Appendix 1

Westminster City Council

Private Rented Sector: Housing Stock Condition and Stressors Report

May 2024

Executive Summary

Metastreet were commissioned by Westminster City Council to review the housing stock in the district and assess housing stressors related to key tenures, particularly the private rented sector (PRS).

The detailed housing stock information provided in this report will facilitate the development and delivery of Westminster '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 (Housing Health & Safety Rating System (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 a wide range of 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) and a large range of council held and open-source data, which when combined, 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

- Westminster ’s PRS is now calculated to be 42.8% (55,274) of all housing stock.
- The PRS in Westminster is distributed across all 18 wards.
- 18 out of 18 Westminster wards have a higher percentage PRS than the national average in 2023 (19%).
- 5 of 18 wards have aggregated IMD rankings below decile 5 (national average).
- Westminster has a higher proportion of households in fuel poverty (13.6%) when compared to southeast England (7.5%) and England (13.4) but has a lower proportion when compared to the London average (15.2%).
- Westminster has an above average rented property possession rate, with 21 claims per 10,000 households in 2023, slightly higher than the London average (20.8) (national average is 8.7 per 10,000).
- Overall Westminster has well above average rents for England (£2,622), the national average is £850, and the London average is £1,625.
- 2,894 burglaries were reported to the Metropolitan Police in Westminster between May 2022 – April 2024
- The most common private rented property type are flats (88%) while bungalow are the least common property types (0.03%)
- 6,764 private rented properties in Westminster are likely to have at least one serious housing hazard (Category 1 and high scoring Category 2, HHSRS).
- PRS properties with serious hazards are distributed across all wards.
- Category 1 and/or high scoring Category 2 HHSRS hazards per 100 PRS properties reveals a wide distribution across Westminster.
- Westminster recorded 3,805 complaints and service requests from private tenants and others linked to PRS properties over a 5-year period.
- It has been calculated using the matched addresses that 10.1% of PRS properties in Westminster have an E, F, and G rating.
- 1% of PRS properties have an F and G rating, extrapolated to the entire PRS, 553 PRS properties are likely to fail the MEES statutory requirement.
- Westminster has 4,765 PRS EPC ratings that are E, F, & G. EPC ratings E, F, & G represent properties with the least energy efficiency.

- Over a 5-year period (2018-23) Westminster served one or more housing and public health notices on 356 unique residential premises; this equated to 583 notices in total.
- The council has recorded a total of 20,640 incidents related to noise anti-social behaviour (ASB) linked to 8,927 PRS properties over the past five years.
- Westminster recorded a total of 4,601 incidents related to other anti-social behaviour (ASB) linked to 3,302 PRS properties over the past five years.

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Introduction & Project Objectives

Metastreet were commissioned by Westminster City Council 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), regulatory interventions and deprivation.

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

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

A number of bespoke predictive tenure models (Ti) have been developed as part of this project which are unique to Westminster, they include:

- Private rented sector (PRS)
- Owner occupiers
- Serious PRS housing hazards (Category 1 and high scoring Category 2, HHSRS A-D)

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

1 Westminster overview

The City of Westminster is an Inner London borough that also holds city status. It occupies much of the central area of Greater London including most of the West End. It is located to the west of the City of London, directly to the east of the Royal Borough of Kensington and Chelsea, and its southern boundary is the river Thames. Westminster covers an area of 21.48 km. [1]

1.1 Population

The Office of National Statistics (ONS) Census 2021 population estimates for Westminster was 204,300 (Figure 1)[2]. This represents a 6.9% decrease over the last decade. Contrastingly, England and Wales grew by more than 3.5 million (6.3%) over the same period.

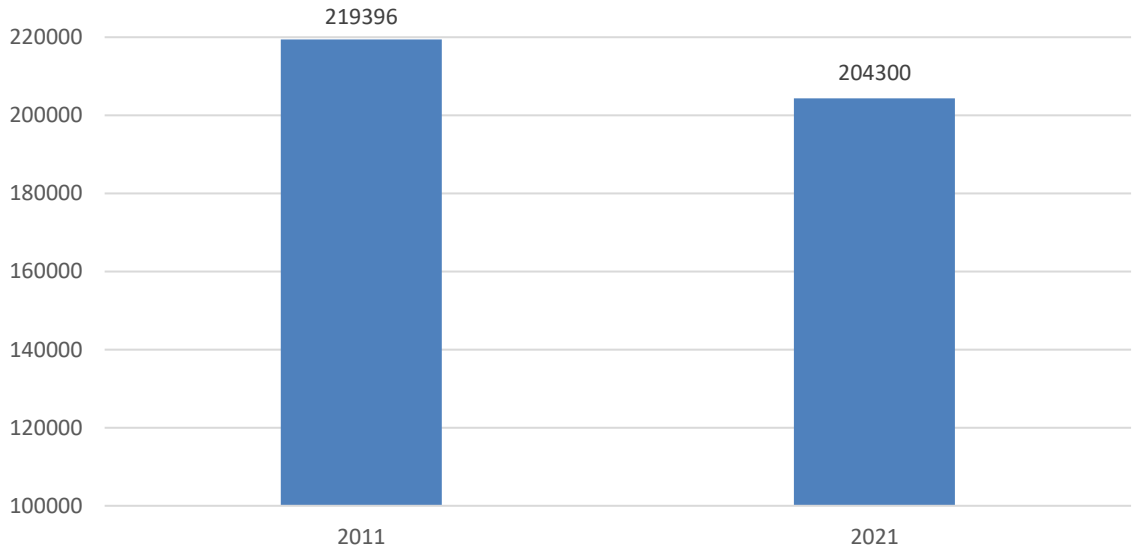


Figure 1. Population estimates, Census 2011 & 2021 (Source: Census ONS).

The ONS Census 2021 population age profile estimates for Westminster show that 12.1% of residents are aged 65 or older; this is compared to 18.6% nationally (Figure 2). [3]

[1] Wikipedia, November 2023, https://en.wikipedia.org/wiki/City_of_Westminster
[2] Office for National Statistics – Census 2021, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021
[3] Office for National Statistics – Census 2021, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021

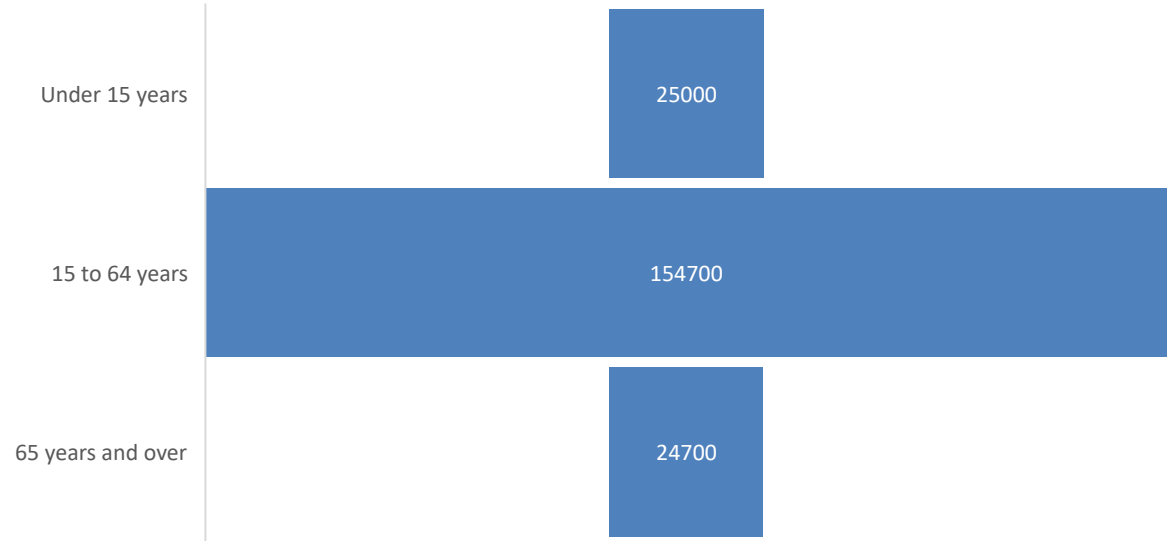


Figure 2. Population age profile estimate (2021) (Source: Census ONS).

1.2 Household size

Household size (persons) (all tenures) provides an insight into how dwellings are occupied (Figure 3).[4]

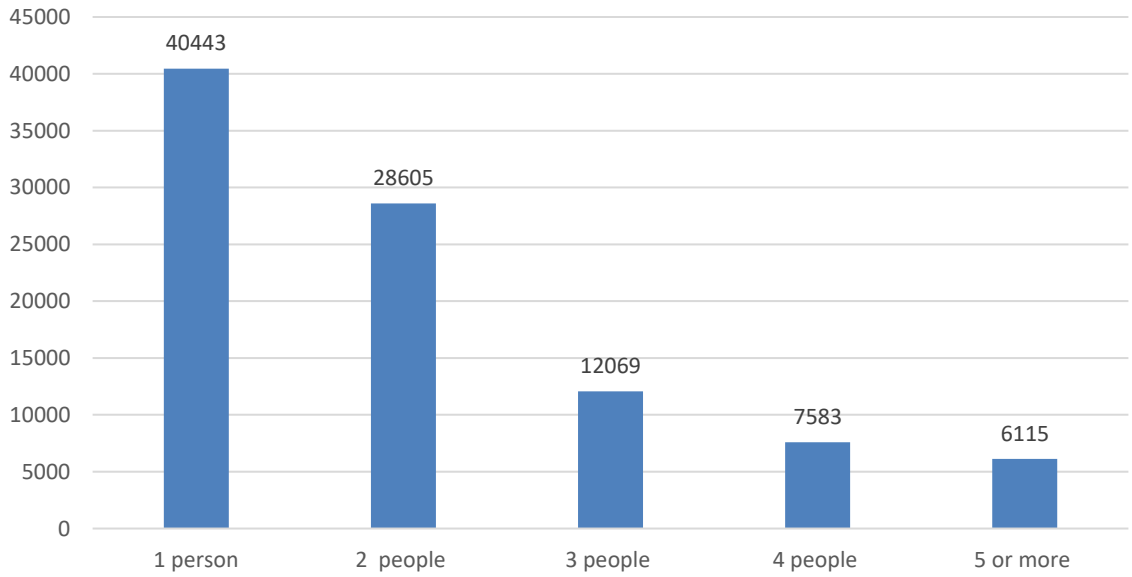


Figure 3. Westminster household size (all tenures) (Source: Census 2021).

[4] Office for National Statistics – Census 2021, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021

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[5].

To produce the ward level IMD 2019 data, government guidance and methodology to convert the data has been used[6]. LSOAs have been matched to wards using an Open Geoportal lookup tables. IMD 2019 scores have been ranked (deciles) and weighted for population.

Average IMD 2019 decile aggregated at ward level reveals a clear picture of ward level deprivation (Figure 4 & Map 1). 1.0 on the graph represents the most deprived 10% areas and 5.0 represents 50% most deprived (national average).

Westminster has a mixture of high and low deprivation wards. 5 of 18 wards have aggregated IMD rankings below decile 5 (national average) (Figure 4).

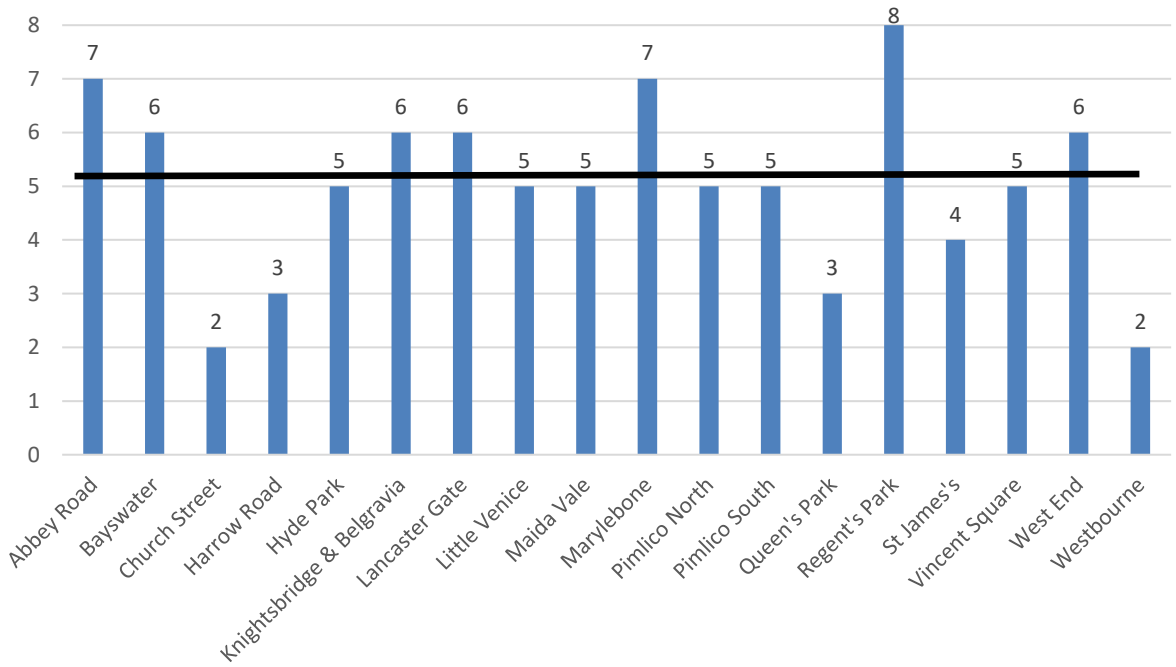
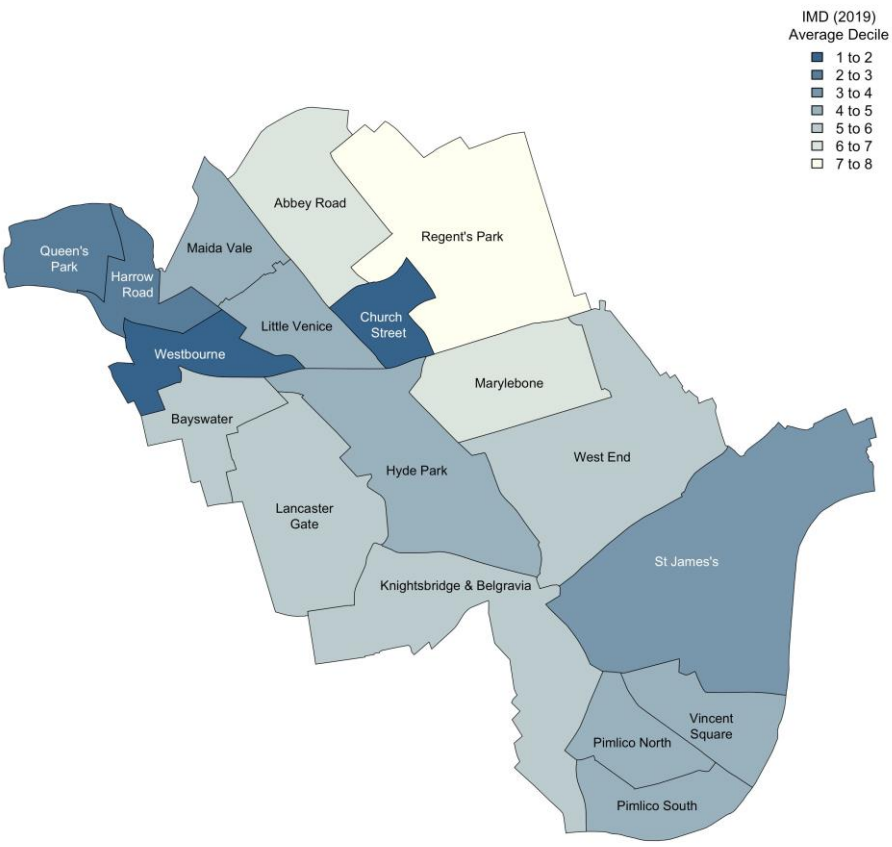


Figure 4. Average IMD (2019) decile by ward (Source: IMD 2019). Horizontal line shows the national average (decile 5).

