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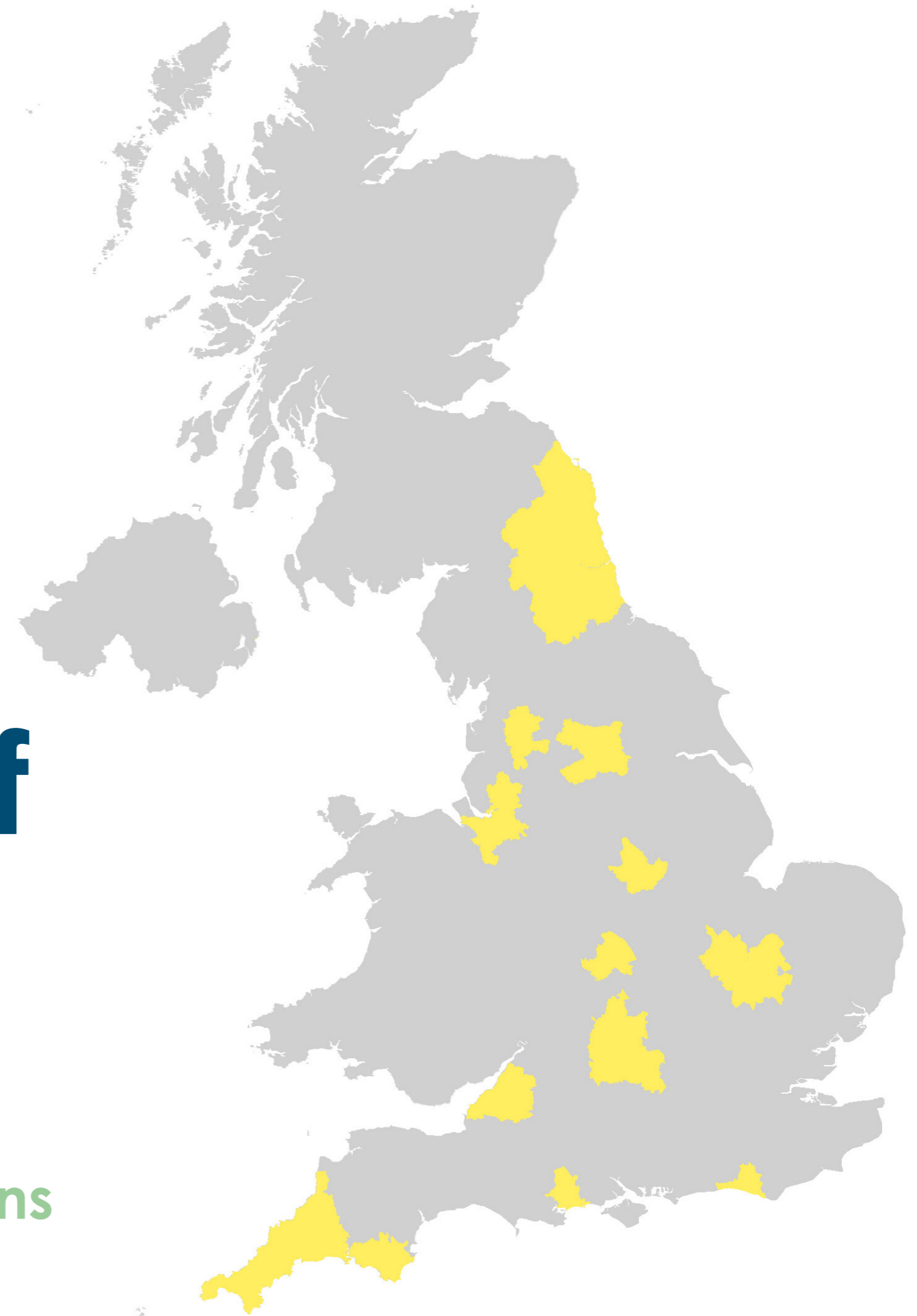
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GVA



The location of development

Mapping planning permissions for housing in twelve English city-regions

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1. Introduction

This research from the RTPI and Bilfinger GVA maps the location of recent planning permissions across 12 English city-regions, representing over 165,000 housing units. It aims to help planners and other stakeholders understand spatial patterns of housing growth across cities, towns and rural areas, and to widen the debate around how we monitor the effectiveness of the planning system.

Planning for new housing

There is a critical need for new housing in England, with studies showing a need for between 220,000 and 300,000 additional houses per year^{1,2}. While demand is greatest in London and the South East, all regions are likely to need significant additional housing³.

Increasing the supply of housing is a national political priority, and one that exerts a strong influence on the shape of English planning policy⁴. In 2012 the NPPF introduced the presumption in favour of sustainable development, and required Local Plans to meet their own objectively assessed housing need by identifying a minimum five-year supply of land. The Government has more recently proposed further changes including measures to speed up the preparation of Local Plans, grant 'permission in principle' to housing on brownfield sites, and exempt certain types of development from making financial contributions to infrastructure provision.

Statistics are regularly published on the number of planning permissions granted and housing units completed. These are increasingly being used to debate the effectiveness and efficiency of the planning system. However these debates must not rest on quantity alone – spatial qualities of location and scale are of equal importance.

Why is location important?

International research on the spatial dimensions of housing tends to compare the impacts of 'sprawl' with more compact patterns of development. While lacking any formal definition, sprawl generally refers to development on the urban fringe of growing areas, but covers a range of settlement patterns from continuous suburbs to linear patterns of strip development, leapfrog and scattered development⁵. As a model of development, it has been variously associated with increased infrastructure costs, transportation costs, congestion, pollution and loss of natural land, and with reduced public health and accessibility⁶.

By comparison, compact development or 'smart growth' policies are seen to support travel by public and active transport modes, enable the more efficient provision of infrastructure, reduce emissions, and improve accessibility⁷. However it should be noted that this model has also been criticised for restricting housing and transport options, and reducing housing affordability⁸.

Location in planning policy

In England, planning and containment policies are regarded as having been generally successful in achieving relatively compact settlement patterns and avoiding sprawl⁹. The current NPPF remains clear on the importance of location to sustainability, and states that a core role of

planning is to ensure that "...sufficient land of the right type is available in the **right places**"¹⁰ [emphasis added]. These are described as places which support growth, innovation and the efficient provision of infrastructure, are accessible to a range of local services, encourage the use of public transport, walking and cycling, and help tackle climate change¹¹. Local Planning Authorities are required to consider these sustainability criteria when allocating sites within a Local Plan.

A lack of spatial analysis

While there is good evidence on the quantity of planning permissions being granted for housing, there is a lack of broad analysis on the location and scale of these new developments. Cooperation between local authorities can help to show the distribution of site allocations at a 'larger-than-local' level, and this should be encouraged. However there is no standard approach to monitoring the location and scale of the actual planning permissions being granted across a wider geographical area, including those on sites which have not been allocated in a Local Plan.

This makes it difficult to understand whether settlement patterns are changing, and the impact this might have. For example, there is no way of telling whether a significant proportion of new housing in England is:

- Located in places which are far from jobs and services, and accessible only by car
- Spread across multiple small sites which are harder to provide with infrastructure

This makes it hard to evaluate whether changes to planning policy are impacting on the aggregate location and scale of new development. This concern was raised in a 2014 report from the CLG Select Committee, which noted that efforts to assess the performance of the NPPF were

hindered by "...an absence of reliable, up-to-date data", which made it difficult to determine "...how successful the Government's policies have been and how they may need to change"¹²

In response to these concerns, the RTPI commissioned Bilfinger GVA to conduct this exploratory study into the location and scale of recent planning permissions in a selection of city-regions. By looking at their distribution across urban, peripheral and rural areas, and considering the relationship to jobs and infrastructure, it offers a new way to understand the impact of housing growth on our towns and cities.

However we recognise that the spatial dimensions of sustainability are complex, and cannot be neatly captured by any single method of analysis. This research should therefore be viewed as a stepping stone towards a broader and more informed debate on the effectiveness of planning policy, and the spatial dimensions of growth in England.

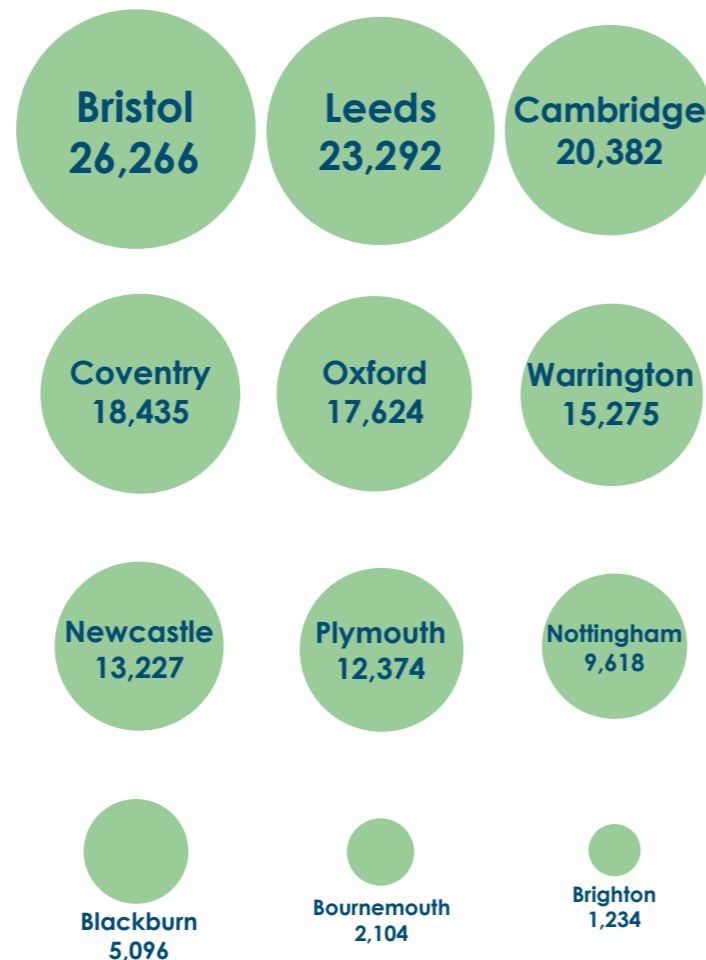
2. Key messages

This report maps the location of planning permissions granted for schemes of 50 or more housing units, between 2012 and 2015, across twelve English city-regions. It covers 704 major housing schemes, which represent planning permission for over 165,000 units. It then analyses the relationship between planning permissions, jobs and infrastructure in each city-region.

The 12 city-regions

1. Cambridge
2. Brighton
3. Oxford
4. Bournemouth
5. Bristol
6. Plymouth
7. Coventry
8. Nottingham
9. Newcastle
10. Blackburn
11. Warrington
12. Leeds

Number of housing units mapped in this report



Statistics for the 12 city-regions

Their combined population was **11.17 million** in 2015, up by 2.6% since 2012.

Between 2012 and 2015, planning permission was granted for a total of **220,727 new housing units**, divided across 2,386 different schemes. This is equivalent to around one new house for every 50 people.

To place these numbers in context, recent housing projections indicate that **at least 220,000 additional households** will be formed each year across England until 2022.

Between September 2013 and September 2014 **117,070 houses** were completed¹³.

These city-regions contained over **4 million jobs** in 2014. Private sector employment increased in these city-regions by an average of **9.4%** between 2011 and 2014, adding over **340,000 new jobs**.

Between 2012 and 2015, 25% of the housing units granted planning permission in these city-regions were on schemes of 50 units or less. The remaining **75% of housing units were on larger schemes of over 50 units**, representing 165,000 housing units.

These are the subject of the mapping and analysis in this report.

Of the 165,000 housing units analysed...

Almost **75%** were located with 10km of a major employment cluster

Almost **13%** were located within walking distance of a railway, light rail or metro station

50% were being delivered on very large schemes of 450 units and above

46% were located within an existing built-up area

3. Methodology

This section describes how the twelve city-regions were selected and defined, and the approach to mapping planning permissions, major employment clusters and railway stations. It then explains how the planning permissions were analysed based on location and scale.

3.1. Selecting the city-regions

The twelve city-regions analysed in this report were selected in order to provide a balance of different settlement patterns from across the English regions¹⁴. Each recorded positive employment growth on the Centre for Cities index of towns and cities¹⁵.

3.2. Defining the city-region boundaries

The city-region is a useful scale at which to consider the relationship between a city and surrounding areas. While there is no fixed methodology for defining a city-region, there are a number of terms which help to understand the concept:

Primary Urban Area (PUA): A PUA is a city level-definition first used in Department for Communities and Local Government's "State of the Cities Report". It refers to the continuous built-up area of a town/city with a population over 125,000, and can include multiple local authorities¹⁶.

Strategic Housing Market Assessment Area (SHMA): These draw on a range of housing market indicators to define a relevant Housing Market Area (HMA), including migration patterns, house moves, labour flows and market performance/trends. They offer an understanding of sub-regional housing markets and are used to predict the levels and mix of future housing provision.

Local Enterprise Partnership (LEP) boundaries: LEPs are voluntary partnerships between local authorities and businesses set up in 2011. Their geographical remit tends to include a wide range

of local authorities, based on a combination of economic and political factors¹⁷.

Travel to Work Areas (TTWAs): These are areas with a working population of at least 3,500, within which at least 75% of the resident workforce work in the area, and at least 75% of the people who work in the area also live in the area. They are helpful in defining a wider economic geography based on labour markets.

PUAs are based on the physical built up form of a given area, and do not necessarily capture the complex dynamics of wider job and labour market movements. SHMA boundaries capture the functional relationship between employment, transport, leisure and retail offer of the PUA, and a much wider surrounding area.

However TTWAs represent commuting patterns (or travel to work flows) between local authorities, and this directly captures the link between households (origin) and employment (destination). TTWAs were therefore selected to define the city-region boundaries.

To identify meaningful flows of inward commuting, this methodology defines a city-region as including any local authority in which 3.5% or more its employed resident population travel into the main city for employment. The 3.5% threshold was chosen as it displays a significant overlap with PUA and SHMA boundaries, and highlights the surrounding local authorities which have a functional economic relationship with the main city (see Table 1).

This provides a consistent approach for data collection and analysis, although the city-region boundaries presented in this report will differ from existing political or administrative city-region boundaries and should not be interpreted as such.

Table 1: City-regions as defined by local authorities within the 3.5% commuting threshold

Region	City-region	Local authorities
East of England	Cambridge	Cambridge, South Cambridgeshire, East Cambridgeshire, Huntingdonshire
South East	Brighton Oxford	Brighton and Hove, Lewes, Adur Oxford, Vale of White Horse, Cherwell, West Oxfordshire, South Oxfordshire
South West	Bournemouth Bristol Plymouth	Bournemouth, Poole, East Dorset, Christchurch Bristol, South Gloucestershire, North Somerset, Bath and North East Somerset, Wiltshire Plymouth, Cornwall and the Isles of Scilly, South Hams, West Devon
West Midlands	Coventry	Coventry, Nuneaton and Bedworth, Warwick, Rugby, Birmingham
East Midlands	Nottingham	Nottingham, Gedling, Broxtowe, Rushcliffe, Ashfield, Erewash
North East	Newcastle	Newcastle upon Tyne, North Tyneside, Gateshead, Northumberland, Country Durham, South Tyneside, Sunderland
North West	Blackburn Warrington	Blackburn with Darwen, Hyndburn, Ribble Valley, Burnley Warrington, St. Helens, Wigan, Halton, Cheshire West and Chester
Yorkshire & the Humber	Leeds	Leeds, Bradford, Wakefield, Kirklees, Harrogate

3.3. Mapping the location of recent planning permissions, major employment clusters and rail stations

For each city-region, data was collected on:

- The location and scale of planning permissions granted for housing schemes of over 50 units between 1 January 2012 and 18 September 2015. Each scheme was then categorised based on size and mapped using GIS.
- Significant employment clusters, defined as Middle Layer Super Output Areas* (MSOAs) with 10,000 jobs and over.
- Areas of specialist sector job growth, defined as MSOAs with higher than average concentrations of employment in the knowledge economy and manufacturing sectors
- Rail stations including all forms of rail transport, such as inter-city rail, light-rail, metro and tram

Planning permission data was sourced from EGi, the Estates Gazette database. It is a live data source, and the data was extracted at a given point in time.

The data comprises outline planning permissions, permissions, and reserved matter applications. It should be noted that:

- Duplication of data was avoided. For example if there was more than one reserved matter application for the same phase of a development, then it was counted as a single planning permission.
- If a development had an outline planning permission and a reserved matter application between 2012 and 2015, then only the outline planning was considered to avoid duplication of numbers.
- The data does not include appeal information.

3.4. Measuring the proximity of planning permissions to major employment clusters and rail stations

The distance was then calculated between each scheme and the nearest major employment cluster and railway station. This distance was calculated as a straight line (as the crow flies), and each scheme was ranked according to the following categories:

Distance to major employment cluster	Distance to railway station
Under 10km	Under 800m
10 to 20km	800m to 2km
Over 20km	Over 2km

The analysis also recorded the number of schemes located within a MSOAs with a specialism in the knowledge economy or manufacturing sectors.

3.5. Categorising the location of planning permissions

Using GIS mapping, each scheme was categorised based on its location within either:

- The existing built-up areas
- Land designated as green belt, including previously developed sites in the green belt
- Other locations, including those on the edge of built-up areas, those beyond the green belt, and those in rural locations

3.6. Measuring the scale of planning permissions by the number of housing units

Each scheme was also categorised by the number of housing units that it represents, using the following nine categories:

- 50-99 units
- 100-149 units
- 150-199 units
- 200-249 units
- 250-299 units
- 300-349 units
- 350-399 units
- 400-449 units
- 450+ units

NB. Schemes of under 50 housing units were not covered by this research.

* Super output areas (SOAs) were designed to improve the reporting of small area statistics and are built up from groups of output areas (OA). MSOAs are geography with minimum population of 5,000 and maximum of 15,000.

4. Explaining the analysis

The metrics used in this report present several ways to explore the relationship between housing, jobs and infrastructure. This helps to consider methods of analysis that might support strategic planning at a city-region level and the effective monitoring of planning policy. It should be noted that the analysis in this report does not represent a judgment on the overall sustainability of a site or the effectiveness of planning across a city-region - the spatial dimensions of sustainability are complex, and issues of location and scale are influenced by factors beyond the planning system.

This section describes why each method of analysis was chosen, and provides caveats on how results should be interpreted.

4.1. Measuring proximity to major employment clusters

A central aim of the government's economic development policy is to devolve powers and freedoms to the city-region level, creating a more flexible and decentralised system in which cities drive economic growth¹⁸. Through the mechanisms of growth, city and devolution deals, local authorities are now working collaboratively across borders and sectors to develop ambitious economic development strategies.

The success of this approach depends on the ability of city-regions to maximise the effects of agglomeration: the benefits to productivity, innovation and economic growth achieved by the clustering and networking of knowledge-intensive industries in urban areas¹⁹. This can be achieved by coordinating economic development strategies with plans to improve connectivity and deliver associated housing growth at the city-region scale²⁰. This is because major employment clusters attract commuters

from a wide geographical area - however with the exception of London, these commuting journeys are predominantly made by car²¹. With limited road capacity, fast-growing areas can suffer from problems of peak congestion, road pollution and strain on infrastructure²². These negative externalities can undermine agglomeration benefits if not addressed²³.

Successful economies also create a demand for new housing, which needs to be located in places which are accessible by active and low-carbon public transport modes to a range of jobs and services. The coordination and distribution of sufficient new housing across the city-region is also critical to sustainable economic development, and avoiding the problems mentioned above²⁴.

By measuring the proximity of each new housing scheme to the nearest major employment cluster, this analysis offers one way to explore this relationship between housing and jobs at the city-region scale.

For the purposes of this analysis, major employment clusters have been defined as those with 10,000 jobs or above. This threshold was selected to highlight areas of high employment density - those which are likely to influence commuting patterns in relation to new housing across a city-region.

However it is important to recognise that patterns of commuting are heavily influenced by the distribution of existing housing in relation to employment, and by rates of churn within housing and employment markets. Employment will also be distributed across a city-region at a much finer grain than shown in this analysis, with lower density employment sites shaping commuting patterns. It should also be recognised that commuting patterns are more complex than the traditional 'in-out' model suggested here²⁵.

4.2. Mapping the overlap between planning permissions and areas of specialist sector job growth

This research also considers the location of planning permissions in terms of their relation to areas of specialism in the knowledge economy and manufacturing sectors. This complements the measurement of proximity to major employment clusters by demonstrating areas of potential future growth, and showing how these correspond with the patterns of housing development across the city-region.

While manufacturing reflects more traditional job forms and has seen decline in the recent years, it remains a key source of employment and economic activity for a number of English towns and cities. Parts of the sector have also continued to strengthen, for example in 'value added' or 'advanced manufacturing' activities.

The knowledge economy has played a key role in the economic resurgence of city-regions in recent years, creating a more balanced

economy following reliance on the financial and business service sectors. The agglomerative nature of the knowledge economy has led to a proliferation of clusters, enterprise zones and innovation and business centres in the economic policy interventions of local visions, masterplans and economic development strategies.

For the purposes of this research, the knowledge economy is defined as comprising of the following sub-sectors²⁶:

Table 2: Knowledge economy sectors

Sector	Sub-sector
Science	<ul style="list-style-type: none"> • Biotech and pharmaceuticals • Medical • Life sciences • Clinical Science • Research and development • Some forms of advanced manufacturing
Computer programming, consultancy and related activities	<ul style="list-style-type: none"> • Software • Computer games • Computer programming • Information Service
Telecoms	<ul style="list-style-type: none"> • Telecoms and communications

The strength of these sectors was mapped in each city-region using Locational Quotient (LQ) analysis, which measures the industrial specialisation of a MSOA relative to the entire region. For example, an LQ of 1.0 in manufacturing means that the MSOA and the region are equally specialised in manufacturing, while an LQ of 1.8 means that the MSOA has a higher concentration in manufacturing than the regional average.

