definition-and-guidance

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

Private Stock

Disrepair
Percent and (no. of COAs)
- 0 - 2 (187)
- 3 - 5 (347)
- 6 - 8 (255)
- 9 - 14 (168)
- 15 - 22 (8)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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4.2.3.3 Fuel poverty

The current fuel poverty definition is known as the Low Income High Costs variable. This is a dual variable which firstly provides an indication of the number of households in fuel poverty and secondly an indication of the cost (in £) to remove households from fuel poverty – this cost is referred to as the Fuel Poverty Gap[47].

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 poverty[48]
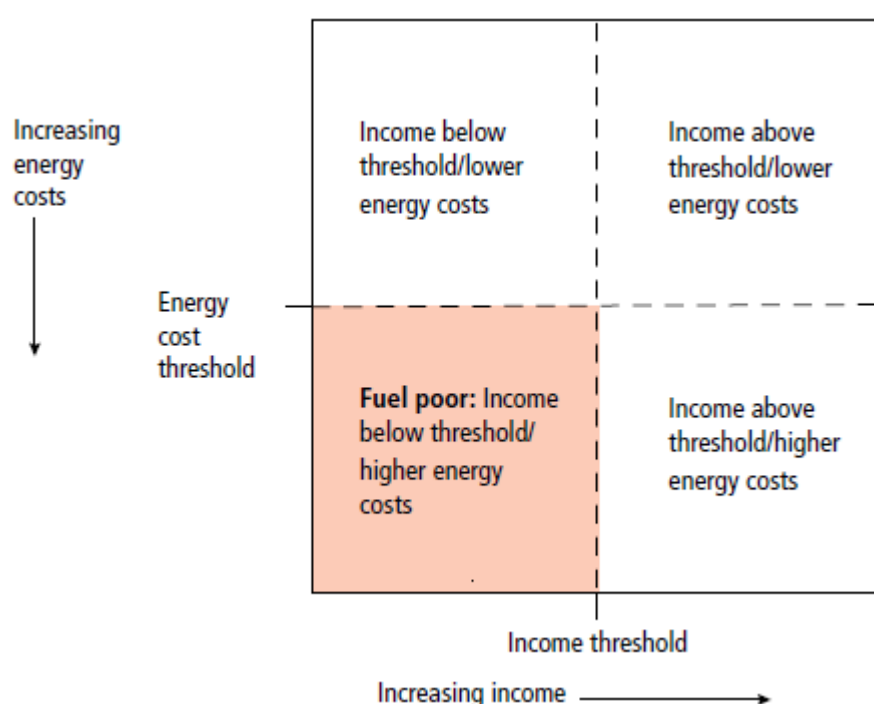
As the Low Income High Cost fuel poverty variable is a relative measure, it provides a steady trend in the number of fuel poor households over time. A change in income will only have an impact on fuel poverty if households with low incomes and high costs see relatively larger income changes (increases or decreases) than the overall average change in income.

In contrast, the fuel poverty gap is more responsive to changes in energy prices and the economy, therefore providing a clearer measure of the depth of fuel poverty among those fuel poor households. This measure is therefore more useful for identifying trends in fuel poverty over time.

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[47] DECC, Annual Fuel Poverty Statistics Report, 2016 – England (National Statistics), 20 June 2016

[48] Hills J, Getting the measure of fuel poverty – Final Report of the Fuel Poverty Review, London: LSE, 2012

bre

Map 8 shows that, based on the Low Income High Costs definition, there are pockets of higher concentrations scattered across the area. The wards with the highest concentrations overall are Eyres Monsell, Braunstone Park & Rowley Fields and Saffron. There are also pockets of higher levels elsewhere, such as north of Abbey ward and south of Belgrave ward.

The national indicators for the fuel poverty gap are expressed as the average fuel poverty gap, which is the average amount of money required to lift a fuel poor household out of fuel poverty (£321 in England in 2017). The aggregated fuel poverty gap – i.e. the total amount of money required to lift *all* fuel poor households out of fuel poverty in England is £812 million (in 2017).

Figure 8 provides the national average fuel poverty gap figures by SAP band for private sector stock. By using the bandings based on the SimpleSAP model it is possible to estimate the aggregated fuel poverty gap within each band for the fuel poor households in Leicester. **Figure 9** shows similar estimates for the private rented sector. The estimated aggregated fuel poverty gap for fuel poor households in the private sector in Leicester is £6.36 million, of which £3.17 million is from the private rented sector.

The 1,053 private rented households living in dwellings with a SimpleSAP rating of F or G would require increases in income totalling £1,088,802 per year to lift them out of fuel poverty.

Figure 8: Aggregated fuel poverty gap figures for the private sector stock in Leicester by SAP band
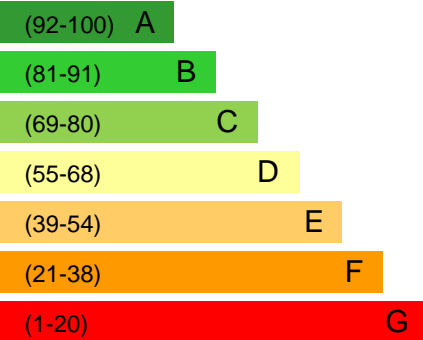
	Avg fuel poverty gap (England 2017)	Leicester	
		Fuel poor households	Aggregated fuel poverty gap
	£	Count	£
(92-100) A / (81-91) B / (69-80) C	168	797	134,107
(55-68) D	223	7653	1,709,731
(39-54) E	421	6023	2,534,374
(21-38) F / (1-20) G	1,056	1879	1,984,688

bre

Figure 9: Aggregated fuel poverty gap figures for the private rented sector stock in Leicester by SAP band

	Avg fuel poverty gap (England 2017)	Leicester	
		Fuel poor households	Aggregated fuel poverty gap
	£	Count	£
(92-100) A			
(81-91) B	97	608	58,976
(69-80) C			
(55-68) D	203	4290	870,870
(39-54) E	339	3387	1,148,193
(21-38) F	1,034	1053	1,088,802
(1-20) G			

For completeness of information, and comparison with previous data, this report also includes an analysis of fuel poverty using the original definition. This 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[48]). For the purposes of this report this is referred to as "fuel poverty (10% definition)".

Map 9 shows the distribution of households in fuel poverty using the 10% definition. There is a similar pattern to the distribution of fuel poverty using the Low Income High Costs definition, although the more rural areas also have higher levels of fuel poverty under the 10% definition.

Private Stock

Fuel Poverty LIHC

Percent and (no. of COAs)

	0 - 10 (179)
	11 - 16 (376)
	17 - 22 (290)
	23 - 40 (118)
	41 - 75 (2)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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

Private Stock

Fuel Poverty 10%

Percent and (no. of COAs)

	0 - 6 (202)
	7 - 11 (336)
	12 - 16 (259)
	17 - 22 (123)
	23 - 34 (45)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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![bre logo]

4.2.3.4   Low income households

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

- Means tested benefits or tax credits with a relevant income below the threshold of £16,105
- Attendance allowance
- Disability living allowance
- Personal Independence Payment
- Industrial injuries disablement benefit
- War disablement pension
- Income support or income based Job Seekers Allowance/incapacity benefit that included an income support component
- income based Employment and Support Allowance
- Universal Credit
- Housing related benefits that help pay towards rent
- Any household on a low income that has had their income imputed up to their basic income support entitlement
- Pension credit
- Child tax credit
- Working tax 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 £16,105.

Map 10 clearly shows that there are particular concentrations of low income households – for example to the north east of the city centre, and in the far south of the council area. The highest levels overall are found in Eyres Monsell, Wycliffe and North Evington. However, there are other areas which also have high concentrations of low income households; for example, to the south of Belgrave ward, north of Wycliffe ward, to the south of Eyres Monsell and Saffron ward and scattered across the north of Abbey 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, with the highest levels in areas such as east North Evington, west of Stoneygate ward and to the south of Humberstone & Hamilton ward.

Private Stock

Low Income Households
Percent and (no. of COAs)

- 0 - 18 (259)
- 19 - 33 (279)
- 34 - 48 (225)
- 49 - 68 (157)
- 69 - 100 (45)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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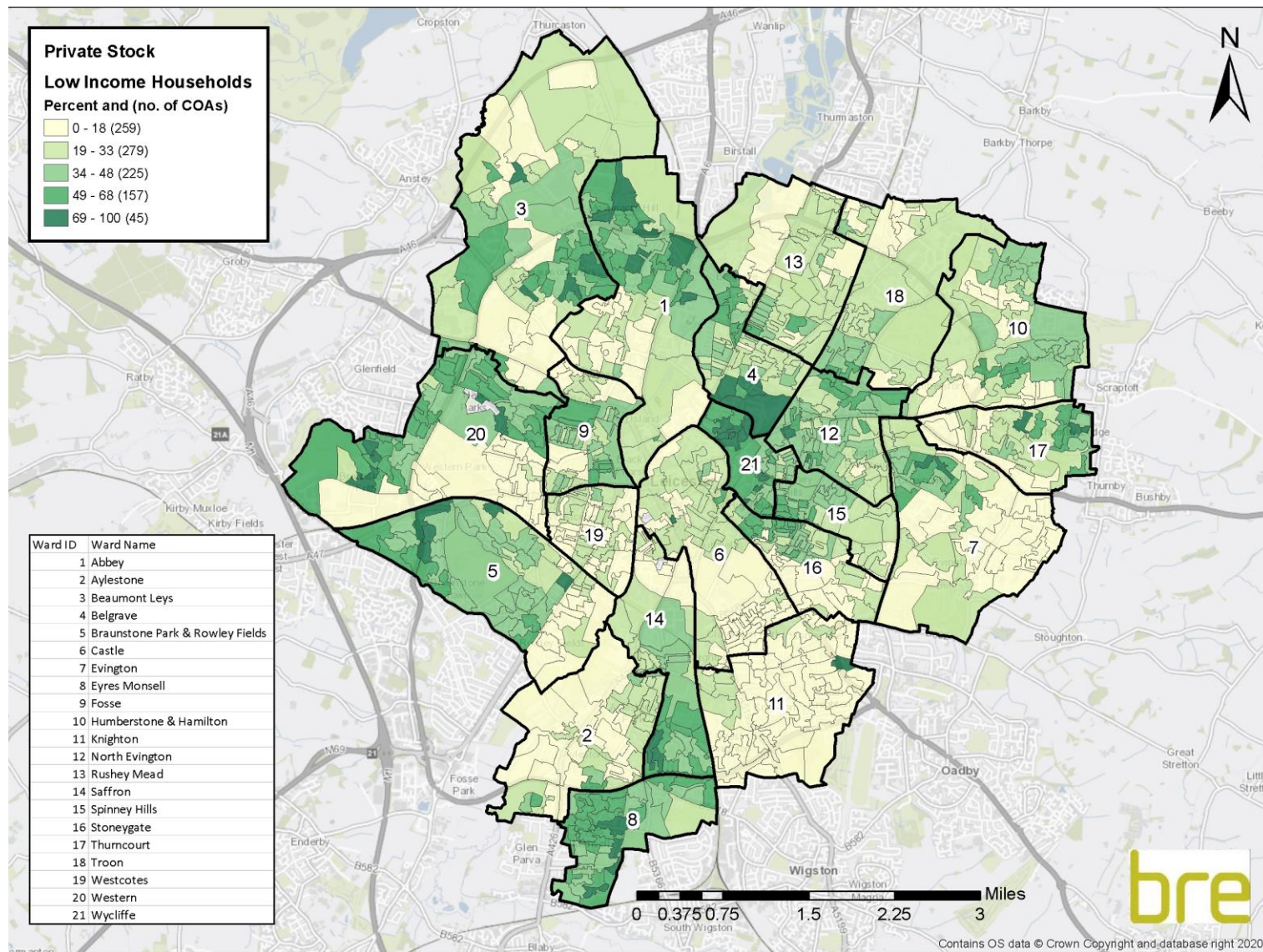
Map 11: Percentage of private sector dwellings in Leicester with both the presence of a HHSRS category 1 hazard for excess cold and occupied by low income households

Private Stock

Excess Cold and Low Income
Percent and (no. of COAs)

- 0 (615)
- 1 (226)
- 2 - 3 (108)
- 4 - 7 (15)
- 8 - 25 (1)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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4.2.3.5   SimpleSAP

The average SimpleSAP map (**Map 12**) shows that areas with lower average SimpleSAP ratings are clustered throughout with a tendency towards the outer urban areas. The noticeably higher average SimpleSAP ratings towards the city centre may be a result of a higher proportion of flats in these areas which tend to have higher SimpleSAP ratings. Whilst no particular ward obviously dominates, the data behind the map shows that the wards with the lowest average SimpleSAP ratings are Spinney Hills, Knighton and Stoneygate.

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.

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Integrated Dwelling Level Housing Stock Modelling and Database

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

Private Stock

Average SimpleSAP
Score and (no. of COAs)

- 42 - 55 (233)
- 56 - 59 (294)
- 60 - 63 (240)
- 64 - 68 (145)
- 69 - 77 (53)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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4.2.4   Ward level results for the Housing Standards Variables

The previous maps have provided a visual representation of the Housing Standards Variables at Census Output Area (COA) level. The following tables provide the complete set of figures at ward level for each of the variables; firstly, for the total stock (**Table 10**) and secondly, for the private sector stock (**Table 11**), owner occupied sector stock (**Table 12**) and private rented sector stock (**Table 13**). This allows a direct comparison between the wards in Leicester.

Table 10: *Total stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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	9,501	985 (10%)	142 (1%)	734 (8%)	331 (3%)	1,097 (12%)	1,234 (13%)	3,840 (40%)	64
Aylestone	5,326	851 (16%)	117 (2%)	680 (13%)	290 (5%)	636 (12%)	829 (16%)	1,439 (27%)	58
Beaumont Leys	7,318	504 (7%)	42 (1%)	399 (5%)	122 (2%)	690 (9%)	922 (13%)	3,370 (46%)	65
Belgrave	6,322	1,092 (17%)	71 (1%)	772 (12%)	424 (7%)	681 (11%)	751 (12%)	2,805 (44%)	60
Braunstone Park & Rowley Fields	8,092	1,141 (14%)	144 (2%)	844 (10%)	426 (5%)	1,144 (14%)	1,255 (16%)	4,028 (50%)	59
Castle	13,980	1,440 (10%)	306 (2%)	906 (6%)	589 (4%)	926 (7%)	1,602 (11%)	3,271 (23%)	66
Evington	6,450	744 (12%)	98 (2%)	537 (8%)	240 (4%)	654 (10%)	712 (11%)	2,292 (36%)	61
Eyres Monsell	4,895	503 (10%)	53 (1%)	398 (8%)	176 (4%)	745 (15%)	750 (15%)	3,022 (62%)	62
Fosse	6,551	1,221 (19%)	127 (2%)	924 (14%)	500 (8%)	609 (9%)	1,100 (17%)	2,462 (38%)	58
Humberstone & Hamilton	7,344	725 (10%)	108 (1%)	531 (7%)	191 (3%)	710 (10%)	897 (12%)	2,671 (36%)	63
Knighton	6,987	1,114 (16%)	224 (3%)	767 (11%)	339 (5%)	539 (8%)	799 (11%)	997 (14%)	57
North Evington	6,573	1,150 (17%)	152 (2%)	769 (12%)	425 (6%)	800 (12%)	860 (13%)	3,062 (47%)	58
Rushey Mead	5,738	948 (17%)	110 (2%)	672 (12%)	330 (6%)	677 (12%)	691 (12%)	1,777 (31%)	58
Saffron	6,007	813 (14%)	188 (3%)	522 (9%)	320 (5%)	662 (11%)	900 (15%)	2,391 (40%)	61
Spinney Hills	3,781	772 (20%)	84 (2%)	512 (14%)	266 (7%)	497 (13%)	568 (15%)	1,428 (38%)	55
Stoneygate	7,303	1,319 (18%)	238 (3%)	833 (11%)	501 (7%)	813 (11%)	1,176 (16%)	2,537 (35%)	57
Thurncourt	4,419	540 (12%)	60 (1%)	418 (9%)	170 (4%)	648 (15%)	622 (14%)	1,960 (44%)	60
Troon	5,176	581 (11%)	77 (1%)	438 (8%)	171 (3%)	496 (10%)	608 (12%)	1,678 (32%)	62

