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London Borough of Ealing

Private Rented Sector: Housing Stock Condition and Stressors Report

January 2021

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## Executive Summary

Metastreet were commissioned by the London Borough of Ealing to review housing stock in the borough and assess housing stressors related to key tenures, particularly the private rented sector.

The detailed housing stock information provided in this report will facilitate the development and delivery of Ealing's housing strategy and enable a targeted approach to tackling poor housing.

The main aim of this review was to investigate and provide accurate estimates of:

- Current levels of private rented sector (PRS) properties and tenure change over time.
- Information on the number of Houses in Multiple Occupation (HMOs) as a subset of the PRS.
- Levels of serious hazards that might amount to a Category 1 hazard (HHSRS).
- Other housing related stressors, including antisocial behaviour (ASB), service demand, population and deprivation linked to the PRS.
- Assist the council to make policy decisions, including the possible introduction of property licensing schemes under Part 2 and Part 3 of Housing Act 2004.

Metastreet has developed a stock-modelling approach based on metadata and machine learning to provide insights about the prevalence and distribution of a range of housing factors. This approach has been used by several councils to understand their housing stock and relationships with key social, environmental and economic stressors.

The models are developed using unique property reference numbers (UPRN), which provide detailed analysis at the property level.

Data records used to form the foundation of this report include:

Council tax	Electoral register	Other council interventions records	Tenancy deposit data
Housing benefit	Private housing complaints and interventions records	ASB complaints and interventions records	Energy Performance data

## **Key Findings**

- Ealing's private rented sector (PRS) has grown considerably in recent years, from 23% (2011) to 38.1% (2021).
- There are a total of 143,863 residential dwellings in Ealing, 38.1% (54,776) of which are PRS.
- The PRS in Ealing is distributed across all 23 wards.
- Ealing has a mixture of high and low deprivation wards. 13 of 23 wards have aggregated Index of Multiple Deprivation (IMD) 2019 rankings below the national average.
- Ealing has above London average private rented property possession claims, fuel poverty and homelessness.
- Poor housing conditions are prevalent in the PRS. 12,063 PRS properties are predicted to have at least 1 serious hazard (Category 1, HHSRS).
- Ealing Council receives significant numbers of complaints from tenants in the private rented sector, the service recorded 9,931 complaints over a 5-year period.
- 2.2% of PRS properties have an F and G Energy Performance Certificate rating. Extrapolated to the entire PRS, 1,205 PRS properties are likely to fail the statutory requirement.
- Ealing makes large numbers of statutory interventions in the private rented sector. Council enforcement officers served 1,254 housing, public health and planning enforcement notices over 5 years.
- There are moderate levels of recorded anti-social behaviour (ASB) linked to private rented properties across the borough. Over the last 5-years, 6,025 ASB incidents in the PRS have been recorded.
- Ealing's PRS has a relatively high number of Houses in Multiple Occupation (HMO) distributed across all 23 wards (8,360).
- The HMO population is made up of two categories; HMOs that share basic amenities (5,113) and converted properties with multiple flats that share common parts (3,247).
- Analysis shows that 2,360 of 5,113 (46%) shared amenities HMOs (s254) in Ealing are predicted to have serious hazards.
- Over a 5-year period 2,431 ASB incidents have been linked to HMOs in Ealing.
- Rates of ASB incidents in the HMO sector are significantly higher than other tenures.

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## **Introduction & Project Objectives**

Metastreet were commissioned by the London Borough of Ealing to review its housing stock with a focus on the following key areas:

- Residential property tenure changes
- Distribution of the PRS and HMO
- Condition of housing stock in the PRS
- Housing related stressors, including Anti-Social Behaviour (ASB), population change and deprivation.

The report provides the council with the evidence base for developing housing policy and service interventions. The report also satisfies the council's responsibility to review its housing stock as set out under Part 1, Section 3 of the Housing Act 2004.

The first section of the report details the findings of the stock and tenure modelling, including an introduction to the methodology. A combination of Ealing's data warehouse, machine learning, and modelling techniques have been used to pinpoint tenure and predict property conditions within its PRS housing stock. An advanced property level data warehouse has been developed to underpin the process.

For the purposes of this review, it was decided that a ward-level summary is the most appropriate basis to assess housing conditions across Ealing, built up from property level data.

Four separate predictive tenure models (Ti) have been developed as part of this project which are unique to Ealing, they include:

- Private rented sector (PRS)
- Houses in multiple occupation (HMO) (s254 & s257)
- Owner occupiers
- Serious PRS housing hazards (Category 1)

The second section provides a short private housing policy overview for the region to determine if characteristics exist in the Borough to support any specific intervention.

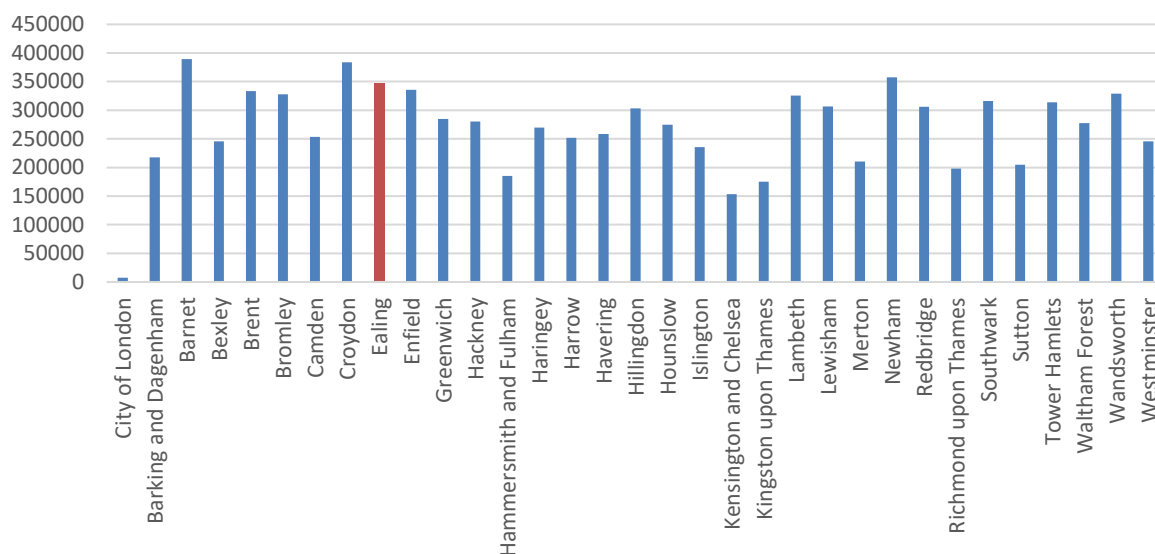
The appendices to the report contain a summary of the data and a more detailed report methodology.

## 1 London Borough of Ealing overview

Ealing is a borough of West London. It covers an area of 55.5km<sup>2</sup>. The borough borders the London Borough of Hillingdon to the west, the London Borough of Harrow and London Borough of Brent to the north, the London Borough of Hammersmith and Fulham to the east and the London Borough of Hounslow to the south.<sup>1</sup>

### 1.1 Population

The Office of National Statistics (ONS) household population estimate for Ealing as of 2018 was 346,908. This makes Ealing the 4<sup>th</sup> most populous London borough (Figure 1)<sup>2</sup>.



**Figure 1. Population estimates by London boroughs (Source: ONS 2018).**

### 1.2 Migration

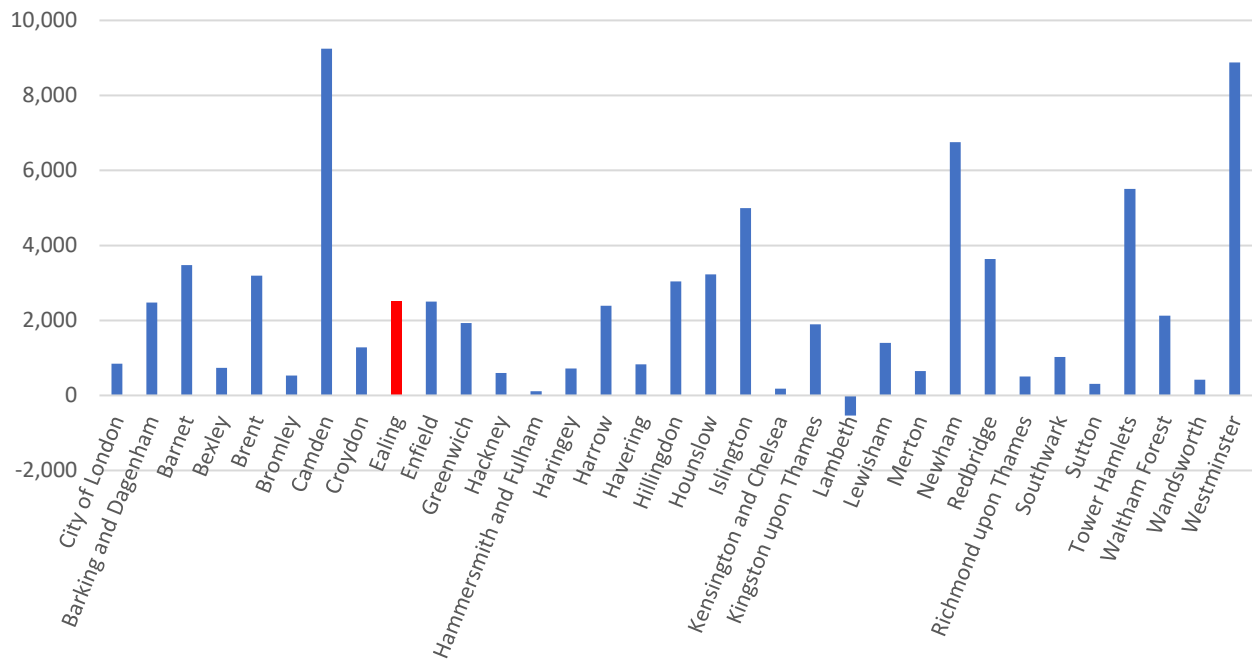
Net international migration into Ealing in 2018-2019 was 2,514 (Figure 2)<sup>3</sup>.

<sup>1</sup> Wikipedia, October 2020, [https://en.wikipedia.org/wiki/London\\_Borough\\_of\\_Ealing](https://en.wikipedia.org/wiki/London_Borough_of_Ealing)

<sup>2</sup> London Datastore 2018, <https://data.london.gov.uk/dataset/trend-based-population-projections>

<sup>3</sup> ONS 2018

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalescotlandandnorthernireland>

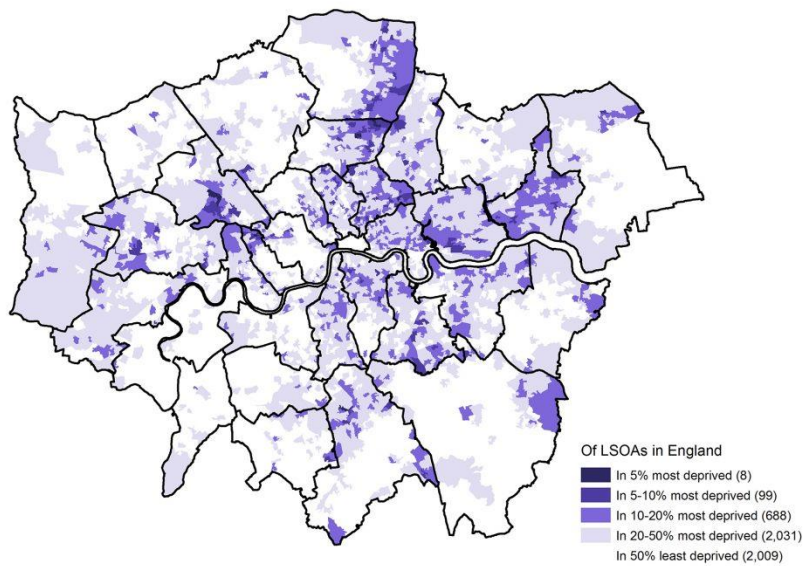


**Figure 2. Long-term international migration (net flow) by London boroughs (2018/2019).**

### 1.3 Deprivation

The Indices of Multiple Deprivation 2019 (IMD 2019) provide a set of relative measures of deprivation for LSOAs (Lower-layer super output areas) across England, based on seven domains of deprivation<sup>4</sup>.

<sup>4</sup> ONS 2019 <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>.



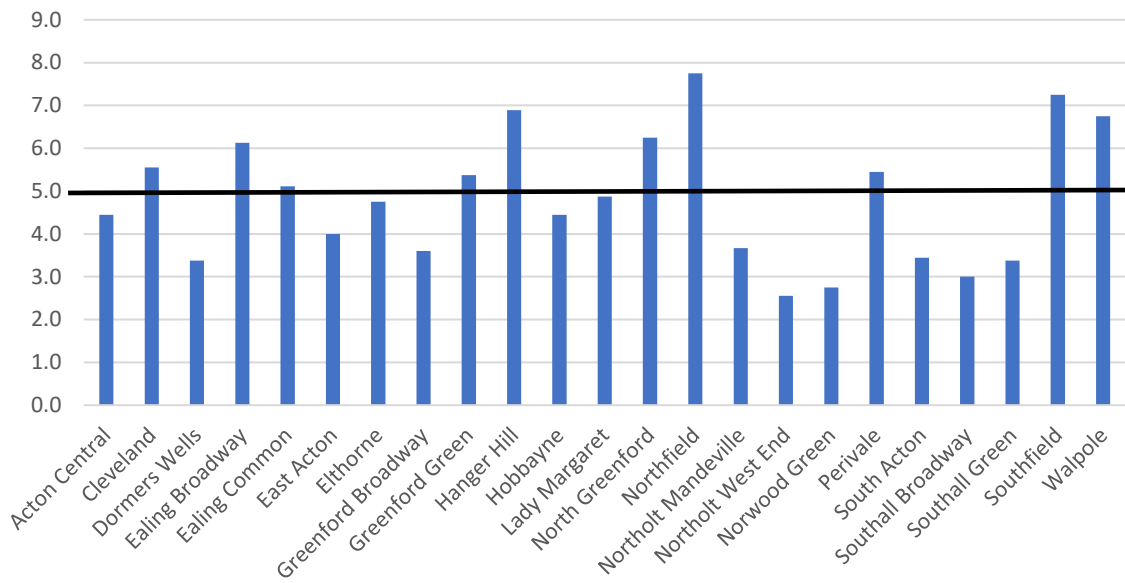
**Figure 3. Distribution of deprivation across London (Source & map: London Datastore 2019 ).**

The darker shades are the most deprived areas. Ealing ranks (Rank of average rank) as the 88<sup>th</sup> most deprived borough in England out of 317.

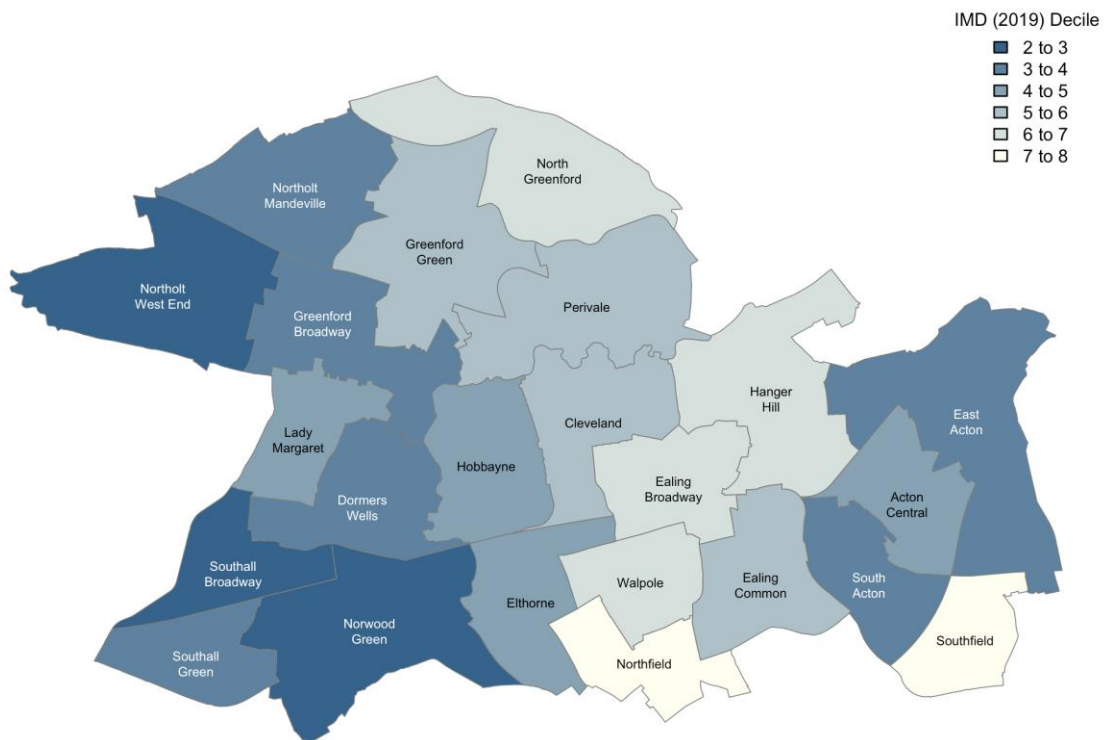
To produce the ward level data, LSOAs have been matched to new wards using an Open Geoportal lookup table<sup>5</sup>. Average IMD 2019 decile aggregated at ward level reveals a clear picture (Figure 4 & Map 1). 1.0 on the graph represents the most deprived 10% areas and 5.0 represents 50% most deprived.

