

# West London

## Sub-regional Transport Plan 2016 update

Enter >



# Introduction

## Sub-regional Transport Plans (SRTP) for west London

The sub-regional process is an ongoing programme, enabling TfL to work closely with boroughs to address strategic issues, progress medium-longer term priorities and also respond to changing circumstances.

When the West Sub-Regional Transport Plan was first developed in 2010 it helped to translate the Mayor’s Transport Strategy (MTS) goals, challenges and outcomes at a sub-regional level.

It was agreed with boroughs that while all MTS challenges must be considered across London, and addressed locally through Local Implementation Plans (LIPs), there were some which would benefit from having a concerted effort at a sub-regional level.

Consequently, the challenges of improving air quality, reducing CO<sub>2</sub> emissions and achieving the targets for – and desired results from – an increase in the mode share of cycling and walking were all identified as challenges for all sub-regions. In addition, four other challenges were identified and agreed specifically for the west sub-region.

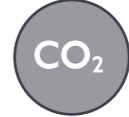
### Challenges in every sub-region



Improve air quality to meet and exceed legal requirements and ensure health benefits for Londoners



Transform the role of cycling and walking in the sub-region



Meet CO<sub>2</sub> targets

### West London-specific challenges



Enhance east-west capacity and manage congestion



Improve access to, from and within key locations



Enhance the efficiency of freight movement



Improve north-south public transport connectivity



Improve land-based air quality

# Introduction

## Sub-regional Transport Plans (SRTP) for west London

### The focus of this year's plans

Since 2010, the West sub-region has seen significant change. Population growth has been faster than expected, placing greater demand on the transport network. The sub-region needs to increase its rate of housing delivery to cope with a growing population, with effective transport links critical to achieve this. The way that people travel has changed too, with growing demand for rail and cycling in particular.

As we now have a new Mayor, it is likely that we will see the preparation of a new London Plan and a new Mayor's Transport Strategy, with a new set of objectives and priorities for London. To inform this process, we will need to update our understanding of the medium to longer-term challenges for London and the sub-regions.

This is the key purpose of this year's Sub-Regional Transport Plans – to provide a comprehensive update on the 'Story of Growth' for each sub-region.

This 'story' includes a comprehensive analysis of recent population and employment growth, changes in travel behaviour and areas where the transport network will have to change to cope with the challenge of future growth.

This updated Story of Growth for each sub-region has the following purpose:

- As a tool to help engage Boroughs in the preparation of the new Mayors Transport Strategy, particularly in the development of new priorities and projects;
- To help Boroughs to develop their own priorities for transport investment, including the development of their LIPS;
- To inform Borough's spatial planning activities, including updates to Local Plans;
- To assist TfL in developing priorities for business planning.

### Projects and schemes

Previous updates to the Sub-Regional Transport Plan included a look forward to identify the potential projects and schemes that could be delivered to address the sub-region's transport challenges.

However, unlike previous years, we are now in a unique environment where TfL has a new funding settlement, as well as the recent arrival of a new Mayor, who will have his own priorities about how to allocate the available funding. It is therefore not appropriate to assume that the current list transport schemes being considered will be exactly the same as that by a new Mayor. For this reason, there is no map or list of projects in this year's plans.

There has, of course, been significant engagement with Boroughs and sub-regions during the past year to identify key priorities for investment, and to inform the development of major schemes. This process will continue, particularly as part of the preparation of the new MTS, informed by the information set out in this document.

