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London Borough of Lewisham

Private Rented Sector: Housing Stock Condition and Stressors Report

September 2021

META STREET

Executive Summary

Metastreet were commissioned by the London Borough of Lewisham 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 Lewisham'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
- Levels of serious hazards that might amount to a Category 1 hazard (HHSRS)
- Other housing related stressors, including antisocial behaviour (ASB), statutory nuisance, 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 housing authorities 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

- Lewisham's private rented sector has grown considerably in recent years, from 24.3% (2011) to 31% (2021). When licenced Houses in Multiple Occupation are added to the PRS total, this rises to 31.6%.

- There are a total of 128,798 residential dwellings in Lewisham, 39,674 of which are privately rented

- The private rented sector in Lewisham is distributed across all 18 wards

- Lewisham has serval high deprivation wards, 11 of 18 wards have aggregated Index of Multiple Deprivation 2019 rankings below the national average

- The borough also faces challenges relating to Index of Multiple Deprivation 2019 Barriers to Housing and Services measure. All wards are worse than the national average

- Poor housing conditions are prevalent in Lewisham's private rented sector. 8,995 properties are predicted to have at least 1 serious hazard (Category 1, HHSRS).

- 1.8% of private rented properties have an F and G EPC rating

- Lewisham makes significant numbers of statutory interventions in the private rented sector. Council enforcement officers served 857 housing and public health enforcement notices over 5 years.

- There are high levels of recorded anti-social behaviour and statutory nuisances linked to private rented properties across the borough

- Rates of antisocial behaviour and statutory nuisance incidents in the PRS are significantly higher that other tenure types

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Introduction & Project Objectives

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

- Residential property tenure changes

- Distribution of the PRS

- Condition of housing stock in the PRS

- Housing related stressors, including Anti-Social Behaviour (ASB), council interventions and deprivation

The report provides the council with the evidence base for developing housing policy and service interventions. The report also assists with 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 provides a summary of government held data to add context to the PRS stock review. A majority of the data used in this section is pre April 2020. Post April 2020 has not been included in this study because of the exceptional lockdown interventions following the Covid 19 pandemic.

The second section of the report details the findings of the stock and tenure modelling, including an introduction to the methodology. A combination of Lewisham'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 Lewisham, built up from property level data.

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

- Private rented sector (PRS)
- Owner occupiers
- Serious PRS housing hazards (Category 1)

The third 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 Lewisham overview

Lewisham is a London borough in South London; it forms part of Inner London. It covers an area of 35.15km². The borough borders Royal Borough of Greenwich to the east, the London Borough of Bromley to the south, and the London Borough of Southwark to the west. The River Thames forms a short section of northern boundary. [1]

1.1   Population

The Office of National Statistics (ONS) household population estimate for Lewisham as of 2018 was 306,438. This makes Lewisham the 10th most populous London borough (Figure 1)[2].
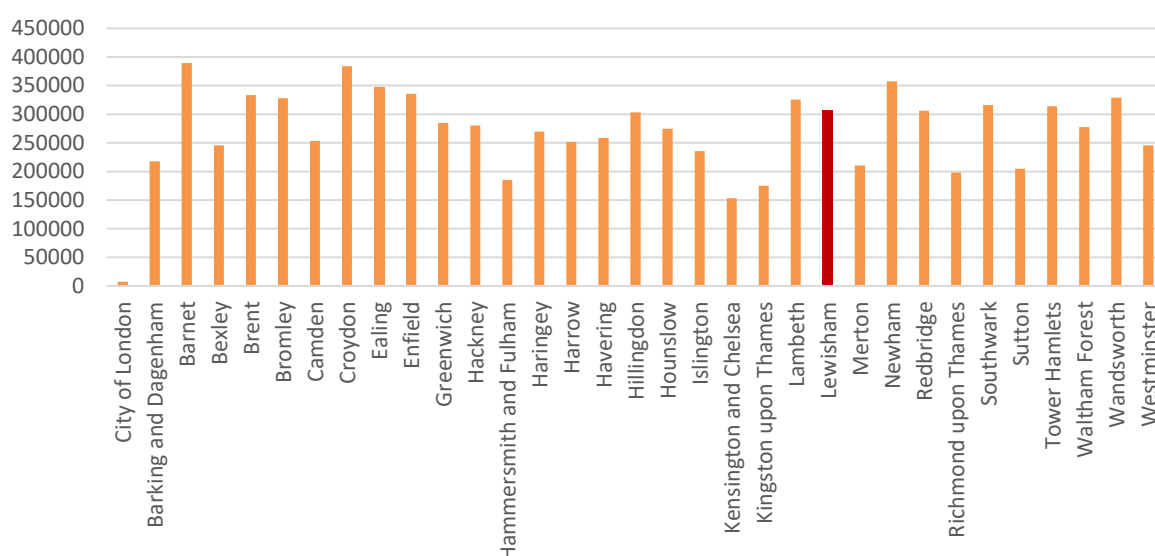
Figure 1. Population estimates by London boroughs (Source: ONS 2018).

1.2   Migration

Net international migration into Lewisham in 2018-2019 was 1,405 (Figure 2) [3].

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[1] Wikipedia, September 2021, https://en.wikipedia.org/wiki/London_Borough_of_Lewisham
[2] London Datastore 2018, https://data.london.gov.uk/dataset/trend-based-population-projections
[3] ONS 2018
https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
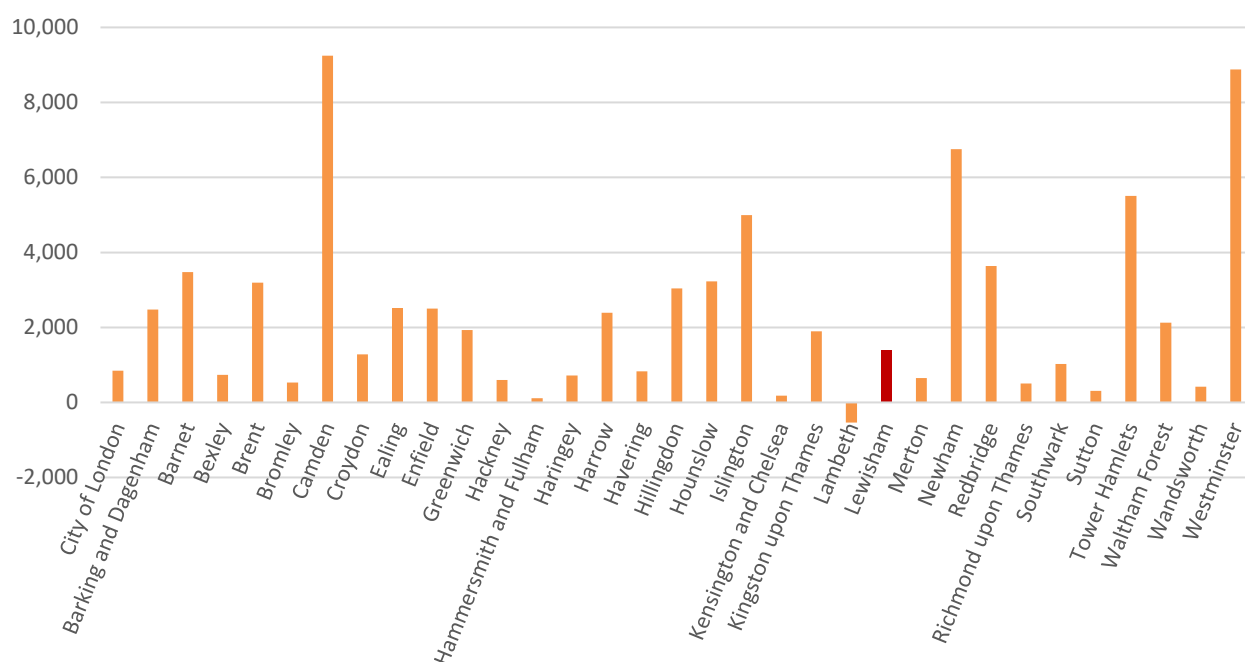
Figure 2. Long-term international migration (net flow) by London boroughs (2018/2019).

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[4].

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[4] ONS 2019 https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019,
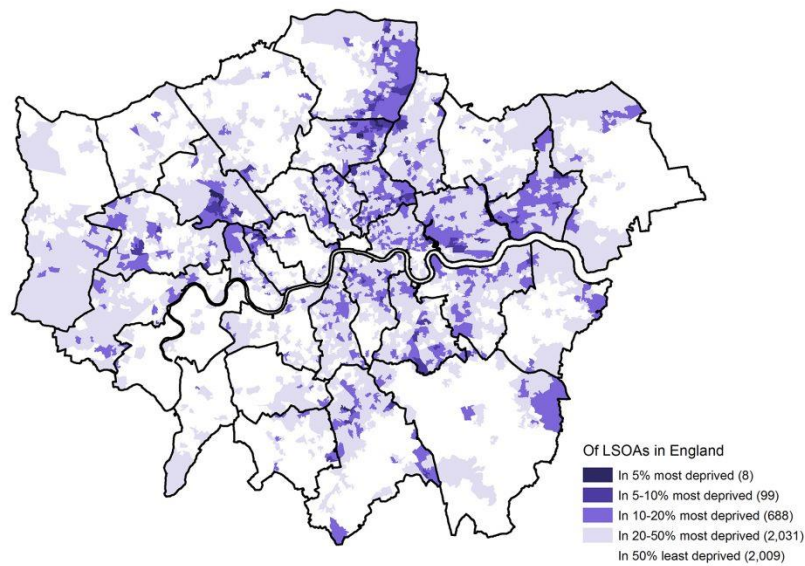
Figure 3. Distribution of deprivation across London (Source & map: London Datastore 2019).

The darker shades are the most deprived areas. Lewisham ranks (Rank of average rank) as the 35th 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[5]. Average (mean) IMD 2019 decile aggregated at ward level reveals a clear picture (Figure 4 & Map 1). Data has not been weighted for population size as it is relatively even across Lewisham LOSAs.1.0 on the graph represents the most deprived 10% areas and 5.0 represents 50% most deprived.

Lewisham has several high deprivation wards. 13 of 18 wards have aggregated IMD rankings below the national average.