Ealing has a mixture of high and low deprivation wards. 13 of 23 wards have aggregated IMD rankings below the national average.

<sup>5</sup> ONS2019 [http://geoportal.statistics.gov.uk/datasets/8c05b84af48f4d25a2be35f1d984b883\\_0/data](http://geoportal.statistics.gov.uk/datasets/8c05b84af48f4d25a2be35f1d984b883_0/data)

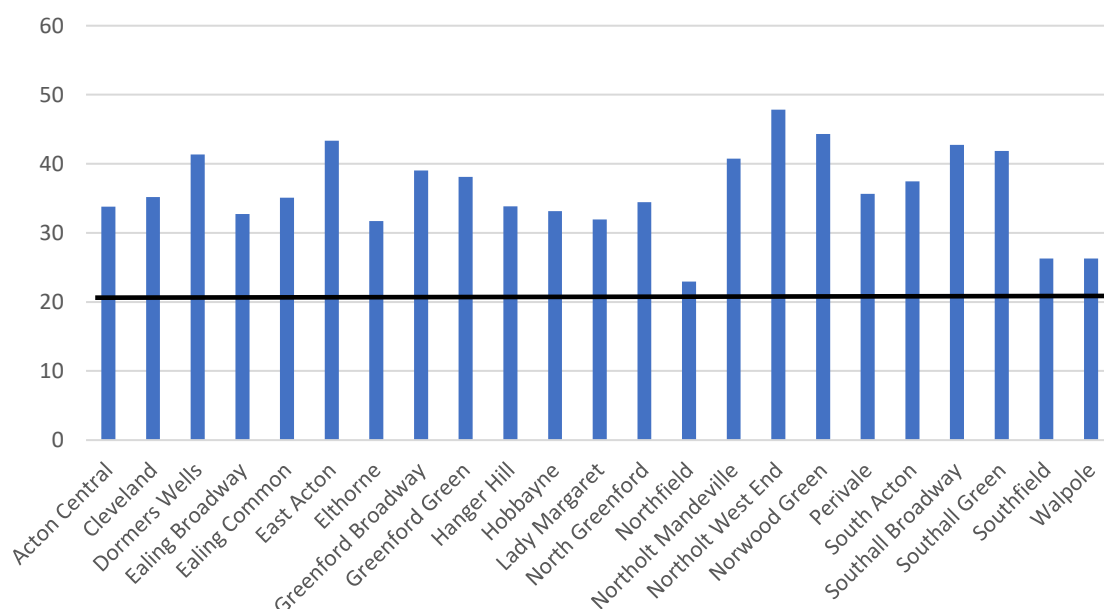


**Figure 4. Average IMD (2019) decile by ward (Source: IMD 2019). Horizontal line shows the national average (5)**



**Map 1. Distribution of Average IMD (2019) decile by ward (Source: ONS 2019, Map by Metastreet).**

Ealing faces challenges relating to barriers to housing. All wards are worse than the national average (21.6) for IMD 2019 Barriers to Housing and Services measure (Figure 5). The barriers to housing IMD domain includes indicators such as overcrowding, homelessness and housing affordability.

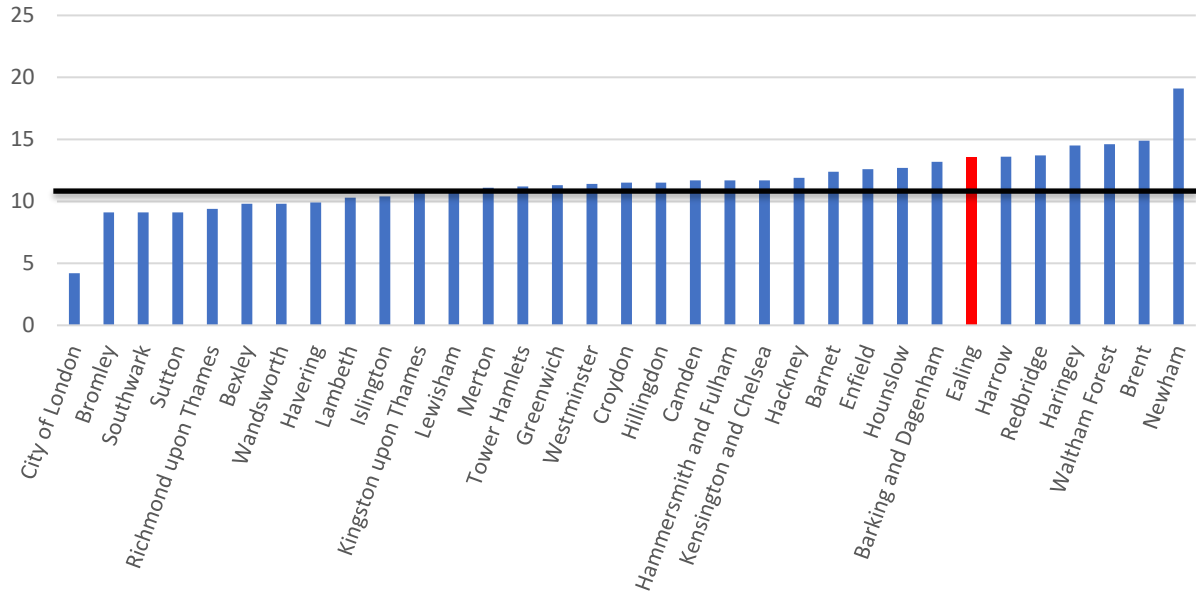


**Figure 5. Average barriers to housing and services decile by ward (IMD 2019). Horizontal line shows the national average (21.6).**

#### 1.4 Fuel Poverty

Fuel poverty is defined by the Warm Homes and Energy Conservation Act 2000 as if a member of a household living on a lower income in a home which cannot be kept warm at reasonable cost. The fuel poverty score represents a percentage of households that are of risk from fuel poverty. Fuel poverty is measured by the Department for Energy and Climate Change. Ealing has a higher proportion in fuel poverty than the London average (Figure 6) <sup>6</sup>.

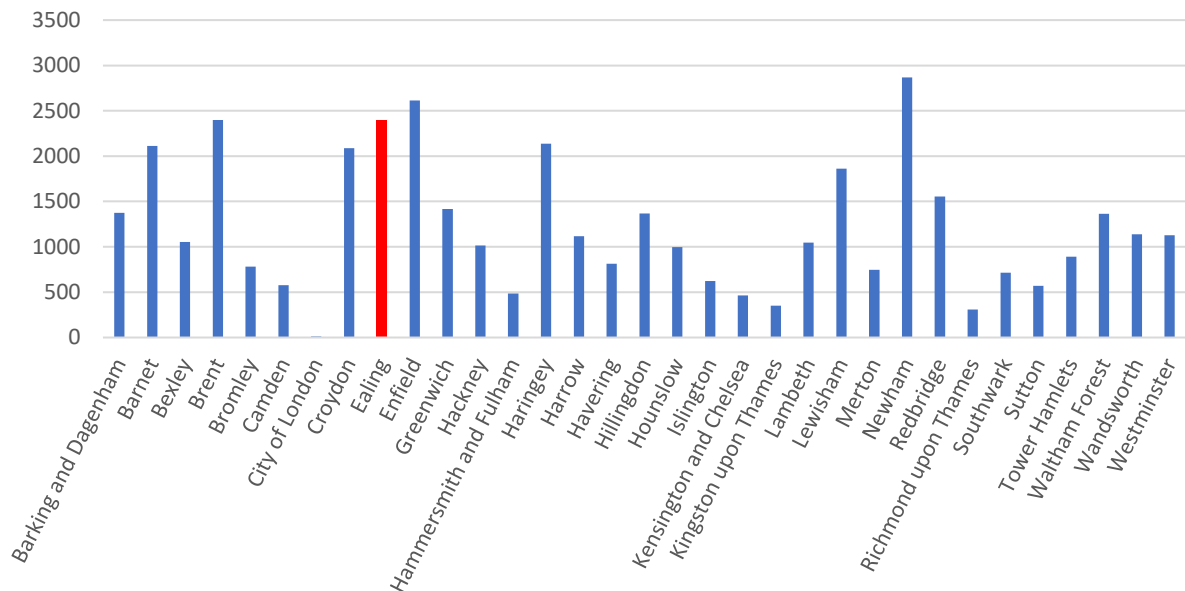
<sup>6</sup> DECC 2020, <https://data.gov.uk/dataset/b1a8812c-de77-4eb9-87e5-4bfff23014e8/fuel-poverty>



**Figure 6. Proportion of households in fuel poverty (%) by London boroughs (DECC 2017). Horizontal line shows London average (11.6%).**

### 1.5 Rented property possession claim rates

Ealing has the 3<sup>rd</sup> highest number of private landlord possession claims in London, with 2,403 in 2019<sup>7</sup> (Figure 7). The average number of claims for London boroughs is 1,224.



**Figure 7. Possession order claims by private landlords by London boroughs (MOJ 2019)**

<sup>7</sup> MOJ Possession claims by local authority (2019) <https://www.gov.uk/government/statistics/mortgage-and-landlord-possession-statistics-january-to-march-2020>

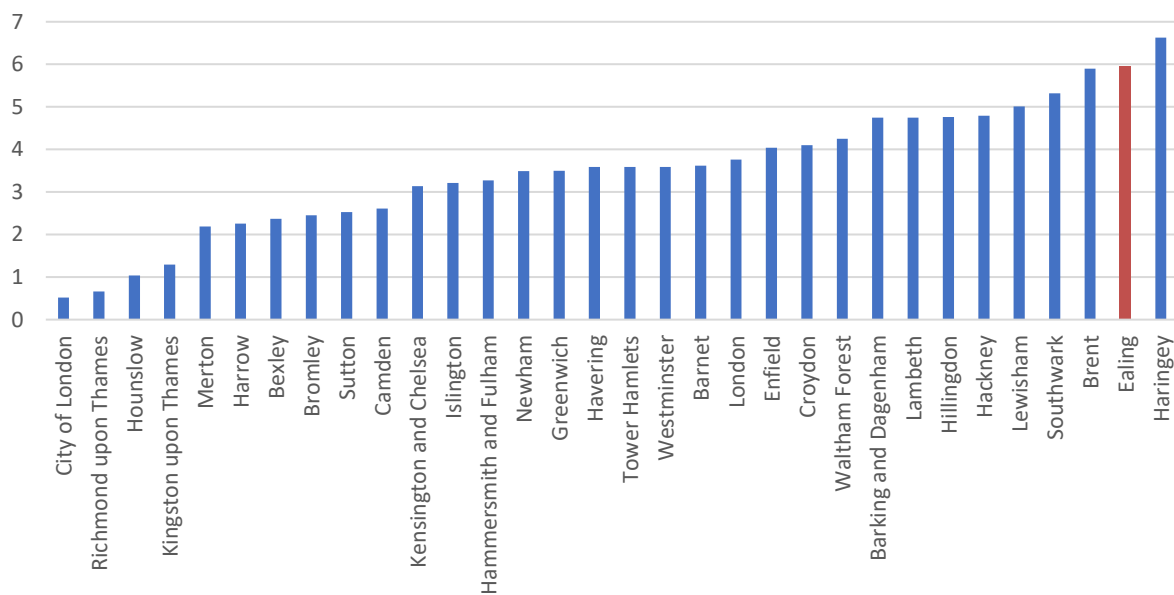


## 1.6 Homelessness

Local authorities are required by law to either provide accommodation to homeless households (the main homelessness duty), work to stop households becoming homeless (the homelessness prevention duty) or relieve homelessness when it does occur (the homelessness relief duty).

The extent and nature of homelessness duties owed by different boroughs varies significantly.

Homelessness returns to government in 2019/20 for Q2 show Ealing has the 2<sup>nd</sup> highest homelessness duties owed in London (Figure 8)<sup>8</sup> (excludes main duty to avoid double counting).



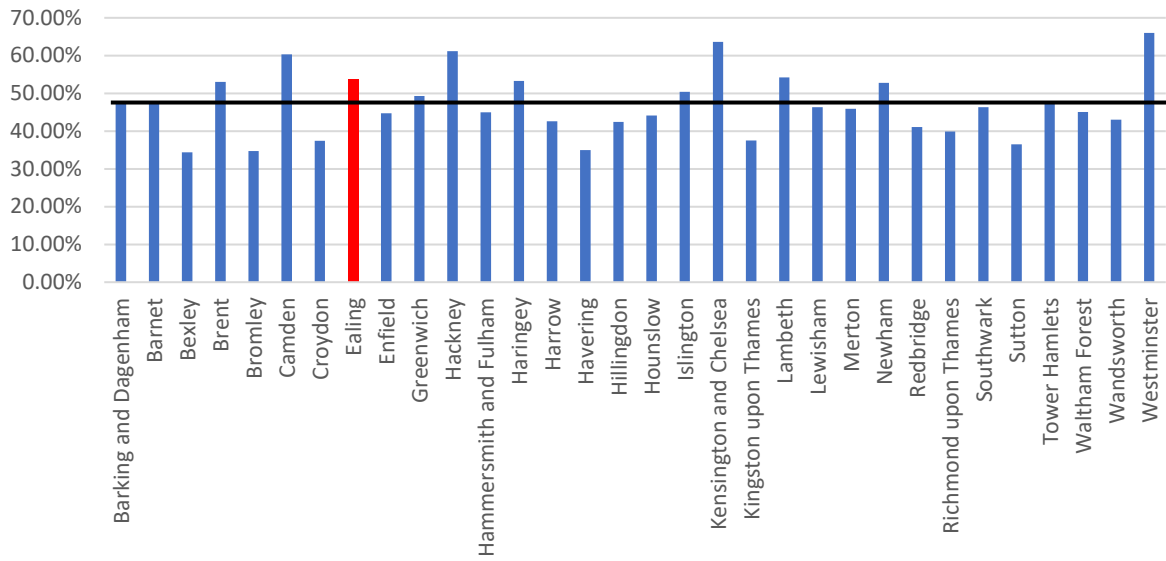
**Figure 8. Homelessness duties owed by London boroughs (2019/20) (Q2) (Source: MHCLG 2019/20) (excludes main duty to avoid double counting). No data available for Redbridge and Wandsworth**

## 1.7 Rents and affordability

Private rents vary by borough. As this report is concerned with housing conditions and other housing stressors, we have looked at the average (median) earnings for one-bedroom dwellings as a proportion of median rents. Ealing has above average rents, with 53.7% of median earnings used to pay rent (Figure 9)<sup>9</sup>.