Table 10 cont.: *Total stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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		
Westcotes	7,721	1,557 (20%)	414 (5%)	910 (12%)	623 (8%)	633 (8%)	1,164 (15%)	1,420 (18%)	58
Western	8,179	905 (11%)	123 (2%)	707 (9%)	295 (4%)	1,087 (13%)	1,153 (14%)	4,139 (51%)	62
Wycliffe	4,598	566 (12%)	60 (1%)	374 (8%)	214 (5%)	651 (14%)	538 (12%)	2,799 (61%)	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 <u>and</u> 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 11: *Private sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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	7,079	840 (12%)	116 (2%)	634 (9%)	269 (4%)	754 (11%)	1,020 (14%)	2,021 (29%)	63
Aylestone	4,641	810 (17%)	113 (2%)	650 (14%)	271 (6%)	540 (12%)	768 (17%)	946 (20%)	57
Beaumont Leys	4,797	393 (8%)	27 (1%)	319 (7%)	80 (2%)	413 (9%)	689 (14%)	1,433 (30%)	64
Belgrave	4,720	980 (21%)	65 (1%)	689 (15%)	361 (8%)	477 (10%)	624 (13%)	1,602 (34%)	58
Braunstone Park & Rowley Fields	4,967	893 (18%)	102 (2%)	672 (14%)	325 (7%)	672 (14%)	902 (18%)	1,557 (31%)	57
Castle	12,717	1,373 (11%)	279 (2%)	875 (7%)	565 (4%)	723 (6%)	1,511 (12%)	2,301 (18%)	66
Evington	4,907	666 (14%)	88 (2%)	481 (10%)	205 (4%)	435 (9%)	593 (12%)	1,079 (22%)	59
Eyres Monsell	2,839	367 (13%)	33 (1%)	296 (10%)	120 (4%)	452 (16%)	561 (20%)	1,417 (50%)	61
Fosse	5,767	1,142 (20%)	120 (2%)	867 (15%)	463 (8%)	531 (9%)	1,024 (18%)	1,944 (34%)	58
Humberstone & Hamilton	5,930	638 (11%)	92 (2%)	469 (8%)	159 (3%)	525 (9%)	771 (13%)	1,707 (29%)	63
Knighton	6,555	1,086 (17%)	215 (3%)	752 (11%)	328 (5%)	478 (7%)	767 (12%)	692 (11%)	56
North Evington	4,951	1,024 (21%)	133 (3%)	681 (14%)	363 (7%)	594 (12%)	725 (15%)	1,844 (37%)	57
Rushey Mead	5,159	906 (18%)	108 (2%)	640 (12%)	310 (6%)	592 (11%)	629 (12%)	1,365 (26%)	57
Saffron	4,039	727 (18%)	179 (4%)	452 (11%)	287 (7%)	454 (11%)	728 (18%)	1,096 (27%)	59
Spinney Hills	3,550	745 (21%)	82 (2%)	495 (14%)	254 (7%)	470 (13%)	548 (15%)	1,290 (36%)	55
Stoneygate	6,318	1,226 (19%)	227 (4%)	774 (12%)	456 (7%)	724 (11%)	1,086 (17%)	1,895 (30%)	56
Thurncourt	3,191	460 (14%)	48 (2%)	357 (11%)	139 (4%)	433 (14%)	519 (16%)	937 (29%)	59
Troon	4,483	535 (12%)	73 (2%)	404 (9%)	152 (3%)	441 (10%)	546 (12%)	1,191 (27%)	62

Table 11 cont.: *Private sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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		
Westcotes	7,280	1,533 (21%)	413 (6%)	891 (12%)	612 (8%)	585 (8%)	1,135 (16%)	1,112 (15%)	58
Western	4,944	723 (15%)	108 (2%)	564 (11%)	215 (4%)	605 (12%)	847 (17%)	1,580 (32%)	59
Wycliffe	2,311	460 (20%)	46 (2%)	308 (13%)	156 (7%)	257 (11%)	338 (15%)	1,097 (47%)	57

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 <u>and</u> 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 12: *Owner occupied sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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	4,463	502 (11%)	71 (2%)	401 (9%)	143 (3%)	563 (13%)	564 (13%)	927 (21%)	63
Aylestone	3,115	526 (17%)	87 (3%)	430 (14%)	148 (5%)	414 (13%)	448 (14%)	445 (14%)	57
Beaumont Leys	3,103	243 (8%)	19 (1%)	202 (7%)	42 (1%)	297 (10%)	389 (13%)	562 (18%)	64
Belgrave	2,804	557 (20%)	30 (1%)	410 (15%)	185 (7%)	319 (11%)	279 (10%)	826 (29%)	57
Braunstone Park & Rowley Fields	3,043	502 (16%)	62 (2%)	394 (13%)	162 (5%)	460 (15%)	412 (14%)	771 (25%)	58
Castle	3,713	301 (8%)	46 (1%)	223 (6%)	105 (3%)	192 (5%)	209 (6%)	526 (14%)	67
Evington	3,526	459 (13%)	59 (2%)	348 (10%)	132 (4%)	304 (9%)	356 (10%)	554 (16%)	59
Eyres Monsell	1,880	241 (13%)	24 (1%)	197 (10%)	72 (4%)	345 (18%)	338 (18%)	748 (40%)	61
Fosse	2,417	440 (18%)	45 (2%)	354 (15%)	144 (6%)	283 (12%)	290 (12%)	479 (20%)	58
Humberstone & Hamilton	3,534	389 (11%)	64 (2%)	289 (8%)	87 (2%)	356 (10%)	398 (11%)	650 (18%)	62
Knighton	4,876	786 (16%)	153 (3%)	570 (12%)	210 (4%)	345 (7%)	471 (10%)	447 (9%)	56
North Evington	2,694	521 (19%)	67 (2%)	372 (14%)	167 (6%)	350 (13%)	278 (10%)	759 (28%)	56
Rushey Mead	3,278	506 (15%)	63 (2%)	381 (12%)	160 (5%)	399 (12%)	289 (9%)	651 (20%)	58
Saffron	1,218	201 (17%)	47 (4%)	143 (12%)	59 (5%)	188 (15%)	188 (15%)	330 (27%)	60
Spinney Hills	2,270	441 (19%)	45 (2%)	316 (14%)	143 (6%)	314 (14%)	243 (11%)	594 (26%)	54
Stoneygate	3,135	542 (17%)	99 (3%)	372 (12%)	177 (6%)	385 (12%)	306 (10%)	536 (17%)	56
Thurncourt	2,488	355 (14%)	38 (2%)	278 (11%)	101 (4%)	353 (14%)	356 (14%)	582 (23%)	59
Troon	3,113	363 (12%)	50 (2%)	283 (9%)	91 (3%)	347 (11%)	326 (10%)	652 (21%)	62

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Table 12 cont.: *Owner occupied sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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		
Westcotes	1,972	294 (15%)	40 (2%)	217 (11%)	113 (6%)	162 (8%)	186 (9%)	250 (13%)	60
Western	3,566	528 (15%)	84 (2%)	418 (12%)	144 (4%)	471 (13%)	524 (15%)	852 (24%)	59
Wycliffe	1,436	289 (20%)	26 (2%)	205 (14%)	92 (6%)	168 (12%)	164 (11%)	560 (39%)	56

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 <u>and</u> 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 13: *Private rented sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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	2,616	338 (13%)	45 (2%)	233 (9%)	126 (5%)	191 (7%)	456 (17%)	1,094 (42%)	64
Aylestone	1,526	284 (19%)	26 (2%)	220 (14%)	123 (8%)	126 (8%)	320 (21%)	501 (33%)	59
Beaumont Leys	1,694	150 (9%)	8 (0%)	117 (7%)	38 (2%)	116 (7%)	300 (18%)	871 (51%)	65
Belgrave	1,916	423 (22%)	35 (2%)	279 (15%)	176 (9%)	158 (8%)	345 (18%)	776 (41%)	59
Braunstone Park & Rowley Fields	1,924	391 (20%)	40 (2%)	278 (14%)	163 (8%)	212 (11%)	490 (25%)	786 (41%)	57
Castle	9,004	1,072 (12%)	233 (3%)	652 (7%)	460 (5%)	531 (6%)	1,302 (14%)	1,775 (20%)	65
Evington	1,381	207 (15%)	29 (2%)	133 (10%)	73 (5%)	131 (9%)	237 (17%)	525 (38%)	60
Eyres Monsell	959	126 (13%)	9 (1%)	99 (10%)	48 (5%)	107 (11%)	223 (23%)	669 (70%)	61
Fosse	3,350	702 (21%)	75 (2%)	513 (15%)	319 (10%)	248 (7%)	734 (22%)	1,465 (44%)	58
Humberstone & Hamilton	2,396	249 (10%)	28 (1%)	180 (8%)	72 (3%)	169 (7%)	373 (16%)	1,057 (44%)	65
Knighton	1,679	300 (18%)	62 (4%)	182 (11%)	118 (7%)	133 (8%)	296 (18%)	245 (15%)	58
North Evington	2,257	503 (22%)	66 (3%)	309 (14%)	196 (9%)	244 (11%)	447 (20%)	1,085 (48%)	57
Rushey Mead	1,881	400 (21%)	45 (2%)	259 (14%)	150 (8%)	193 (10%)	340 (18%)	714 (38%)	57
Saffron	2,821	526 (19%)	132 (5%)	309 (11%)	228 (8%)	266 (9%)	540 (19%)	766 (27%)	59
Spinney Hills	1,280	304 (24%)	37 (3%)	179 (14%)	111 (9%)	156 (12%)	305 (24%)	696 (54%)	56
Stoneygate	3,183	684 (21%)	128 (4%)	402 (13%)	279 (9%)	339 (11%)	780 (25%)	1,359 (43%)	56
Thurncourt	703	105 (15%)	10 (1%)	79 (11%)	38 (5%)	80 (11%)	163 (23%)	355 (50%)	60
Troon	1,370	172 (13%)	23 (2%)	121 (9%)	61 (4%)	94 (7%)	220 (16%)	539 (39%)	63

Table 13 cont.: *Private rented sector stock* – number and percentage of dwellings for each of the Housing Standards Variables, 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		
Westcotes	5,308	1,239 (23%)	373 (7%)	674 (13%)	499 (9%)	423 (8%)	949 (18%)	862 (16%)	57
Western	1,378	195 (14%)	24 (2%)	146 (11%)	71 (5%)	134 (10%)	323 (23%)	728 (53%)	61
Wycliffe	875	171 (20%)	20 (2%)	103 (12%)	64 (7%)	89 (10%)	174 (20%)	537 (61%)	58

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 Leicester private sector stock

Table 14 shows the total number of dwellings with HHSRS category 1 hazards in Leicester's private sector stock 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 2015 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 14: Estimated costs to mitigate all category 1 hazards in private sector stock, split into tenure

Tenure	No. of hazards	Total cost (£)
Private Sector	17,527	47,958,141
Owner occupied	8,986	24,587,884
Private rented	8,541	23,370,256

4.3.2   EPC ratings in the Leicester 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 10 below shows the bands A – G and corresponding SAP ratings in brackets. The first two columns show the number and percentage of Leicester'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 Leicester 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 4,795 (4.3%). Leicester has a lower proportion of dwellings in bands C, D, F and G and higher proportions in band E.

Figure 10: Number and percentage of Leicester'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*

	Leicester		2015 EHS England
	Count	**Percent**	**Percent**
(92-100) A	0	0.0%	1.1%
(81-91) B	1,033	0.9%	
(69-80) C	24,840	22.3%	23.2%
(55-68) D	53,773	48.4%	51.9%
(39-54) E	26,704	24.0%	18.5%
(21-38) F	4,117	3.7%	4.3%
(1-20) G	678	0.6%	1.1%

![bre logo]

Under the Energy Act 2011, from 1 April 2018 landlords have to ensure that when they grant a tenancy to a new or existing tenant, their properties must meet a minimum energy efficiency standard – this is currently set at band E[15, 49]. From 1 April 2020, landlords can no longer continue letting a property which is already let if it has an EPC rating of F or G[50].

Figure 11 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 Leicester with a rating below band E (i.e. bands F and G), is estimated to be 2,378 (4.8%). Compared to England, there are a greater proportion of dwellings in band E, and a slightly lower proportion in band D.

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 are not be eligible to be rented out under new or renewed tenancies, and existing tenancies from 1 April 2020.

Figure 11: Number and percentage of Leicester'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*

	Leicester		2015 EHS England
	Count	**Percent**	**Percent**
(92-100) A	0	0.0%	1.2%
(81-91) B	722	1.5%	
(69-80) C	12,617	25.5%	25.3%
(55-68) D	22,345	45.1%	49.1%
(39-54) E	11,439	23.1%	18.1%
(21-38) F	1,993	4.0%	4.5%
(1-20) G	385	0.8%	1.8%

[49] 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.

[50] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794253/domestic-prs-minimum-standard-guidance.pdf

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

Private Rented

EPC Rating F or G
Percent and (no. of COAs)

	0 - 2 (479)
	3 - 7 (304)
	8 - 13 (138)
	14 - 25 (38)
	26 - 50 (6)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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5 Houses in Multiple Occupation (HMOs) and private rented sector analysis

This section provides additional analysis for the private rented sector in Leicester. It covers the following analysis:

- Houses in Multiple Occupation (HMOs), including estimates of HMOs subject to mandatory licensing and assessment of category 1 hazards and disrepair in HMOs

- Analysis of the private rented sector, including size and distribution of private rented dwellings, assessment of category 1 hazards and disrepair and analysis of social factors and their distribution, including deprivation and migration.

5.1 Houses in Multiple Occupation (HMOs) in the Leicester private sector stock

The Housing Act 2004 introduced a new set of definitions for HMOs in England from 6 April 2006[51]. The definition is a complex one and the bullet points below, which are adapted from web pages provided by the National HMO Network[52], 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

The recently published "Houses in Multiple Occupation and residential property licensing reform"[53] provides guidance to local authorities on changes to rules on licensing HMOs. From 1 October 2018, mandatory licensing of HMOs was extended to cover all relevant HMOs regardless of the number of storeys (compared to the previous definition which limited this to buildings of 3 or more storeys). Purpose built flats will only require a licence where there are fewer than 3 flats in the block. The requirement for the HMO to be occupied by five or more persons in two or more households will remain[54]. From 1 October 2018, the extension came into effect and those dwellings that fall under the new definition will require a licence.

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[51] See Sections 254-258 of the Housing Act (http://www.legislation.gov.uk/ukpga/2004/34/contents)

[52] National HMO Network http://www.nationalhmonetwork.com/definition.php

[53]

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/670536/HMO_licensing_reforms_response.pdf

[54] In addition, new mandatory licence conditions will be introduced relating to national minimum sleeping room sizes and provision of waste disposal.

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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 SimpleCO$_2$ 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 licensable HMOs under the Government's new definition, as of 1 October 2018
  - This has been modelled using the above criteria for HMOs plus the dwelling must have 4 or more bedrooms. This will apply to both houses and converted flats.
  - Purpose built flats where there are up to two flats in the block and one or both have 4 or more bedrooms.

Table 15 summarises the results for the private sector stock in Leicester, while **Table 16** shows the numbers by ward as well as the percentage of private sector dwellings which are HMOs at ward level. Westcotes ward has the highest number of HMOs (1,526 HMOs, 29% of private rented stock in that ward), followed by Castle ward (1,481 HMOs, 16%) Stoneygate ward (1,020 HMOs, 32%) and Fosse ward (845 HMOs, 25%). These four wards also have the highest numbers and proportions of licensable HMOs.