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[5] ONS2019 http://geoportal.statistics.gov.uk/datasets/8c05b84af48f4d25a2be35f1d984b883_0/data
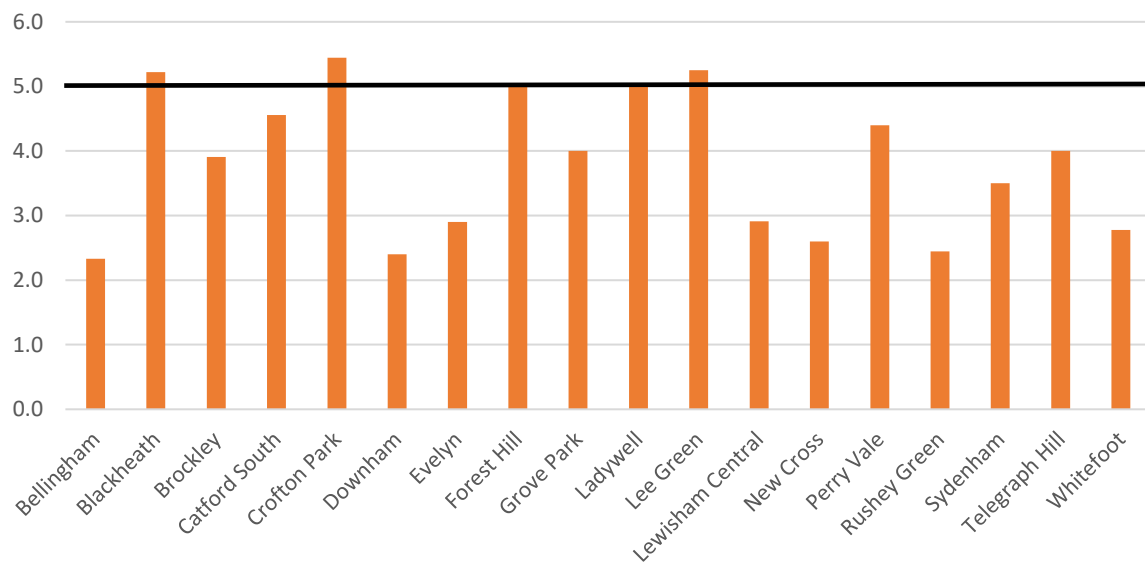
Figure 4. Average IMD (2019) decile by ward (Source: IMD 2019). *Horizontal line shows the national average (5)*
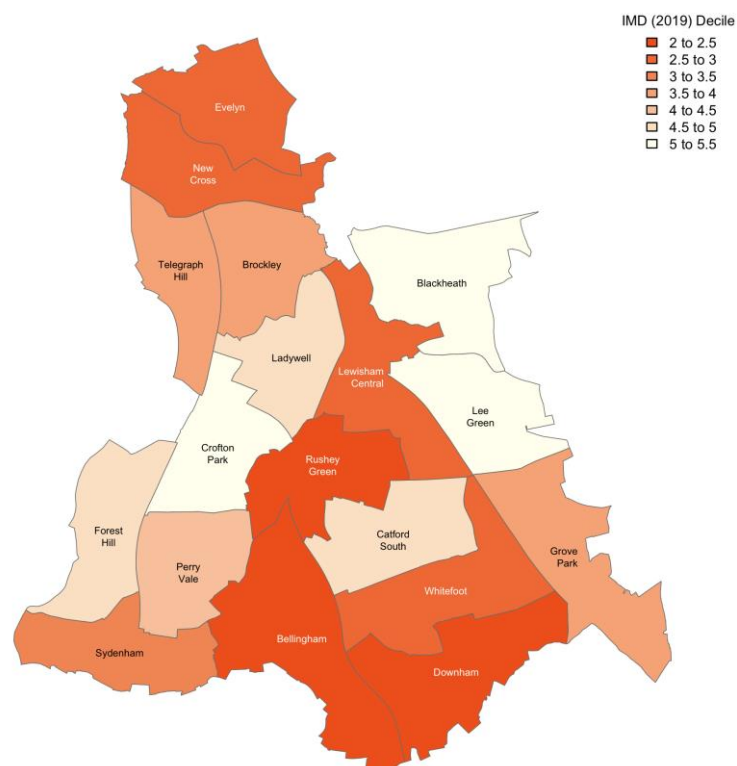
Map 1. *Distribution of Average IMD (2019) decile by ward (Source: ONS 2019, Map by Metastreet).*

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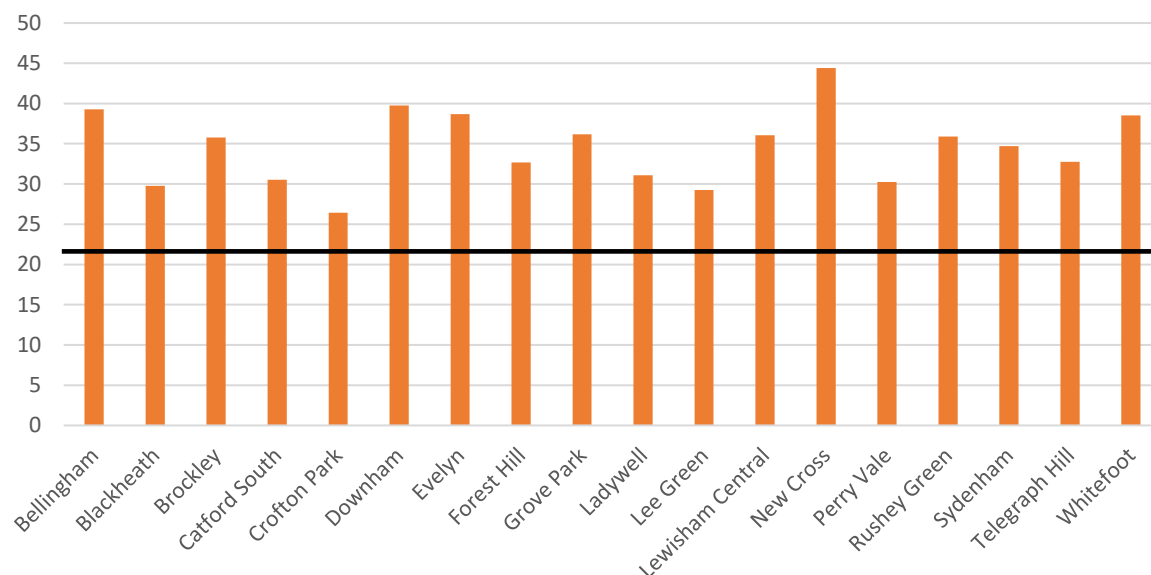
Figure 5. Average barriers to housing and services decile by ward (IMD 2019). *Horizontal line shows the national average (21.6).*

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. Fuel poverty is measured by the Department for Energy and Climate Change. Lewisham has a marginally below average proportion of households across the borough in fuel poverty when compared to other London boroughs (Figure 6) [6].

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[6] DECC 2020, https://data.gov.uk/dataset/b1a8812c-de77-4eb9-87e5-4bfff23014e8/fuel-poverty
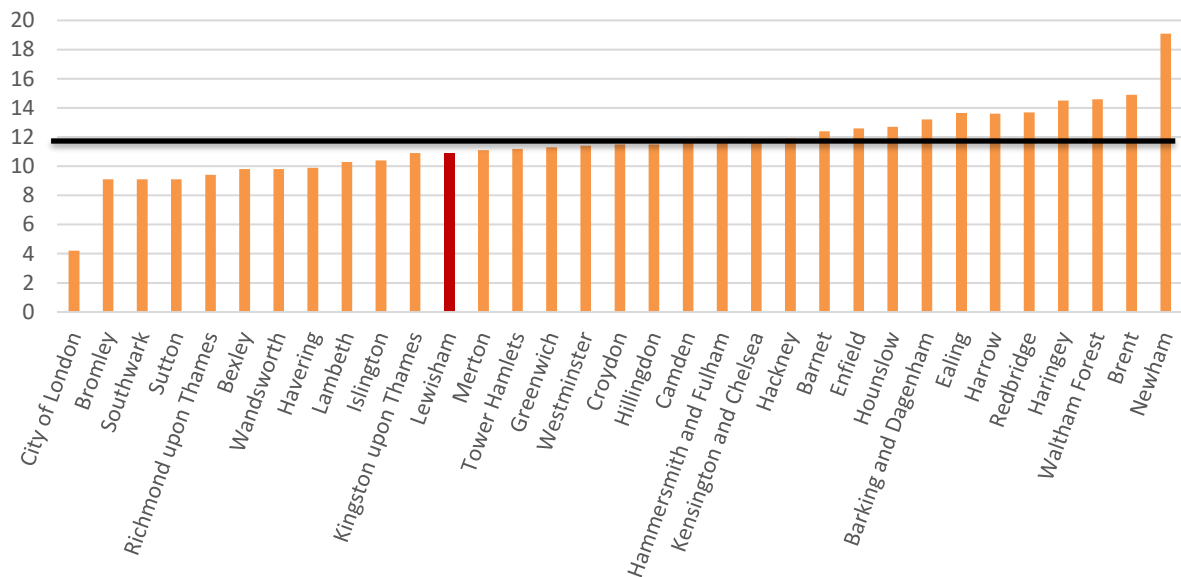
Figure 6. Proportion of households in fuel poverty (%) by London boroughs (DECC 2020). *Horizontal line shows London average (11.6%).*