# How to use this document

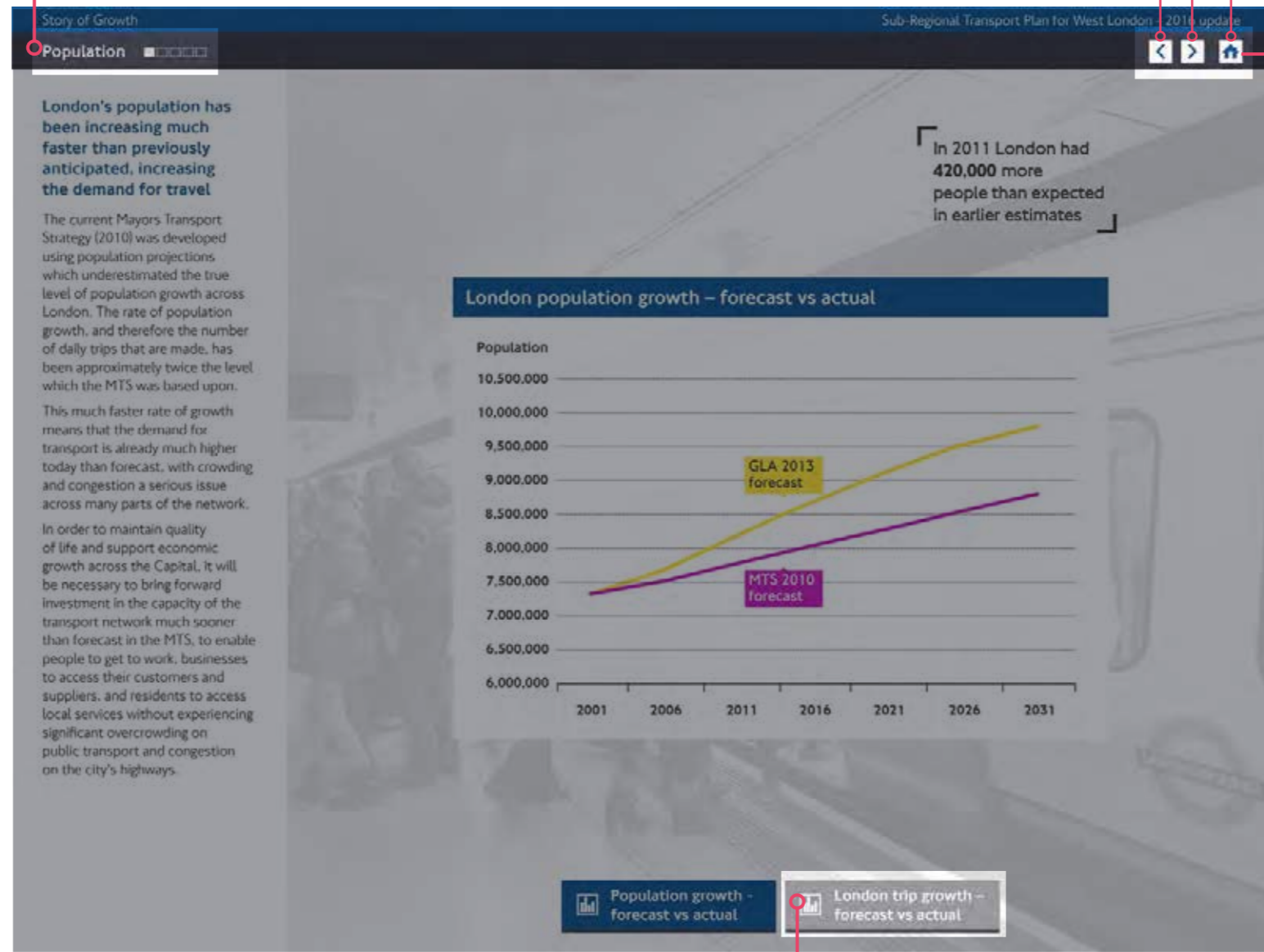
This document contains a series of figures and supporting text in order to convey the Story of Growth within the sub-region, which is the key focus of this year's Sub-Regional Transport Plans. The document has been designed to enable the reader to navigate between this content using the interactive buttons on each page.

### Orientation within a chapter

The progress bar shows you in which chapter and on which page within a chapter you currently are

### Previous, Next and Home

Click the respective button to go to either the previous or the next page, or back to 'Home'.



### Home

Navigate to either chapter from the home page by clicking onto the chapter image or title.

### Buttons

Click on buttons to see all graphs and maps within a page.



# Contents

## Story of Growth

Click on any of the six categories below to explore how the sub-region has changed, is expected to change, and the implications for how the transport network needs to adapt to reflect this.