Table 15: Summary of HMOs within the Leicester private sector stock

Leicester	No. of private sector dwellings	HMOs	Mandatory Licensing Scheme HMOs
	111,145	9,649	2,249

Table 16: Number (and % of private rented stock) of HMOs and mandatory licensable HMOs by ward

Ward	Dwellings - private rented stock	HMOs	Mandatory Licensable HMOs
Abbey	2,616	423 (16%)	97 (4%)
Aylestone	1,526	187 (12%)	25 (2%)
Beaumont Leys	1,694	261 (15%)	32 (2%)
Belgrave	1,916	329 (17%)	18 (1%)
Braunstone Park & Rowley Fields	1,924	567 (29%)	117 (6%)
Castle	9,004	1,481 (16%)	427 (5%)
Evington	1,381	225 (16%)	21 (2%)
Eyres Monsell	959	108 (11%)	5 (1%)
Fosse	3,350	845 (25%)	144 (4%)
Humberstone & Hamilton	2,396	204 (9%)	39 (2%)
Knighton	1,679	327 (19%)	96 (6%)
North Evington	2,257	327 (14%)	42 (2%)
Rushey Mead	1,881	258 (14%)	12 (1%)
Saffron	2,821	749 (27%)	144 (5%)
Spinney Hills	1,280	154 (12%)	23 (2%)
Stoneygate	3,183	1,020 (32%)	453 (14%)
Thurncourt	703	89 (13%)	7 (1%)
Troon	1,370	190 (14%)	10 (1%)
Westcotes	5,308	1,526 (29%)	485 (9%)
Western	1,378	236 (17%)	21 (2%)
Wycliffe	875	143 (16%)	31 (4%)

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Map 14 shows the geographic distribution of HMOs and **Map 15** shows the distribution of mandatory licensable HMOs. The maps show the majority of HMOs to be concentrated to the south and south west of the city centre, particularly to the south of Westcotes ward, north of Saffron ward and south of Castle ward. These areas are close to the University of Leicester and De Montfort University, where much of the student accommodation is likely to be situated. There are also other notable concentrations, for example to the north west of Stoneygate ward and the south and east of Fosse ward. One such reason for the concentration in north west Stoneygate could be the close proximity to Leicester train station, offering direct access to London which appeals to the commuter population. There is a similar picture for licensable HMOs, although the distribution in the south of the city is more pronounced. 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.

Private Stock

HMO

Count and (no. of COAs)
- 0 - 6 (628)
- 7 - 16 (213)
- 17 - 34 (86)
- 35 - 57 (29)
- 58 - 86 (9)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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Integrated Dwelling Level Housing Stock Modelling and Database

Private Stock

Licensable HMO

Count and (no. of COAs)

	0 - 1 (726)
	2 - 7 (179)
	8 - 16 (39)
	17 - 28 (15)
	29 - 42 (6)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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5.1.1   Housing standards variables for HMOs

HMOs compared to non-HMOs

Table 17 and **Figure 12** show the results for each of the housing standards variables in Leicester for the private rented sector split into non-HMOs and HMOs. **Figure 13** compares the average SimpleSAP ratings for HMOs compared to non-HMOs.

HMOs have slightly higher levels of fall hazards, but the same levels of all hazards and excess cold as non-HMOs. HMOs have higher levels of disrepair and notably higher levels of fuel poverty (Low Income High Costs definition). Private rented stock which are non-HMOs have notably higher levels of low income households. Average SimpleSAP ratings are poorer in HMOs compared to non-HMOs.

Table 17: Estimates of the percentage of private rented dwellings meeting the housing standards variables assessed by the Housing Stock Models – HMOs compared to non-HMOs

Housing Standards Variable		Private rented sector stock			
		Non HMOs		HMOs	
		No.	%	No.	%
No. of dwellings		39,852	-	9,649	-
HHSRS category 1 hazards	All hazards	6,930	17%	1,611	17%
	Excess cold	1,172	3%	276	3%
	Fall hazards	4,283	11%	1,184	12%
Disrepair		2,576	6%	837	9%
Fuel poverty (10%)		3,456	9%	684	7%
Fuel poverty (Low Income High Costs)		6,660	17%	2,657	28%
Low income households		15,236	38%	2,169	22%

Figure 12: Estimates of the percentage of private rented dwellings meeting the housing standards variables assessed by the Housing Stock Models – HMOs compared to non-HMOs
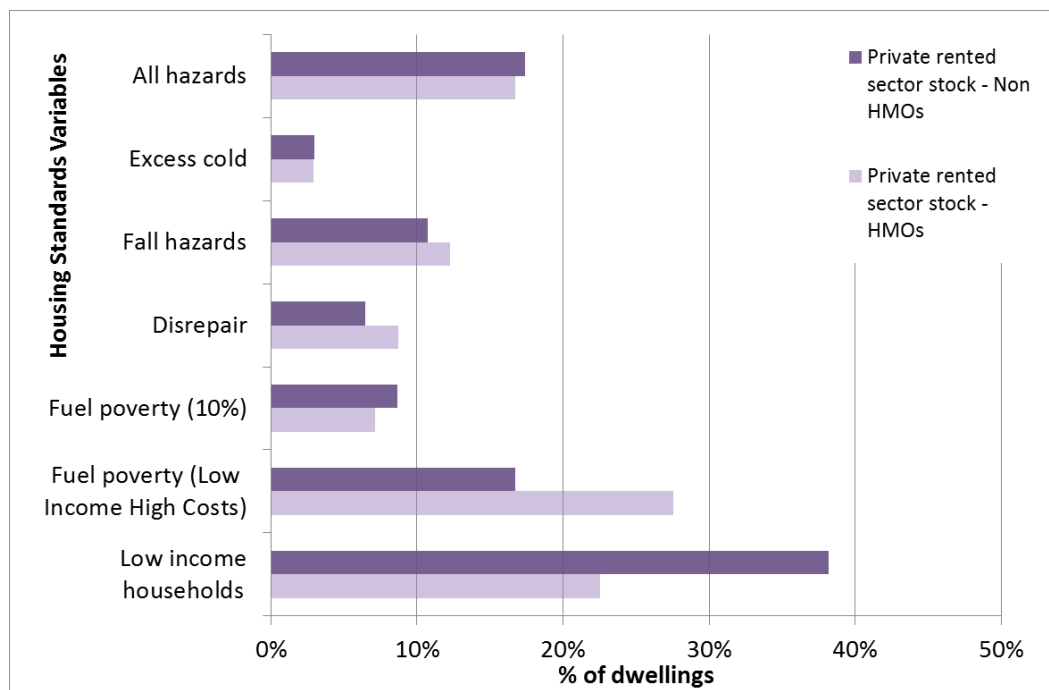
Figure 13: Average SimpleSAP ratings for HMOs compared to non-HMOs in Leicester
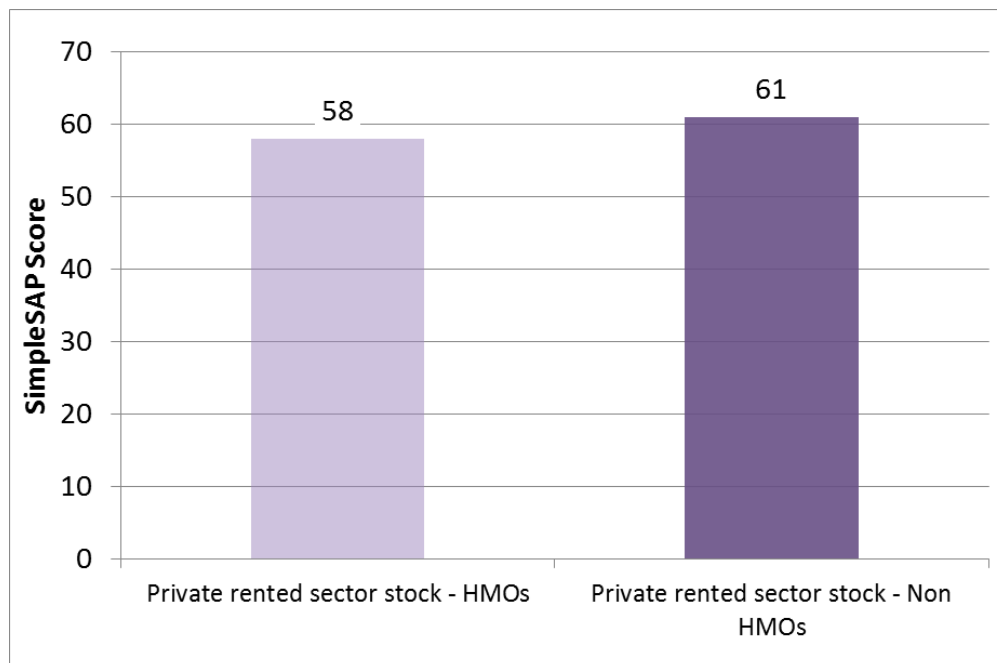
Non-licensable HMOs compared to licensable HMOs

Table 18 and **Figure 14** show the results for each of the housing standards variables in Leicester for HMOs split into non-licensable HMOs and mandatory licensable HMOs. Mandatory licensable HMOs have higher levels of all variables, with the exception of low income households. They also have notably higher levels of fuel poverty (particularly the Low Income High Costs definition).

Figure 15 compares the average SimpleSAP ratings for non-mandatory licensable HMOs and mandatory licensable HMOs. Mandatory licensable HMOs have a slightly lower average SimpleSAP rating than non-licensable HMOs.

Table 18: Estimates of the percentage of dwellings meeting the housing standards variables assessed by the Housing Stock Models - non-licensed HMOs compared to mandatory licensable HMOs

Housing Standards Variable		HMOs			
		Non-mandatory		Mandatory	
		No.	%	No.	%
No. of dwellings		7,400	-	2,249	-
HHSRS category 1 hazards	All hazards	1,134	15%	477	21%
	Excess cold	192	3%	84	4%
	Fall hazards	826	11%	358	16%
Disrepair		585	8%	252	11%
Fuel poverty (10%)		417	6%	267	12%
Fuel poverty (Low Income High Costs)		1,321	18%	1,336	59%
Low income households		1,732	23%	437	19%

Figure 14: Estimates of the percentage of dwellings meeting the housing standards variables assessed by the Housing Stock Models - non-licensed HMOs compared to mandatory licensable HMOs
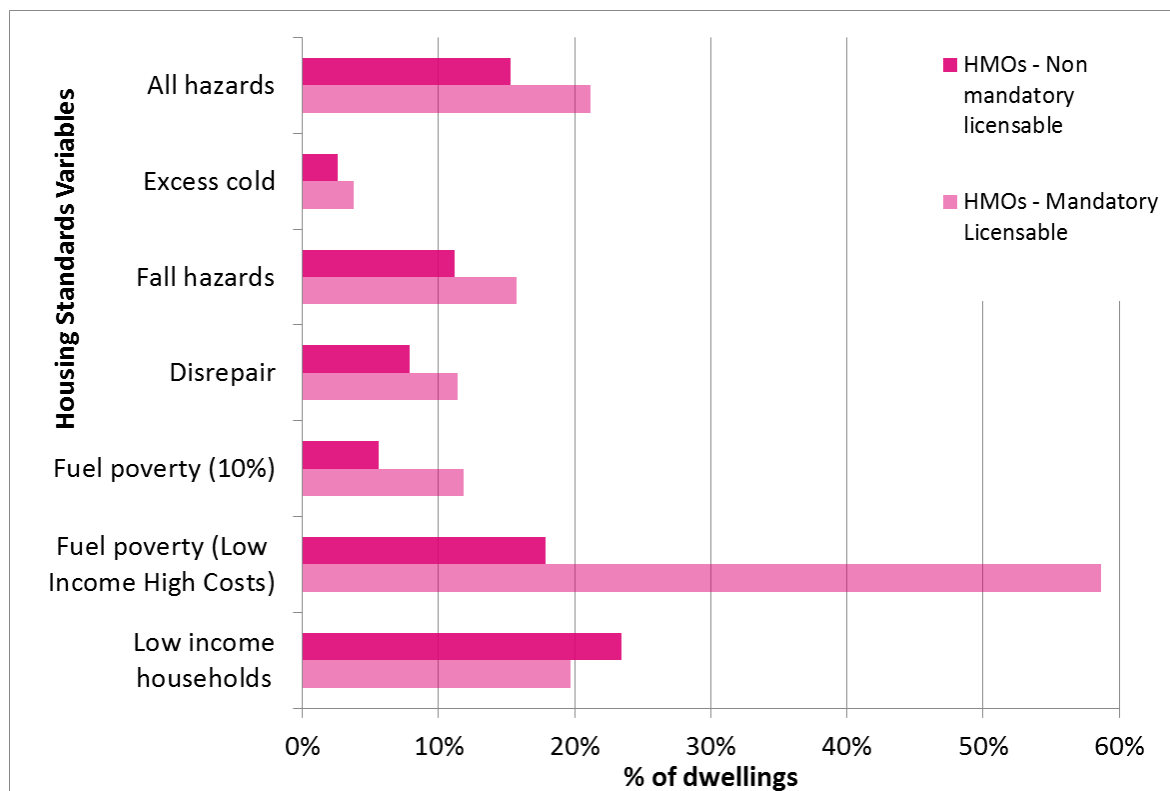
Figure 15: Average SimpleSAP ratings for non-licensed HMOs compared to mandatory licensable HMOs in Leicester
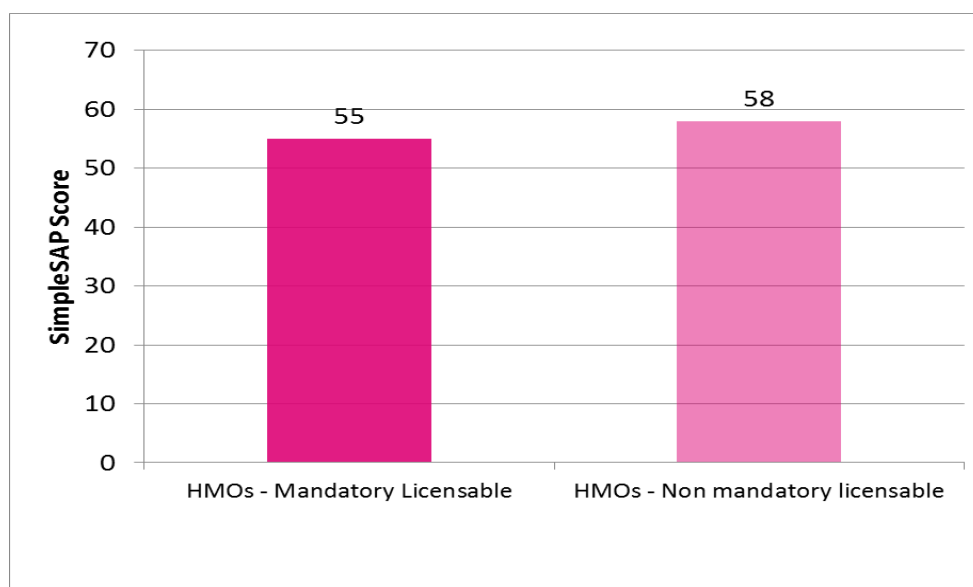
5.1.2   Potential areas for investigation within Leicester's HMOs

Table 19 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 which areas to be targeted for improvement such as, targeted enforcement action in relation to HMO management and licensing conditions[55] or for considering the implementation of an Additional HMO Licensing scheme[56]. For example, Westcotes ward has the highest estimated number of HMOs (1,526), and of these 19% are estimated to have a category 1 hazard, 14% to have a fall hazard and 9% to be in disrepair.

