# Mapping Class E: Understanding the expansion of permitted development

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## 1. Executive summary

On 1 August 2021, the government introduces a new 'permitted development right' (PDR) which will allow the conversion of a wide range of buildings and units in buildings currently in commercial, business and service use to residential use without requiring planning permission granted by local authorities. This new PDR expands the existing right to convert offices, shops and financial and professional services premises into residential use by increasing the size limit of what can be converted by up to ten times and adding to the range of premises potentially eligible for conversion, which will now include restaurants, cafes, light industrial units, clinics, nurseries, day centres, gyms and recreation centres.

The government have not illustrated the extent of the expansion in the number and range of buildings and units within buildings now potentially eligible for change of use into housing through PDR. Understanding this is complicated by the fact that there is no national dataset definitely placing each unit or building into a planning 'use class', which is instead considered on a case-by-case basis, for example when someone applies for planning permission or prior approval (the reduced scope process associated with PDR). In this report, we have therefore conducted a new analysis utilising datasets from the Ordnance Survey (primarily the Points of Interest data, which is a location-based directory of all public and privately-owned businesses, education and leisure services in Britain categorised into 621 different types) and the Valuation Office Agency (which provides floorspace information for all premises liable for Business Rates) to understand the extent of change possible from commercial buildings to residential under the 'old' (in force until 31 July 2021) and 'new' (in force from 1 August 2021) PDR policies. We do this through an examination of four case study local authorities which offer contrasting built environments: Barnet, Crawley, Huntingdonshire and Leicester.

Through our analysis, we find that across our case study local authorities, the absolute number of buildings where at least part of that building could be converted from commercial to residential use under PDR will increase from 6,716 buildings 8,970 buildings, or a 33.6% increase. As a proportion of all buildings eligible for business rates (most non-domestic buildings), we estimate that the combined total of buildings potentially eligible at least in part for conversion under PDR increases from 60.1% to 80.3% of such buildings. The total floorspace eligible for conversion more than doubles, increasing 127.7% from 1,465,555 to 3,336,424m<sup>2</sup>. Given the range of different built environment contexts we examined in our research, this is likely to be similar across the whole country. We provide a range of maps to show the range of buildings which might be changed to housing across different neighbourhoods and locations including city and town centre locations, local high streets and retail / business park and industrial estates.

We believe that this dramatic expansion of PDR should be a cause for concern. There are now very few non-domestic buildings across England not potentially eligible for conversion to residential use. There are a range of issues related to the quality of housing that might be created through this route, with welcome increased safeguards introduced by the government still not addressing all the factors that can impact the liveability of housing created through PDR and impact the health and wellbeing of occupiers. There are also potential issues related to the loss of still viable commercial premises, impacting the vitality of high streets and the viability of local businesses, and to the lack of funding for necessary supporting infrastructure for new residents (including social and green infrastructure). More generally, local plan policies (including design codes) cannot be applied to PDR nor can local communities be meaningfully engaged in decision-making. This means a large volume of change to our built environment will be possible without a plan-led approach at all. We would therefore support the recent call from the Housing, Communities and Local Government select committee for the government to pause any further extensions of PDR for change of use to residential and conduct a review of the role of PDR within the wider planning system. Positive adaptive reuse of buildings, converted genuinely surplus commercial buildings into high quality housing is possible in a properly planned way, but this requires better governance mechanisms than the current PDR approach.

### 2. Introduction

On 30 March 2021, the government announced that it will introduce a new Permitted Development Right (PDR) allowing the conversion of commercial buildings from the wideranging new Class E use class into residential use, removing the need for such change of use schemes to have a locally granted full planning permission.<sup>1</sup> Instead, the principle of such development is established nationally, and local authorities will only be able to check a narrow set of pre-defined technical issues for such schemes through a process called 'prior approval'.

'Use Classes' are a way of categorising the uses of land and buildings in the planning systems of the UK. In England, a piece of secondary legislation known as the Town and Country Planning (Use Classes) Order 1987 (as amended), defines these categories and which changes of use require planning permission. As part of a planning reform agenda which might be broadly categorised as deregulatory, on 1 September 2020 the government introduced a major revision to the use class order, combining several previous use classes such as A1 (shops), A2 (financial and professional services), A3 (food and drink), B1 (business) and parts of D1 (non-residential institutions) and D2 (assembly and leisure) into one single new use classes is counted as development and usually requires planning permission, but a change of use within a single use class is not considered development and so does not require planning permission, the revisions to create Class E have significantly reduced which changes of use between commercial activities can be managed through planning regulation. The government have argued businesses will have greater freedom to adapt to changing circumstances through this liberalisation.<sup>3</sup>

Alongside reducing changes of use which need planning permission through amending the use class order, the government has also acted to remove categories of development from needing planning permission through the expansion of permitted development, particularly in relation to the conversion of various types of commercial buildings to residential since 2013. Permitted development has always existed since the statutory planning system was first introduced in England in 1948, given the wide-ranging definition of 'development' in the 1947 Act, but traditionally this has been for small scale development like extensions to the rear of an existing dwelling or temporary structures. From 2013, this permitted development has been extended to include converting offices (Class B1a) to residential use, joined in 2015 by shops and financial services to residential use (A1 and A2) and various sui generis uses (a betting office, pay day loan shop or launderette) to residential. Rights to convert light industrial (B1c) and storage and distribution (B8) to residential were introduced but then not made permanent.

Given the replacement of some of the use classes for which permitted development applied for conversion to residential by the new Class E and the fact these would stop to apply if a new right were not introduced, it might not be surprising that the government has acted to introduce a new Class E to residential use PDR (which will be known as 'Class MA –

<sup>&</sup>lt;sup>1</sup> 'New freedoms to support high streets and fast track delivery of schools and hospitals across England introduced today' at <u>www.gov.uk/government/news/new-freedoms-to-support-high-streets-</u> and-fast-track-delivery-of-schools-and-hospitals-across-england-introduced-today

<sup>&</sup>lt;sup>2</sup> 'Guide to the Use Classes Order in England' at <u>https://lichfields.uk/media/6158/guide-to-the-use-</u> classes-order-in-england.pdf

<sup>&</sup>lt;sup>3</sup> Changes to the planning system in England: Permitted development rights and use classes' at <u>https://lordslibrary.parliament.uk/changes-to-the-planning-system-in-england-permitted-development-rights-and-use-classes/</u>

commercial, business and service uses to dwellinghouses' permitted development). This reform has, however, been fairly widely critiqued.<sup>4</sup> Concerns include the fact that local authorities cannot apply local plan policies and communities cannot be engaged and have a say on permitted development schemes and that through a more widespread Class E to residential right, the ability to proactively plan and manage for a large range of urban change is reduced.

There are also concerns linked to some of the issues predating Class E but which have become apparent since the introduction of the office-to-residential PDR in 2013. This has included concern about the loss of employment space (with a lack of ability to protect occupied or required commercial space), the inability of local authorities to levy Section 106 planning obligations or the Community Infrastructure Levy on such schemes (particularly relating to affordable housing contributions and funding of physical, social and green infrastructure to support increased numbers of residents in a neighbourhood), the resource implications for local authorities (with prior approval fees much lower than planning permission fees), and concern about the quality of homes delivered through this PDR route, with local authorities unable to consider design through the prior approval process.

Existing research has discussed concerns over the housing quality of units delivered through office-to-residential PDR, particularly in relation to space standards and amenity issues, for example Muldoon-Smith and Greenhalgh, 2016<sup>5</sup>; Holman et al, 2017<sup>6</sup>; Remøy and Street, 2018<sup>7</sup>; Clifford et al, 2018<sup>8</sup> (published by RICS Research Trust); and Clifford et al, 2020<sup>9</sup> (published by MHCLG). The government has introduced some changes to PDR following such research, such as requiring 'adequate natural light to all habitable rooms' (since June 2020) and requiring schemes comply with minimum space standards (since April 2021), which would apply to the new Class E to residential PDR (which commences from 1 August 2021). Nevertheless, other concerns around suitability of location, accessibility, mix of units, affordability, access to green / open space and so on arguably continue to be concerns relating to the housing which might be created through the new PDR as well as the broader issue of the ability to actually proactively plan for this type of development.

The government's consultation on the Class E to residential PDR proposals did note that it would go 'significantly beyond existing rights, allowing for restaurants, indoor sports, and creches etc to benefit from the change use to residential under permitted development rights for the first time'.<sup>10</sup> The consultation does not, however, attempt to quantify how much further

<sup>5</sup> 'Greasing the wheels, or a spanner in the works? Permitting the adaptive re-use of redundant office buildings into residential use in England' at

https://www.tandfonline.com/doi/full/10.1080/14649357.2016.1156144

<sup>6</sup> 'Planning, value(s) and the market: An analytic for "what comes next?" at <u>https://journals.sagepub.com/doi/full/10.1177/0308518X17749730</u>

<sup>7</sup> "The dynamics of "post-crisis" spatial planning: A comparative study of office conversion policies in England and The Netherlands' at

https://www.sciencedirect.com/science/article/pii/S0264837716305233

<sup>8</sup> 'Impact of extending development rights to office-to-residential change' at <u>https://www.rics.org/globalassets/rics-website/media/knowledge/research/research-reports/assessing-the-impacts-of-extending-permitted-development-rights-to-office-to-residential-change-of-use-in-england-rics.pdf</u>

<sup>&</sup>lt;sup>4</sup> 'Planning in England: permitted development and change of use' at <u>https://commonslibrary.parliament.uk/research-briefings/sn00485/</u>

<sup>&</sup>lt;sup>9</sup> 'Quality standard of homes delivered through change of use permitted development rights' at <u>https://www.gov.uk/government/publications/quality-standard-of-homes-delivered-through-change-of-use-permitted-development-rights</u>

<sup>&</sup>lt;sup>10</sup> 'Supporting housing delivery and public service infrastructure' at <u>https://www.gov.uk/government/consultations/supporting-housing-delivery-and-public-service-infrastructure/supporting-housing-delivery-and-public-service-infrastructure</u>

the new Class E rights go beyond the existing PDRs for conversion to residential that they replace nor illustrate how much broader this scope might be. Given the concerns about these new rights, we believe it is important to try to understand the potential implications of these policy changes for the built environment across England.

This report summarises the findings of research which tries to fill this gap. Looking at four contrasting case study local authorities representing different environments, we examine the extent to which the ability to change from commercial to residential trough permitted development will change on 1 August 2021.

# 3. Approach taken

In order to address the aim of this research, a case study approach has been taken, looking at change of use from commercial to residential in four case study LPAs across England. These authorities were selected on the basis of combining several criteria, with the aim of providing a good sample of different types of built environment and ranges of planning use classes across all of them:

- 1) Geographical distribution: the four case studies are all in different regions of England;
- Type of authority: the authorities represent one each of major urban, large urban, other urban and rural 80, i.e. four of the six classifications of urban/rural as per the Office for National Statistics criteria.<sup>11</sup>
- Type of built environments represented: we ensured a mix of city centre, inner city, suburban, local centres, business and industrial parks, market towns, villages, and a New Town location

This research examines the following case study LPAs (illustrated by Figure 1): Barnet (London, 'major urban' authority), Crawley (South East, 'Other urban' authority), Huntingdonshire (East of England, 'Rural 80' authority) and Leicester (East Midlands, 'large urban' authority).

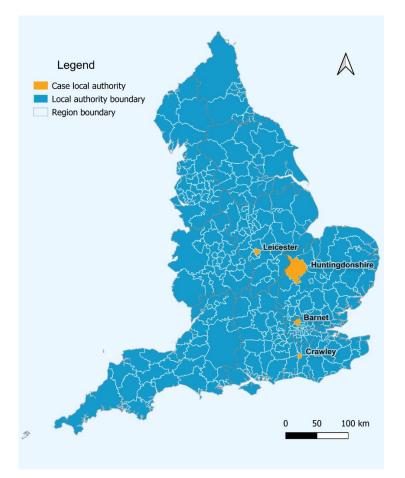


Figure 1: Map of the four case study local authorities

<sup>&</sup>lt;sup>11</sup> 'Rural/urban local authority (LA) classification (England)' at

https://www.ons.gov.uk/methodology/geography/geographicalproducts/ruralurbanclassifications/2001r uralurbanclassification/ruralurbanlocalauthoritylaclassificationengland

Appendix 1 of this report contains full technical details about our approach taken. In short, our starting point was that there is no database which states which planning use class each building or unit within a building is in. Use class is in essence considered on a case-by-case basis when applicants seek to change the use (or apply for planning permission for other development), or when a person applies for a 'Certificate of lawfulness of existing use or development' to confirm the established use of a building or unit of occupation within a building. Given no such data set exists, there was a need to consider a suitable proxy way to model which planning use class each building / unit within a building might be in.

We decided to the use the Ordnance Survey's 'Point of Interest' (POI) data set for this purpose. This is described as 'the most comprehensive, location-based directory of all public and privately-owned businesses, education and leisure services in Britain'.<sup>12</sup> The POIs are categorised into 621 different classes.<sup>13</sup> This allows a high degree of granularity as to the possible use of different non-domestic buildings and units in them, more so than some other potential datasets which might include categorisation of the types building use such as data related to business rates or energy performance. The data is also available and comparable for the whole country, in a way that a bespoke local authority specific dataset would not be.

These POIs included all types of commercial buildings as well a variety of other nondomestic building uses, but also some things which were not or were not likely to be a building, such as cash points or bus stops. Things unlikely to be a building were excluded through our own categorisation of the POIs and through address matching. For all buildings that were represented in the POI data, a likely planning use class was allocated by us, under both the rules applying before September 2020 and after (when Class E was introduced). This is clearly an assumption based on the type of business or activity from the POI classification, rather than an established use within a unit, and is done as a desk-based exercise rather than having conducted site visits to establish actual current uses. Nevertheless, in many cases the POI data appear to offer a good proxy to establish planning use classes, e.g. most retail uses are very straightforwardly identifiable as various POI classes.

The one notable area where there is less obvious clarity from POI data to planning use class is over the difference between 'light' and 'general' or 'heavy' industrial uses (old planning use Class B1c, now Class E compared to and Class B2). The planning use class distinction is based on the impact of the amenity of the area, which – depending on the type of business and processes typically associated with it – cannot always be readily established from online data, so for industrial and manufacturing POI classes where the distinction was not immediately obvious, we made an assumption that if they were in a building under 250m<sup>2</sup> they were light industry (Class B1c/E) and over that would be general industry (Class B2).

Making this distinction for some of the manufacturing type classes required an understanding of the floorspace of the building unit. We also needed to know floorspace data for our analysis because of the size limits for certain retail and sui generis uses to go to residential under 'old' PDR and for the new Class E to residential PDR. POI data does not contain floorspace data, but the Valuation Office Agency (VOA) data related to rateable value buildings (those paying business rates) does include this information. We therefore matched the POI data and VOA data within our four local authorities. This match was not perfect due to complexities of the way premises are addressed, particularly business centres and commercial buildings in multiple occupation where there were sometimes such wide inconsistencies as to preclude reliable matching between the two data sets, albeit this was

<sup>&</sup>lt;sup>12</sup> 'Points of Interest' at <u>https://www.ordnancesurvey.co.uk/business-government/products/points-of-interest</u>

<sup>&</sup>lt;sup>13</sup> 'Points of Interest Classification Scheme' at <u>https://www.ordnancesurvey.co.uk/documents/product-support/support/points-of-interest-classification-scheme.pdf</u>

possible for a majority of cases. Where an address match was not found, we have not included that building in our analysis of the changing scope of the PDR policy, and it is indicated on our maps as a non-domestic building without floorspace information. This issue appeared to involve POIs which would be in all the various planning use classes for non-domestic buildings, including both those eligible and ineligible for PDR so we believe does not skew the overall results which are based on where an address match was found with reasonable confidence.

In terms of the maps we have produced, these are based on 'building polygons', entire buildings as represented on the Ordnance Survey mapping we have used and it is these map polygons which we refer to as 'buildings' in our report. In many cases, the same large building may contain multiple different units each with an associated POI. If some of these units are eligible for PDR and others are not, the whole building would be shown as eligible in our mapping representations. Similarly, the 'old' PDRs for Classes A1 and A2 and sui generis had a floorspace limit of 150m<sup>2</sup> for conversion whilst the new Class E PDR has a floorspace limit of 1,500m<sup>2</sup>. If units are larger than this, we have still shown them as eligible on our maps for conversion as part of the unit (up to that limit) could still be converted. When we have calculated the floorspace eligible for conversion, however, we have based this on the floorspace of the actual units eligible for PDR as opposed to the whole of the buildings they are in, and have applied the relevant limits to calculate the total space potentially eligible for conversion to residential (so for a shop which is 250m<sup>2</sup>, under the old rules we would only have calculated 150m<sup>2</sup> as eligible floorspace for conversion but all 250m<sup>2</sup> for the new conversion). Given the increase in the range of planning use classes which can be converted, and increase in size that can be converted in retail and financial and professional services floorspace, if anything the visual representation in our maps of what might change slightly tends towards over-emphasizing what was previously possible under the old 'PDR rules' compared to the new rules, although in both cases a mixed-use building where some units are eligible and some are not is shown on the maps as entirely eligible (but only the actually eligible floorspace is included in our statistics).

Finally, we have not taken into account certain restrictions which apply to PDRs, for example under the old policy they do not apply in Conservation Areas but will for Class E to residential after 1 August this year, or Article 4 directions, which must be renewed for Class E but where government policy has changed to make it harder for local authorities to introduce these in future. Given such restrictions are changing, and indeed likely to reduce in future as local authorities will have even less ability to restrict locally these national PDRs, we felt it was appropriate not to include such areas of restriction for either the old or new policies for our analysis. Further, given the prior approval process, certain individual buildings or units within them might be refused approval for conversion to residential even if in principle their use class is eligible under PDR dependent on the nature of the proposed scheme. This cannot be predicted at the scale of our analysis but rather would be a detailed consideration for each building through the individual prior approval process. Thus, our analysis does not say that a building unit is definitely eligible for conversion under PDR, but rather, using what we believe to be reasonable modelling assumptions, assigns a use class to building units and then compares what might be possible to be converted from commercial to residential under PDR until and after 31 July 2021. Examining this at a local authority wide scale gives greater confidence in the results, and indeed the similarity between the broad picture across four very different local authorities might be thought to support this confidence.

Our aim is to highlight the degree to which introducing the new Class E to residential PDR expands the amount of change that might now be possible under PDR and without the full rigour of local regulatory and democratic process through a planning permission.

# 4. Findings

In this section we give first an overview of the data for each of the four case study local authorities in turn, with a series of maps to illustrate the extent of change from what buildings and units of buildings could potentially be converted from commercial to residential use under the old permitted development rules applying until 31 July 2021 and which could be converted under the new Class E to residential permitted development rights applying from 1 August 2021. We then present some collated data and graphs to illustrate, from across all four case studies taken together, the extent of the change.