**Population**



**Employment**



**Mode and movement**



**Network capacity  
and connectivity**



**Liveability**



**Future growth**



# Population >



**London's population has been increasing much faster than previously anticipated, increasing the demand for travel**

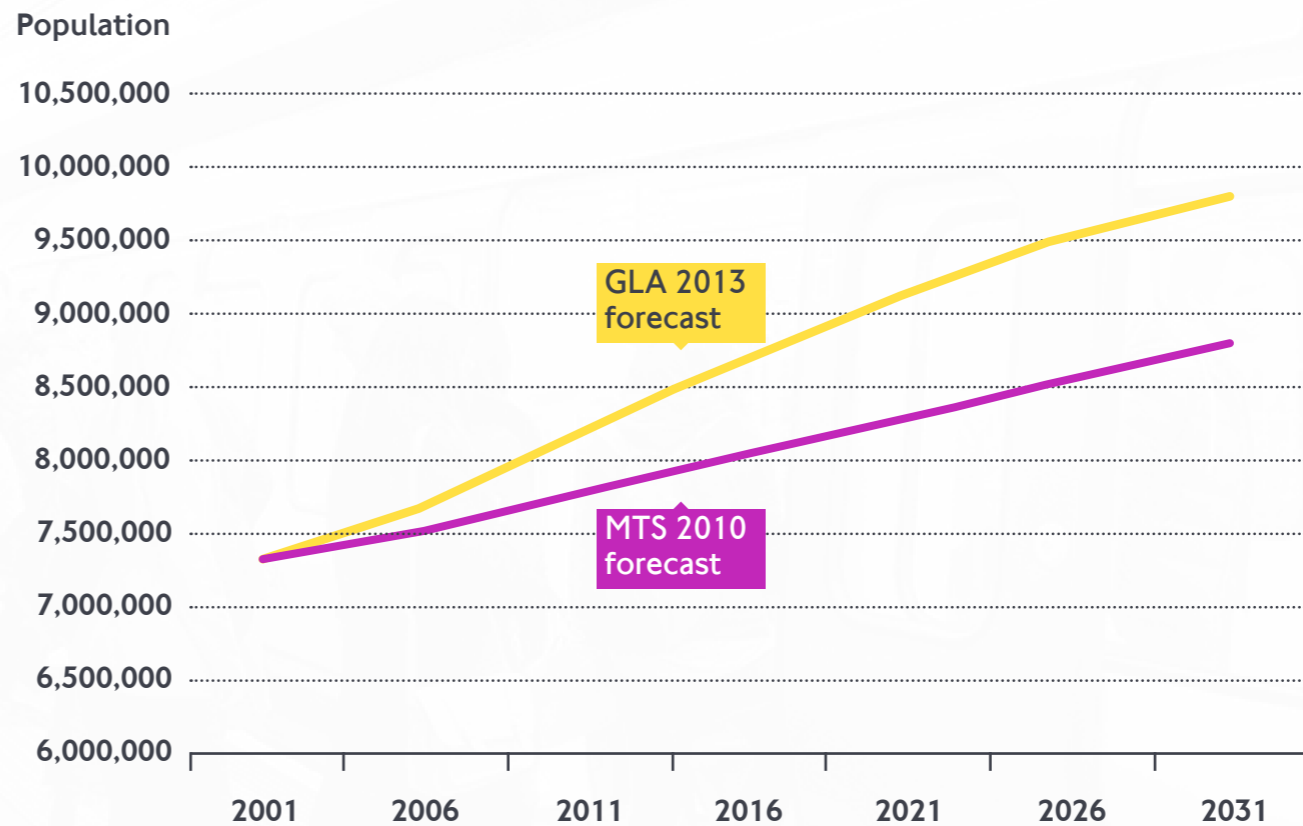
The current Mayors Transport Strategy (2010) was developed using population projections which underestimated the true level of population growth across London. The rate of population growth, and therefore the number of daily trips that are made, has been approximately twice the level which the MTS was based upon.

This much faster rate of growth means that the demand for transport is already much higher today than forecast, with crowding and congestion a serious issue across many parts of the network.

In order to maintain quality of life and support economic growth across the Capital, it will be necessary to bring forward investment in the capacity of the transport network much sooner than forecast in the MTS, to enable people to get to work, businesses to access their customers and suppliers, and residents to access local services without experiencing significant overcrowding on public transport and congestion on the city's highways.