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[55] The Management of Houses in Multiple Occupation (England) Regulations 2006 & The Licensing and Management of Houses in Multiple Occupation (Additional Provisions) (England) Regulations 2007

[56] Housing Act 2004 s.56

Table 19: 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	423	53 (13%)	14 (3%)	33 (8%)	29 (7%)
Aylestone	187	19 (10%)	4 (2%)	16 (9%)	17 (9%)
Beaumont Leys	261	13 (5%)	1 (0%)	9 (3%)	7 (3%)
Belgrave	329	41 (12%)	9 (3%)	29 (9%)	27 (8%)
Braunstone Park & Rowley Fields	567	125 (22%)	19 (3%)	90 (16%)	48 (8%)
Castle	1,481	246 (17%)	42 (3%)	178 (12%)	134 (9%)
Evington	225	30 (13%)	6 (3%)	19 (8%)	16 (7%)
Eyres Monsell	108	18 (17%)	1 (1%)	17 (16%)	4 (4%)
Fosse	845	178 (21%)	16 (2%)	144 (17%)	101 (12%)
Humberstone & Hamilton	204	14 (7%)	2 (1%)	9 (4%)	4 (2%)
Knighton	327	62 (19%)	8 (2%)	46 (14%)	30 (9%)
North Evington	327	33 (10%)	8 (2%)	24 (7%)	22 (7%)
Rushey Mead	258	29 (11%)	6 (2%)	23 (9%)	22 (9%)
Saffron	749	165 (22%)	30 (4%)	119 (16%)	90 (12%)
Spinney Hills	154	20 (13%)	7 (5%)	14 (9%)	14 (9%)
Stoneygate	1,020	195 (19%)	38 (4%)	138 (14%)	100 (10%)
Thurncourt	89	10 (11%)	2 (2%)	8 (9%)	3 (3%)
Troon	190	28 (15%)	6 (3%)	21 (11%)	7 (4%)
Westcotes	1,526	291 (19%)	46 (3%)	218 (14%)	144 (9%)
Western	236	18 (8%)	0 (0%)	16 (7%)	9 (4%)
Wycliffe	143	23 (16%)	11 (8%)	13 (9%)	9 (6%)

5.2 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 accommodation[57].

Section 80 of the 2004 Housing Act[58] 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"[59].

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

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[57] http://researchbriefings.files.parliament.uk/documents/SN04634/SN04634.pdf

[58] http://www.legislation.gov.uk/ukpga/2004/34/pdfs/ukpga_20040034_en.pdf

[59]

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 19%)[60]

- 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.

5.2.1   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 HHSRS[61]

  - With a category 1 HHSRS hazard for excess cold

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[60] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/860076/2018-19_EHS_Headline_Report.pdf

[61] 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

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- 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 2019 Indices of Multiple Deprivation (IMD)[62]

- Information on crime - Anti-Social Behaviour (ASB)

- Information on migration

5.2.2   Proportions of dwellings that are privately rented overall and by ward

The percentage of stock in Leicester which is privately rented is 35%. This is higher than the figure for England – 19%[63].

There are 19 (of a total of 21) wards with private rented proportions in excess of the national average (19%) – these are depicted in **Table 20** by the thick dashed line. Those wards with over 19% private rented stock have been further divided into 3 groups for analysis (depicted by the thin dashed lines in the table). These three groups are as follows. Of the 6 wards the council requested to be analysed in full for the additional private rented sector analysis, 5 are in the group which have the highest proportions of PRS, and only one – Braunstone Park & Rowley Fields is in the lower group; however, this ward still has levels of PRS above the national average (23.9% compared to 19%):

Wards with PRS over 44%

- Westcotes
- Castle
- Fosse
- Saffron

Wards with PRS between 31-44%

- Stoneygate
- North Evington
- Spinney Hills
- Rushey Mead
- Humberstone & Hamilton

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[62] https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

[63] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/860076/2018-19_EHS_Headline_Report.pdf

Wards with PRS between 19 - 30% (above national average of 19%)

- Belgrave
- Aylestone
- Abbey
- Troon
- Knighton
- Braunstone Park & Rowley Fields
- Beaumont Leys
- Evington
- Eyres Monsell
- Wycliffe

Map 16 shows the location of these three analysis groups within Leicester.

Table 20: Count and percentage of estimated privately rented dwellings by ward in Leicester (sorted by descending private rented proportion)

Ward	Dwellings - all stock	Dwellings - private rented	
		Count	%
Westcotes	7,721	5,308	68.7%
Castle	13,980	9,004	64.4%
Fosse	6,551	3,350	51.1%
Saffron	6,007	2,821	47.0%
Stoneygate	7,303	3,183	43.6%
North Evington	6,573	2,257	34.3%
Spinney Hills	3,781	1,280	33.9%
Rushey Mead	5,738	1,881	32.8%
Humberstone & Hamilton	7,344	2,396	32.6%
Belgrave	6,322	1,916	30.3%
Aylestone	5,326	1,526	28.7%
Abbey	9,501	2,616	27.5%
Troon	5,176	1,370	26.5%
Knighton	6,987	1,679	24.0%
Braunstone Park & Rowley Fields	8,092	1,924	23.8%
Beaumont Leys	7,318	1,694	23.1%
Evington	6,450	1,381	21.4%
Eyres Monsell	4,895	959	19.6%
Wycliffe	4,598	875	19.0%
Western	8,179	1,378	16.8%
Thurncourt	4,419	703	15.9%

Map 16: Location of the three analysis groups with proportions of private rented stock which are greater than the national average (19%) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Integrated Dwelling Level Housing Stock Modelling and Database

Wards

Group (no. of Wards)
- 19-30% Private Rented (10)
- 31-44% Private Rented (5)
- >44% Private Rented (4)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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5.2.3   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 HHSRS[64]), 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.

Maps at COA level are provided for the private rented sector for the following housing standards variables in **Map 17** to **Map 20** below:

- **HHSRS**
  - o The presence of a category 1 HHSRS hazard
  - o The presence of a category 1 hazard for excess cold
  - o The presence of a category 1 hazard for falls

- **Levels of disrepair**

Table 21 provides a summary of property condition at ward level and is split into the groups described above based on the proportion of private rented stock in each ward. This table shows that the highest levels of all hazards (23%) and excess cold (7%) are in Westcotes ward. The highest levels of fall hazards (15%) and disrepair (10%) are in Fosse ward.

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[64] 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

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Integrated Dwelling Level Housing Stock Modelling and Database

Map 17: Percentage of private rented sector dwellings in Leicester with the presence of a HHSRS category 1 hazard *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

HHSRS Cat. 1 Hazards
Percent and (no. of COAs)

- 0 - 8 (184)
- 9 - 15 (264)
- 16 - 21 (254)
- 22 - 29 (211)
- 30 - 47 (55)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

Miles
0 0.375 0.75 1.5 2.25 3

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Map 18: Percentage of private rented sector dwellings in Leicester with the presence of a HHSRS category 1 hazard for excess cold *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

HHSRS Excess Cold

Percent and (no. of COAs)

	0 - 2 (669)
	3 - 6 (209)
	7 - 11 (65)
	12 - 22 (23)
	23 - 33 (2)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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Map 19: Percentage of private rented sector dwellings in Leicester with the presence of a HHSRS category 1 hazard for falls *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

HHSRS Falls Hazards

Percent and (no. of COAs)

- 0 - 6 (181)
- 7 - 11 (299)
- 12 - 16 (325)
- 17 - 26 (159)
- 27 - 42 (4)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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Map 20: Percentage of private rented sector dwellings in Leicester in disrepair *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented Disrepair
Percent and (no. of COAs)

- 0 - 3 (218)
- 4 - 9 (546)
- 10 - 15 (197)
- 16 - 23 (3)
- 24 - 50 (4)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

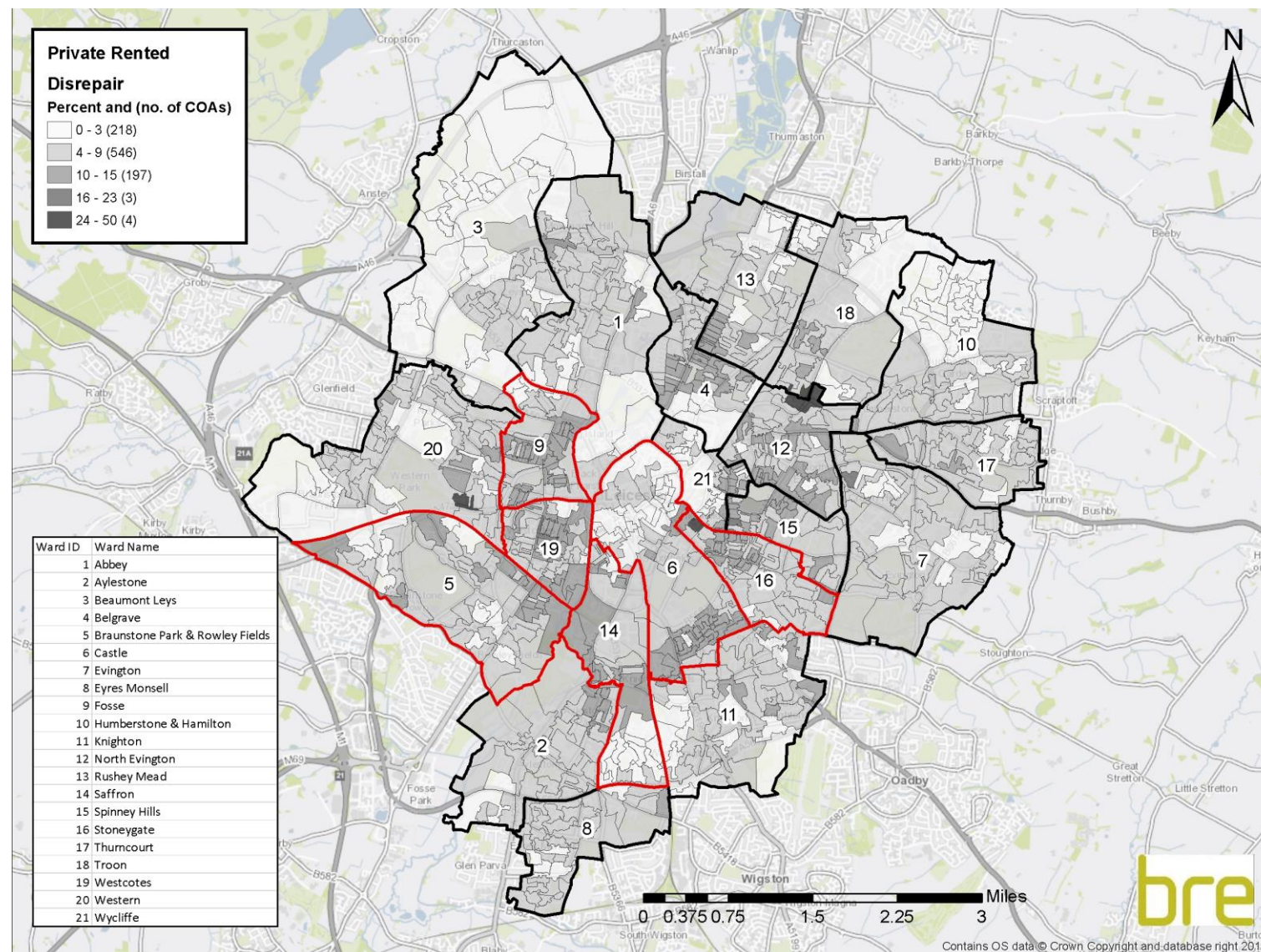Contains OS data © Crown Copyright and database right 2019

Table 21: Count and percentage of dwellings failing each of the HHSRS indicators and disrepair by ward, split into the 3 analysis groups, *private rented stock*

| Ward | No. of dwellings - private rented stock | HHSRS category 1 hazards | | | Disrepair |
		All hazards	Excess cold	Fall hazards	
Westcotes	5,308	1,239 (23%)	373 (7%)	674 (13%)	499 (9%)
Castle	9,004	1,072 (12%)	233 (3%)	652 (7%)	460 (5%)
Fosse	3,350	702 (21%)	75 (2%)	513 (15%)	319 (10%)
Saffron	2,821	526 (19%)	132 (5%)	309 (11%)	228 (8%)
Stoneygate	3,183	684 (21%)	128 (4%)	402 (13%)	279 (9%)
North Evington	2,257	503 (22%)	66 (3%)	309 (14%)	196 (9%)
Spinney Hills	1,280	304 (24%)	37 (3%)	179 (14%)	111 (9%)
Rushey Mead	1,881	400 (21%)	45 (2%)	259 (14%)	150 (8%)
Humberstone & Hamilton	2,396	249 (10%)	28 (1%)	180 (8%)	72 (3%)
Belgrave	1,916	423 (22%)	35 (2%)	279 (15%)	176 (9%)
Aylestone	1,526	284 (19%)	26 (2%)	220 (14%)	123 (8%)
Abbey	2,616	338 (13%)	45 (2%)	233 (9%)	126 (5%)
Troon	1,370	172 (13%)	23 (2%)	121 (9%)	61 (4%)
Knighton	1,679	300 (18%)	62 (4%)	182 (11%)	118 (7%)
Braunstone Park & Rowley Fields	1,924	391 (20%)	40 (2%)	278 (14%)	163 (8%)
Beaumont Leys	1,694	150 (9%)	8 (0%)	117 (7%)	38 (2%)
Evington	1,381	207 (15%)	29 (2%)	133 (10%)	73 (5%)
Eyres Monsell	959	126 (13%)	9 (1%)	99 (10%)	48 (5%)
Wycliffe	875	171 (20%)	20 (2%)	103 (12%)	64 (7%)
Thurncourt	703	105 (15%)	10 (1%)	79 (11%)	38 (5%)
Western	1,378	195 (14%)	24 (2%)	146 (11%)	71 (5%)

5.2.4   Analysis of property conditions in the private rented sector for the analysis groups

This section analyses the proportion of private rented 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 HHSRS (see **Appendix A** for more information)

- With a category 1 hazard for excess cold

- 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 system)

Figure 16 to **Figure 18** compare these property condition indicators across the three analysis groups. For wards with over 44% of the stock being private rented, Westcotes ward stands out as having the highest level of all hazards (23%). However, Fosse ward has the highest levels of fall hazards (15%) and disrepair and (10%) and excess cold levels are highest in Westcotes ward (7%). Compared to the figures for Leicester's overall private rented stock, these wards generally tend to have higher levels of each of the property condition indicators.

Of the wards where 31–44% of the stock is estimated to be private rented, Spinney Hills ward has the highest level of hazards (24%). Levels of fall hazards are similar across most of these wards (between 8-14%). Compared to Leicester's overall private rented stock, Stoneygate, North Evington, Spinney Hills, and Rushey Mead, all have higher or similar levels of each property condition indicator. Humberstone & Hamilton ward has noticeably lower levels of property condition indicators

For the wards with 19-30% private rented stock, Belgrave has the highest levels of hazards (22%), disrepair (9%) and falls (15%) and Knighton has the highest levels of excess cold (4%). With a greater number of wards with 19-30% private rented stock, there is a greater proportional range in variables, however there are notable similarities to the other analysis groups.