<sup>8</sup> Trust for London, <https://www.trustforlondon.org.uk/data/homelessness-duties-borough/>

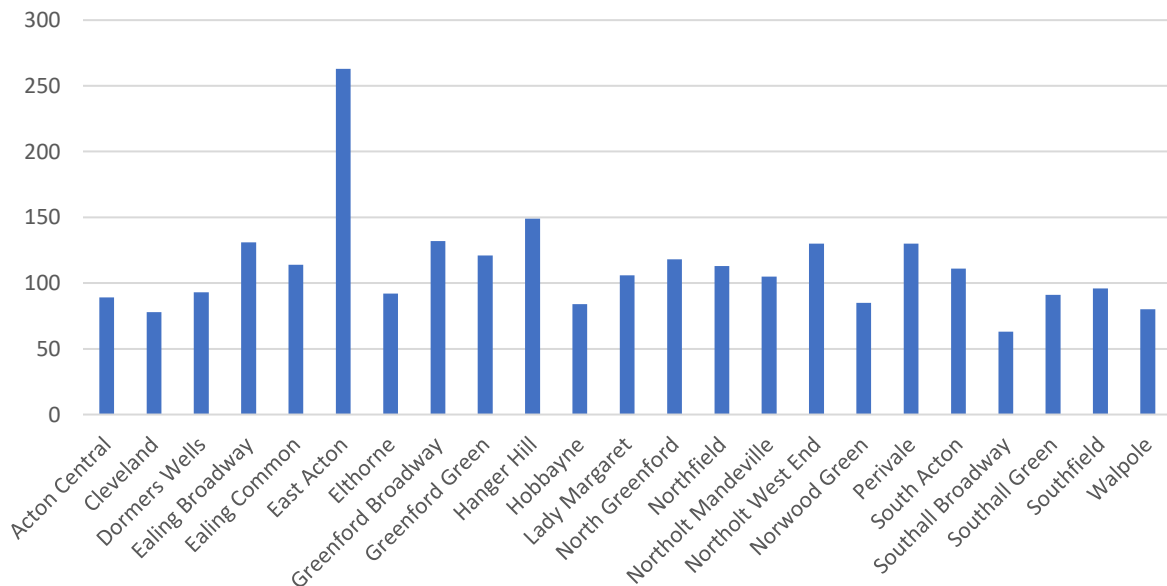
<sup>9</sup> Valuation Office Agency (VOA), Private rental market summary statistics: 2018



**Figure 9. Median rent for a one-bedroom dwelling as a percentage of gross pay by London borough (2019/20) (Source: TFL 2020). Horizontal black line shows London average (47.9%)**

### 1.8 Residential property crime (burglary)

2,574 burglaries were reported to the Metropolitan Police in Ealing between February 2019 & March 2020. East Acton (263) and Hanger Hill (149) wards have the highest rates of burglaries.



**Figure 10. Distribution of reported burglary in Ealing - Metropolitan Police (Feb 2019-March 2020)**

## **2 Results of housing stock and stressor modelling**

### **2.1 Methodology**

Tenure Intelligence (Ti) uses council held and publicly available data to identify tenure and analyse property stressors, including property conditions and ASB.

Data trends at the property level are analysed using machine learning to help predict the tenure of individual properties. Metastreet has worked with the council to create a residential property data warehouse. This has included linking millions of cells of council and externally held data to 143,863 unique property references (UPRN), excluding parent and non-dwellings.

Machine learning is used to make predictions for each tenure and property condition based on a sample of known tenures and outcomes. Results are analysed to produce a summary of housing stock, predictions of Category 1 hazards (HHSRS) and other stressors. To achieve the maximum accuracy, unique models are built for each council and tenure, incorporating individual borough data and using known outcomes to train predictive models.

Once the data warehouse was created, statistical modelling was used to determine tenure using the methodology outlined below. All specified and requested council held longitudinal data is 5 consecutive years, from April 2015 – March 2020.

Different combinations of risk factors were systematically analysed for their predictive power in terms of key outcomes. Risk factors that duplicated other risk factors but were weaker in their predictive effect were systematically eliminated. Risk factors that were not statistically significant were also excluded through the same processes of elimination.

For each UPRN a risk score was calculated using logistic regression. The selected risk factors have a better or worse than evens chance of being predictive.

A number of predictive models have been developed as part of this project which are unique to Ealing. Known stressors linked to individual properties have been modelled to calculate population level incidences and rates.

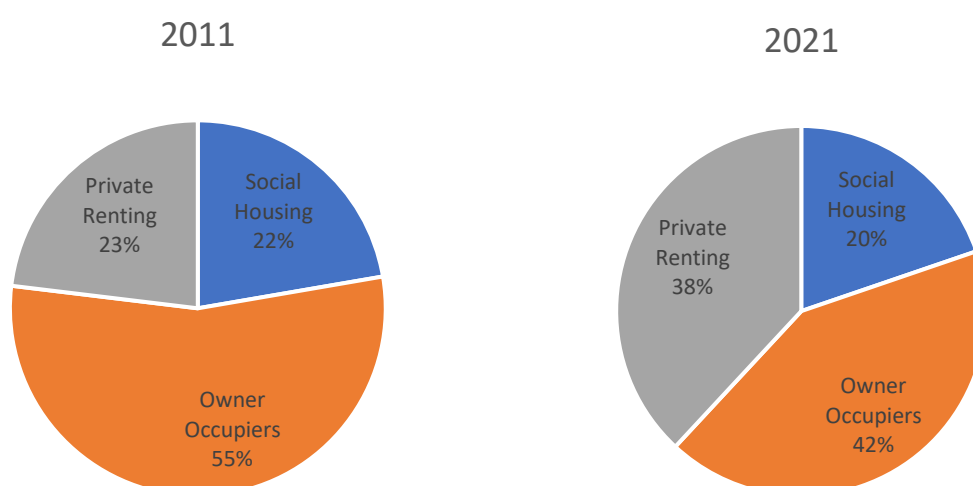
It is important to note that this approach can never be 100% accurate as all large datasets and statistical models include some level of error. A more detailed description of the methodology and the specific factors selected to build predictive models for this project can be found in Appendix 2.

## 2.2 Results - Private rented sector

### 2.2.1 Population and distribution

The private rented sector (PRS) in Ealing has grown steadily since 2011 <sup>10</sup>.

Based on tenure modelling (January 2021), Ealing's PRS is now calculated to be 38.1% of housing stock (Figure 11). This compares to 23% of households in 2011 (ONS). This represents a 65.7% increase over the last 10 years (Figure 12).



**Figure 11. Tenure profile 2011 & 2021 (Source: ONS & Metastreet Ti model).**

Tenure percentage change over the last two decades in Ealing has been consistent with the London trend, owner occupation decreasing while private renting increasing. Private renting has grown at the expense of owner occupation; however, a sizable proportion of the growth appears to come from new supply. Social housing stock levels have remained steady.

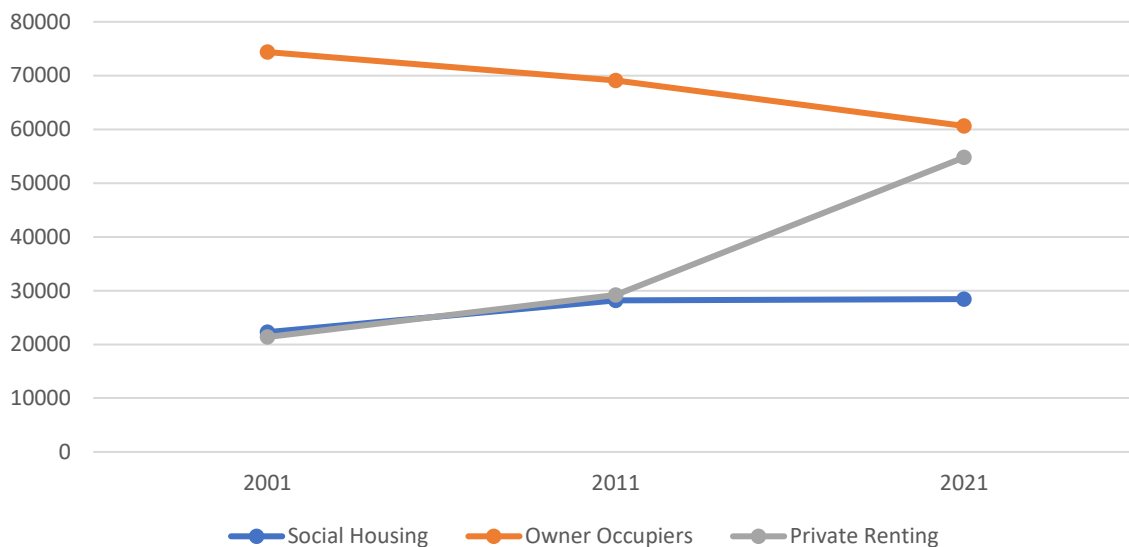
This increase is part of a long term nationwide and regional trend. The PRS in the UK has grown from 9.4% of housing stock in 2000 <sup>11</sup> to 19% of households 2020 <sup>12</sup>. The PRS remains the second largest housing tenure in England. <sup>13</sup>.

<sup>10</sup> <https://data.london.gov.uk/dataset/2011-census-housing>

<sup>11</sup> The profile of UK private landlords Scanlon K & Woodhead C CML research. LSE London. December 2017 [www.cml.org.uk](http://www.cml.org.uk)

<sup>12</sup> EHS Headline 2919-20, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/945013/2019-20\\_EHS\\_Headline\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf)

<sup>13</sup> EHS Headline 2919-20, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/945013/2019-20\\_EHS\\_Headline\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf)

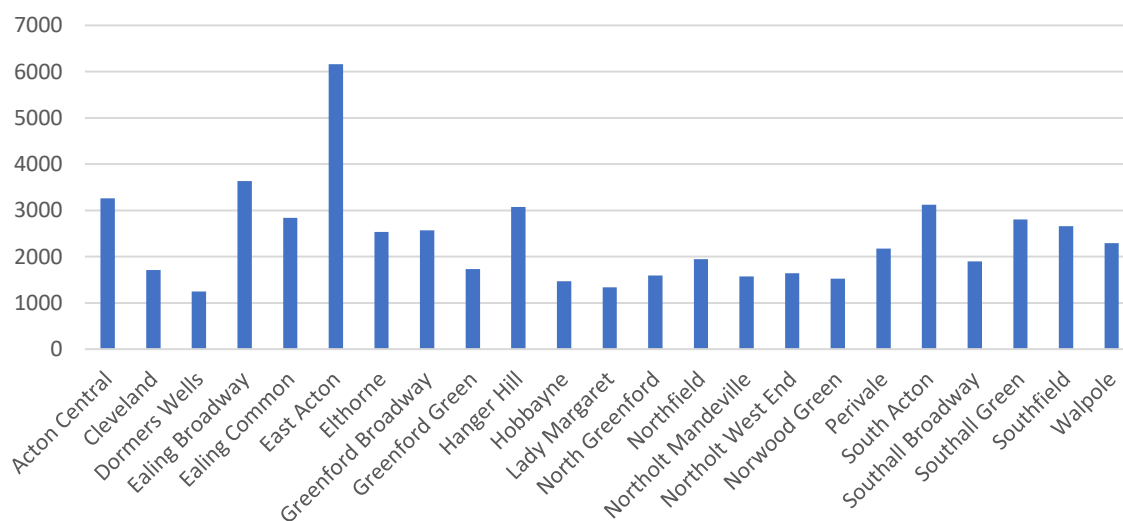


**Figure 12. PRS as a percentage of total housing stock, 2001, 2011 & 2021 (Source: ONS & Metastreet).**

Tenure	2001	2011	2021
Social Housing	22,277	28,200	28,425
Owner Occupiers	74,375	69,100	60,635
Private Renting	21,371	29,200	54,776
Total dwellings	118,023	126,500	143,836

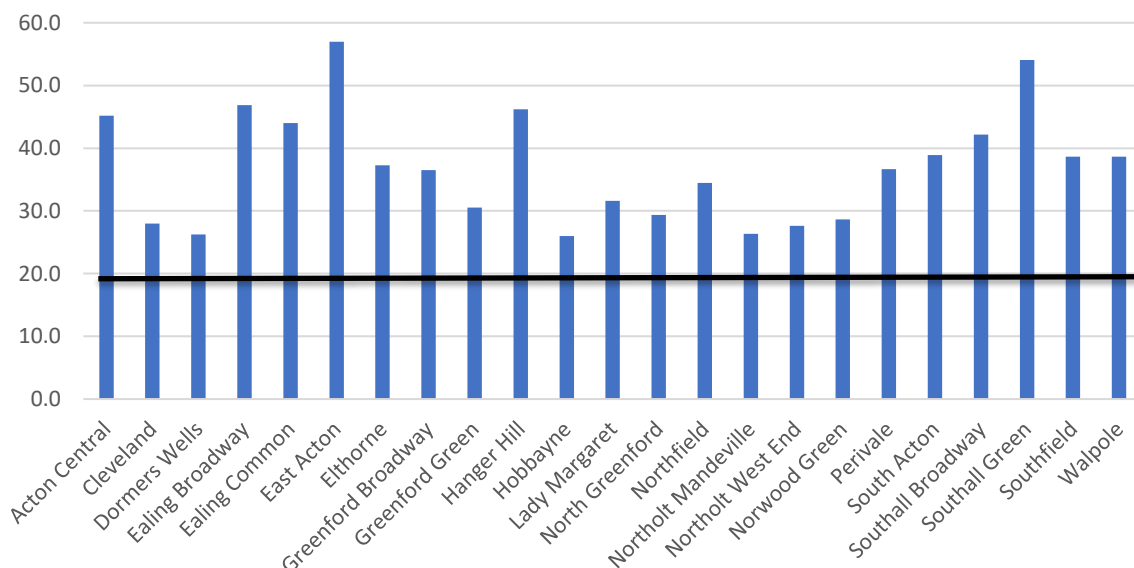
**Table 1. Number of dwellings by tenure 2001, 2011 & 2021 dwellings by ward (Source Ti 2021).**

The PRS in Ealing is distributed across all 23 wards (Figure 13). The number of PRS dwellings per ward ranges from 6,162 (East Acton) to 1,246 (Dormers Wells).



**Figure 13. Number of PRS dwellings by ward (Source: Ti 2021).**

The percentage of PRS properties in each ward ranges between 57% (East Acton) and 26% (Hobbayne) (Figure 14). Therefore, 23 out of 23 Ealing wards have a higher percentage PRS than the national average in 2020 (19%)<sup>14</sup>.



**Figure 14. Percentage of PRS dwellings by each ward (Source Ti 2021). Horizontal black line shows national average 2019 (19%)**

The table below shows the total PRS dwellings in each ward and the percentage PRS compared to the total housing stock.

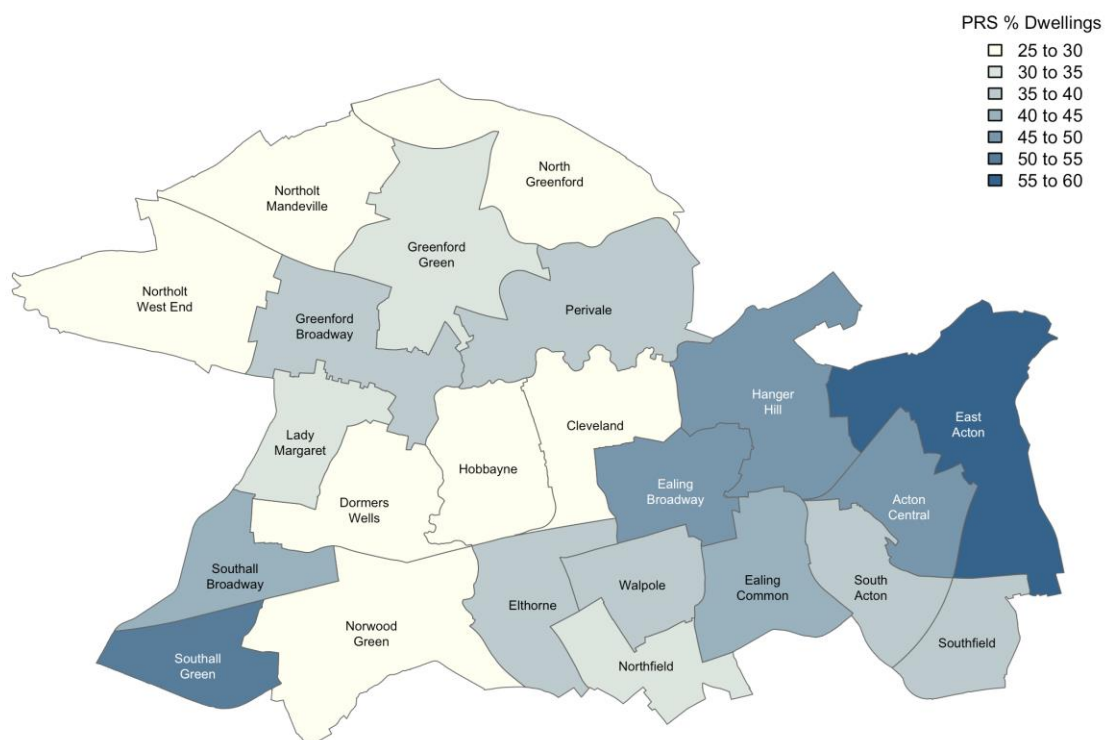
Ward	No. PRS Dwellings	Percent PRS (%)
Acton Central	3,258	45.2
Cleveland	1,713	28.0
Dormers Wells	1,246	26.3
Ealing Broadway	3,633	46.9
Ealing Common	2,838	44.0
East Acton	6,162	57.0
Elthorne	2,533	37.3
Greenford Broadway	2,566	36.5
Greenford Green	1,731	30.6
Hanger Hill	3,073	46.2
Hobbayne	1,468	26.0
Lady Margaret	1,337	31.6

<sup>14</sup> EHS Headline 2919-20, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/945013/2019-20\\_EHS\\_Headline\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf)

North Greenford	1,593	29.4
Northfield	1,944	34.5
Northolt Mandeville	1,571	26.3
Northolt West End	1,638	27.6
Norwood Green	1,526	28.6
Perivale	2,174	36.7
South Acton	3,120	38.9
Southall Broadway	1,898	42.2
Southall Green	2,802	54.1
Southfield	2,661	38.7
Walpole	2,291	38.7

**Table 2. Number and percentage of PRS properties by ward (Source Ti 2021).**

PRS properties are distributed across the borough (Map 2). East Acton (57%) and Southall Green (54.1%) wards have the highest concentration of PRS dwellings.