Maps of specialist employment areas are not included in this report, but are available online.

4.3. Measuring proximity to rail stations

In measuring the distance between housing schemes and rail or metro stations, this research suggests one way to understand the potential for sustainable commuting in a city-region. While living near a station does not guarantee use for commuting or other travel purposes, this simple measurement of proximity implies access to a key mode of low-carbon public transport. At the time of publication, the government is proposing to amend national planning policy to increase development densities around commuter hubs, defined as a rail, tube or tram interchange²⁷. Meanwhile several reports have proposed that land close to a railway station could be loosely considered as a 'sustainable' location²⁸.

However it is important to note that this research does not consider proximity to dedicated bus or cycle routes, despite the important role that these play in enabling sustainable commuting patterns. However these are relatively flexible forms of public transport infrastructure which can more easily be adapted to connect with new developments.

4.4. Measuring proximity based on straight line distances

The analysis measures the distance between schemes, jobs and rail stations as a straight line rather than actual travel distances. It was not possible to measure actual travel distances for research of this scale, as these are complex and dependent on a wide range of external factors such as traffic, route choices and mode of transport. They are also subject to change over time as new infrastructure and development is delivered.

The distance categories for proximity to employment are based on the assumption that 10km represents a 15 minute drive under average

conditions. The category for proximity to rail is based on the assumption that an 800m distance represents an 8 to 10 minute walk.

4.5. Measuring the size of schemes by the number of housing units

Categorising planning permissions by the number of housing units they represent helps to explore the relationship between location, scale and the provision of infrastructure.

Within a city-region, a proliferation of small-scale developments in peripheral locations, such as villages or on the edges of towns and cities, might indicate that housing demand is being met through a shift towards a more sprawling or dispersed settlement pattern²⁹. Such developments are generally more costly and less efficient to service with infrastructure when compared to higher density large-scale urban extensions or new settlements³⁰. Conversely, a proliferation of small-scale developments in existing built-up areas might indicate a city-region where brownfield sites are playing a bigger role in meeting housing demand.

Regardless of location, careful planning is needed to prevent an accumulation of smaller schemes from gradually overwhelming local infrastructure capacity. Large-scale developments often provide a direct financial contribution to infrastructure and affordable housing provision through a Section 106 agreement, whereas an effective Community Infrastructure Levy (CIL), coupled with an Infrastructure Delivery Plan, is needed to ensure that smaller developments make a sufficient contribution to infrastructure provision. For this reason, it is important to understand the general size distribution of planning permissions across a city-region.

5. The city-region profiles

The following section introduces the maps and analysis for each of the twelve city-regions covered by this research

Cambridge

Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Cambridge	33,704	40%
South Cambridgeshire	23,367	27%
East Cambridgeshire	7,206	8%
Huntingdonshire	4,716	6%

Demographic and employment trends

Total population (Dec 2015)	538,200	
Population growth (2012-2015)	+18,900	3.6%
Total jobs (2014)	267,365	
Total jobs change (2011-2014)	+20,392	8.3%
Total private sector jobs (2014)	224,702	
Total private sector jobs change (2011-2014)	+23,387	11.6%

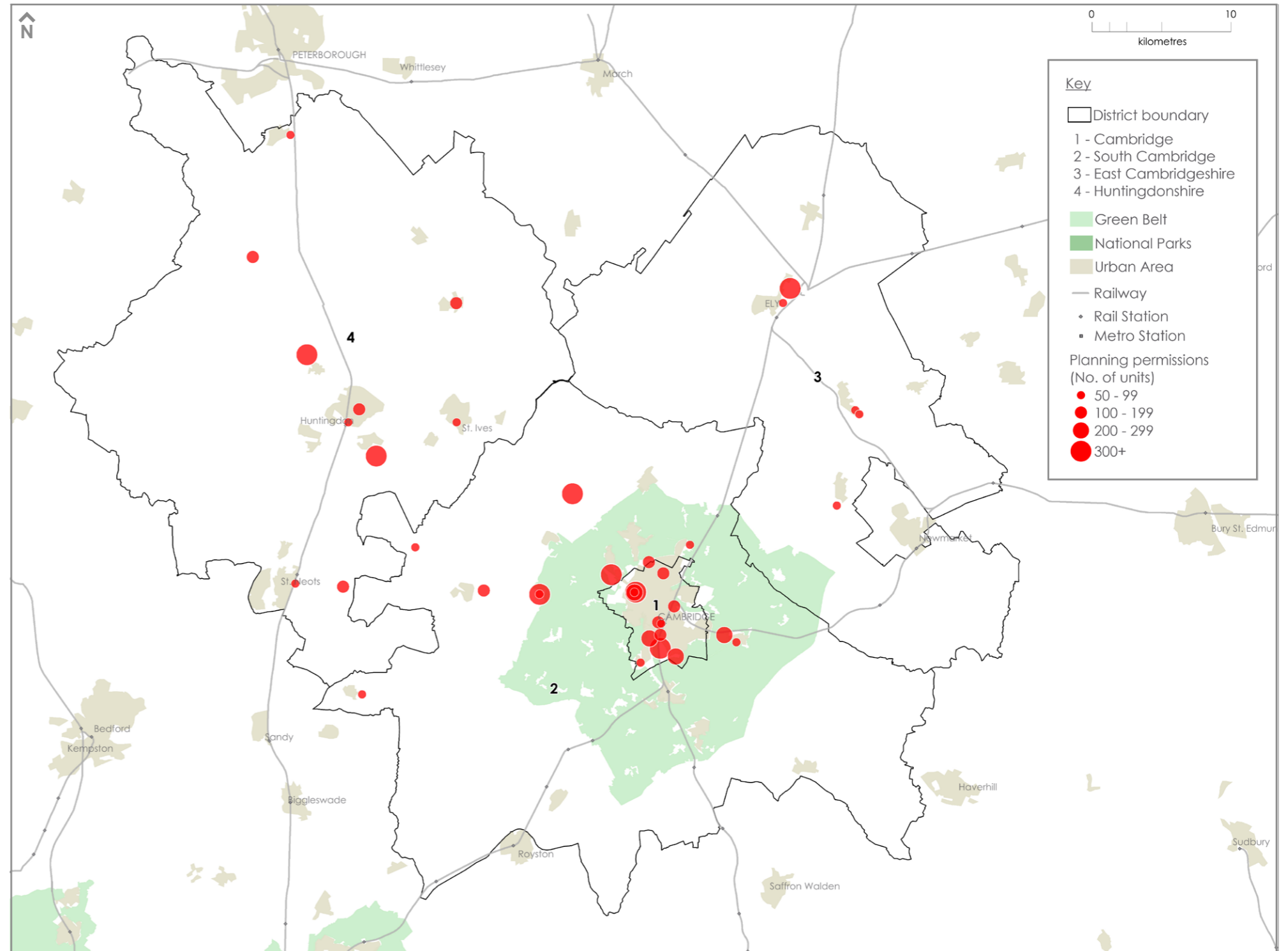
Number of schemes* and associated housing units



*includes only those of 50 units of above

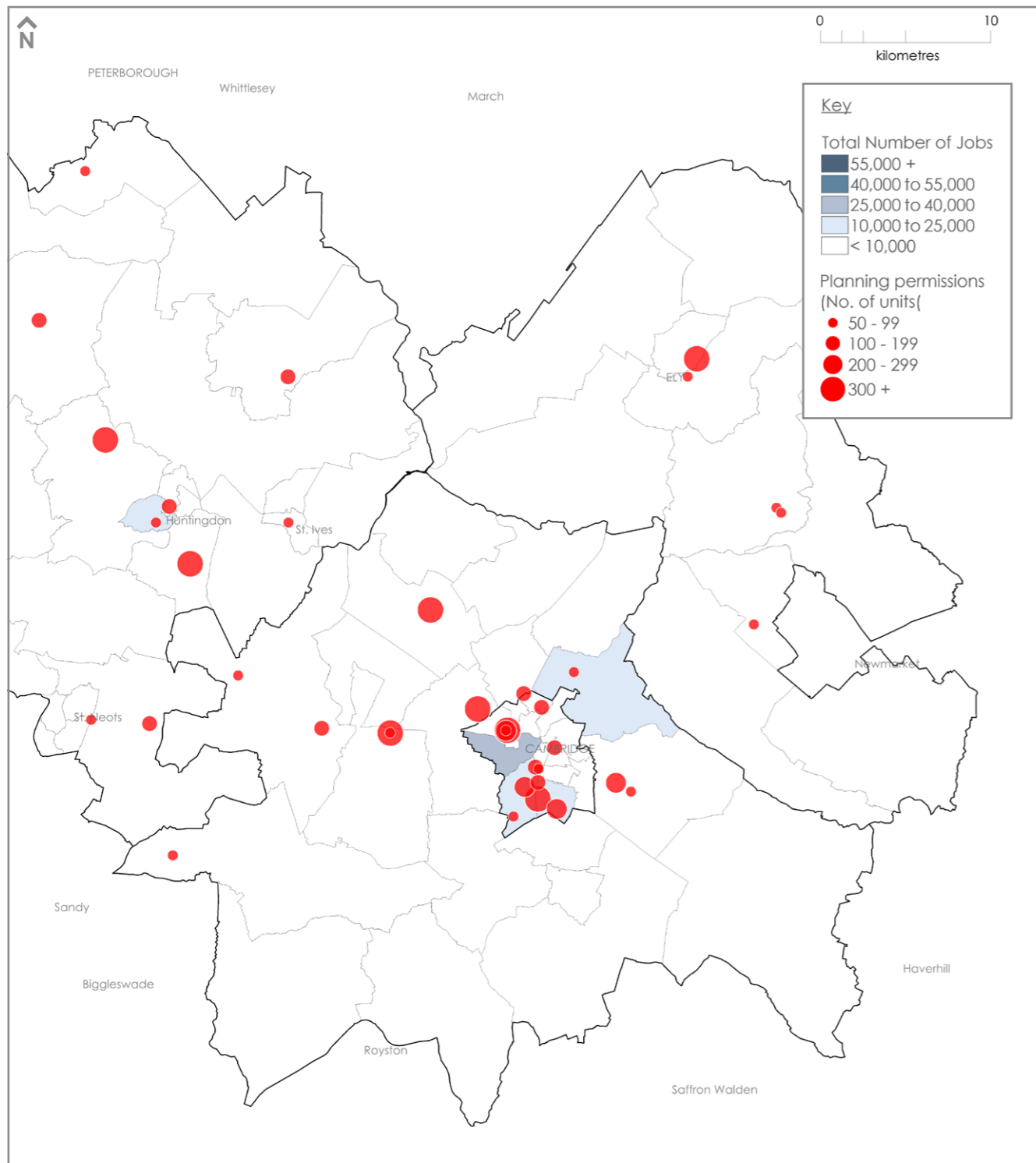
Cambridge is a relatively high growth city-region for private sector jobs when compared to the others in this study. The 11.6% increase in private sector jobs between 2011 and 2014 off-set a loss of public sector jobs during this period.

Fig 1. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 2. Map of planning permissions and major employment clusters (2012-2015)



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Figures 1 and 2 map the location of planning permissions for schemes of over 50 housing units, which account for just over 70% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 186, almost double the average for the city-regions in this study.

When these schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 90% of housing units were located within 10km of significant employment locations.

While Figure 2 shows that employment is concentrated in the centre of Cambridge city, there are several other notable employment areas with over 10,000 jobs. These include the Science Park to the north west of the city-region, the medical and research jobs associated with Addenbrookes Hospital to the south, and the job cluster in the centre of Huntingdon.

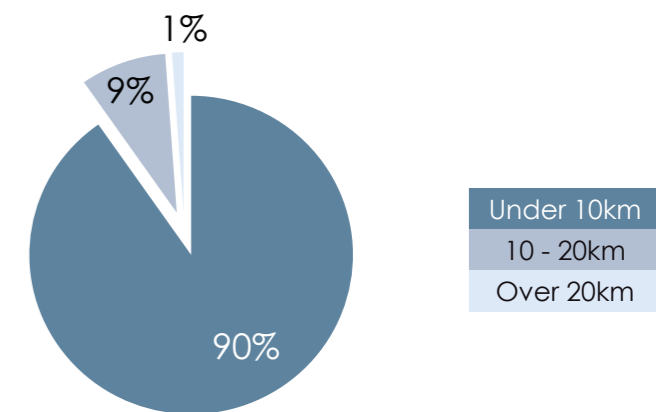
Mapping of specialist sector job growth shows that 96% and 30% of housing units in the Cambridge city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 2% of units are within a 10 minute walk of a rail station.

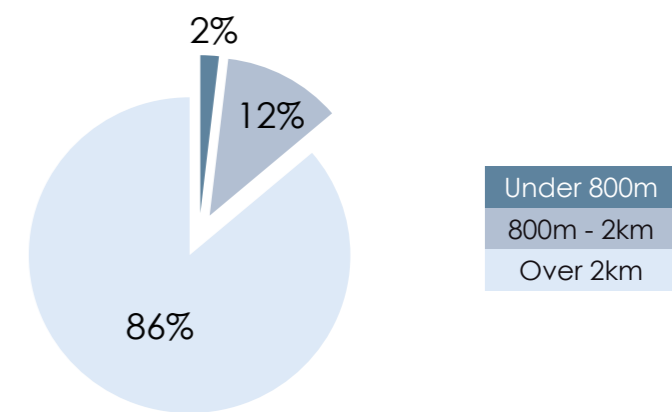
The mapping also shows that 17% of the housing units granted planning permission are located within existing built up areas, while 2% will be located in the greenbelt. The remaining 81% will be located in areas that fall outside the built up area or green belt.

To view all the maps for the Cambridge city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

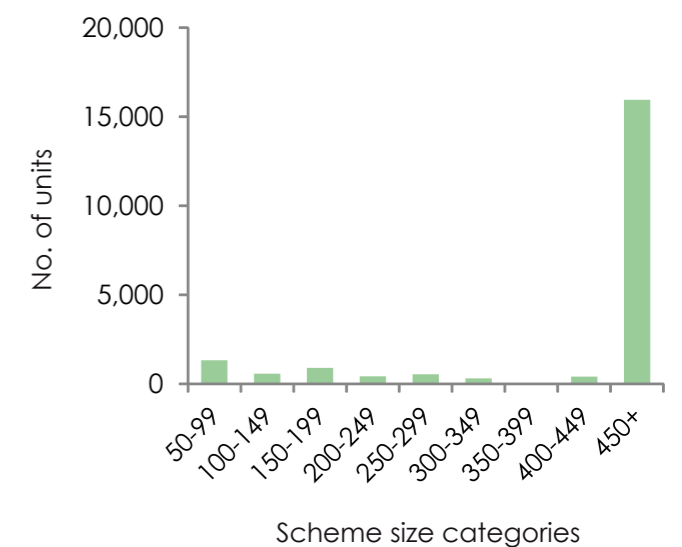
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Brighton

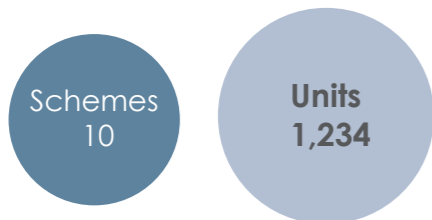
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Brighton and Hove	72,648	69%
Lewes	8,478	8%
Adur	6,615	6%

Demographic and employment trends

Total population (Dec 2015)	438,900	
Population growth (2012-2015)	+12,600	3.0%
Total jobs (2014)	177,267	
Total jobs change (2011-2014)	+7,701	4.5%
Total private sector jobs (2014)	144,548	
Total private sector jobs change (2011-2014)	+8,701	6.4%

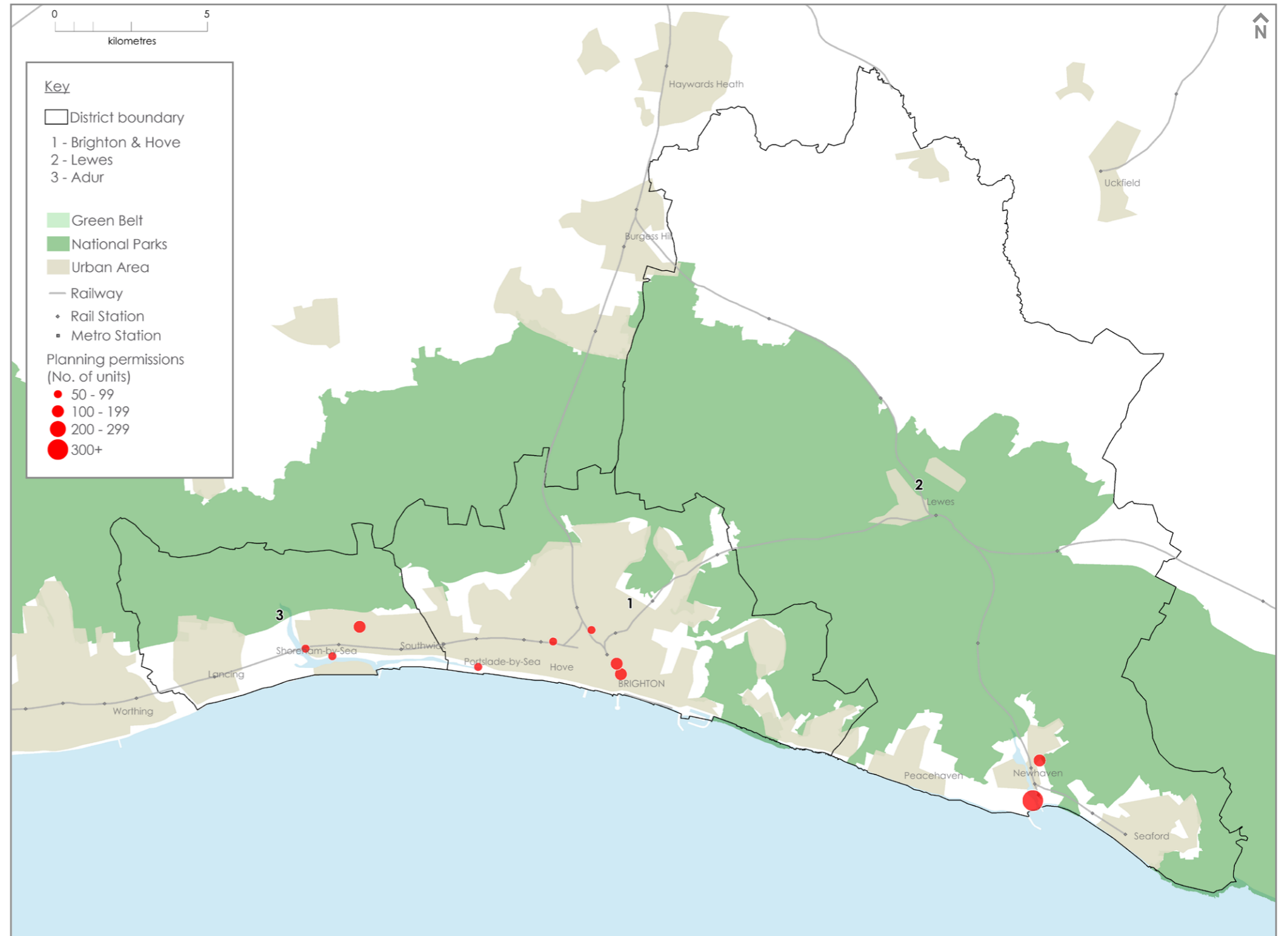
Number of schemes* and associated housing units



*includes only those of 50 units of above

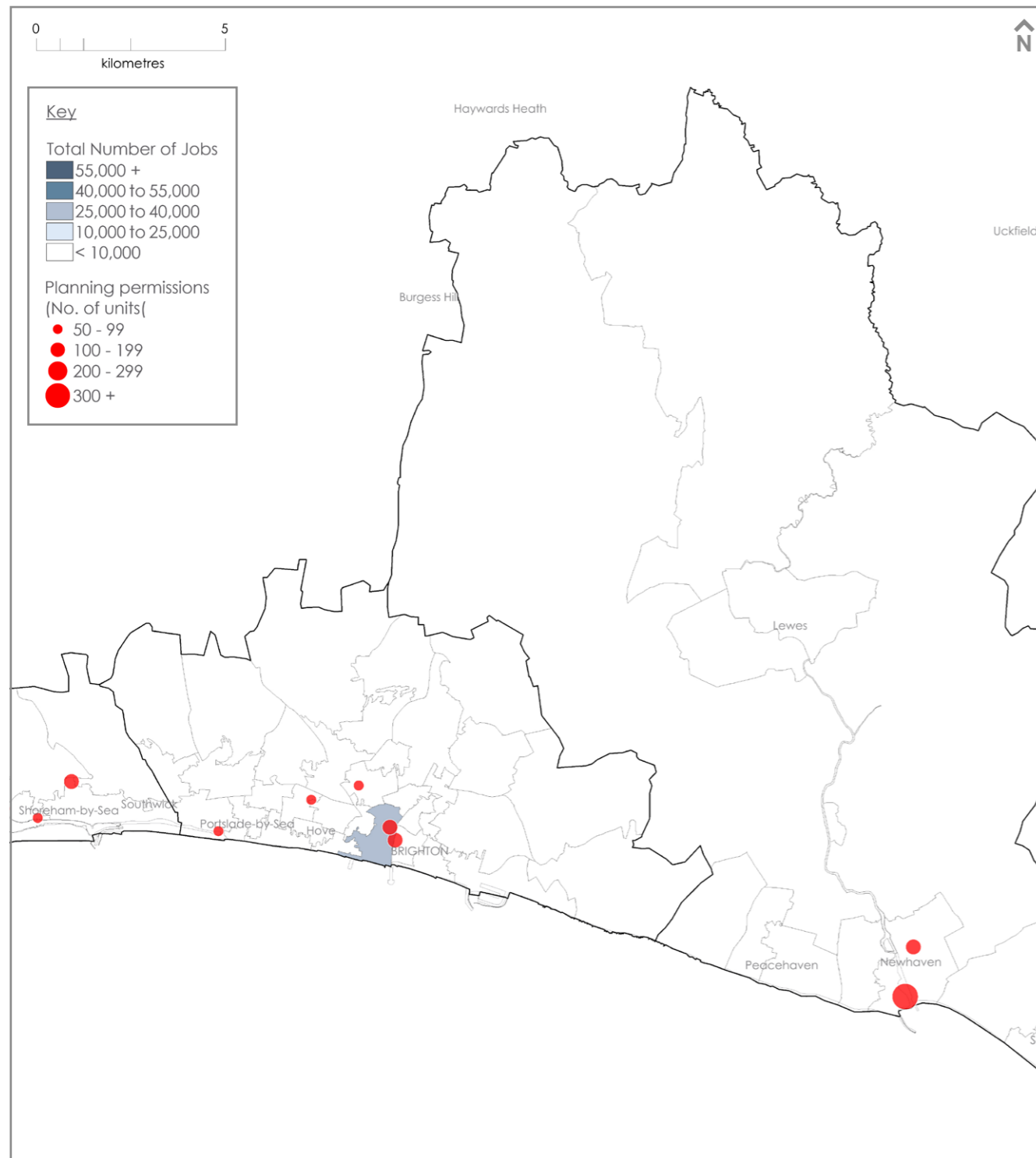
Brighton is a relatively low growth city-region in terms of private sector jobs when compared to the others in this study, recording a 6.4% increase between 2011 and 2014.