#### Barnet

Barnet is an urban authority within Greater London. The 'outer London' borough is to the north of central London, with a mixed built environment including large areas of suburban housing, green belt land, town centres but also the major commercial centre at Brent Cross and areas for development identified in the London Plan at Brent Cross, Cricklewood, Colindale and Mill Hill East (opportunity areas and areas of intensification).<sup>14</sup>

Old PDR policy			New PDR Policy		
	Total floor	Total number		Total floor	Total number
	size which	of units which		size which	of units which
	could	could		could	could
	potentially	potentially be		potentially	potentially be
Planning use	be converted	converted (POI	Planning use	be converted	converted (POI
class	(m²)	count)	class	(m²)	count)
B1a	99413	391	E (formerly B1a)	80333	391
A2	92614	965	E (formerly A2)	157494	965
A1	186659	2191	E (formerly A1)	370377	2191
PD sui generis	6685	64	PD sui generis	6685	64
			E (formerly A3)	52227	423
			E (formerly B1b)	18613	57
			E (formerly B1c)	41232	249
			E (formerly D1)	74783	370
			E (formerly D2)	20748	72
Total	385371	3611	Total	822493	4782
Total number of	f commercial		Total number of commercial		
buildings potent	tially eligible		buildings potentially eligible for		
for conversion u	inder PDR:	2309	conversion under PDR:		3059

Table 1: Results for our analysis of the new commercial to residential PDR in Barnet

<sup>&</sup>lt;sup>14</sup> 'Barnet's Local Plan' at

https://www.barnet.gov.uk/sites/default/files/assets/citizenportal/documents/planningconservationandb uildingcontrol/PlanningPolicy/LocalPlan/DPD/LocalPlanCoreStrategyDPDSeptember2012.pdf

Table 1, above, illustrates our analysis for Barnet. Under the PDRs for commercial-toresidential conversion in force up to 31 July 2021, we have found evidence suggesting 3,611 commercial units potentially eligible for conversion, in 2,309 different buildings, and with a total floorspace eligible for conversion of 385,371m<sup>2</sup>. Under the PDRs for commercial-toresidential conversion in force from 1 August 2021, we have found evidence suggesting 4,782 commercial units potentially eligible for conversion, in 3,059 different buildings, and with a total floorspace eligible for conversion of 822,493m<sup>2</sup>. This comparison suggests a 32.4% increase in the number of commercial units eligible for conversion, a 32.5% increase in the number of buildings where at least part of that building might be eligible for conversion, and a 113.4% increase in the total floorspace of commercial buildings eligible for conversion to residential under PDR through the introduction of Class E. There is a shift from 66.9% to 88.6% of the 3,450 non-domestic (commercial, business, service and public sector) buildings we identified in Barnet potentially being eligible to become residential instead under PDR.

What this change might mean on the ground is illustrated by the maps below. Figure 2 is an overview of the borough, showing clusters of non-domestic (primarily commercial) buildings. Figure 3 indicates the location of a series of ten zoomed in maps of local areas with a high concentration of commercial buildings which we utilise to further illustrate the potential impact of the introduction of the Class E to residential PDR.

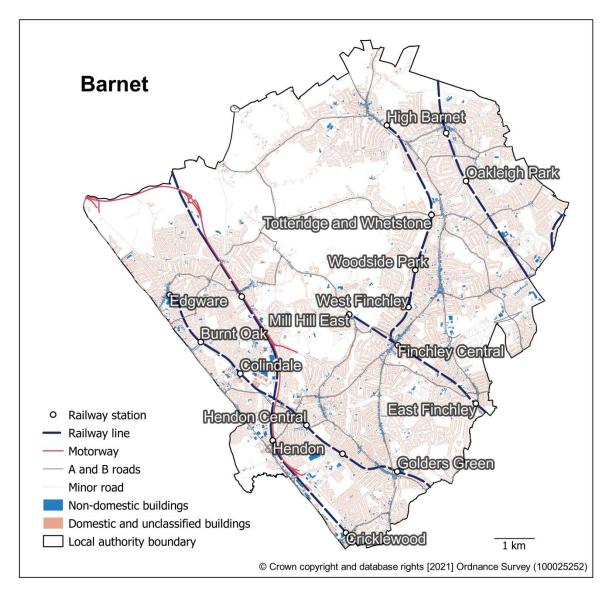


Figure 2: Overview map of Barnet local authority area

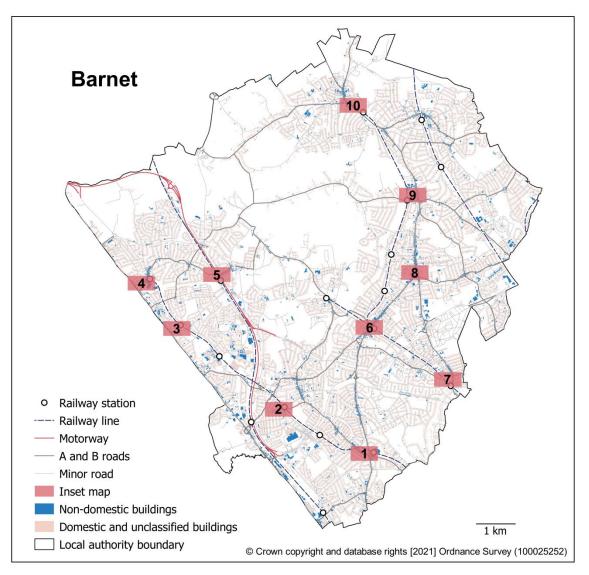


Figure 3: Map of Barnet indicating the location of our ten zoomed in maps

Figures 4 and 6-13 are zoomed in local maps indicating the local scale of the impacts of the PDR changes for various neighbourhoods across the borough of Barnet, with the orange indicating buildings containing a commercial unit potentially eligible for conversion to residential under PDR under the rules in place until 31 July 2021 and the brown those potentially eligible for conversion from 1 August. Across a range of local centres and high streets across the borough we see the noticeable increase in the number and range of buildings which could at least partially change from commercial use to residential, with businesses including small shops, large supermarkets, banks and building societies, offices buildings and gyms featuring in the maps. Figure 5 aims to show the same information but in a slightly different way, highlighting the current high street around Golders Green and how many buildings could at least partially change to residential in future under PDR.

A large modern mixed use development at 90 Kingsway, North Finchley, is highlighted as eligible on both maps as it contains retail units which were eligible for conversion under the old rules but it is important to note a larger number of units within it would now be included in the scope of PDRs (including a gym) (Figure 12). A multi-unit business park building in Allum Way, Totteridge is shown as eligible for conversion under both the old and new policies in Figure 13 as the single large building does include some office space which was already eligible for PDR, but it is worth noting that the building also includes some light industrial

units which were not eligible for conversion to residential under the old rules but will be in future: this is captured in our figures for 'units' as opposed to 'buildings' and highlights that in some ways the scope of the increase in possible conversions is even greater than represented on our maps due to the way we have (necessarily) highlighted whole buildings as eligible or not as opposed to individual units within larger buildings.

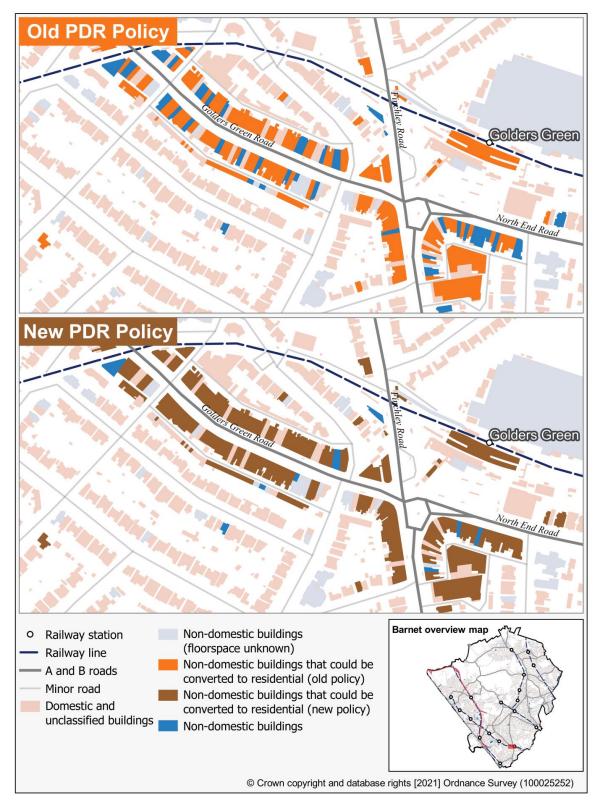


Figure 4: The impacts of the changing commercial-to-residential PDR policy around Golders Green

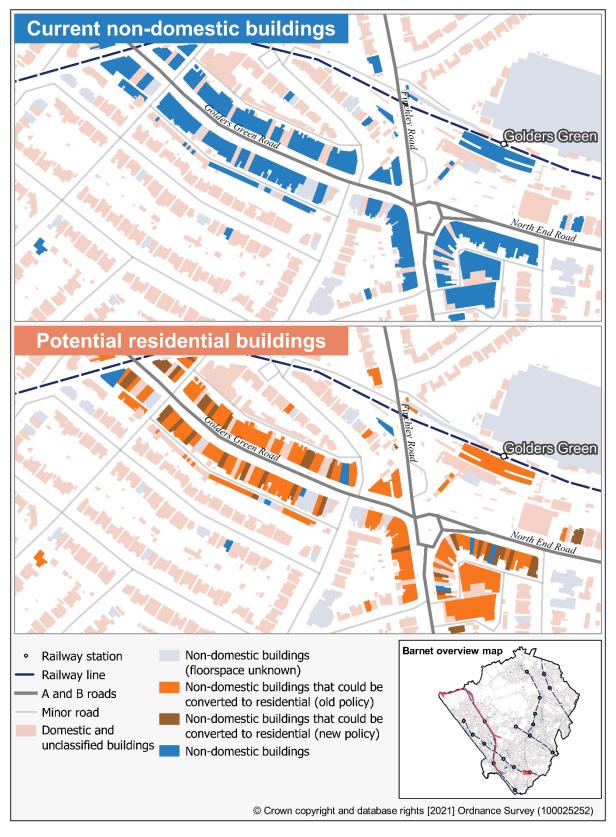


Figure 5: The potential impact of PDR policy on Golders Green

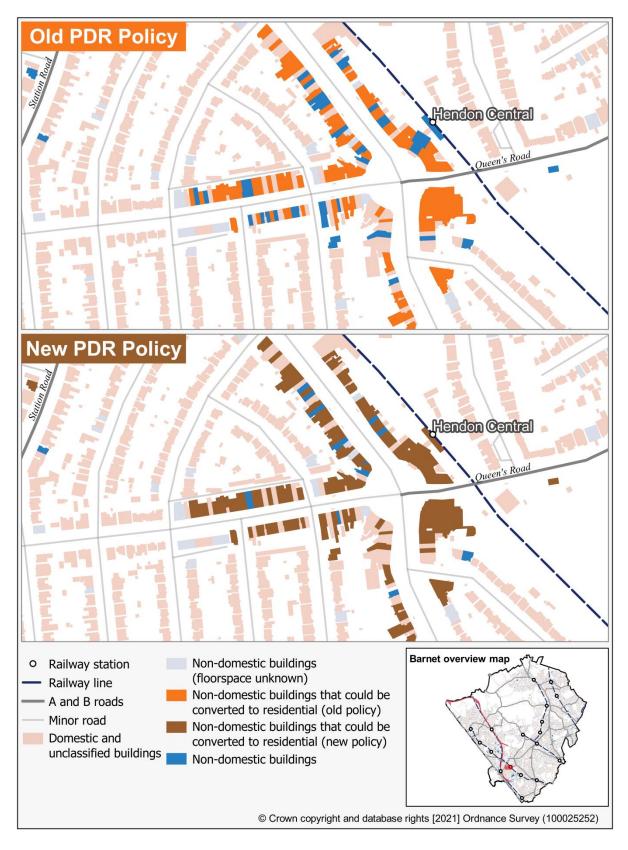


Figure 6: The impacts of the changing commercial-to-residential PDR policy around Hendon Central

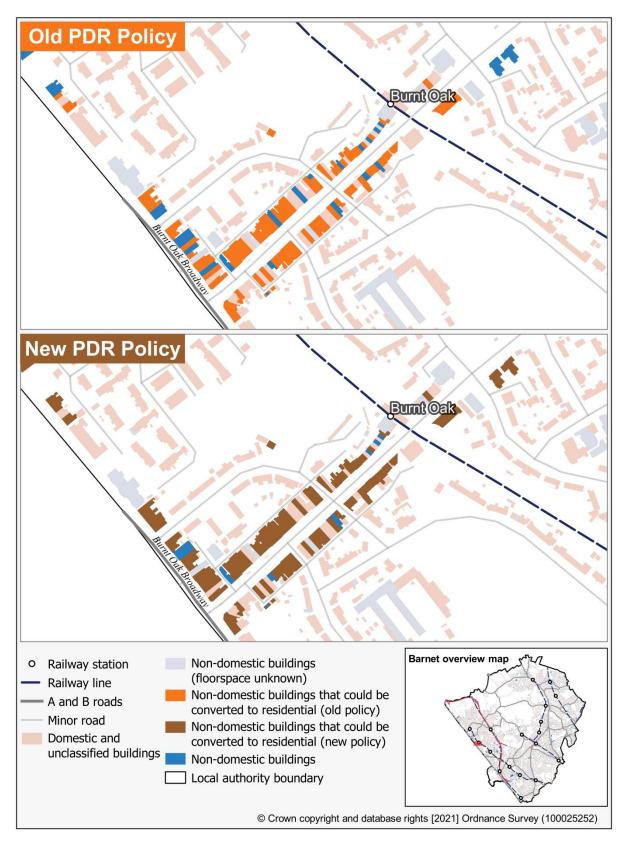


Figure 7: The impacts of the changing commercial-to-residential PDR policy around Burnt Oak

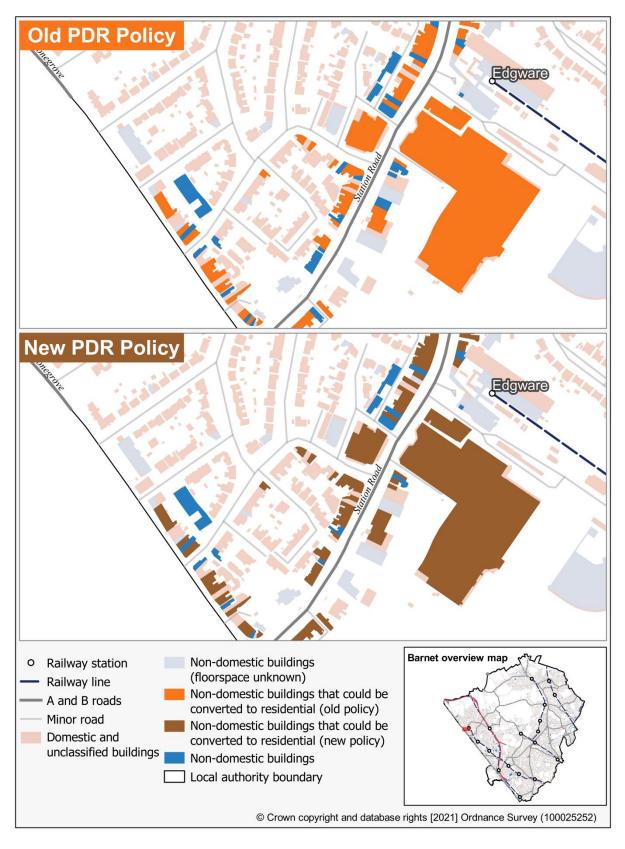


Figure 8: The impacts of the changing commercial-to-residential PDR policy around Edgware

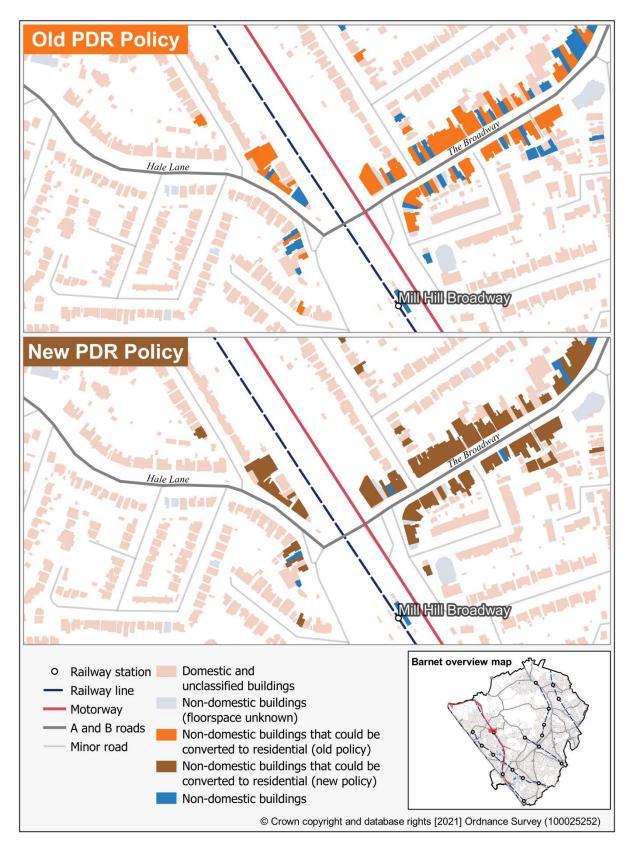


Figure 9: The impacts of the changing commercial-to-residential PDR policy around Mil Hill Broadway

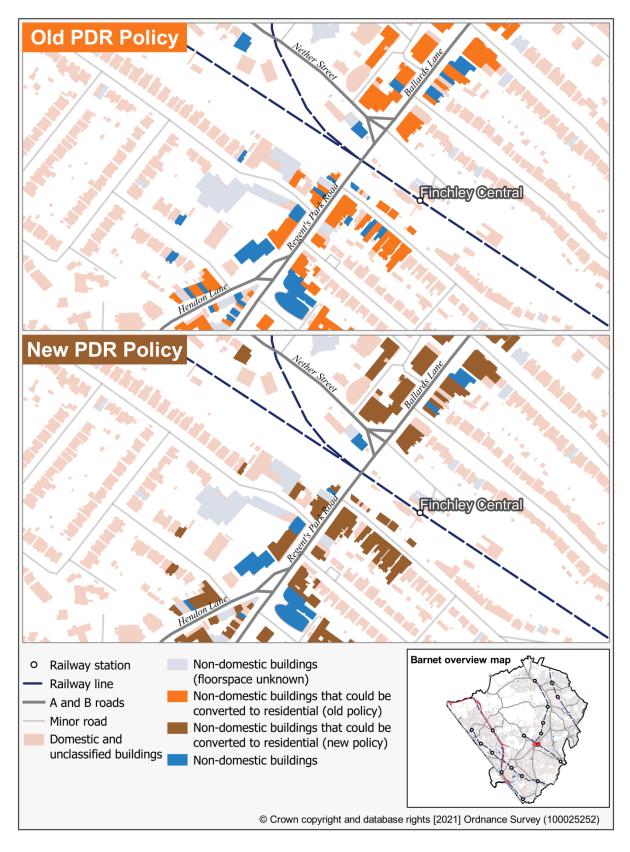


Figure 10: The impacts of the changing commercial-to-residential PDR policy around Finchley Central