[5] ONS 2019 https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019,
[6] MHCLG 2019 https://assets.publishing.service.gov.uk/media/5d8b364ced915d03709e3cf2/IoD2019_Research_Report.pdf



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

1.4 Fuel Poverty

Fuel poverty is defined by the Warm Homes and Energy Conservation Act. A household is considered to be fuel poor if they have required fuel costs that are above average (the national median level); and, were they to spend that amount, they would be left with a residual income below the official poverty line.

The fuel poverty score was produced by the Department for Business, Energy & Industrial Strategy using 2019 data and published in 2021. Over the next 12 months these figures are likely to change significantly as a result of acute fuel price increases. Westminster has a higher proportion of

households in fuel poverty (13.6%) when compared to southeast England (7.5%) and England (13.4), but has a lower proportion when compared to the London average (15.2%). (Figure 5) [7].

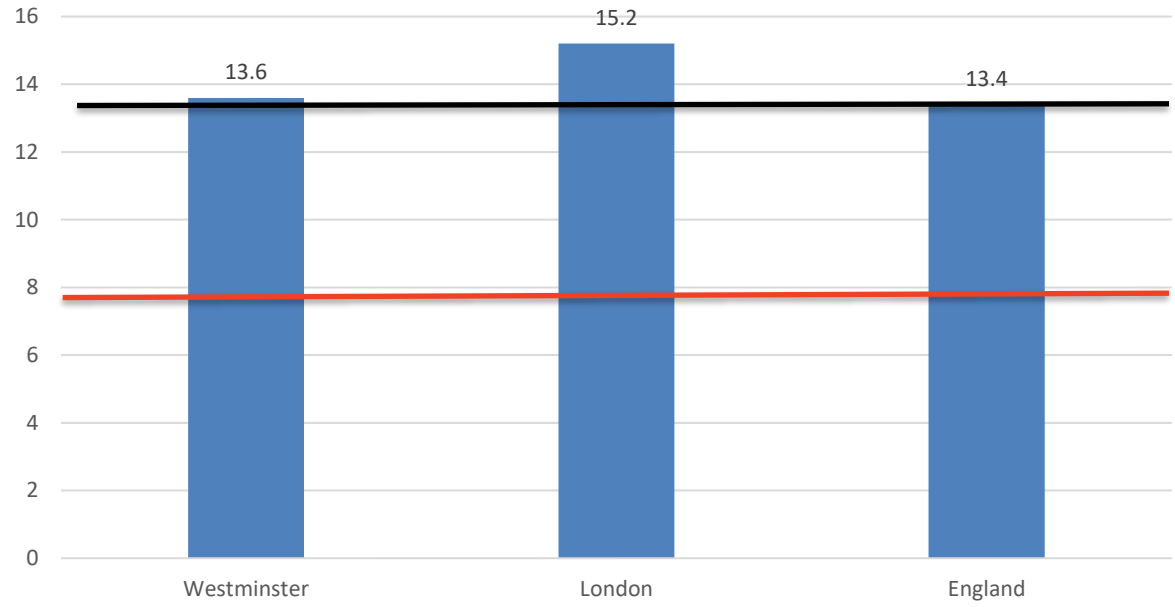


Figure 5. Proportion of households in fuel poverty (%) by selected comparable authorities (BEIS 2019). Horizontal black line shows England average (13.4%), Horizontal red line shows Southeast England average (7.5%).

1.5 Rented property possession claim rates

Westminster has an above average rented property possession rate, with 21 claims per 10,000 households in 2023, slightly higher than the London average (20.8). The average number of claims for authorities in England was 8.7 per 10,000 (Figure 7). [8]

[7] Department for Business, Energy & Industrial Strategy 2021 https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2021

[8] MOJ Possession claims by local authority (2023) https://lginform.local.gov.uk/reports/lgastandard?mod-metric=3498&mod-area=E06000031&mod-group=AllSingleTierAndCountyLaInCountry_England&mod-type=namedComparisonGroup

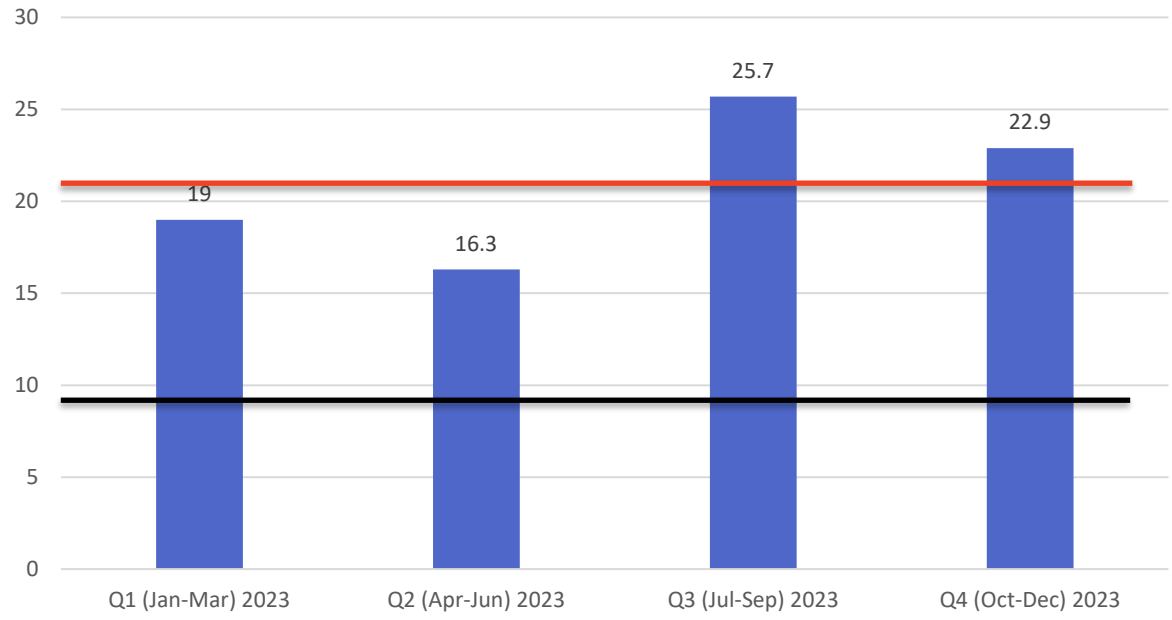


Figure 6. Number of possession claims issued by landlords per 10,000 households (selected comparable authorities) 2023 (MOJ 2023) ***Black line equals English authorities mean average 8.7 per 10,000 households (last 4 quarters). Horizontal red line shows London average (20.8).***

1.6 Rents and affordability

Private rents vary by area. As this report is concerned with housing conditions and other housing stressors, we have looked at the average (median) rents for all dwelling types (all categories Figure 7). Overall Westminster has well above average rents for England (£2,622) (Figure 7). The national average is £850, and the London average is £1,625. [9]

[9] ONS Private rental market summary statistics in England: April 2022 to March 2023
https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/privaterentalmarketsummarystatisticsinengland/october2022toseptember2023

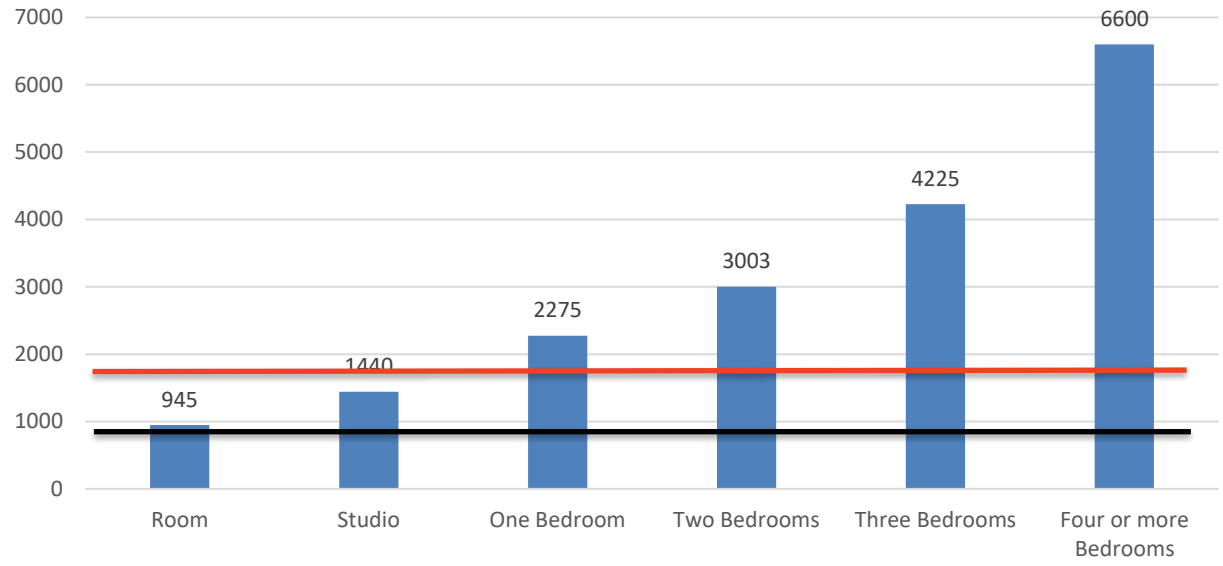


Figure 7. Median monthly rents (£) (October 2022 to 30 September 2023) (all categories) (Source: VOA 2023). Horizontal black line shows national average (£850). Horizontal red line shows London average (£1,625).

1.7 Residential crime (burglary)

Over a two year period, 2,894 burglaries were reported to the Metropolitan Police in Westminster between, May 2022 – April 2024. Lancaster Gate (257) and Marylebone (228) wards have the highest numbers of burglaries (Figure 8). [10]

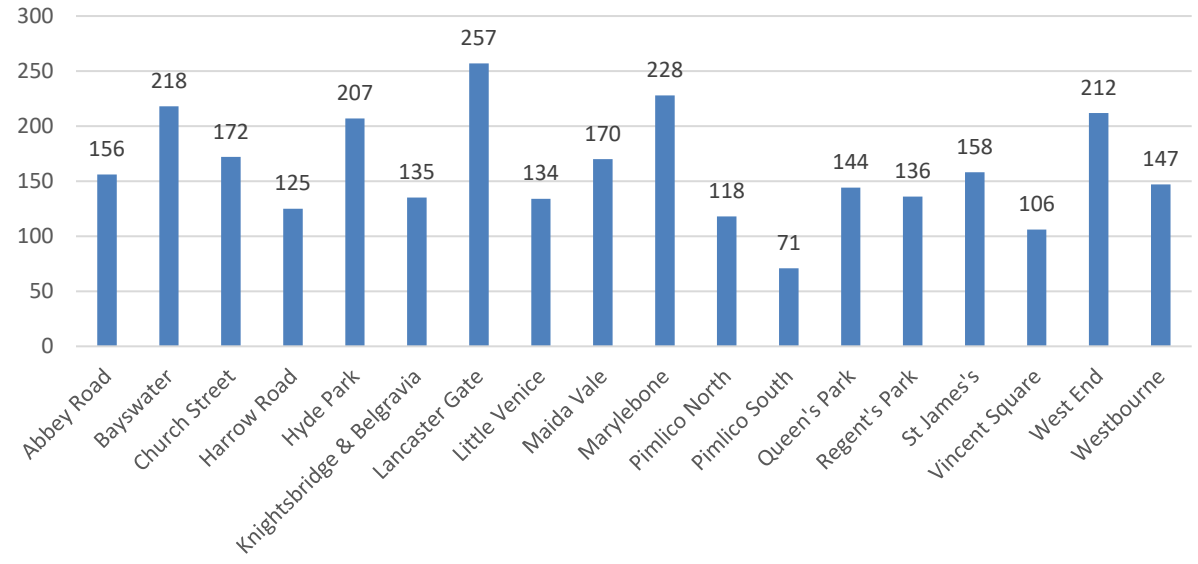


Figure 8. Number of residential property crimes (burglary) by ward.

[10] London datastore, June 2024, https://data.london.gov.uk/dataset/recorded_crime_summary

Westminster (12.4 per 1,000) has a relatively high residential crime (burglary) rate over a twelve-month period (2022-2023) when compared to other London boroughs (Figure 9). [11]

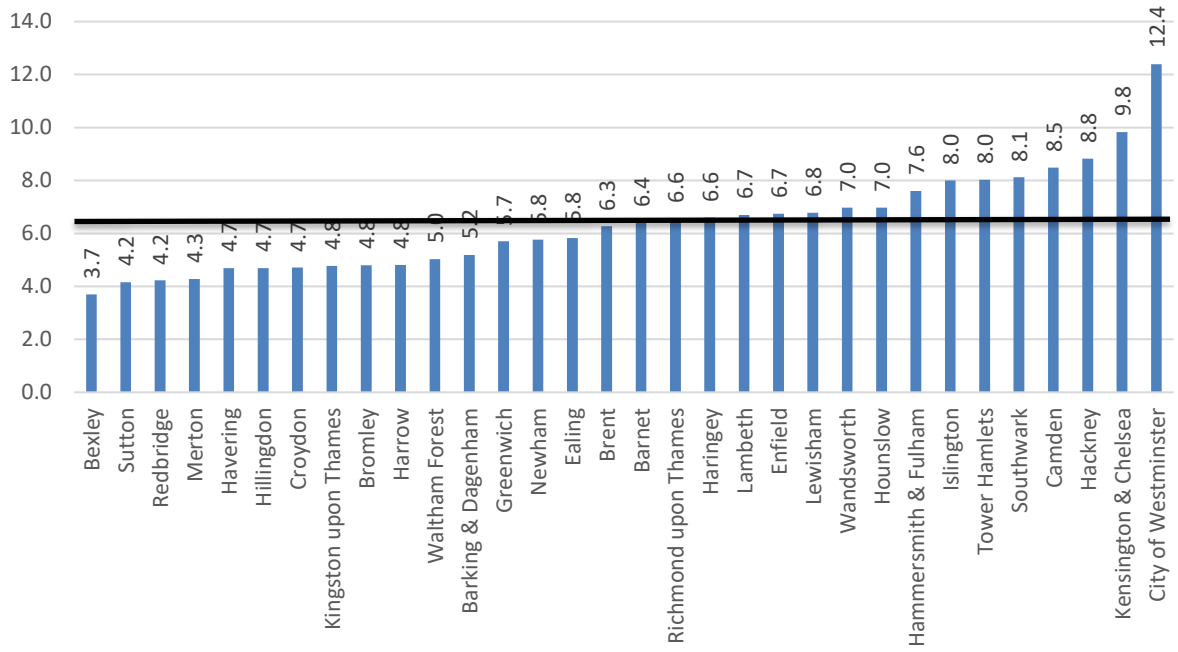


Figure 9. Residential Property Crime (burglary) rates per 1,000 population by London borough. Horizontal black line shows London average (6.4 per 1,000 population).