Fig 3. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 4. Map of planning permissions and major employment clusters (2012-2015)



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Figures 3 and 4 map the location of planning permissions for schemes of over 50 housing units, which account for 64% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 46, which is less than the average for the city-regions in this study.

When these schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 58% of housing units were located within 10km of significant employment locations.

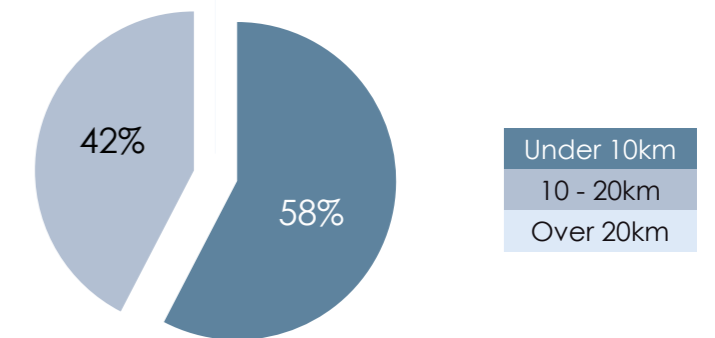
Figure 4 shows that employment is clustered around the city-centre. Mapping of specialist sector job growth also shows that 18% and 52% of housing units in the Brighton city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that over 75% of units are within a 10 minute walk of a rail station.

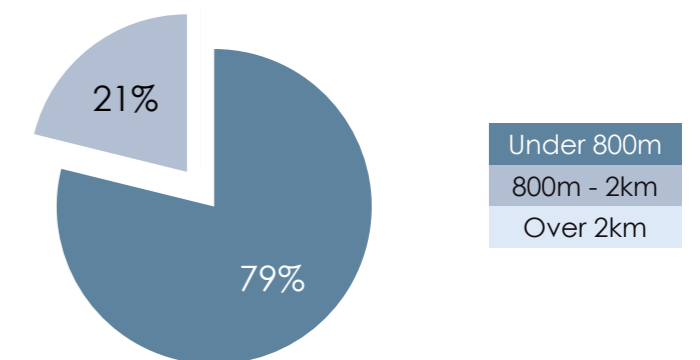
The mapping also shows that 46% of the housing units granted planning permission are located within an existing built up areas, while the remaining 54% are located in areas which are generally adjacent to an existing built up area.

To view all the maps for the Brighton city-region, please visit: rpi.org.uk/knowledge/research/projects/location-of-development

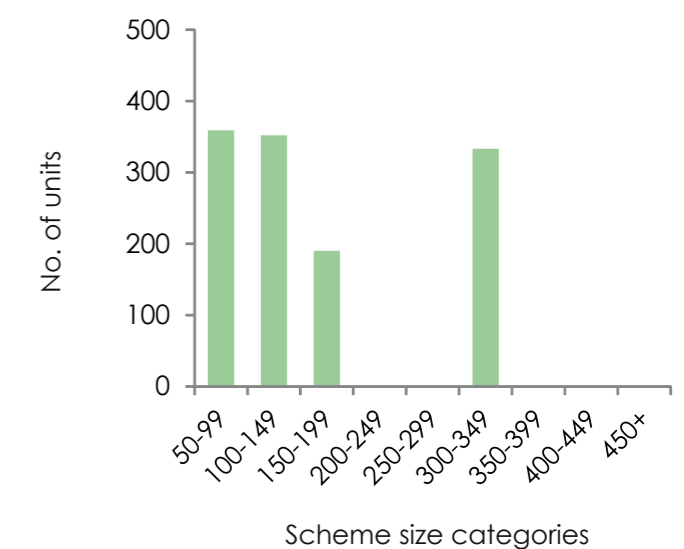
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Oxford

Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Oxford	42,406	48%
Vale of White Horse	10,753	12%
Cherwell	9,528	11%
West Oxfordshire	7,541	9%
South Oxfordshire	7,369	8%

Demographic and employment trends

Total population (Dec 2015)	659,400	
Population growth (2012-2015)	+18,200	2.8%
Total jobs (2014)	341,506	
Total jobs change (2011-2014)	+20,248	6.3%
Total private sector jobs (2014)	289,272	
Total private sector jobs change (2011-2014)	+26,806	10.2%

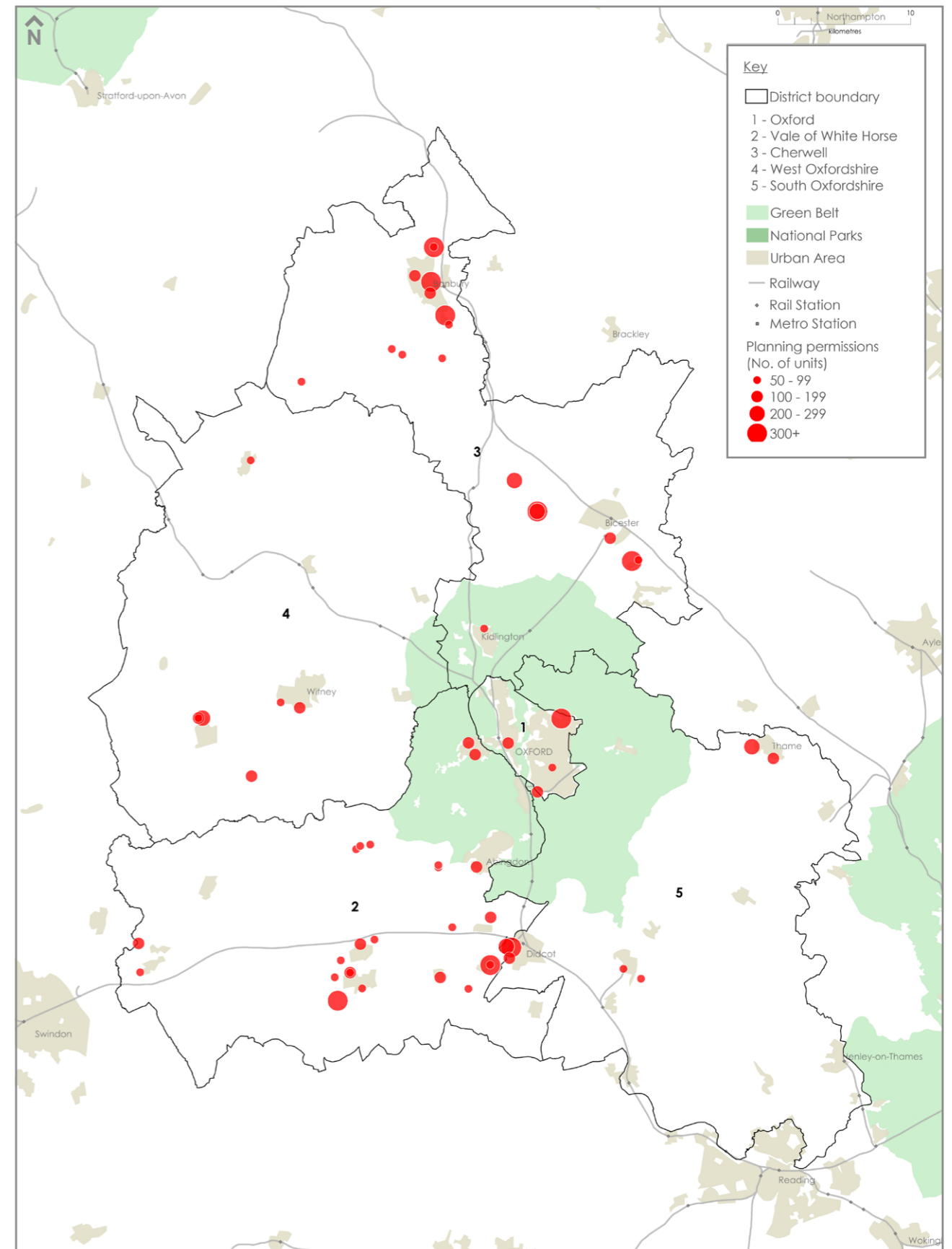
Number of schemes* and associated housing units



*includes only those of 50 units of above

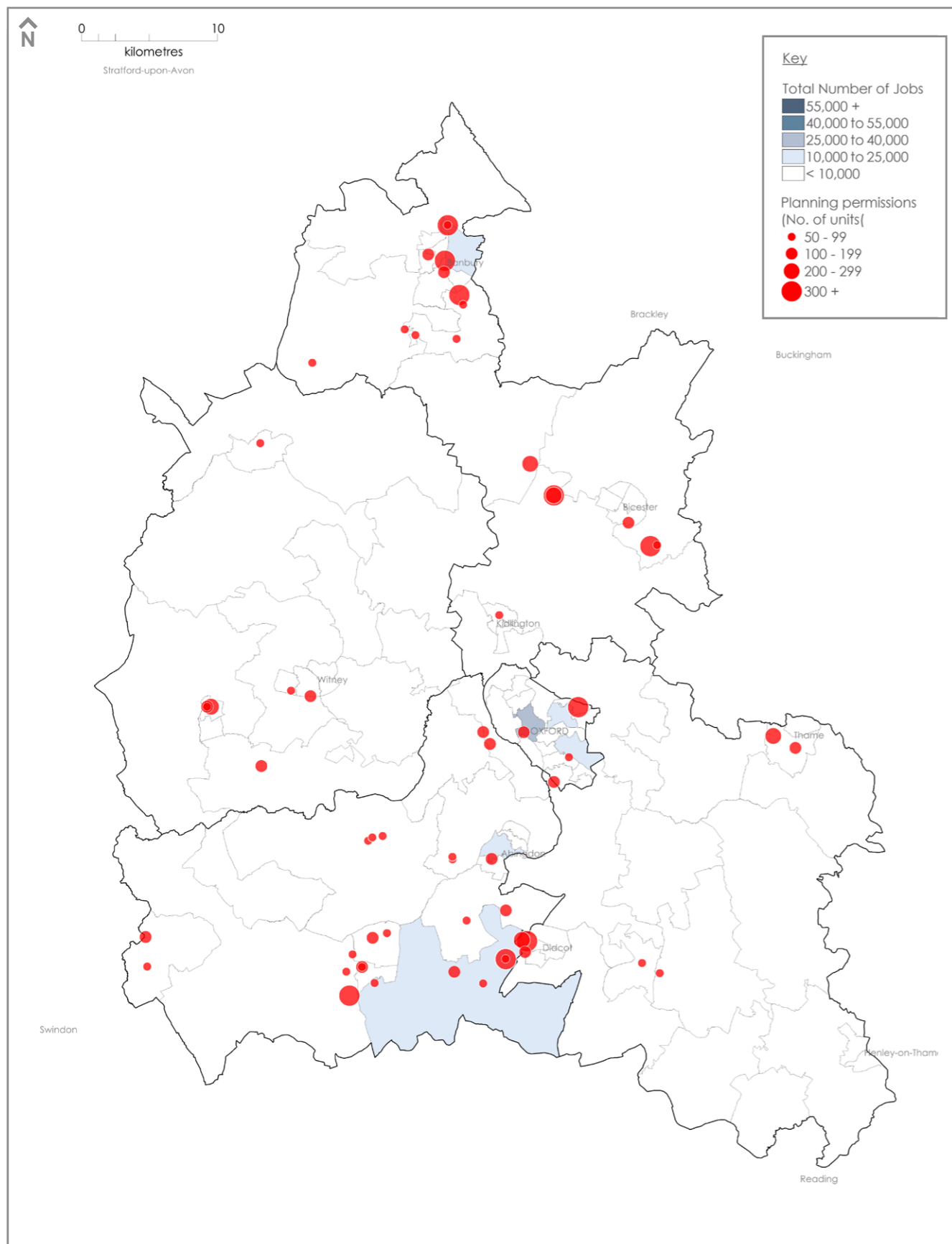
Oxford is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 10.2% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 6.3% for both the public and private sectors.

Fig 5. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 6. Map of planning permissions and major employment clusters (2012-2015)



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Figures 5 and 6 map the location of planning permissions for schemes of over 50 housing units, which account for 68% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 92, around the average for the city-regions in this study.

When these schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 64% of housing units were located within 10km of significant employment locations.

Within the city-region the strongest employment clusters are around the city centre and university area, along with the hospital in Headington, the business parks on the A4142 and in Abingdon, the Innovation Cluster in South Oxfordshire, and Bicester in Cherwell.

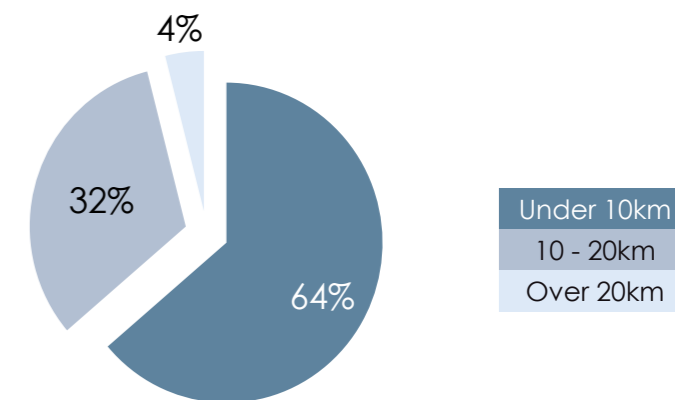
Mapping of specialist sector job growth shows that 45% and 9% of housing units in the Oxford city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 1% of units are within a 10 minute walk of a rail station.

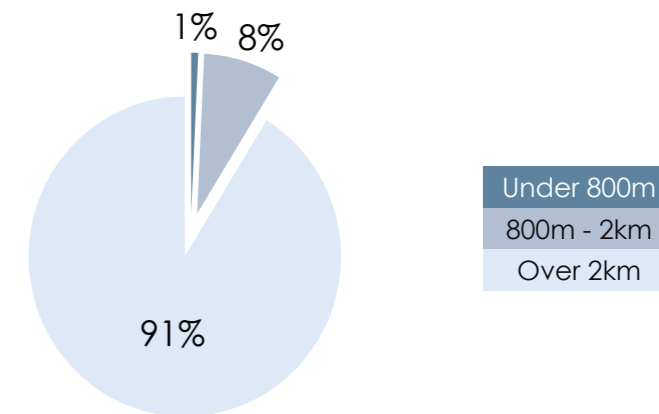
The mapping also shows that 19% of the housing units granted planning permission are located within existing built up areas, while the remaining 81% will be located in areas that fall outside the built up area or green belt.

To view all the maps for the Oxford city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

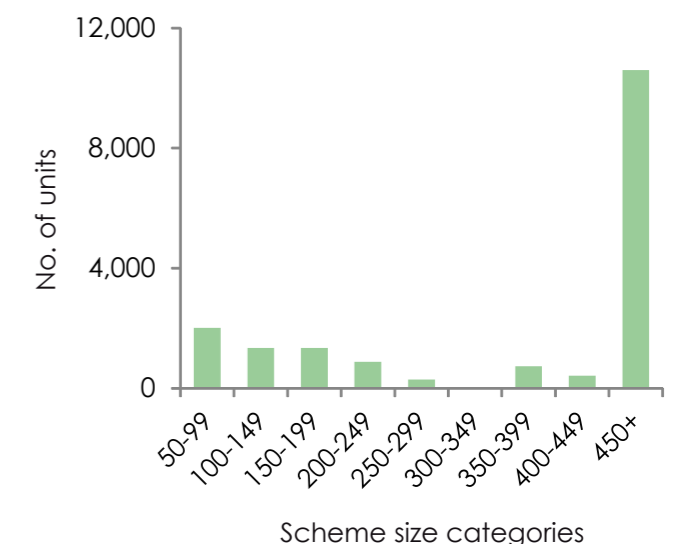
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Bournemouth

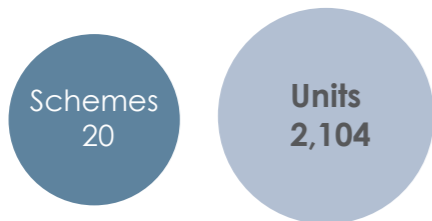
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Bournemouth	39,184	61%
Poole	10,852	17%
East Dorset	4,106	6%
Christchurch	4,062	6%

Demographic and employment trends

Total population (Dec 2015)	476,200	
Population growth (2012-2015)	+17,100	3.7%
Total jobs (2014)	208,512	
Total jobs change (2011-2014)	+14,654	7.63%
Total private sector jobs (2014)	176,120	
Total private sector jobs change (2011-2014)	+18,795	11.9%

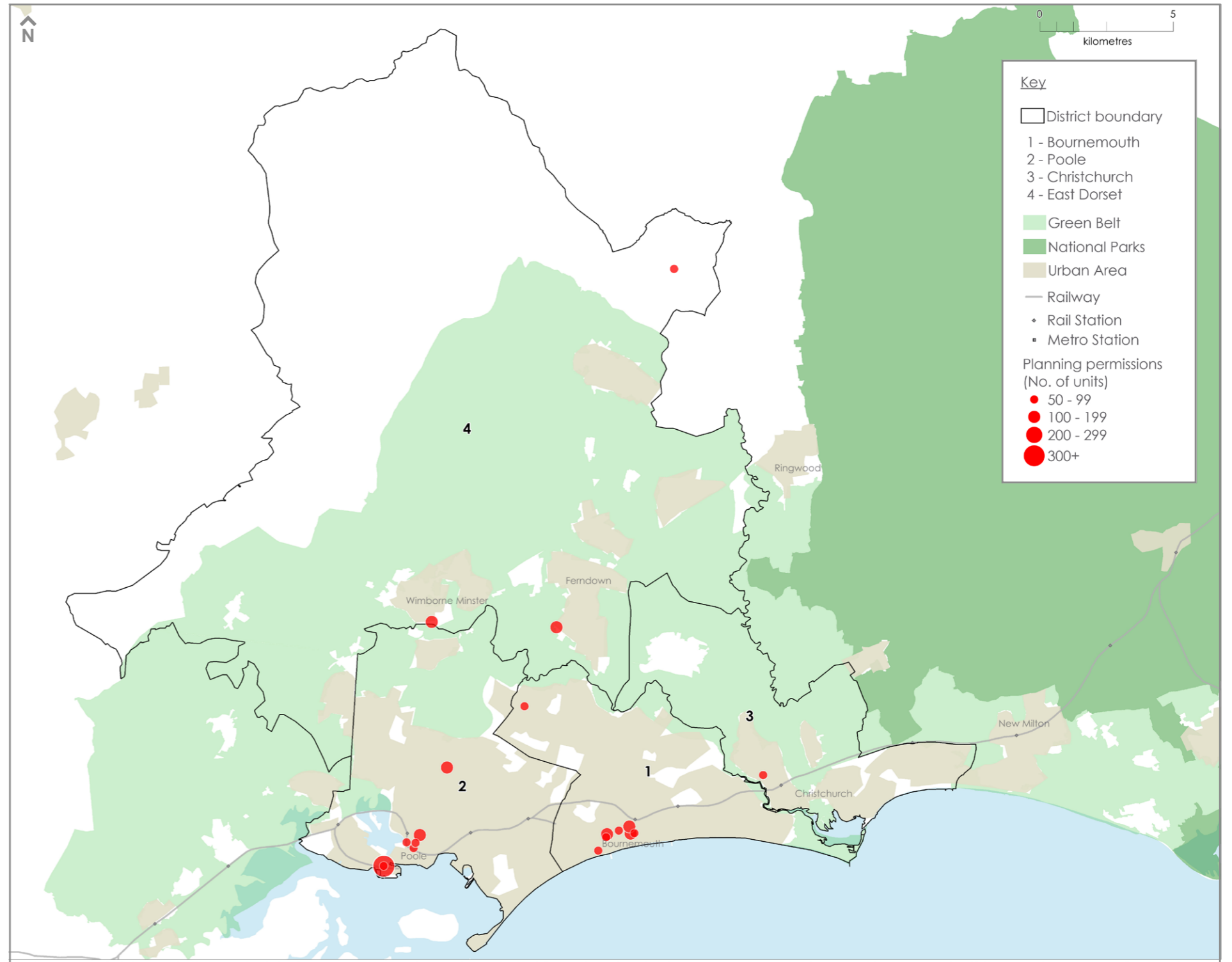
Number of schemes* and associated housing units