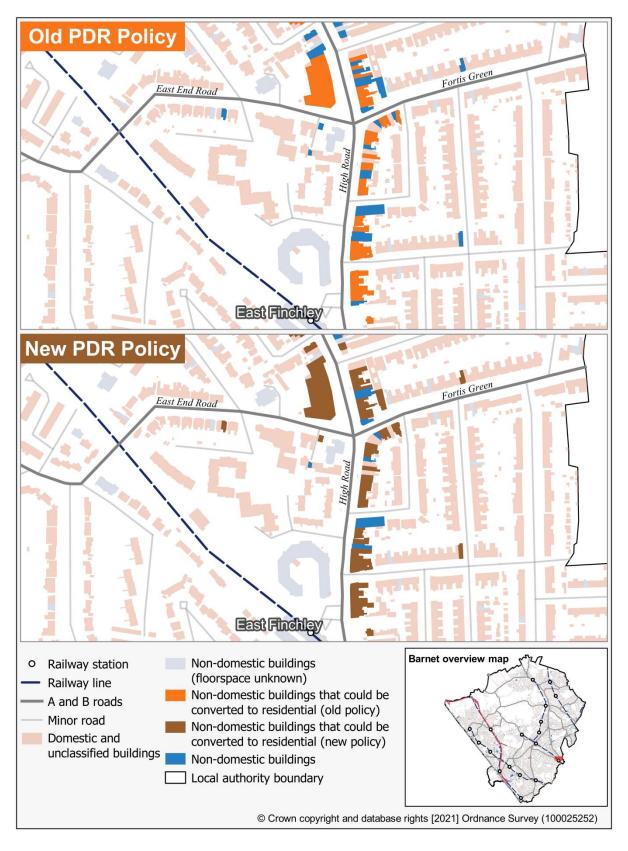


Figure 11: The impacts of the changing commercial-to-residential PDR policy around East Finchley

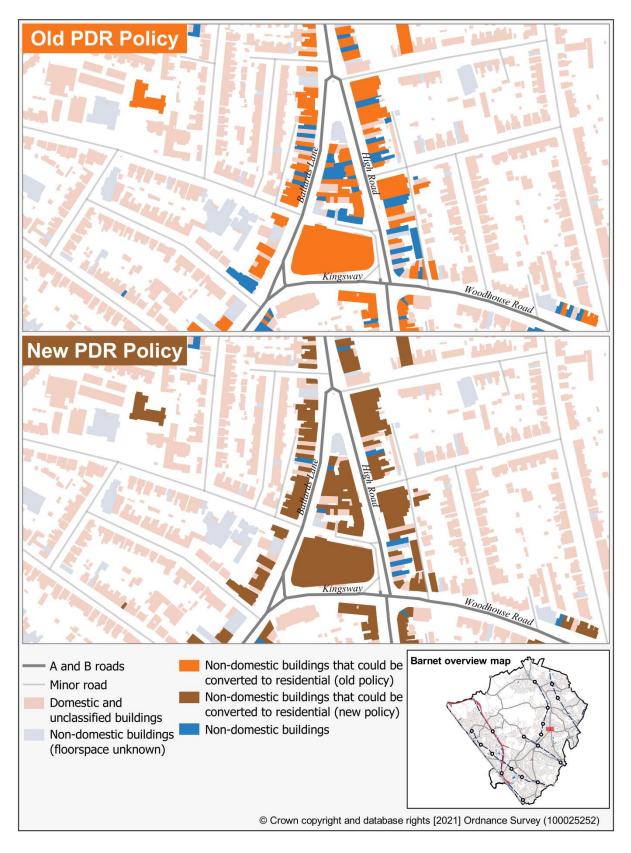


Figure 12: The impacts of the changing commercial-to-residential PDR policy around North Finchley

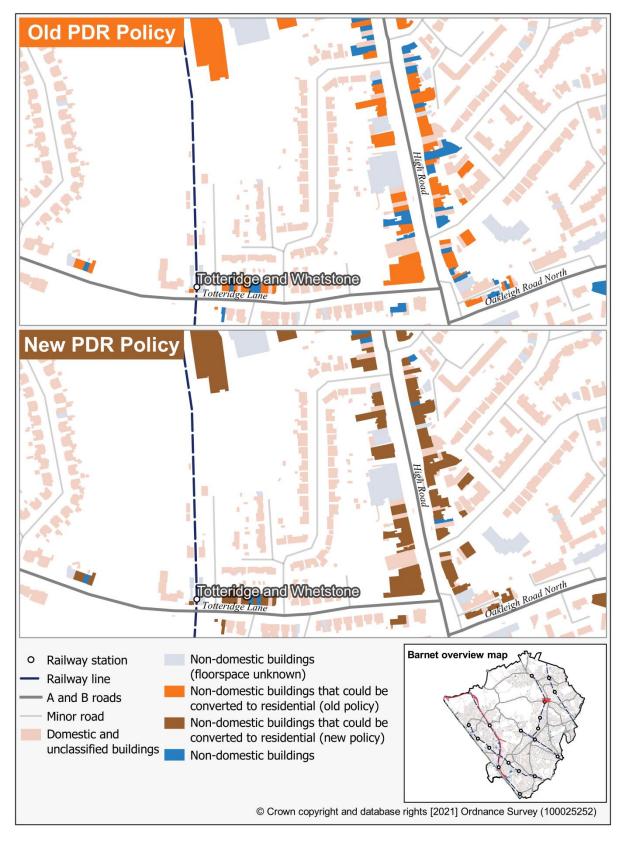


Figure 13: The impacts of the changing commercial-to-residential PDR policy around Totteridge and Whetstone

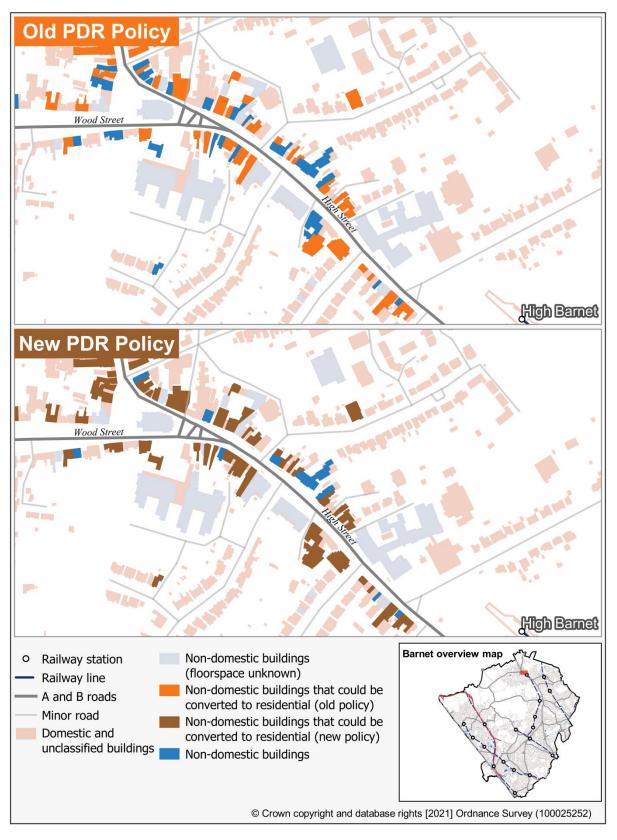


Figure 14: The impacts of the changing commercial-to-residential PDR policy around High Barnet

### Crawley

Crawley is an urban authority and new town in Sussex in the South East region, and including Gatwick Airport in the boundaries. Its administrative boundaries are drawn tightly around the town itself, with little undeveloped land in the borough. This built-up area includes a main town centre and a large business park area at Manor Royal.<sup>15</sup>

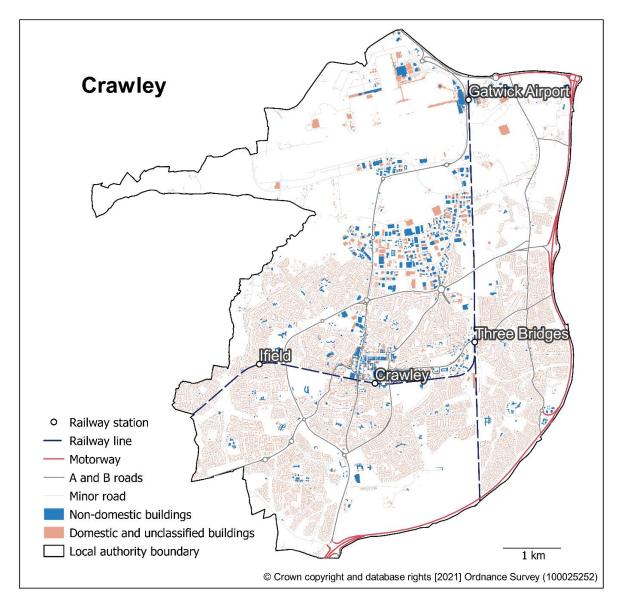
Old PDR policy			New PDR Policy		
	Total floor	Total number		Total floor	Total number
	size which	of units which		size which	of units which
	could	could		could	could
	potentially	potentially be		potentially	potentially be
Planning use	be converted	converted (POI	Planning use	be converted	converted (POI
class	(m²)	count)	class	(m²)	count)
B1a	135676	146	E (formerly B1a)	83453	146
A2	21984	190	E (formerly A2)	75762	190
A1	64414	550	E (formerly A1)	221041	550
PD sui generis	1755	16	PD sui generis	1755	16
			E (formerly A3)	18012	72
			E (formerly B1b)	9641	15
			E (formerly B1c)	28043	75
			E (formerly D1)	27303	87
			E (formerly D2)	8918	19
Total	223828	902	Total	473927	1170
Total number o	f commercial		Total number of commercial		
buildings poten			buildings potentially eligible for		
for conversion u	under PDR:	601	conversion under PDR:		788

Table 2: Results for our analysis of the new commercial to residential PDR in Crawley

Table 2, above, illustrates our analysis for Crawley. Under the PDRs for commercial-toresidential conversion in force up to 31 July 2021, we have found evidence suggesting 902 commercial units potentially eligible for conversion, in 601 different buildings, and with a total floorspace eligible for conversion of 223,828m<sup>2</sup>. Under the PDRs for commercial-toresidential conversion in force from 1 August 2021, we have found evidence suggesting 1,170 commercial units potentially eligible for conversion, in 788 different buildings, and with a total floorspace eligible for conversion of 473,927m<sup>2</sup>. This comparison suggests a 29.7% increase in the number of commercial units eligible for conversion, a 31.1% increase in the number of buildings where at least part of that building might be eligible for conversion, and a 111.7% increase in the total floorspace of commercial buildings eligible for conversion to residential under PDR through the introduction of Class E. There is a shift from 58.6% to 76.9% of the 1,025 non-domestic (commercial, business, service and public sector) buildings liable for business rates we identified in Crawley potentially being eligible to become residential instead under PDR.

What this change might mean on the ground is illustrated by the maps below. Figure 15 is an overview of the borough, showing clusters of non-domestic (primarily commercial) buildings. Figure 16 indicates the location of a series of five zoomed in maps of local areas with a high

<sup>&</sup>lt;sup>15</sup> 'Crawley Borough Local Plan' at <u>https://crawley.gov.uk/sites/default/files/documents/PUB271853.pdf</u>



concentration of commercial buildings which we utilise to further illustrate the potential impact of the introduction of the Class E to residential PDR.

Figure 15: Overview map of Crawley local authority area

Figures 17, 18 and 20-22 are zoomed in local maps indicating the local scale of the impacts of the PDR changes for various locations across Crawley borough, with the orange indicating buildings containing a commercial unit potentially eligible for conversion to residential under PDR under the rules in place until 31 July 2021 and the brown those potentially eligible for conversion from 1 August. Figure 17, Figure 21 and Figure 22 illustrate local centres and neighbourhood areas where we can see how Class E includes non-residential institutions such as clinics, health centres, day centres and day nurseries as well as a range of commercial premises. Figure 18 clearly shows the dramatic increase in buildings potentially eligible for class E. Figure 19 aims to show the same information but in a slightly different way, highlighting the current town centre of Crawley and how many buildings could at least partially change to residential in future under PDR.

Figure 20 shows part of the Manor Royal business park, which includes a mixture of industrial, storage and distribution and office buildings. Dependent on current use, some of these may, for example, be classified as Class E by being light industrial, offices or research and development related premises whilst others might be general industry (Class B2) or storage and distribution (Class B8). Our map is based on the modelling assumptions associated with our approach to the POI data, however it clearly indicates the expansion in the range of buildings which will now potentially be covered by PDR. It is important to note that the Class MA permitted development right secondary legislation does include a new prior approval consideration of 'the impact on intended occupiers of the development of the introduction of residential use in an area the authority considers to be important for general or heavy industry, waste management, storage and distribution, or a mix of such uses'. It will be interesting to see, however, how this works in practice and is tested through refusals and the appeals process, for example where PDR has already introduced residential use into such areas before this consideration was added to the prior approval process for Class E. Figure 22 includes a large hotel building because the retail, restaurant and gym units within it are listed as separate business for both POI and VOA purposes and these units would potentially be eligible for conversion even if the main hotel building is not; even with existing PDRs we have seen parts of buildings converted (e.g. certain floors of office buildings in office use) when they were eligible for conversion even when the rest is not (e.g. other floors of the same office building in educational use).

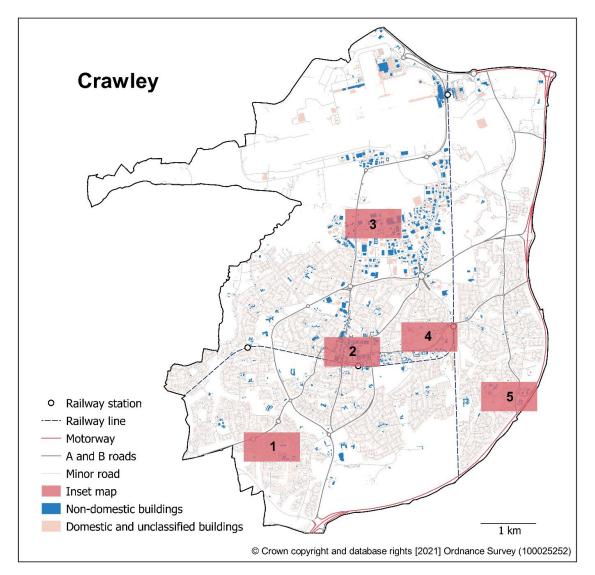


Figure 16: Map of Crawley indicating the location of our five zoomed in maps

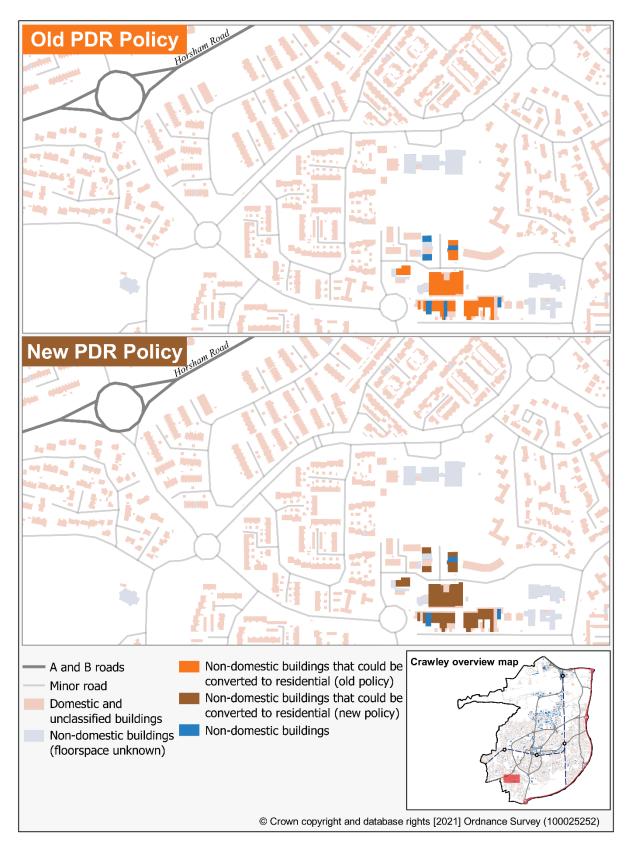


Figure 17: The impacts of the changing commercial-to-residential PDR policy around Broadfield

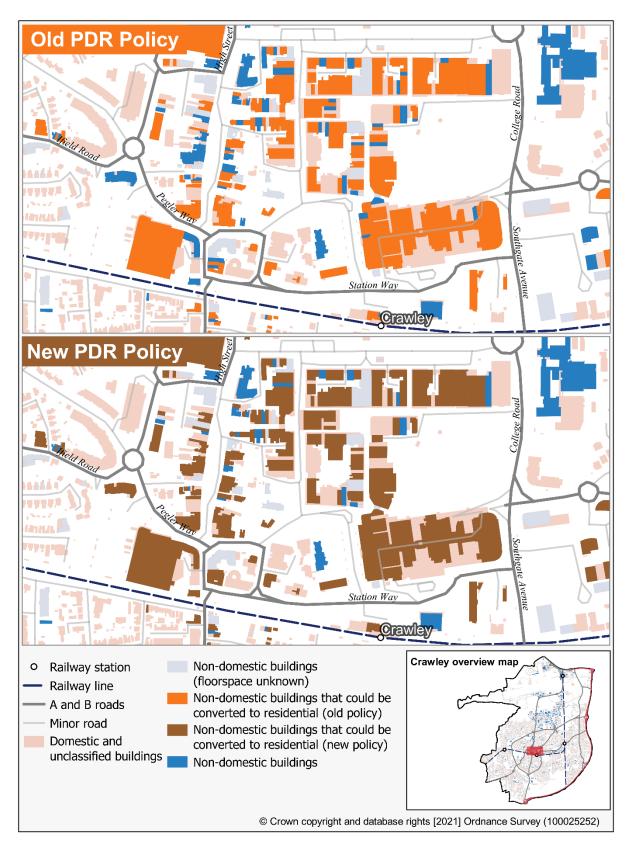


Figure 18: The impacts of the changing commercial-to-residential PDR policy around Crawley town centre