1.8 Migration (international)

Westminster is a diverse borough. Census 2021 estimates classify Westminster's residents by their country (region) of birth (Figure 10). Typically, a person's country of birth does not change. Therefore, it is the preferred measure when looking at the longer-term impacts of migration and the population of people who have moved to the UK over the course of their lifetime. [12]

[11] Police.uk, June 2024, https://www.police.uk/pu/your-area/metropolitan-police-service/performance/compare-your-area/?tc=E05013806N

[12] Census 2021, Place of Birth estimates, June 2024 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/bulletins/internationalmigrationenglandandwales/census2021

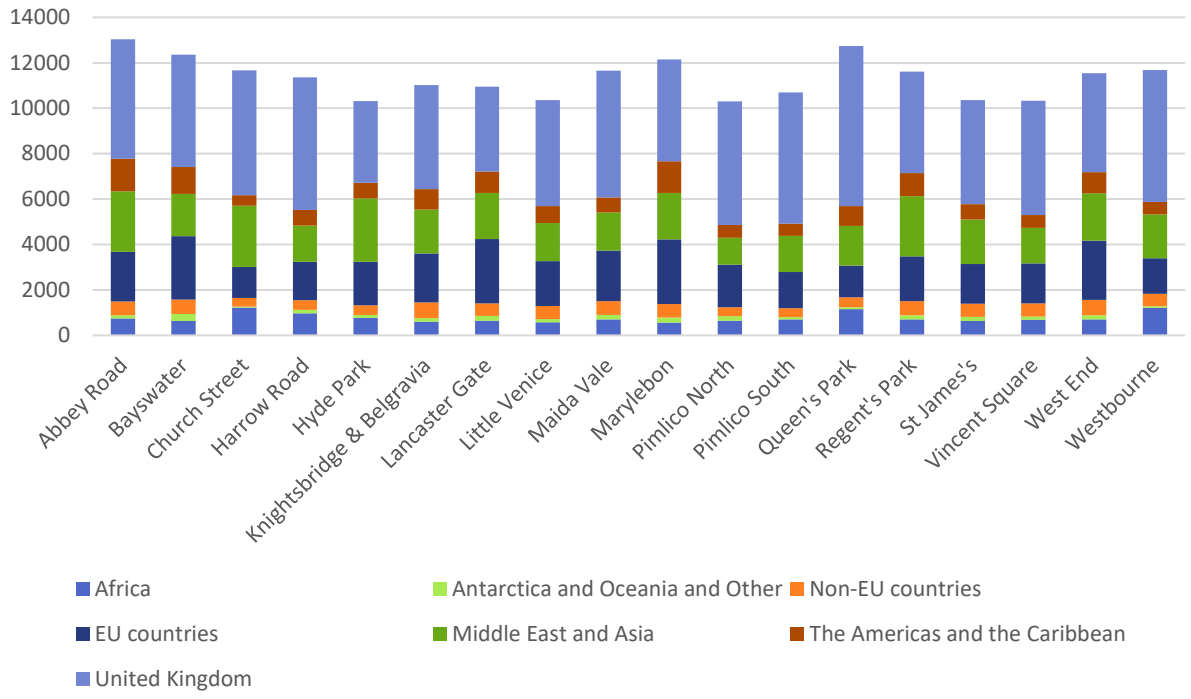


Figure 10. Number of residents by Country (region) of Birth (Census 2021) by ward.

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 where they are not already known. 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 129,130 unique property references (UPRN), excluding parent (shell properties) and non-dwellings. Therefore, only properties that are dwellings have been included in this study, common parts and ancillary properties have been excluded.

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 serious hazards (HHSRS) and other stressors. To achieve the maximum accuracy, unique models are built for each council and tenure, incorporating individual authority data and using local known outcomes to train predictive models. Where a tenure or outcome is already known by the authority, this will be added to the final model.

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 five consecutive years, from July 2018 – June 2023.

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 even chance of being predictive. A decision tree model is then used to allocate properties to predefined outcomes.

A number of predictive models have been developed as part of this project which are unique to Westminster. 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 HMOs that have been licenced under part 2 of the Housing Act 2004 from the PRS stressors results, including housing conditions, ASB, service requests and council interventions. This resulted in the removal of 2,391 known HMO properties from the master PRS dataset. However, all PRS dwellings have been accounted for in the population and distribution section to enable the council to compare other authorities and government statistics.

2.2 Results - Private rented sector

2.2.1 Population and distribution

The private rented sector (PRS) in Westminster has grown since 2011. Based on tenure modelling (2023), Westminster 's PRS is now calculated to be **42.8%** (55,274) of all housing stock (Figure 11). The 2021 Census reports the PRS in Westminster to be 43.6% (41,349). Response rates in the PRS vary considerably form one housing authority area to another. The impact of the March 2021 government-imposed coronavirus lockdown measures on Census results is not fully understood.[13,14]

Further details of the differences between the Census 2021 and Ti 2024 results can be found in Appendix 2. It's important to note that Census tenure data is based on reported households, while Ti data is based on known dwellings within a local authority area. Some dwellings have multiple households (Table 7). Therefore, the number of households should normally exceed the number of known dwellings.

[13]Timeline of UK government coronavirus lockdowns and restrictions, https://www.instituteforgovernment.org.uk/data-visualisation/timeline-coronavirus-lockdowns
[14]Onlondon Article (July 2022) https://www.onlondon.co.uk/london-councils-briefing-warns-that-census-may-have-significantly-undercounted-capitals-population/

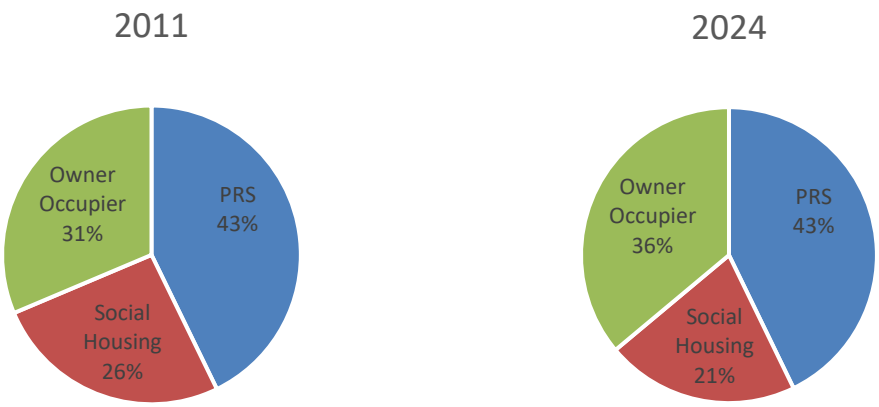


Figure 11. Tenure profile 2011 & 2023 (Source: ONS & Metastreet Ti model).

Tenure percentage change over the last two decades in Westminster has been consistent with the national trend (Figure 12). This PRS 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 [15] to 19% of households 2023 [16]. The PRS remains the second largest housing tenure in England. [17] . In line with the UK average, Westminster 's PRS stock has continued to grow steadily since 2011 while social rented housing stock has remained stable over the last decade (Figure 12 & Table 1).

[15] The profile of UK private landlords Scanlon K & Woodhead C CML research. LSE London. December 2017 www.cml.org.uk
[16] EHS Headline 2022-2023, https://www.gov.uk/government/statistics/chapters-for-english-housing-survey-2022-to-2023-headline-report
[17] EHS Headline 2022-2023, https://www.gov.uk/government/statistics/chapters-for-english-housing-survey-2022-to-2023-headline-report

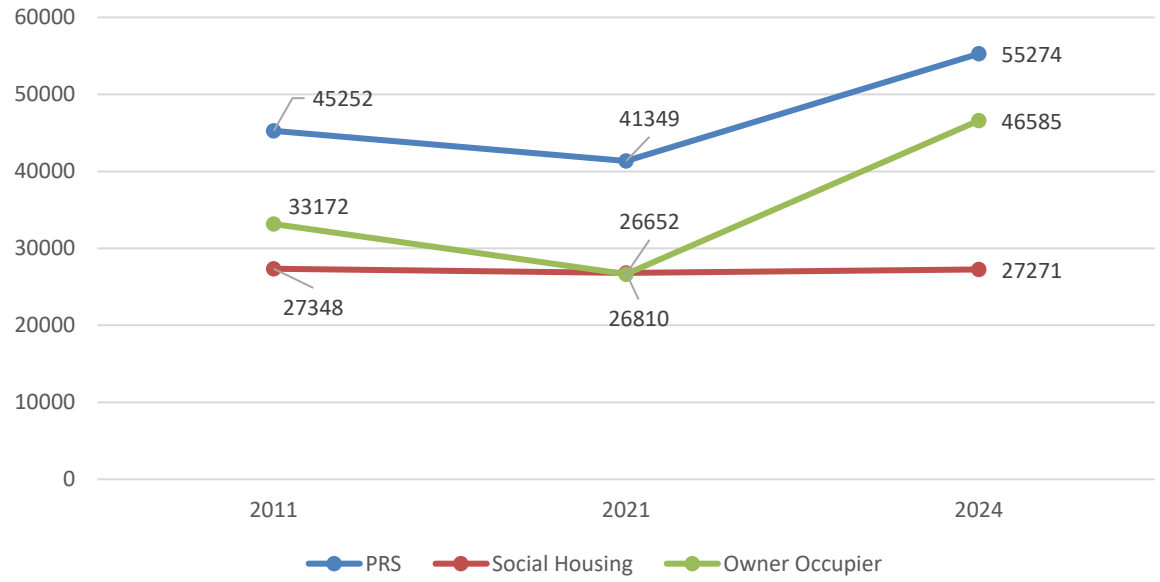


Figure 12. Westminster tenure change and total housing stock, 2011, 2021 & 2023 (Source: ONS & Ti 2024).

Tenure	2011 (households)	2021 (households)	2024 (dwellings)
PRS	45,252	41,349	55,274
Social Housing	27,348	26,810	27,271
Owner Occupier	33,172	26,652	46,585
Totals	105,772	94,811	129,130

Table 1. Number of households & dwellings by tenure 2011, 2021 & 2024 (Source: ONS & Ti 2024).

The data in Table 1 shows a clear discrepancy between Census recorded households (2021) and the number of known dwellings (Ti 2024), with 34,319 (26.6%) households missing from the 2021 Census data when compared to known dwellings.

The PRS in Westminster is distributed across all 18 wards (Figure 13). The number of PRS dwellings per ward ranges from 5,153 (West End) to 1,509 (Queen's Park).

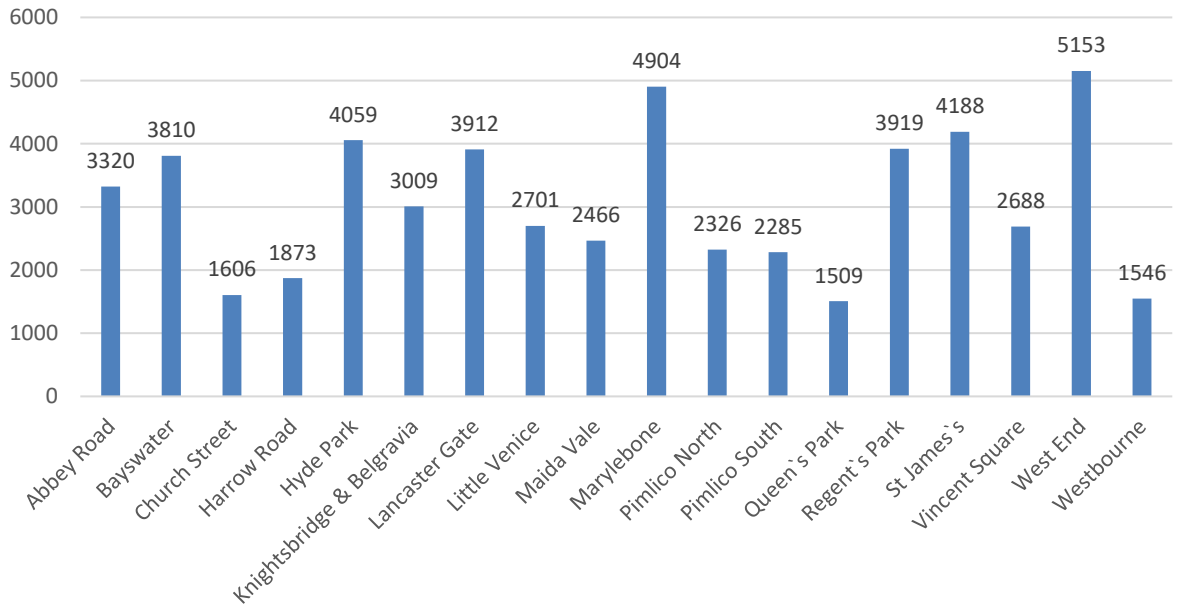


Figure 13. Number of PRS dwellings by ward (Source: Ti 2024).

The percentage of PRS properties in each ward ranges between 54.1% (Hyde Park) and 28.3% (Queen's Park) (Figure 14 & Map 3). Therefore, 18 out of 18 Westminster wards have an equal or higher percentage PRS than the national average in 2023 (19%)[18].