1.5   Rented property possession claim rates

Lewisham has the 8th highest number of private landlord possession claims in London pre pandemic, with 1,861 in 2019[7] (Figure 7). The average number of claims for London boroughs pre-pandemic is 1,224.
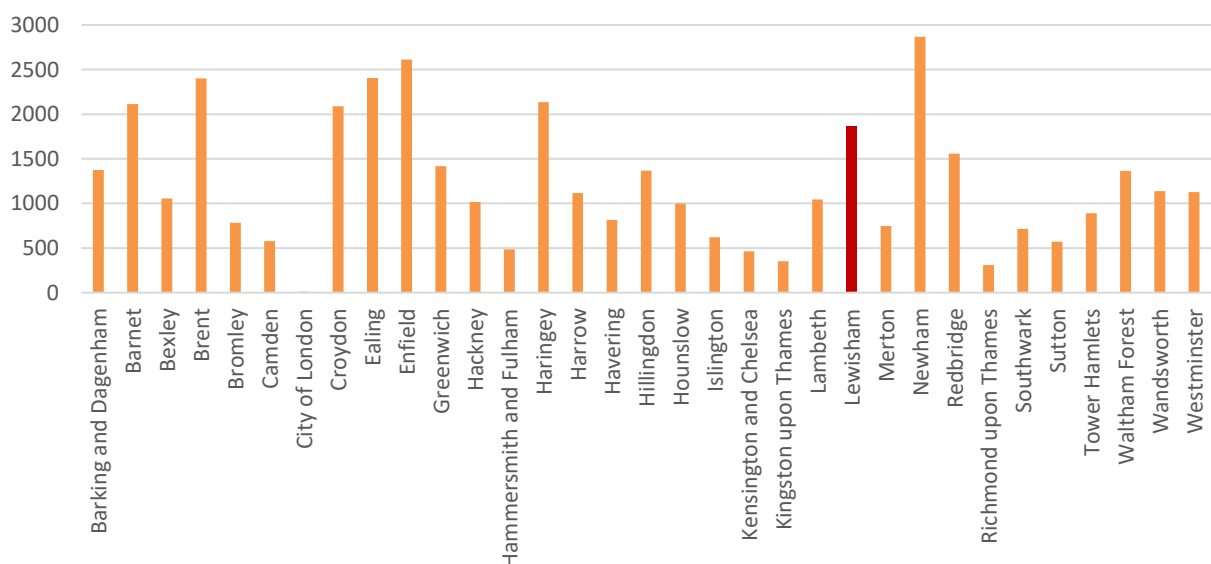
Figure 7. Possession order claims by private landlords by London boroughs (MOJ 2019)

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[7] 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 (pre-pandemic) show Lewisham has the 5th highest homelessness duties owed in London (Figure 8)[8] (excludes main duty to avoid double counting).
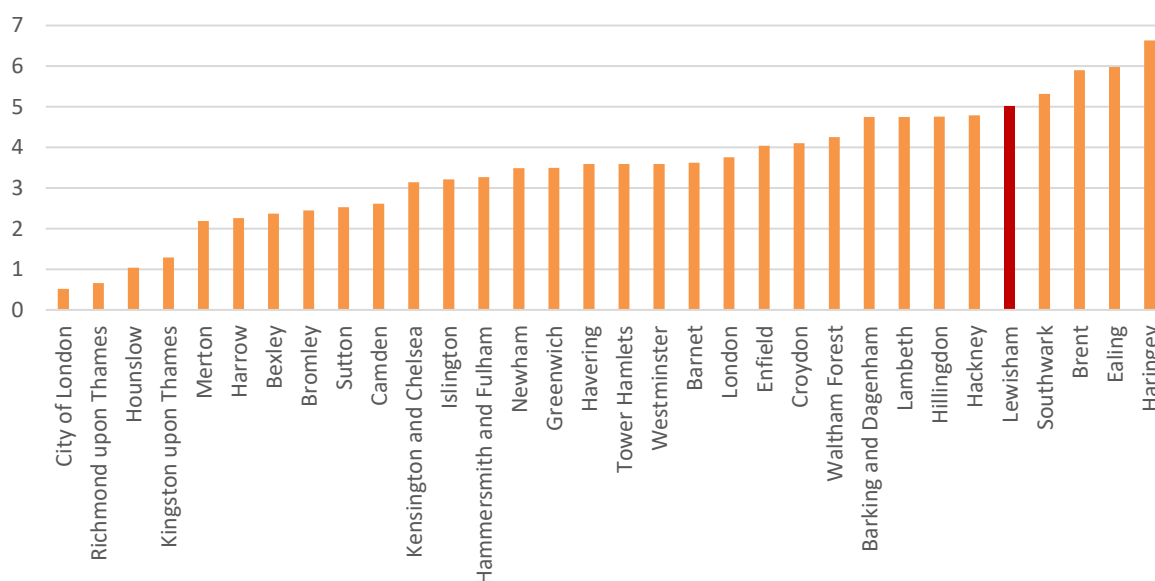
Figure 8. Homelessness duties owed by London boroughs (2019/20) (Q2) (Source: MHCLG 2019/20)
No data available for Redbridge and Wandsworth

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. Lewisham has marginally below average rents, with 46.3% of median earnings used to pay rent (Figure 9)[9].

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[8] Trust for London, https://www.trustforlondon.org.uk/data/homelessness-duties-borough
[9] Valuation Office Agency (VOA), Private rental market summary statistics: 2018
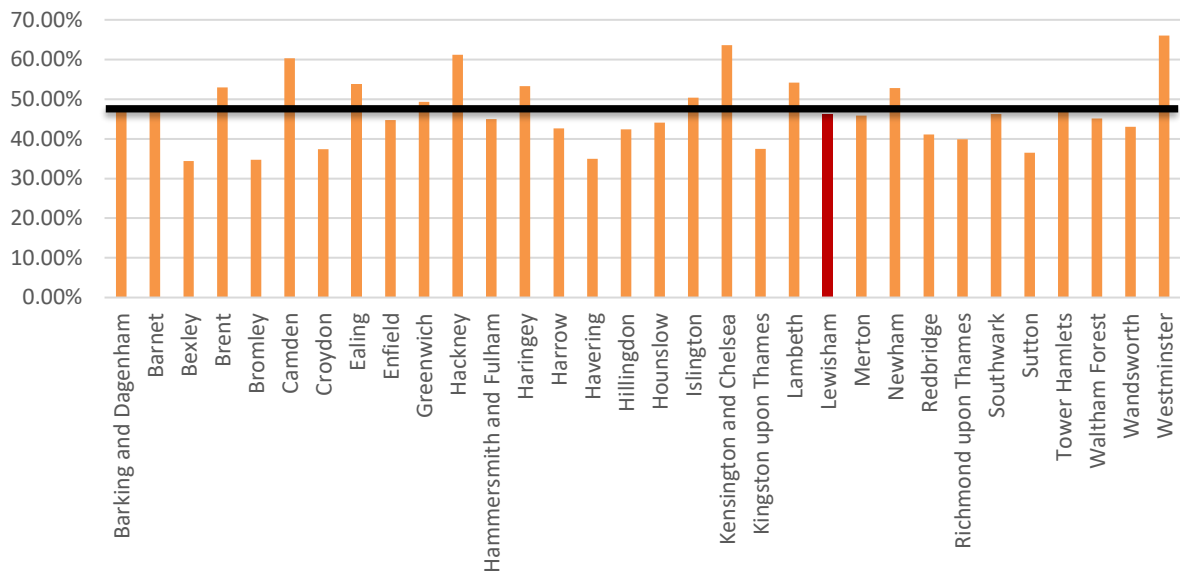
Figure 9. Median rent for a one-bedroom dwelling as a percentage of gross pay by London borough (2019/20) (Source: TFL 2020). **Horizontal black line shows London average (47.9%)**

1.8   Residential property crime (burglary)

2, 362 burglaries were reported to the Metropolitan Police in Lewisham between February 2019 & March 2020. Brockley (234) and Lewisham Central (196) wards have the highest rates of burglaries.
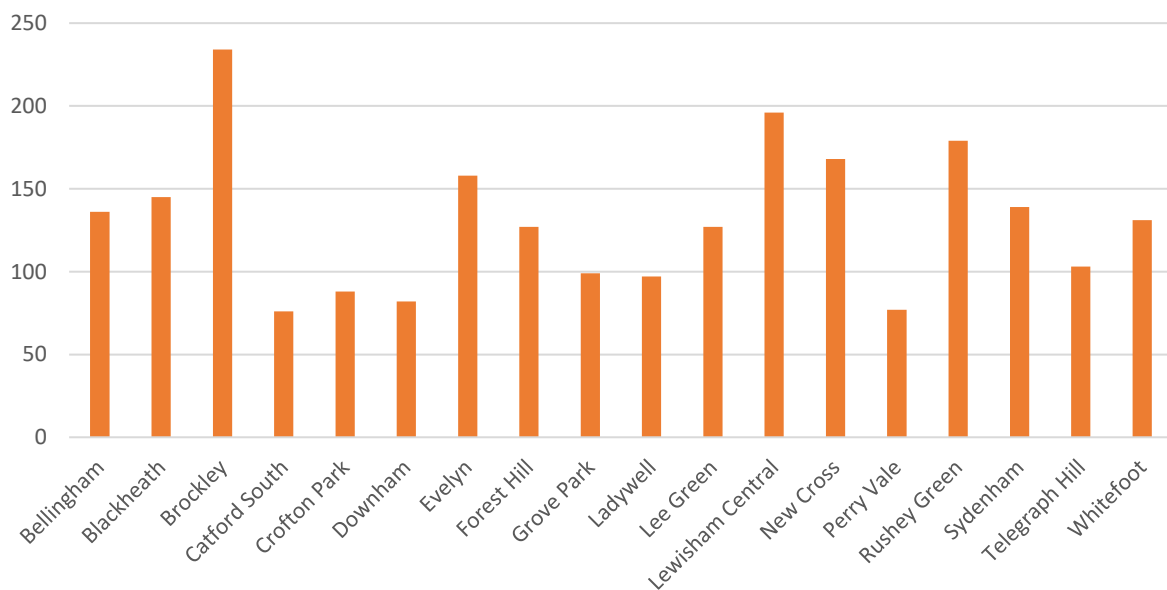
Figure 10*. Distribution of reported burglary in Lewisham - Metropolitan Police (Feb 2019-March 2020)*

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 128,798unique 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 2016 – March 2021.

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 Lewisham. 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.

Metastreet was asked to exclude properties that have been licenced under part 2 of the Housing Act 2004 from the results. This resulted in the removal of 733 HMO properties. Therefore, the results in

the following section exclude this cohort and the stressor data directly matched to 733 HMO properties.

2.2   Results - Private rented sector

2.2.1   Population and distribution

The private rented sector (PRS) in Lewisham has grown steadily since 2011 [10].