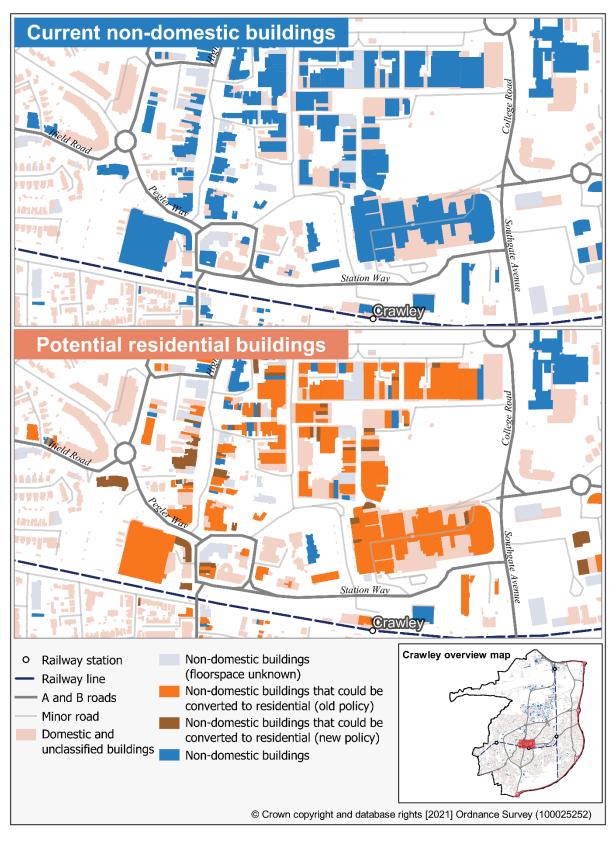


Figure 19: The potential impact of PDR policy on Crawley town centre

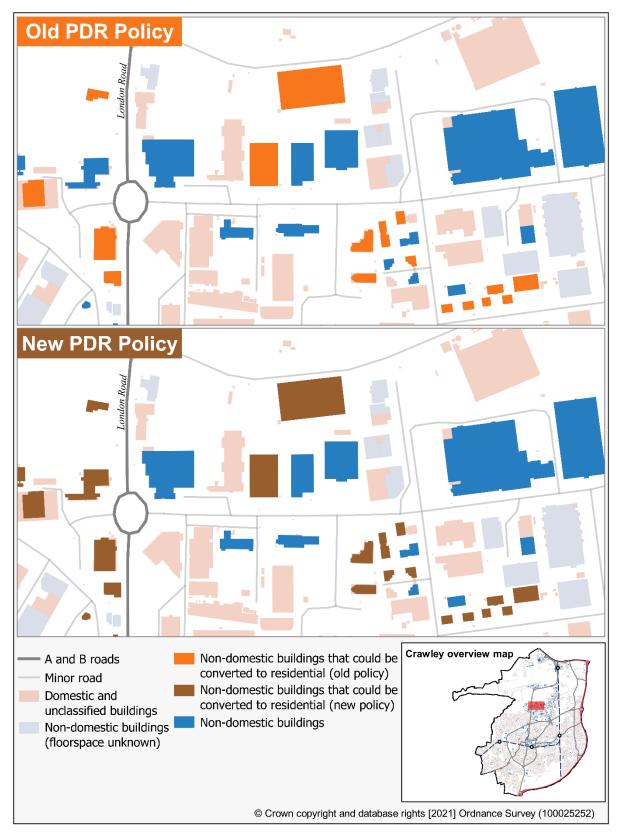


Figure 20: The impacts of the changing commercial-to-residential PDR policy around part of the Manor Royal Business Park

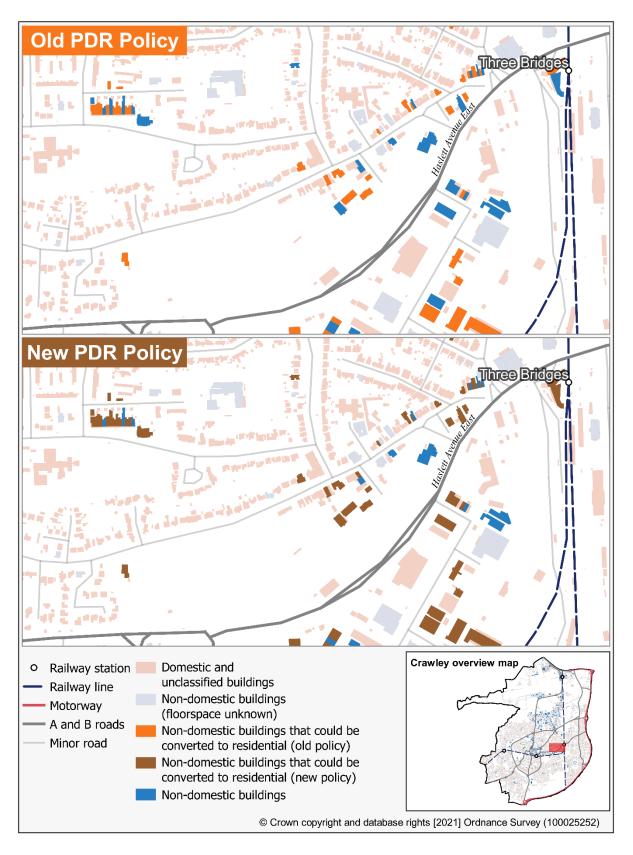


Figure 21: The impacts of the changing commercial-to-residential PDR policy around Three Bridges

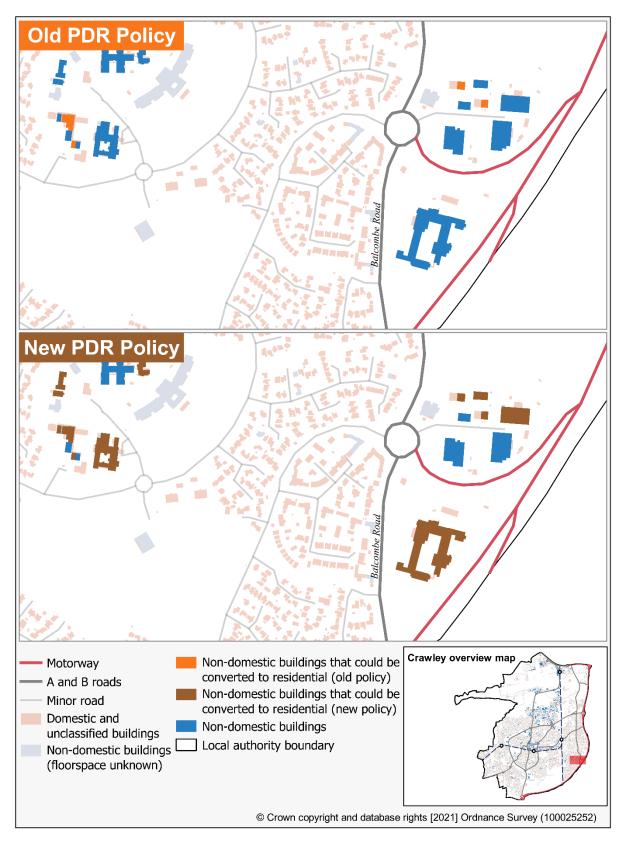


Figure 22: The impacts of the changing commercial-to-residential PDR policy around Maidenbower

#### Huntingdonshire

Huntingdonshire is a rural district within the administrative county of Cambridgeshire, in the East of England region. The sparsely populated and predominantly agricultural area also includes the historic market towns of Huntingdon, St Neots, St Ives and Ramsey, with their own town centres and small commercial areas.<sup>16</sup>

Table 3: Results for our analysis of the new commercial to residential PDR in Huntingdonshire

Old PDR policy			New PDR Policy		
Total floor size which could potentially	Total number of units which could potentially be		Total floor size which could potentially	Total number of units which could potentially be	
		e e		converted (POI count)	
178673	283	E (formerly B1a)	109046	283	
38491	331	E (formerly A2)	91889	331	
94135	899	E (formerly A1)	281895	899	
1251	13	PD sui generis	1251	13	
		E (formerly A3)	20247	100	
		E (formerly B1b)	10959	32	
		E (formerly B1c)	62288	211	
		E (formerly D1)	34841	156	
		E (formerly D2)	11030	25	
312550	1526	Total	623446	2050	
ially eligible	1138	Total number of commercial buildings potentially eligible for conversion under PDR:		1530	
	Total floor size which could potentially be converted (m <sup>2</sup> ) 178673 38491 94135 1251	Total floor size which couldTotal number of units which couldpotentially be convertedpotentially be converted (POI count)17867328338491331941358991251139413513<	Total floor size which couldTotal number of units which couldTotal number of units which couldpotentially be convertedpotentially be converted (POI count)Planning use class(m²)count)class178673283E (formerly B1a)38491331E (formerly A2)94135899E (formerly A1)125113PD sui generisE (formerly A3)E (formerly A3)E (formerly B1b)E (formerly B1b)E (formerly B1c)E (formerly D1)3125501526Totalcommercial cially eligibleImage: Commercial commercial commercial	Total floor size which couldTotal number of units which couldTotal floor size which couldpotentially be converted (m²)potentially be converted (POI count)Planning use classpotentially be converted (m²)178673283E (formerly B1a)10904638491331E (formerly A2)9188994135899E (formerly A1)281895125113PD sui generis12511251E (formerly B1a)109059E (formerly A1)281895125113PD sui generis125113PD sui generis1251E (formerly A3)20247E (formerly B1b)10959E (formerly B1c)62288E (formerly D1)34841E (formerly D2)110303125501526Total number of commercial buildings potentially eligible for	

Table 3 above, illustrates our analysis for Huntingdonshire. Under the PDRs for commercialto-residential conversion in force up to 31 July 2021, we have found evidence suggesting 1,526 commercial units potentially eligible for conversion, in 1,138 different buildings, and with a total floorspace eligible for conversion of 312,550m<sup>2</sup>. Under the PDRs for commercialto-residential conversion in force from 1 August 2021, we have found evidence suggesting 2,050 commercial units potentially eligible for conversion, in 1,530 different buildings, and with a total floorspace eligible for conversion of 623,446m<sup>2</sup>. This comparison suggests a 34.3% increase in the number of commercial units eligible for conversion, a 34.4% increase in the number of buildings where at least part of that building might be eligible for conversion, and a 99.5% increase in the total floorspace of commercial buildings eligible for conversion to residential under PDR through the introduction of Class E. There is a shift from 55.9% to 75.1% of the 2,037 non-domestic (commercial, business, service and public sector) buildings liable for business rates we identified in Huntingdonshire potentially being eligible to become residential instead under the new PDR rules compared to the old ones.

<sup>&</sup>lt;sup>16</sup> 'Huntingdonshire's Local Plan to 2036' at <u>https://www.huntingdonshire.gov.uk/media/3872/190516-</u> <u>final-adopted-local-plan-to-2036.pdf</u>

What this change might mean on the ground is illustrated by the maps below. Figure 23 is an overview of the district, showing clusters of non-domestic (primarily commercial) buildings. Figure 24 indicates the location of a series of six zoomed in maps of local areas with a high concentration of commercial buildings which we utilise to further illustrate the potential impact of the introduction of the Class E to residential PDR.

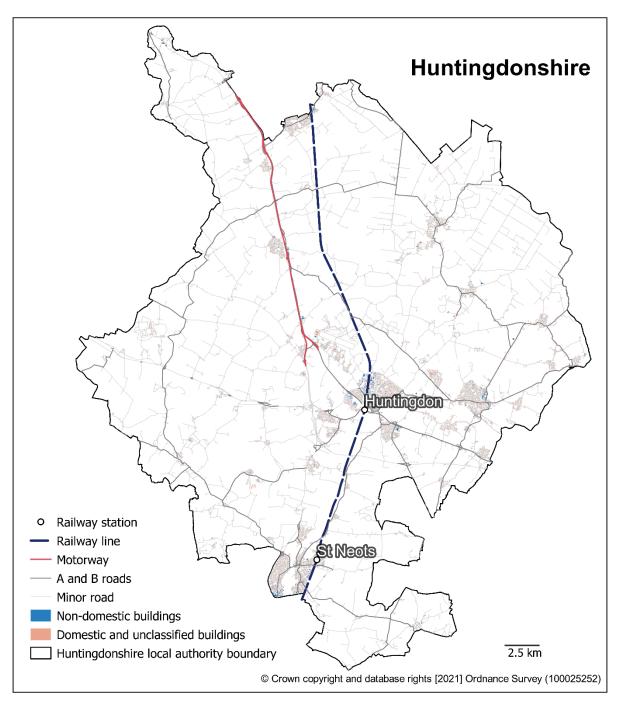


Figure 23: Overview map of Huntingdonshire local authority area

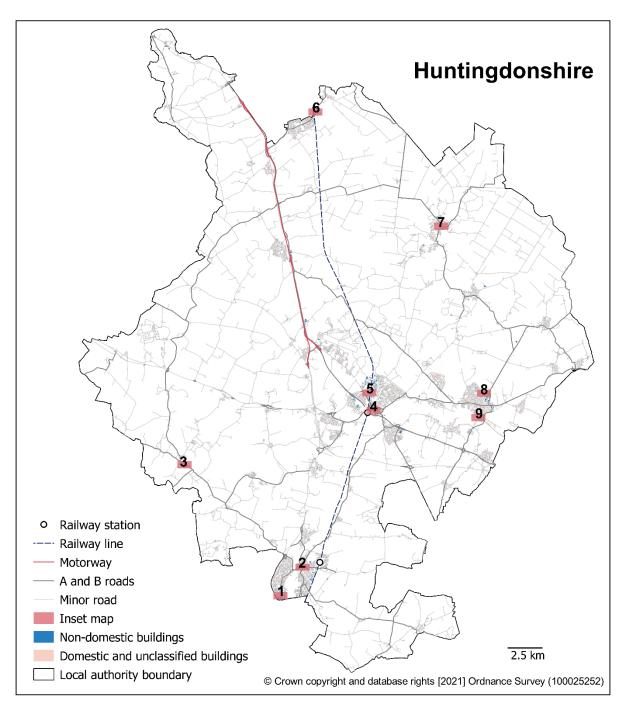


Figure 24: Map of Huntingdonshire indicating the location of our nine zoomed in maps

Figures 25-28 and 30-34 are zoomed in local maps indicating the local scale of the impacts of the PDR changes for various locations across Huntingdonshire district, with the orange indicating buildings containing a commercial unit potentially eligible for conversion to residential under PDR under the rules in place until 31 July 2021 and the brown those potentially eligible for conversion from 1 August. Figures 26, 28, 32, 34 indicate how the changes could impact in the town centres of rural market towns across the country. Figures 25, 30, 31, 33 indicate potentially impacts on the small business parks common on the edge of towns. Figure 27 shows how even small village high streets could be impacted by a marked increase in which units could transfer from commercial to residential without any ability for local control. Figure 29 aims to show the same information but in a slightly different

way, highlighting the current town centre of Huntingdon and how many buildings could at least partially change to residential in future under PDR.

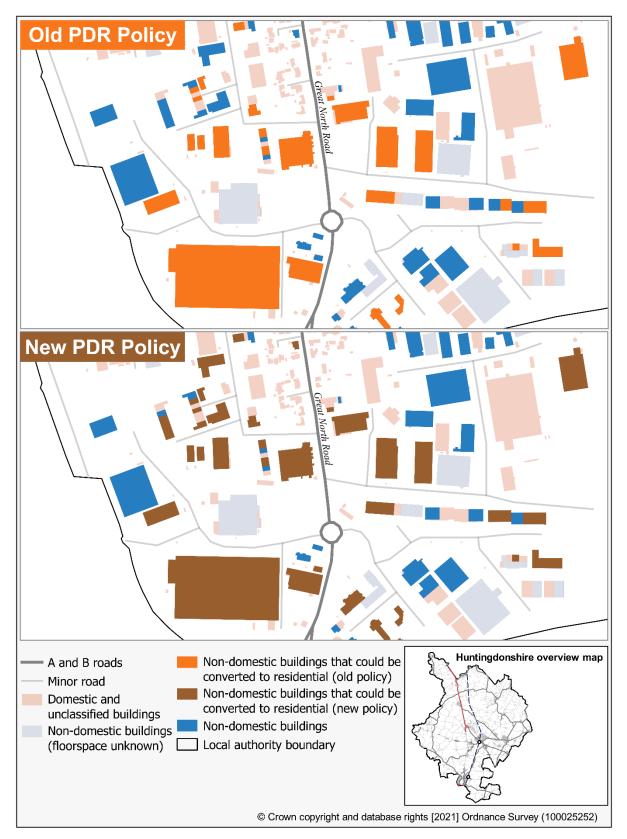


Figure 25: The impacts of the changing commercial-to-residential PDR policy at a business park location on the edge of St Neots

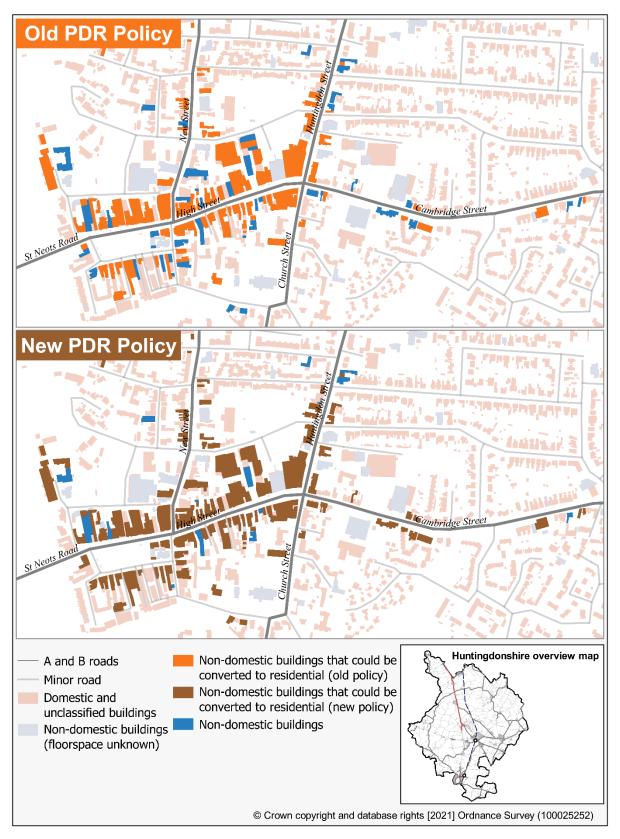


Figure 26: The impacts of the changing commercial-to-residential PDR policy in the centre of St Neots