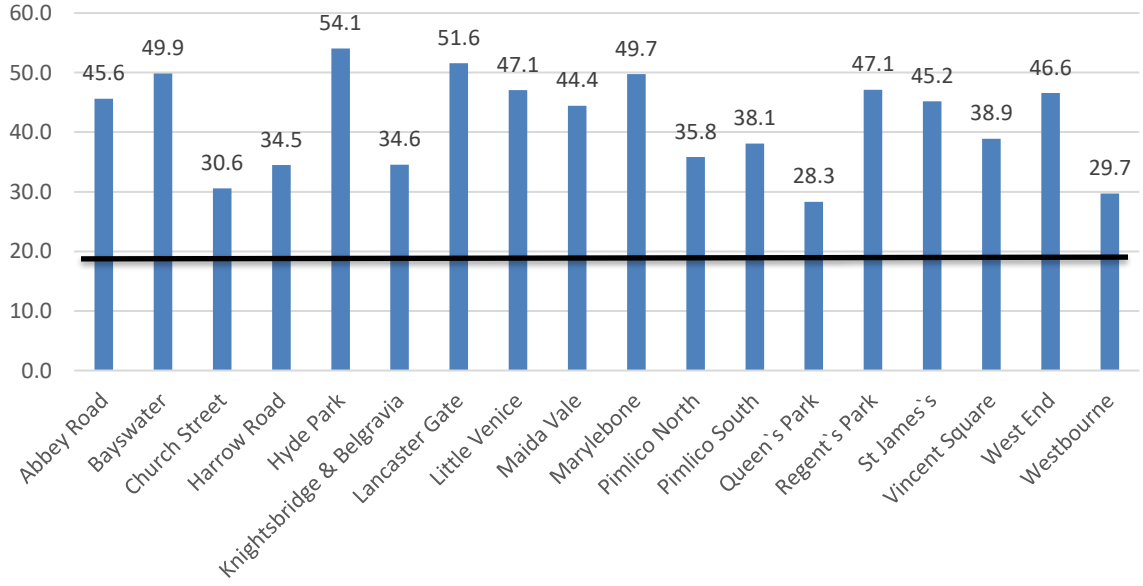


Figure 14. Percentage of PRS dwellings by each ward (Source Ti 2024). Horizontal black line shows national average 2023 (19%)

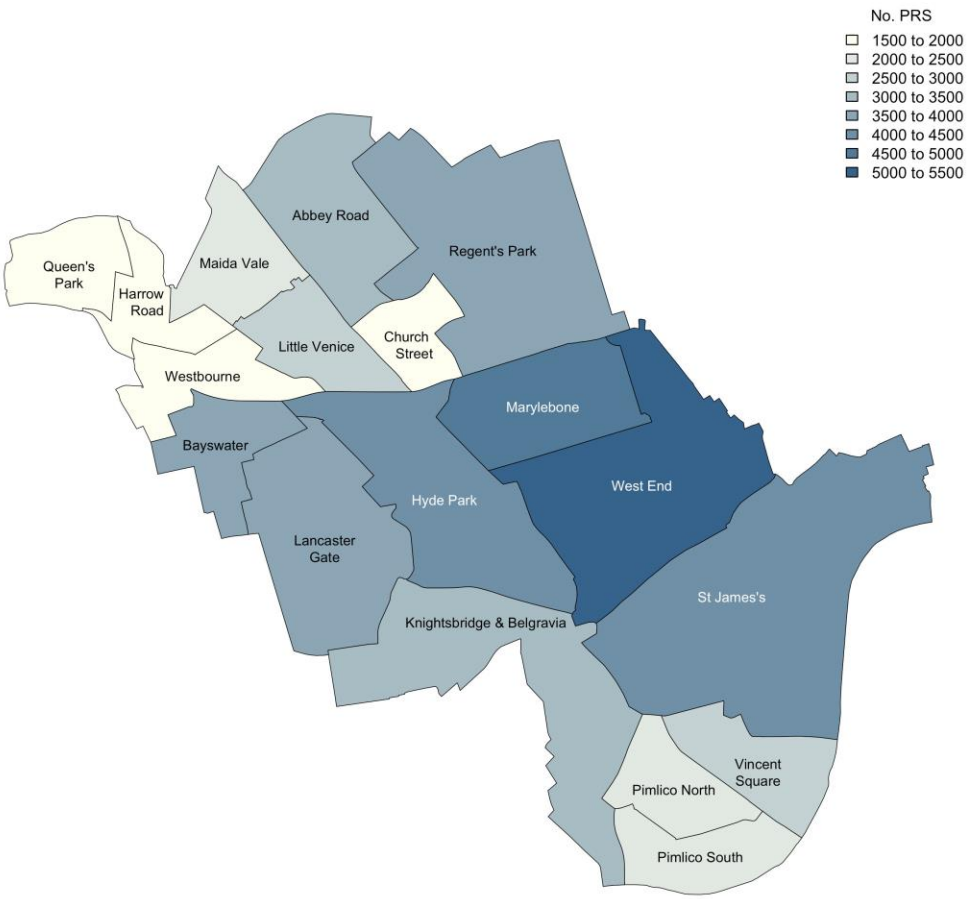
[18] EHS Headline 2022-2023, https://www.gov.uk/government/statistics/chapters-for-english-housing-survey-2022-to-2023-headline-report

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

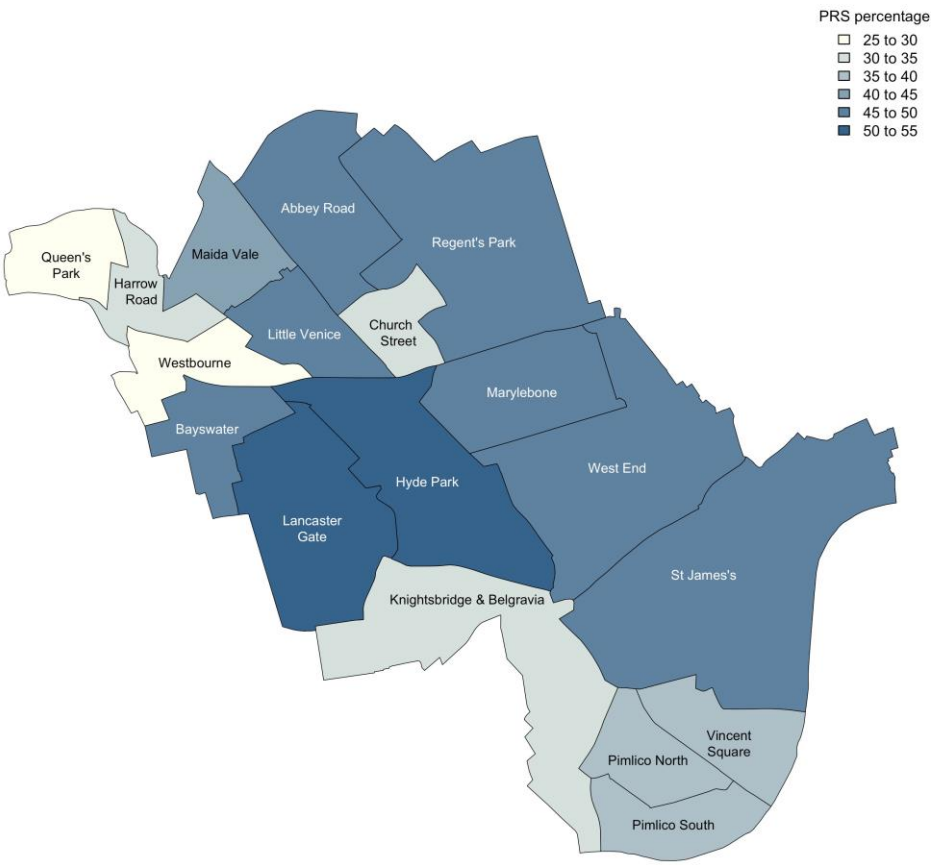
Table 2. Number and percentage of PRS properties by ward (Source Ti 2024).

Wards	**No. PRS (Pr.)**	**% PRS**
Abbey Road	3,320	45.6
Bayswater	3,810	49.9
Church Street	1,606	30.6
Harrow Road	1,873	34.5
Hyde Park	4,059	54.1
Knightsbridge & Belgravia	3,009	34.6
Lancaster Gate	3,912	51.6
Little Venice	2,701	47.1
Maida Vale	2,466	44.4
Marylebone	4,904	49.7
Pimlico North	2,326	35.8
Pimlico South	2,285	38.1
Queen`s Park	1,509	28.3
Regent`s Park	3,919	47.1
St James`s	4,188	45.2
Vincent Square	2,688	38.9
West End	5,153	46.6
Westbourne	1,546	29.7

PRS properties are distributed across Westminster (Maps 2 & 3).



Map 2. Number of PRS properties in Westminster (Source: Ti 2024, Map by Metastreet).



Map 3. PRS properties as percentage of dwellings in Westminster (Source: Ti 2024, 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. [19] There is also a serious impact on public services: hazardous conditions in the PRS are estimated to cost the NHS £340 million a year. [20]

[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] House of Commons Committee of Public Accounts: https://committees.parliament.uk/committee/127/public-accounts-committee/news/165326/pac-private-rented-housing-failing-far-too-often-to-provide-safe-and-secure-homes/

In 2023, 12% 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 (8%), and significantly higher than owner occupied dwellings (9%) or social rented dwellings (4%). Furthermore, the private rented sector had the highest proportion of non-decent homes (21%)[21]. 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[22].

A local authority's property age profile can have an impact on housing conditions. Westminster has a high number of residential properties (61.7%) built pre-Second World War [23]. The council tax band provides an indication of relative distribution of property value in each ward. (Figure 15).

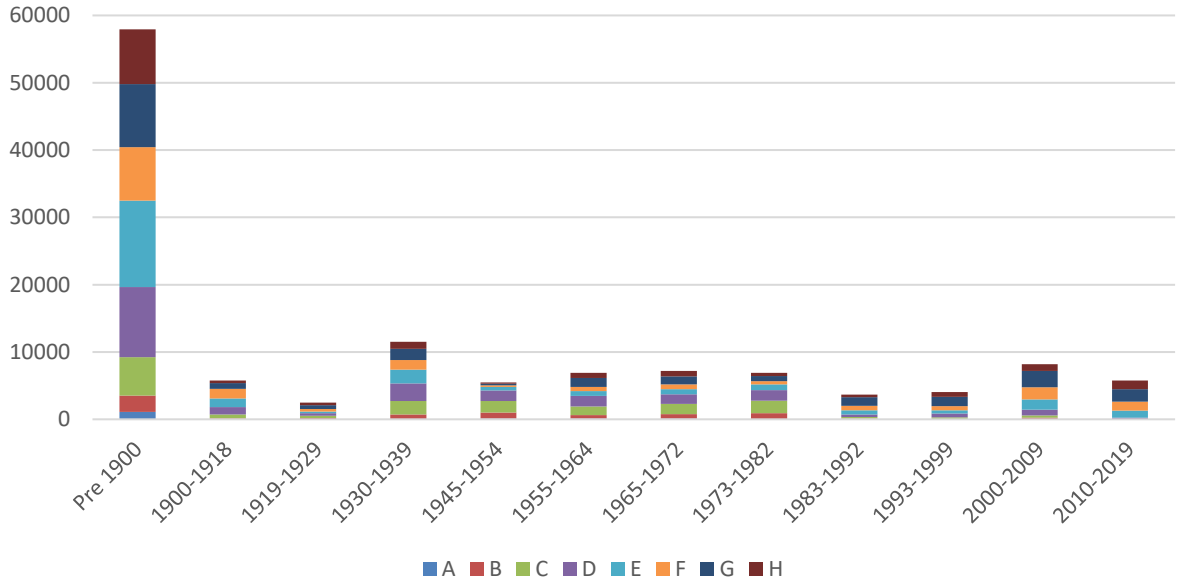


Figure 15. All housing stock age profile and council tax band (Source: VOA 2019).

A local authority's property type profile offers an indication of housing density, construction type and other population factors. The most common private rented property type in Westminster are flats (88%), while bungalow are the least common property types (0.03%) (Figure 16).

[21] EHS Headline 2022-2023, https://www.gov.uk/government/statistics/chapters-for-english-housing-survey-2022-to-2023-headline-report
[22] Housing Health and Rating System, Operation Guidance, 2006, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf
[23] VOA 2019 https://www.gov.uk/government/statistics/council-tax-stock-of-properties-2019

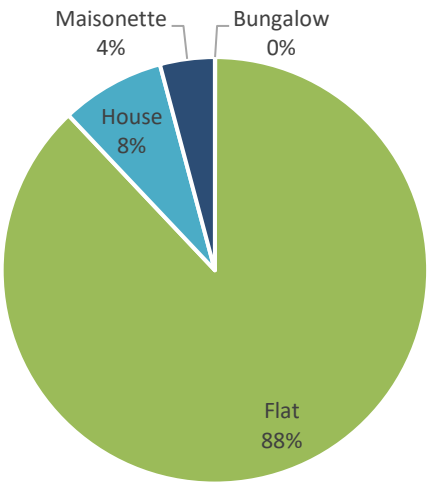


Figure 16. Private rented property type as a percent of total (Source: WCC matched EPC records 2023).

Using a training sample of properties that are known to have at least one serious housing hazard (Category 1 and high scoring Category 2, HHSRS), it is possible to predict the number of PRS properties with at least one serious hazard across the area (Figure 17 & Map 4). Further details of the methodology can be found in Appendix 2.

There are **6,764** private rented properties in Westminster that are likely to have at least one serious housing hazard (Category 1 and high scoring Category 2, HHSRS). PRS properties with serious hazards are distributed across all wards. Lancaster Gate (661) and West End (603) have the highest number of properties with at least one Category 1 and/or high scoring Category 2 hazard (Figure 17 & Map 4).