Based on tenure modelling (September 2021), Lewisham's PRS is now calculated to be 31% (excluding known HMOs) of housing stock (Figure 11). This compares to 24.3% of households in 2011 (ONS). This represents a 38.3% increase over the last 10 years (Figure 12).
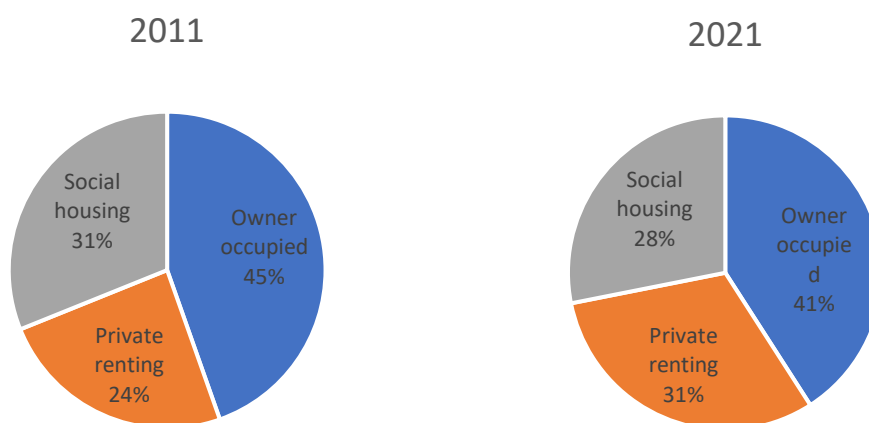
Figure 11. Tenure profile 2011 & 2021 (Source: ONS & Metastreet Ti model).

Tenure percentage change over the last two decades in Lewisham 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.

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[10] London Datastore https://data.london.gov.uk/dataset/2011-census-housing

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 [11] to 19% of households 2020 [12]. The PRS remains the second largest housing tenure in England. [13].

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

Tenure	2011	2021
Owner occupied	50,664	52,389
Private renting	29,375	39,674*
Social housing	36,052	36,002
Total dwellings	116,091	128,065*

excluding 733 licensed HMO properties

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

The PRS in Lewisham is distributed across all 18 wards (Figure 13). The number of PRS dwellings per ward ranges from 4,398 (Lewisham Central) to 1,492 (Downham).

[11] The profile of UK private landlords Scanlon K & Woodhead C CML research. LSE London. December 2017 www.cml.org.uk
[12] EHS Headline 2919-20,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf
[13] EHS Headline 2919-20,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf
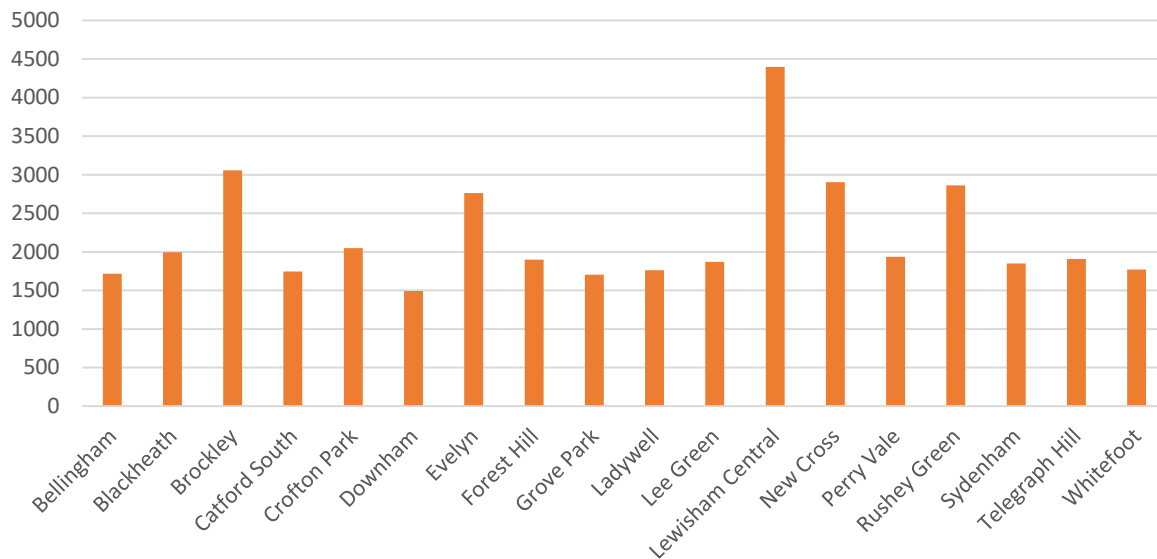
Figure 13. Number of PRS dwellings by ward (Source: Ti 2021).

The percentage of PRS properties in each ward ranges between 41.1% (Lewisham Central) and 23.8% (Downham) (Figure 14). Therefore, 18 out of 18 Lewisham wards have a higher percentage PRS than the national average in 2020 (19%)[14].
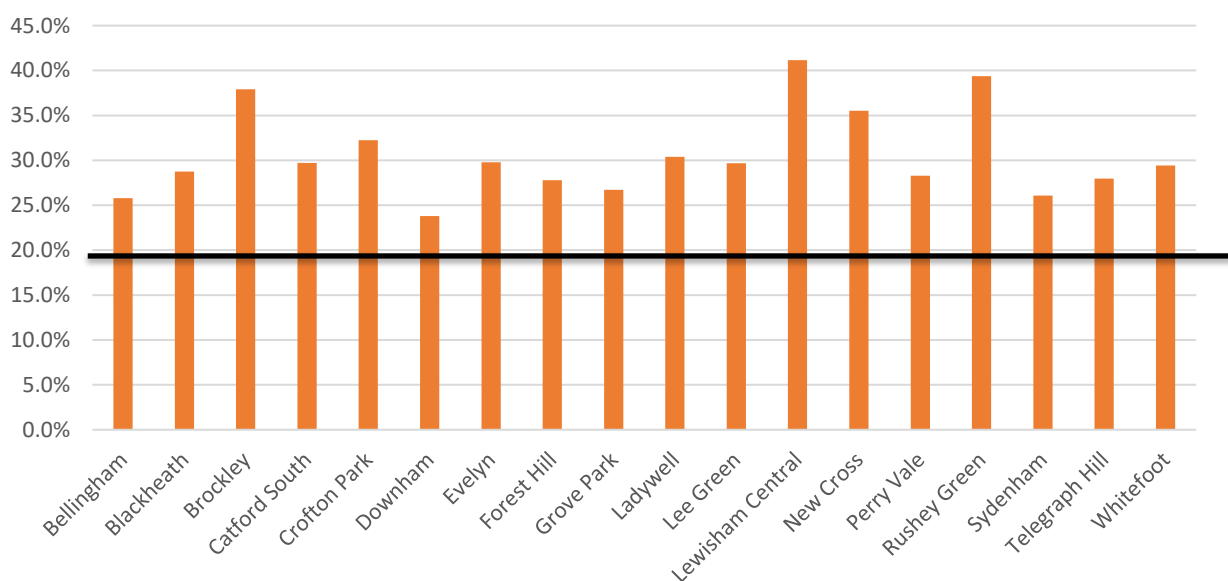
Figure 14. Percentage of PRS dwellings by each ward (Source Ti 2021). *Horizontal black line shows national average 2019 (19%)*

[14] EHS Headline 2919-20,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945013/2019-20_EHS_Headline_Report.pdf

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 (%)
Bellingham	1,717	25.8%
Blackheath	1,996	28.7%
Brockley	3,056	37.9%
Catford South	1,744	29.7%
Crofton Park	2,049	32.2%
Downham	1,492	23.8%
Evelyn	2,761	29.8%
Forest Hill	1,899	27.8%
Grove Park	1,702	26.7%
Ladywell	1,761	30.4%
Lee Green	1,868	29.7%
Lewisham Central	4,398	41.1%
New Cross	2,905	35.5%
Perry Vale	1,936	28.3%
Rushey Green	2,863	39.4%
Sydenham	1,851	26.1%
Telegraph Hill	1,907	28.0%
Whitefoot	1,769	29.4%

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

PRS properties are distributed across the borough (Map 2). Lewisham Central (41.1%) and Rushey Green (39.4%) wards have the highest concentration of PRS dwellings, followed by Brockley (37.9%) and New Cross (35.5%).

Percentage PRS
- 24 to 26
- 26 to 28
- 28 to 30
- 30 to 32
- 32 to 34
- 34 to 36
- 36 to 38
- 38 to 40
- 40 to 42

Map 2. PRS properties as percentage of dwellings in Lewisham (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. [15]

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%) [16]. It is notable that there is a

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[15] Housing Health and Rating System, Operation Guidance, 2006,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf
[16] 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
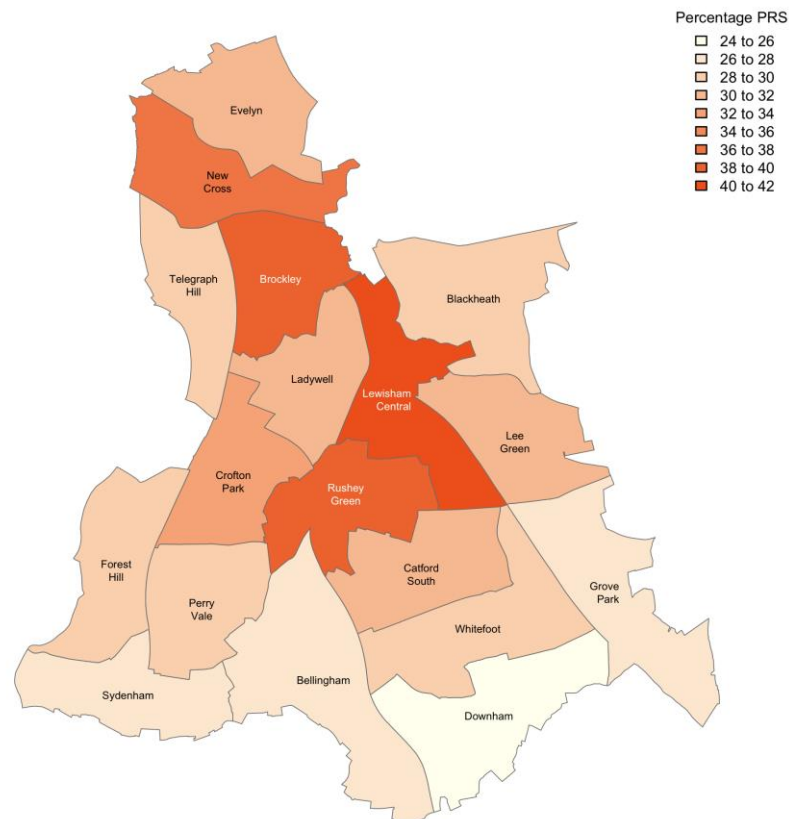
gradient of risk with age of the property, the risk being greatest in dwellings built before 1900, and lowest in the more energy efficient dwellings built after 1980[17].