*includes only those of 50 units of above

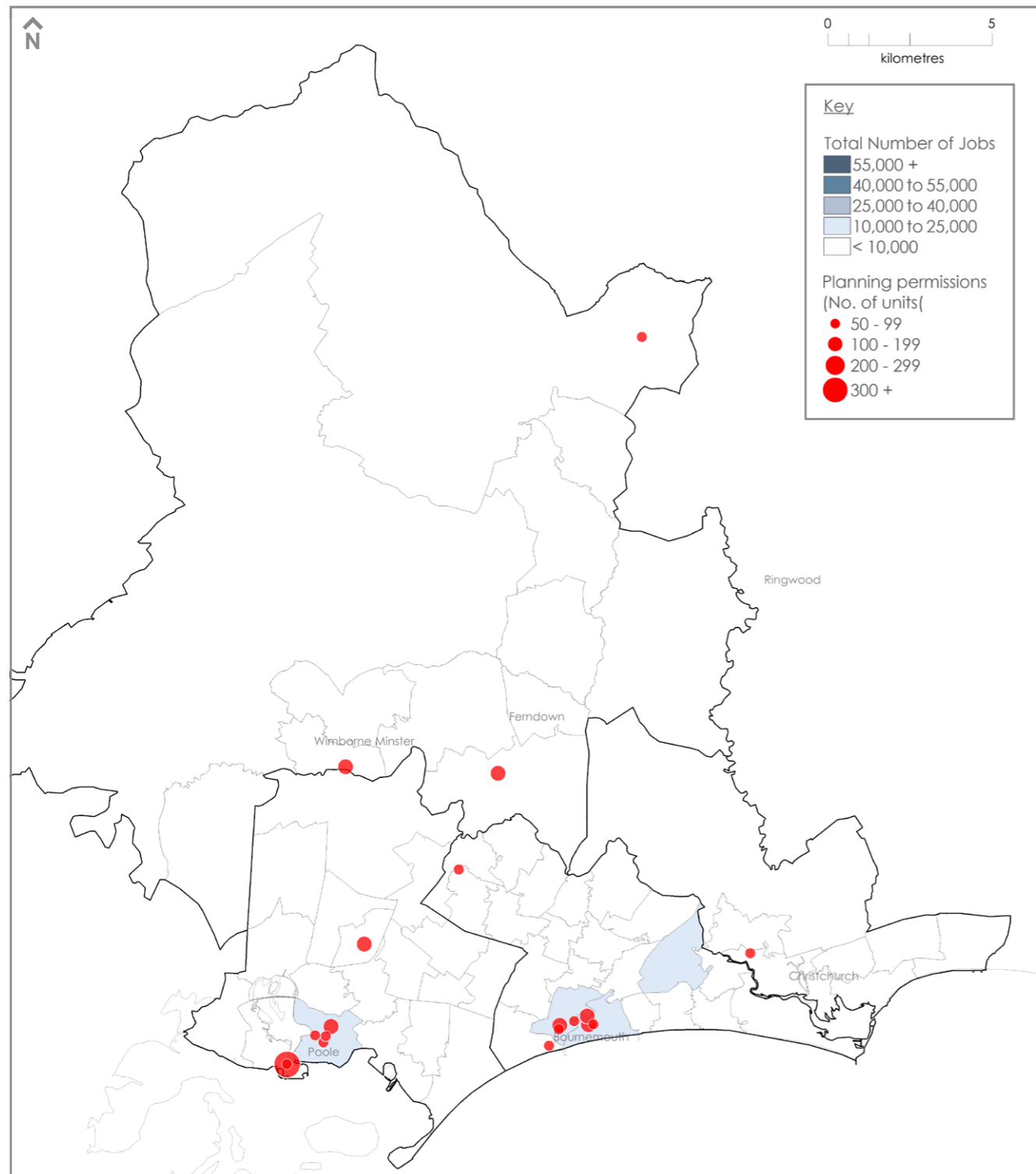
Bournemouth is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 11.9% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 7.6% for both the public and private sectors.

Fig 7. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 8. Map of planning permissions and major employment clusters (2012-2015)



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Figures 7 and 8 map the location of planning permissions for schemes of over 50 housing units, which account for only 44% of the total number of units granted planning permission between 2012 and 2015. This is lower than other city-regions covered by this study, and indicates a pattern of planning permissions for smaller schemes. The average number of units per planning permission is 39, which is also lower than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 96% of housing units were located within 10km of significant employment locations.

Beyond the employment clusters in the centres of Bournemouth and Poole, other notable employment areas with over 10,000 jobs include the cluster of finance, health and retail related jobs to the north of Littledown in Bournemouth.

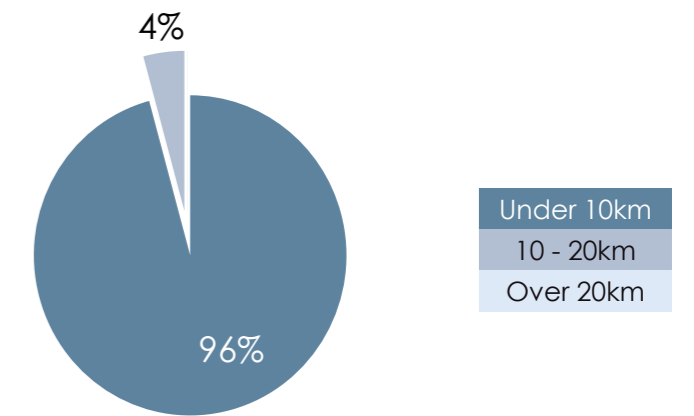
Mapping of specialist sector job growth shows that 57% and 25% of housing units in the Bournemouth city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 43% of units are within a 10 minute walk of a rail station.

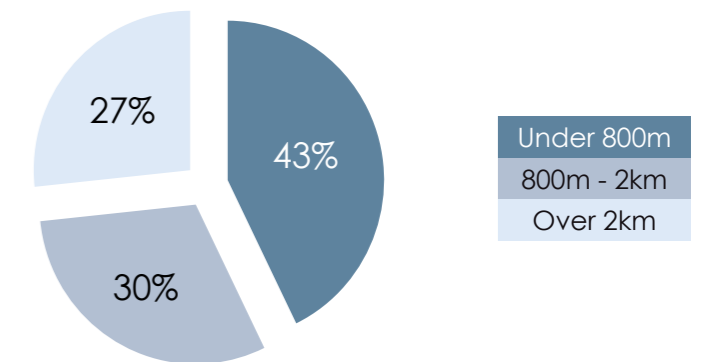
The mapping also shows that 87% of the housing units granted planning permission are located within existing built up areas, while the remaining 13% will be located in areas that fall outside the built up area or green belt.

To view all the maps for the Bournemouth city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

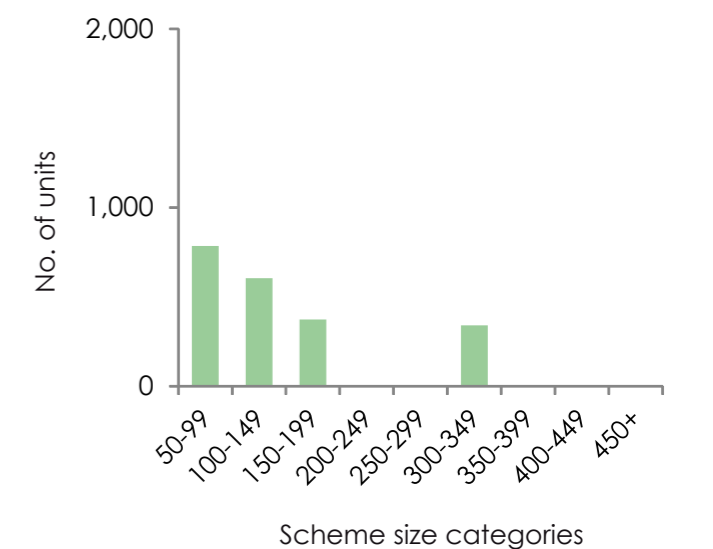
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Bristol

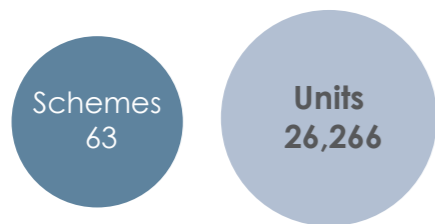
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Bristol	121,585	60%
South Gloucestershire	34,636	17%
North Somerset	17,457	9%
Bath and North East Somerset	8,409	4%

Demographic and employment trends

Total population (Dec 2015)	1,086,900	
Population growth (2012-2015)	+33,800	3.2%
Total jobs (2014)	559,262	
Total jobs change (2011-2014)	+30,397	5.7%
Total private sector jobs (2014)	461,500	
Total private sector jobs change (2011-2014)	+50,199	12.2%

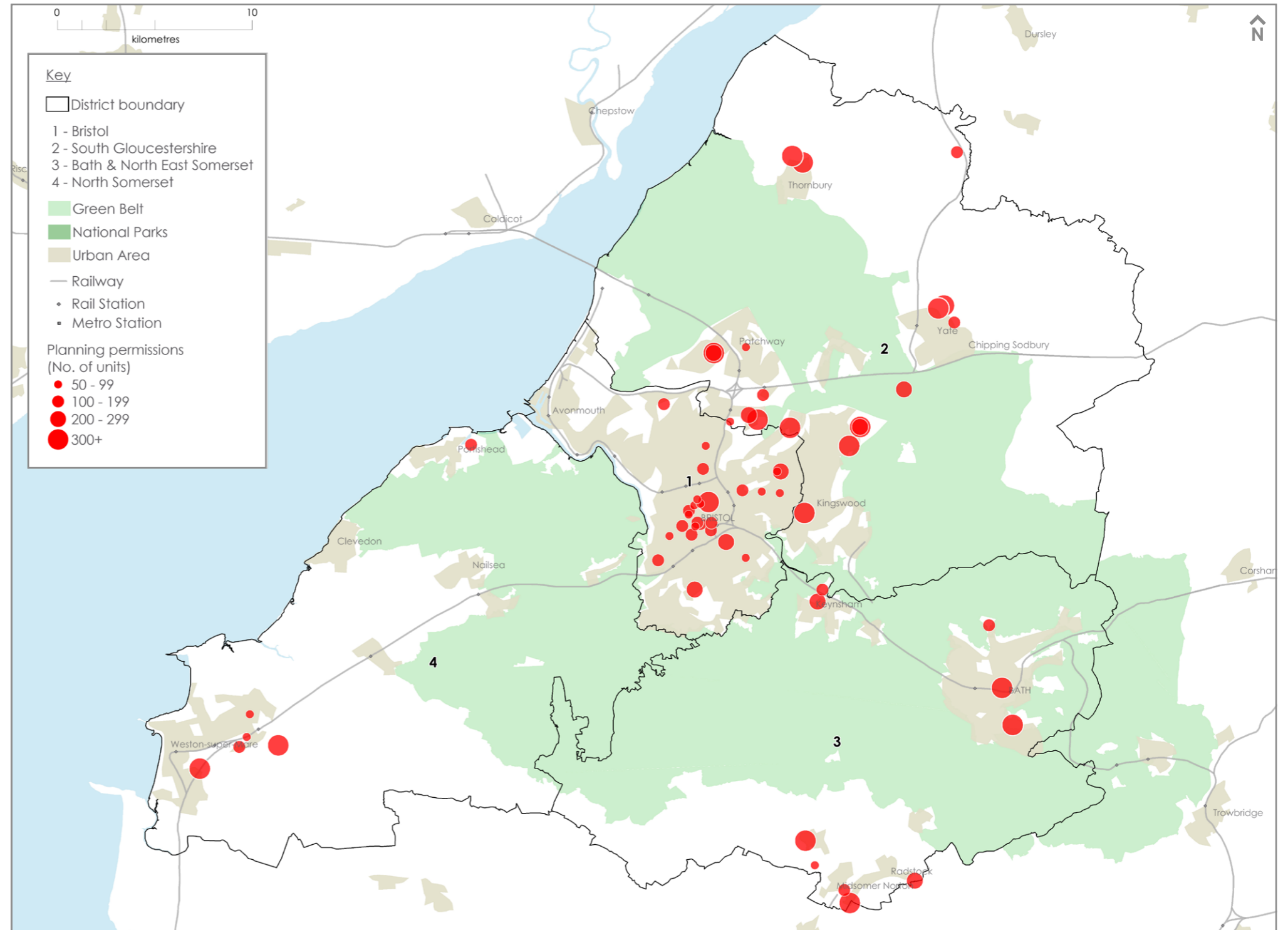
Number of schemes* and associated housing units



*includes only those of 50 units of above

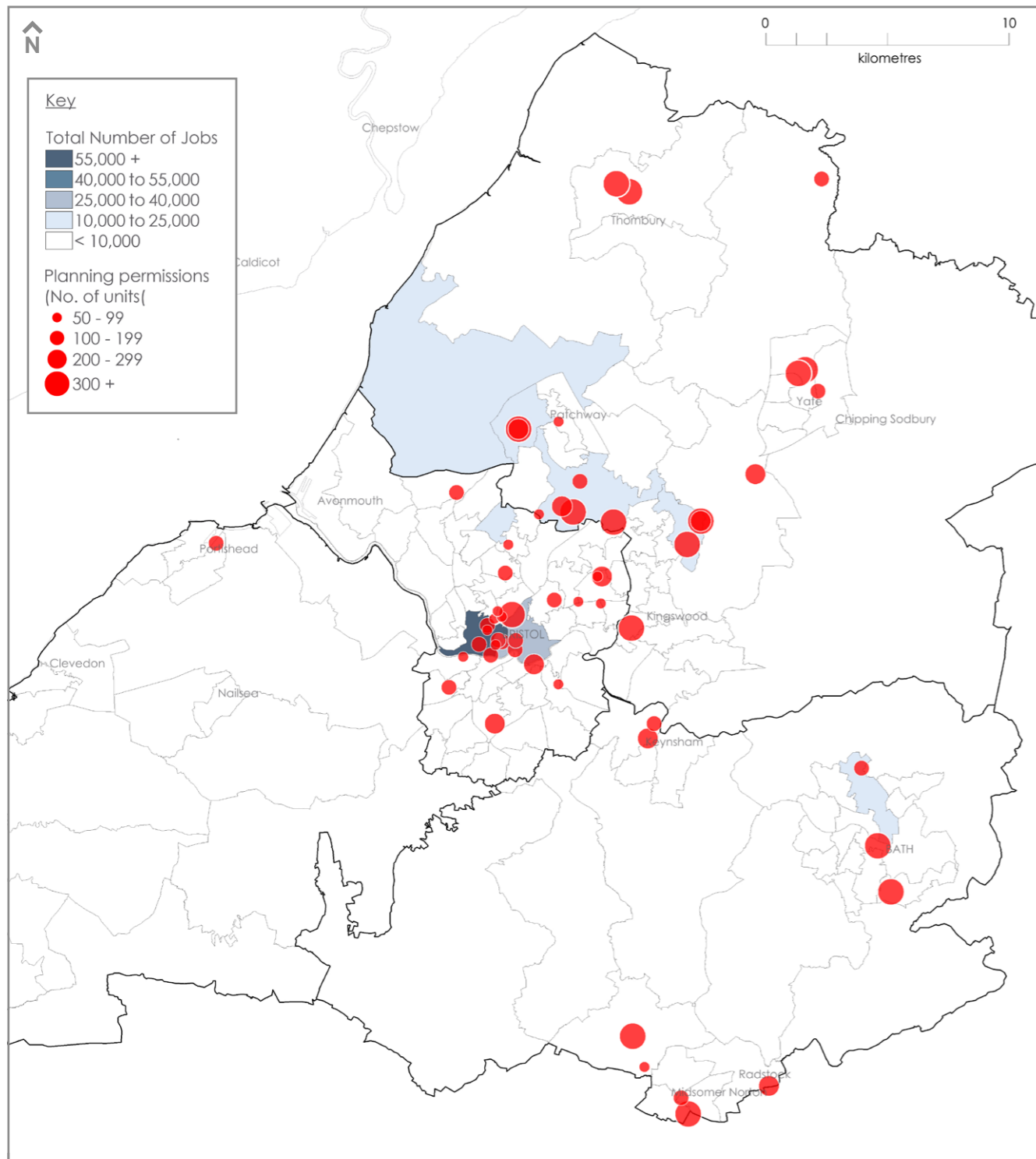
Bristol is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 12.2% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 5.7% for both the public and private sectors.

Fig 9. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 10. Map of planning permissions and major employment clusters (2012-2015)



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Figures 9 and 10 map the location of planning permissions for schemes of over 50 housing units, which account for 87% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 112, which is higher than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 83% of housing units were located within 10km of significant employment locations.

Beyond the employment in the centre of the city of Bristol, other notable employment areas with over 10,000 jobs include Southmead in Bristol and areas in South Gloucestershire along the border with Bristol. This includes industrial estates and business parks south of the M5 corridor.

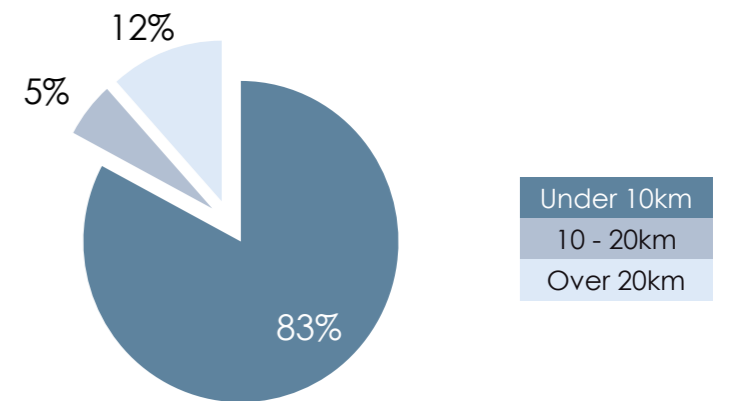
Mapping of specialist sector job growth shows that 59% and 22% of housing units in the Bristol city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 16% of units are within a 10 minute walk of a rail station.

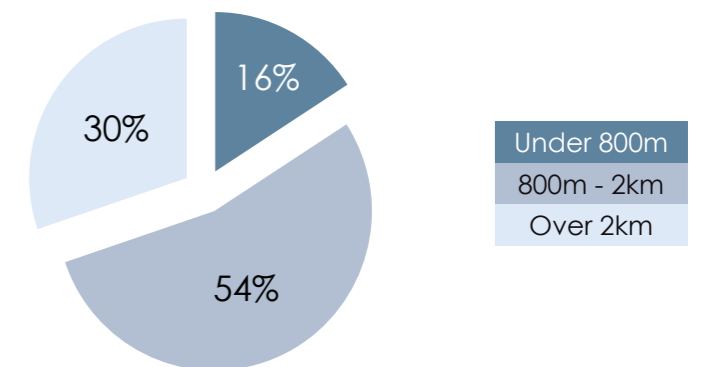
The mapping also shows that 56% of the housing units granted planning permission are located within existing built up areas, 1% within the green belt, and the remaining 43% in areas that fall outside the built up area or green belt.