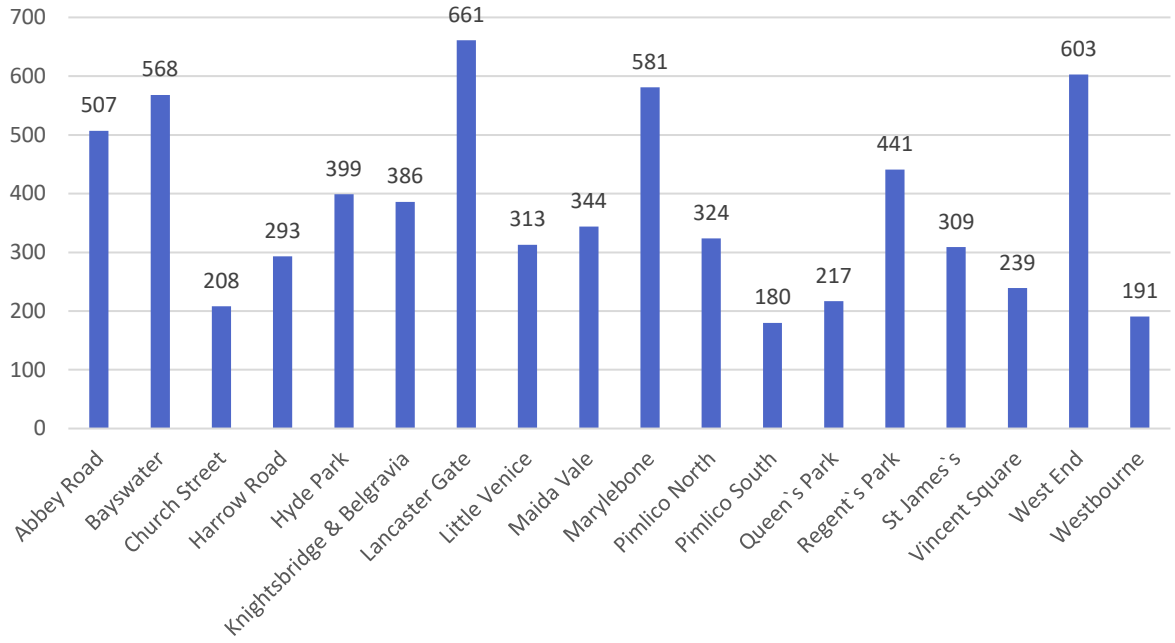
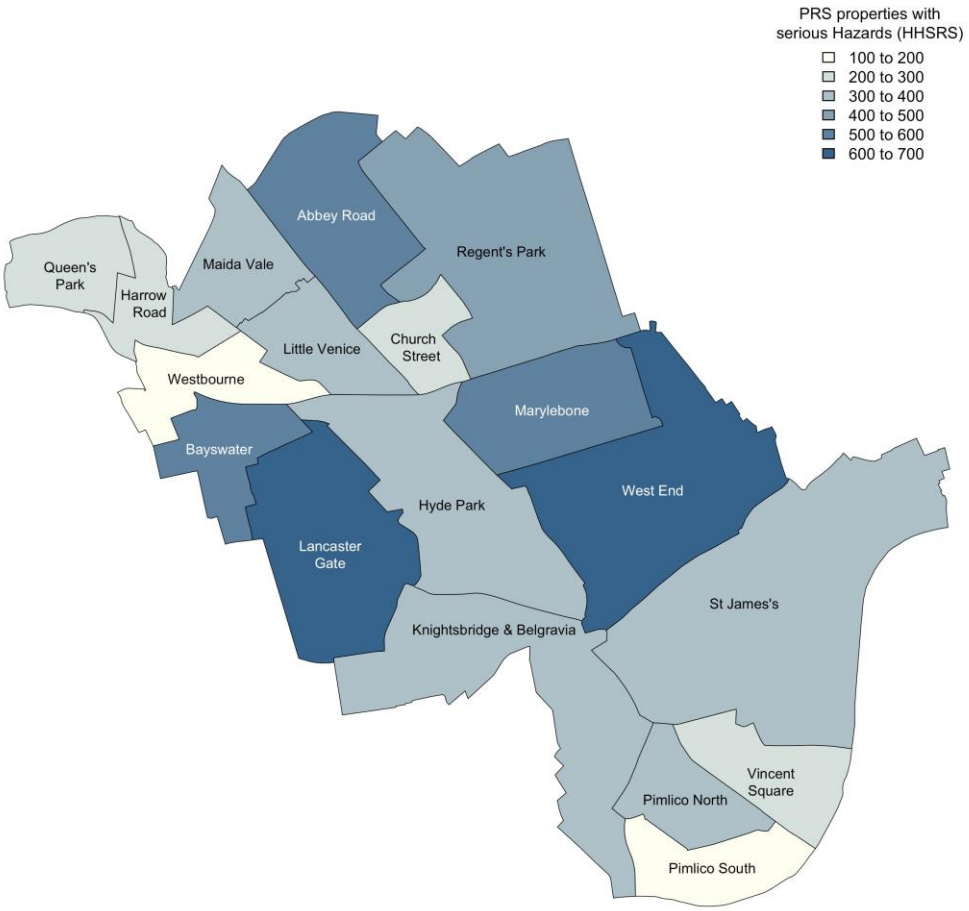


Figure 17. Predicted number of dwellings with serious hazards by ward (Source: Ti 2024).

Category 1 and/or high scoring Category 2 hazards in the PRS are distributed across Westminster with no clear geographical concentrations of hazards (Map 4).



Map 4. Distribution of PRS dwellings with predicted Category 1 and/or high scoring Category 2 hazards (HHSRS) (Source: Ti 2024, map by Metastreet).

The rates of Category 1 and/or high scoring Category 2 HHSRS hazards per 100 PRS properties reveals a wide distribution across Westminster (Figure 18 & Map 5). Lancaster Gate (16.9 per 100) and Harrow Road (15.3 per 100) have the highest rates of predicted PRS properties with serious hazards. The national average for Category 1 hazards in the PRS is 12%[24].

[24] EHS Headline 2021-2022, https://www.gov.uk/government/statistics/english-housing-survey-2021-to-2022-headline-report/english-housing-survey-2021-to-2022-headline-report#section-2-housing-stock

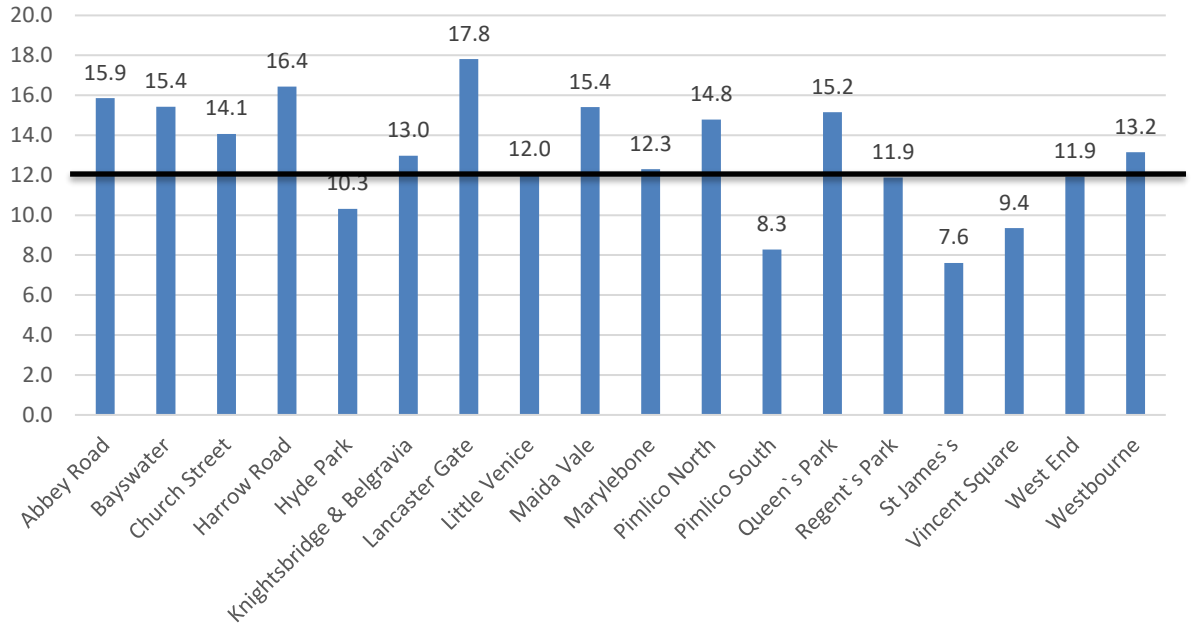
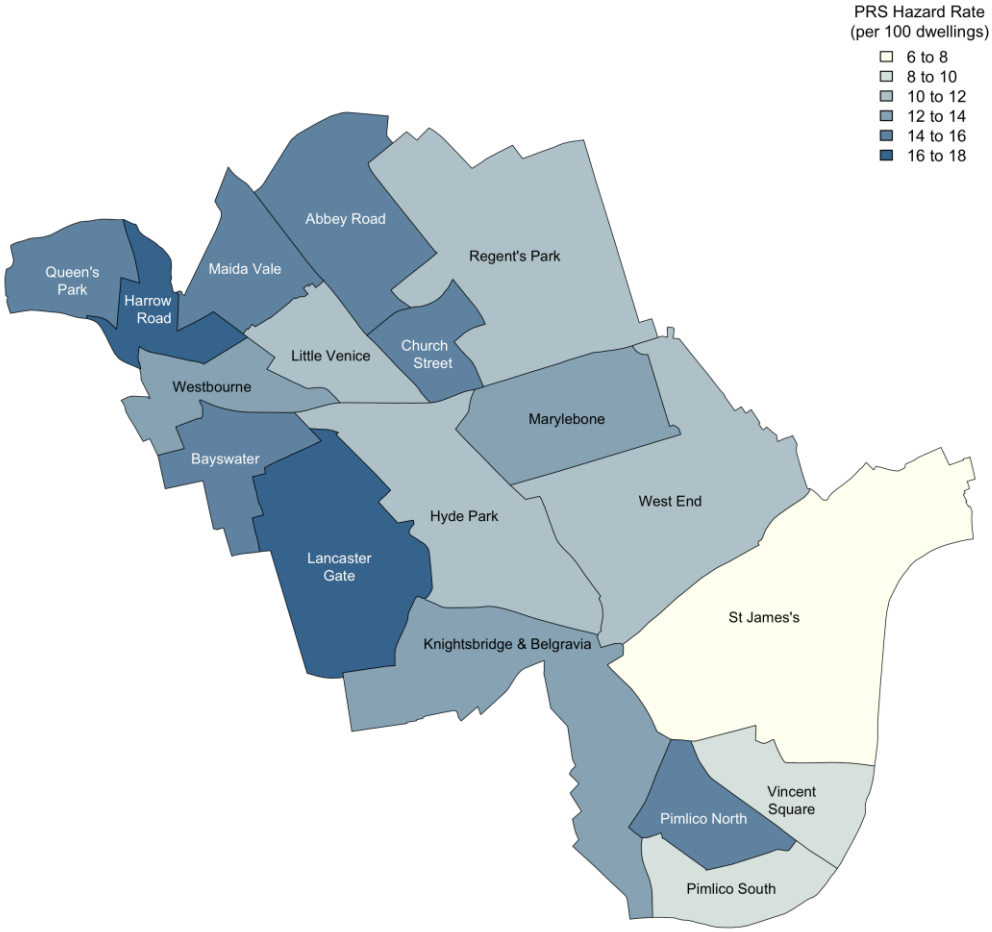


Figure 18 Rates per 100 PRS properties of predicted Category 1 and/or high scoring Category 2 HHSRS hazards by ward (Source: Ti 2024). Horizontal black line shows national average for Category 1, 2023 (12 per 100)



Map 5. Distribution of rates per 100 PRS properties with predicted Category 1 and/or high scoring Category 2 hazards (HHSRS) (Source: Ti 2024, map by Metastreet).

Complaints and service requests made by PRS tenants to the council about poor property conditions and inadequate property management are a direct indicator of low quality PRS. Westminster recorded 3,805 complaints and service requests from private tenants and others linked to PRS properties over a 5-year period (Figure 19).

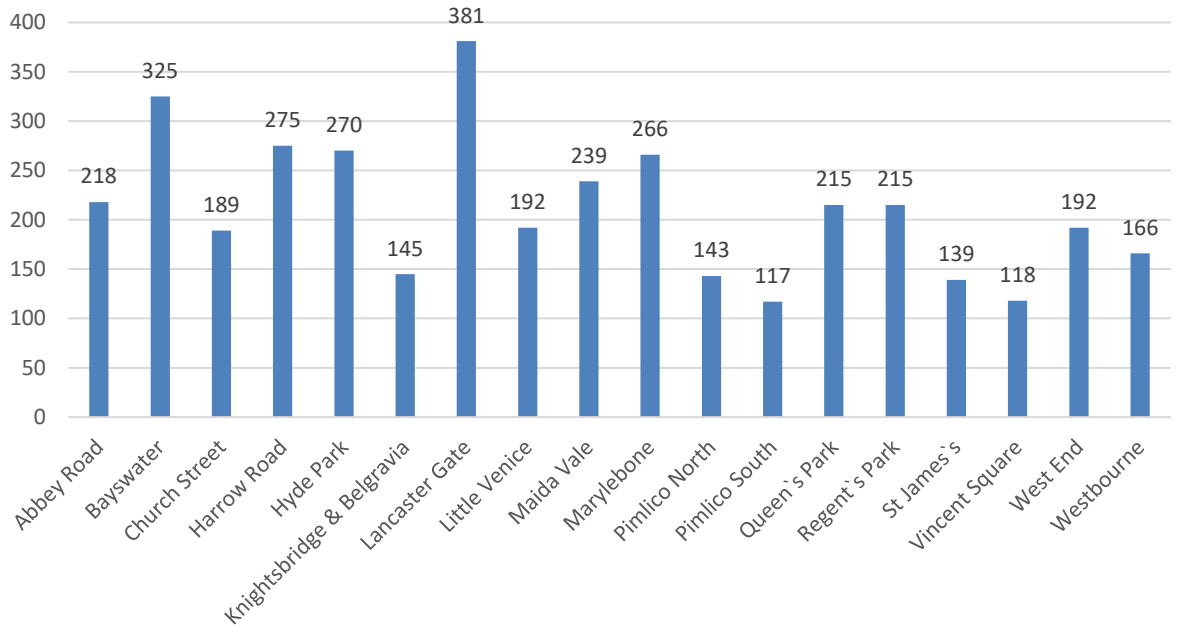
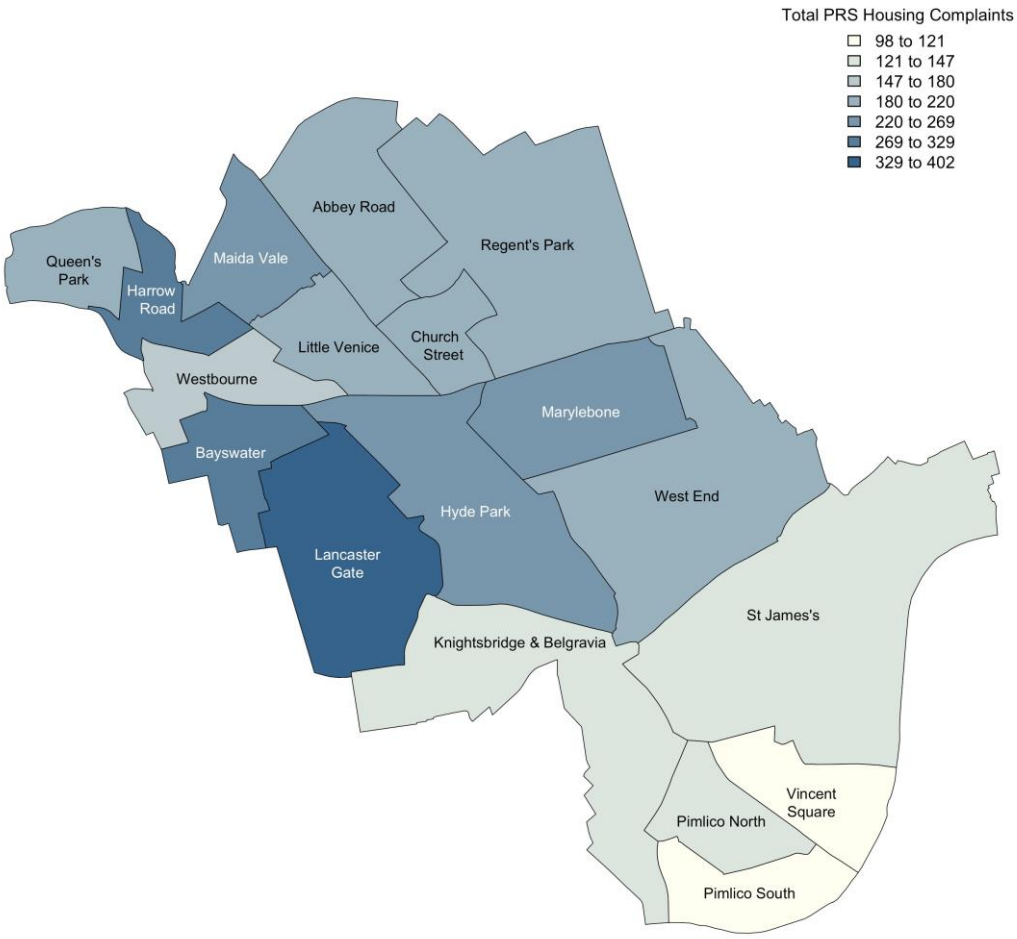


Figure 19. PRS complaints and service requests made by private tenants and others to the Council (Source Ti 2024)

Properties in Lancaster Gate (381) and Bayswater (325) were subject to the most private tenant service requests and complaints by private tenants and others to the Council (Figure 19 & Map 6).