Figure 16: Comparison of percentage of private rented dwellings failing the Housing Standards Variables for wards with PRS over 44%
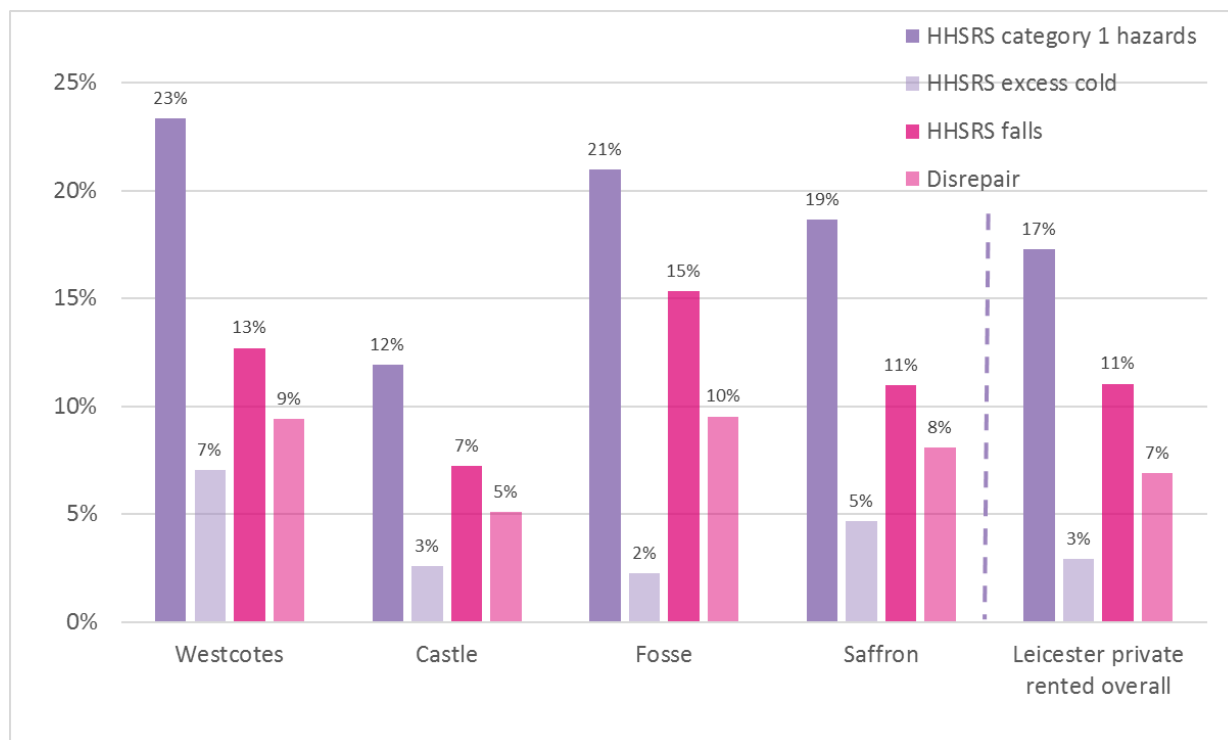

Figure 17: Comparison of percentage of private rented dwellings failing the Housing Standards Variables for wards with PRS 31-44%
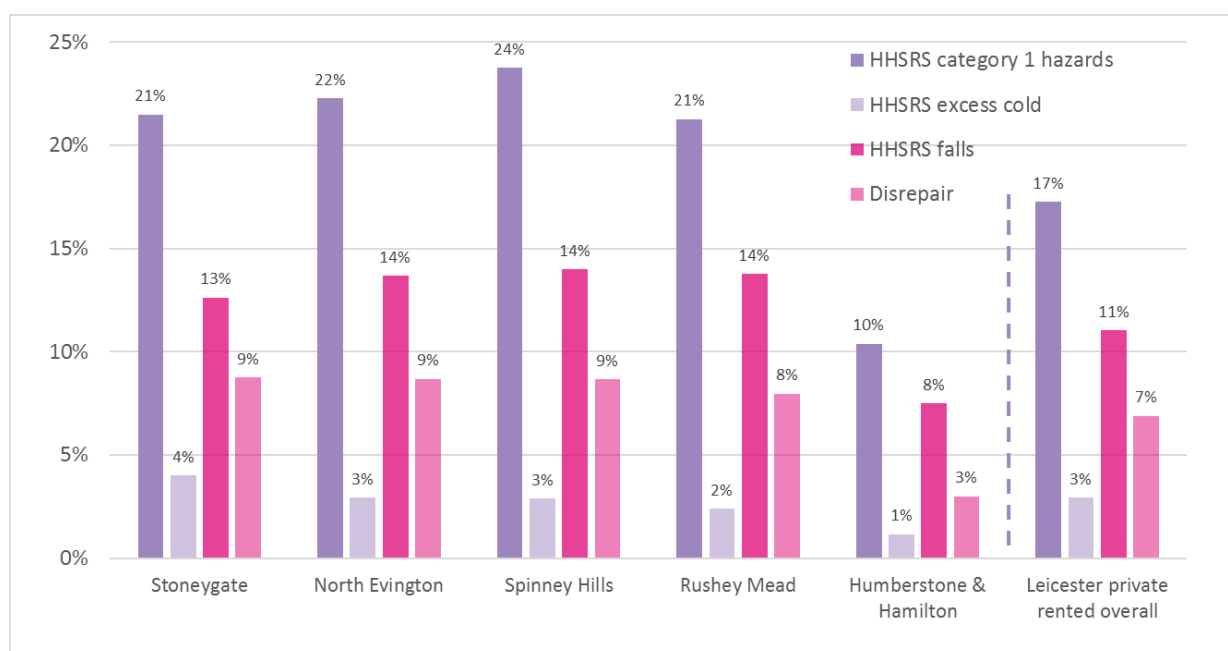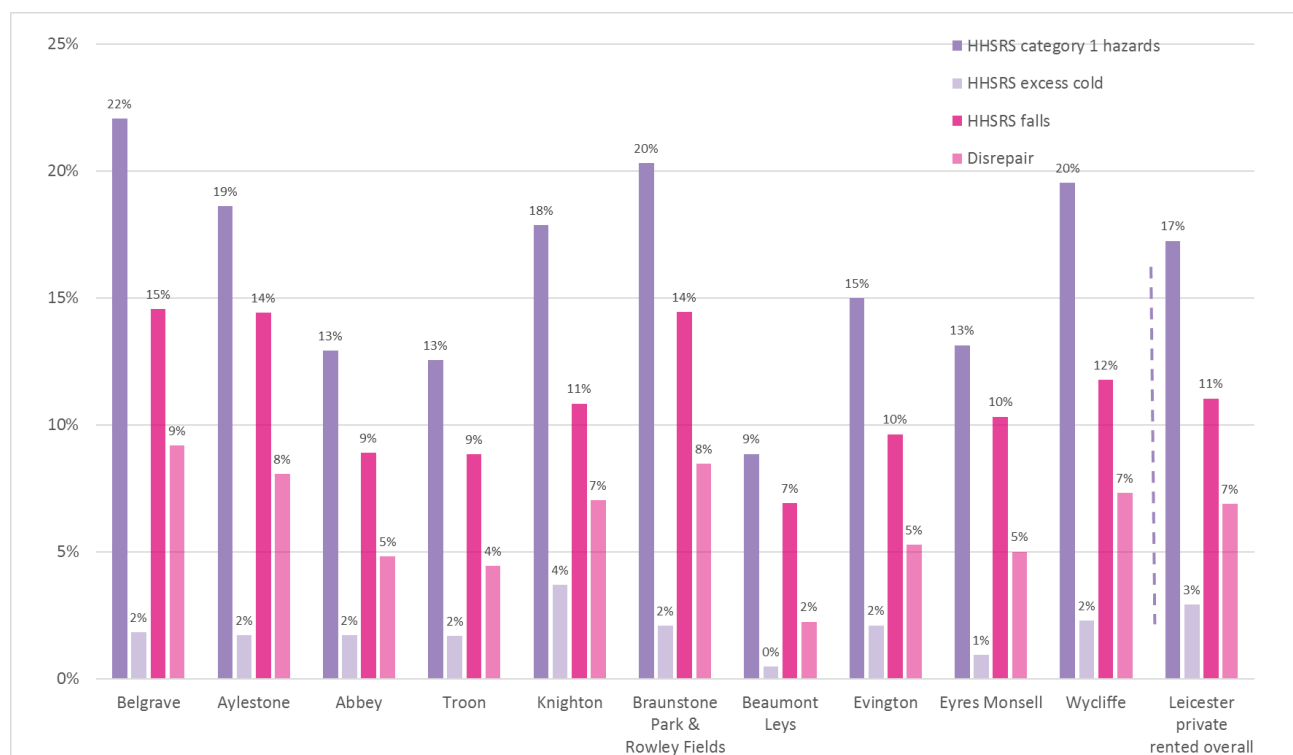
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Figure 18: Comparison of percentage of private rented dwellings failing the Housing Standards Variables for wards with PRS 19 - 30%

5.2.5   Information on crime - Anti-Social Behaviour (ASB)

The term anti-social behaviour (ASB) covers a range of activities which negatively affect people on a daily basis[65]. ASB is defined as "behaviours by a person which causes or is likely to cause harassment, alarm or distress to one or more persons not of the same household as the person" and is classified under 3 headings:

- Personal – ASB is perceived to be targeted at an individual or group rather than the community at large
- Nuisance – ASB is causing trouble, annoyance or suffering to the community at large rather than an individual or group
- Environmental – the incident is not aimed at an individual or group but targets the wider environment e.g. public spaces/buildings

Information was provided by Leicester City Council for 2018 and 2019, and this is summarised in **Figure 19** which shows incidents of ASB by ward for both years. In 2018 Castle ward had the greatest number of reported incidents at 197, followed by Western ward at 192 and Braunstone Park and Rowley Fields at 166. In 2019, incidents of ASB appear to have decreased in all wards; however the highest levels are again in Castle ward (145), followed by Eyres Monsell (124), and Braunstone Park and Rowley Fields (119).

[65] Antisocial Behaviour Act 2003 & Police Reform and Social Responsibility Act 2011

![bre logo]

Figure 19: Incidences of ASB by ward, 2018 and 2019 *(Source: Leicester City Council)*
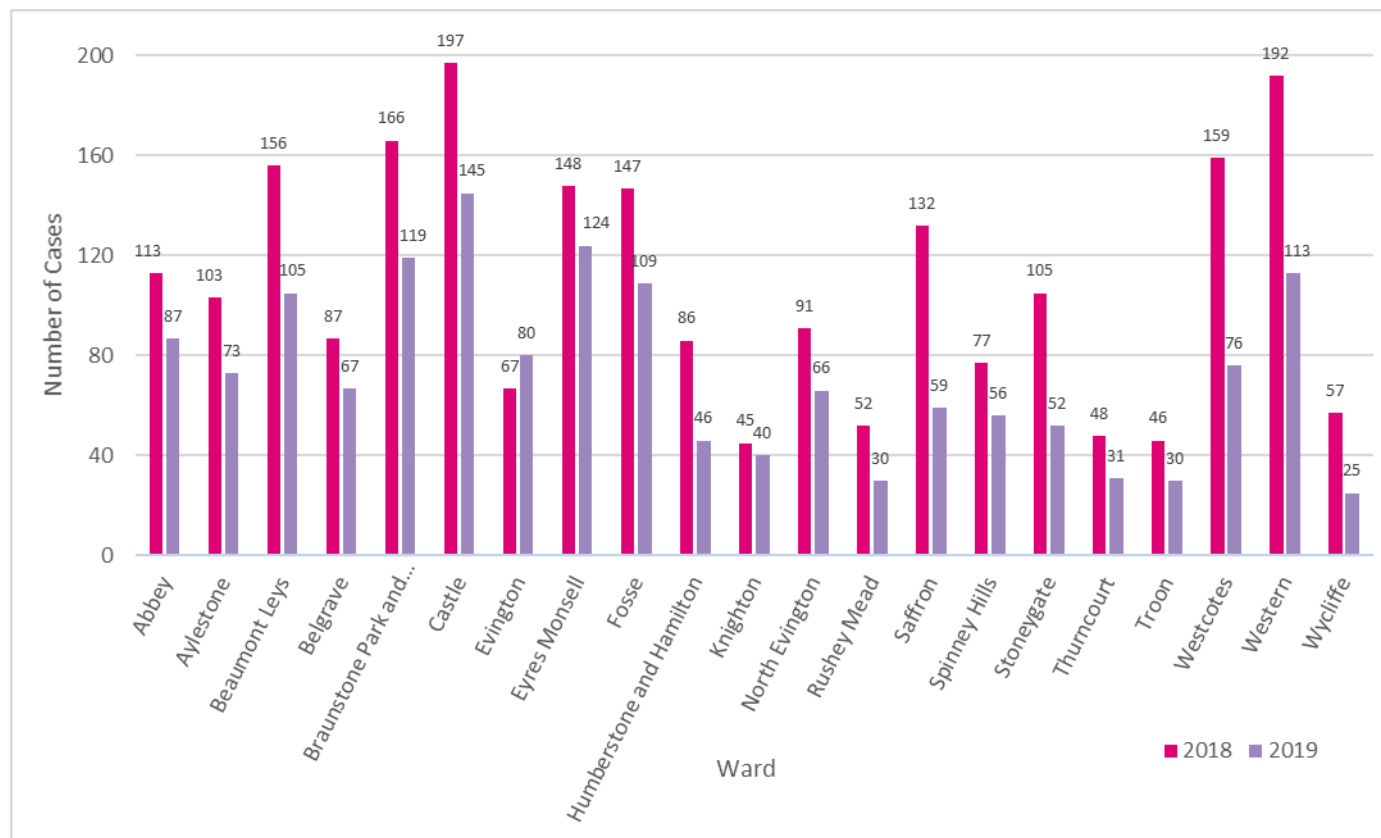
5.2.6   Information on deprivation

The 2019 Indices of Multiple Deprivation (IMD)[66] 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%)

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[66] https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

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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 21 shows the distribution of deprivation across Leicester at LSOA level with the wards shown over the top. The darker colours indicate the most deprived areas, for example, looking at the key there are 68 LSOAs which fall into the 20% most deprived areas in England. Overall in Leicester 36% of privately rented properties are in the 20% most deprived areas.

The IMD are not published at ward level, therefore 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 20** shows the results of this analysis. In Eyres Monsell ward 100% of private rented sector dwellings are in the 20% of the most deprived LSOAs in England. For Braunstone Park & Rowley Fields, and Wycliffe wards the figure is 67% and for Western ward it is 62%. At the other end of the scale, Knighton ward has no dwellings in the 20% most deprived LSOAs. Some of the wards with higher levels of deprivation also have high levels of private rented dwellings – for example Saffron ward has 55% of dwellings in the 20% of the most deprived LSOAs in England, and 46% of all dwellings in this ward are privately rented. It is interesting to note that Westcotes ward, which has a very high proportion of private rented stock (70%) but only 4% of dwellings are in the 20% most deprived areas.