A local authority's property age profile can have an impact on housing conditions[18].. Lewisham has a significant number of residential properties (53.4%) built pre-Second World War (Figure 15)
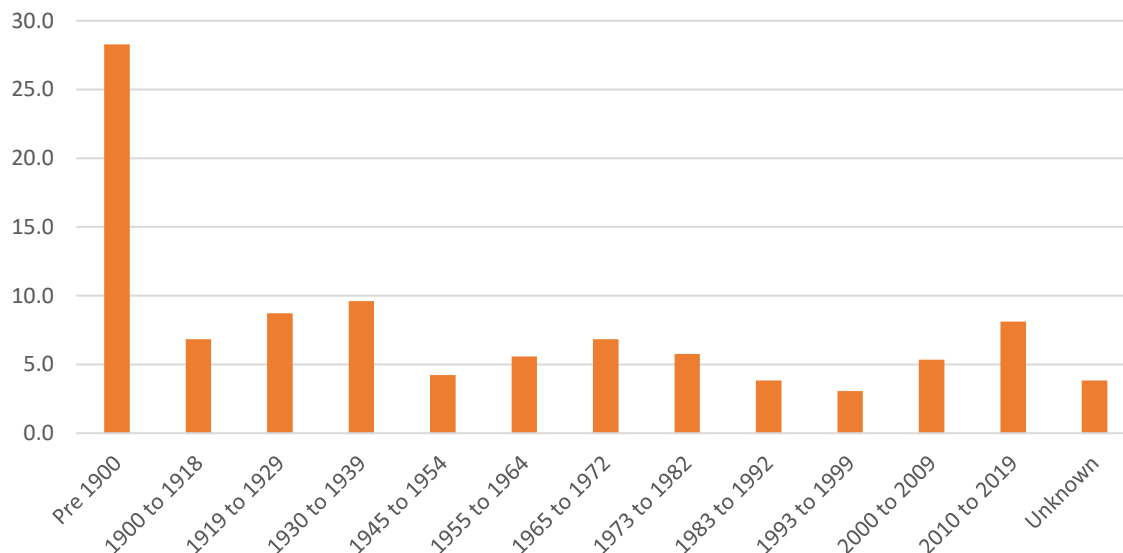
Figure 15. Age profile of housing stock (%) for all tenures (Source: VOA 2020).

A borough's property type profile offers an indication of housing density, construction type and neighbourhood design. The most common property type in Lewisham is flats (55%), while bungalows and detached properties are the least common property types (1%) (Figure 16).

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[17] Housing Health and Rating System, Operation Guidance, 2006,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf
[18] London Datastore, VOA https://data.london.gov.uk/dataset/property-build-period-lsoa
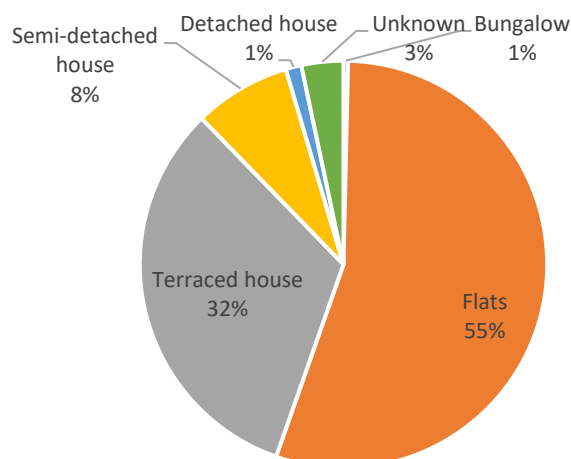
Figure 16. Property type as a percent of total (Source: VOA 2015).

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 **8,995** private rented properties in Lewisham that are likely to have at least 1 serious housing hazard (Category 1, HHSRS). This represents 22.7% of the PRS stock, higher than the national average (13%). PRS properties with serious hazards are distributed across the borough. Sydenham (771), Rushey Green (736) and Lewisham Central (717) have the highest number of properties predicted to have at least one Category 1 hazard.
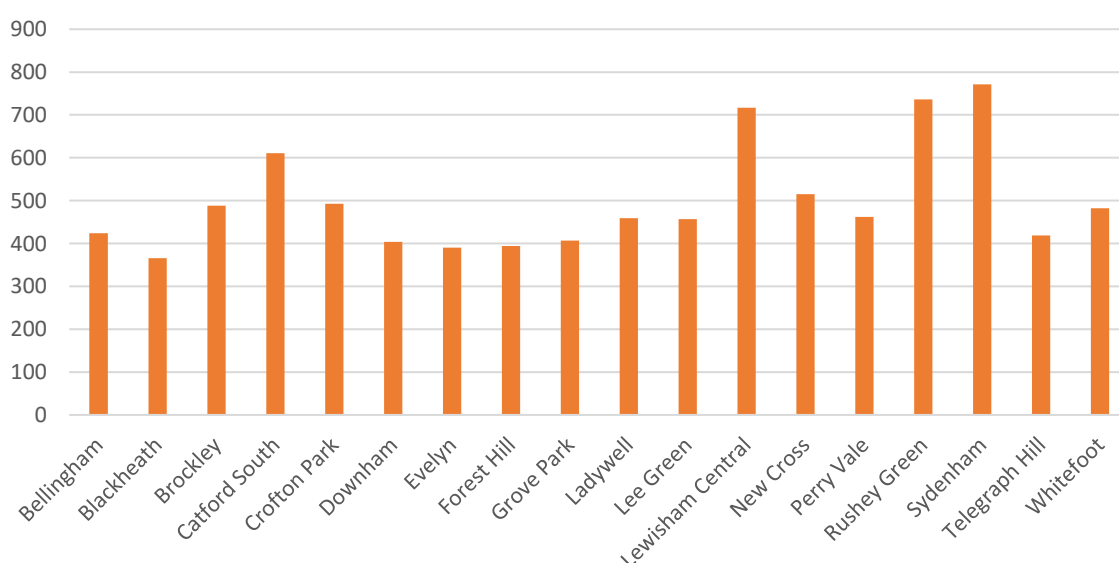
Figure 17. Predicted number of dwellings with Category 1 hazards by ward (Source: Ti 2021).

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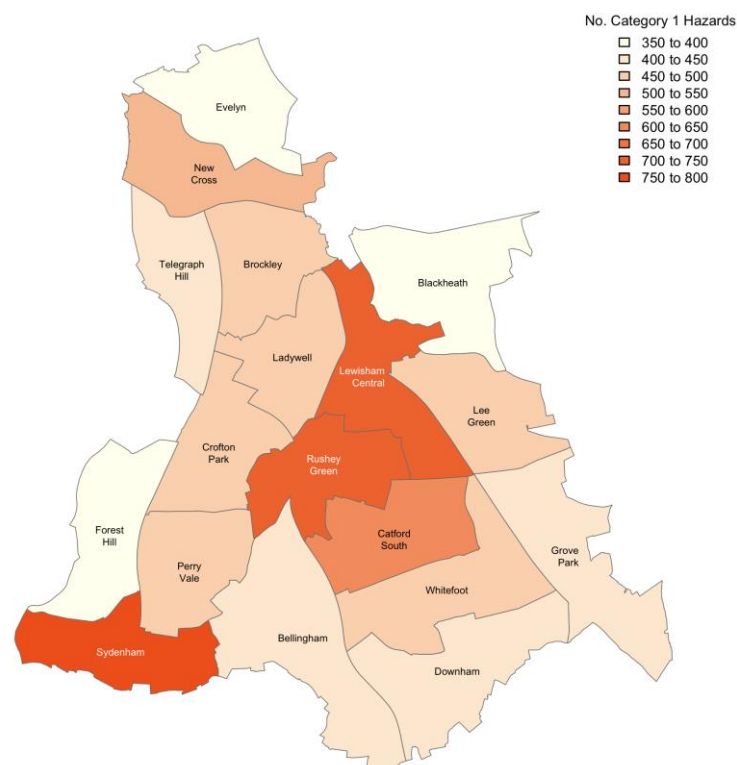
Map 3. Distribution of PRS dwellings with Category 1 hazards (HHSRS) (Source: Ti 2021, map by Metastreet).

The rates of Category 1 hazards per 100 PRS properties reveals a wide distribution across Lewisham (Figure 18). Sydenham (41.7 per 100) and Catford South (35 per 100) wards have the highest rates of PRS properties with Category 1 hazards.
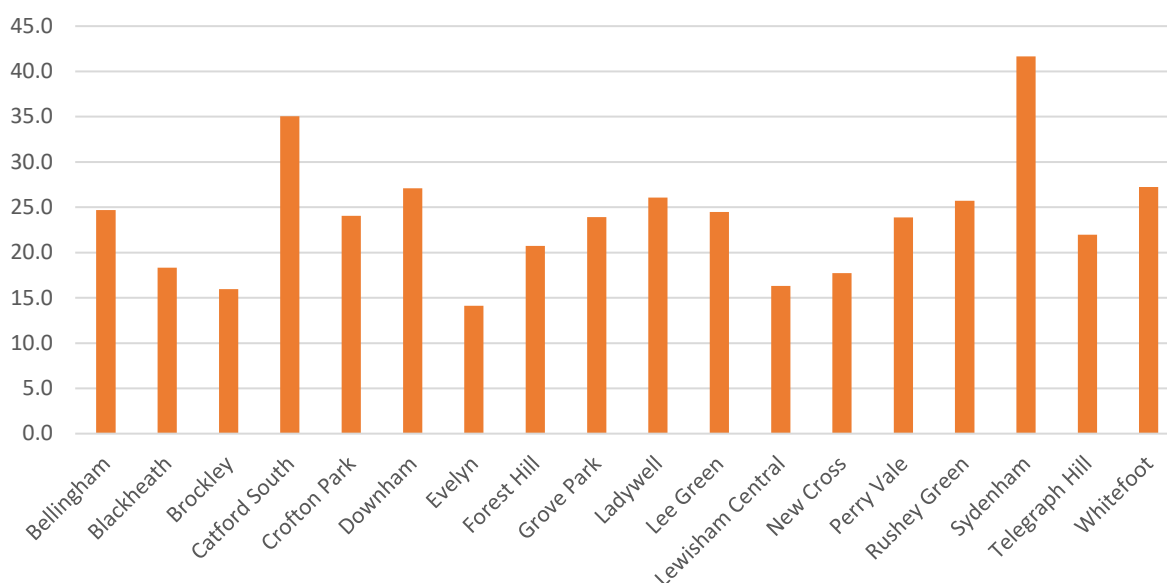
Figure 18. Rates per 100 PRS dwellings with predicted Category 1 hazards by ward (Source: Ti 2021).