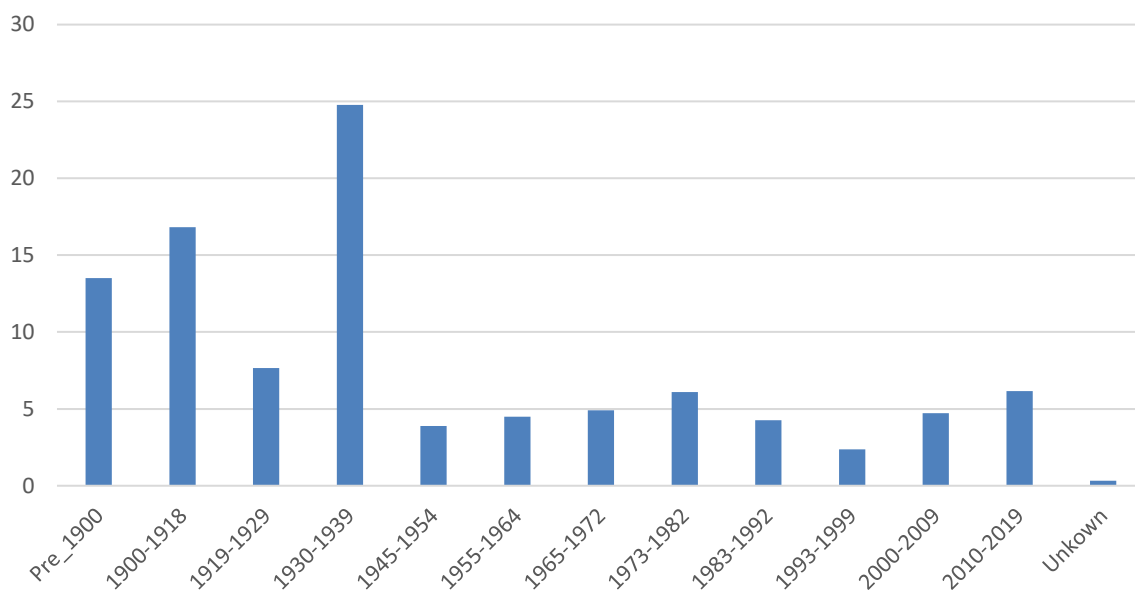
**Map 2. PRS properties as percentage of dwellings in Ealing (Source: Ti 2021, map by Metastreet).**

## 2.2.2 Housing conditions

Housing conditions are affected by the level of maintenance and quality of repair, the age of the property, thermal efficiency, and type of construction. Category 1 (HHSRS) hazards have a physiological or psychological impact on the occupant and may result in medical treatment.<sup>15</sup>

In 2019, 13% of private rented dwellings in England had at least one Category 1 hazard; this was a higher proportion than the average for the total housing stock (10%)<sup>16</sup>. It is notable that there is a gradient of risk with age of the property, the risk being greatest in dwellings built before 1900, and lowest in the more energy efficient dwellings built after 1980<sup>17</sup>.

A local authority's property age profile can have an impact on housing conditions. Ealing has a high number of residential properties (62.8%) built pre-Second World War (Figure 15)<sup>18</sup>.



**Figure 15. Age profile of housing stock (%) for all tenures (Source: VOA 2015).**

<sup>15</sup> Housing Health and Rating System, Operation Guidance, 2006, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/15810/142631.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf)

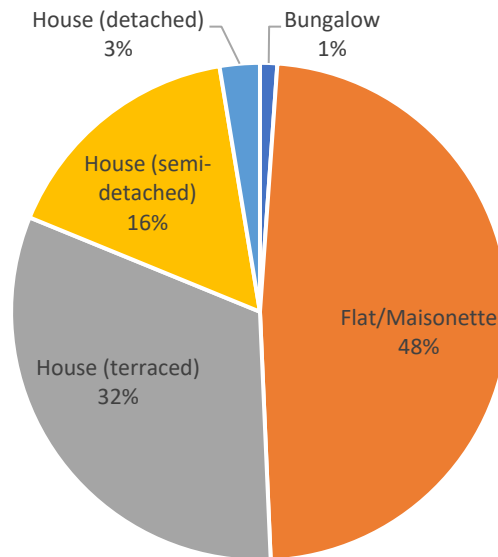
<sup>16</sup> English Housing Survey Dec 2020 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/945013/2019-20\\_EHS\\_Headline\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf)

<sup>17</sup> Housing Health and Rating System, Operation Guidance, 2006, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/15810/142631.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf)

<sup>18</sup> London data store, VOA <https://data.london.gov.uk/dataset/property-build-period-isoa>



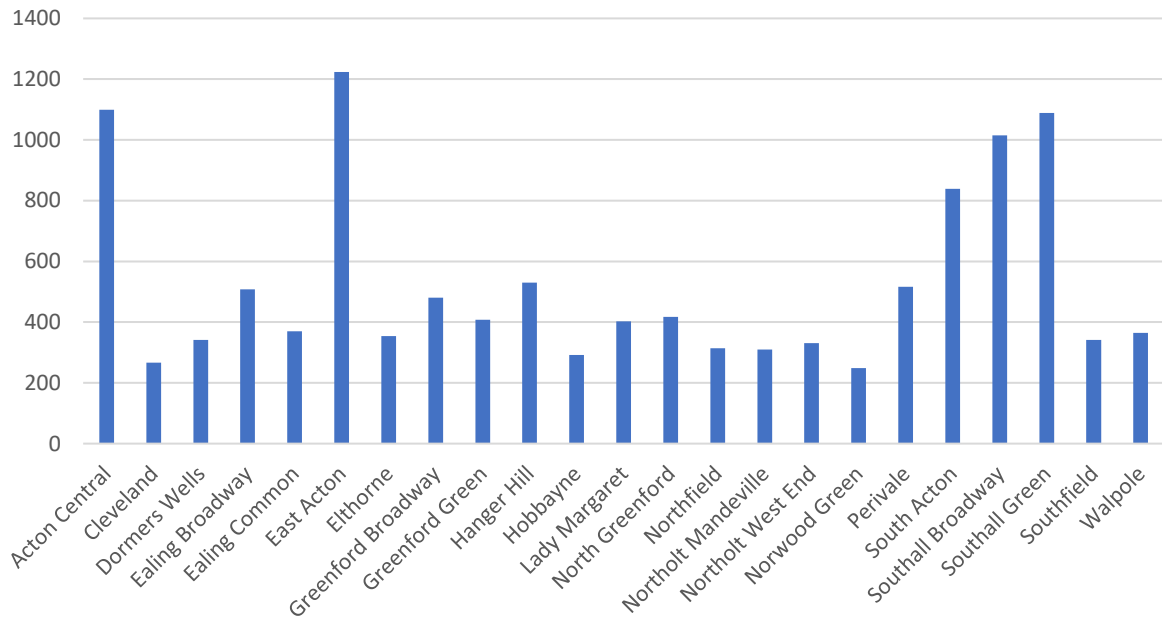
A borough's property type profile offers an indication of housing density, construction type and other population factors. The most common property type in Ealing is flats (48%), while bungalows are the least common property type (1%) (Figure 16).



**Figure 16. Property type as a percent of total (Source: VOA 2015).**

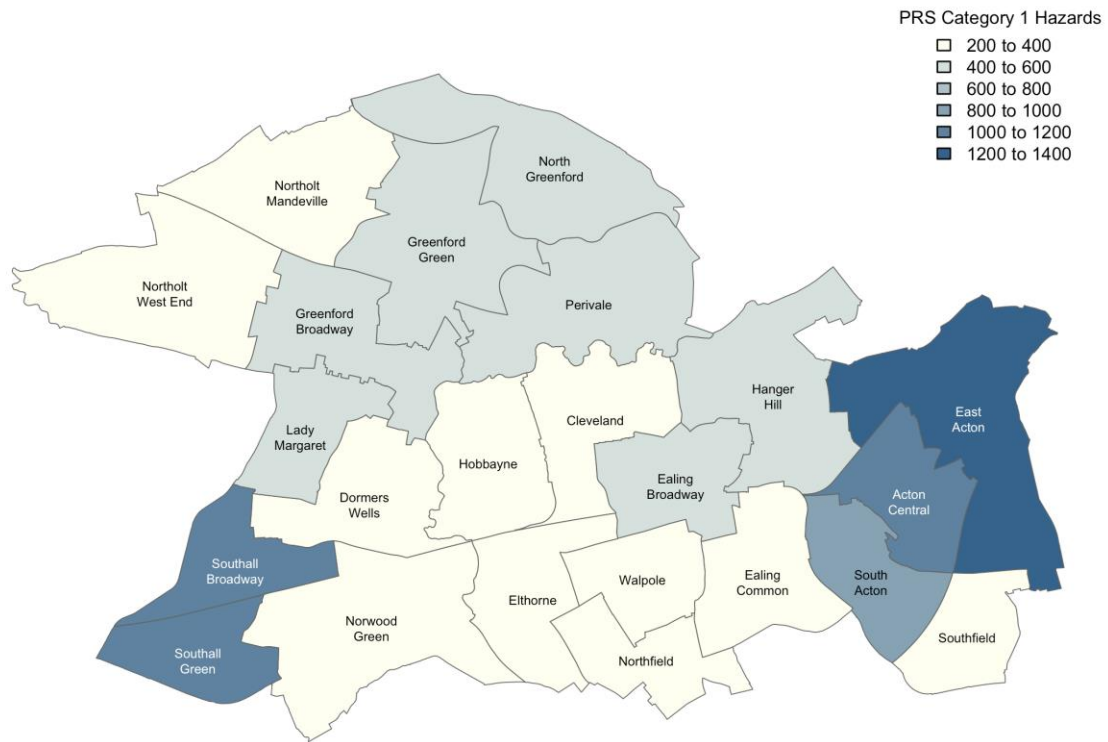
Using a sample of properties that are known to have at least one serious housing hazard (Category 1, HHSRS), it is possible to predict the number of PRS properties with at least one serious hazard across the borough (Figure 17), further details of the methodology can be found in Appendix 2.

There are 12,063 private rented properties in Ealing that are likely to have at least 1 serious housing hazard (Category 1, HHSRS). PRS properties with serious hazards are distributed across the borough. East Acton (1,224), Acton Central (1,099) and Southall Green (1,089) have the highest number of properties with at least one Category 1 hazard.



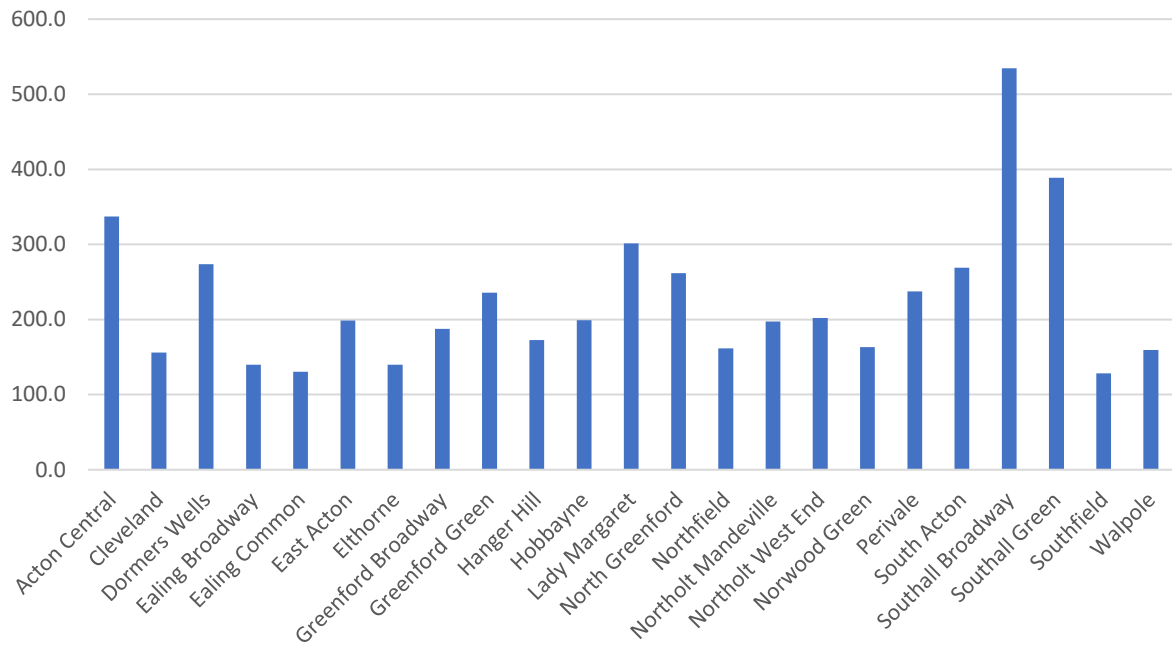
**Figure 17. Predicted number of dwellings with Category 1 hazards by ward (Source: Ti 2021).**

Category 1 hazards in the PRS are distributed across the whole borough. Notable concentrations of properties with serious hazards can be found predominantly in the south eastern and south western wards.



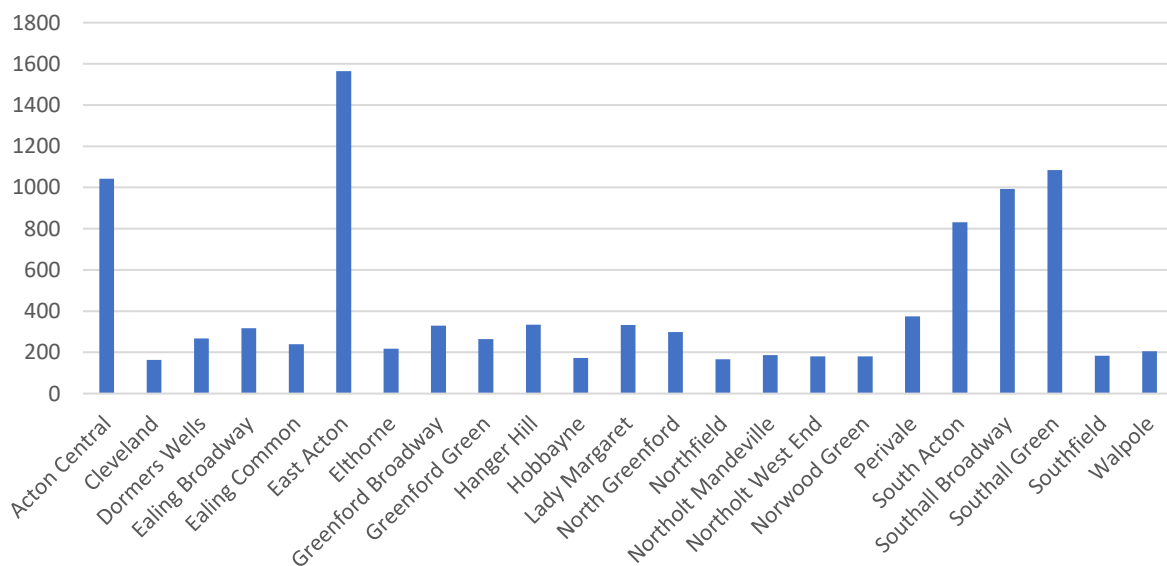
**Map 3. Distribution of PRS dwellings with Category 1 hazards (HHSRS) (Source: Ti 2021, map by Metastreet).**

The rates of Category 1 hazards per 1,000 PRS properties reveals a wide distribution across Ealing (Figure 18). Southall Broadway (534 per 1,000) and Southall Green (388 per 1,000) wards have the highest rates of PRS properties with Category 1 hazards.