To view all the maps for the Bristol city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

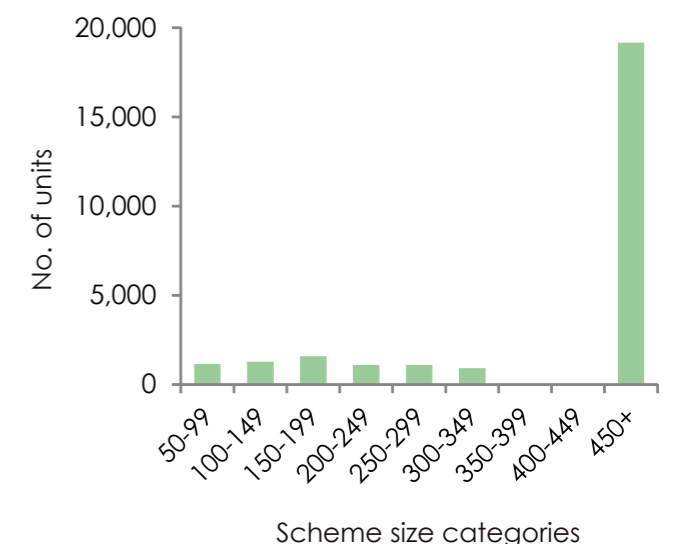
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Plymouth

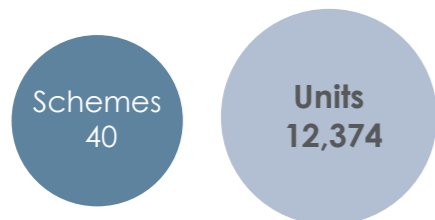
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Plymouth	79,440	75%
Cornwall, Isles of Scilly	9,427	9%
South Hams	6,995	7%

Demographic and employment trends

Total population (Dec 2015)	882,400	
Population growth (2012-2015)	+23,200	2.7%
Total jobs (2014)	338,235	
Total jobs change (2011-2014)	+12,215	3.7%
Total private sector jobs (2014)	281,538	
Total private sector jobs change (2011-2014)	+28,651	11.3%

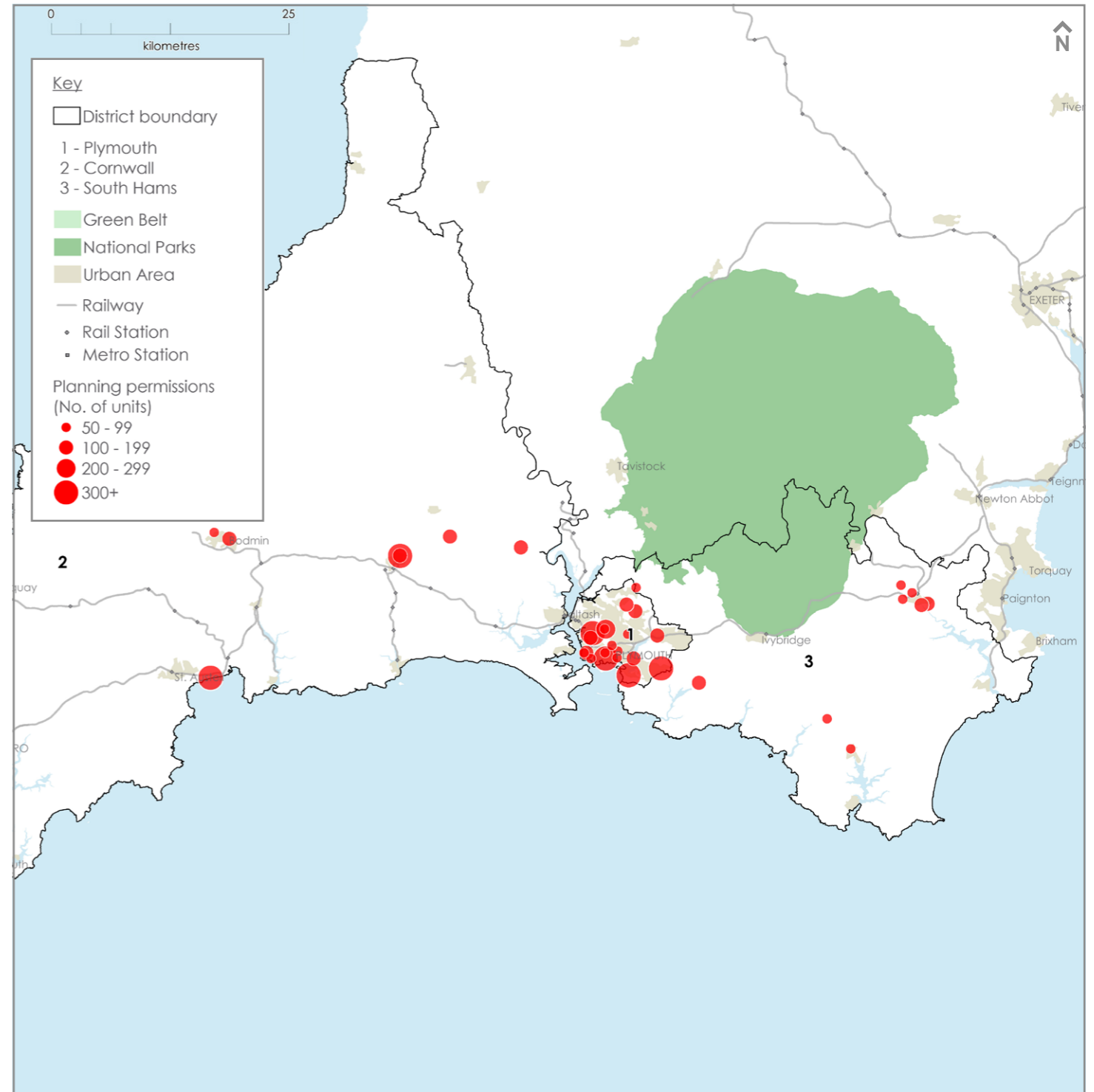
Number of schemes* and associated housing units



*includes only those of 50 units of above

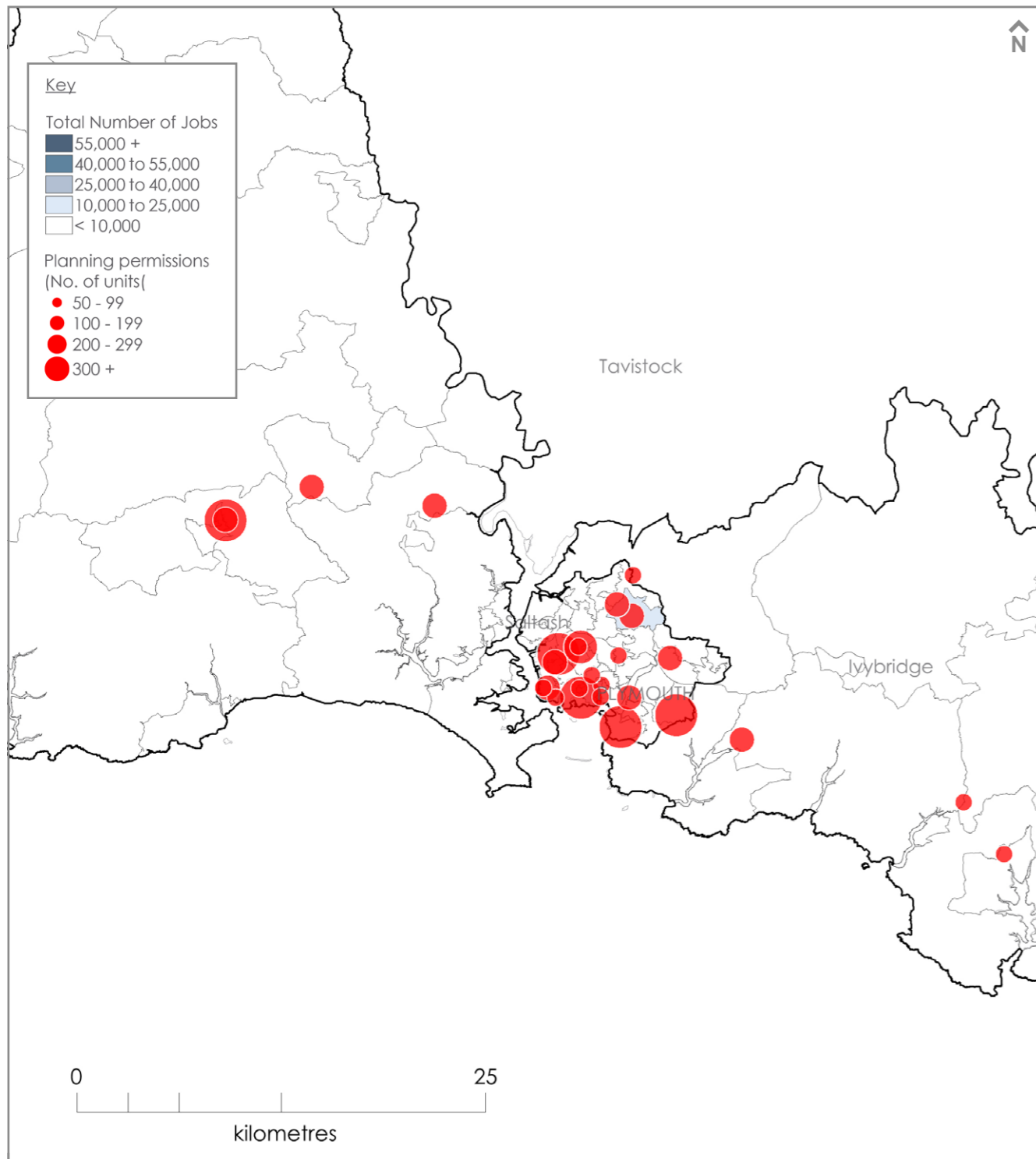
Plymouth is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 11.3% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 3.7% for both the public and private sectors.

Fig 11. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 12. Map of planning permissions and major employment clusters (2012-2015)



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Figures 11 and 12 map the location of planning permissions for schemes of over 50 housing units, which account for 83% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 95, which is slightly higher than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 79% of housing units were located within 10km of significant employment locations.

Figure 12 shows a major employment cluster in the Estover area, which contains a number of industrial and business parks.

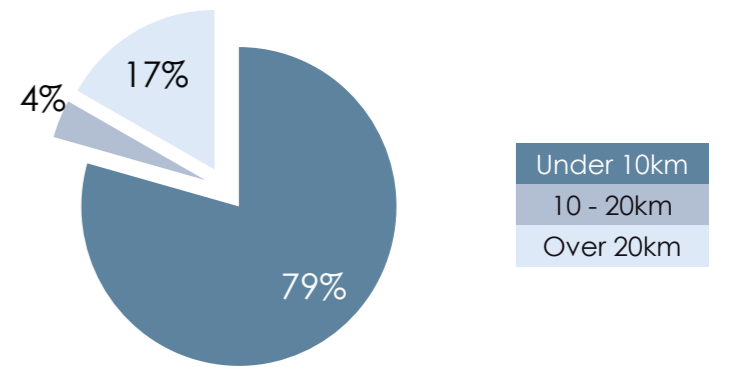
Mapping of specialist sector job growth shows that 12% and 6% of housing units in the Plymouth city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 5% of units are within a 10 minute walk of a rail station.

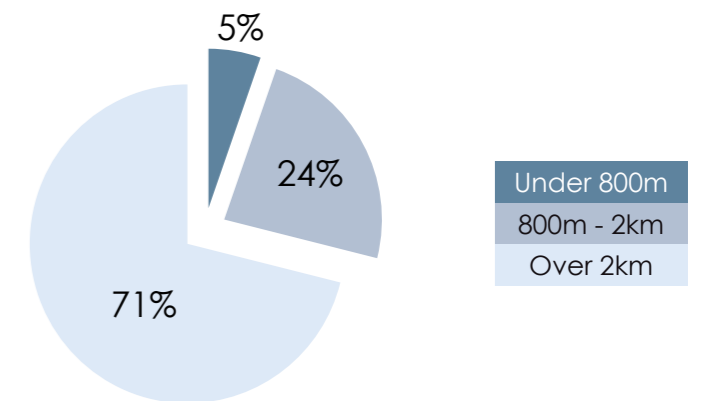
The mapping also shows that 83% of the housing units granted planning permission are located within existing built up areas, while the remaining 17% in areas that fall outside the built up area or green belt.

To view all the maps for the Plymouth city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

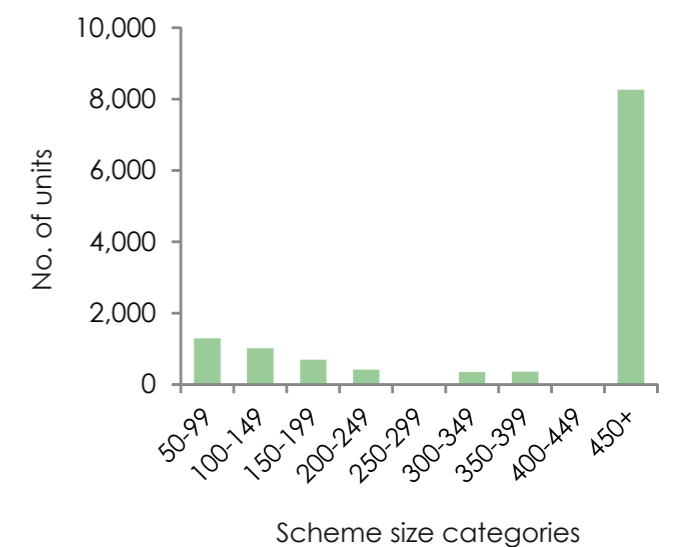
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Coventry

Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Coventry	78,767	61%
Nuneaton and Bedworth	11,392	9%
Warwick	7,903	6%
Rugby	4,909	4%

Demographic and employment trends

Total population (Dec 2015)	696,600	
Population growth (2012-2015)	+22,800	3.4%
Total jobs (2014)	321,606	
Total jobs change (2011-2014)	+15,796	5.2%
Total private sector jobs (2014)	264,580	
Total private sector jobs change (2011-2014)	+27,149	11.4%

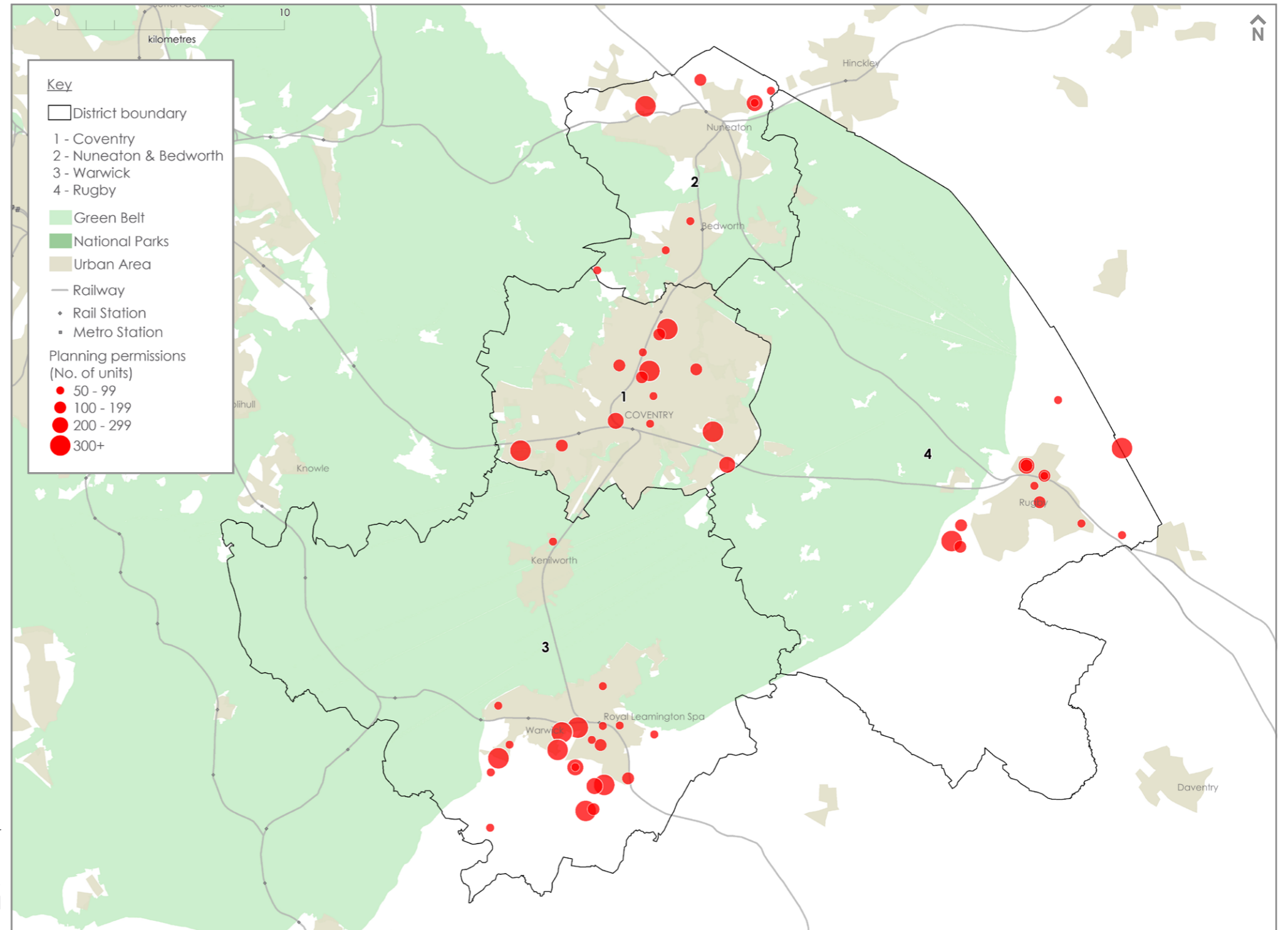
Number of schemes* and associated housing units



*includes only those of 50 units of above

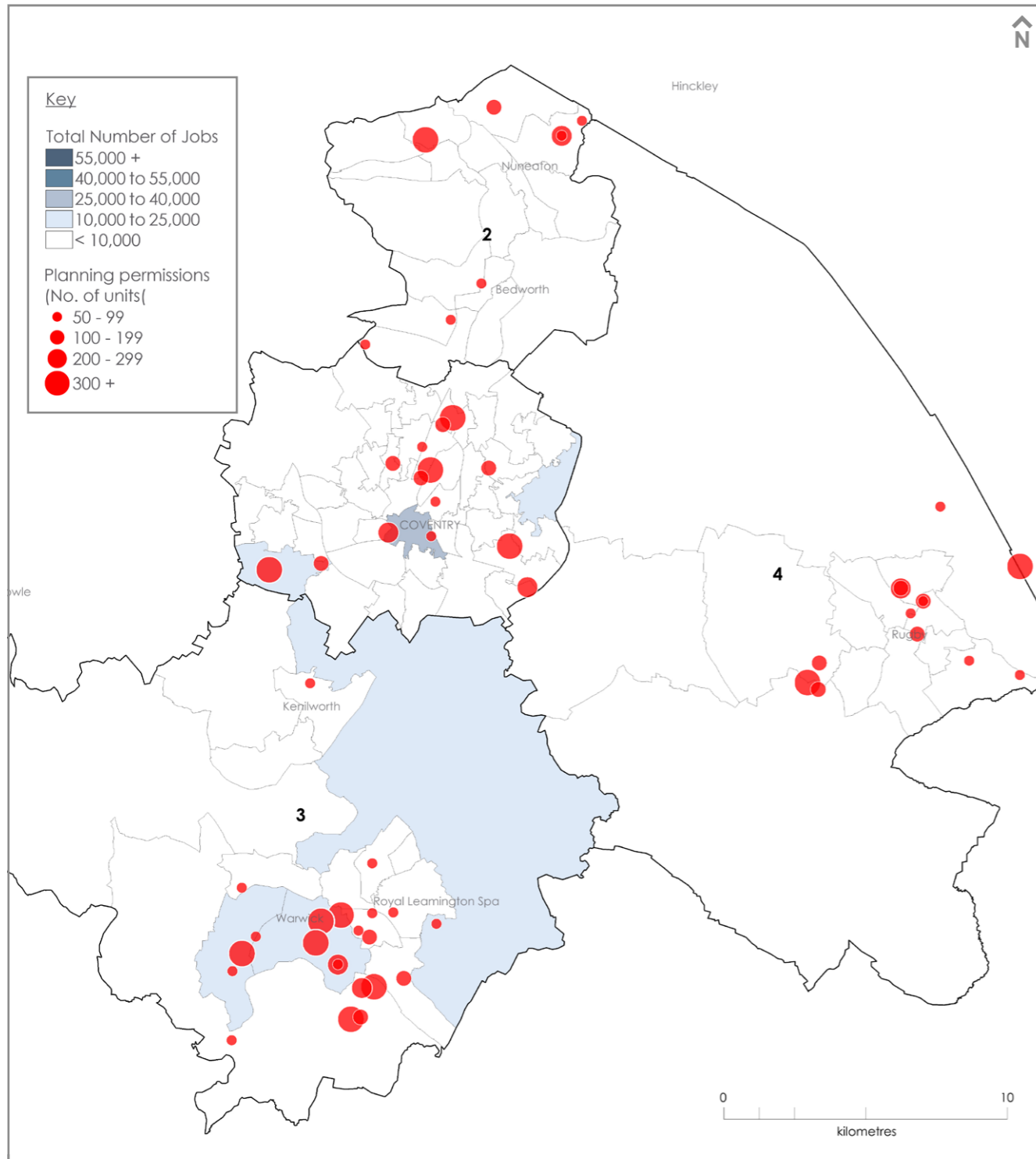
Coventry is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 11.4% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 5.2% for both the public and private sectors.

Fig 13. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 14. Map of planning permissions and major employment clusters (2012-2015)



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Figures 13 and 14 map the location of planning permissions for schemes of over 50 housing units, which account for 85% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 140, which is higher than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 49% of housing units were located within 10km of significant employment locations.

Beyond the employment in Coventry city centre, other notable employment areas with over 10,000 jobs include the area north of Clifford Park (business, health and health related activities), and the business parks and university area at Canley. Significant employment areas in Warwick include the main city centre, the industrial and technology park at Mynton, and the business parks and industrial estates at Stoneleigh and Bagington.

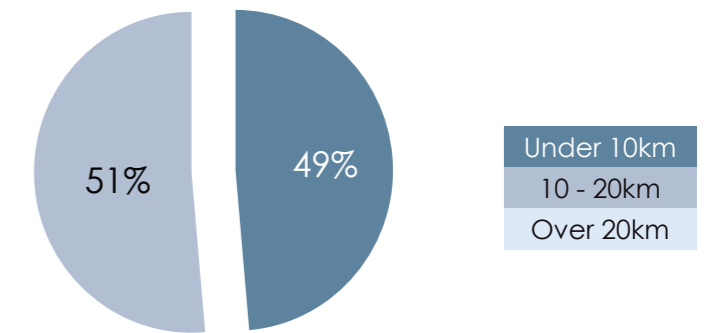
Mapping of specialist sector job growth shows that 40% and 16% of housing units in the Coventry city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 7% of units are within a 10 minute walk of a rail station.

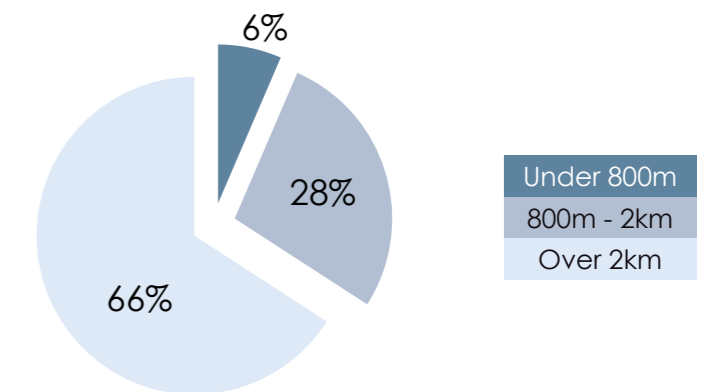
The mapping also shows that 40% of the housing units granted planning permission are located within existing built up areas, 4% in the green belt, and the remaining 56% in areas that fall outside the built up area or green belt.