In 2011 London had **420,000** more people than expected in earlier estimates

**London population growth – forecast vs actual**



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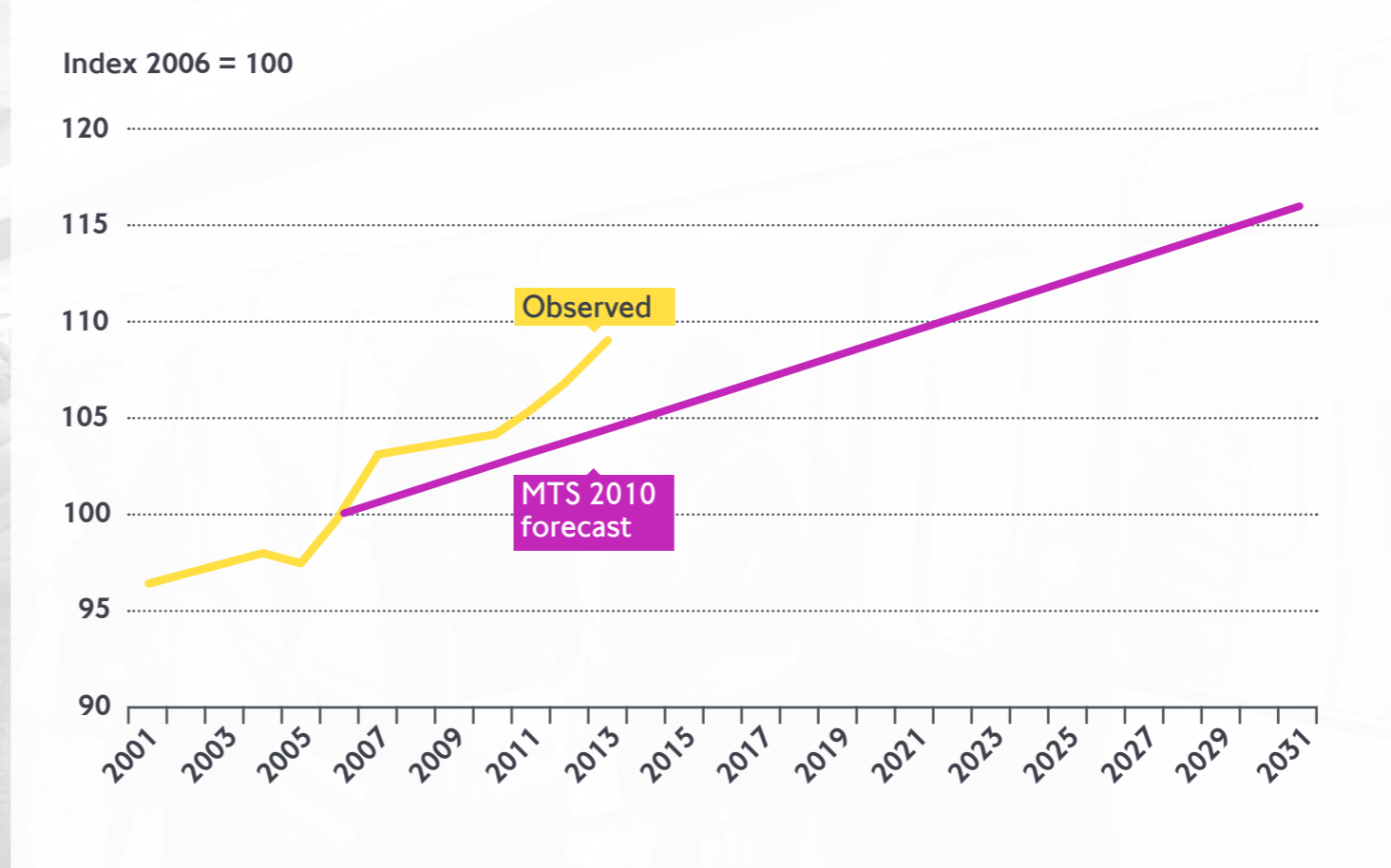
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The growth in trips made has been **twice as high** as that expected since the 2010 Mayors Transport Strategy