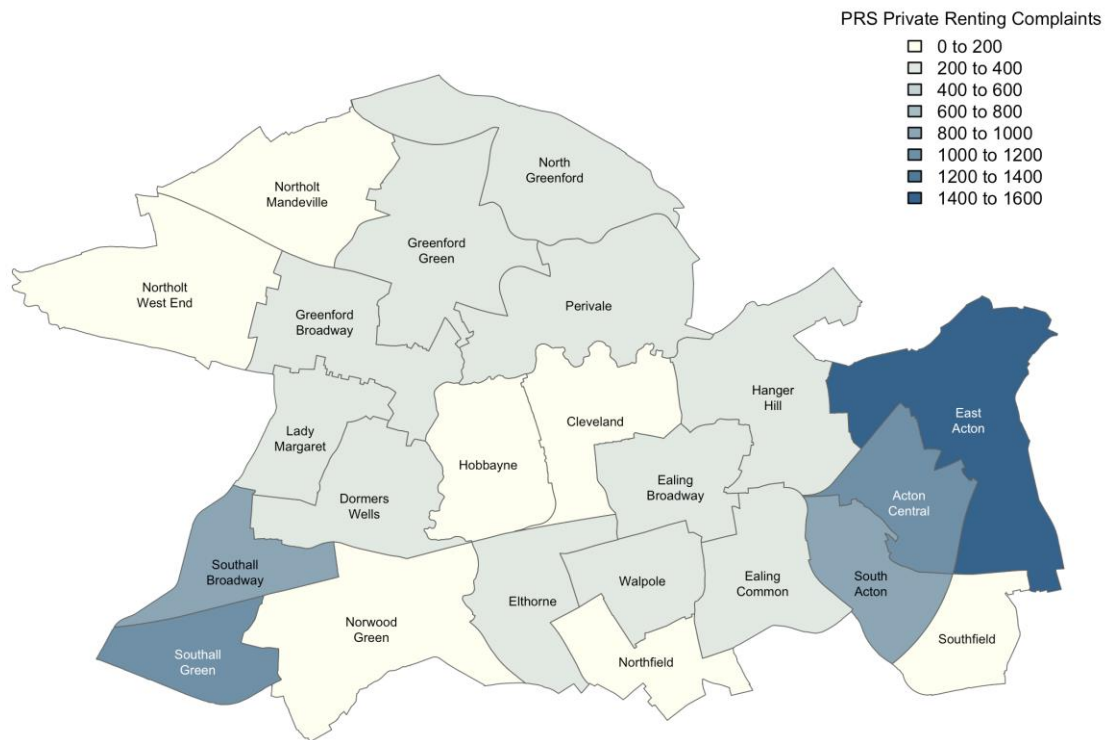
**Figure 18. Rates per 1,000 PRS dwellings with predicted Category 1 hazards by ward (Source: Ti 2021).**

Complaints made by PRS tenants to the council about poor property conditions and inadequate property management are a direct indicator of low quality PRS. Ealing recorded 9,931 complaints from private tenants over a 5-year period (Figure 19).



**Figure 19. PRS disrepair complaints made by private tenants to the Council (Source Ti 2021)**

East Acton (1,564) and Southall Green (1,085) received most private tenant complaints.

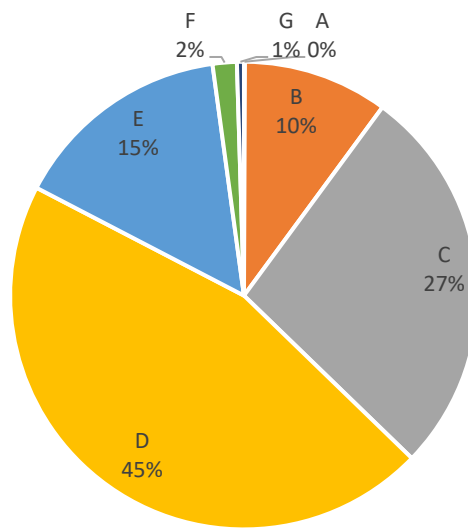


**Map 4. Distribution of PRS tenant complaints (Source: Ti 2021, map by Metastreet).**

An EPC rating is an assessment of a property’s energy efficiency. It’s primarily used by buyers or renters of residential properties to assess the energy costs associated with heating a house or flat. The rating is from A to G. A indicates a highly efficient property, G indicates low efficiency.

The energy efficiency of a dwelling depends on the thermal insulation of the structure, on the fuel type, and the size and design of the means of heating and ventilation. Any disrepair or dampness to the dwelling and any disrepair to the heating system may affect efficiency. The exposure and orientation of the dwelling are also relevant.

As part of this project 37,098 EPC ratings were matched to PRS properties (Figure 20). All figures have been modelled from this group.



**Figure 20. Distribution of Energy Performance Certificate ratings in PRS (Rating A-G) (Source: Ti 2021).**

The Minimum Energy Efficiency Standard (MEES) came into force in England and Wales on 1 April 2018. The regulation applies to PRS properties and mandates that all dwellings must have an EPC rating of E and above to be compliant. It has been calculated using the matched addresses that 17.3% of PRS properties in Ealing have an E, F, and G rating. 2.2% of PRS properties have an F and G rating (Figure 20). Extrapolated to the entire PRS, 1,205 PRS properties are likely to fail the MEES statutory requirement.

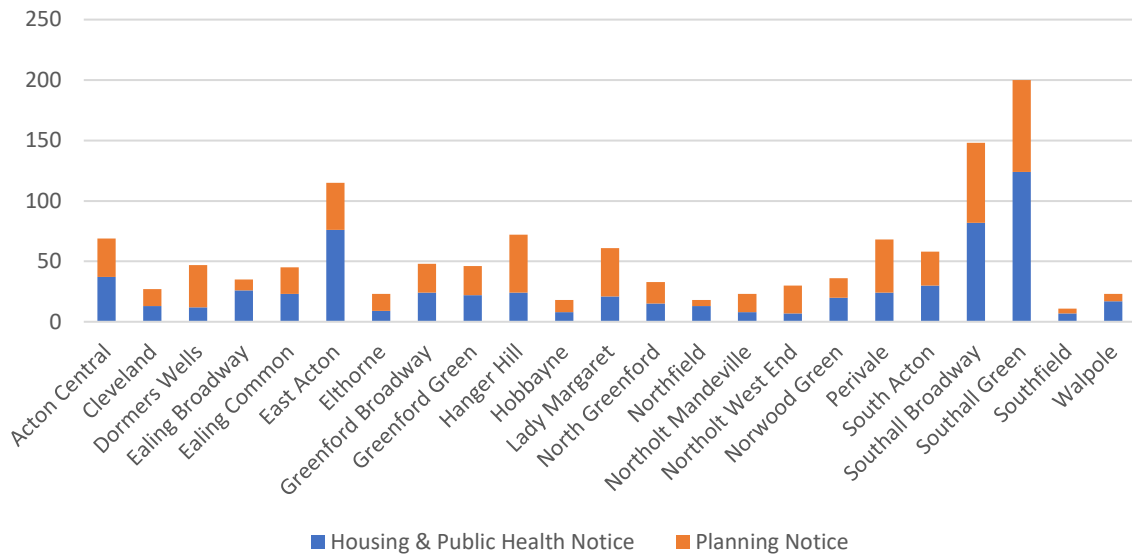
The statistical evidence shows that there is a continuous relationship between indoor temperature and vulnerability to cold-related death<sup>19</sup>. The colder the dwelling, the greater the risk. The percentage rise in deaths in winter is greater in dwellings with low energy efficiency ratings. There is a gradient of risk with age of the property, the risk being greatest in dwellings built before 1850, and lowest in the more energy efficient dwellings built after 1980<sup>20</sup>. Therefore, the sizeable number of F and G properties present a serious risk to the occupants' health, particularly if over the age of 65.

In response to non-compliance in the private rented sector Ealing has served a significant number of statutory notices over 5 years. 1,254 housing, public health and planning enforcement notices were

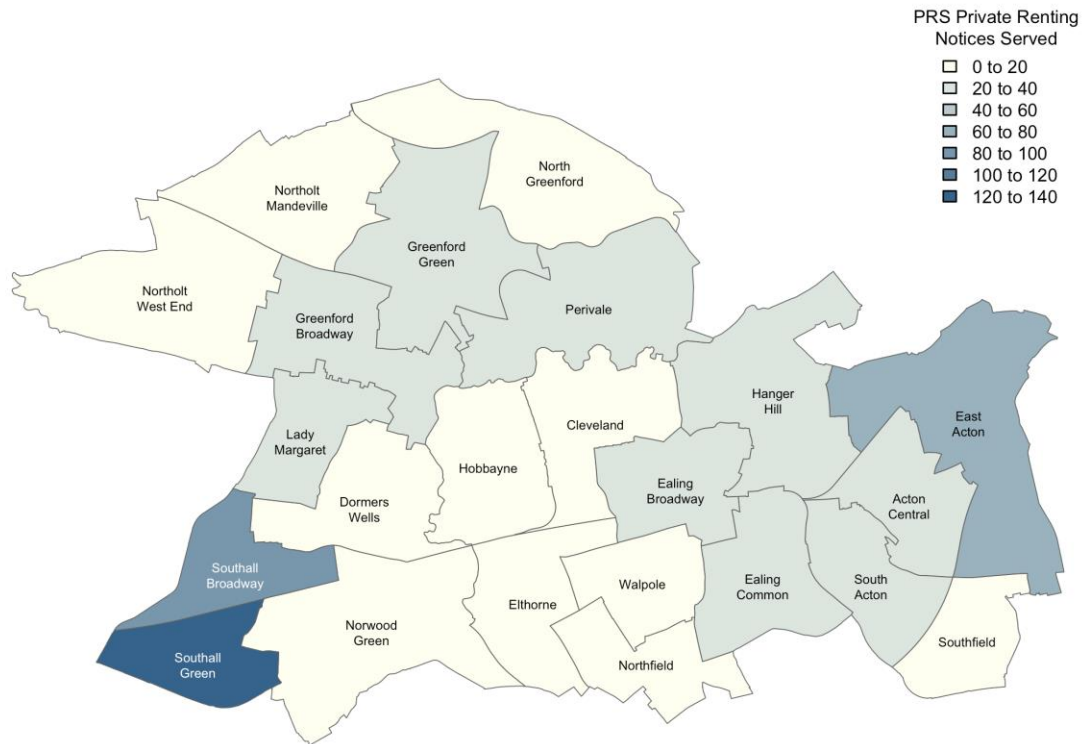
<sup>19</sup> Housing Health and Rating System, Operation Guidance, 2006  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/15810/142631.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf)

<sup>20</sup> Housing Health and Rating System, Operation Guidance, 2006  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/15810/142631.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf)

issued. Southall Green (200), Southall Broadway (148) and East Acton (115) received the most statutory notices.



**Figure 21. Statutory notices served on PRS properties (housing/public health & planning) (Source: Ti 2021)**



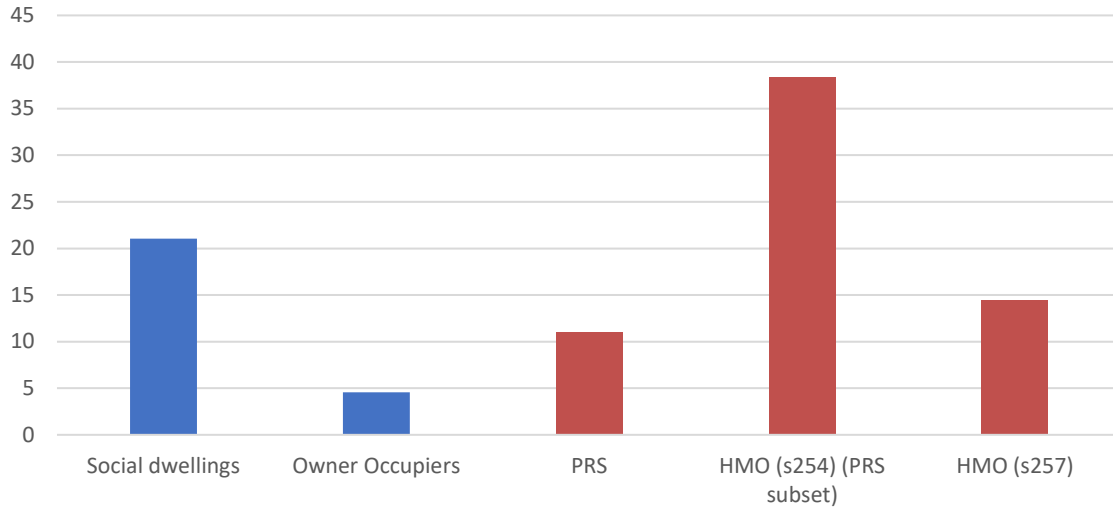
**Map 5. Distribution of statutory notices served on PRS properties (housing/public health notices only) (Source: Ti 2021, map by Metastreet).**

### **2.2.3 Anti-social behaviour (ASB)**

The number of ASB incidents recorded by the council over the last 5 years are shown below. They relate to ASB associated with residential premises only. For example, ASB incidents investigated on a street corner that cannot be linked to a residential property are excluded from the study.

Rates of ASB incidents in the HMO sector are significantly higher than other tenure types (Figure 22).

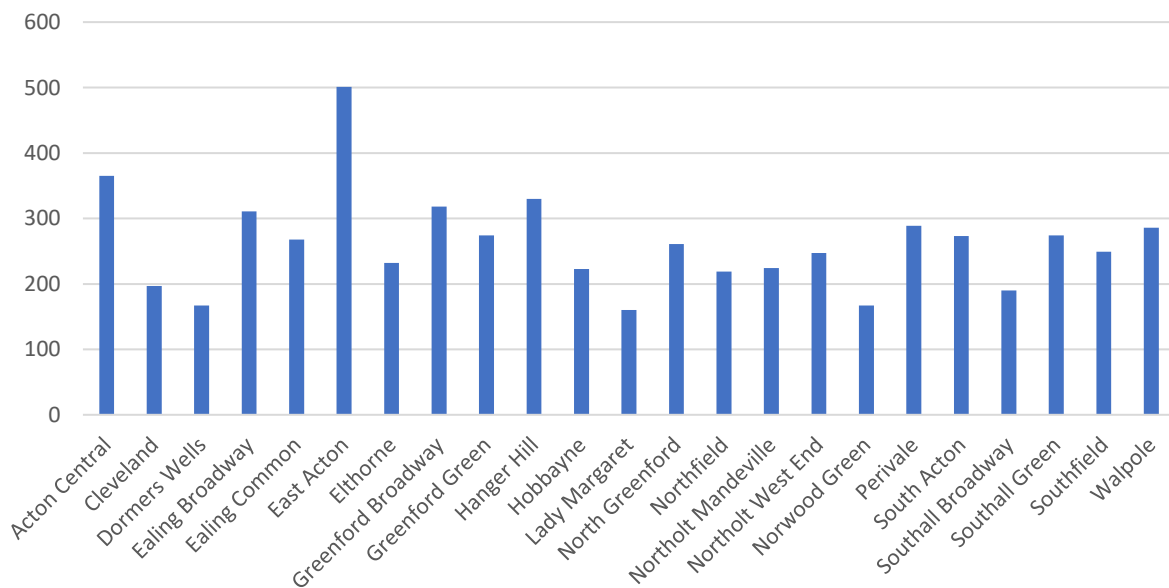




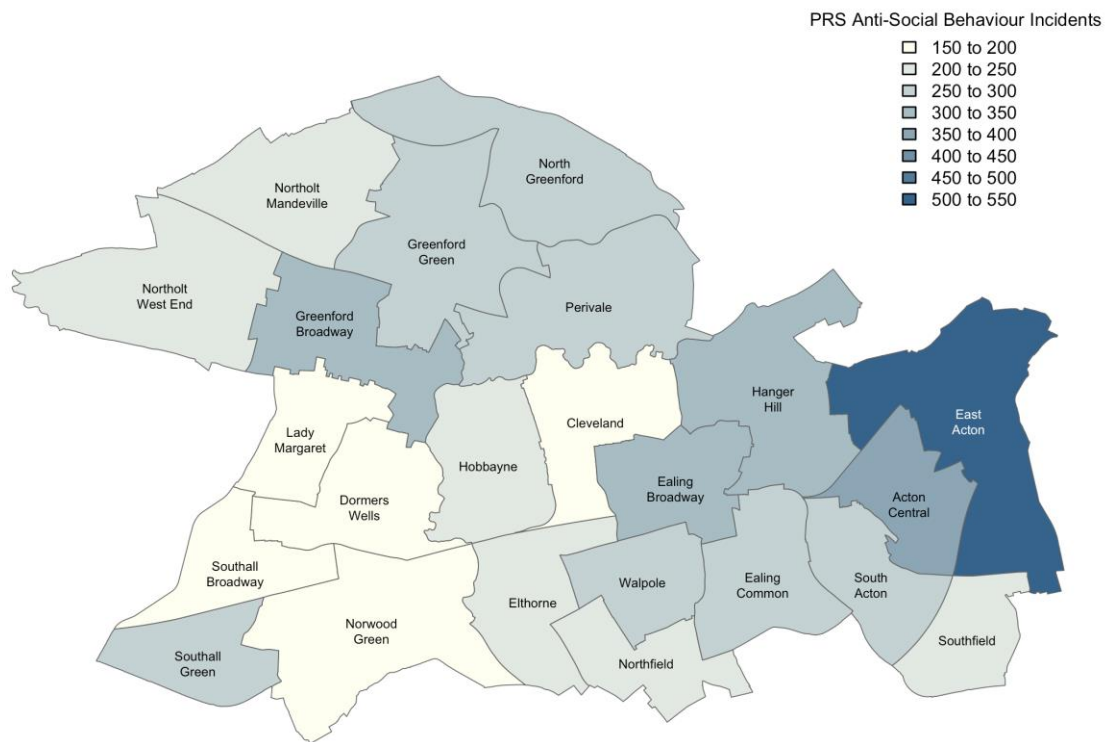
**Figure 22. ASB rates per 1000 properties by tenure (Source: Ti 2021).**

ASB directly linked to PRS properties occurs across the borough (Figure 23). Over a 5-year period, 6,025 ASB incidents have been recorded, this is made up of noise, verbal abuse, harassment, intimidation, nuisance animals, nuisance vehicles, substance misuse, prostitution, rubbish and fly tipping.