Complaints made by PRS tenants and investigated by Lewisham Council regarding poor property conditions and inadequate property management are a direct indicator of low quality PRS. Lewisham recorded 2,602 complaints from private tenants over a 5-year period (Figure 19).
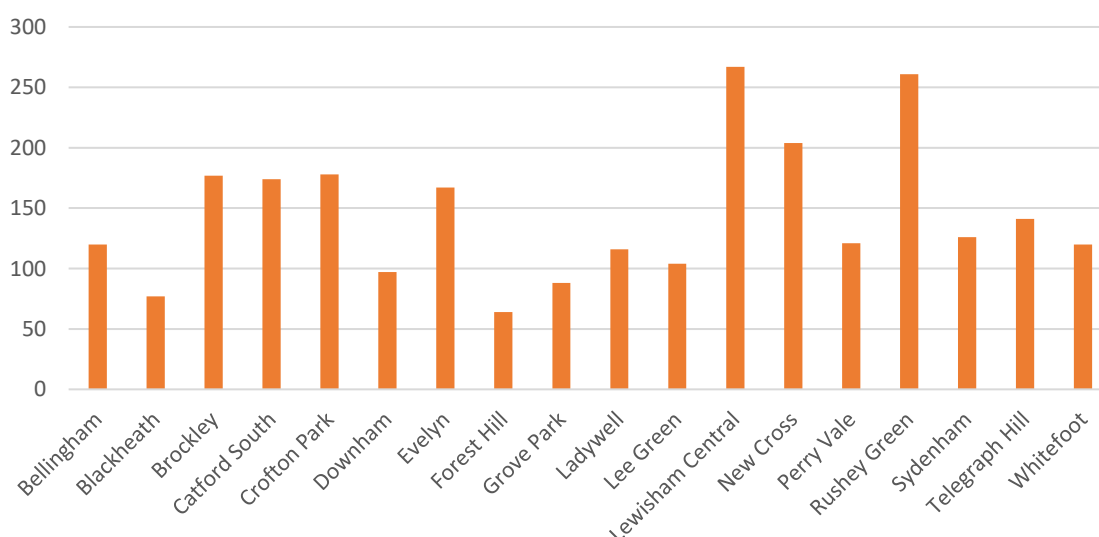
Figure 19. PRS tenant complaints and investigations (Source Ti 2021)

Lewisham Central (267) and Rushey Green (261) received most investigations following private tenant complaints.
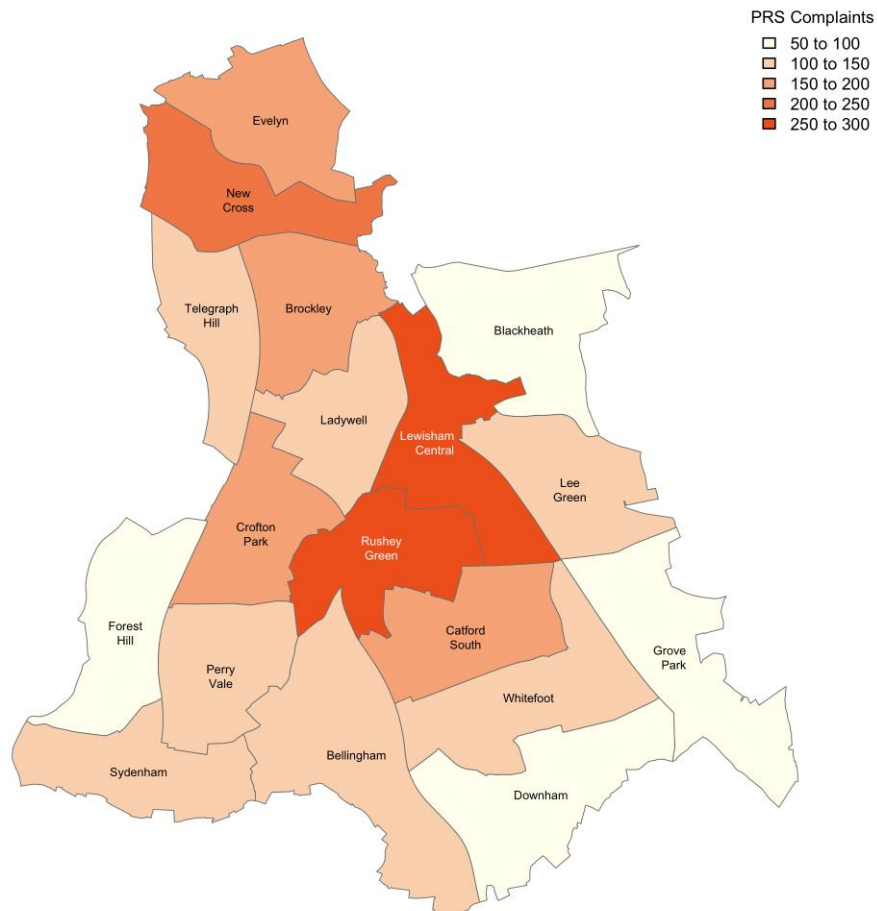
Map 4. Distribution of PRS tenant complaints and investigations (Source: Ti 2021, map by Metastreet).

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 28,464 EPC ratings were matched to PRS properties (Figure 20). All figures have been modelled from this group.
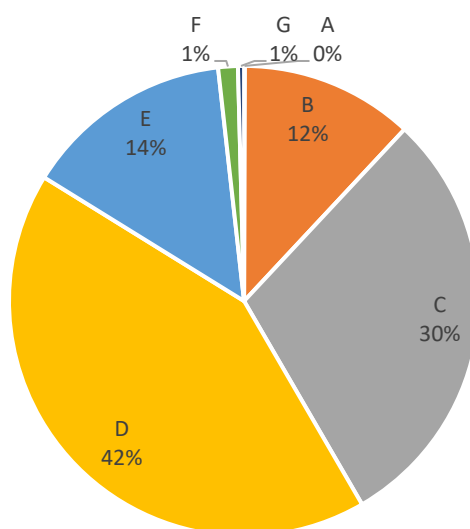
Figure 20. Distribution of Energy Performance Certificate ratings in PRS (Rating A-G) (Source: Ti 2021).

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 16.2% of PRS properties in Lewisham have an E, F, and G rating. 1.8% of PRS properties have an F and G rating (Figure 20). Extrapolated to the entire PRS, 702 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 [19]. 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[20]. Therefore, the sizeable number of F and G properties present a serious risk to the occupants' health, particularly if over the age of 65.

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[19] Housing Health and Rating System, Operation Guidance, 2006
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf
[20] Housing Health and Rating System, Operation Guidance, 2006
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf

In response to non-compliance in the private rented sector Lewisham has served a number of statutory notices over 5 years. 857 housing and public health notices were issued. Lewisham Central (100), Evelyn (94) and New Cross (90) received the most statutory notices.
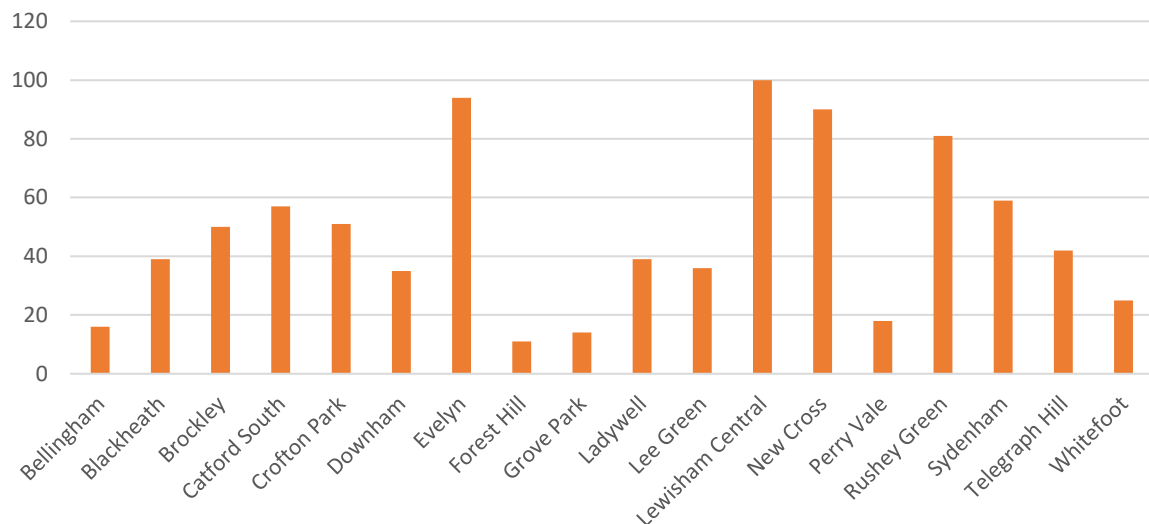
Figure 21. Statutory notices served on PRS properties (housing & public health) (Source: Ti 2021)
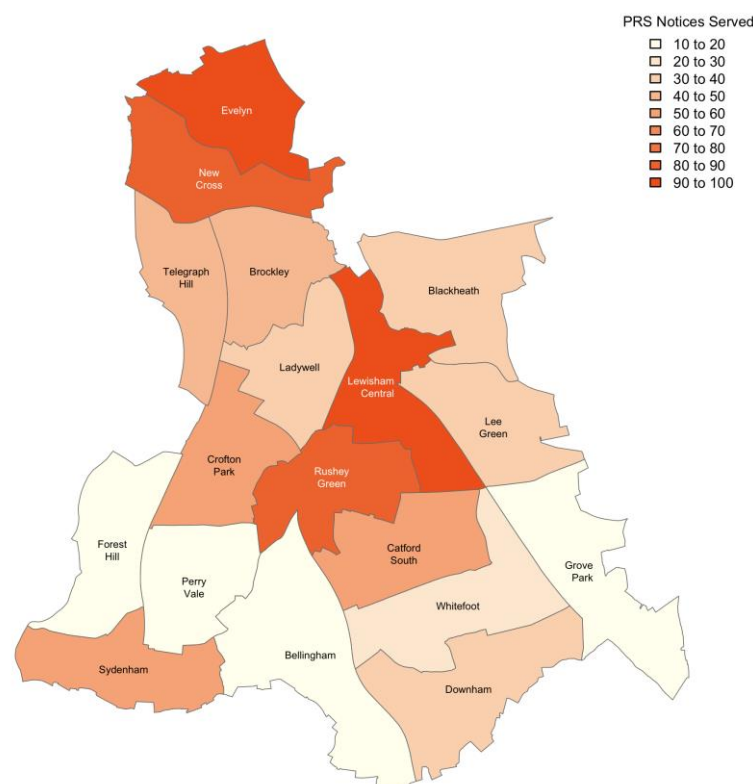
Map 5. Distribution of statutory notices served on PRS properties (housing/public health notices only) (Source: Ti 2021, map by Metastreet).