Map 6. Distribution of PRS service requests and tenant complaints (Source: Ti 2024, 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 **47,221** EPC ratings were matched to PRS properties (Figure 20). All figures have been modelled from this group.

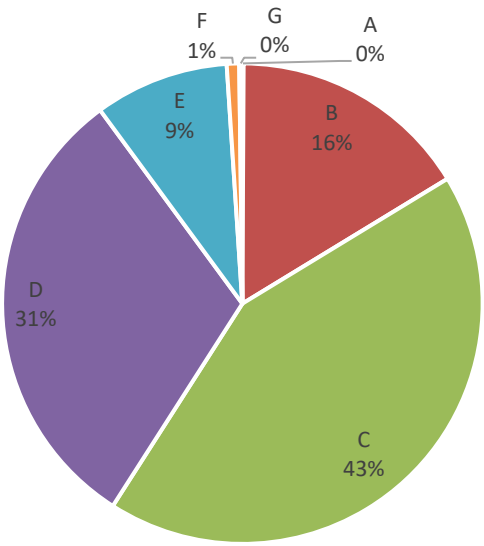


Figure 20. Proportion of Energy Performance Certificate ratings in PRS (Rating A-G) (Source: Ti 2024).

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 A-E to be compliant. It has been calculated using the matched addresses that 10.1% of PRS properties in Westminster have an E, F, and G rating. 1% of PRS properties have an F and G rating (Figure 20). Extrapolated to the entire PRS, 553 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 [25]. The colder the dwelling, the greater the risk. The percentage rise in deaths in winter is greater in dwellings with low energy efficiency ratings. Children in cold homes are twice as likely to suffer from a variety of respiratory problems [26]. 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[27]. Therefore, the F and G properties present a serious risk to the occupants' health, particularly if over the age of 65 (Figure 21 & 22).

[25] Housing Health and Rating System, Operation Guidance, 2006 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf
[26] Health Equity in England: The Marmot Review 10 Years On, 2020 https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on
[27] Housing Health and Rating System, Operation Guidance, 2006 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/15810/142631.pdf

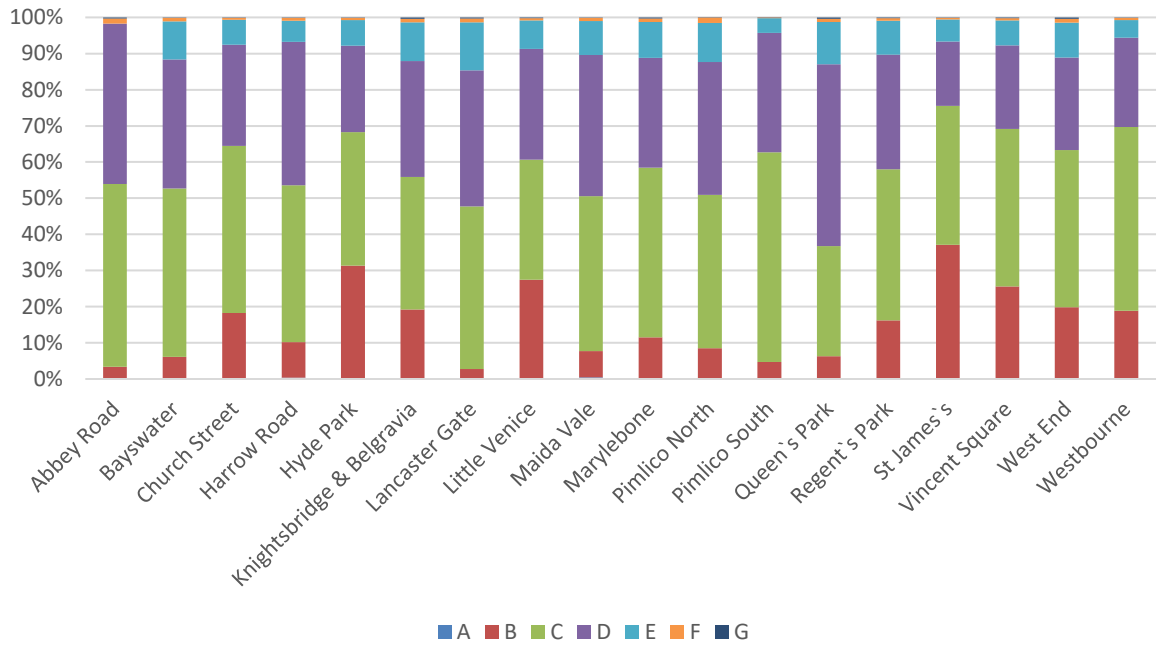


Figure 21. Energy Performance Certificate ratings (% total) in PRS by ward (Rating A-G) (Source: Ti 2024).

Westminster has 4,765 PRS EPC ratings that are E, F, & G. EPC ratings E, F, & G represent properties with the least energy efficiency. West End (512) and Marylebone (481) have the highest number of EPC rating E-G (Figure 19).

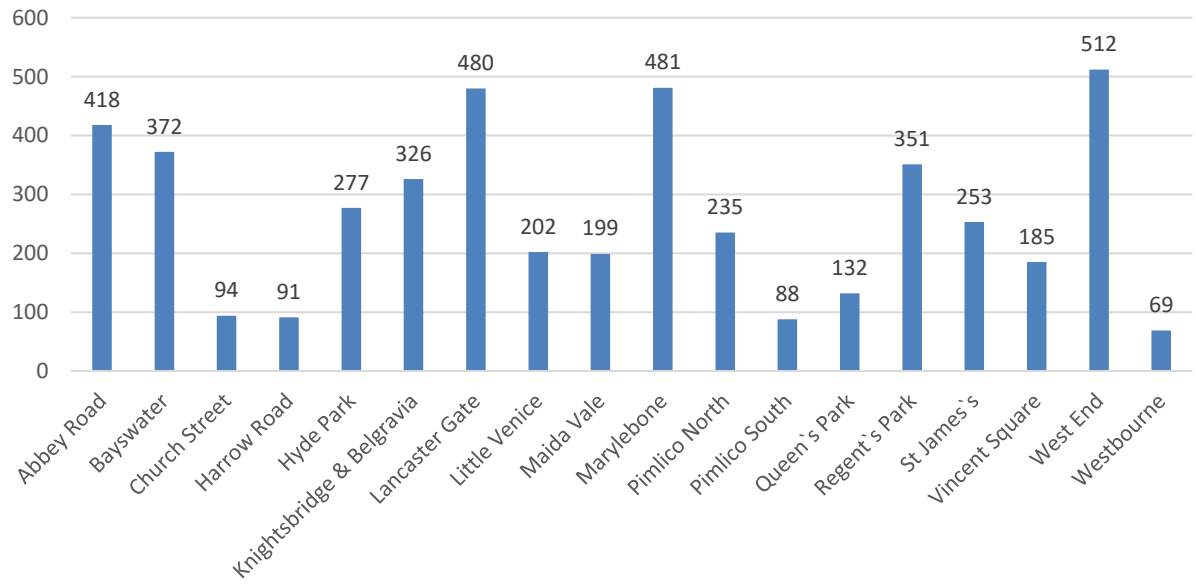


Figure 22. Energy Performance Certificate ratings in PRS by ward (Rating E, F & G) (Source: Ti 2024).

The difference between the current and potential energy performance score (EPC) helps owners of residential property understand what practicable improvements can be made to improve a properties energy performance. The gap between current and potential EPC scores represents the opportunity to improve energy performance within a reasonable economic envelope (Figure 23 & 24).

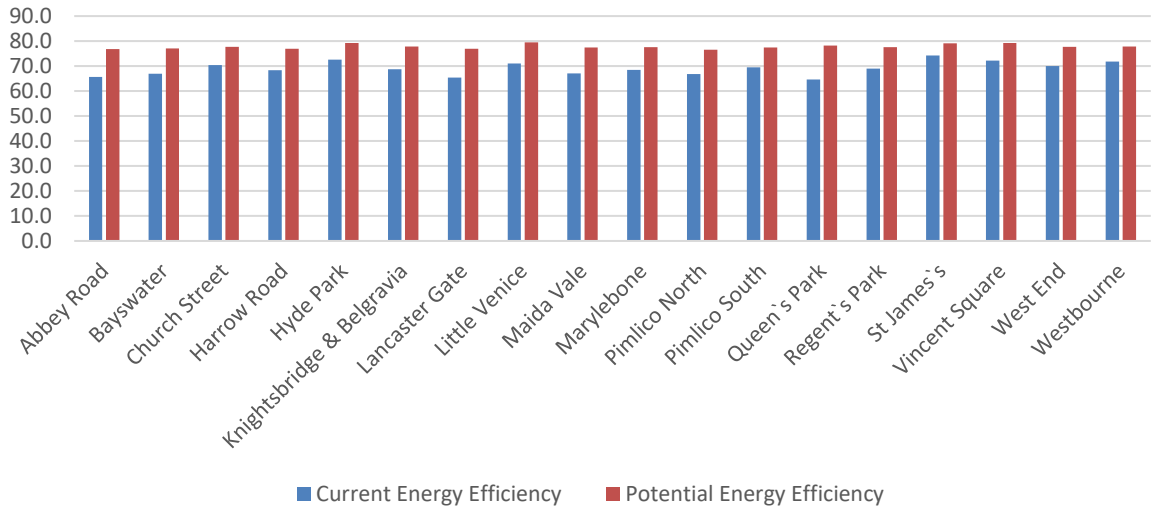


Figure 23. Current and Potential Energy Performance Certificate score (mean average) in PRS by ward (Source: Ti 2024).

Queen's Park (13.6) PRS stock has the largest difference between current and potential energy efficiency score (Figure 21).

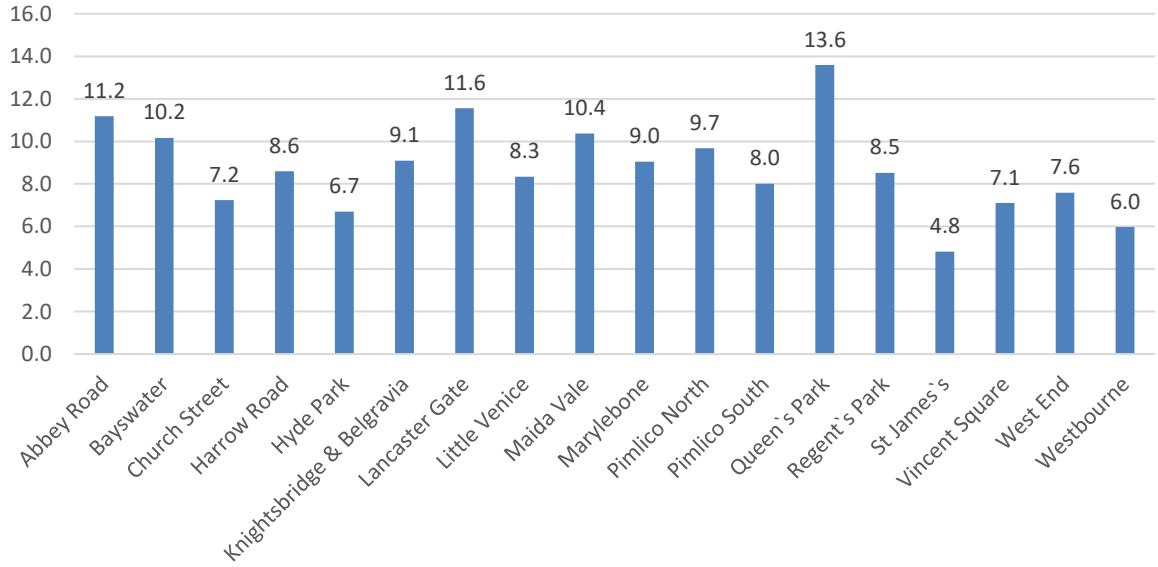


Figure 24. Difference between Current and Potential Energy Performance Certificate score (mean average) in PRS by ward (Source: Ti 2024).

2.2.3 PRS enforcement and regulation interventions

Westminster uses a range of statutory housing and public health notices to address poor housing standards in the PRS. Interventions can be a result of a complaint being made by a tenant about their accommodation or as a result of a proactive inspection. Over a 5-year period (2018-23) Westminster served one or more housing and public health notices on 356 unique residential premises; this equated to 583 notices in total (Figure 25).