**London trip growth – forecast vs actual**





**Some areas have seen very high levels of population growth, placing strain on certain parts of the network**

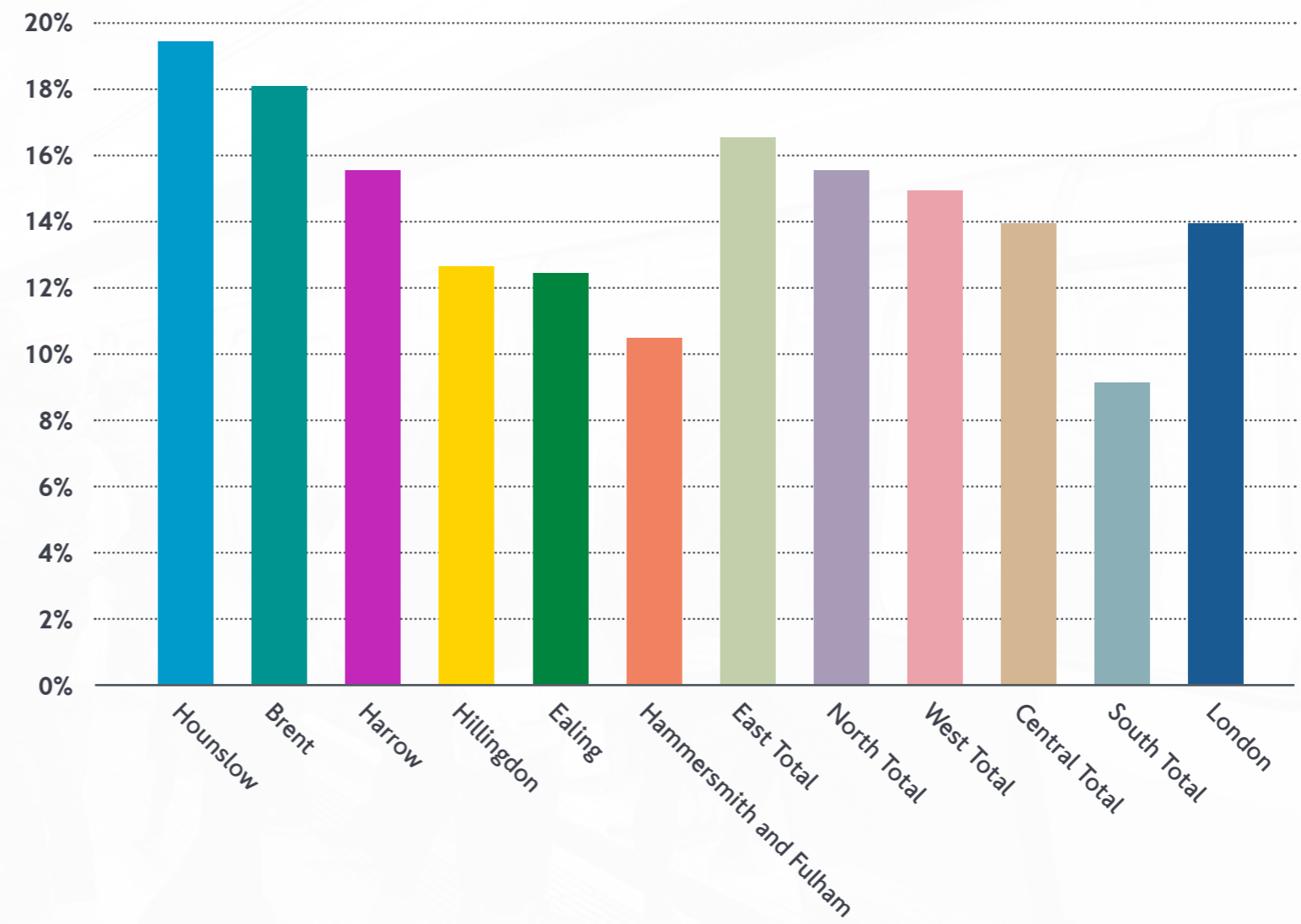
Population growth in west London has exceeded the London average, with growth in all Boroughs in excess of 10% between 2001 and 2011. The rate of growth has been faster than previously forecast, generating additional demand for transport above that expected in the Mayors Transport Strategy.


Growth around the Metropolitan town centres has been particularly high at Uxbridge, Harrow and Hounslow, with growth around Heathrow Airport also significant, driving growth in the demand for public transport in particular (as set out in the Mode and Movement section).


The rate of population growth has been much higher than previously forecast around Heathrow in particular, with slower growth around Brent Cross as planned levels of housing growth have not been delivered as quickly as originally estimated.