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 and statutory nuisance 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 and statutory nuisance incidents in the PRS are significantly higher that other tenure types (Figure 22).
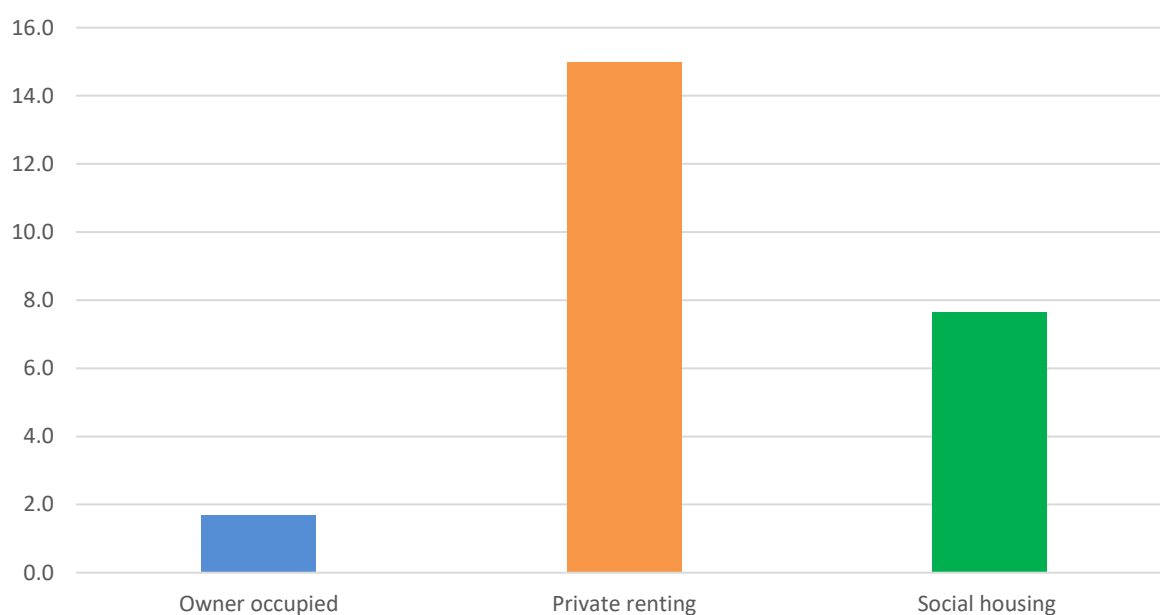
Figure 22. ASB rates per 100 properties by tenure (Source: Ti 2021).

ASB and statutory nuisances directly linked to PRS properties occur across the borough (Figure 23). Over a 5-year period, 5,948 ASB incidents have been recorded, this is made up of, but not limited to, noise (various), verbal abuse, harassment, prostitution, nuisance animals, nuisance vehicles, substance misuse, rubbish and fly tipping.

Rushey Green (513) and Lewisham Central (483) have the highest levels of PRS ASB incidents.
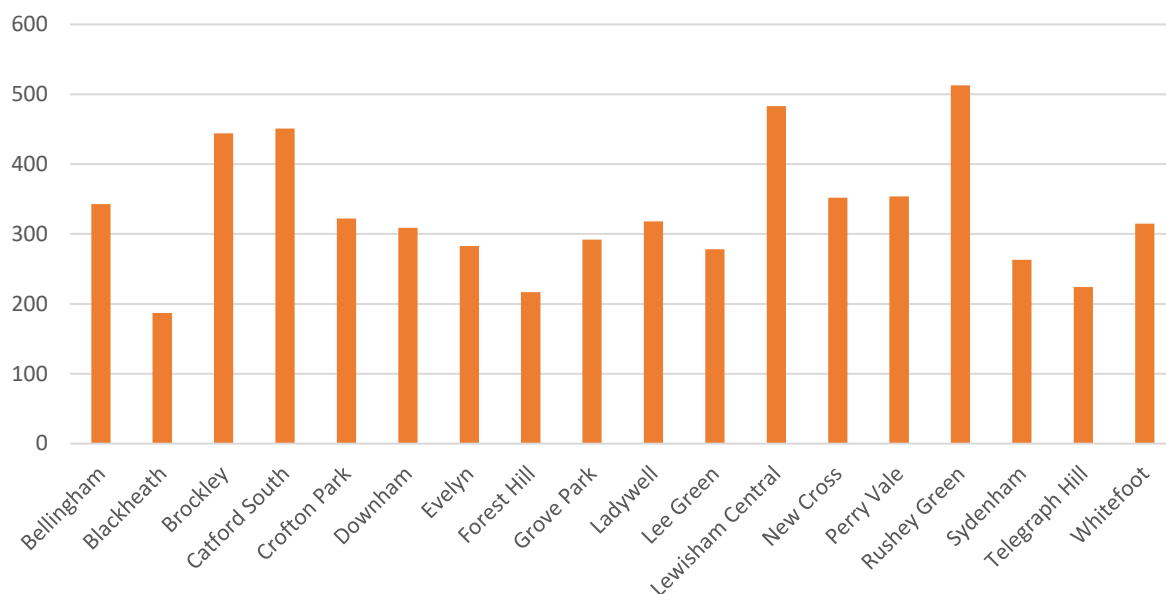
Figure 23. Number of ASB incidents and statutory nuisances linked to PRS by ward (Source Ti 2021).
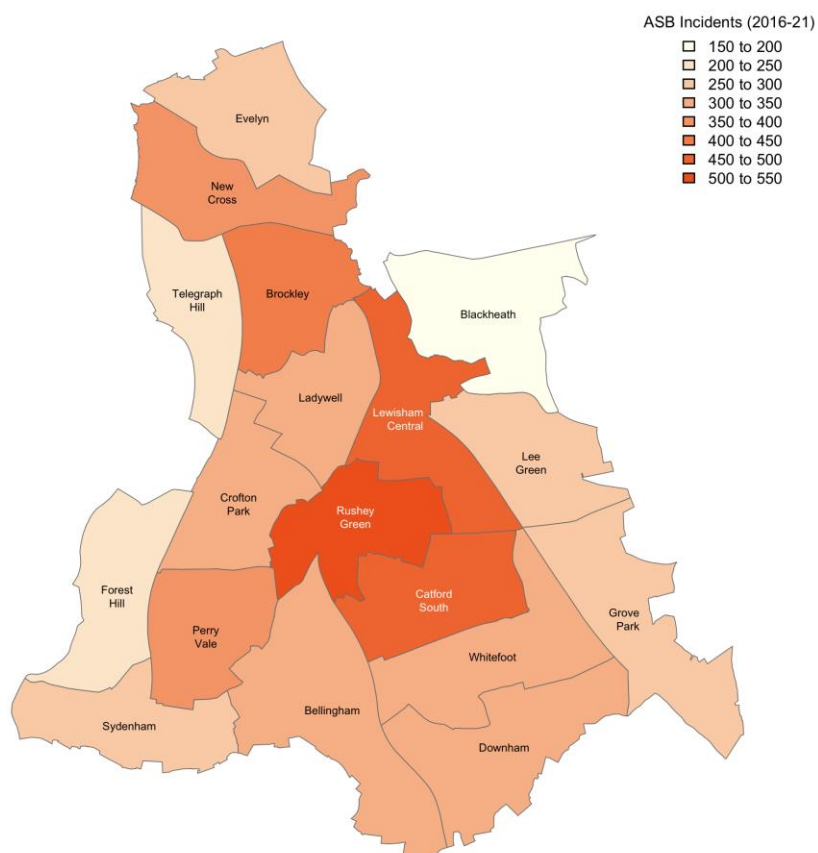
Map 6. Distribution of ASB linked to PRS properties (Source: Ti 2021, Map by Metastreet).

ASB in the PRS expressed as incidents per 100 dwellings, shows a wider distribution across all wards (Figure 24). Using this measure, Catford South (25.9 per 100) and Downham (20.7 per 100) wards have the greatest number of ASB incidents proportional to the size of the PRS.
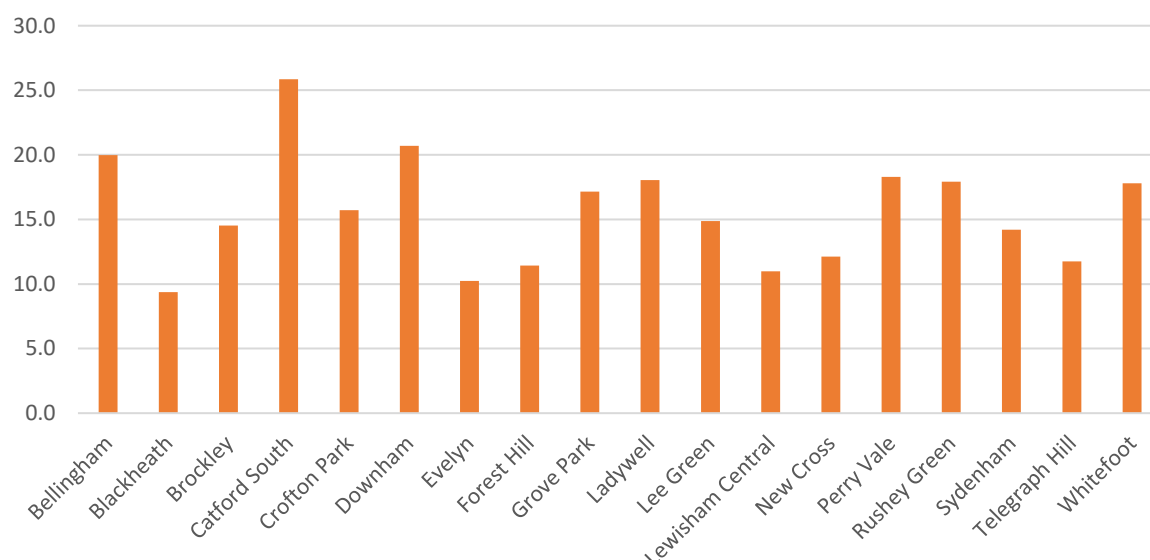
Figure 24. ASB incidents linked to PRS per 100 properties by ward (Source: Ti 2021).