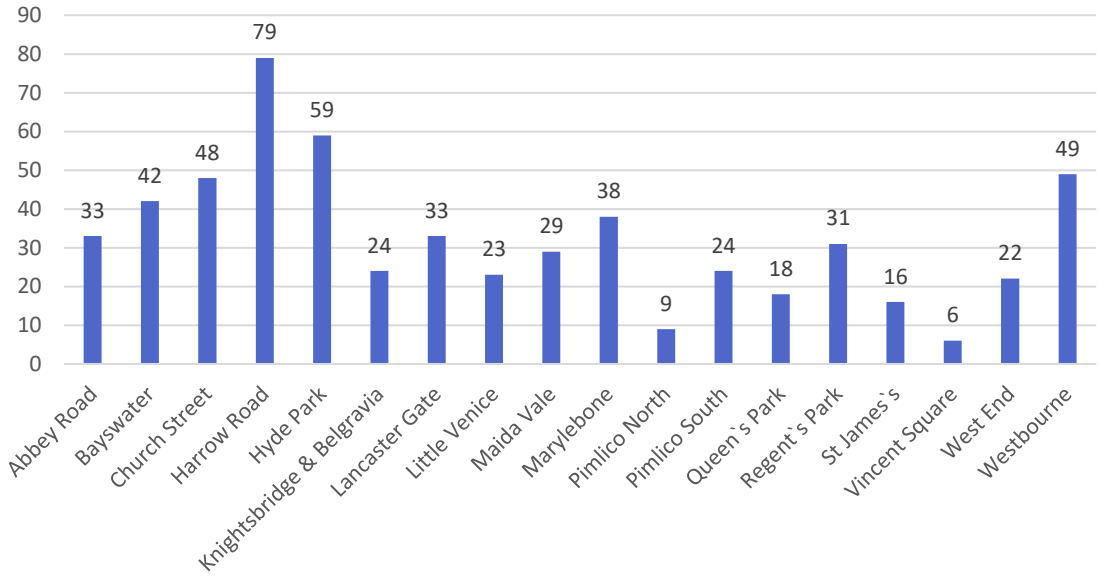
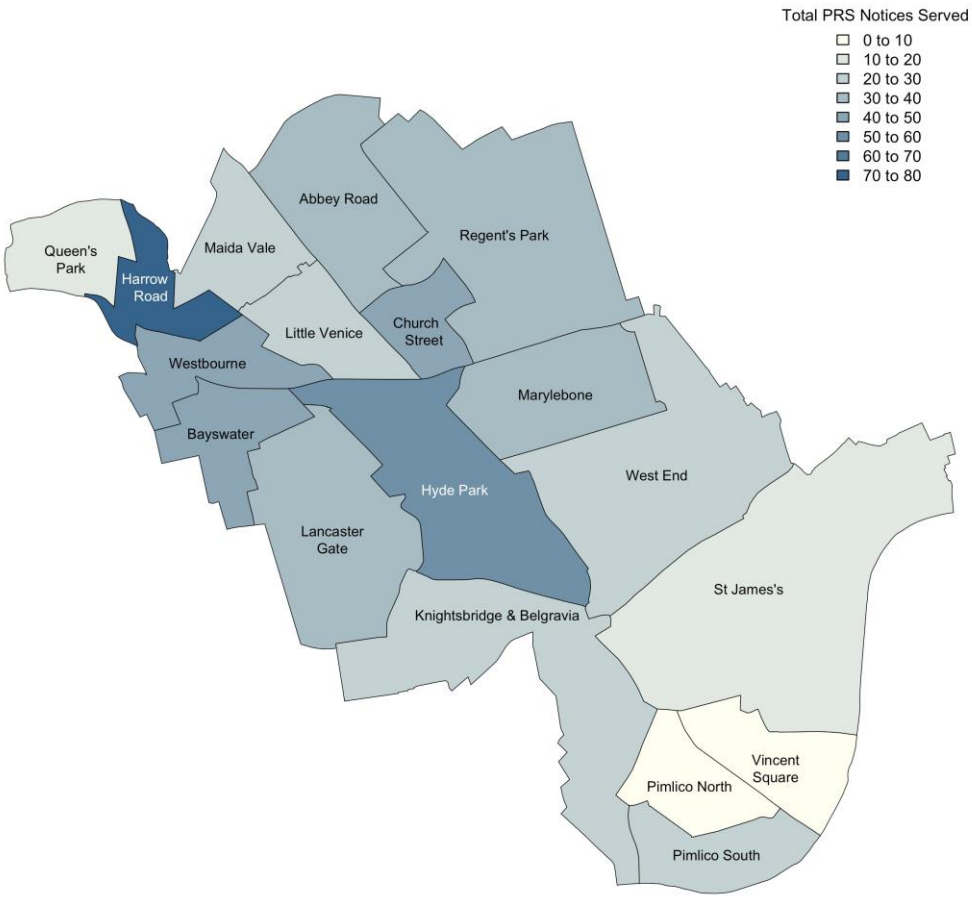


Figure 25. PRS properties that were served with statutory housing notices (Source: Ti 2024).

Properties in Harrow Road (79) and Hyde Park (59) received the highest number of statutory notices for housing and public health related issues (Figure 25 & Map 7).



Map 7. Distribution of statutory housing notices served on PRS properties (Source: Ti 2024, Map by Metastreet).

2.3 PRS & anti-social behaviour (ASB)

It's important to note that the study focuses exclusively on ASB associated with residential premises. Incidents, such as those investigated on a street corner, which cannot be linked to a residential property, are excluded from the study.

For this study, ASB incidents are divided into two main categories, noise (all types of noise) and other ASB. Noise ASB include loud music, parties, shouting, barking dogs and other property connected noise. Other ASB includes all other types of ASB, including waste, smoke, odours and fly tipping etc.

2.3.1 Noise ASB

The council has recorded a total of 20,640 incidents related to noise anti-social behaviour (ASB) linked to 8,927 PRS properties over the past five years. Lancaster Gate (2,346) and Bayswater have the highest levels of PRS ASB incidents (Figure 26 & Map 8).

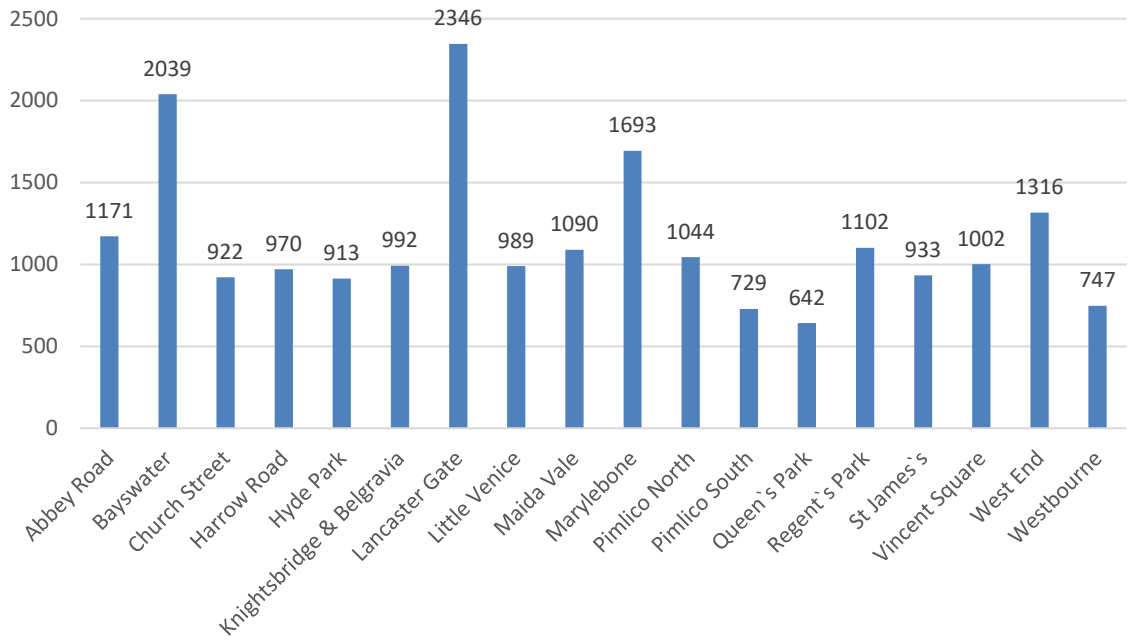
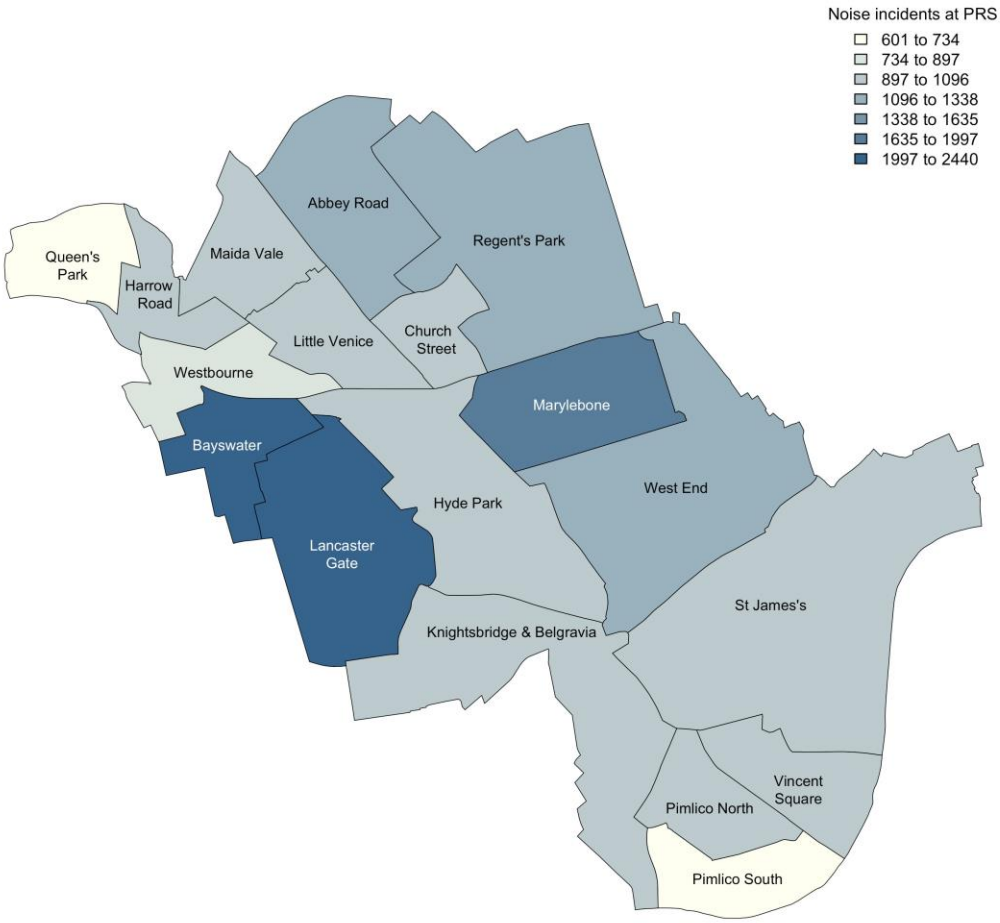


Figure 26. Number of noise ASB incidents linked to PRS by ward (Source Ti 2024).



Map 8. Distribution of noise ASB linked to PRS properties (Source: Ti 2024, Map by Metastreet).

Properties subject to repeat ASB incidents (2 or more incidents) begin to demonstrate a lack of tenancy management or other underlying issues. Lancaster Gate (323) has the highest number of properties with repeat noise ASB incidents (Figure 27).

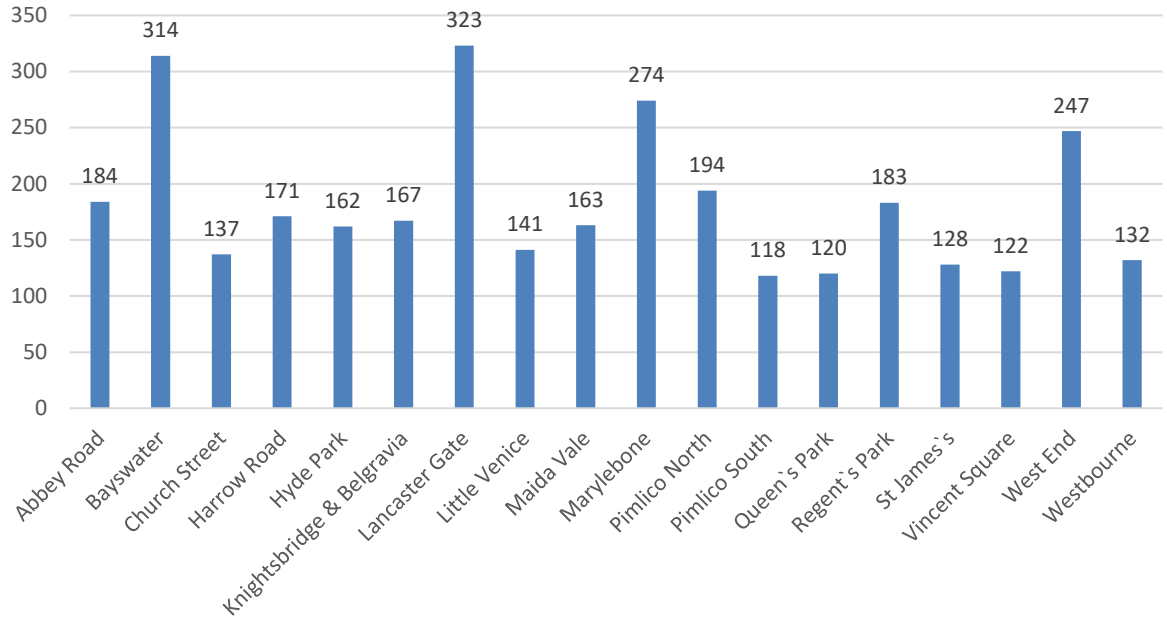


Figure 27. PRS properties with 2 or more noise ASB incidents by ward (Source Ti 2024).

2.3.2 Other ASB

Other ASB includes all other types of ASB (excluding noise), including waste, smoke, odours and fly tipping and is investigated and recorded by Westminster's City Inspectors.

The council has recorded a total of 4,601 incidents related to other anti-social behaviour (ASB) linked to 3,302 PRS properties over the past five years. Marylebone (547) has the highest number of other ASB incidents (Figure 28 & Map 9).

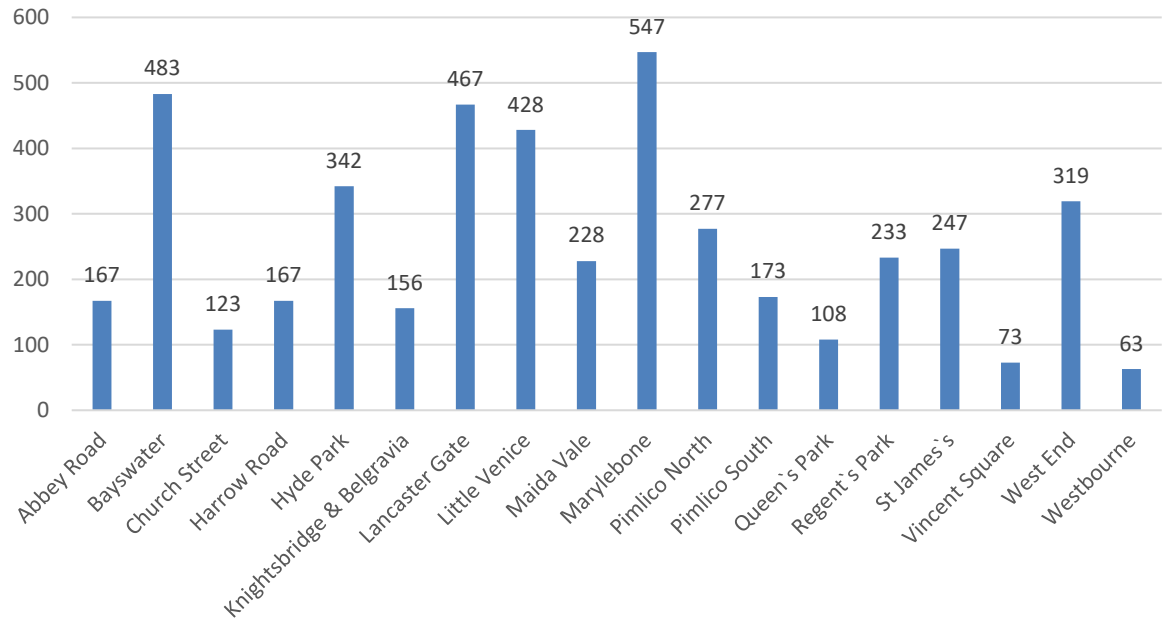
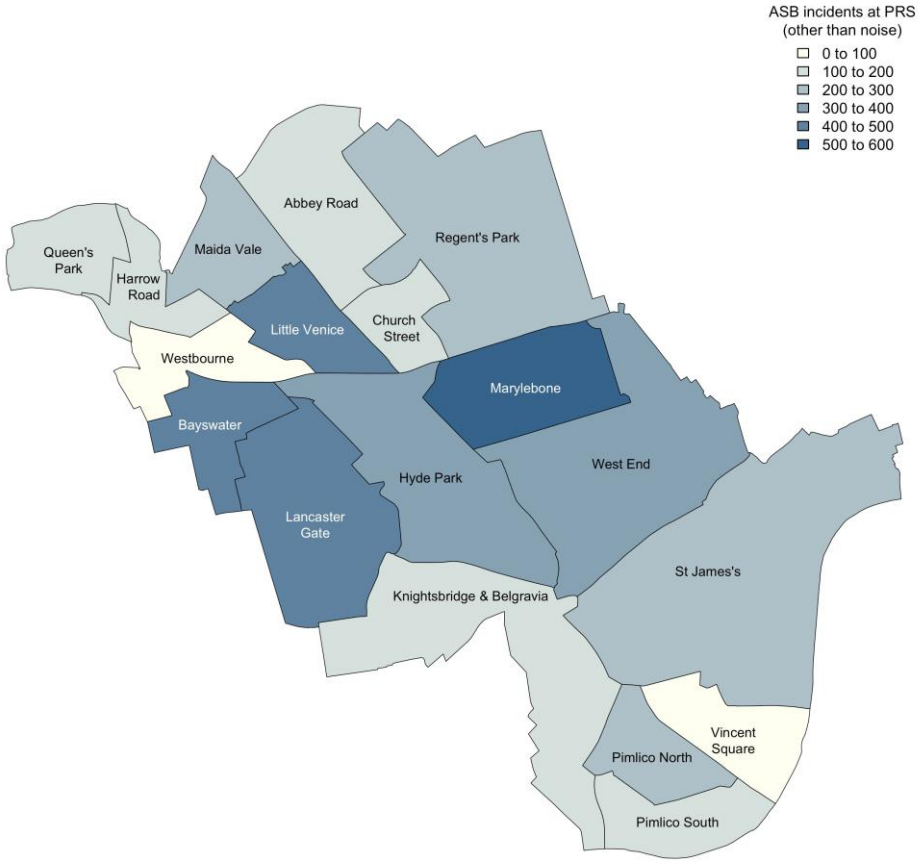


Figure 28. Number of other ASB incidents linked to PRS by ward (Source Ti 2024).