The sub-region's population is **9% higher** than expected in earlier estimates

**Population growth 2001 – 2011**



 Population growth 2001 - 2011

 Absolute population growth 2001 - 2011

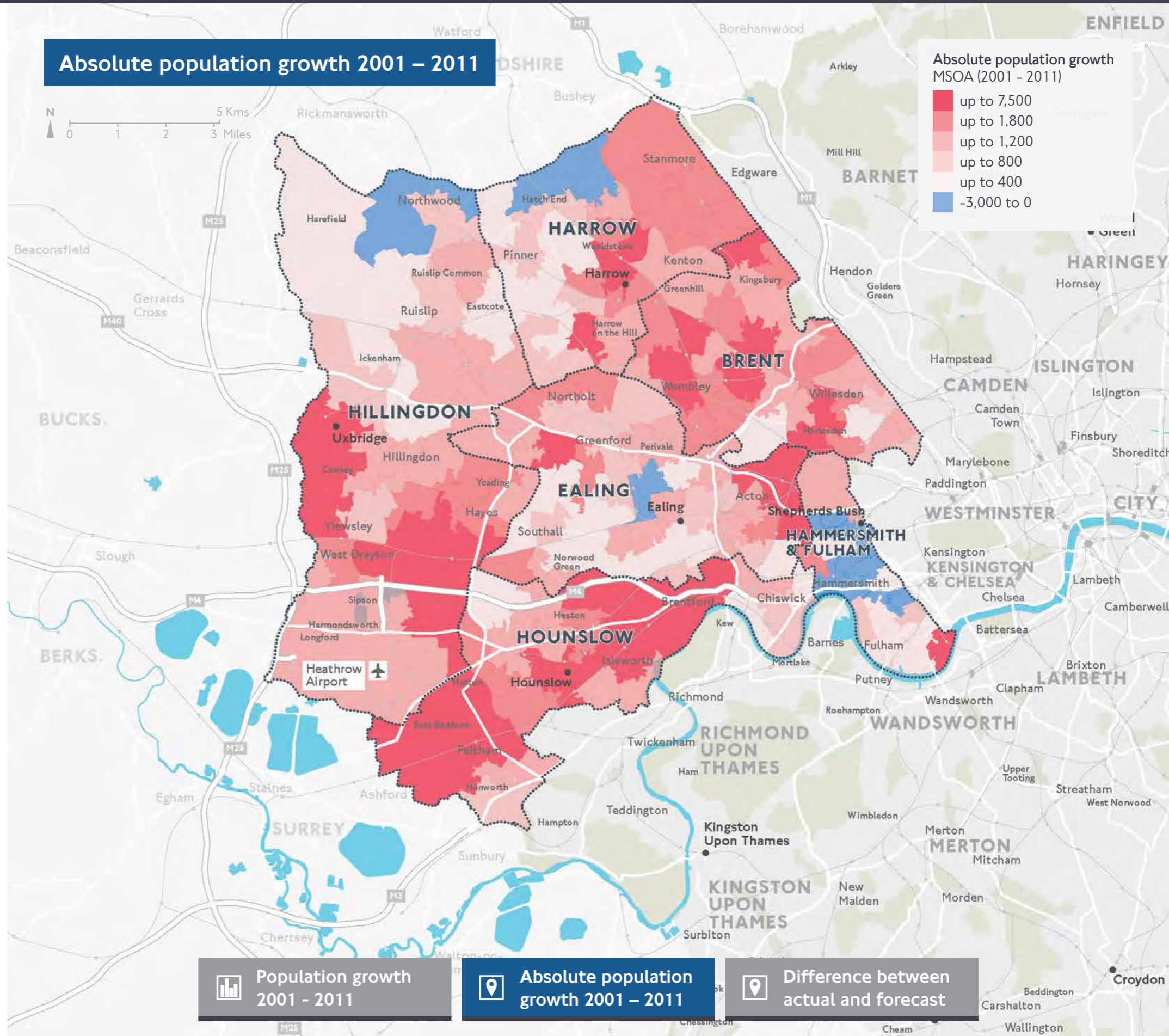
 Difference between actual and forecast