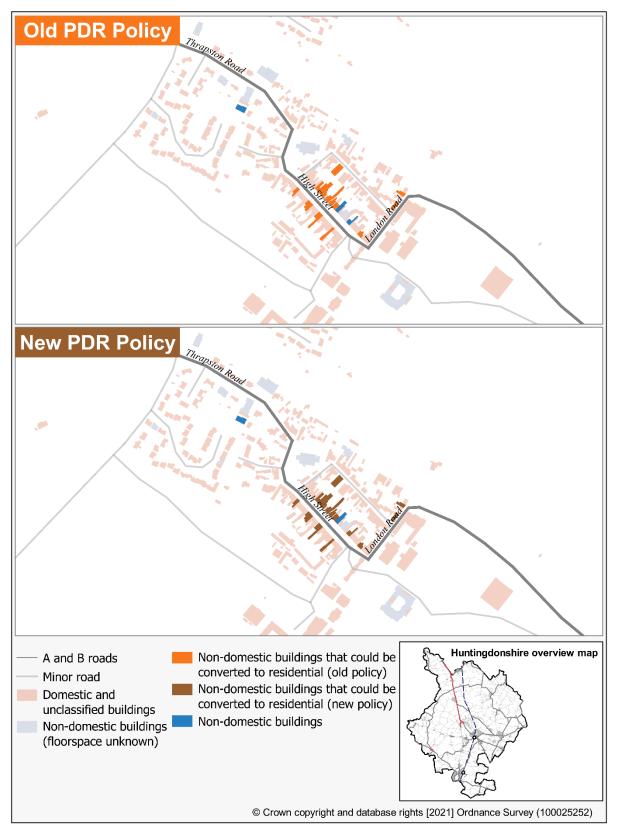


Figure 27: The impacts of the changing commercial-to-residential PDR policy in Kimbolton

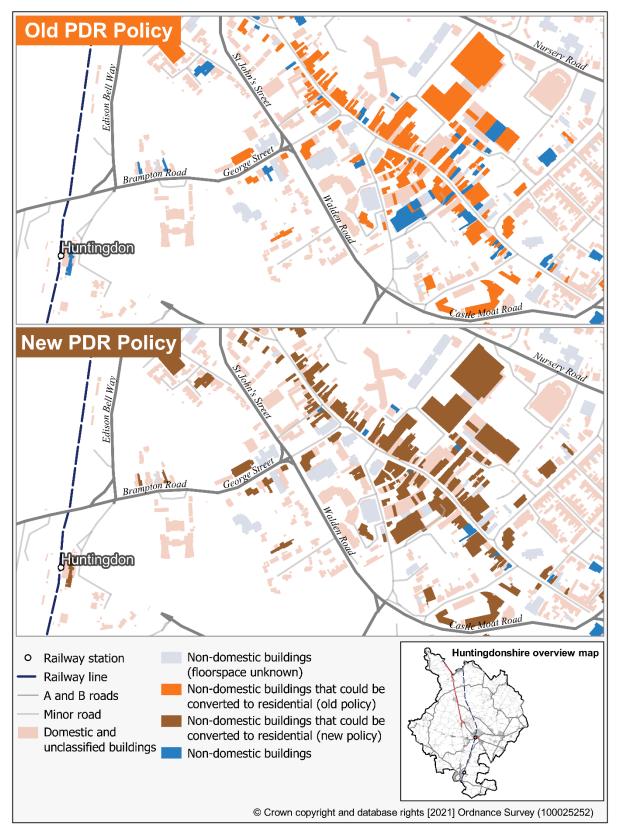


Figure 28: The impacts of the changing commercial-to-residential PDR policy in the centre of Huntingdon

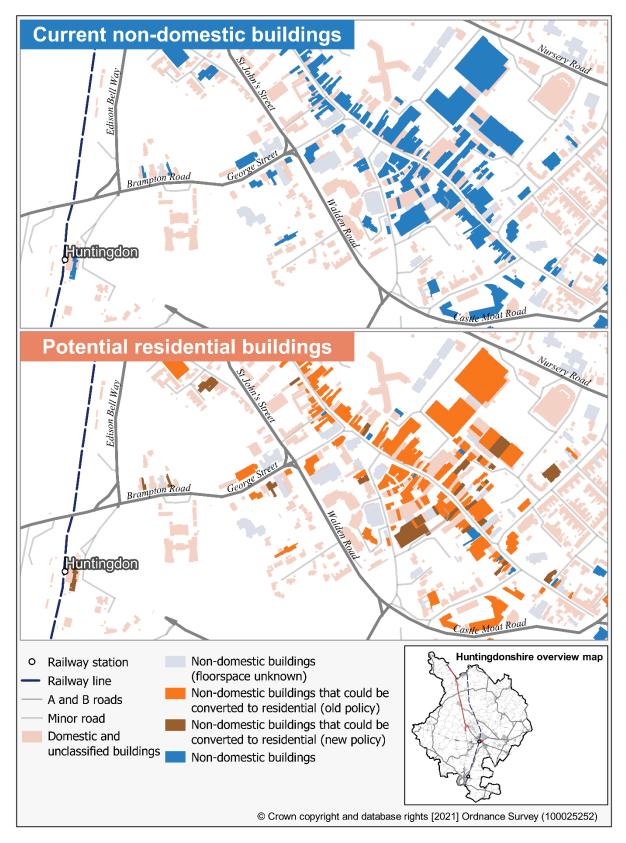


Figure 29: The potential impact of PDR on Huntingdon town centre

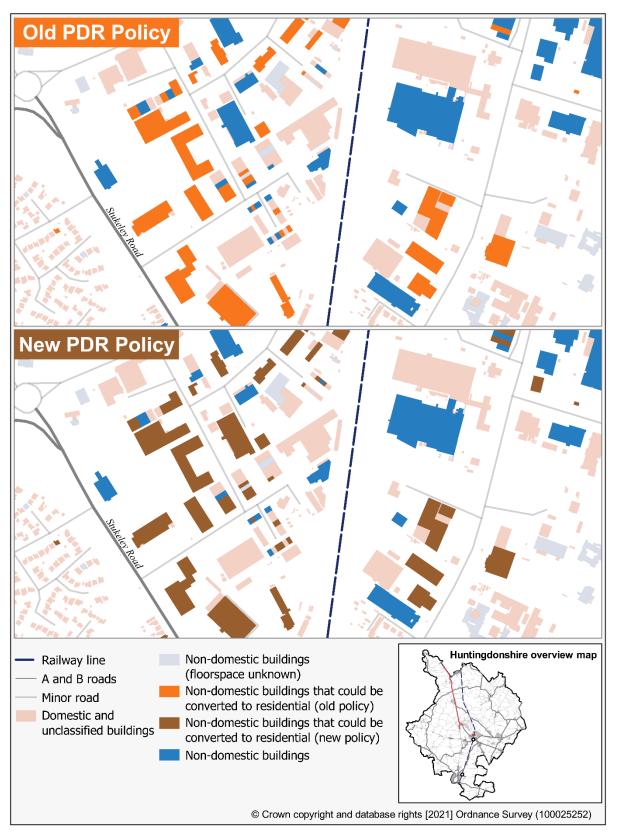


Figure 30: The impacts of the changing commercial-to-residential PDR policy at a business park location on the edge of Huntingdon

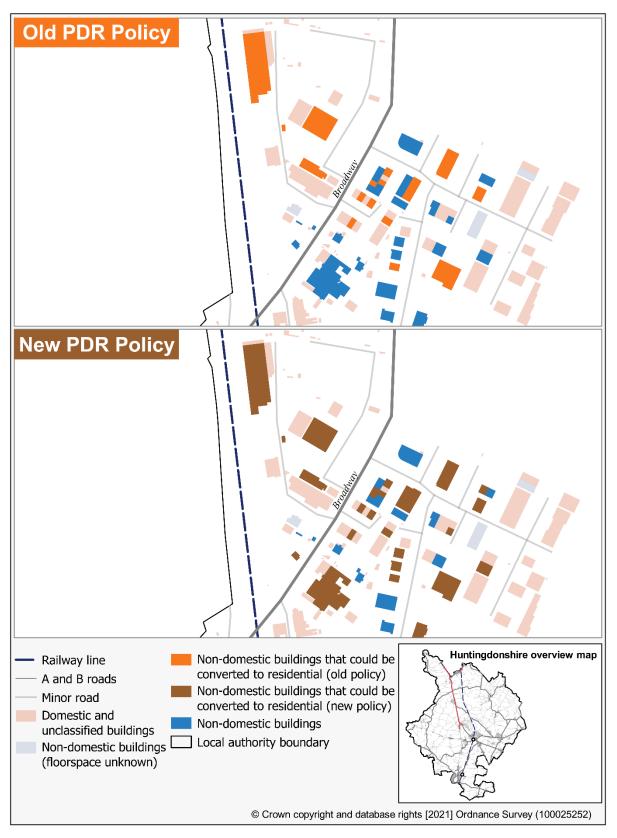


Figure 31: The impacts of the changing commercial-to-residential PDR policy at a business park location on the edge of Yaxley

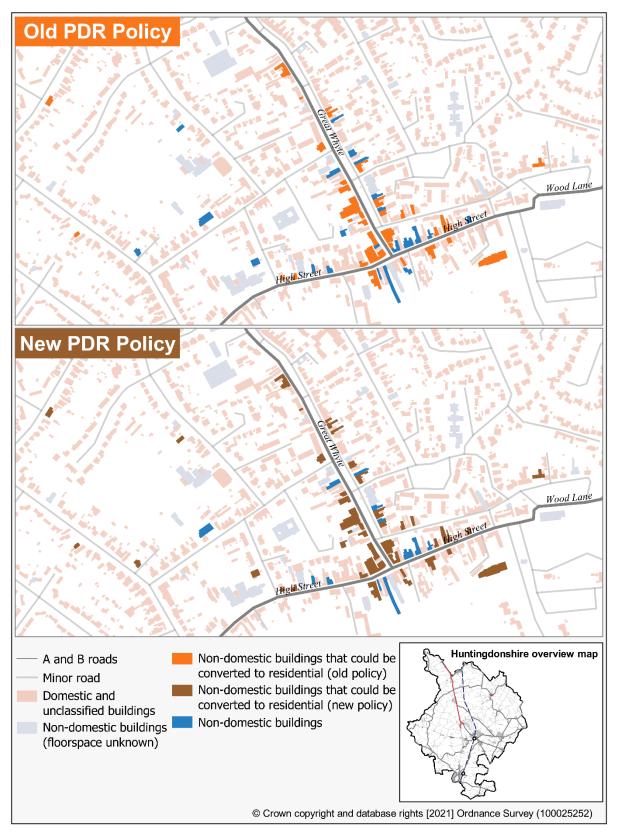


Figure 32: The impacts of the changing commercial-to-residential PDR policy in Ramsey

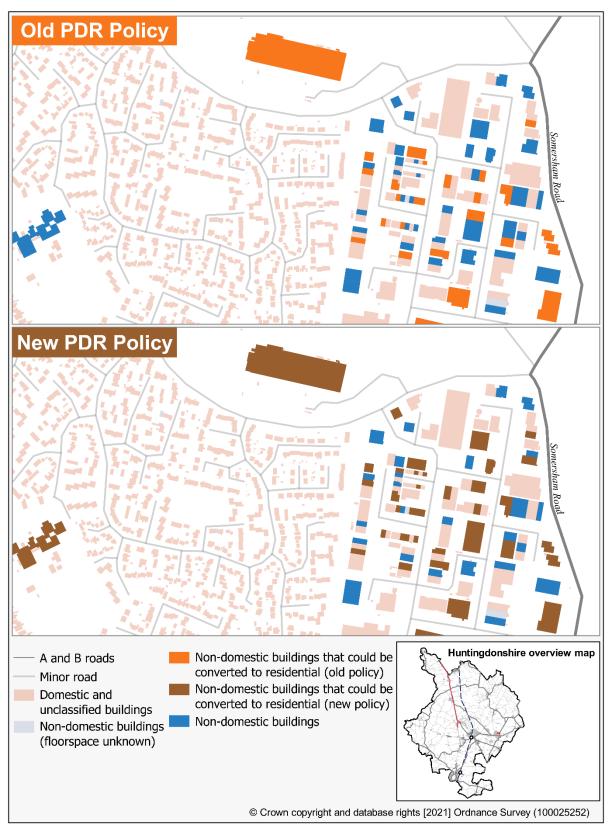


Figure 33: The impacts of the changing commercial-to-residential PDR policy at a business park location on the edge of St Ives

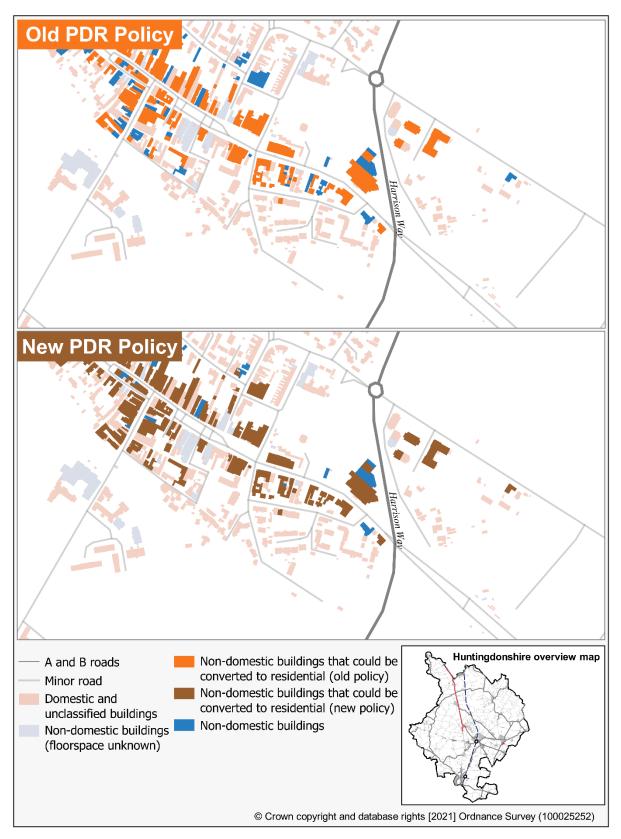


Figure 34: The impacts of the changing commercial-to-residential PDR policy in the centre of St Ives

#### Leicester

Leicester is the tenth largest city in England. Almost land within its administrative boundaries is developed, with a densely populated and compact urban area. The city provides employment, public administrative, leisure, education and health care with a city centre, local high streets and other centres of commercial buildings.<sup>17</sup>

	Old PDR policy		1	New PDR Policy	
	Total floor size which could potentially	Total number of units which could potentially be		Total floor size which could potentially	Total number of units which could potentially be
Planning use	be converted	converted (POI	Planning use	be converted	converted (POI
class	(m²)	count)	class	(m²)	count)
B1a	229026	450	E (formerly B1a)	154050	450
A2	77919	719	E (formerly A2)	201057	719
A1	229885	2387	E (formerly A1)	667253	2387
PD sui generis	6976	63	PD sui generis	6976	63
			E (formerly A3)	64219	330
			E (formerly B1b)	39725	83
			E (formerly B1c)	124465	440
			E (formerly D1)	111814	391
			E (formerly D2)	46999	82
Total	543806	3619	Total	1416558	4945
Total number of commercial buildings potentially eligible for conversion under PDR:		2668	Total number of commercial buildings potentially eligible for		2502
for conversion l	inder PDK:	2668	conversion under	PUK:	3593

Table 4: Results for our analysis of the new commercial to residential PDR in Leicester

Table 4 above, illustrates our analysis for Leicester. Under the PDRs for commercial-toresidential conversion in force up to 31 July 2021, we have found evidence suggesting 3,619 commercial units potentially eligible for conversion, in 2,668 different buildings, and with a total floorspace eligible for conversion of 543,806m<sup>2</sup>. Under the PDRs for commercial-toresidential conversion in force from 1 August 2021, we have found evidence suggesting 4,945 commercial units potentially eligible for conversion, in 3,593 different buildings, and with a total floorspace eligible for conversion of 1,416,558m<sup>2</sup>. This comparison suggests a 36.6% increase in the number of commercial units eligible for conversion, a 34.6% increase in the number of buildings where at least part of that building might be eligible for conversion, and a 160.5% increase in the total floorspace of commercial buildings eligible for conversion to residential under PDR through the introduction of Class E. There is a shift from 57.3% to 77.2% of the 4,655 non-domestic (commercial, business, service and public sector) buildings liable for business rates we identified in Leicester potentially being eligible to become residential instead under PDR.

What this change might mean on the ground is illustrated by the maps below. Figure 35 is an overview of the district, showing clusters of non-domestic (primarily commercial) buildings. Figure 36 indicates the location of a series of six zoomed in maps of local areas with a high

<sup>&</sup>lt;sup>17</sup> 'Leicester City Core Strategy' at <u>https://www.leicester.gov.uk/media/179023/core-strategy-adopted-july-2014.pdf</u>

concentration of commercial buildings which we utilise to further illustrate the potential impact of the introduction of the Class E to residential PDR.

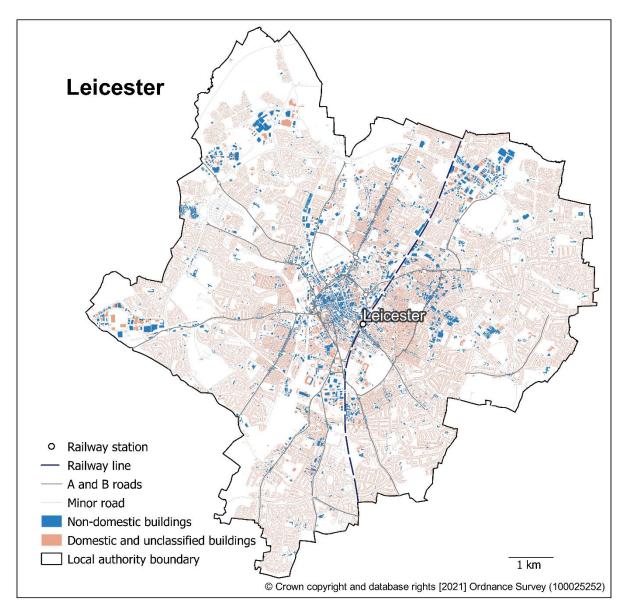


Figure 35: Overview map of Leicester city local authority area

Figures 37-41 and 43-46 are zoomed in local maps indicating the local scale of the impacts of the PDR changes for various locations across the city of Leicester, with the orange indicating buildings containing a commercial unit potentially eligible for conversion to residential under PDR under the rules in place until 31 July 2021 and the brown those potentially eligible for conversion from 1 August. Figure 37 and Figure 46 show industrial estate areas of the city. Figure 39 show a retail park area. Figure 38, Figure 44 and Figure 45 show impact in local neighbourhoods with mixed use typical of urban areas. Figure 40, Figure 41 and Figure 43 show the impact across the city centre, dramatically indicating how hardly any buildings in the core of a provincial city would not be eligible to be turned to residential use unless an Article 4 direction is able to be introduced. Figure 42 aims to show the same information but in a slightly different way, highlighting part of Leicester city centre and how many buildings could at least partially change to residential in future under PDR.