Understanding the number of repeat ASB incidents (2 or more recorded incidents over 5 years) at a dwelling can help identify properties in need of additional management to help reduce the impact on surrounding households. Using this measure, Rushey Green (95) and Lewisham Central (85) wards have the greatest number of repeat ASB incidents (Figure 25).
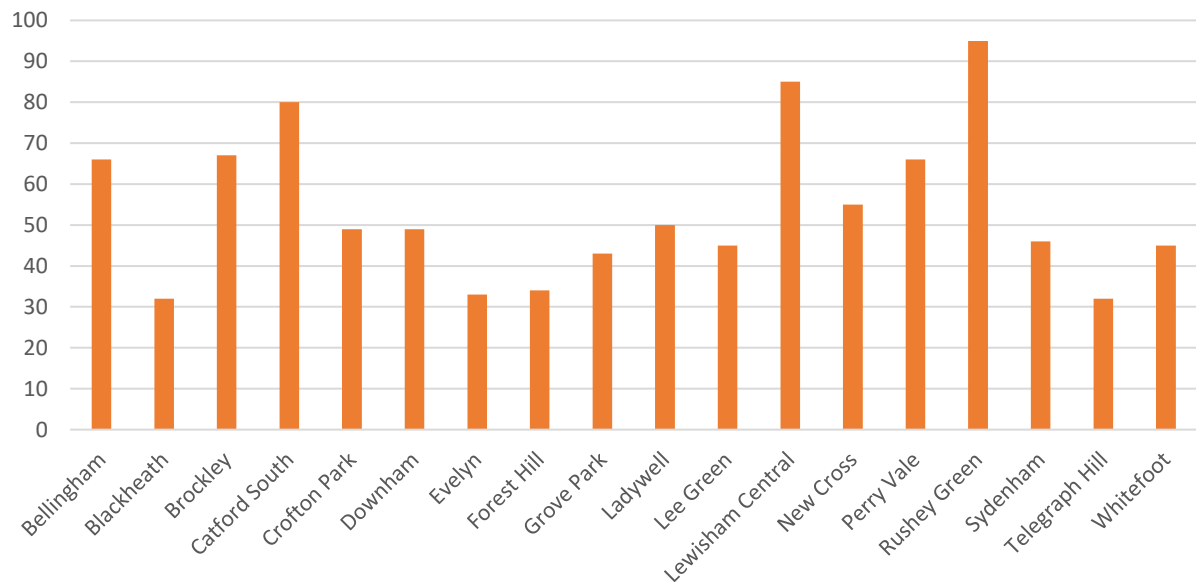
Figure 25. Repeat ASB incidents linked to PRS dwellings by ward (Source: Ti 2021).

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	Expired borough wide selective licensing
L.B. Ealing	54,776	38.1%	Yes	Yes	Borough wide additional, area based selective
L.B. Enfield	43,500	34%	No	No	Borough wide additional, ward based selective
L.B. Hammersmith & Fulham	NA	33%	Yes	Yes	Borough wide additional, area based selective
L.B. Haringey	43,775	40.2%	No	Yes	Borough wide additional

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. Lewisham	39,674***	31.5%	No	Yes	Borough wide additional
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	Borough wide 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

Lewisham's PRS has grown considerably in recent years, from 24.3% (2011) to 31% (2021). When licenced HMOs (733) are added to the PRS total, this rises to 31.6%. There are a total of 128,798 residential dwellings in Lewisham, 39,674 of which are PRS (Figure 11). The PRS in Lewisham is distributed across all 18 wards (Figure 13 & Map 2).

Lewisham has a number of high deprivation wards. 11 of 18 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).

Poor housing conditions are prevalent in Lewisham's PRS. 8,995 PRS properties are predicted to have at least 1 serious hazard (Category 1, HHSRS). This represents 22.7% of the PRS stock, higher than the national average (13%). (Figure 17 & Map 3). Sydenham (771), Rushey Green (736) and Lewisham Central (717) have the highest number of properties with at least one Category 1 hazard.

1.8% of PRS properties have an F and G EPC rating (Figure 20). Extrapolated to the entire PRS, 702 PRS properties are likely to fail the MEES statutory requirement.

Lewisham makes significant numbers of statutory interventions in the PRS. (Figure 21 & Map 5). Council enforcement officers served 857 housing and public health enforcement notices over 5 years.

There are high levels of recorded ASB and statutory nuisances linked to private rented properties across the borough (Figure 23 & Map 6). Over the last 5-years, 5,948 ASB incidents in the PRS have been recorded. Rates of ASB and statutory nuisance incidents in the PRS are significantly higher that other tenure types (Figure 22)

Appendix 1 – Ward summaries

Ward	PRS dwellings	% PRS (minus known HMOs)	Cat 1 hazards	ASB incidents	PRS notices
Bellingham	1,717	25.8%	424	343	16
Blackheath	1,996	28.7%	366	187	39
Brockley	3,056	37.9%	488	444	50
Catford South	1,744	29.7%	611	451	57
Crofton Park	2,049	32.2%	493	322	51
Downham	1,492	23.8%	404	309	35
Evelyn	2,761	29.8%	390	283	94
Forest Hill	1,899	27.8%	394	217	11
Grove Park	1,702	26.7%	407	292	14
Ladywell	1,761	30.4%	459	318	39
Lee Green	1,868	29.7%	457	278	36
Lewisham Central	4,398	41.1%	717	483	100
New Cross	2,905	35.5%	515	352	90
Perry Vale	1,936	28.3%	462	354	18
Rushey Green	2,863	39.4%	736	513	81
Sydenham	1,851	26.1%	771	263	59
Telegraph Hill	1,907	28.0%	419	224	42
Whitefoot	1,769	29.4%	482	315	25

Table 4. Ward PRS summary overview (Source Ti 2021).

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

This Appendix explains at a summary level Metastreet's Tenure Intelligence (Ti) methodology (Figure 26).

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.
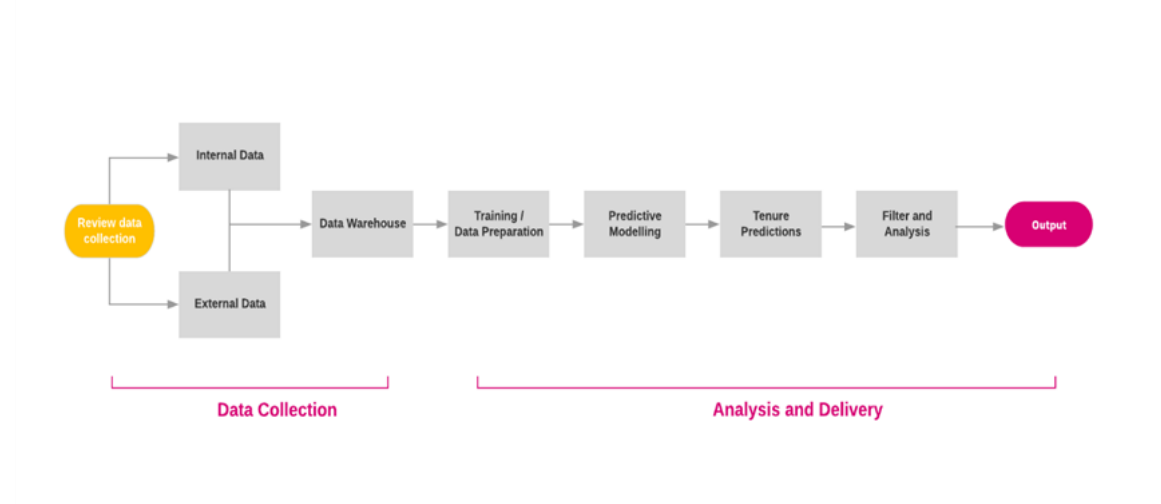
Figure 26. Summary of Metastreet Tenure Intelligence methodology.

Methodology

Metastreet has worked with Lewisham Council to create a residential property data warehouse based on a detailed specification. This has included linking approximately 8 million cells of data to 128,798unique property references, including council and externally sourced data. All longitudinal data requested from council department is 5 consecutive years, from April 2016 – March 2021

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 Lewisham, they include:

- Owner occupiers

- Private rented sector (PRS)

- 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 80% (Table 5).

Table 5. Owner occupier predictive factors.

Risk factors selected	Pr(>Chi)*
Total service requests	2.2e-16
Ctax current account length	5.880e-13
Elector count	0.0002835
EPC tenure	2.2e-16
Ctax number liable	2.2e-16
Training data, n= 552	
D^2 test = 0.80**	

* Pr(>Chi) = Probability value/null hypothesis test, ** D^2 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 6).

Table 6. PRS predictive factors.

Risk factors selected	Pr(>Chi)
Housing benefit	3.669e-14

Total service requests	0.0002835
Ctax current account length	0.0291487
CTax total benefit	3.904e-07
TDS	2.346e-09
Training data, n= 874	
D^2 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 7).

Table 7. Category 1 (HHSRS) hazard predictive factors.

Risk factors selected	Pr (>Chi)
EPC current energy efficiency	2.827e-15
ASB count	0.0006290
Number liability orders	0.0005562
PRS complaints made	1.903e-14
Total service requests	5.139e-09
Training data, n= 498	
D^2 test = 0.91	

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