East Acton (501) has the highest levels and Lady Margaret (160) has the lowest numbers of PRS ASB incidents.

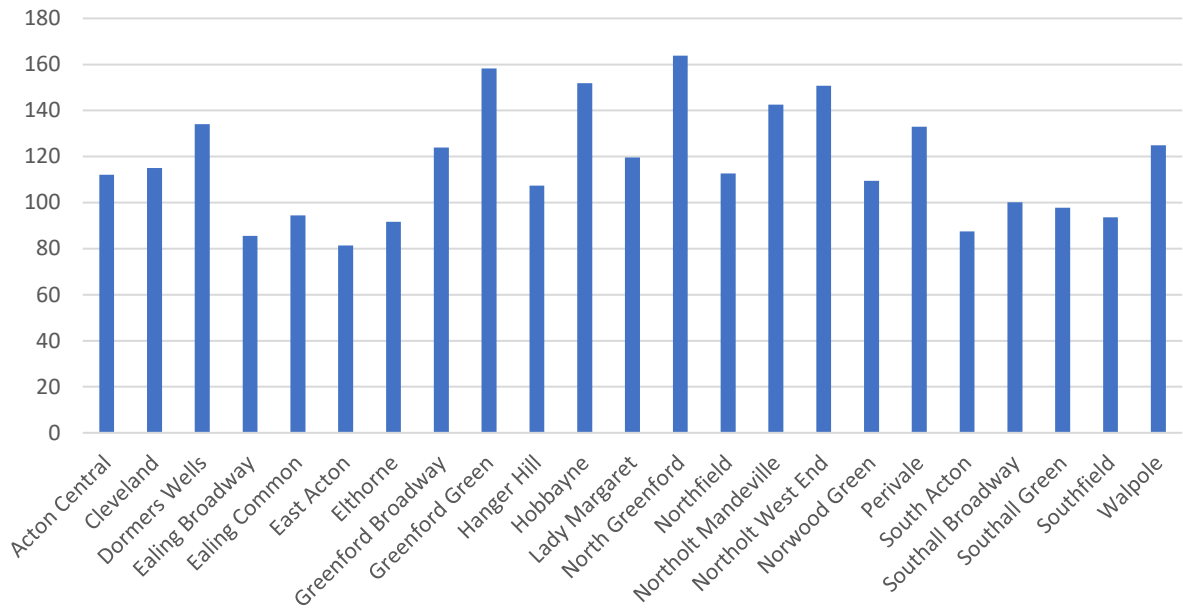


**Figure 23. Number of ASB incidents linked to PRS by ward (Source Ti 2021).**



**Map 6. Distribution of ASB linked to PRS properties (Source: Ti 2021, Map by Metastreet).**

ASB in the PRS expressed as incidents per 1000 dwellings, shows a wider distribution across all wards (Figure 24). Using this measure, North Greenford (163 per 1000) and Greenford Green (158 per 1000) wards have the greatest number of ASB incidents proportional to the size of the PRS.



**Figure 24. ASB incidents linked to PRS per 1000 properties by ward (Source: Ti 2021).**

## **2.3 Results - Houses in Multiple Occupation (HMO)**

HMOs identified as part of this study have been divided into two categories; HMOs that share basic amenities (s254) and converted properties with multiple flats that share common parts which are generally defined as less than two thirds owner-occupied (s257).

For the purposes of this study shared amenities HMO (s254) are categorised as buildings or flats that are occupied by two or more households and 3 or more persons that share a basic amenity, such as bathroom, toilet, or cooking facilities. This type of rented property represents the cheapest rental accommodation; rented by room with the sharing of amenities (usually kitchen/bathroom). The Housing Act 2004 defines HMOs as a *“dwelling of 3 or more persons not forming a single household”*. Section 257 HMOs are defined by the Housing Act 2004 in Part 7. This type of HMO is a converted block of flats where the standard of the conversion does not meet the relevant building standards (Building Regulations 1991) and fewer than two-thirds of the flats are owner-occupied.

### **2.3.1 Population and distribution**

The total number of predicted HMOs (s254 & s257) across 23 wards is 8,360 properties (Figure 25). Acton Central has the highest concentration of HMOs (789). The HMO population is made up of two categories; HMO that share basic amenities (5,113) (s254) and converted properties with multiple flats that share common parts which are generally defined as less than two thirds owner-occupied (3,247) (s257).

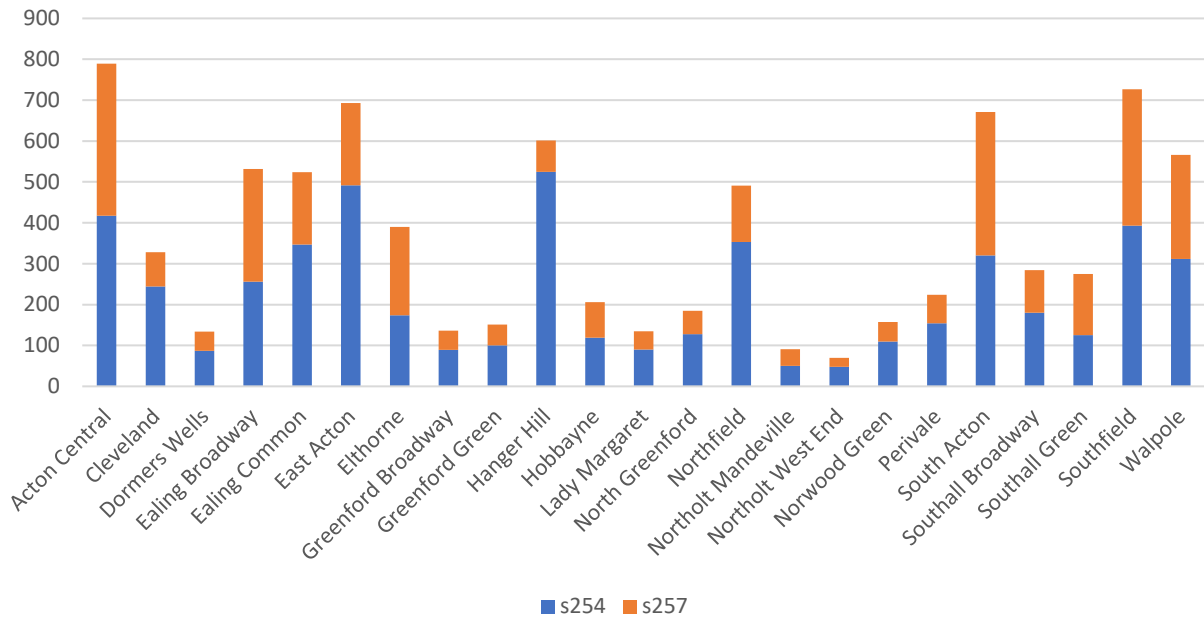
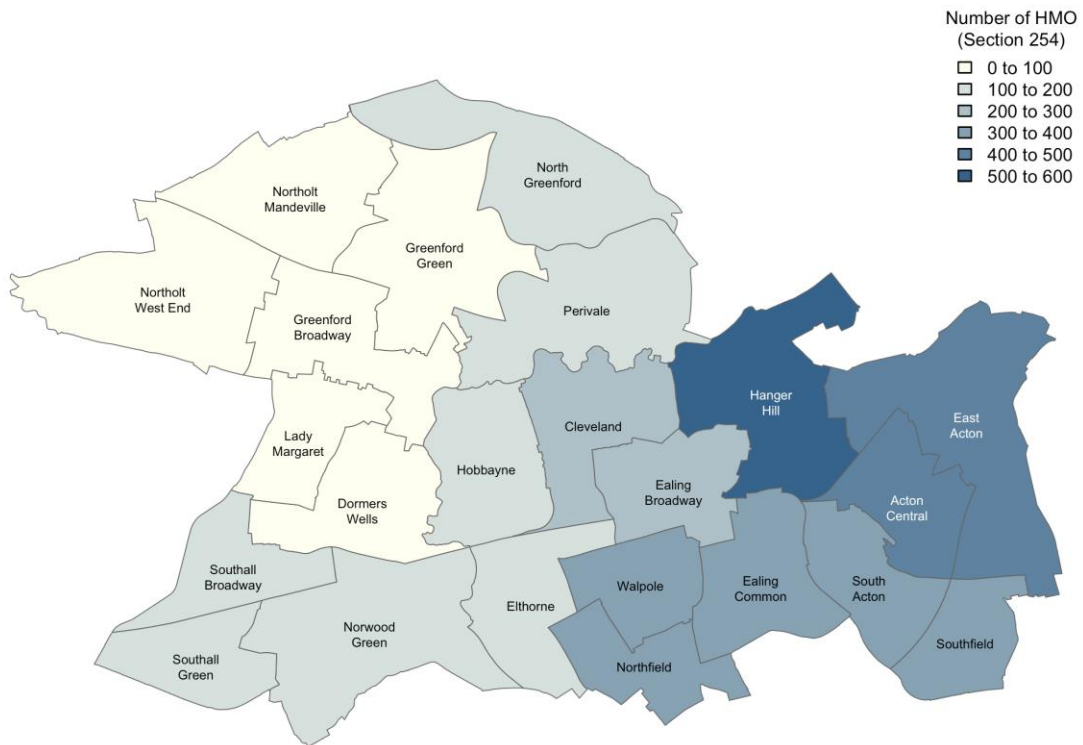
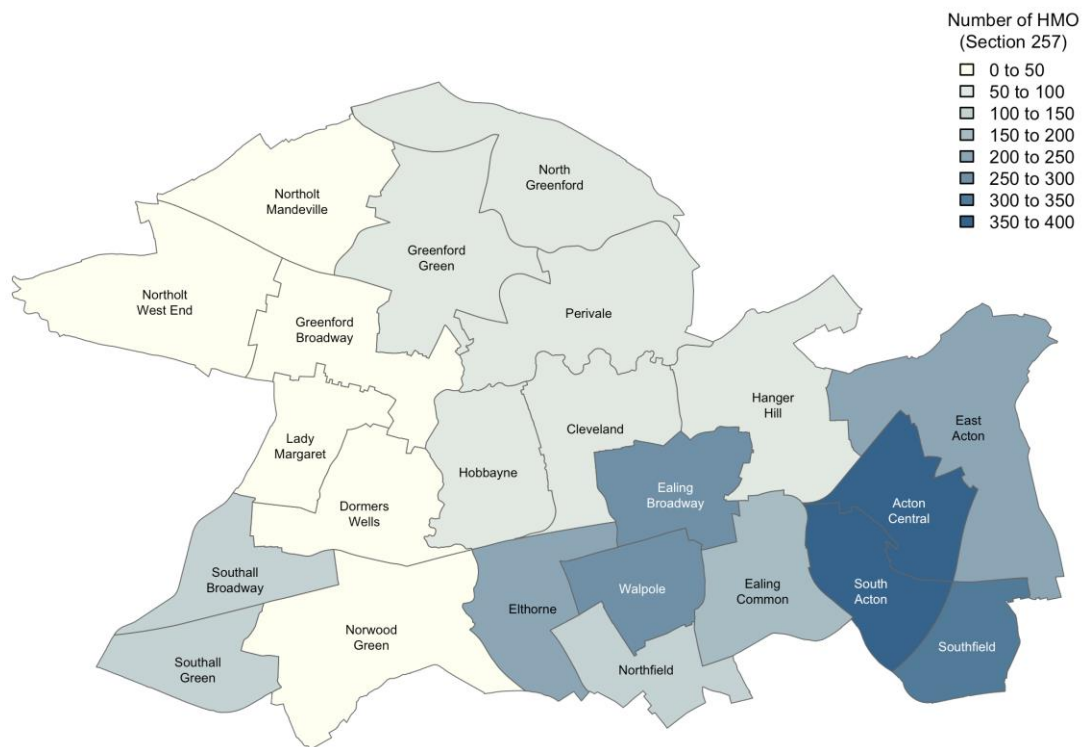


Figure 25. Number of HMOs (s257 & s254) by ward (Source Ti 2021)



Map 7: Distribution of shared HMOs (s254) (Source Ti 2021, map by Metastreet)

Shared HMOs are the cheapest form of private housing available and have traditionally been occupied by single adults, however in recent years many more couples and children reside in HMOs. Pressure on affordable housing and higher rates of homelessness has driven up demand for this type of dwelling.