To view all the maps for the Coventry city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

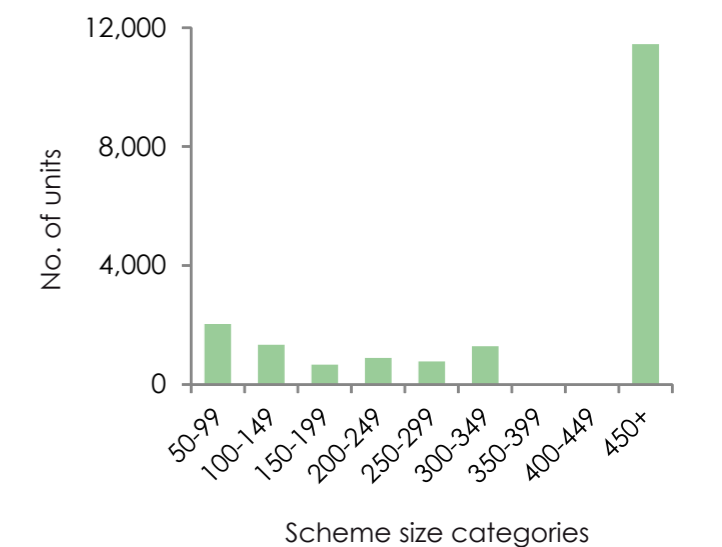
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



Nottingham

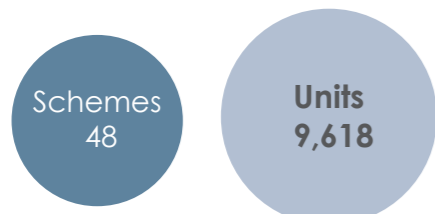
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Nottingham	67,048	43%
Gedling	20,015	13%
Broxtowe	15,394	10%
Rushcliffe	15,002	10%
Ashfield	7,571	5%
Erewash	6,560	4%

Demographic and employment trends

Total population (Dec 2015)	881,600	
Population growth (2012-2015)	+22,100	2.6%
Total jobs (2014)	399,557	
Total jobs change (2011-2014)	+21,951	5.8%
Total private sector jobs (2014)	323,404	
Total private sector jobs change (2011-2014)	+32,913	11.3%

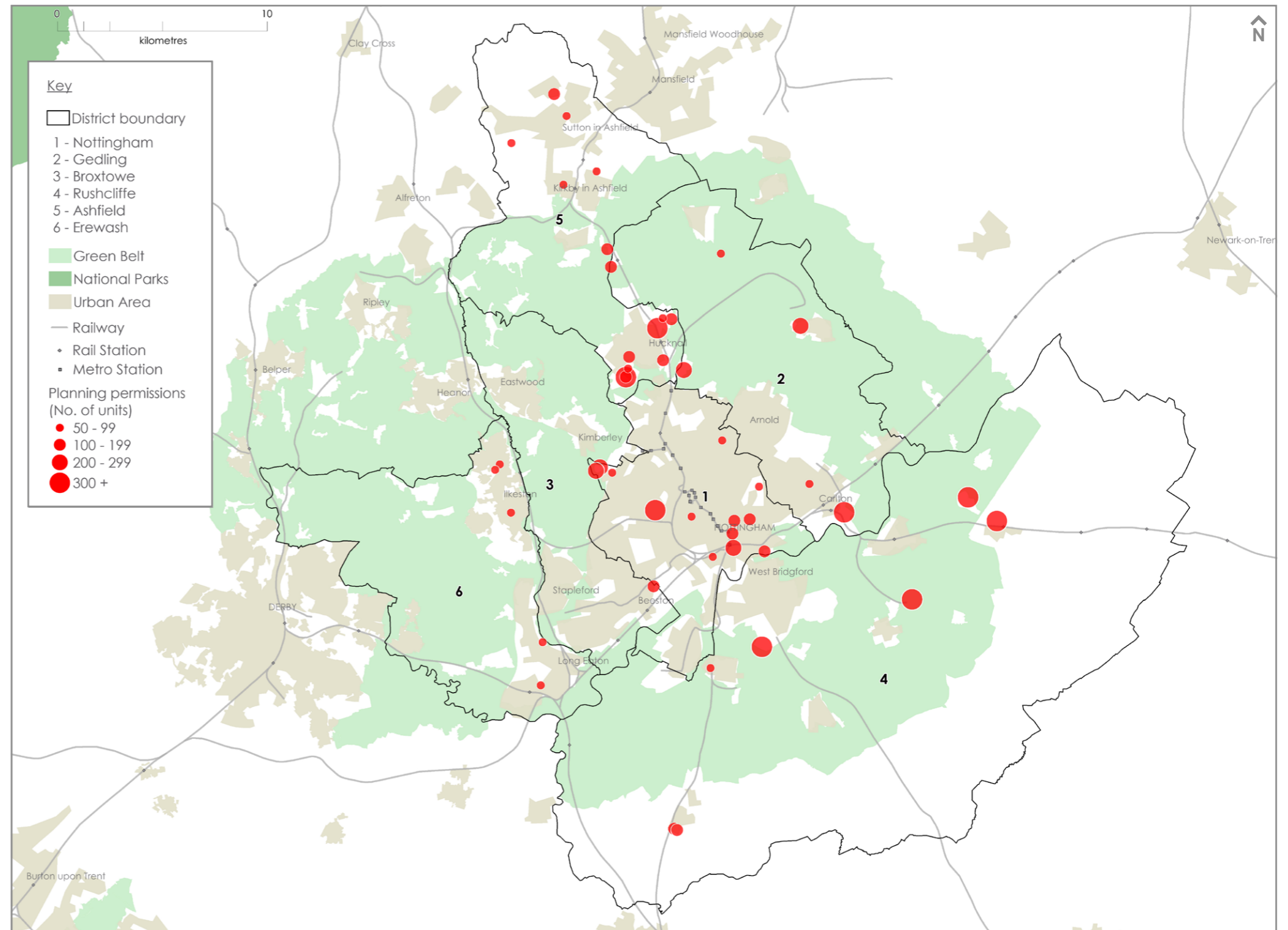
Number of schemes* and associated housing units



*includes only those of 50 units of above

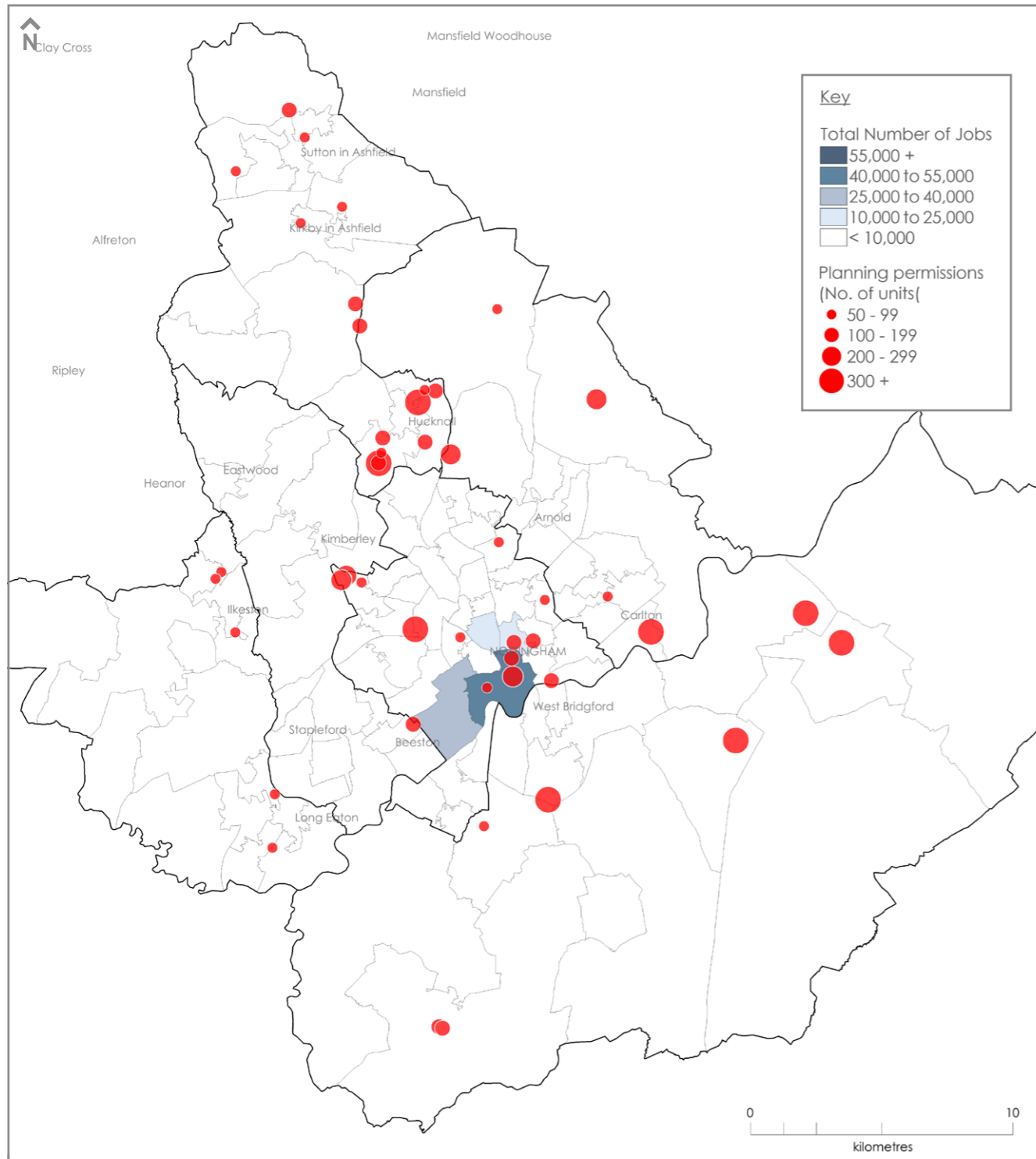
Nottingham is a relatively high growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 11.3% in private sector jobs, which off-set the loss of public sector jobs as shown by the overall growth rate of 5.8% for both the public and private sectors. In relation to the city-regions included in this study,

Fig 15. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 16. Map of planning permissions and major employment clusters (2012-2015)



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Figures 15 and 16 map the location of planning permissions for schemes of over 50 housing units, which account for 78% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 79, which is below the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 71% of housing units were located within 10km of significant employment locations.

The main employment areas in Nottingham clustered to the north of the river Trent, and in and around the city-centre.

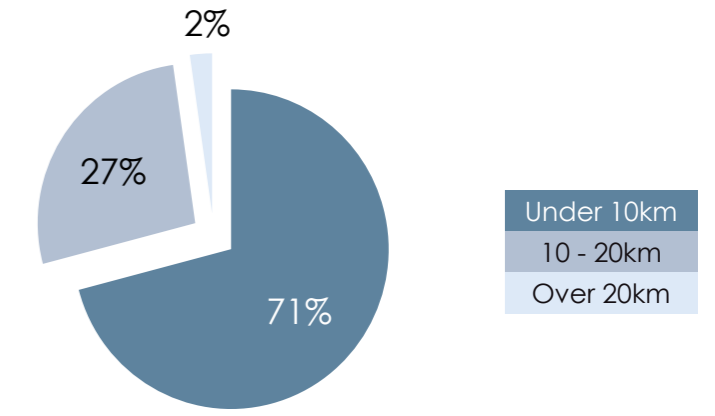
Mapping of specialist sector job growth shows that 43% and 26% of housing units in the Nottingham city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and stations shows the 29% are within a 10 minute walk of a railway station, while 6% are within a 10 minute walk of a tram station.

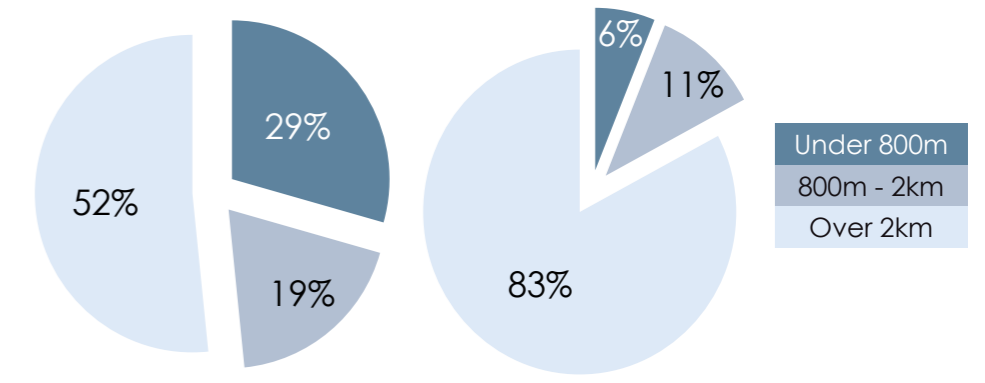
The mapping also shows that 31% of the housing units granted planning permission are located within existing built up areas, 10% in the green belt, and the remaining 59% in areas that fall outside the built up area or green belt.

To view all the maps for the Nottingham city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

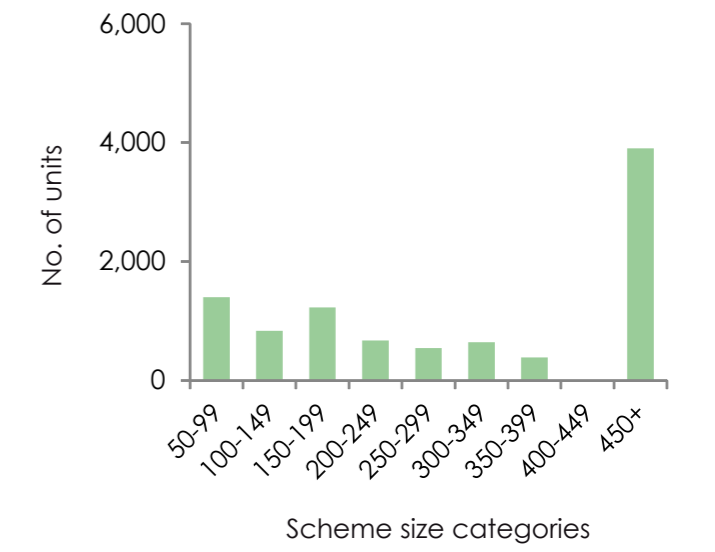
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations (left) and tram (right)



Distribution of housing units by scheme size



Newcastle

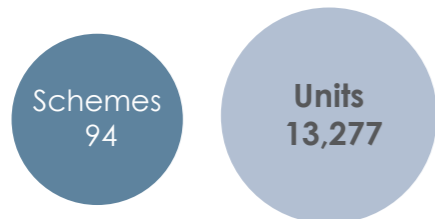
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Newcastle upon Tyne	63,863	41%
North Tyneside	24,932	16%
Gateshead	19,941	13%
Northumberland	19,289	13%
County Durham	8,682	6%
South Tyneside	6,484	4%
Sunderland	6,161	4%

Demographic and employment trends

Total population (Dec 2015)	1,936,700	
Population growth (2012-2015)	+39,400	2.1%
Total jobs (2014)	768,537	
Total jobs change (2011-2014)	+18,259	2.4%
Total private sector jobs (2014)	589,960	
Total private sector jobs change (2011-2014)	+41,257	7.5%

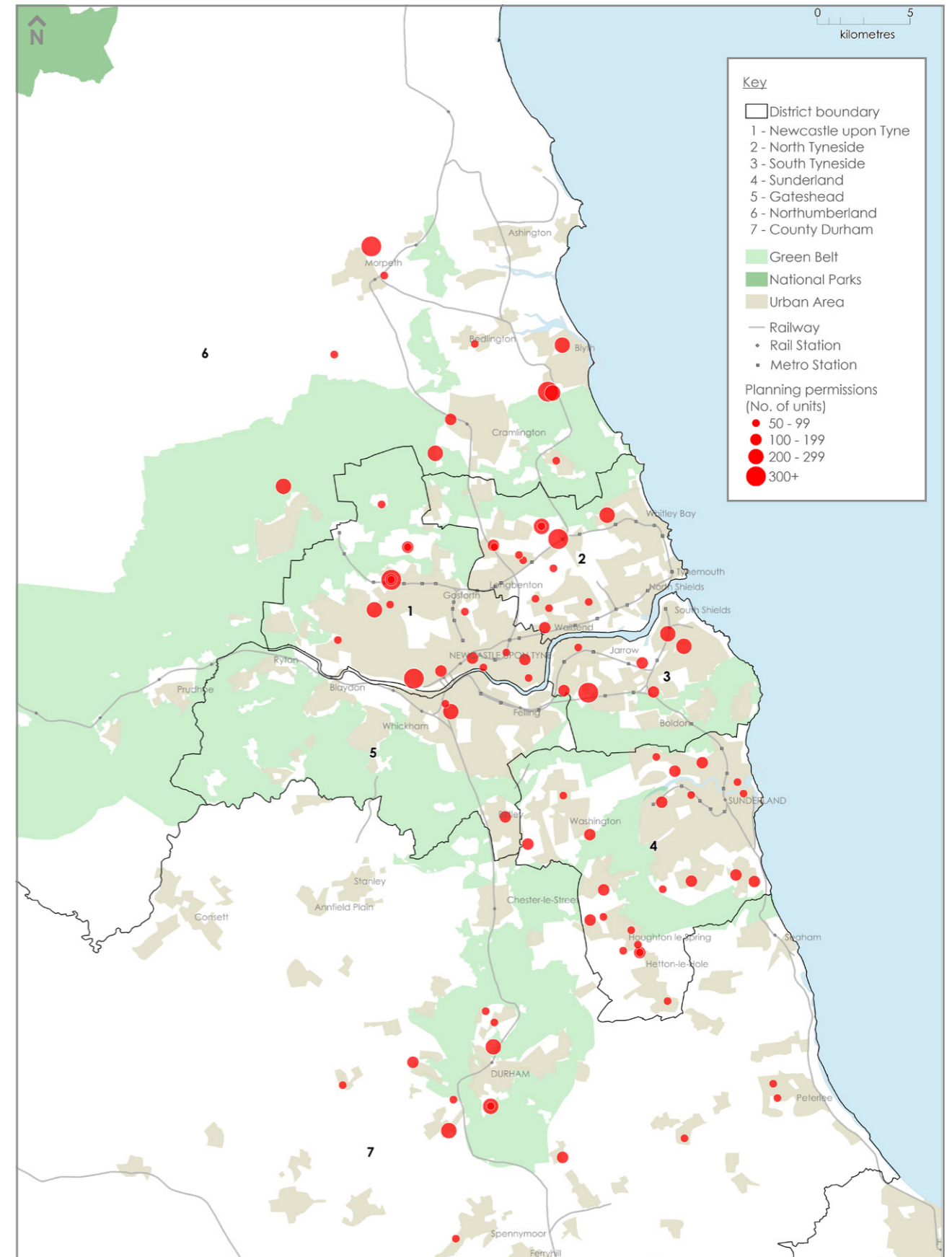
Number of schemes* and associated housing units



*includes only those of 50 units of above

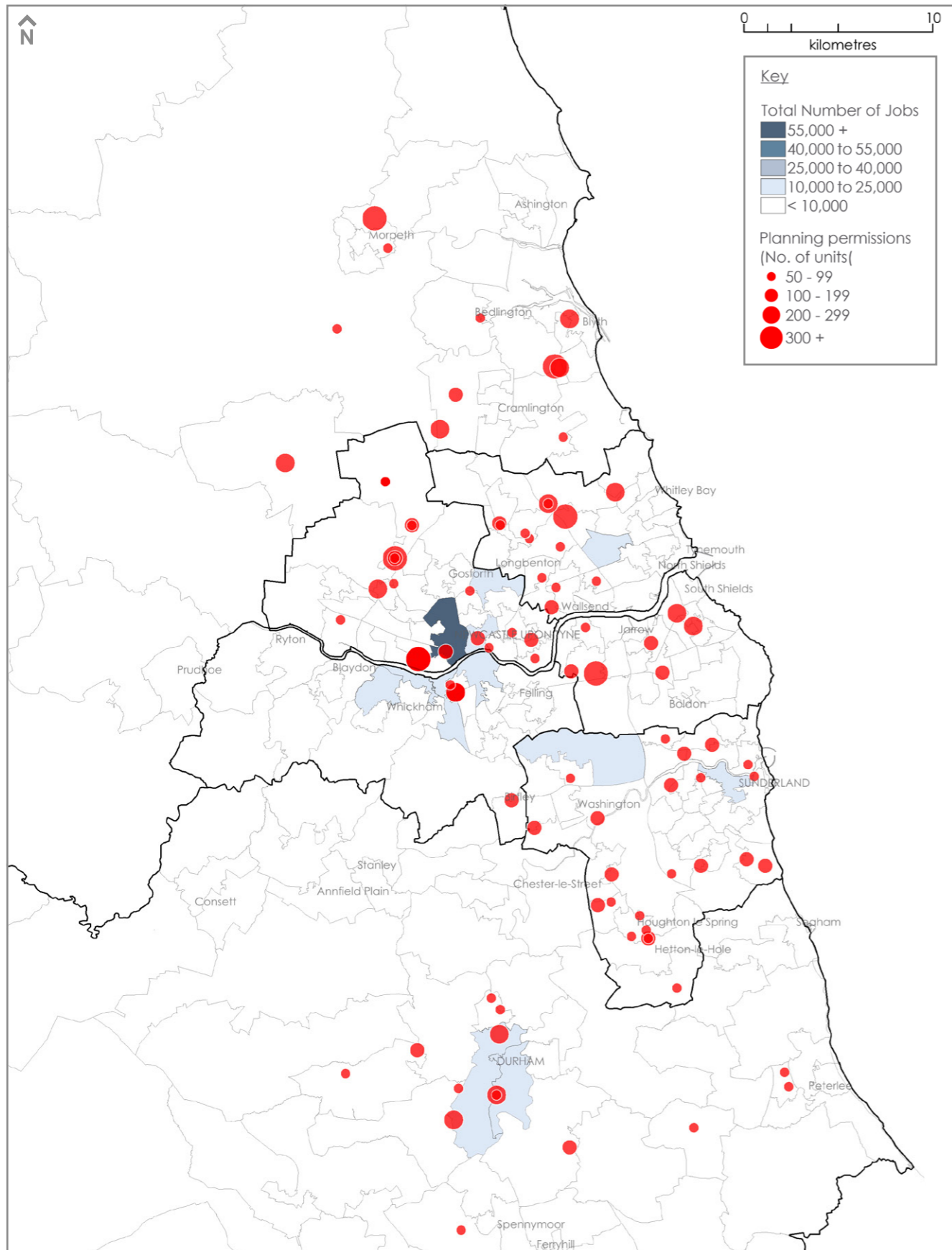
Newcastle is a relatively low growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 7.5% in private sector jobs, set against a general growth rate of 2.4% for both the public and private sectors.