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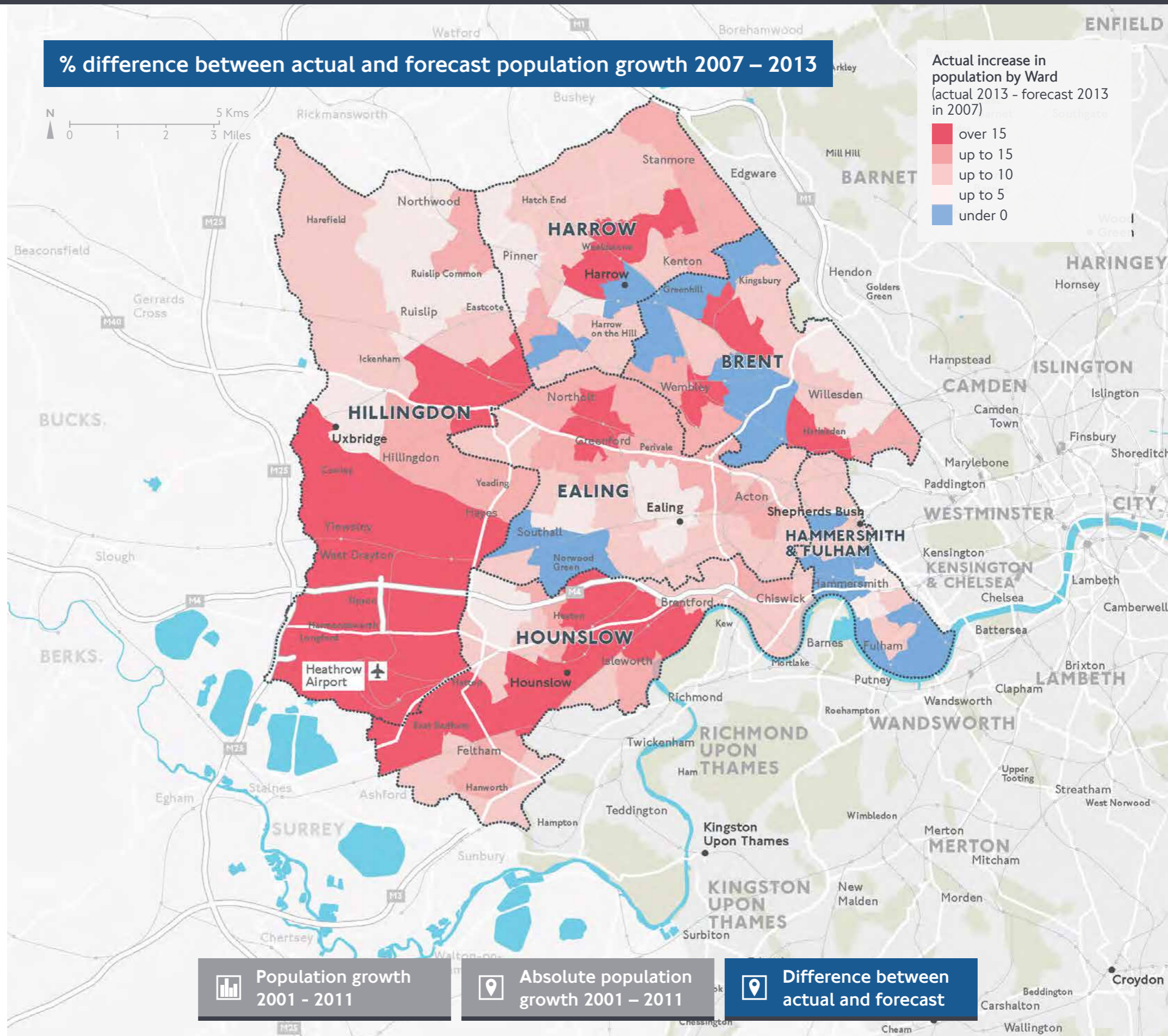


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### Housing has failed to keep up with population growth, increasing household size