In Figure 43, it is worth noting that both the rail station and part of the hospital (Leicester Royal Infirmary) are shown as eligible for PDR. This is because both include business units which are potentially eligible, such as retail and food and drink. According to our approach, because there are potentially eligible units within these buildings, we have coloured the whole building polygon. It may seem unlikely that conversion of these units to residential under PDR would happen, given likely lack of landowner support, however it is interesting to speculate on whether units within larger buildings without landowner objections to residential conversion could start to transfer via PDR in future, as in some cases the prior approval requirements could potentially be satisfied.

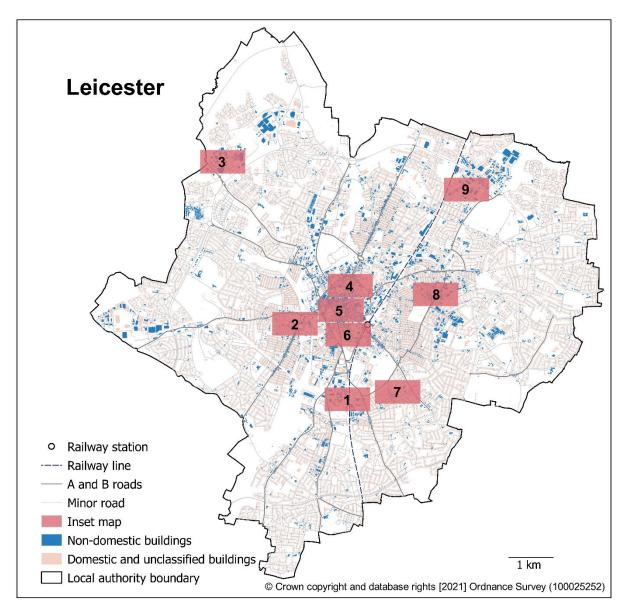


Figure 36: Map of Leicester indicating the location of our nine zoomed in maps

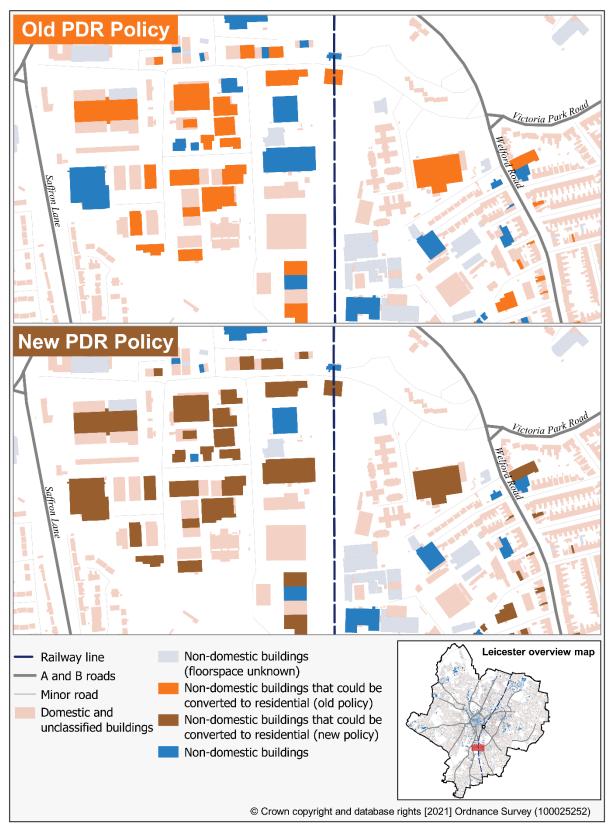


Figure 37: The impacts of the changing commercial-to-residential PDR in the Freemans Common Industrial Estate area

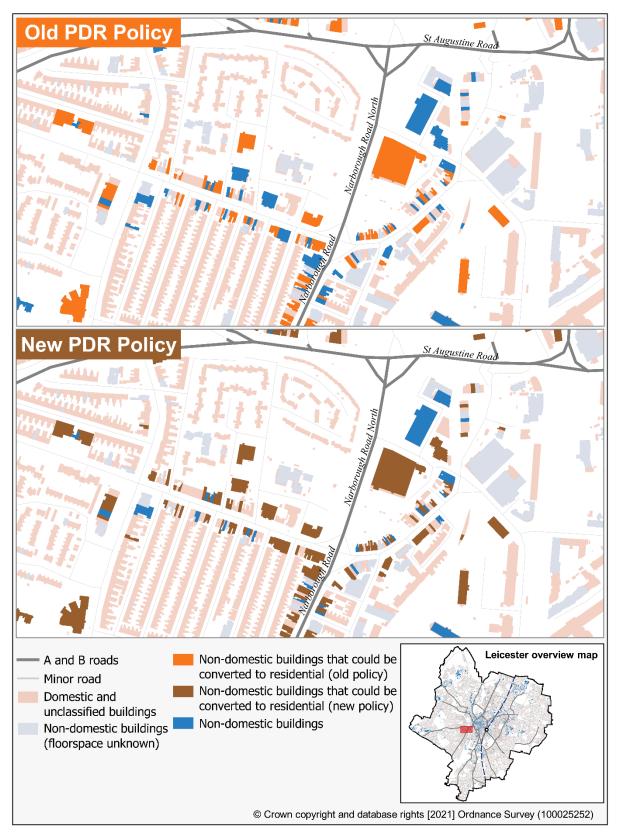


Figure 38: The impacts of the changing commercial-to-residential PDR in the Westcotes area

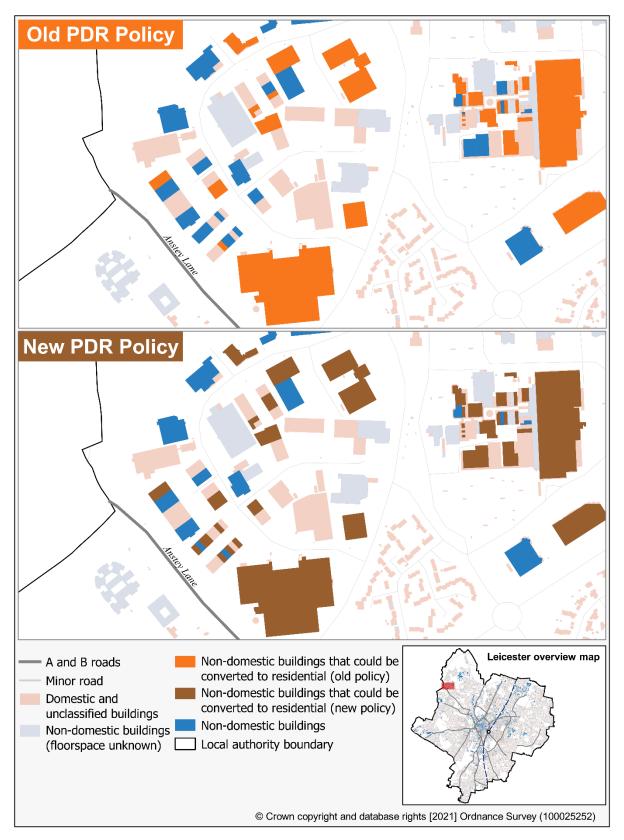


Figure 39: The impacts of the changing commercial-to-residential PDR in the Beaumont Leys area

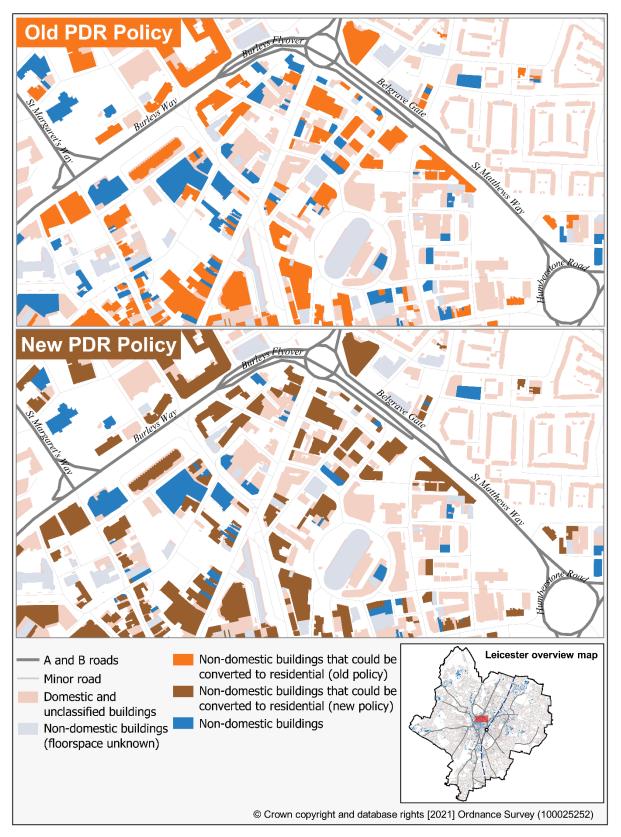


Figure 40: The impacts of the changing commercial-to-residential PDR in the northern part of Leicester city centre

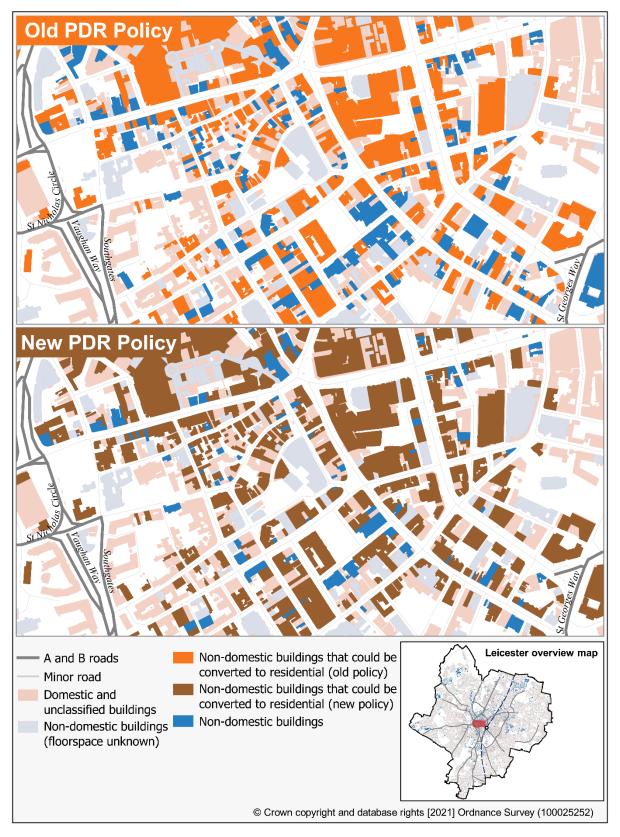


Figure 41: The impacts of the changing commercial-to-residential PDR in Leicester city centre

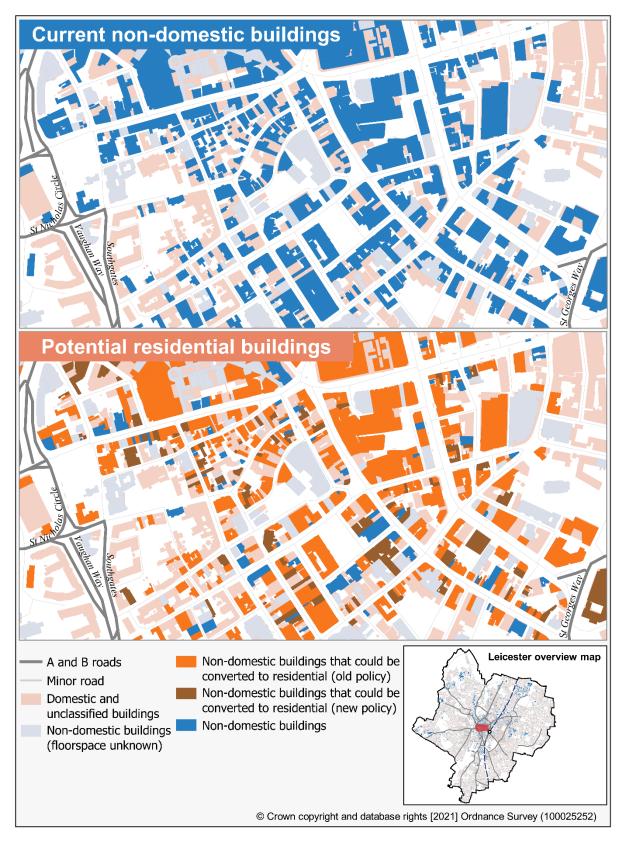


Figure 42: The potential impact of PDR on Leicester city centre

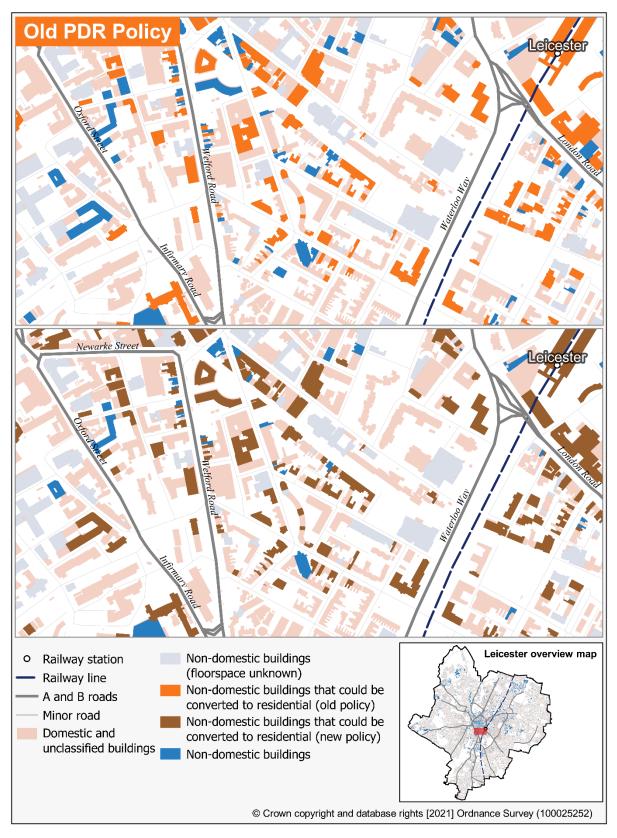


Figure 43: The impacts of the changing commercial-to-residential PDR in the southern part of Leicester city centre

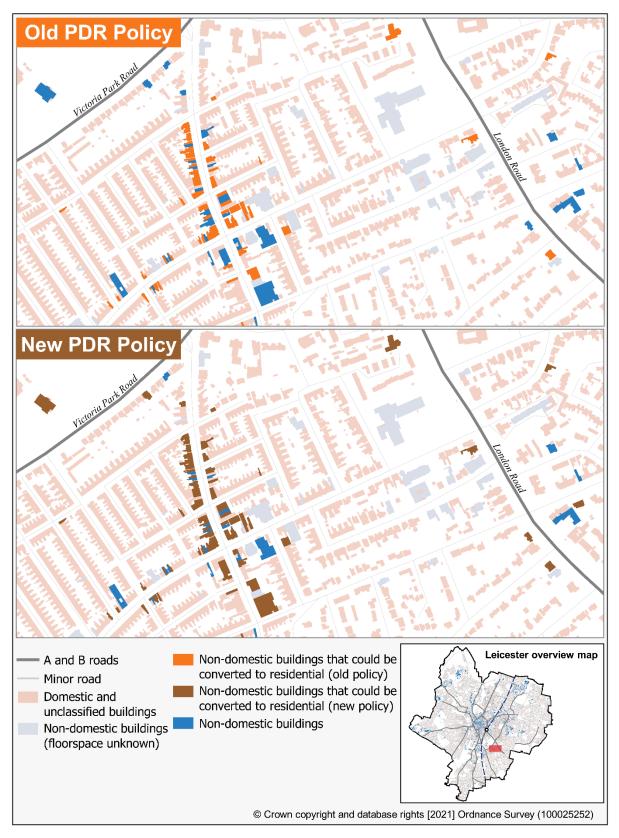


Figure 44: The impacts of the changing commercial-to-residential PDR in the Clarendon Park area

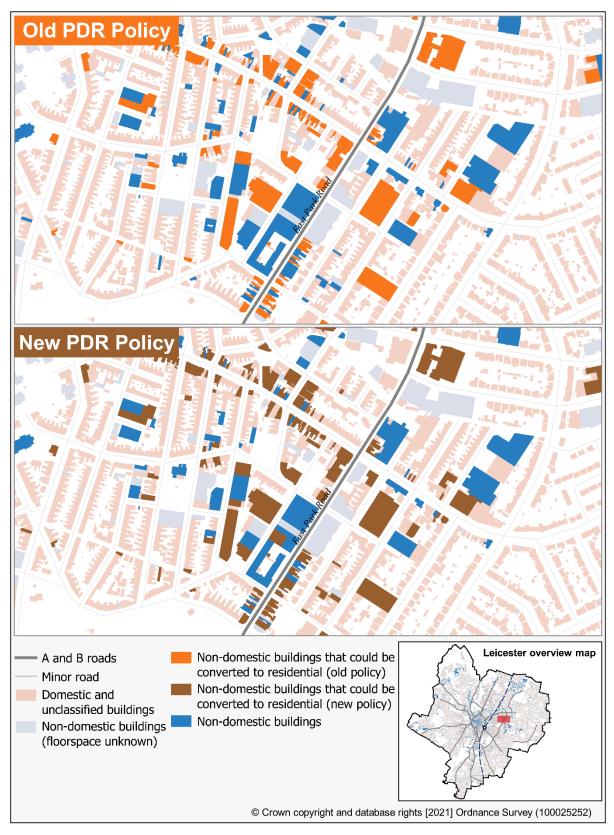


Figure 45: The impacts of the changing commercial-to-residential PDR in the Spinney Hills area

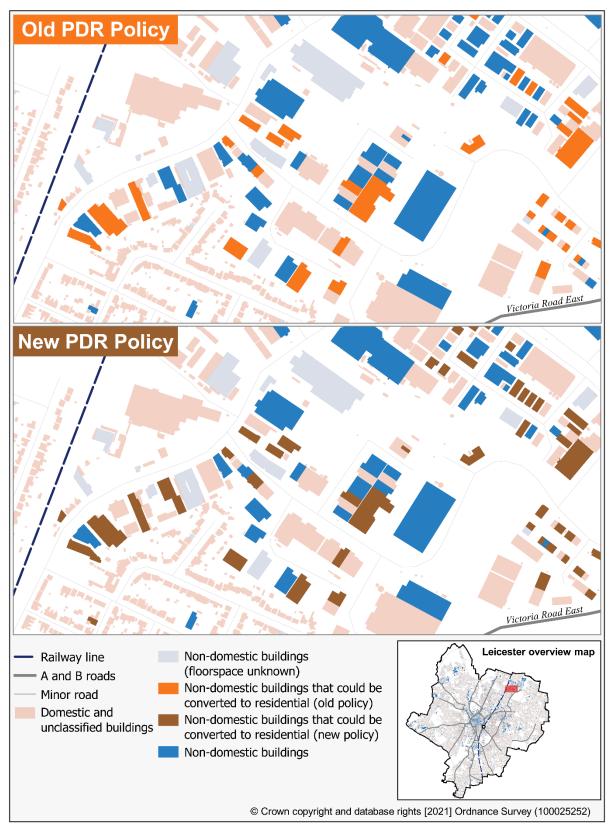


Figure 46: The impacts of the changing commercial-to-residential PDR in the Barkby Road area

#### **Overall picture**

Across all four local authorities, we have seen a similar trend in terms of the impact of introducing the new Class E to residential permitted development right, as Table 5 below illustrates. In all cases, the percentage of buildings whereby at least part of that building could potentially be converted from commercial to residential use under PDR dramatically increases with the introduction of Class E, which has the same impact fairly consistently across all the case study local authorities.