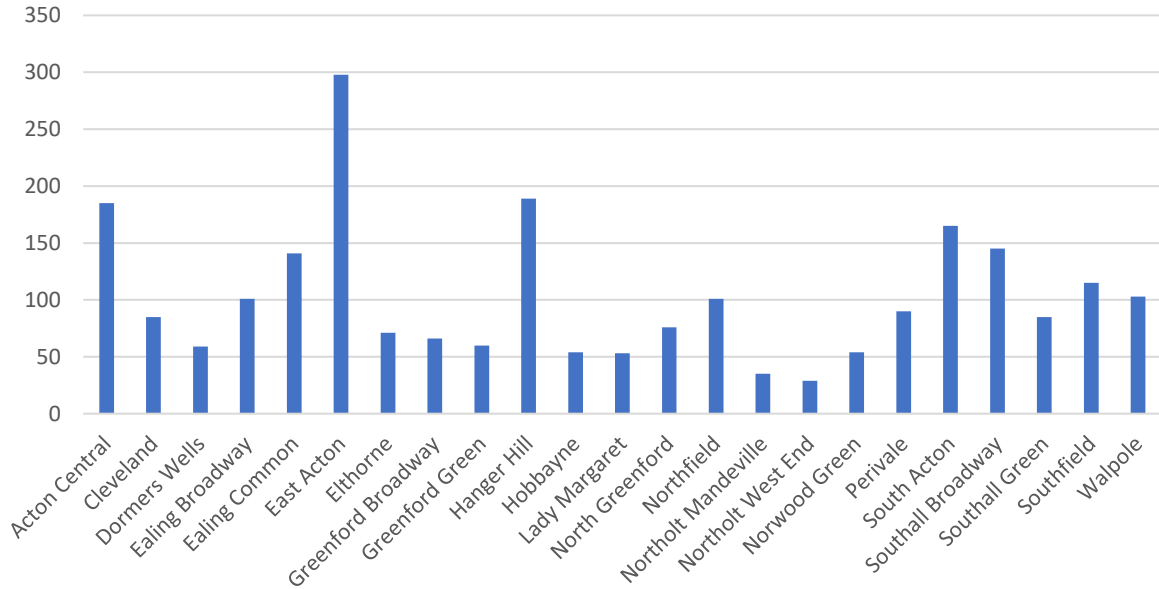


**Map 8: Distribution of converted property HMOs (s257 only) by ward (Source Ti 2021)**

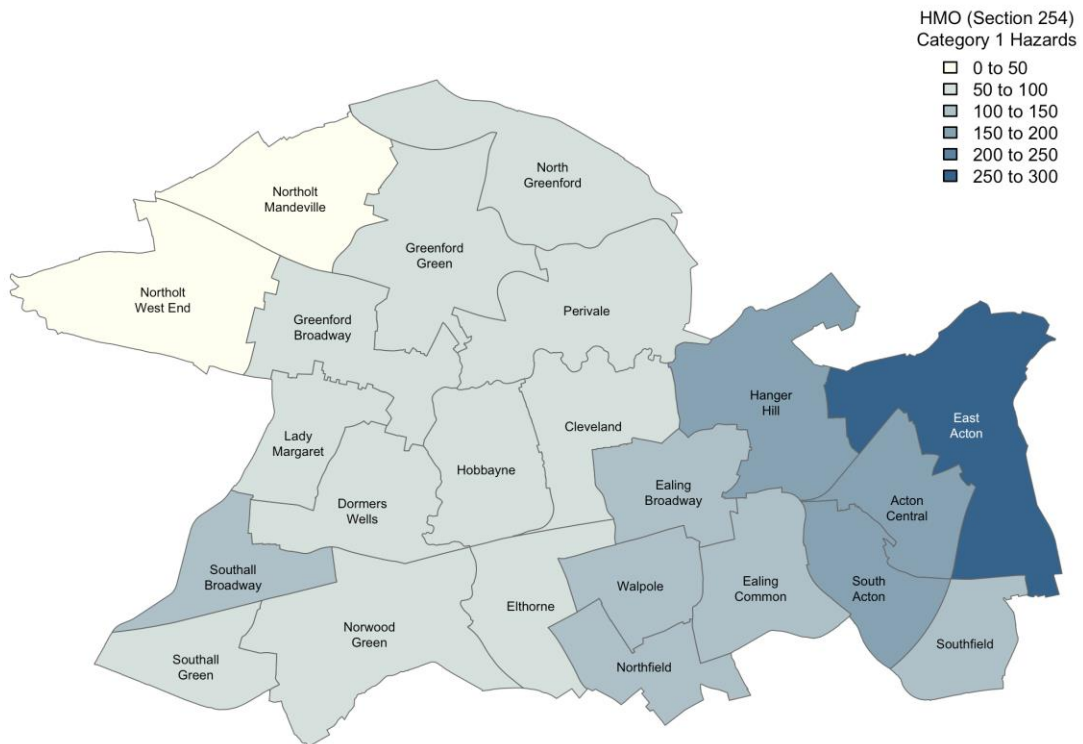
### 2.3.2 HMO & housing conditions

HMOs have some of the poorest housing conditions of any tenure. Analysis shows that 2,360 of 5,113 shared amenities HMOs (s254) in Ealing are predicted to have serious hazards (Category 1 HHSRS).

The number of Category 1 hazards is highest in shared amenities HMOs (s254) in East Acton (298) (Figure 26). All wards have HMOs with Category 1 hazards.

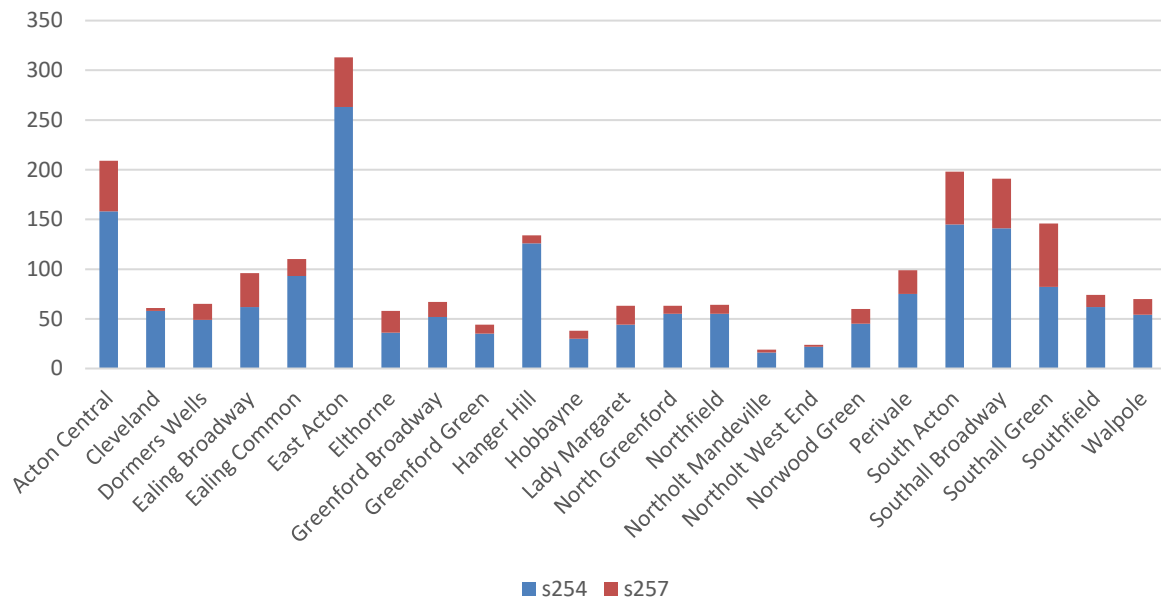


**Figure 26. Number of HMO (shared amenities, s254) with Category 1 hazards by ward (Source Ti 2021).**



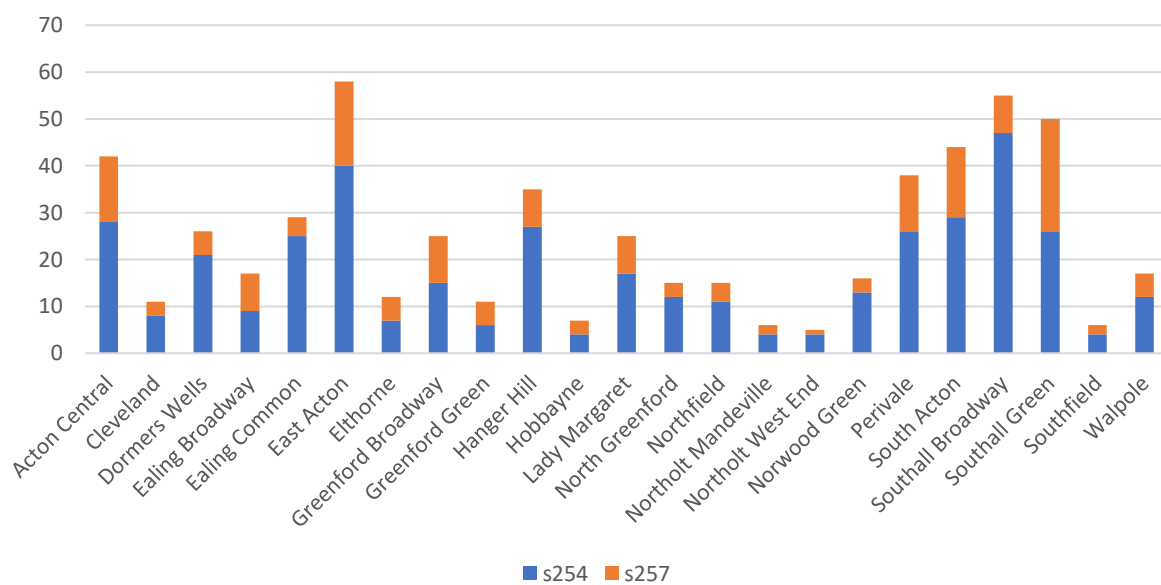
**Map 9: Distribution of HMO (shared amenities, s254) with Category 1 hazards by ward (Source Ti 2021).**

The council has received 2,266 complaints from private tenants linked to all HMOs over 5 years. Complaints are distributed across all wards, East Acton (313) and Acton Central (209) have the highest rates (Figure 27).



**Figure 27. Number of tenant complaints linked to HMO (s254 & s257) by ward (Source Ti 2021)**

The council has served 565 statutory notices (housing, public health & planning enforcement) on HMO properties over 5 years. HMOs in East Acton (42) and Southall Broadway (55) have received the highest number of statutory notices.



**Figure 28. Number of statutory Notices related to HMO (s254 & s257) by (Source Ti 2021).**

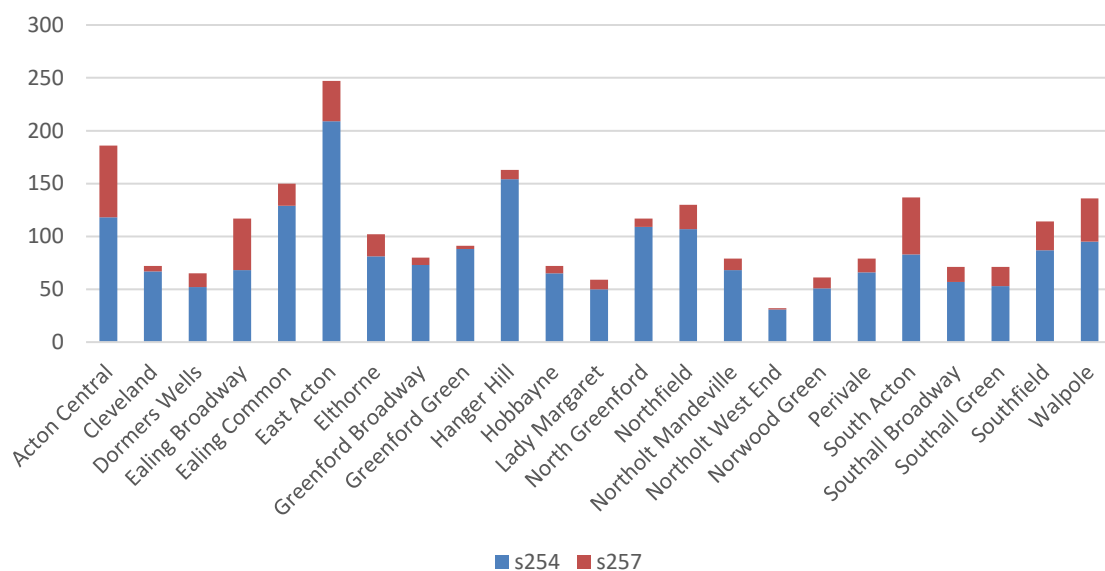


### 2.3.3 HMO & anti-social behaviour

Over a 5 year period 2,431 ASB incidents have been linked to all HMOs in Ealing. ASB incidents are made up of noise, verbal abuse, harassment, intimidation, nuisance animals, nuisance vehicles, substance misuse, prostitution, rubbish and fly tipping.

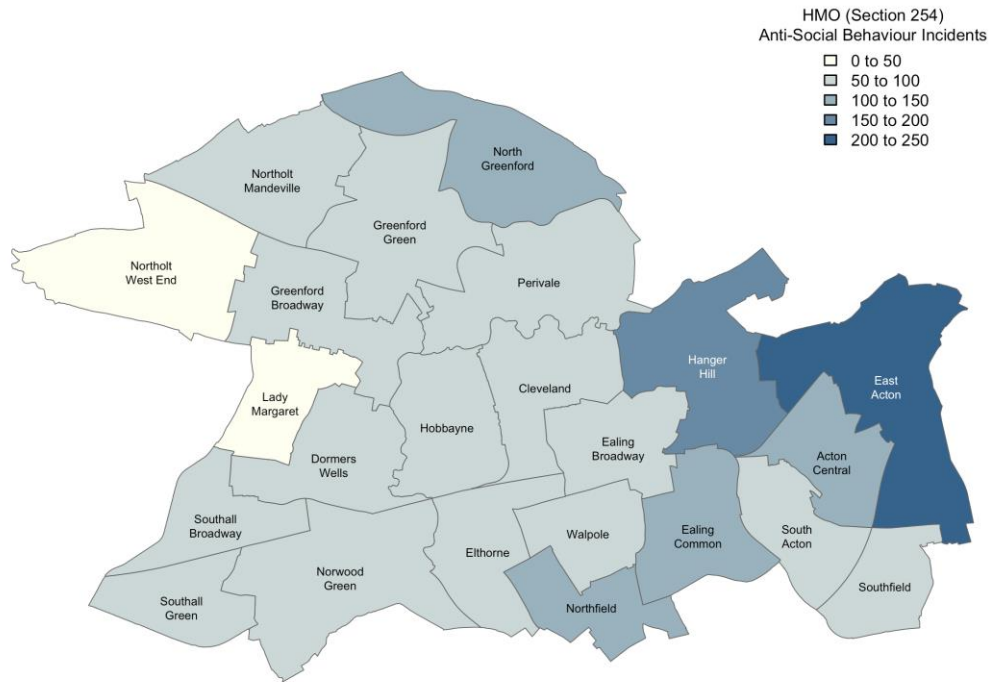
Figure 29 shows the number of ASB incidents associated with all HMO premises (commercial and ASB incidents not linked to residential premises are excluded from these figures).

ASB linked to HMOs is distributed across all wards. The wards with the highest recorded ASB incidents linked to HMOs are East Acton (247) and Acton Central (186).

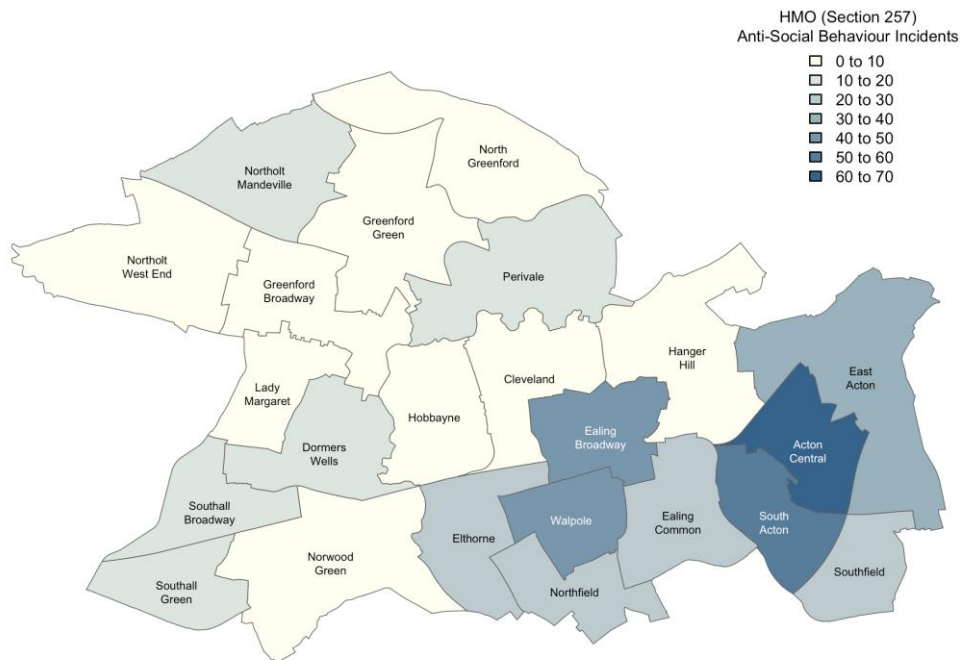


**Figure 29. Number of ASB incidents linked to all HMOs (s254 & s257) by ward (Source Ti 2021).**

Elevated levels of ASB can be an indicator of poor property management. HMO properties often have higher levels of transience which can result in higher waste production and ASB by tenants.

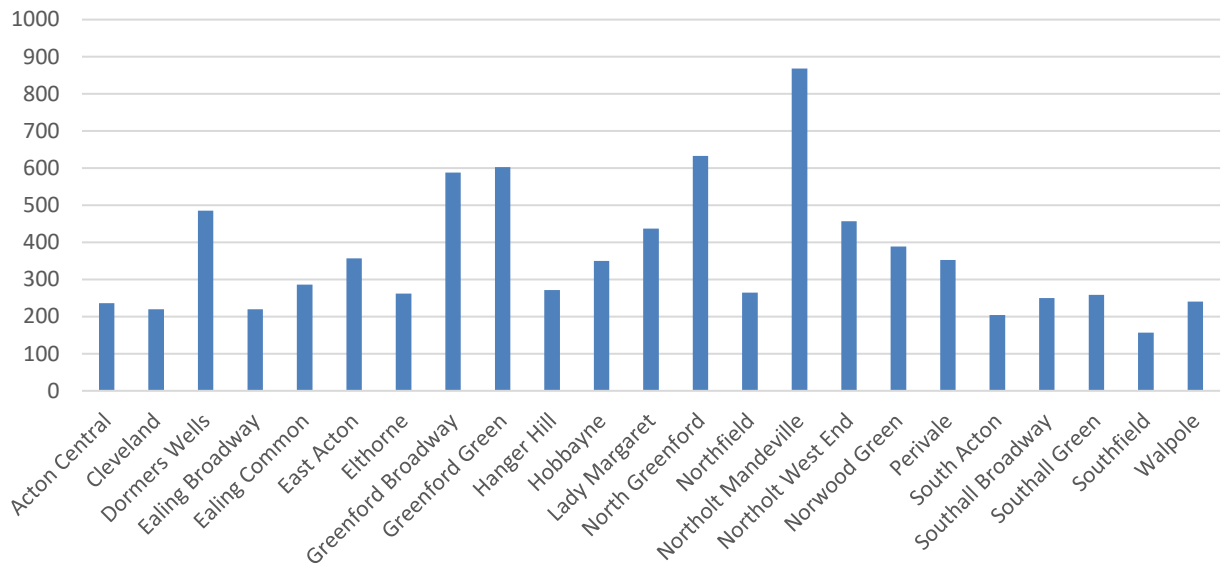


**Map 10: Distribution of HMOs (s254, shared amenities) with ASB (Source Ti 2021, map by Metastreet)**



**Map 11: Distribution of HMOs (s257, converted property) with ASB (Source Ti 2021, map by Metastreet)**

All HMO ASB incidence rates range between 868 per 1,000 (Northolt Mandeville) and 157 per 1,000 (Southfield). However, it shows that ASB can be linked to HMOs across all wards (Figure 30).