Figure 20: Percentage of privately rented dwellings in each ward in Leicester which are in the 20% most deprived areas in England (IMD 2019)
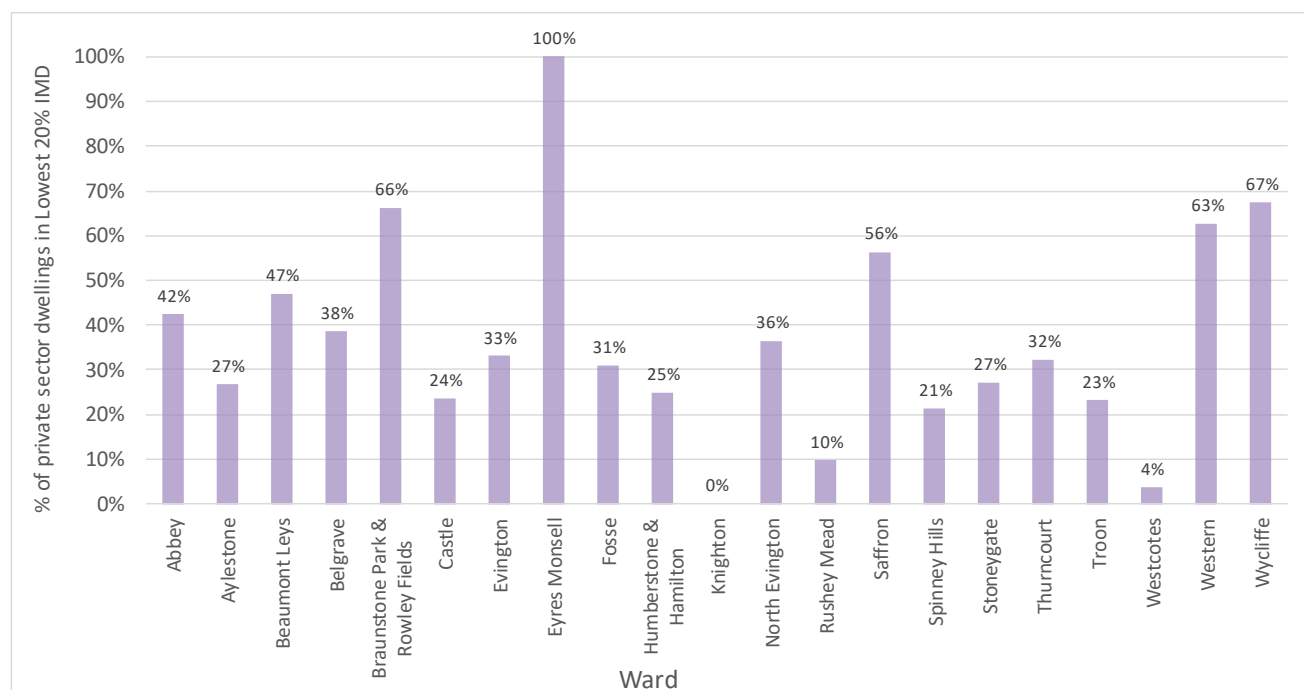
N.B. where no IMD exists on the graph for an area, this is due to there being no properties within the 20% most deprived LSOAs for England

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Map 21: Distribution of deprivation in Leicester (1 - 2 = the 10% and 20% deciles (i.e. the most deprived), 3 = the 30% decile, etc.) (source: MHCLG, Indices of Deprivation 2019) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

Index of Multiple Deprivation

Decile and (no. of LSOAs)

- 1 - 2 (68)
- 3 (40)
- 4 - 5 (46)
- 6 - 7 (27)
- 8 - 10 (11)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

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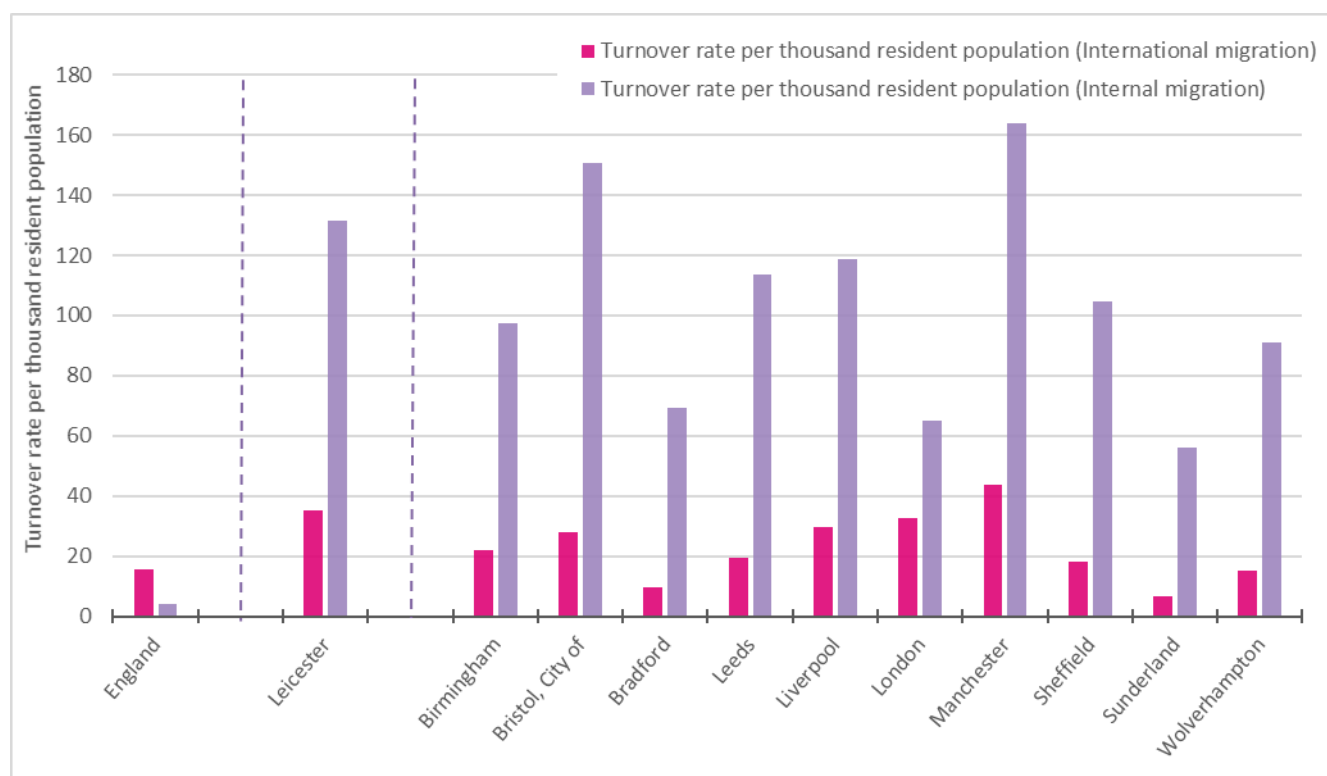
![bre logo]
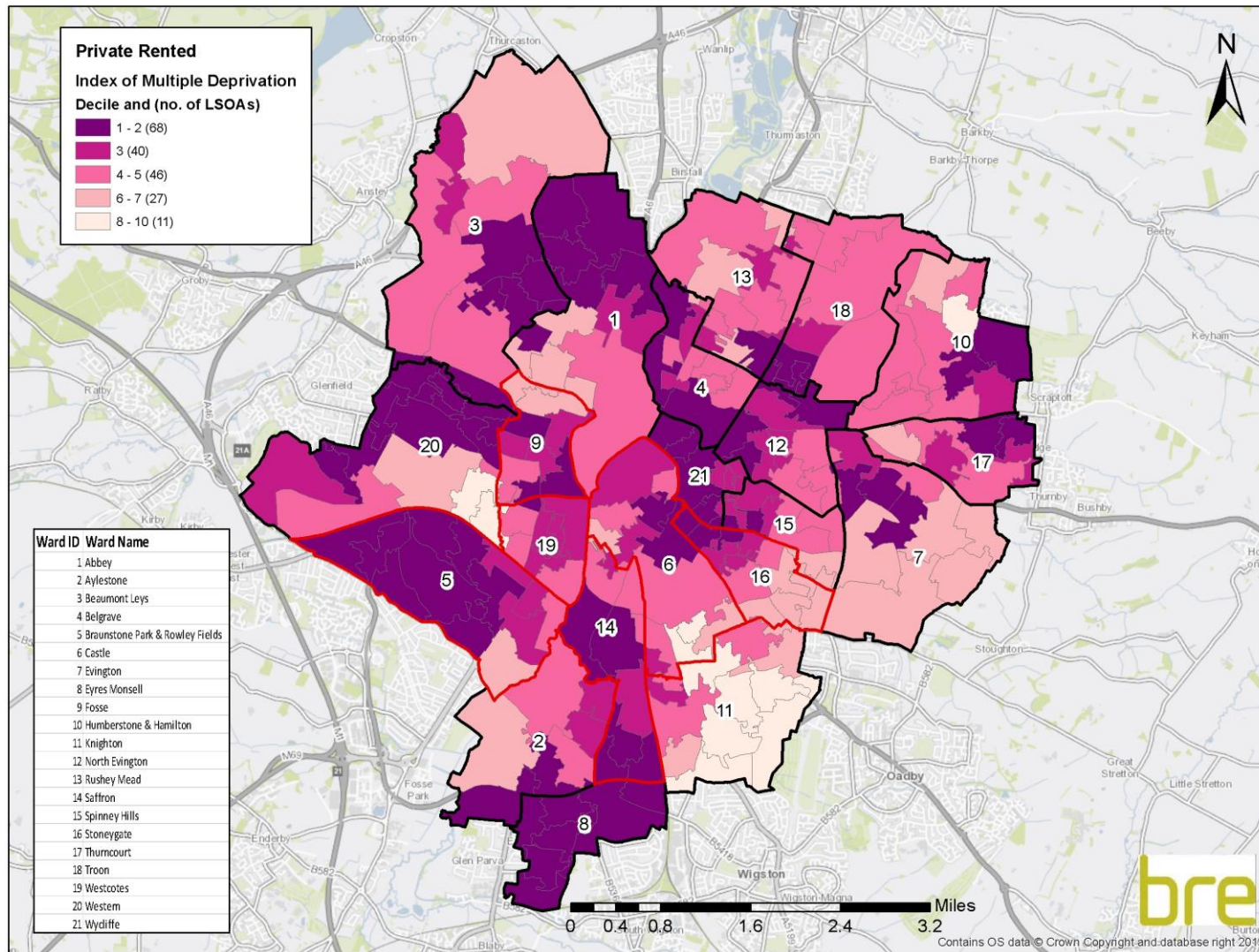
5.2.7   Information on migration

Data on migration is only available at the local authority level[67], therefore migration figures for Leicester have been compared to the remaining 10 largest cities in England and England overall for the latest year available (mid-2017 to mid-2018) – see **Figure 21**. The data uses the long-term[68] 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 Leicester has the fourth highest level of the 10 urban areas in England. Looking at internal migration, Leicester is the second highest, after Manchester.

Figure 21: Comparison of migration figures (international and internal) for the 10 largest cities in England (including Leicester) and England overall for mid-2017 to mid-2018 (Source: ONS[67])

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[67]

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

[68] 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/migrationstatisticsfirsttimeuserguideglossaryandlistofproducts

5.2.8   In-depth analysis on specific areas

Areas with proportions of private rented stock above the national average (19%) were examined more closely. **Table 22** shows the numbers and percentages of dwellings for each of the HHSRS indicators, dwellings in disrepair and the most deprived 20% of LSOAs in England (IMD 2019) by ward. The table is divided into the previously identified three analysis groups (all above the national average of 19% private rented stock), and also provides the figures for the remaining wards for completion of information.

Looking at the analysis group with over 44% private rented sector stock, Westcotes ward stands out as having a very high proportion of private rented sector dwellings (69%), the highest estimated rate of private rented sector category 1 hazard (23%) and the second highest rate of fall hazards (13%). It has only 4% of properties in the 20% most deprived areas. Other wards in this analysis group have higher levels of deprivation as well as high levels of hazards, excess cold and disrepair and also high levels of private rented sector stock compared to the national average – e.g. Saffron ward.

To provide a more detailed picture of the LSOAs within those wards where the proportion of private rented dwellings is greater than the national average (19%) *and* is in the worst 20% of deprived areas **Map 22** shows the levels of HHSRS category 1 hazards in these areas. The rest of the map is blank, showing it is not an LSOA with >19% private rented stock or which is in the 20% most deprived areas (or both). The 6 wards of interest for the additional PRS analysis work have again been highlighted in red for ease of identification. The map shows that areas such as the LSOAs to the south of Saffron ward, the south east of Fosse ward, as well as some LSOAs to the north and east of the city centre, such as the south west of North Evington ward stand out as having high levels of category 1 hazards, as well as being areas with greater than 19% private rented stock and being in the 20% most deprived areas in England.

Map 23 to **Map 25** show the distributions for excess cold, fall hazards and disrepair across Leicester in areas where the proportion of private rented dwellings is greater than the national average *and* in the 20% most deprived areas. For excess cold some of the areas which stand out are the LSOA to the north of Wycliffe ward, the centre of Saffron ward and the area to the north of Abbey ward. For fall hazards, LSOAs to the south east of Fosse ward, the west of Braunstone Park & Rowley Fields ward and Belgrave ward, and the area to the north of Stoneygate ward, and the adjacent LSOA in Spinney Hills ward. There is a similar distribution for disrepair.

Table 22: Number and percentage of dwellings for each of the HHSRS indicators, disrepair and the most deprived 20% of LSOAs in England (IMD 2019) by ward – private rented stock split into the three areas of interest with over 19% private rented stock (remaining wards included for completeness)

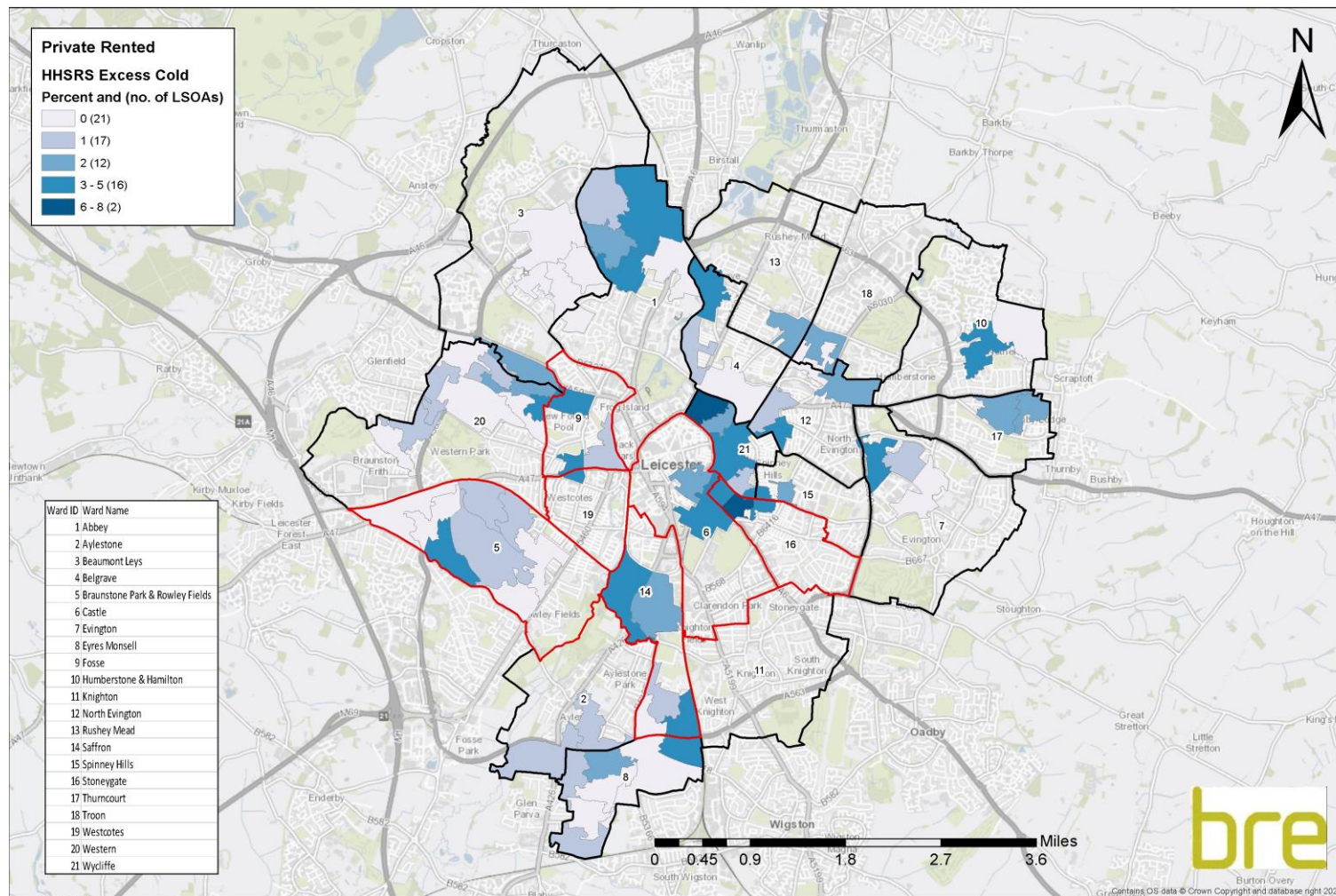| Ward | No. of dwellings - private rented stock | HHSRS category 1 hazards | | | Disrepair | Index of Multiple Deprivation (20%) |
		All hazards	Excess cold	Fall hazards		
Westcotes	5,308	1,239 (23%)	373 (7%)	674 (13%)	499 (9%)	212 (4%)
Castle	9,004	1,072 (12%)	233 (3%)	652 (7%)	460 (5%)	1,879 (21%)
Fosse	3,350	702 (21%)	75 (2%)	513 (15%)	319 (10%)	1,035 (31%)
Saffron	2,821	526 (19%)	132 (5%)	309 (11%)	228 (8%)	1,085 (38%)
Stoneygate	3,183	684 (21%)	128 (4%)	402 (13%)	279 (9%)	1,059 (33%)
North Evington	2,257	503 (22%)	66 (3%)	309 (14%)	196 (9%)	643 (28%)
Spinney Hills	1,280	304 (24%)	37 (3%)	179 (14%)	111 (9%)	321 (25%)
Rushey Mead	1,881	400 (21%)	45 (2%)	259 (14%)	150 (8%)	143 (8%)
Humberstone & Hamilton	2,396	249 (10%)	28 (1%)	180 (8%)	72 (3%)	516 (22%)
Belgrave	1,916	423 (22%)	35 (2%)	279 (15%)	176 (9%)	639 (33%)
Aylestone	1,526	284 (19%)	26 (2%)	220 (14%)	123 (8%)	244 (16%)
Abbey	2,616	338 (13%)	45 (2%)	233 (9%)	126 (5%)	633 (24%)
Troon	1,370	172 (13%)	23 (2%)	121 (9%)	61 (4%)	251 (18%)
Knighton	1,679	300 (18%)	62 (4%)	182 (11%)	118 (7%)	0 (0%)
Braunstone Park & Rowley Fields	1,924	391 (20%)	40 (2%)	278 (14%)	163 (8%)	669 (35%)
Beaumont Leys	1,694	150 (9%)	8 (0%)	117 (7%)	38 (2%)	618 (36%)
Evington	1,381	207 (15%)	29 (2%)	133 (10%)	73 (5%)	365 (26%)
Eyres Monsell	959	126 (13%)	9 (1%)	99 (10%)	48 (5%)	959 (100%)
Wycliffe	875	171 (20%)	20 (2%)	103 (12%)	64 (7%)	459 (52%)
Thurncourt	703	105 (15%)	10 (1%)	79 (11%)	38 (5%)	244 (35%)
Western	1,378	195 (14%)	24 (2%)	146 (11%)	71 (5%)	756 (55%)