Fig 17. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 18. Map of planning permissions and major employment clusters (2012-2015)



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Figures 17 and 18 map the location of planning permissions for schemes of over 50 housing units, which account for 55% of the total number of units granted planning permission between 2012 and 2015. This is lower than other city-regions covered by this study, and indicates a pattern of planning permissions for smaller schemes. However the average number of units per planning permission is 81, which reflects the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 84% of housing units were located within 10km of significant employment locations.

Beyond the employment in Newcastle city-centre, other notable employment areas with over 10,000 jobs include: employment clusters in Gateshead including the city centre and Team Valley; employment clusters around Longbenton including the civil service and its related functions; employment clusters on the north side of the Tyne Tunnel including the Trading Estate; the Nissan plant and adjacent commercial activities between Washington and Sunderland; commercial activities on the banks of the River Wear in Sunderland; and jobs located in the centre of Durham.

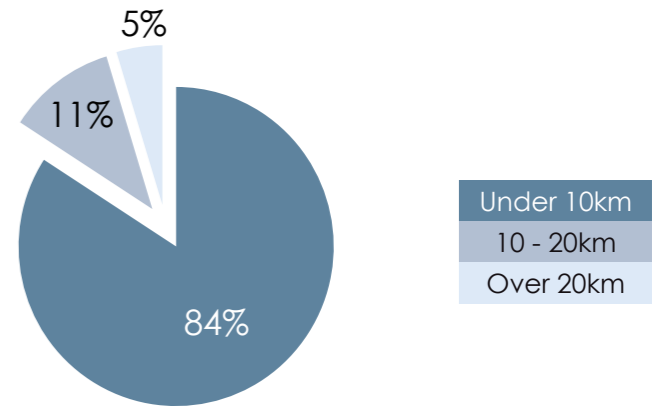
Mapping of specialist sector job growth shows that 3% and 7% of housing units in the Nottingham city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and stations shows that 4% are within a 10 minute walk of a railway station, while 18% are within a 10 minute walk of a metro station.

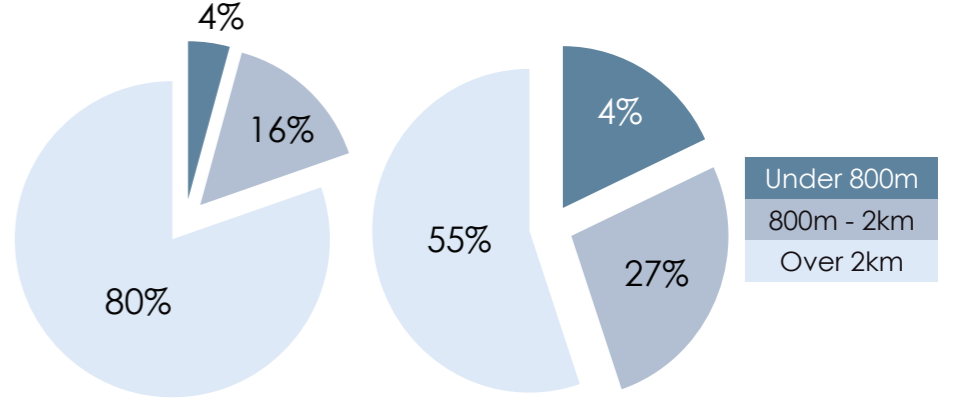
The mapping also shows that 60% of the housing units granted planning permission are located within existing built up areas, 7% in the green belt, and the remaining 34% in areas that fall outside the built up area or green belt. The latter is relatively low considering the scale of the city-region used in this analysis, which including the predominantly rural unitary authority of Northumberland County Council.

To view all the maps for the Newcastle city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

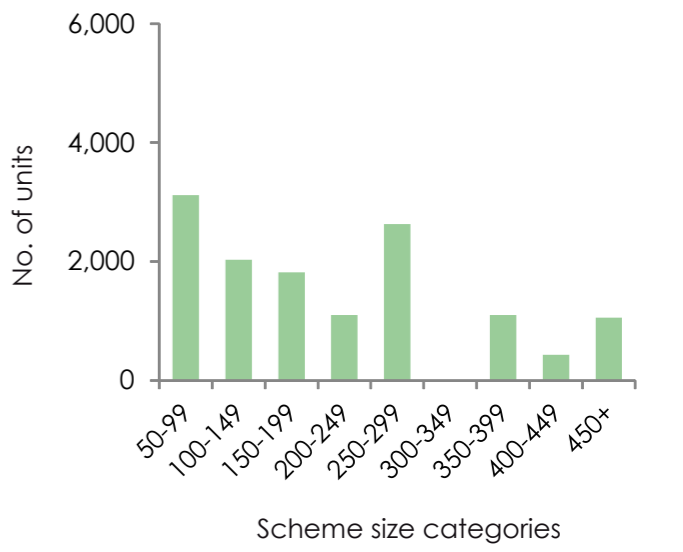
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations (left) and metro (right)



Distribution of housing units by scheme size



Blackburn

Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Blackburn with Darwen	31,801	57%
Hyndburn	6,278	11%
Ribble Valley	3,126	6%
Burnley	2,103	4%

Demographic and employment trends

Total population (Dec 2015)	370,600	
Population growth (2012-2015)	+3,700	1.0%
Total jobs (2014)	153,678	
Total jobs change (2011-2014)	+6,089	4.1%
Total private sector jobs (2014)	120,618	
Total private sector jobs change (2011-2014)	+6,421	5.6%

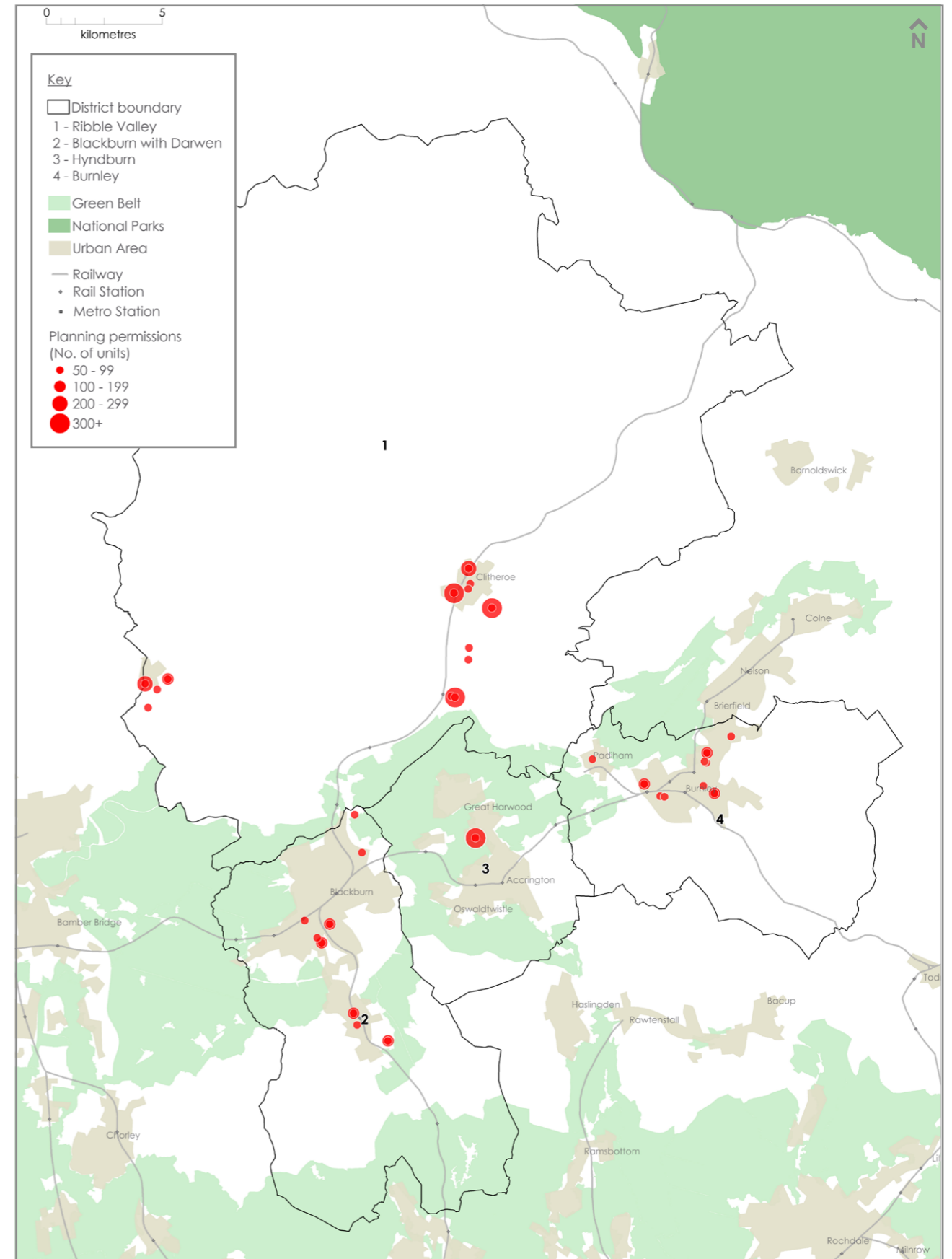
Number of schemes* and associated housing units



*includes only those of 50 units of above

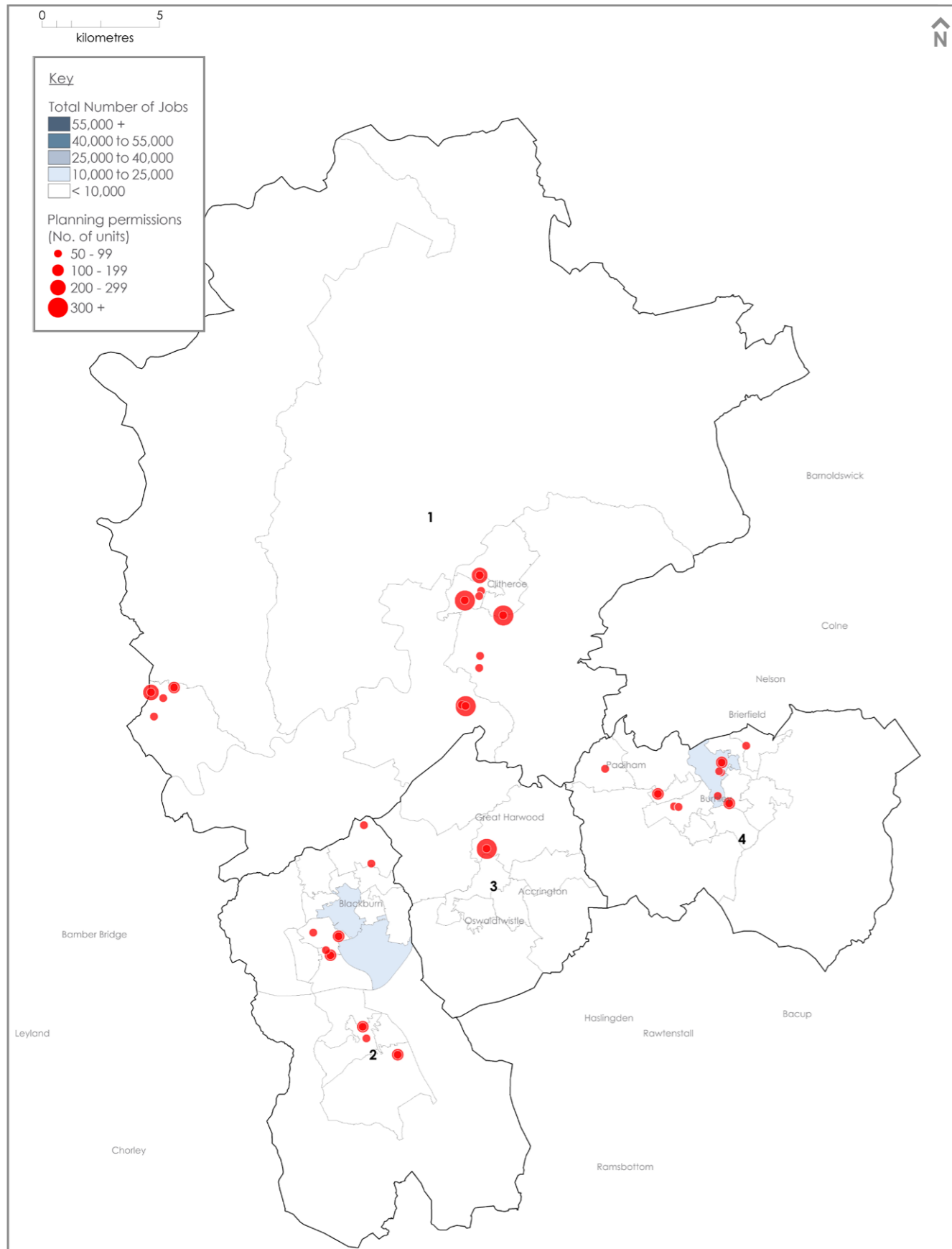
Blackburn is a relatively low growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 5.6% in private sector jobs, set against a general growth rate of 4.1% for both the public and private sectors.

Fig 19. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 20. Map of planning permissions and major employment clusters (2012-2015)



Figures 19 and 20 map the location of planning permissions for schemes of over 50 housing units, which account for 78% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 56, which is lower than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 41% of housing units were located within 10km of significant employment locations.

Blackburn city centre is the main area of employment in the city-region, followed by Burnley city centre.

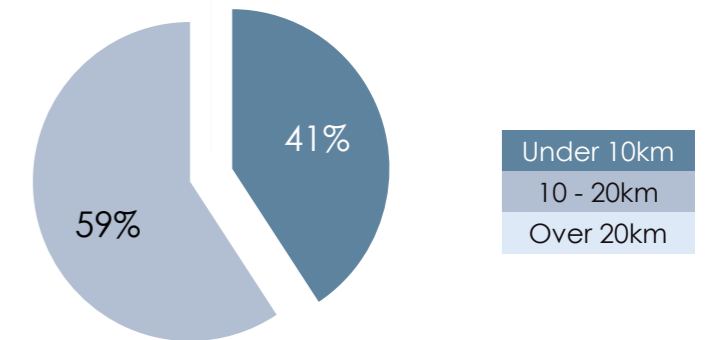
Mapping of specialist sector job growth shows that 5% and 45% of housing units in the Blackburn city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 29% of units are within a 10 minute walk of a rail station.

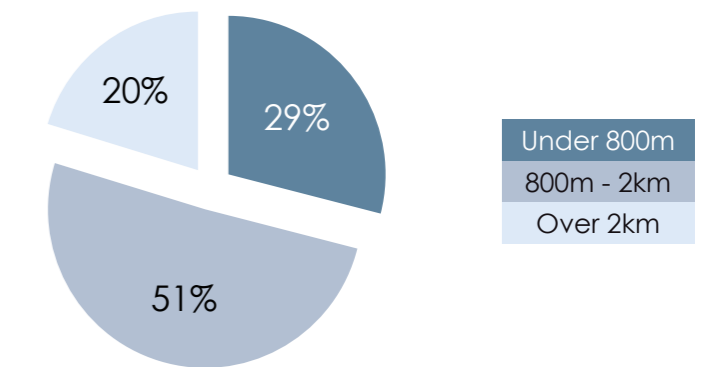
The mapping also shows that 55% of the housing units granted planning permission are located within existing built up areas, with the remaining 45% in areas that fall outside the built up area or green belt.

To view all the maps for the Blackburn city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

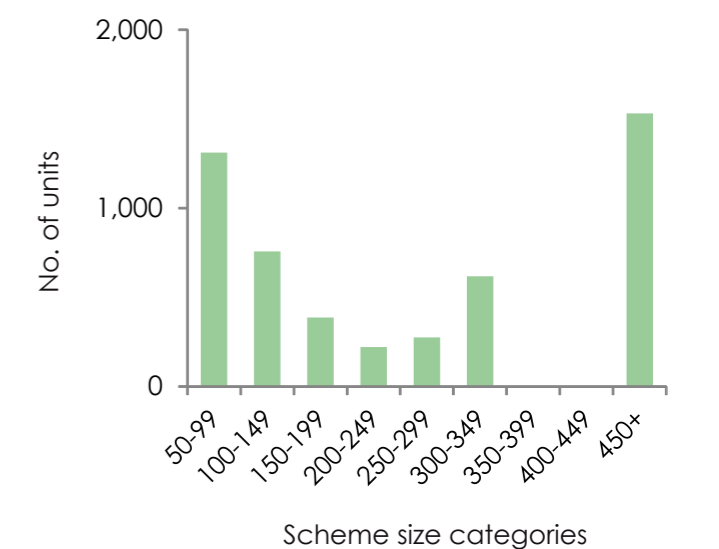
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



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Warrington

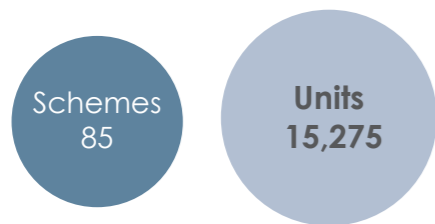
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Warrington	50,422	51%
St. Helens	6,804	7%
Wigan	6,539	7%
Halton	5,786	6%
Cheshire West and Chester	3,894	4%

Demographic and employment trends

Total population (Dec 2015)	1,156,400	
Population growth (2012-2015)	+22,800	2.0%
Total jobs (2014)	494,255	
Total jobs change (2011-2014)	+21,764	4.6%
Total private sector jobs (2014)	414,428	
Total private sector jobs change (2011-2014)	+34,654	9.1%

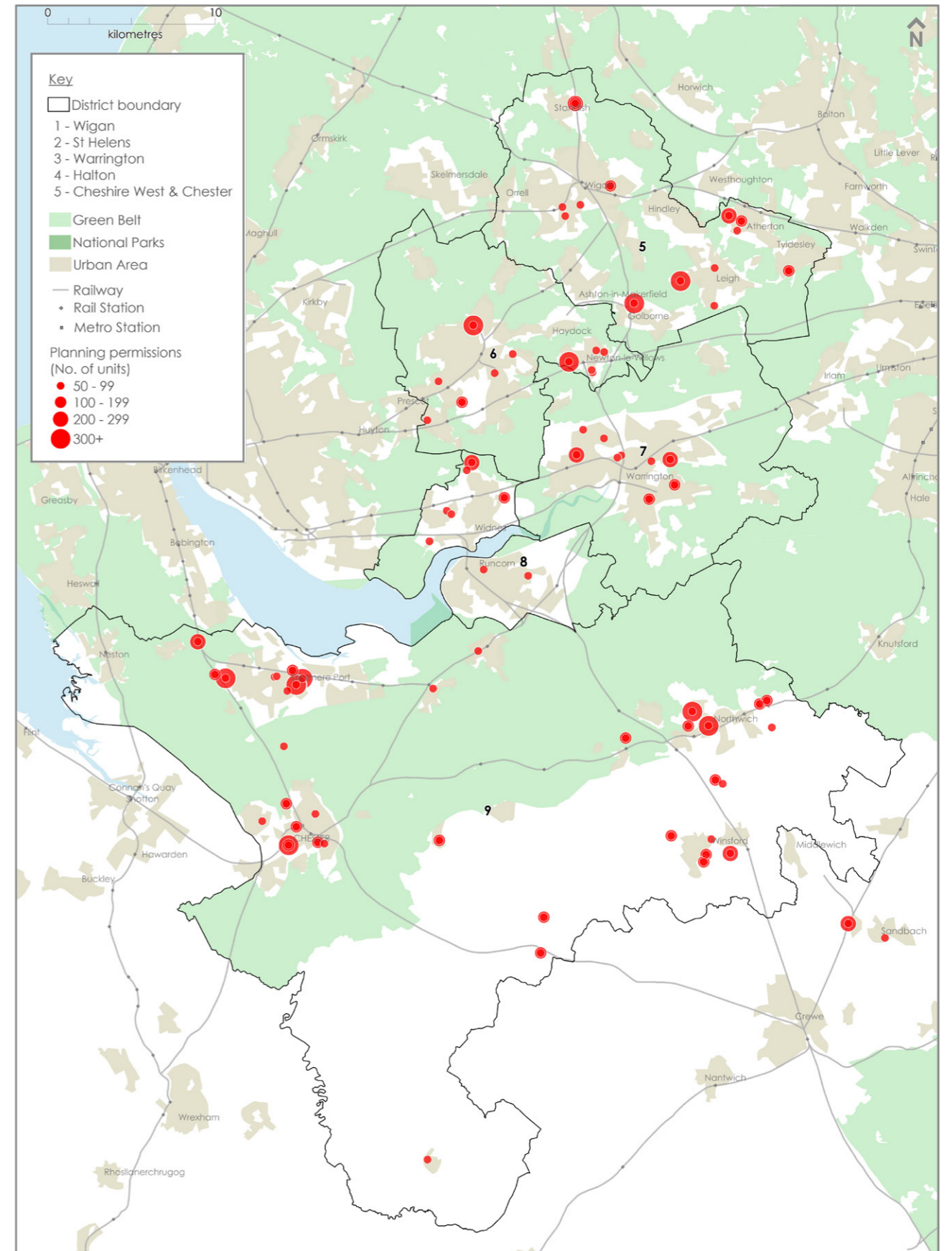
Number of schemes* and associated housing units



*includes only those of 50 units of above

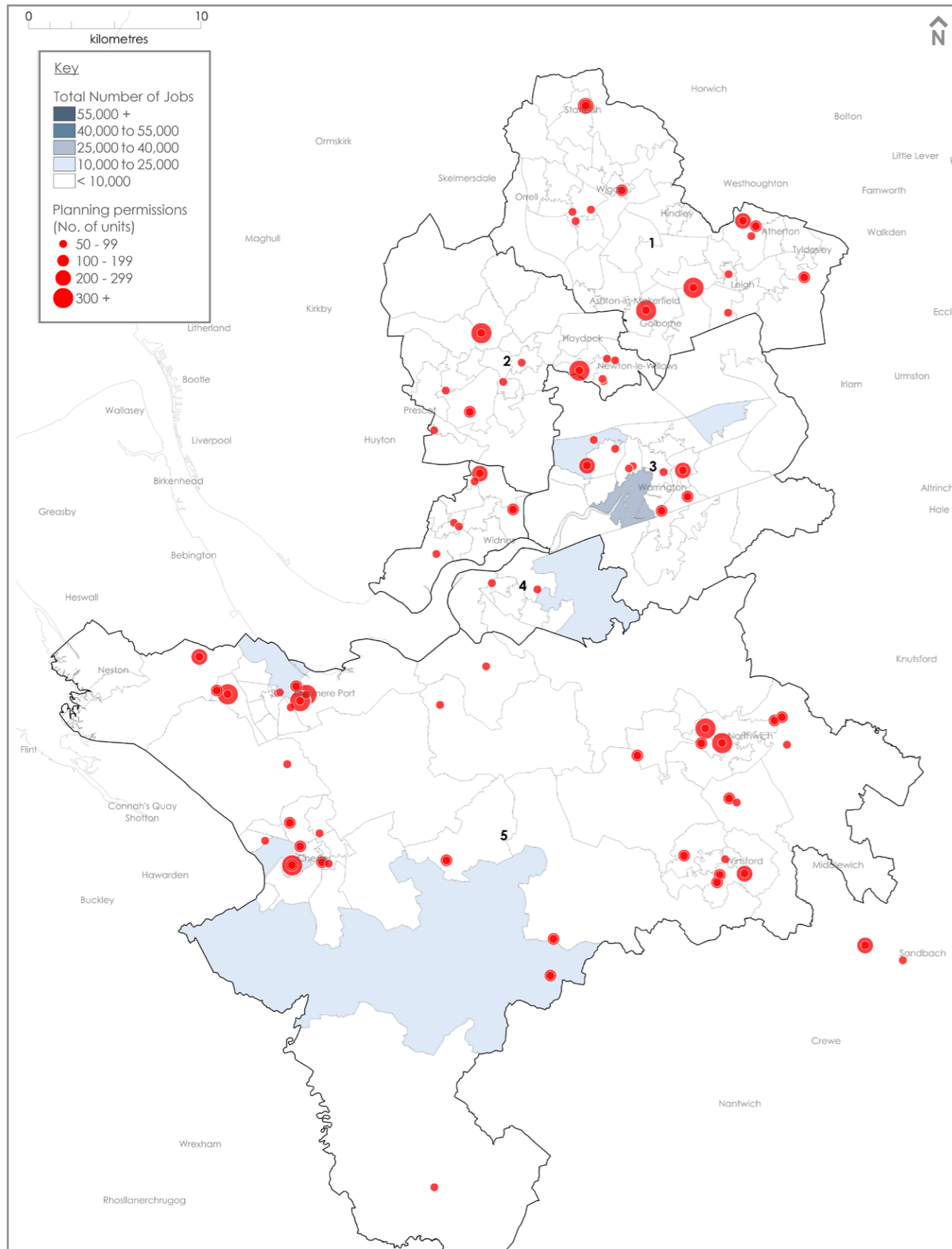
Warrington is a slightly lower growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 9.1% in private sector jobs, set against a general growth rate of 4.6% for both the public and private sectors.