	Barnet	Crawley	Huntingdon-	Leicester	Combined
Total number of non	6.052	1.080	shire	7.014	total
Total number of non-	6,952	1,980	4,211	7,014	20,157
domestic buildings	E 620 unite		2 902 unite	6 700 unite	16 691 unite
Total number of	5,630 units	1,548 units	2,803 units	6,700 units	16,681 units
commercial / service	3,450	1,025	2,037	4,655	11,167
units and buildings with	buildings	buildings	buildings	buildings	buildings
floorspace information	2 644	002	4.526	2.640	0.650
Number of commercial	3,611 units	902 units	1,526 units	3,619 units	9,658 units
units and buildings	2,309	601	1,138	2,668	6,716
potentially eligible for	buildings	buildings	buildings	buildings	buildings
conversion to residential					
under old PDR policy	<b>CA 40( (</b>	<b>50.20</b> ( (		<b>54.00</b> ((,,,'),)	<b>57.00</b> ( (
Percentage of	64.1% (units)	58.2% (units)	54.4% (units)	54.0% (units)	57.9% (units)
commercial & service	66.9%	58.6%	55.9%	57.3%	60.1%
units / buildings which	(buildings)	(buildings)	(buildings)	(buildings)	(buildings)
could potentially be					
converted to residential					
under old PDR policy	4 702	4.470	2.050	4.045	12.047
Number of commercial	4,782 units	1,170 units	2,050 units	4,945 units	12,947 units
units and buildings	3,059	788	1,530	3,593	8,970
potentially eligible for	buildings	buildings	buildings	buildings	buildings
conversion to residential					
under new PDR policy			<b>70</b> 404 ( 11 )	70.00((, ); )	
Percentage of	84.9% (units)	75.6% (units)	73.1% (units)	73.8% (units)	77.6% (units)
commercial & service	88.6%	76.9%	75.1%	77.2%	80.3%
units / buildings which	(buildings)	(buildings)	(buildings)	(buildings)	(buildings)
could potentially be					
converted to residential					
under new PDR policy					
Total commercial	385,371	223,828	312,550	543,806	1,465,555
floorspace that could					
potentially be converted					
to residential under old					
PDR (m <sup>2</sup> )	000.400	470.007	622.445	4 44 6 7 7 8	2 226 121
Total commercial	822,493	473,927	623,446	1,416,558	3,336,424
floorspace that could					
potentially be converted					
to residential under new					
PDR (m <sup>2</sup> )					

Table 5: Combined results across our four case study local authorities

This impact is further illustrated by the graphs below. As Figure 47: Graph illustrating the total number of commercial buildings which could potentially be converted to residential under permitted development rules up to 31 July 2021 ('old policy') and after 1 August 2021 ('new policy')Figure 47 illustrates, the absolute number of buildings where our analysis finds that at least part of that building could be converted from commercial to residential use under permitted development rules will increase in all case study local authorities on 1 August 2021. Across all four local authorities, when combined, the total number of buildings potentially eligible for conversion increases from 6,716 buildings 8,970 buildings, or a 33.6% increase.

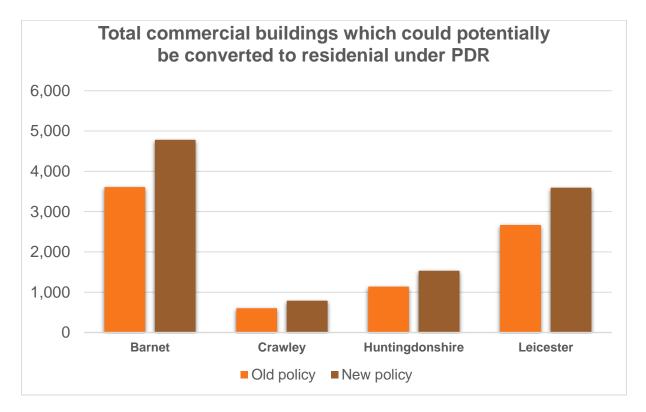


Figure 47: Graph illustrating the total number of commercial buildings which could potentially be converted to residential under permitted development rules up to 31 July 2021 ('old policy') and after 1 August 2021 ('new policy')

As a proportion of all non-domestic buildings, the combined total of buildings potentially eligible at least in part for conversion under PDR increases from 60.1% to 80.3% of such buildings across all four case study local authorities combined, with the position of each different case study authority illustrated by Figure 48. The total floorspace which could potentially be converted from commercial to residential (with the calculation incorporating the applicable size limits for conversion, e.g. 150m<sup>2</sup> for sui generis and 1,500m<sup>2</sup> for Class E) increases by between 2.0 and 2.6 times across each local authority, as illustrated by Figure 49, with the combined total across all four authorities increasing 2.3 times, from 1,465,555 to 3,336,424m<sup>2</sup>, or in other words, a 127.7% increase.

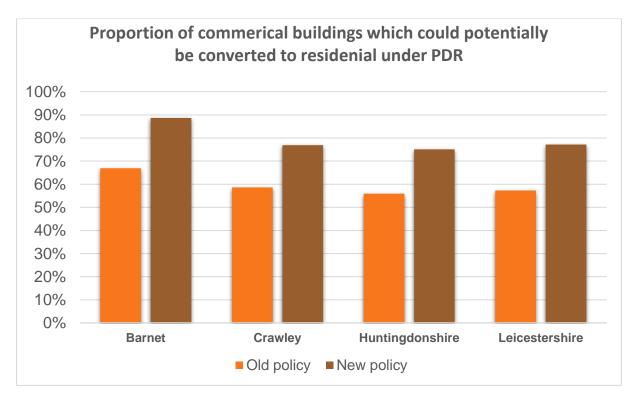


Figure 48: Graph illustrating the total number of commercial buildings which could potentially be converted to residential under permitted development rules up to 31 July 2021 ('old policy') and after 1 August 2021 ('new policy')

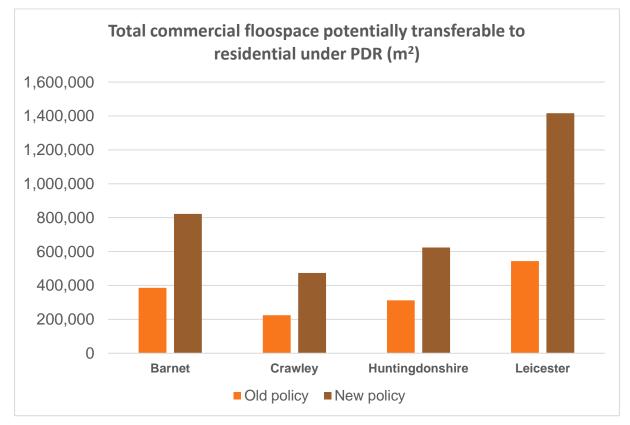


Figure 49: Graph illustrating the total floorspace which could potentially be converted from commercial to residential under permitted development rules up to 31 July 2021 ('old policy') and after 1 August 2021 ('new policy')

## 5. Conclusions

The government acknowledge that the introduction of a Class E to residential permitted development right will increase the range of commercial buildings which can be converted but have not as yet illustrated the potential scope and impact of this increase. Looking at four case study local authorities, we have found the absolute number of buildings where at least part of that building could be converted from commercial to residential use under permitted development rules will increase from 6,716 buildings 8,970 buildings, or a 33.6% increase. As a proportion of all buildings eligible for business rates (most non-domestic buildings), we estimate that the combined total of buildings potentially eligible at least in part for conversion under PDR increases from 60.1% to 80.3% of such buildings as of 1 August 2021 when the new wide-ranging class E to residential rights come in. The range of non-domestic buildings and units within buildings which can be converted to residential under PDR increases significantly on 1 August 2021.

Even more dramatic is the increase in the floorspace eligible for conversion under PDR: the total floorspace eligible for conversion more than doubles, from 1,465,555 to 3,336,424m<sup>2</sup>. Although parts of shops, banks and similar premises could be converted to residential under PDR since 2015, the increase in allowable space that can be converted in each premises from 150m<sup>2</sup> to 1500m<sup>2</sup> could well tip a large amount of space into now being seen as viable for developers to implement residential conversion schemes when perhaps it was previously more marginal. Given the range of different built environment contexts we examined in our research and the consistency in the data seen between each of the four case studies, the picture in relation to the increase in the range and number of premises and amount of floorspace eligible for conversion to residential under PDR is likely to be similar across the whole country.

In other words, there are very few buildings in commercial (including business and service) use which are now not potentially eligible for conversion to residential use. Shops, offices, banks, restaurants, cafes, light industrial units, clinics, nurseries, day centres, gyms and recreation centres will all now be vulnerable to being changed into housing. As our data and maps show, the impact on our built environment could be hugely significant. There are now few buildings in city and town centres, local high streets or retail / office / business parks which could not now be lost to become dwellings, with a change to residential much easier than a change back to commercial use.

A key question must be, of course, as to why this should be a cause for concern. There is a housing crisis and there are vacant retail, office and other commercial units around. There are environmental benefits that can often be achieved from repurposing buildings rather than demolishing them and rebuilding. Yet the housing units we have seen delivered through PDR often do not match genuine local need (the housing crisis being about much more than just housing numbers, for example affordability, tenure and number of bedrooms). Further, the extremes of poor quality that have been seen in housing delivered through existing PDRs remain a real cause for concern.

The government have rightly acted to introduce the welcome absolute requirement that these conversions meet the Nationally Described Space Standards.<sup>18</sup> They have also put conditions into the prior approval process to assess for adequate natural light to habitable

<sup>&</sup>lt;sup>18</sup> 'Technical housing standards – nationally described space standard' at <u>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/524</u> <u>531/160519\_Nationally\_Described\_Space\_Standard\_\_\_\_Final\_Web\_version.pdf</u>

rooms and to prevent introducing residential use into industrial areas. However, without current case law (e.g. through appeals on refusal of prior approval), we are likely to see some developers continue to try and push against the boundaries of acceptability, for example claiming 'skylights' would give adequate natural light and still not providing windows or using existing PDR conversions to residential use on industrial estates as evidence that such use has already been introduced in an area and so should be considered acceptable.

There are also still potential issues in relation to locations remote from services (most existing housing created through PDR is in a reasonable location in this regard, but some dramatically are not and the extremes of what is possible to create should be more concern to us than averages), in relation to accessibility (for example for those with disabilities), in relation to access to green space and play space for children, and potentially in relation to issues like air pollution. Many of the TCPA's proposed 'Healthy Homes Principles' are unlikely to be met by these PDR schemes in future.<sup>19</sup>

Beyond the concern about the liveability and health and wellbeing impacts of housing able to be created through these expanded PDRs, there should also be concerns about the impact on businesses. Although there is now a three-month vacancy period required as a prior approval condition, it is likely many landowners would be able to circumvent that by deliberately creating vacancies if they wish to convert a commercial building to residential and there would be a strong incentive to do so where housing prices remain extremely high. The loss of still occupied business premises, at a time when there are still uncertainties about future need for such space given the extreme conditions of the pandemic, could negatively harm local economies and the vitality of places.

There are also potential fiscal implications, for example the loss of Business Rates, which for occupied commercial premises are higher than Council Tax for residential premises. Additionally, fees for a prior approval process which is becoming increasingly complex (to rightly respond to issues such as poor quality housing, but raising the question of why PDR is even necessary compared to just utilising planning permission processes instead) do not seem to align with the work required by local authorities, and so can leave them with resourcing issues. This is without even mentioning issues related to the lack of planning gain contributions than can be levied on PDR schemes (including for affordable housing and necessary supporting infrastructure, particularly social and green).

This is not to blanket oppose all conversions of genuinely surplus commercial buildings to residential use. It is to say that such schemes should be high quality design and plan-led. One of the advantages of our case-by-case planning system is the ability to take a holistic view of the merits of a scheme through a planning application. In the white paper on planning reform published in August last year, the government have proposed to replace this system with a more automatic process through strengthened local plans, supported by design codes.<sup>20</sup> High quality residential schemes can and are delivered in other countries which have such 'as-of-right' planning processes. However, this is supported through the application of detailed and rigorous policies and codes far beyond anything in our current prior approval process for PDR.

In England, we are in the strange situation were the government is proposing a more 'as-ofright' planning system but without the supporting regulatory and policy frameworks to ensure higher quality housing. Beautiful design will not be achieved in many PDR schemes because design codes cannot be applied to these new Class E conversions. A plan-led approach will

<sup>&</sup>lt;sup>19</sup> 'Healthy Homes Principles' at <u>https://www.tcpa.org.uk/Handlers/Download.ashx?IDMF=77ad9920-</u> <u>c518-48b1-bf7e-27e27006f264</u>

<sup>&</sup>lt;sup>20</sup> 'Planning for the future' white paper at <u>https://www.gov.uk/government/consultations/planning-for-the-future</u>

not be achieved in identifying (spatially) buildings or groups of buildings suitable to convert to residential and buildings that should be protected in business or service use to support local employment and local communities because local plan policies cannot be applied. And further there will be no opportunity for local community engagement and democratic processes given both local plans and case-by-case planning permission engagement are irrelevant for PDR schemes. As our maps and data illustrate, huge amounts of development and change are now possible without anything like a proper planning process at any stage.

The ability of local authorities to take back some degree of control on these nationally defined rights has so far relied on the sensitive use of 'Article 4 directions' which can remove, for an area, these rights. After a transition period, any existing directions will cease to have an effect as from July 2022. If they want to replace them or make new directions, local authorities will face an uphill battle due to changing government policy to make it harder for them to introduce them.<sup>21</sup> Given this, it is important local authorities make best use of the factors they can consider and conditions they can impose through the prior approval process. Existing powers have not always been fully utilised by resource constrained authorities but should be in future. More generally, if central government remain as wedded to PDR for delivering new housing as they appear to be, then alternative means to ensure at least the design quality and liveability of such housing must remain a priority.

Changes to secondary legislation governing which changes of use of existing buildings require planning permission or not may seem a technocratic issue. However, the changes being introduced on 1<sup>st</sup> August 2021 through the new Class E permitted development rights will dramatically reduce the ability of local authorities to curate change in the built environment and properly plan for the future. The maps and data in this report highlight why this technocratic change in our planning regulations could have dramatic impacts and should be deeply concerning.

We would conclude by supporting the recent call from the Housing, Communities and Local Government select committee for the government to pause any further extensions of PDR for change of use to residential and conduct a review of the role of PDR within the wider planning system.<sup>22</sup> Positive adaptive reuse of buildings, converted genuinely surplus commercial buildings into high quality housing is possible in a properly planned way, but this requires better governance mechanisms than the current PDR approach.

 <sup>21</sup> 'Revitalising high streets and town centres' written ministerial statement at <u>https://questions-statements.parliament.uk/written-statements/detail/2021-07-01/hcws145</u>
<sup>22</sup> 'Permitted Development Rights' at https://committees.parliament.uk/publications/6896/documents/72563/default/

## Appendix 1: Further technical detail on approach taken

Estimates of the size and location of non-domestic buildings with domestic conversion potential under the old and new proposed permitted development rights required a multistage data linkage and classification process that we will detail below. Our aim was simply to identify those non-domestic buildings – or in strict Valuation Office Agency terms, *hereditaments* (building or property subdivisions<sup>23</sup>) – that by virtue of their size and use could be potentially converted into domestic usage under old and new proposed planning legislation.

To judge where these properties are located requires a comprehensive, spatially referenced database of non-domestic buildings (and sub-divisions); their size; and their accompanying planning use classes. Currently in England and Wales, this does not exist and thus necessitated the linkage of several separate databases to create a single research database for this report. All datasets used in the process are shown in Table 6.

The base dataset upon which our linked research database is built is the Ordnance Survey (OS) Point of Interest (POI) dataset (Table 1). This was preferred as it the most comprehensive spatially explicit directory of non-domestic activities in the UK and could be linked to both the building footprint data in OS MasterMap via the Unique Property Reference Number (UPRN) and the planning use class important for determining permitted development rights via the PointX classification typology. Size data associated with each non-domestic building and crucial for determining permitted development rules are derived from Valuation Office Agency (VOA) ratings lists and linked via an address-matching methodology described below. Figure 50 is a diagrammatic representation of the data linkage workflow used to generate this final linked POI dataset.

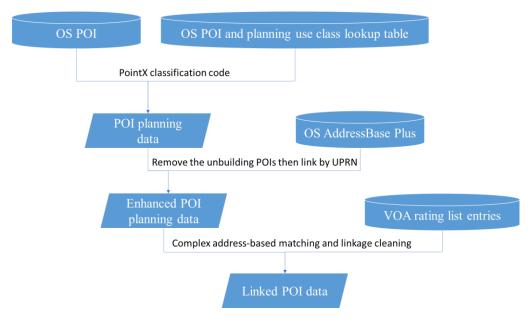


Figure 50: Data linkage workflow for generating the research dataset

<sup>&</sup>lt;sup>23</sup> <u>https://www.gov.uk/guidance/rating-manual-section-3-valuation-principles/part-1-hereditament</u>

Table 6: A summary of research data resources

Dataset	Description	Resource location	Spatial coverage	Data version	Data format
OS Points of	Location-based	https://www.ordnancesurvey.co.uk/busine	Huntingdonshire	September 2020	File geodatabase
Interest	directory of all non-	ss-government/products/points-of-interest	Crawley		
(POI)	domestic public and		Barnet		
	private businesses and	Edina Digimap	Leicester		
	activities, classified by				
	PointX Classification				
	Туре.				
VOA rating	Official Valuation Office	https://voaratinglists.blob.core.windows.n	England and Wales	2017- current	CSV
list	Agency business rating	et/html/rlidata.htm			
	list entries. Contains				
	address of all rateable				
	non-domestic buildings,				
	their size and address				
OS Master	Comprehensive	https://www.ordnancesurvey.co.uk/busine	Huntingdonshire	August 2020	File geodatabase
Мар	landscape and building	ss-government/products/mastermap-	Crawley		
Topography	mapping dataset for the	topography	Barnet		
Layer	whole of the UK		Leicester		
		Edina Digimap			
PointX	Description of all PointX	https://www.pointx.co.uk/assets/docs/Poi	n/a		CSV
Classification	classification groups	ntX-Version-2-User-Guide-2020-2New.pdf			
Guide					
PointX to	Lookup table of PointX	Created by the project team	n/a		CSV
Planning Use	Classification groups to				
Class Lookup	Planning Use Classes				
Table					
OS	Comprehensive Address	https://www.ordnancesurvey.co.uk/busine	England and Wales	12 April 2021	CSV
AddressBase	register for England and	ss-government/products/addressbase-plus			
Plus	Wales.				
OS OpenMap	Street level mapping	https://www.ordnancesurvey.co.uk/busine	England and Wales	2021	File geodatabase
- Local	data	ss-government/products/open-map-local			

#### Linkage stages

The stages below were repeated for each of the four case-study local authorities of Barnet, Crawley, Huntingdonshire and Leicester.