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Map 22: Distribution of category 1 HHSRS hazards where proportions of private rented stock is above national average and the LSOA is in the most deprived 20% (Source MHCLG Indices of Deprivation 2019) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

HHSRS Cat. 1 Hazards
Percent and (no. of LSOAs)

- 6 - 11 (15)
- 12 - 14 (18)
- 15 - 18 (19)
- 19 - 23 (12)
- 24 - 30 (4)

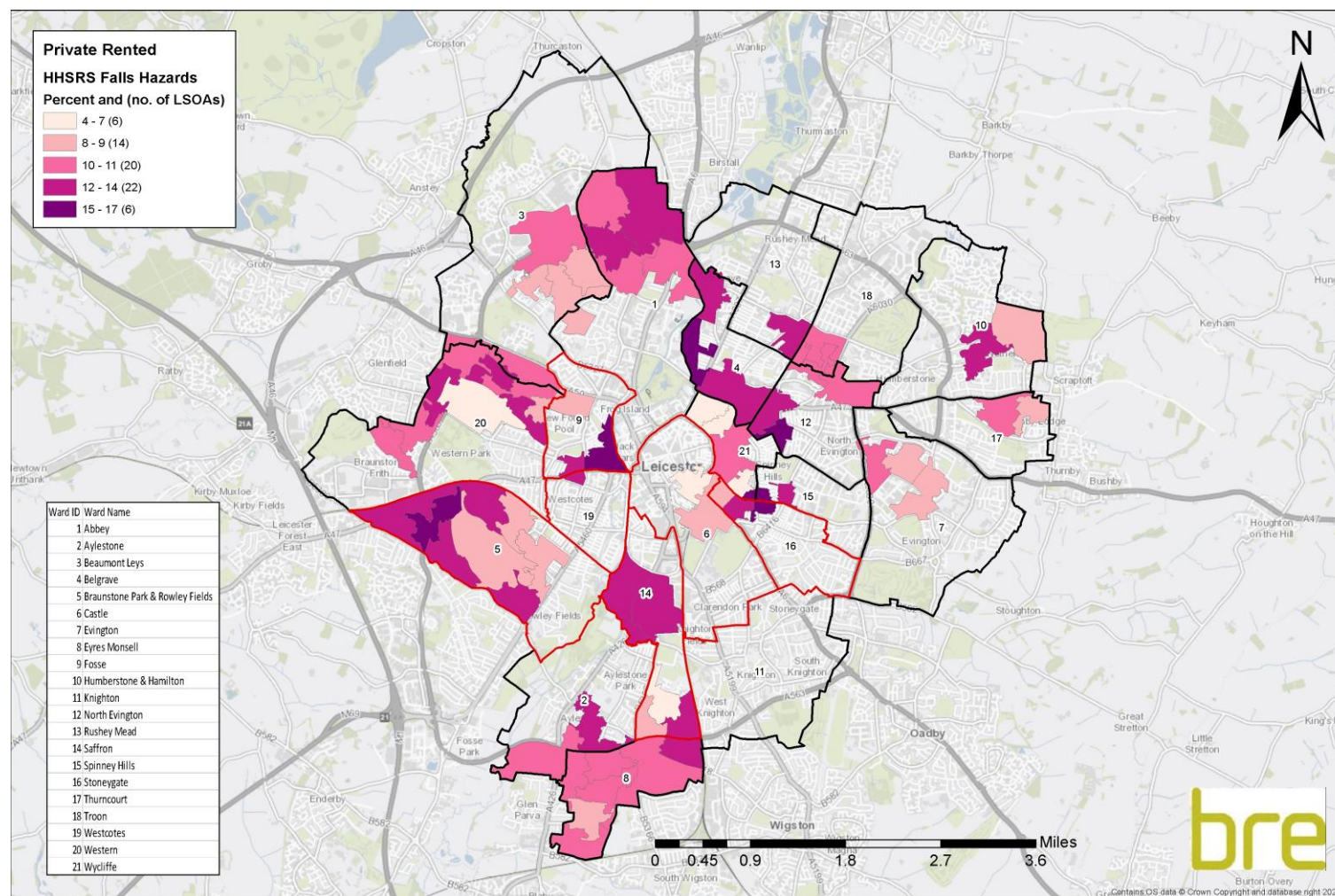| Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe
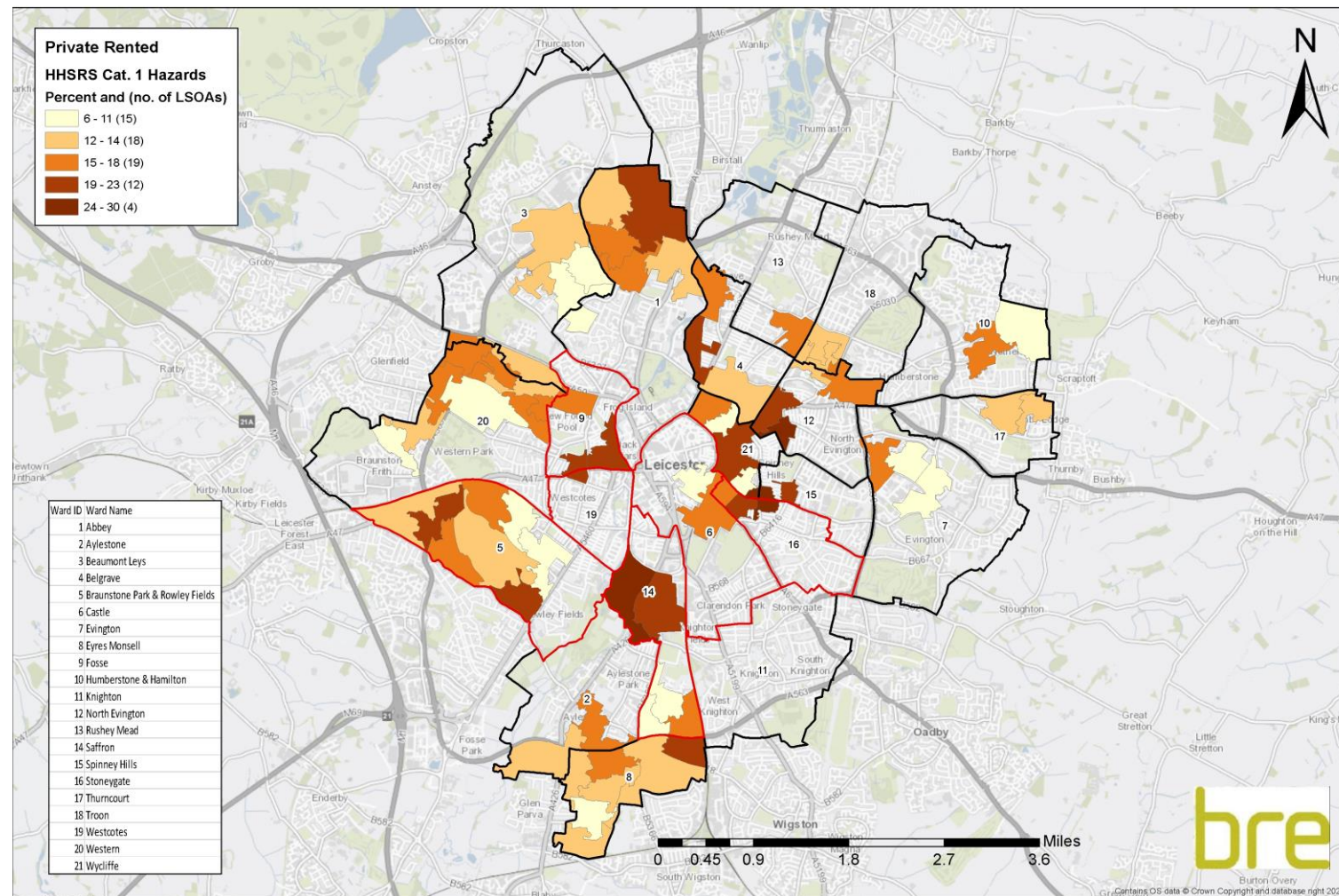
Map 23: Distribution of excess cold hazards where proportions of private rented stock is above national average and the LSOA is in the most deprived 20% (Source MHCLG Indices of Deprivation 2019) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*
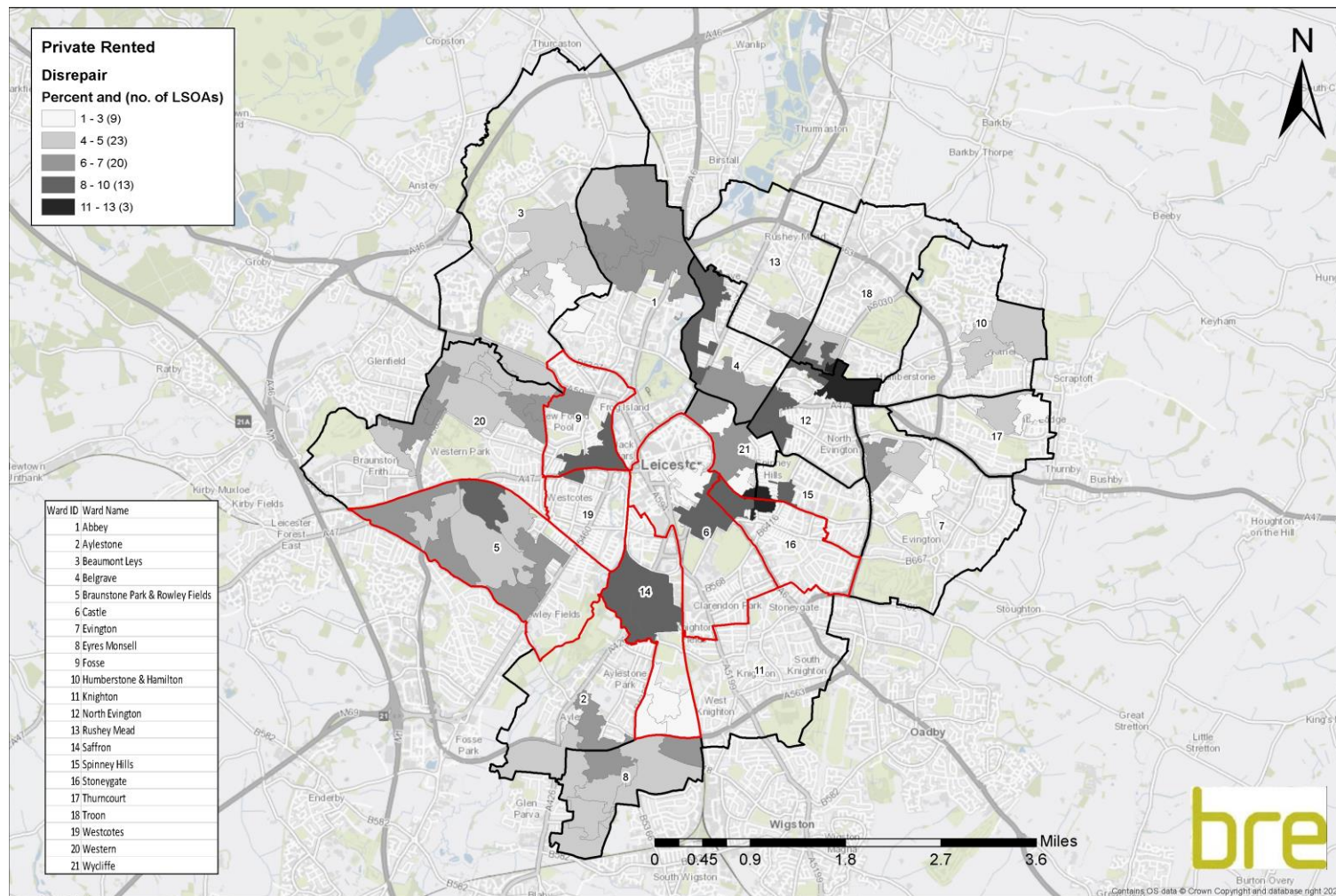
Private Rented

HHSRS Excess Cold

Percent and (no. of LSOAs)

- 0 (21)
- 1 (17)
- 2 (12)
- 3 - 5 (16)
- 6 - 8 (2)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

Map 24: Distribution of fall hazards where proportions of private rented stock is above national average and the LSOA is in the most deprived 20% (Source MHCLG Indices of Deprivation 2019) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Integrated Dwelling Level Housing Stock Modelling and Database

Private Rented

HHSRS Falls Hazards
Percent and (no. of LSOAs)
- 4 - 7 (6)
- 8 - 9 (14)
- 10 - 11 (20)
- 12 - 14 (22)
- 15 - 17 (6)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

Map 25: Distribution of dwellings in disrepair where proportions of private rented stock is above national average and the LSOA is in the most deprived 20% (Source MHCLG Indices of Deprivation 2019) *(N.B. the 6 wards of interest for the additional PRS analysis work are highlighted in red)*

Private Rented

Disrepair
Percent and (no. of LSOAs)

	1 - 3 (9)
	4 - 5 (23)
	6 - 7 (20)
	8 - 10 (13)
	11 - 13 (3)

Ward ID	Ward Name
1	Abbey
2	Aylestone
3	Beaumont Leys
4	Belgrave
5	Braunstone Park & Rowley Fields
6	Castle
7	Evington
8	Eyres Monsell
9	Fosse
10	Humberstone & Hamilton
11	Knighton
12	North Evington
13	Rushey Mead
14	Saffron
15	Spinney Hills
16	Stoneygate
17	Thurncourt
18	Troon
19	Westcotes
20	Western
21	Wycliffe

bre

6 Conclusion and recommendations

6.1 Conclusion

Leicester City 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), tenure, benefits, Houses in Multiple Occupation (HMO) and Housing Health and Safety Rating System (HHSRS) 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 78,757 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 55% of the stock in Leicester. The council also commissioned the inclusion of Land Registry Commercial and Corporate Ownership Data (CCOD) and Overseas Companies Ownership Database (CCOD).