Fig 21. Map of planning permissions for schemes with over 50 housing units (2012-2015)



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Fig 22. Map of planning permissions and major employment clusters (2012-2015)



Figures 21 and 22 map the location of planning permissions for schemes of over 50 housing units, which account for 81% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 79, which is lower than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 62% of housing units were located within 10km of significant employment locations.

Beyond the employment areas in the Warrington city centre, there is a notable cluster to the south of M62 (the Lingley Mere Business Park) and at the industrial estate in Birchwood. The other jobs clusters within the city-region are around East of Halton in Halton, and Ellesmere Port and Chester Business Park in Chester.

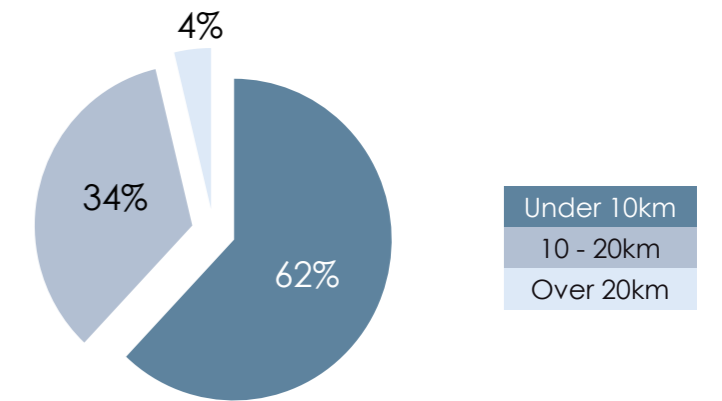
Mapping of specialist sector job growth shows that 23% and 10% of housing units in the Warrington city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 21% of units are within a 10 minute walk of a rail station.

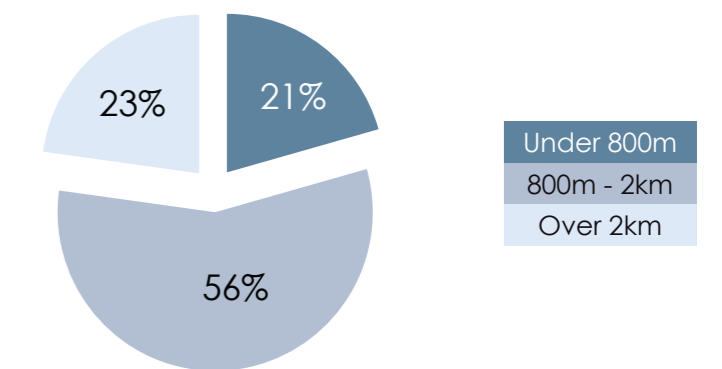
The mapping also shows that 47% of the housing units granted planning permission are located within existing built up areas, 10% in the green belt, and the remaining 43% in areas that fall outside the built up area or green belt.

To view all the maps for the Warrington city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

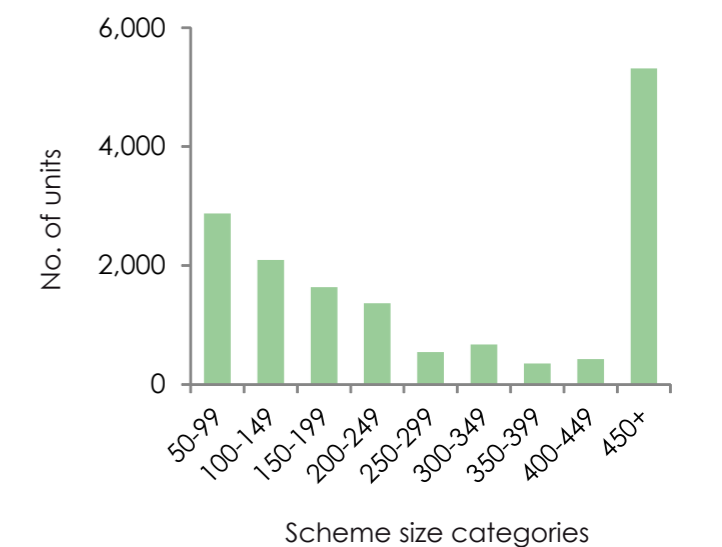
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



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Leeds

Fig 23. Map of planning permissions for schemes with over 50 housing units (2012-2015)

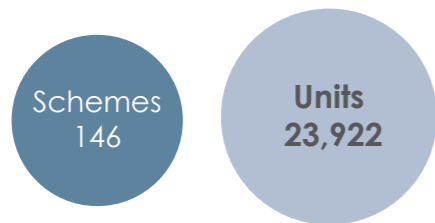
Commuting flows in the city-region

Local authorities	No. of inward commuters	% of total commuters
Leeds	236,326	66%
Bradford	27,508	8%
Wakefield	21,568	6%
Kirklees	19,725	6%

Demographic and employment trends

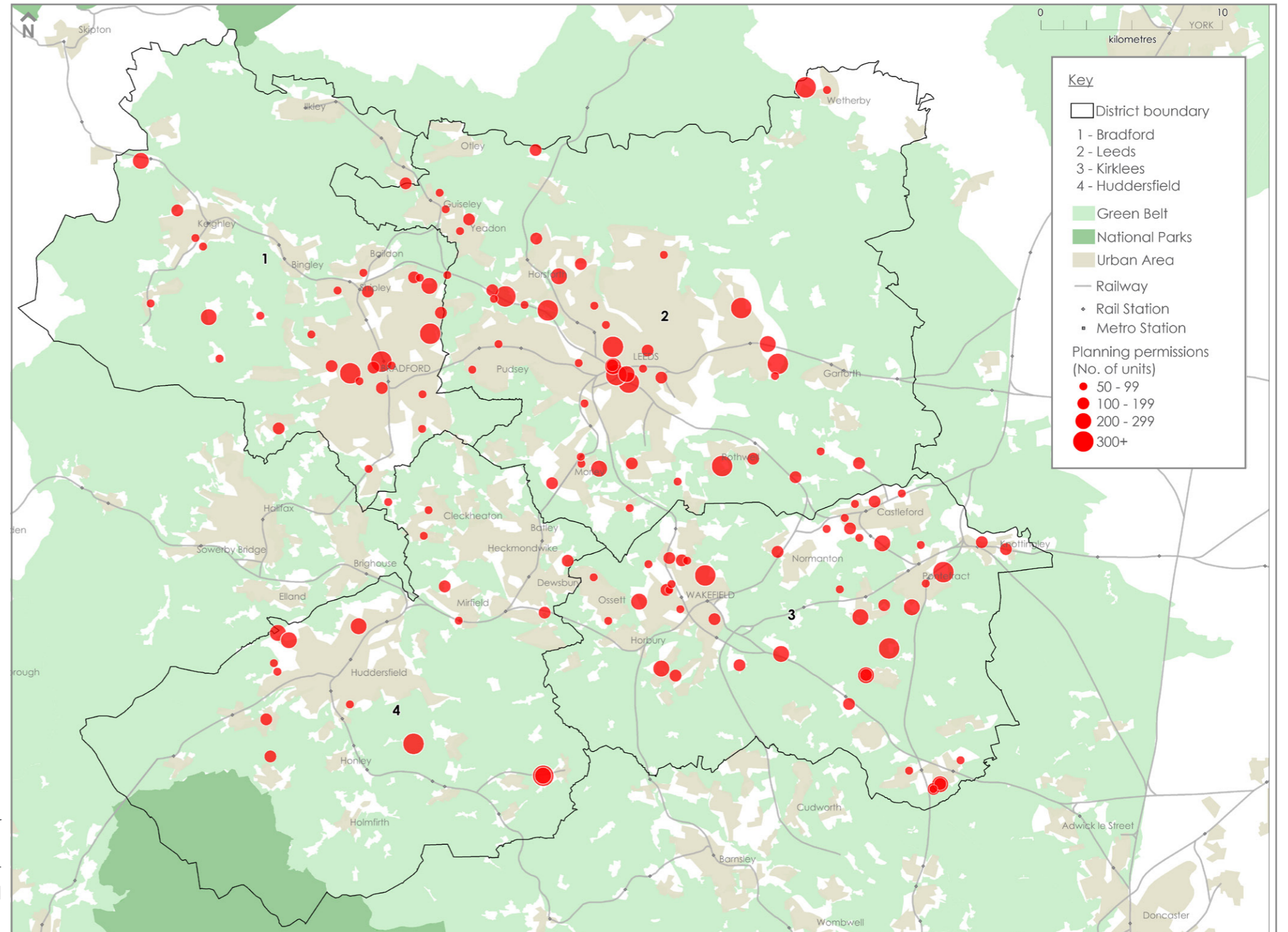
Total population (Dec 2015)	2,046,900	
Population growth (2012-2015)	+43,500	2.2%
Total jobs (2014)	894,014	
Total jobs change (2011-2014)	+20,405	2.3%
Total private sector jobs (2014)	711,644	
Total private sector jobs change (2011-2014)	+45,602	6.8%

Number of schemes* and associated housing units



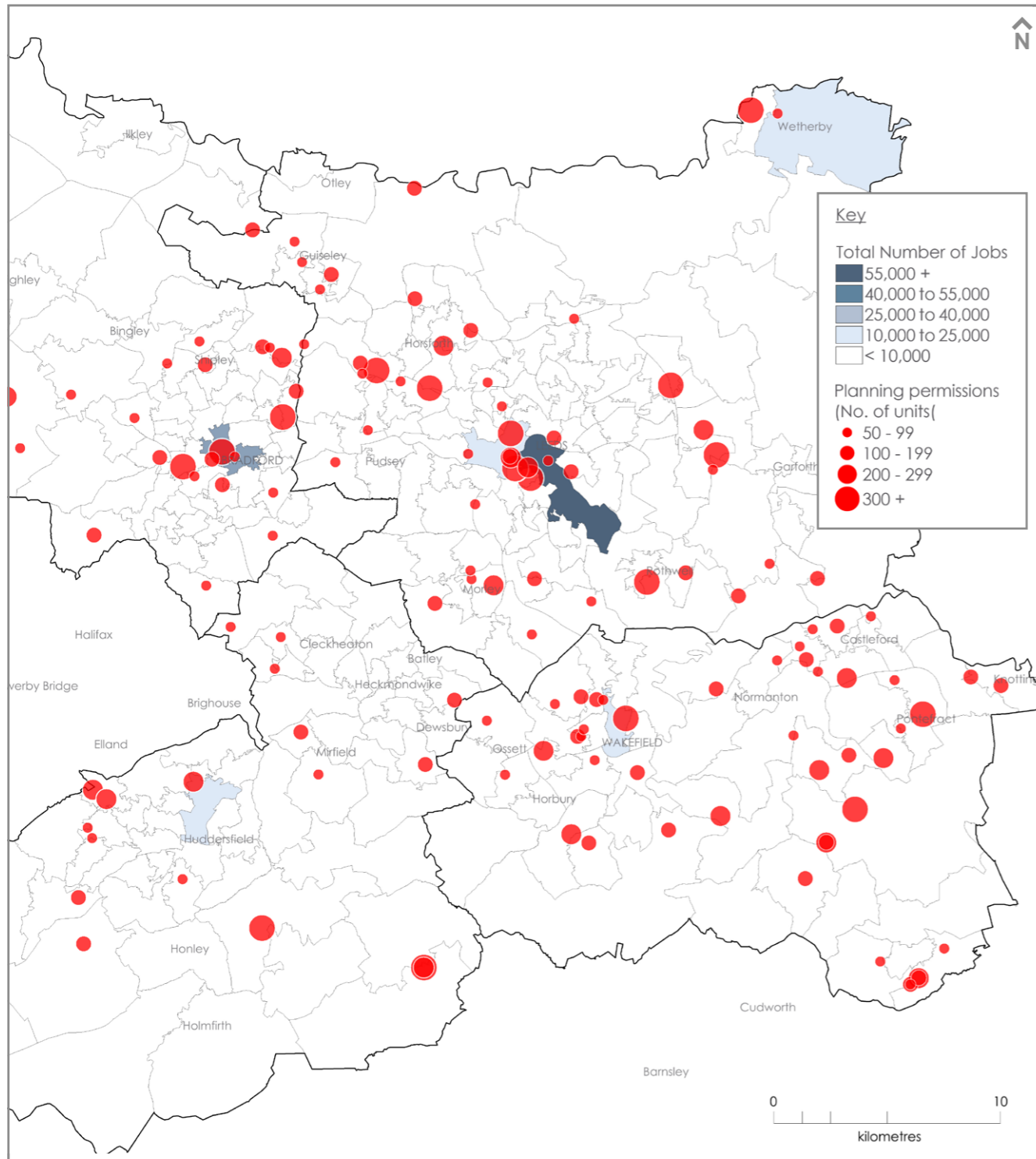
*includes only those of 50 units of above

Leeds is a relatively lower growth city-region for private sector jobs when compared to the others in this study. Between 2011 and 2014 there was an increase of 6.8% in private sector jobs, set against a general growth rate of 2.3% for both the public and private sectors.



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Fig 24. Map of planning permissions and major employment clusters (2012-2015)



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Figures 23 and 24 map the location of planning permissions for schemes of over 50 housing units, which account for 80% of the total number of units granted planning permission between 2012 and 2015. The average number of units per planning permission is 77, which is lower than the average for the other city-regions in this study.

When schemes of 50+ units were mapped against major employment clusters with over 10,000 jobs, it was found that 79% of housing units were located within 10km of significant employment locations.

All four of the city centres in the region show a significant clusters of employment. Other notable employment areas with over 10,000 jobs include the area to the west of the Leeds city-centre along the A647 (with a significant cluster of industrial and business parks), the area to the east of the Leeds city in Stourtan (with industrial, business and health employment), and the Thrope Estate on the north east edge of Leeds in Wetherby.

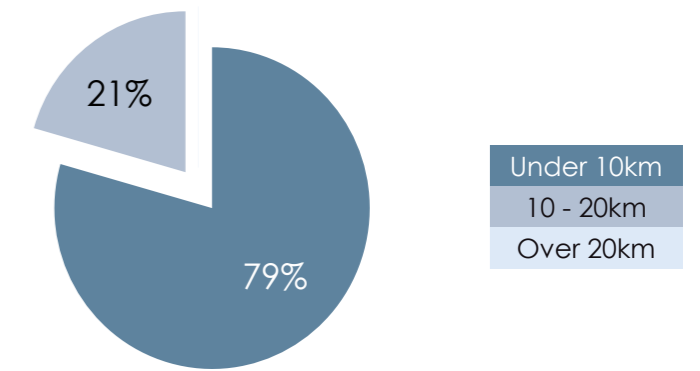
Mapping of specialist sector job growth shows that 39% and 24% of housing units in the Leeds city-region are located in areas with a knowledge economy and manufacturing job cluster, respectively. Maps of these specialist job clusters can be viewed using the link below.

The relationship between planning permissions and rail stations shows that 20% of units are within a 10 minute walk of a rail station.

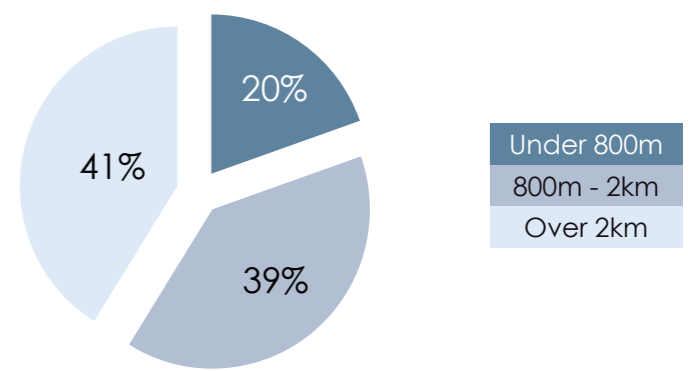
The mapping also shows that 55% of the housing units granted planning permission are located within existing built up areas, 7% in the green belt, and the remaining 38% in areas that fall outside the built up area or green belt.

To view all the maps for the Leeds city-region, please visit: rtpi.org.uk/knowledge/research/projects/location-of-development

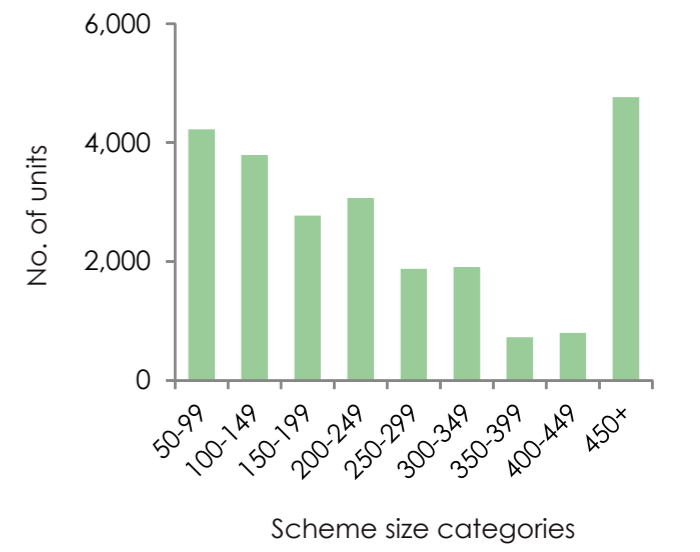
Percentage of housing units by proximity to major employment clusters



Percentage of housing units by proximity to railway stations



Distribution of housing units by scheme size



6. Next steps

The maps, data and analysis contained in this report represent a first step towards a better understanding of the spatial relationships between patterns of housing growth, infrastructure provision and employment clusters at the city-region scale. In opening up this information to our members, stakeholders and the general public, we aim to encourage a broader debate around how we monitor the effectiveness of planning policy, and consider the spatial patterns of development that we would like to see in our towns and cities.

This research programme is kindly sponsored by the RTPI South West, South East and North West regions, and this introductory report will be followed by three in-depth reports for each of these regions.

These in-depth reports will present the full range of data, mapping and analysis for:

- Brighton & Oxford (South East)
- Bournemouth, Bristol & Plymouth (South West)
- Blackburn & Warrington (North West)

The reports will draw on the expertise of our regional members and other key stakeholders to evaluate the strengths and limitations of this study, and to consider the implications of our findings for strategic planning across the regions.

Additional reports will also be published for one city-region in Wales, Scotland and Northern Ireland, to reflect on the different planning systems in each of the Nations.

A final report will then be published on the spatial dimensions of sustainability, looking beyond the simple metrics of proximity to employment and rail to consider the much broader range of factors which contribute to our notion of a 'sustainable location'.

In the meantime we encourage our members and other organisations to use our maps and analysis to explore the spatial dimensions of other significant issues. This could include, for example, a comparison of our maps against the location of major bus and cycle routes, patterns of housing affordability, smaller clusters of employment, or areas of current and future environmental risk.

You can stay informed with all the developments in this work programme by visiting:

www.rtpi.org.uk/knowledge/research/projects/location-of-development

Credits

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