#### Stage 1 – Attach planning use classes to the POI data

The PointX Classification scheme consists of a nested 9 *Group*, 52 *Category*, 621 *Class* structure categorising each POI within the dataset. A manually generated lookup table mapping each PointX Class to current and proposed planning use classes (See Appendix 2 and Appendix 3) was generated – see example in Table 7– and then attached to the POI list via the PointX Class Code.

Pointx_class	Group Number	Group Name	Category Number	Category Name	Class Number	Class Name	Old Use Class	New Use Class
01010002	01	Accommodation, eating and drinking	01	Accommodation	0002	Camping, caravanning, mobile homes, holiday parks and centres	C1	C1
01010003	01	Accommodation, eating and drinking	01	Accommodation	0003	Bed and breakfast and backpacker accommodation	C1	C1
01010005	01	Accommodation, eating and drinking	01	Accommodation	0005	Hostels and refuges for the homeless	Sui generis	Sui generis
01010006	01	Accommodation, eating and drinking	01	Accommodation	0006	Hotels, motels, country houses and inns	C1	C1
01010007	01	Accommodation, eating and drinking	01	Accommodation	0007	Self catering	C1	C1
01010008	01	Accommodation, eating and drinking	01	Accommodation	0008	Timeshare	C1	C1
01010009	01	Accommodation, eating and drinking	01	Accommodation	0009	Youth accommodation	C1	C1

Table 7: Sample Lookup Table from PointX Class to Planning Use Class

Following this initial linkage stage, between around 5,000 and 15,000 POIs were located in each case study local authority (Table 8).

Table 8: POI data by local authority along with local authority size

LA code	LA name	POI count	Local authority area (km <sup>2</sup> )
E0900003	Barnet	14,566	86.74
E07000226	Crawley	5,168	44.97
E07000011	Huntingdonshire	13,498	912.47
E06000016	Leicester	14,582	73.31

## Stage 2 – Remove non-building POIs and link these to address data (OS AddressBase)

POI data contain many non-building entries such as public infrastructure (bus stops, cash machines, letter boxes etc.), attractions and landscape features (parks, lakes, gardens etc.). These were removed using the PointX classification scheme before being linked via the Unique Property Reference Number (UPRN) to full address information in the OS Address-base plus dataset (Table 9) – address linkage also removing errant non-building entities. OS AddressBase Plus has more detailed address information, so that a building-Linked POI is enhanced with this additional information.

LA code	LA name	Building-Linked POI count
E0900003	Barnet	10,758
E07000226	Crawley	3,088
E07000011	Huntingdonshire	6,541
E06000016	Leicester	10,505

Table 9: Count of Building-related POIs

#### Stage 3 – Link augmented building POI data to VOA ratings list attributes

The most challenging stage of the linkage process was linking – via address text matching – the enhanced POI data to VOA ratings list data. Common identifiers between the VOA and POI data do not exist. The VOA use a version of the UPRN called the "Unique Address Reference Number" – UARN, however, this is not directly comparable to the UPRN and cannot be matched directly.

One of the main issues to overcome is that there is frequently not a one-to-one relationship between buildings and the businesses and activities (and therefore planning use classes) that occupy them. Many non-domestic buildings are home to multiple businesses occupying different sized hereditaments – some of which can be (and indeed have been) converted into residential uses in the past.

#### Address Matching Methodology

Main Matching Issues

- 1. Address Errors. Simple transcription error, for example, Angel Eye Centre, Unit 4 Granville Ind Est 146-148, Granville Rd, London, NW2 2LD – recorded as Unit 1 in the POI dataset.
- 2. No standardised address format between VOA and POI data. Address formats are frequently inconsistent across datasets. For example, the same address in the POI and VOA datasets may be recorded as:
  - a) Unit 9, 176 West Hendon Broadway, London NW9 7AA
  - b) Unit 9 South R/O 148-176 The Broadway, NW9 7AA

The above example is just one of many similar address-matching issues which required an iterative approach, gradually identifying and joining more addresses at each iteration.

- 3. Building sub-divisions and hereditaments.
  - a) Multiple POIs within a single building

b) Multiple buildings belonging to a single POI business.

These errors had to be handled differently depending on the situation. Most commonly in case a) the VOA floor space was divided equally amongst each POI registered. In case b) the main building was usually the one counted, although in some cases, outbuildings were missed as a result.

4. Commercial activities occurring in domestic buildings. This was perhaps the single most common cause of un-matched POI entries, with businesses registered to domestic addresses. This generated apparently low business to building matching-rates, particularly in some planning use classes, but it should be stressed that the total match-rate statistics for each local authority in this report is a combination of both the errors described above and commercial activities in non-domestic properties.

Matching success varied by Local Authority. Table 10 shows an example of the matching success rate by each iteration of the matching algorithm which cycled though, for example, matching by postcode and business name or other address attributes such as building number at different passes.

linkage ID	Count	Matching rate	Cumulative matching rate
link1	1852	17.22%	17.22%
link10	85	0.79%	37.51%
link31	413	3.84%	47.07%
link49	14	0.13%	49.54%
link54	18	0.17%	50.17%
link66	2	0.02%	52.33%
Total	5630	52.33%	

Table 10: Example address matching rate, Barnet (at selected linking iterations)

Table 11 below shows the variation in linkage success between different types of planning use class for Leicester. It is possible to observe that for some use classes such as D2, the linkage match rates are very low compared to classes such as A3. It becomes clear why this is upon interrogating the types of building entity within these classes. A3 includes activities such as cafes and restaurants which will frequently be located in recognisable non-domestic buildings, whereas D2 includes activities such as cricket, football and rugby clubs which often may be located in clubhouse buildings not considered rateable by the VOA.

At the end of this linkage process, for each local authority a collection of POIs and their planning use classes linked to hereditaments with floorspace information was created. These buildings could then be filtered and located to reveal the extent of existing and proposed non-domestic to residential conversion potential in each local authority.

			Non-	
		VOA linked	Domestic	Match
ID	Old use class	POIs	POIs	rate
1	A1	2191	3062	71.55%
2	A2	965	1769	54.55%
3	A3	423	517	81.82%
4	B1a	391	1325	29.51%
5	B1b	57	115	49.57%
6	B2 and B1c	433	869	49.83%
7	D1	497	1473	33.74%
8	D2	77	315	24.44%
9	PD sui generis	64	68	94.12%
	The other			
10	classes	532	1245	42.73%
Total		5630	10758	52.33%

#### Stage 4 – Filtering VOA-linked POIs by associated floorspace criteria

The final stage of the database building process required each POI to be classified according to its old and new planning use class and the size of the hereditament it was located within. This was a simple filtering process where units above and below the conversion size thresholds were identified and mapped for each case study local authority. For hereditaments that could be converted to residential through PDR but which were above the floorspace limit (e.g. 150m<sup>2</sup> for A1 under the old PDR or 1500m<sup>2</sup> for Class E under the new PDR), these were included in the count of units eligible for conversion but only for a floorspace up the limit to be converted.

## Appendix 2: Further detail on the PDRs for commercial to residential conversion and planning use classes

A division of planning use classes and permitted development rules as follows informed our analysis.

#### Group 1

Types of building use currently and proposed to be allowed to be converted to residential use without planning permission, which we would want to be shown on mapping as able to be changed to residential:

'Old policy' (until 31 July 2021)	'New policy' (from 1 August 2021)
Shops and retail outlets (Class A1)	Shops and retail outlets (part of new Class E)
[Shops, retail warehouses, post offices, ticket and	[Shops, retail warehouses, post offices, ticket and
travel agencies, sale of cold food for consumption	travel agencies, sale of cold food for consumption
off premises, hairdressers, funeral directors, hire	off premises, hairdressers, funeral directors, hire
shops, dry cleaners, internet cafes]	shops, dry cleaners, internet cafes]
Allowed to change to residential use if total area of	Allowed to change to residential use if total area of
unit being converted is less than 150m <sup>2</sup> or if only	unit being converted is less than 1500m <sup>2</sup> or if only
converting up to 150m <sup>2</sup> of the unit	converting up to 1500m <sup>2</sup> of the unit
Betting office, payday loan shop, launderette,	Betting office, payday loan shop, launderette (Sui
casino, amusement arcade (Sui generis, which we	generis, which we refer to as 'PD sui generis' in
refer to as 'PD sui generis' in the report)	the report)
Allowed to change to residential use if total area of	Allowed to change to residential use if total area of
unit being converted is less than 150m <sup>2</sup> or if only	unit being converted is less than 150m <sup>2</sup> or if only
converting up to 150m <sup>2</sup> of the unit Financial and professional services (Class A2)	converting up to 150m <sup>2</sup> of the unit Financial and professional services (part of new
Finalicial and professional services (Class A2)	Class E)
[Banks, building societies, estate and employment	[Banks, building societies, estate and employment
agencies, professional services (not health or	agencies, professional services (not health or
medical services)]	medical services)]
Allowed to change to residential use if total area of	Allowed to change to residential use if total area of
unit being converted is less than 150m <sup>2</sup> or if only	unit being converted is less than 1500m <sup>2</sup> or if only
converting up to 150m <sup>2</sup> of the unit	converting up to 1500m <sup>2</sup> of the unit
Food and drink (Class A3)	Food and drink (part of new Class E)
[Restaurants and cafes]	[Restaurants and cafes]
No change to residential allowed	Allowed to change to residential use if total area of
	unit being converted is less than 1500m <sup>2</sup> or if only
	converting up to 1500m <sup>2</sup> of the unit

Business (Class B1) [a. Office other than a use within Class A2, b. Research and development of products or processes c. For any industrial process (which can be carried out in any residential area without causing detriment to the amenity of the area – i.e. light industrial]	Business (part of new Class E) [a. Office other than a use within Class A2, b. Research and development of products or processes c. For any industrial process (which can be carried out in any residential area without causing detriment to the amenity of the area – i.e. light industrial)]
Any size office (B1a) allowed to change use to residential Other business uses (B1b and B1c) no change to residential allowed	Allowed to change to residential use if total area of unit being converted is less than 1500m <sup>2</sup> or if only converting up to 1500m <sup>2</sup> of the unit
Non-residential institutions (part of Class D1) [Clinics, health centres, creches, day nurseries, day centre]	Non-residential institutions (part of new Class E) [Clinics, health centres, creches, day nurseries, day centre]
No change to residential allowed	Allowed to change to residential use if total area of unit being converted is less than 1500m <sup>2</sup> or if only converting up to 1500m <sup>2</sup> of the unit
Assembly and leisure (part of Class D2) [Gymnasiums, indoor recreations not involving motorised vehicles or firearms]	Assembly and leisure (part of new Class E) [Gymnasiums, indoor recreations not involving motorised vehicles or firearms]
No change to residential allowed	Allowed to change to residential use if total area of unit being converted is less than 1500m <sup>2</sup> or if only converting up to 1500m <sup>2</sup> of the unit
Agricultural buildings	Agricultural buildings
Allowed to change to residential use if total area of unit being converted is less than 450m <sup>2</sup>	Allowed to change to residential use if total area of unit being converted is less than 450m <sup>2</sup>

#### Group 2

Types of building use not allowed to be converted to residential use without planning permission now or in future:

- **General industrial** (Class B2): Industrial process other than that falling within Class B1 i.e. heavy industry
- Storage and distribution (Class B8): Use for storage or as a distribution centre
- Learning and non-residential institutions (part of current Class D1, becomes new Class F1): Schools, non-residential education and training centres, museums, public libraries, public halls, exhibition halls, places of worship, law court
- Local community uses (part of current Class D2, becomes new Class F2): Community halls, outdoor sport or recreation not involving motorised vehicles or firearms, indoor or outdoor swimming pools or skating rinks, shop of less than 280sqm selling essential goods and at least 1km from a similar shop
- Pub or drinking establishment (part of current Class A4, becomes Sui generis)
- Hot food takeaway (part of current Class A4, becomes Sui generis)
- Assembly and leisure (part of current Class D2, becomes Sui generis): Cinemas, concert halls, bingo halls and dance halls

• Other Sui Generis uses: Theatres, petrol filling stations, shops selling and/or displaying motor vehicles, scrap yards, retail warehouse clubs, nightclubs, taxi or vehicle hire businesses, funfairs, waste disposal installations

#### Group 3

Types of building which are exempt from these change of use to residential permitted development rights, whatever their use:

- Any building which is listed
- Any building which is in a national park, Area of Outstanding Natural Beauty or World Heritage Site
- Prior to 1 August 2021, any building in a conservation area, but this will not apply after that
- Relevant buildings in an area where the local authority has introduced an 'Article 4 Direction' to remove the permitted development right for that particular use class to be allowed to convert to residential

#### Group 4

Types of residential use:

- Hotels (Class C1): Hotels, boarding and guest houses
- **Residential institutions** (Class C2): Residential accommodation and care to people in need of care, residential schools, colleges or training centres, hospitals, nursing homes, Prisons, young offenders' institutions, detention centres, secure training centres
- **Dwellings** (Class C3): Ordinary flats and houses
- Houses in Multiple Occupation (Class C4)
- Student housing (Sui generis)

# Appendix 3: Further detail on how we interpreted the PDRs and planning use classes in our analysis

For the purposes of our analysis, we have combined the changing use classes and PDR floorspace rules in the following way:

		Old Use Class	New	New Use Class		
	Old Use	Floorspace	Use	Floorspace		Change
ID	Class	Rule	Class	Rule	Notes	type
					Ability to convert to residential	
		Only if under		Only if under	under PD depends on	
		150sqm can		1500sqm can	floorspace under both old and	
		be converted		be converted	new rules, but size limit	
1	A1	to residential	E	to residential	changes	A1 to E
					Ability to convert to residential	
		Only if under		Only if under	under PD depends on	
		150sqm can		1500sqm can	floorspace under both old and	
		be converted		be converted	new rules, but size limit	
2	A2	to residential	Е	to residential	changes	A2 to E
				Only if under	Could not be converted to	
				1500sqm can	residential under old PD rules.	
				be converted	Under new rules can be	
3	A3		Е	to residential	converted but size limit applies	A3 to E
				Only if under	Any size could be converted	
				1500sqm can	under old PD rules. Under new	
				be converted	rules can only be converted if	
4	B1a		E	to residential	complies with size limit	B1a to E
				Only if under	Could not be converted to	
				1500sqm can	residential under old PD rules.	
				be converted	Under new rules can be	
5	B1b		E	to residential	converted but size limit applies	B1b to E
				Only if under	Could not be converted to	
				1500sqm can	residential under old PD rules.	
				be converted	Under new rules can be	
6	B1c		E	to residential	converted but size limit applies	B1c to E
		For our				
		analysis,				
		some types			For our analysis, use class	
		of units will		For our	classification depends on	
		be		analysis, if	floorspace. Could not be	
		considered		under	converted to residential under	
		B1c if under		250sqm will	old rules. Under new rules, can	
		250sqm, if		be E, if over	be converted to residential if	B1c to E
	B1c or	over 250sqm		250sqm will	under 250 sqm and therefore	or B2 to
7	B2	will be B2	E	be B2	class E	B2

						-
				Only if under	Could not be converted to	
				1500sqm can	residential under old PD rules.	
				be converted	Under new rules can be	
8	D1		E	to residential	converted but size limit applies	D1 to E
				Only if under	Could not be converted to	
				1500sqm can	residential under old PD rules.	
				be converted	Under new rules can be	
9	D2		E	to residential	converted but size limit applies	D2 to E
		Only if under		Only if under	Ability to convert to residential	PD sui
		150sqm can		150sqm can	under PD depends on	generis
	PD sui	be converted	PD sui	be converted	floorspace under both old and	to PD sui
10	generis	to residential	generis	to residential	new rules	generis
						Agri-
						cultural
	Agri-		Agri-			to Agri-
11	cultural		cultural			cultural
			Sui			A4 to Sui
12	A4		generis			generis
			Sui			A5 to Sui
13	A5		generis			generis
14	B2		B2			B2 to B2
15	B8		B8			B8 to B8
16	C1		C1			C1 to C1
17	C2		C2			C2 to C2
						C2a to
18	C2a		C2a			C2a
19	D1		F1			D1 to F1
20	D2		F2			D2 to F2
			Sui			D2 to Sui
21	D2		generis			generis
						Sui
						generis
	Sui		Sui			to Sui
22	generis		generis			generis

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Adam Dennett is Associate Professor in Urban Analytics at the Bartlett Centre for Advanced Spatial Analysis (CASA), UCL where he is also currently Head of Department and previously led the MSc in Smart Cities and Urban Analytics. A geographer by training, Adam is Co-Editor-in-Chief of the Journal Applied Spatial Analysis and Policy and his own research has spanned a number of themes, touching on topics including population and migration, beer and brewing geographies, synthetic data, crowd sourcing and the built environment; and he has ongoing research interests in areas as diverse as gentrification and neighbourhood change, residential mobilities, urban health and inequalities, retail geographies and housing analysis. Tying all of these themes together are common methods such as spatial interaction models applied to novel datasets in urban settings.

#### Bin Chi

Bin Chi is a PhD student in the Bartlett Centre for Advanced Spatial Analysis (CASA), UCL. Bin is also a Research Data Scientist in the UCL Department of Geography. Her research focuses on enriching and enhancing administrative and other academically available datasets to better understand and address housing challenges at local scales. This includes understand housing affordability issues to inform local housing and planning policies in England. Bin has a background in both GIS and urban planning (Land Use Management), with a particular emphasis upon using statistical modelling and geographical analysis to investigate the spatio-temporal patterns of socio-economic processes to further inform local policy.