Leicester City Council also commissioned BRE to undertake additional work to identify private rented stock in their local authority. This innovative approach resulted in improved accuracy in identifying private rented sector dwellings in the six wards of interest (Braunstone Park & Rowley Fields, Castle, Fosse, Saffron, Stoneygate and Westcotes wards) where all addresses were analysed, as well as across all wards where a sample of addresses were analysed. This additional work made use of the Council Tax Register and Land Registry data to provide evidence of tenure for these specific areas. This work resulted in 76,079 dwellings in Leicester having evidenced tenure information from TDS, commercial ownership information or Land Registry analysis. This is 53.5% of dwellings across all wards in Leicester. However, for the six wards of interest 83.2% of dwellings had evidence of tenure.

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 with the presence of each of the Housing Standards Variables for Leicester 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

Leicester City Council also requested analysis of the private rented sector including stock condition and deprivation. This includes analysis of Houses in Multiple Occupation (HMOs).

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

- The performance of the housing stock in Leicester compared to the EHS England average is generally worse with the exception of excess cold which is slightly better in Leicester. Levels of all hazards, fall hazards and low income households are notably higher in Leicester.
- The private rented sector is generally worse than both the social sector and the owner occupied sector.

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- 4.8% of dwellings in the private rented sector are estimated to have an EPC below band E. Under the legislation these properties would not be eligible to be rented out to new or renewal tenancies. From 1 April 2020 this also applies to existing tenancies.

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 Leicester 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   Conclusion from HMOs and private rented sector analysis

HMOs

There are an estimated 9,649 HMOs in Leicester, of which approximately 2,249 come under the mandatory licensing scheme.

Westcotes ward has the highest number of HMOs (1,526 HMOs, 29% of private rented stock in that ward), followed by Castle ward (1,481 HMOs, 16%) Stoneygate ward (1,020 HMOs, 32%) and Fosse ward (845 HMOs, 25%). These same wards also have the highest numbers and proportions of licensable HMOs.

Private rented sector analysis

Overall the percentage of dwellings in the private rented sector across Leicester is 35% compared to the national average of 19%. A large proportion of wards (19 out of 21 wards) in Leicester have a percentage of private rented sector dwellings greater than the national average, in particular Westcotes ward (69%) and Castle ward (64%).

Of the wards within Leicester with over 44% private rented stock, Westcotes ward stands out as having the highest level of all hazards (23%). However, Fosse ward has the highest levels of fall hazards (15%) and disrepair levels (10%) but excess cold is highest in Westcotes ward (7%). Compared to the figures for the Leicester private rented stock overall, these wards tend to have higher levels of each of the property condition indicators, with the exception of Castle ward.

Of the wards in Leicester with 31–44% private rented stock, Spinney Hills ward has the highest level of hazards (24%). Levels of fall hazards across these wards span 8-14% and disrepair doesn't exceed 9%.

Of the wards with 19-30% private rented stock Belgrave has the highest levels of hazards (22%) as well as falls hazards (15%) and disrepair (9%). Knighton ward has the highest level of excess cold at 4%.

Incidents of ASB in recent years (2018 and 2019) have been highest in Castle, Western, Braunstone Park & Rowley Fields and Eyres Monsell wards.

Levels of deprivation are greatest in Eyres Monsell ward where 100% of private rented dwellings are located in the 20% most deprived LSOAs in England, there are 67% in both Braunstone Park & Rowley Fields and Wycliffe wards, and 62% in Western ward. These are all notably higher than the figure for Leicester's private rented stock as a whole (36%).

There are specific areas within the wards identified which have higher levels of private rented stock and deprivation and disrepair which could be considered for targeted interventions.

6.3   Recommendations

Interventions designed to tackle disrepair for example home improvement and renewal schemes, landlord accreditation schemes or ultimately targeted enforcement action could be considered with a focus on areas of greatest disrepair such as Westcotes ward with 8% disrepair and 21% containing category 1 hazards, or Fosse ward with an estimated 8% of private sector homes in disrepair and 20% 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 Eyres Monsell ward (50%), Wycliffe ward (47%).

The use of local data and additional tenure evidence gained from the Land Registry work for this project has enhanced the housing stock models and Housing Stock Condition Database (HSCD).

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Appendix A   Definitions of the Housing Standards Variables

1. **Housing Standards Variables:**

    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 variables.

        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).

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2. **Energy efficiency variables:**
   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 variables:**
   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) framework[69]. 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 £16,105.

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

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[69] 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 Housing Standards Variables 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:
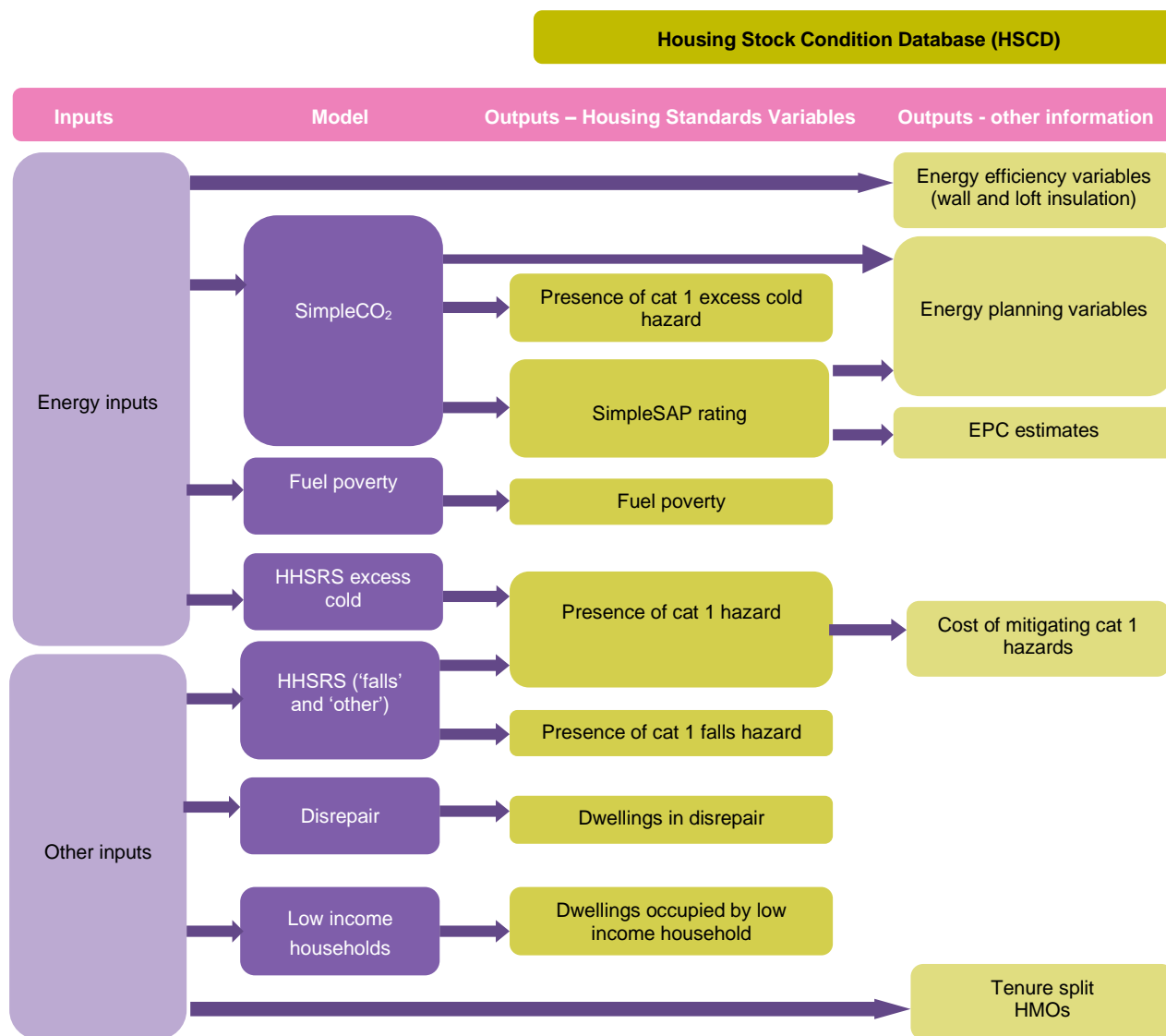
- SimpleCO$_2$ Model
- Fuel Poverty Model
- HHSRS (all hazards, falls hazards and excess cold) Models
- Disrepair Model
- Low Income Households Model

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 Housing Standards Variables 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 SimpleCO$_2$ 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

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B.1 BRE SimpleCO$_2$ Model

BRE have developed a variant of the BREDEM[70] software, named "SimpleCO$_2$", 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 SimpleCO$_2$ 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 Xoserve[71] 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

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[70] 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.

[71] 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.

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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 "SimpleCO$_2$" 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 variable 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, Leicester 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 Leicester and the resulting impact on the modelling process.

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

Data source	Total no. of records	No. (and %) of addresses matched	Notes / impact on the modelling process
EPC data	108,403 – total records available	78,757 (91.6% of de-duplicated)	Data de-duplicated for multiple EPCs – 85,998 remaining
LLPG data	143,394 – total received	142,261 (99.2% of records provided)	BLPU classes checked, address fields checked and duplicate UPRNs removed – 142,261 remaining
Tenure data (Tenancy Deposit Scheme and HMO data)	23,353 – total received	13,485 (98.9% of de-duplicated)	18,317 – remaining records after de-duplication
HMO data	882 – total received	772 (94.7% of de-duplicated)	Remaining HMO cases identified and duplicate UPRNs removed – 815
Benefit data	30,452 – total received	29,656 (99.7% of de-duplicated)	Remaining cases once duplicate UPRNs removed – 29,749
Enforcement and Grants data	86 – total received	47 (95.9% of de-duplicated)	Remaining useable cases and duplicate UPRNs removed – 49
Council Tax Register data for Land Registry	140,855 – total received	36,141 (89.5% of 40,371)	Number of records required from Council Tax Register – 40,371 A sample of 44,296 were extracted from the Council Tax Register Of these, 3,925 could not be submitted to Land Registry due to a company rather than an individual being named as the liable person. For these records, where Housing Associations or the Council was named these were set to Social dwellings, otherwise the records were assumed to be private rented. These 41,065 records were sent to Land Registry and 32,216 were address matched. 7,254 could not be matched, 901 were matched but titles were not registered and therefore records not usable.

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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 $SimpleCO_2$ 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 $SimpleCO_2$ 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.

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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

OS AddressBase was then linked to the OS MasterMap Topography Layer. OS MasterMap provides a detailed geographical representation of the landscape in Great Britain, including buildings. Once the OS AddressBase is linked to OS MasterMap it is possible to extract the relevant geographical information for residential buildings – this involves looking at information about individual dwellings or blocks of flats such as footprint area and attachment to other dwellings.

Figure B. 2 shows that visual identification of dwelling type can be quite simple. The OS MasterMap of the cul-de-sac 'Prince of Wales Gardens' comprises 10 sets of semi-detached properties. BRE use this type of knowledge to create a model to infer dwelling type, which is described in more detail below.

Figure B. 2: OS MasterMap example (source OS website[72])

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[72] https://www.ordnancesurvey.co.uk/business-and-government/products/mastermap-products.html

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By looking at the number of residential address points (from OS AddressBase) it is possible to determine whether a building is a house or a block of flats[73]. The dwelling type is then determined based on the spatial relationship of the individual dwelling/block of flats with other dwellings. These spatial relationships are outlined for each resulting dwelling type below:

Houses - where the dwelling is a house, the number of other buildings it is attached to can be observed and the dwelling types allocated as follows:

Detached – where a single address is within a dwelling footprint and that footprint is not attached to any other building footprint[74].

Semi-detached - where a single address is within a dwelling footprint and is joined to one other building footprint.

Terrace - where three or more building footprints are joined to one another.

Mid terrace – where a single address is part of a terrace block and attached to more than one other building footprint.

End terrace – where a single address is part of terrace block and attached to only one other building footprint.

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. The following assumptions are made:

Converted flat –if there are between two and four flats in the block (inclusive) and the dwelling was built before 1980 then it is assumed to be a conversion.

Purpose built flat – all other flats are assumed to be purpose built.

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[73] Houses have one residential address point and blocks of flats have two or more

[74] The area of land over which a building is constructed (i.e. the area of the ground floor only, this does not take into account the number of floors in a building)

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 HSDC 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 https://hscd.bregroup.com/login.jsp 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 Housing Standards Variables 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

Figure C. 2 Home page (note screenshot below is sample data)
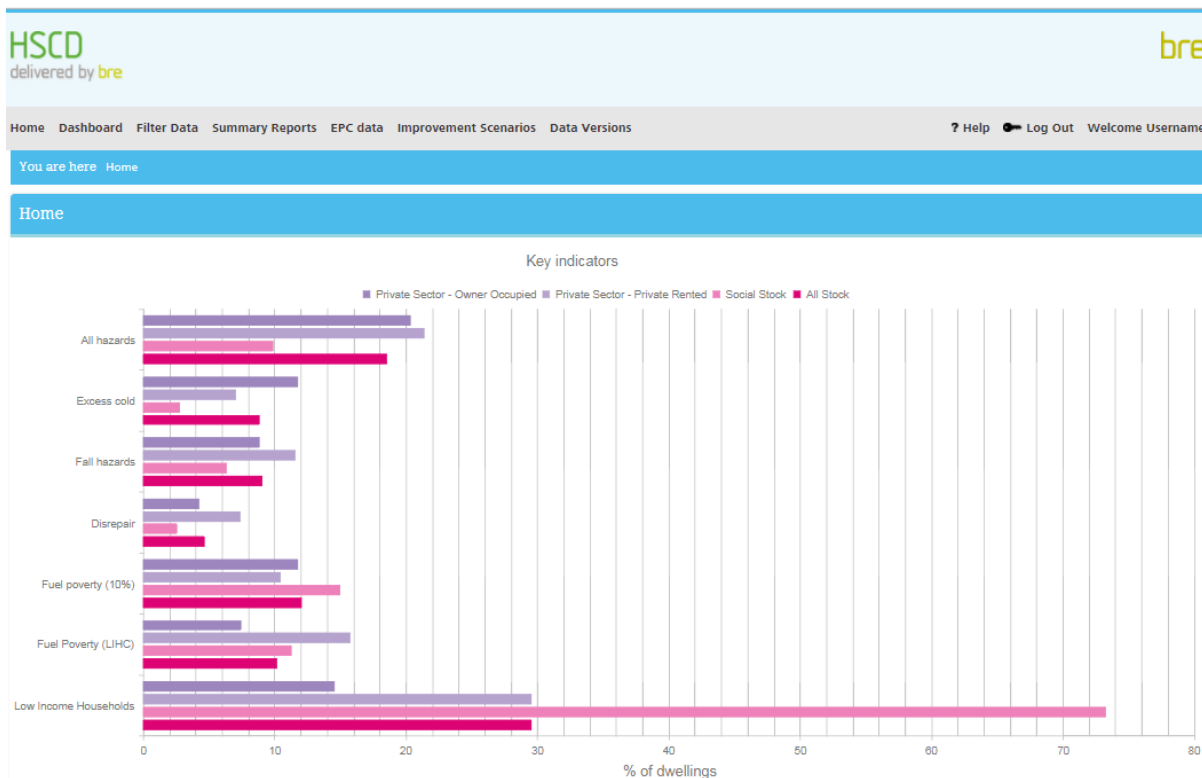
Please refer to the user guide accessible via the log in page under the [help](#) button.

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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	Health Impact Assessment
	A formal method of assessing the impact of a project, procedure or strategy on the health of a population
HMO	Houses in Multiple Occupation
	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
	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
HSM	Housing Stock Model
	Desktop based modelling used to determine the condition of the housing stock
Jenks' Natural Breaks	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
JSNA	Joint Strategic Needs Assessment
	An assessment of the current and future health and social care needs of the local community
LACORs	Local Authority Coordinators of Regulatory Services – now renamed Local Government Regulation
LAHS	Local Authority Housing Statistics
	National statistics on housing owned and managed by local authorities

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

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