Map 9. Distribution of other ASB linked to PRS properties (Source: Ti 2024, Map by Metastreet).

Marylebone (92) has the highest number of properties with repeat other ASB incidents (Figure 29).

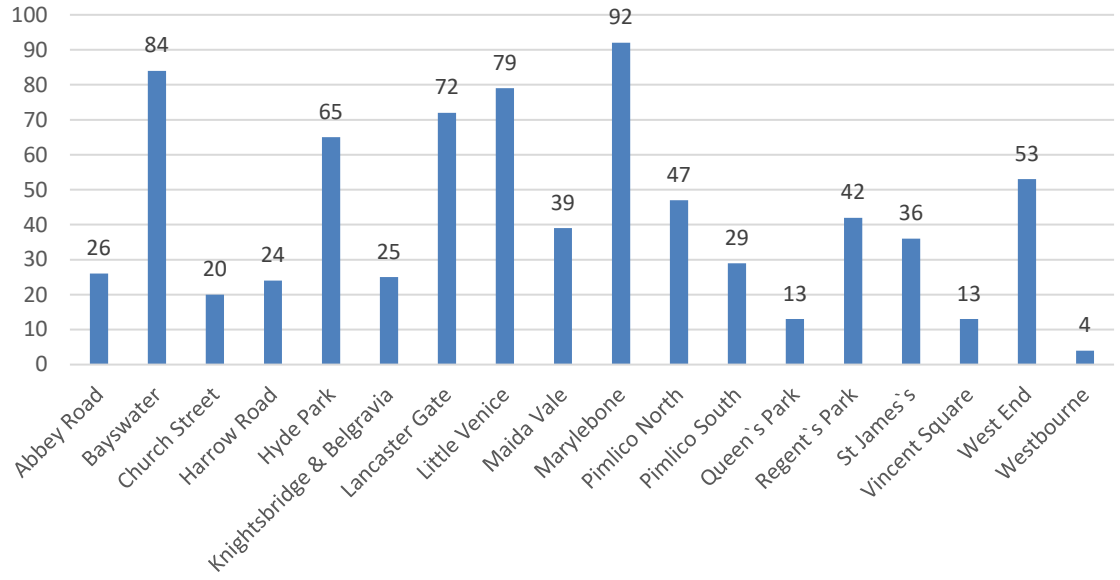


Figure 29. PRS properties with 2 or more other ASB incidents by ward (Source Ti 2024).

3 Conclusions

The private rented sector (PRS) in Westminster has grown since 2011. Based on tenure modelling (2023), Westminster 's PRS is now calculated to be 42.8% (55,274) of all housing stock (Figure 10 & Map 2).

The PRS in Westminster is distributed across all 18 wards (Figure 10). The number of PRS dwellings per ward ranges from 5,153 (West End) to 1,509 (Queen's Park). The percentage of PRS properties in each ward ranges between 54.1% (Hyde Park) and 28.3% (Queen's Park) (Figure 11 & Map 3). Therefore, 18 out of 18 Westminster wards have a higher percentage PRS than the national average in 2023 (19%).

Westminster has a mixture of high and low deprivation wards. 5 of 18 wards have aggregated IMD rankings below decile 5 (national average) (Figure 4).

Westminster has a higher proportion of households in fuel poverty (13.6%) when compared to southeast England (7.5%) and England (13.4) but has a lower proportion when compared to the London average (15.2%) (Figure 5).

Westminster has an above average rented property possession rate, with 21 claims per 10,000 households in 2023, slightly higher than the London average (20.8). The average number of claims for authorities in England was 8.7 per 10,000 (Figure 7).

Overall Westminster has well above average rents for England (£2,622) (Figure 9). The national average is £850, and the London average is £1,625.

Westminster has a high number of residential properties (61.7%) built pre-Second World War and the most common private rented property type are flats (88%), while bungalow are the least common property types (0.03%) (Figure 13).

2,894 burglaries were reported to the Metropolitan Police in Westminster between May 2022 – April 2024. Lancaster Gate (257) and Marylebone (228) wards have the highest number of burglaries (Figure 8).

There are 6,764 private rented properties in Westminster that are likely to have at least one serious housing hazard (Category 1 and high scoring Category 2, HHSRS). PRS properties with serious hazards are distributed across all wards. Lancaster Gate (661) and West End (603) have the highest number of properties with at least one Category 1 and/or high scoring Category 2 hazard (Figure 19 & Map 4). Category 1 and/or high scoring Category 2 hazards in the PRS are distributed across

Westminster with no clear geographical concentrations of hazards (Map 4). The rates of Category 1 and/or high scoring Category 2 HHSRS hazards per 100 PRS properties reveals a wide distribution across Westminster (Figure 18 & Map 5). Lancaster Gate (16.9 per 100) and Harrow Road (15.3 per 100) have the highest rates of predicted PRS properties with serious hazards. The national average for Category 1 hazards in the PRS is 12%.

Complaints and service requests made by PRS tenants to the council about poor property conditions and inadequate property management are a direct indicator of low quality PRS. Westminster recorded 3,805 complaints and service requests from private tenants and others linked to PRS properties over a 5-year period (Figure 19). Properties in Lancaster Gate (381) and Bayswater (325) were subject to the most private tenant service requests and complaints by private tenants and others to the Council (Figure 19 & Map 6).

It has been calculated using the matched addresses that 10.1% of PRS properties in Westminster have an E, F, and G rating. 1% of PRS properties have an F and G rating (Figure 22). Extrapolated to the entire PRS, 553 PRS properties are likely to fail the MEES statutory requirement. Westminster has 4,765 PRS EPC ratings that are E, F, & G. EPC ratings E, F, & G represent properties with the least energy efficiency. West End (512) and Marylebone (481) have the highest number of EPC rating E-G (Figure 22). Queen's Park (13.6) PRS stock has the largest difference between current and potential energy efficiency score (Figure 24).

Westminster uses a range of statutory housing and public health notices to address poor housing standards in the PRS. Interventions can be a result of a complaint being made by a tenant about their accommodation or as a result of a proactive inspection. Over a 5-year period (2018-23) Westminster served one or more housing and public health notices on 356 unique residential premises; this equated to 583 notices in total (Figure 25). Properties in Harrow Road (79) and Hyde Park (59) received the highest number of statutory notices for housing and public health related issues (Figure 25 & Map 7).

The council has recorded a total of 20,640 incidents related to noise anti-social behaviour (ASB) linked to 8,927 PRS properties over the past five years. Lancaster Gate (2,346) and Bayswater have the highest levels of PRS ASB incidents (Figure 26 & Map 8). Properties subject to repeat ASB incidents (2 or more incidents) begin to demonstrate a lack of tenancy management or other underlying issues. Lancaster Gate (323) has the highest number of properties with repeat noise ASB incidents (Figure 27).

Other ASB includes all other types of ASB (excluding noise), including waste, smoke, odours and fly tipping and is investigated and recorded by Westminster's City Inspectors. The council has recorded a total of 4,601 incidents related to other anti-social behaviour (ASB) linked to 3,302 PRS properties over the past five years. Marylebone (547) has the highest number of other ASB incidents (Figure 28 & Map 9). Marylebone (92) has the highest number of properties with repeat other ASB incidents (Figure 29).

Looking at total ASB (combining noise and other ASB), there have been 3,956 distinct properties in the PRS with repeat ASB incidents over the past 5 years, and Lancaster Gate (389) has the highest number of properties with overall repeat ASB.

Appendix 1 – Ward summaries

Table 3. Ward PRS summary overview (Source Ti 2024)

Wards	Number PRS dwellings	% PRS	PRS with predicted serious hazards
Abbey Road	3,320	45.6	507
Bayswater	3,810	49.9	568
Church Street	1,606	30.6	208
Harrow Road	1,873	34.5	293
Hyde Park	4,059	54.1	399
Knightsbridge & Belgravia	3,009	34.6	386
Lancaster Gate	3,912	51.6	661
Little Venice	2,701	47.1	313
Maida Vale	2,466	44.4	344
Marylebone	4,904	49.7	581
Pimlico North	2,326	35.8	324
Pimlico South	2,285	38.1	180
Queen`s Park	1,509	28.3	217
Regent`s Park	3,919	47.1	441
St James`s	4,188	45.2	309
Vincent Square	2,688	38.9	239
West End	5,153	46.6	603
Westbourne	1,546	29.7	191

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

This Appendix explains at a summary level Metastreet's Tenure Intelligence (Ti) methodology (Figure 30).

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.

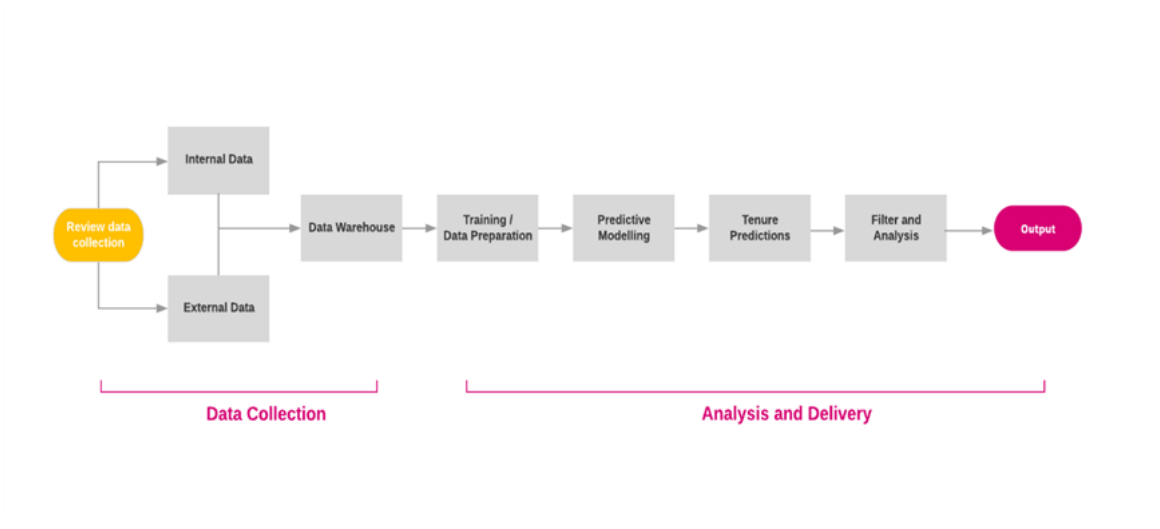


Figure 30. Summary of Metastreet Tenure Intelligence methodology.

Methodology

Metastreet has worked with Westminster City Council to create a residential property data warehouse based on a detailed specification. This has included linking millions of cells of data to 129,130 unique property references, including council and externally sourced data. All longitudinal data requested from council departments is 5 consecutive years, from June 2018 – July 2023

Appendix 1

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.

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

- Owner occupiers
- Private rented sector (PRS)
- PRS housing hazards (HHSRS, Category 1 and high scoring Category 2 A-D).

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 3 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 large data 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 a low as is possible through detailed post analysis filtering and validation.

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 81% (Table 4).

Table 4. Owner occupier predictive factors.

Risk factors selected	Pr (>Chi)*
TDS.total	2.2e-16
Length.of.current.account	2.2e-16
Type.ben	0.0066143
Ctax.band	3.576e-05
EPC.TENURE	2.2e-16
Training data, n= 1752	
D^2 test = 0.81**	

* 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 94% (Table 5).

Table 5. PRS predictive factors.

Risk factors selected	Pr(>Chi)
liab_names	2.2e-16
Type.ben	0.0066143
noise_total	8.379e-15
TDS	2.2e-16
EPC.TENURE	2.2e-16
Training data, n= 1752	
D^2 test = 0.94	

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. It's important to note that due to the complex risk-

based approach to HHSRS scoring model and assessment, predictions are likely to include both properties with Category 1 hazards and properties with high scoring Category 2 hazards. It is reasonable to conclude that properties identified are likely to include hazards that would be scored A-D, using HHSRS scoring matrix and therefore be considered serious. The model results show that each of the model terms is statistically significant, with the overall model having a "predictive capacity" of around 85% (Table 6).

Table 6. Category 1 (HHSRS) hazard predictive factors.

Risk factors selected	**Pr (>Chi)**
CURRENT_ENERGY_EFFICIENCY	2.2e-16
psr_total	9.327e-06
Housing.Service.Requests..Number.	1.166e-10
sr_total	7.776e-06
TDS.total	2.2e-16
Training data, n= 905	
D^2 test = 0.85	

Ti 2024 – Census 2021 data comparison

Table 7. Ti dwelling data compared to Census household data.

Westminster 2024	Ti - 2024		Census 2021 - 21-March 2021	
Tenure	No. dwellings	%	No. households	%
Social Housing	27,271	21.1%	26,810	28.3%
Owner occupiers	46,585	36.1%	26,652	28.1%
PRS	55,274	42.8%	41,349	43.6%
Total	129,130		94,811	

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