**Figure 30. ASB linked to all HMOs (s254 & s257) per 1,000 properties by ward (Source Ti 2021).**

### 3 Policy Context

#### 3.1 PRS strategy - London

Rapid PRS growth has been seen across London over the last 20 years. The policy response has generally been for greater regulation of the market through property licensing to mitigate some of the concerns that accompany large and growing PRS populations, including HMOs (Table 3).

**Table 3. Overview of the PRS and property licensing across London.**

Borough	No. PRS	% PRS	Selective Licensing (Y/N)	Additional Licensing (Y/N)	Notes
L.B. Barking and Dagenham	21,000	28%	Yes	No	Borough wide selective licensing introduced in 2014, Renewed in 2019
L.B. Brent	35,000	32%	Yes	Yes	Borough wide additional, ward based selective
L.B. Camden	NA	32.2%	No	Yes	Borough-wide additional licensing
L.B. Croydon	58,585	35.6%	Yes	No	Borough wide selective licensing, due for renewal in 2021
L.B. Ealing	54,776***	38.1%	Yes	Yes	Borough wide additional, area based selective
L.B. Enfield	43,500	34%	No	No	Currently operating a borough wide additional licensing and propose a selective scheme
L.B. Hammersmith & Fulham	NA	33%	Yes	Yes	Borough wide additional, area based selective

Borough	No. PRS	% PRS	Selective Licensing (Y/N)	Additional Licensing (Y/N)	Notes
L.B. Haringey	43,775	40.2%	No	Yes	Additional licensing introduced in 2019 borough wide
L.B. Havering	30,215	29%	No	Yes	Borough wide additional, ward based selective
L.B. Islington	25,217	27%	No	No	Borough wide additional and ward based selective
R.B. Kensington & Chelsea	39,047	44.2%	No	No	Currently no discretionary property licensing
L.B. Newham	52,000	47%	Yes	Yes	Borough wide additional and selective licensing introduced in 2013, renewed in 2017 excluding Olympic Park area.
L.B. Redbridge	30,000	30%	Yes	Yes	Borough wide additional and 78% Selective introduced in 2016
L.B. Southwark	42,964	29.4%	Yes	Yes	Borough wide additional, area based selective, now expired
L.B. Waltham Forest	38,000	39%	Yes	No	Borough wide licensing introduced in 2015, renewed in 2019 (excluding 2 wards)
Westminster C.C.	55,784	44%	No	No	Propose a boroughwide additional scheme

\*Additional licensing - relates to small HMOs only (3 & 4 person) \*\*Selective licensing - related to all private single-family dwellings \*\*\* Figures updated by this report.

## **4 Conclusions**

Ealing's PRS has grown considerably in recent years, from 23% (2011) to 38% (2021). There are a total of 143,863 residential dwellings in Ealing, 38.1% (54,776) of which are PRS (Figure 11). The PRS in Ealing is distributed across all 23 wards (Figure 13 & Map 2).

Ealing has a mixture of high and low deprivation wards. 13 of 23 wards have aggregated IMD 2019 rankings below the national average (Figure 4). The borough also faces challenges relating to IMD 2019 Barriers to Housing and Services measure. All wards are worse than the national average (Figure 5). Ealing also has worse than the London average for rented property possession claims (Figure 7), fuel poverty (Figure 6) and homelessness (Figure 8). Some of these stressors may be linked to factors existing within Ealing's PRS.

Poor housing conditions are prevalent in Ealing's PRS. 12,063 PRS properties are predicted to have at least 1 serious hazard (Category 1, HHSRS). This represents 22% of the PRS stock, higher than the national average (13%). (Figure 17 & Map 3). East Acton (1,224), Acton Central (1,099) and Southall Green (1,089) have the highest number of properties with at least one Category 1 hazard.

Ealing receives significant numbers of complaints from tenants in the private sector, the service recorded 9,931 complaints from private tenants over a 5-year period (Figure 19 & Map 4).

2.2% of PRS properties have an F and G EPC rating (Figure 20). Extrapolated to the entire PRS, 1,205 PRS properties are likely to fail the MEES statutory requirement.

Ealing makes large numbers of statutory interventions in the private rented sector. (Figure 21 & Map 5). Council enforcement officers served 1,254 housing, public health and planning enforcement notices over 5 years.

There are moderate levels of recorded ASB linked to private rented properties across the borough (Figure 23 & Map 6). Over the last 5-years, 6,025 ASB incidents in the PRS have been recorded.

Ealing's PRS has a relatively high number of HMOs distributed across all 23 wards (8,360) (Figure 25). The HMO population is made up of two categories; HMO that share basic amenities (5,113) (s254) and converted properties with multiple flats that share common parts which are generally defined as less than two thirds owner-occupied (3,247) (s257).

Analysis shows that 2,360 of 5,113 (46%) shared amenities HMOs (s254) in Ealing are predicted to have serious hazards (Category 1, HHSRS) (Figure 26 & Map 9).

Over a 5-year period 2,431 ASB incidents have been linked to all HMOs in Ealing. ASB linked to HMOs is distributed across all wards (Figure 29 & Map 10 & 11). Rates of ASB incidents in the HMO sector are significantly higher than other tenure types (Figure 22).

## Appendix 1 – Ward summaries

*Table 4. Ward PRS summary overview (Source Tf 2021).*

Ward	ToT PRS Dwellings	Percent PRS (%)	No. dwellings with serious hazards (HHSRS)	Notices served	ASB incidents
Acton Central	3,258	45.2	1,099	37	365
Cleveland	1,713	28.0	267	13	197
Dormers Wells	1,246	26.3	341	12	167
Ealing Broadway	3,633	46.9	508	26	311
Ealing Common	2,838	44.0	370	23	268
East Acton	6,162	57.0	1,224	76	501
Elthorne	2,533	37.3	354	9	232
Greenford Broadway	2,566	36.5	481	24	318
Greenford Green	1,731	30.6	408	22	274
Hanger Hill	3,073	46.2	530	24	330
Hobbayne	1,468	26.0	292	8	223
Lady Margaret	1,337	31.6	403	21	160
North Greenford	1,593	29.4	417	15	261
Northfield	1,944	34.5	314	13	219
Northolt Mandeville	1,571	26.3	310	8	224
Northolt West End	1,638	27.6	331	7	247
Norwood Green	1,526	28.6	249	20	167
Perivale	2,174	36.7	516	24	289
South Acton	3,120	38.9	839	30	273
Southall Broadway	1,898	42.2	1,015	82	190
Southall Green	2,802	54.1	1,089	124	274
Southfield	2,661	38.7	341	7	249
Walpole	2,291	38.7	365	17	286



**Table 5. Ward HMO summary data (Source Ti 2021).**

<b>Ward</b>	<b>Shared HMO (s254)</b>	<b>Converted flats HMO (s257)</b>	<b>All HMOs</b>	<b>All ASB HMO incidents (s254 &amp; s257)</b>
Acton Central	417	372	789	186
Cleveland	244	84	328	72
Dormers Wells	87	47	134	65
Ealing Broadway	256	276	532	117
Ealing Common	347	177	524	150
East Acton	492	201	693	247
Elthorne	174	216	390	102
Greenford Broadway	89	47	136	80
Greenford Green	100	51	151	91
Hanger Hill	525	76	601	163
Hobbayne	119	87	206	72
Lady Margaret	90	45	135	59
North Greenford	128	57	185	117
Northfield	353	138	491	130
Northolt Mandeville	50	41	91	79
Northolt West End	48	22	70	32
Norwood Green	110	47	157	61
Perivale	154	70	224	79
South Acton	320	351	671	137
Southall Broadway	180	104	284	71
Southall Green	125	150	275	71
Southfield	393	334	727	114
Walpole	312	254	566	136

## **Appendix 2 - Tenure Intelligence (Ti) – stock modelling methodology**

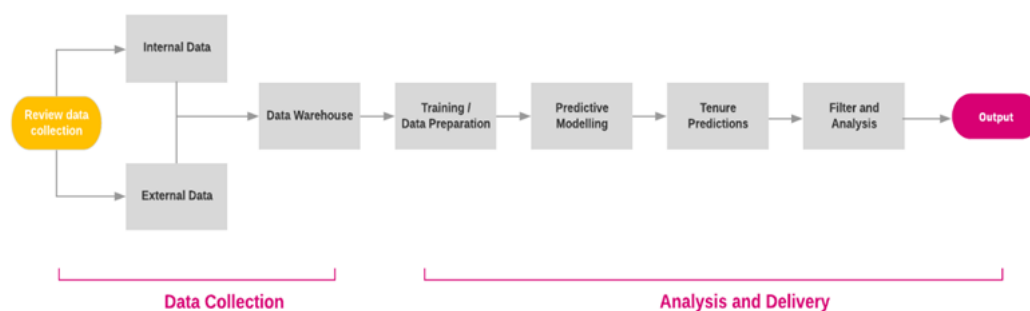
This Appendix explains at a summary level Metastreet’s Tenure Intelligence (Ti) methodology (Figure 31).

Ti uses big data and machine learning in combination with expert housing knowledge to accurately predict a defined outcome at the property level.

Council and external data have been assembled as set out in Metastreet’s data specification to create a property data warehouse comprising millions of cells of data.

Machine learning is used to make predictions of defined outcomes for each residential property, using known outcome data provided by the council.

Results are analysed by skilled practitioners to produce a summary of housing stock, predictions of levels of property hazards and other property stressors. The results of the analysis can be found in the report findings chapter.



**Figure 31. Summary of Metastreet Tenure Intelligence methodology.**

### **Methodology**

Metastreet has worked with Ealing Council to create a residential property data warehouse based on a detailed specification. This has included linking approximately 8 million cells of data to 143,836 unique property references, including council and externally sourced data. All longitudinal data requested from council department is 5 consecutive years, from April 2015 – March 2020

Once the property data warehouse was created, the Ti model was used to predict tenure and stock condition using the methodology outlined below.

Machine learning was utilised to develop predictive models using training data provided by the council. Predictive models were tested against all residential properties to calculate risk scores for each outcome. Scores were integrated back into the property data warehouse for analysis.

Many combinations of risk factors were systematically analysed for their predictive power using logistic regression. Risk factors that duplicated other risk factors but were weaker in their predictive effect were eliminated. Risk factors with low data volume or higher error are also eliminated. Risk factors that were not statistically significant are excluded through the same processes of elimination. The top 5 risk factors for each model have the strongest predictive combination.

Four predictive models have been developed as part of this project. Each model is unique to Ealing, they include:

- Owner occupiers
- Private rented sector (PRS)
- Houses in Multiple occupation (HMO)
- PRS housing hazards

Using a  $D^2$  constant calculation it is possible to measure the theoretical quality of the model fit to the training data sample. This calculation has been completed for each model. The  $D^2$  is a measure of “predictive capacity”, with higher values indicating a better model.

Based on the modelling each residential property is allocated a probability score between 0-1. A probability score of 0 indicates a strong likelihood that the property tenure type is *not* present, whilst a score of 1 indicates a strong likelihood the tenure type *is* present.

Predictive scores are used in combination to sort, organise and allocate each property to one of 4 categories described above. Practitioner skill and experience with the data and subject matter is used to achieve the most accurate tenure split.

It is important to note that this approach cannot be 100% accurate as all mathematical models include error for a range of reasons. The  $D^2$  value is one measure of model “effectiveness”. The true test of predictions is field trials by the private housing service. However, error is kept to a minimum through detailed post analysis filtering and checking to keep errors to a minimum.

A continuous process of field testing and model development is the most effective way to develop accurate tenure predictions.

The following tables include detail of each selected risk factors for each model. Results of the null hypothesis test are also presented as shown by the Pr(>Chi) results. Values of <0.05 are generally considered to be statistically significant. All the models show values much smaller, indicating much stronger significance.

**Owner occupier model**

The owner occupier model shows each of the 5 model terms to be statistically significant, with the overall model showing a “predictive capacity” of around 87% (Table 6).

**Table 6. Owner occupier predictive factors.**

<b>Risk factors selected</b>	<b>Pr(&gt;Chi)*</b>
Accounts over 5 years	0.0039591
Ctax account balances for all liabilities	0.0025293
ACORN category	0.0002835
Total service requests	2.346e-09
EPC tenure	0.0092706
Training data, n= 1713	
D <sup>2</sup> test = 0.87**	

\* Pr(>Chi) = Probability value/null hypothesis test, \*\* D<sup>2</sup> test = Measure of model fit

**PRS predictive model**

The PRS model shows that each of the 5 model terms is statistically significant, with the overall model having a “predictive capacity” of around 85% (Table 7).

**Table 7. PRS predictive factors.**

<b>Risk factors selected</b>	<b>Pr(&gt;Chi)</b>
Ctax accounts over 5 years	0.0039591

Risk factors selected	Pr(>Chi)
ACORN Category	0.0002835
Elector count	0.0291487
Total service requests	3.904e-07
Ctax length of current account	2.346e-09
Training data, n= 1713	
D <sup>2</sup> test = 0.85	

### **HMO (House in Multiple Occupation) model**

This model predicts the likelihood that a UPRN will be an HMO (Table 8). Each of the 5 model terms is statistically significant and the overall model has a “predictive capacity” of around 77%.

**Table 8. HMO predictive factors.**

Risk factors selected	Pr(>Chi)
ASB (noise)	0.0004285
CTax band	6.562e-07
Ctax account balances for all liabilities	0.0213966
EPC number of heated rooms	1.258e-13
Ctax accounts over 5 years	0.0115384
Training data, n= 1140	
D <sup>2</sup> test = 0.77	

### **Category 1 (HHSRS) hazards model**

Numerous properties where the local housing authority has recently taken action to address serious hazards were sampled for training data. Specifically, this included Housing Act 2004 Notices served on properties to address Category 1 hazards. The model results show that each of the model terms is

statistically significant, with the overall model having a “predictive capacity” of around 91% (Table 9).

**Table 9. Category 1 (HHSRS) hazard predictive factors.**

<b>Risk factors selected</b>	<b>Pr (&gt;Chi)</b>
EPC current energy efficiency	2.867e-06
ASB count	0.0199240
EPC energy consumption current	0.0626321
PRS complaints made	2.2e-16
Total service requests	2.2e-16
Training data, n= 463	
D <sup>2</sup> test = 0.91	

### **Converted property HMO (s257) model**

To estimate the number of Section 257 HMO’s within Ealing a combination of predictive analytics (described above) and Land & Property Gazetteer (LLPG) data analysis have been used. Every property has its own individual Unique Property Reference Number (UPRN). These properties are referred to as either “parent properties” or “child properties”.

A combination of predictions and parent and child property references have been analysed to identify properties that are likely to meet the definition of converted property HMOs described in the Housing Act 2004, Section 257.

To arrive at the results, three assumptions have been made.

- 1) It is assumed that no s257 HMO would contain more than 5 converted flats as this is more likely to be a purpose build block of flats.
- 2) Converted blocks of flats contain at least 40% PRS (a slightly higher standard than the definition of s257 referenced above)
- 3) It has been assumed that due to the age and construction of Section 257 HMOs in Ealing they are unlikely to satisfy the requirement of the Building Regulation 1991. It is important

to note that this requirement can only be fully established through a detailed onsite inspection by a competent building surveyor. It is likely that a minority of properties identified as s257 HMO would be exempted due to established compliance with the appropriate building regulations.

Version, Final 1

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