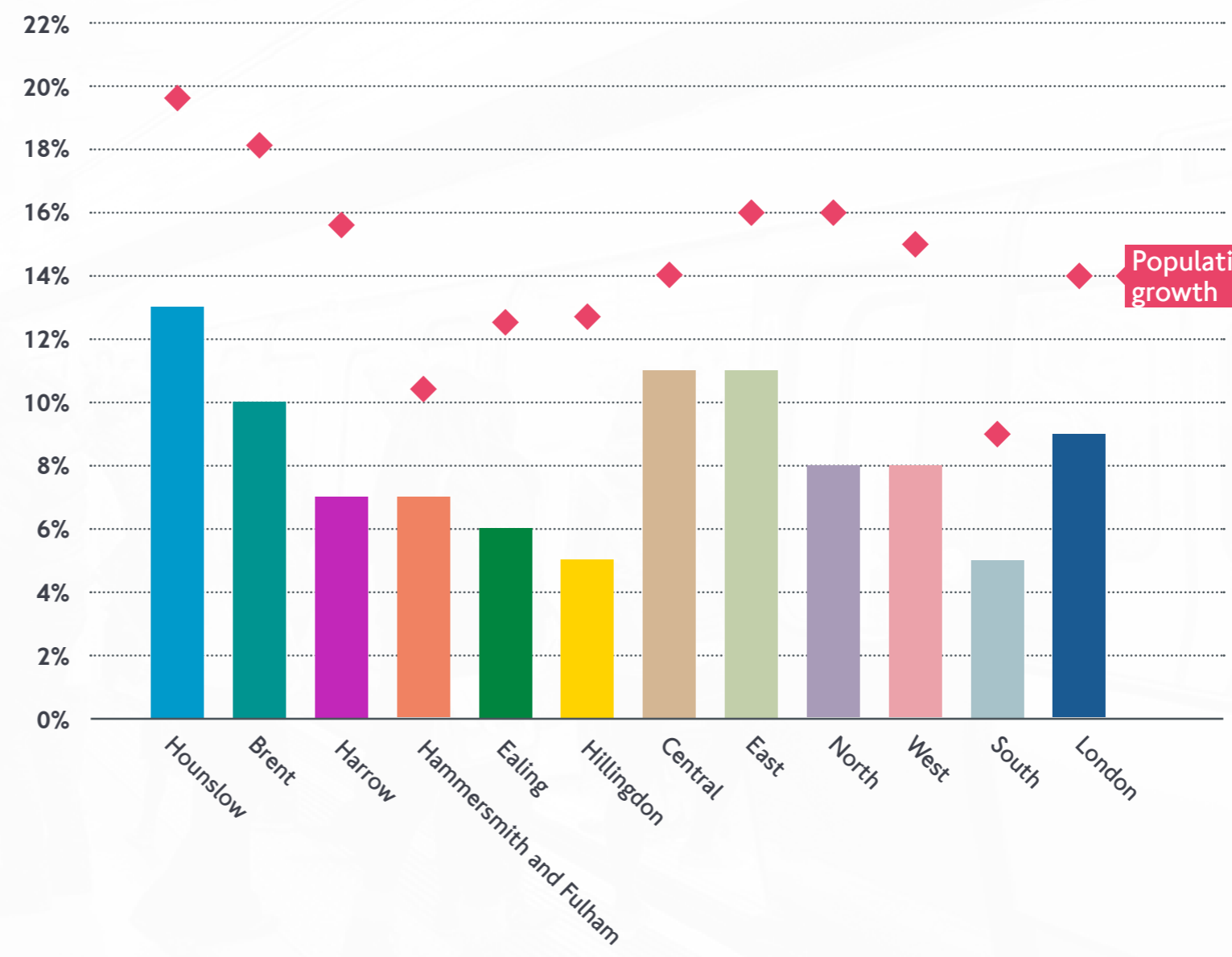
Across London, the average number of people per household started to increase after 2001 for the first time since the 1950s, which is a direct result of the supply of housing failing to keep up with the rate of population growth. Increasing the rate of housing delivery across the sub-region will be key to addressing affordability issues, reducing overcrowding and maintaining London's competitiveness. Transport connectivity and capacity is becoming increasingly important to unlocking new homes, and is something which is now a key consideration in the assessment of future transport investment decisions.

Whilst the sub-region's population has grown at 15%, the growth in the number of homes has been just half that, resulting in the second largest increase in average household size of any sub-region in London.

Hounslow and Brent have delivered the highest number of new homes, with lower levels of housing delivery in Hillingdon and Harrow in particular, both of which have relatively limited brownfield land available for redevelopment. There may be opportunities for future densification across all Boroughs in the sub-region, particularly around key transport nodes (considered further in the Future Growth section).

Population growth in the sub-region has been **almost twice the rate of housing growth**

**Change in housing stock 2001 – 2011**



**Change in housing stock**

**Change in average household size**

Circle line

UNDERGROUND

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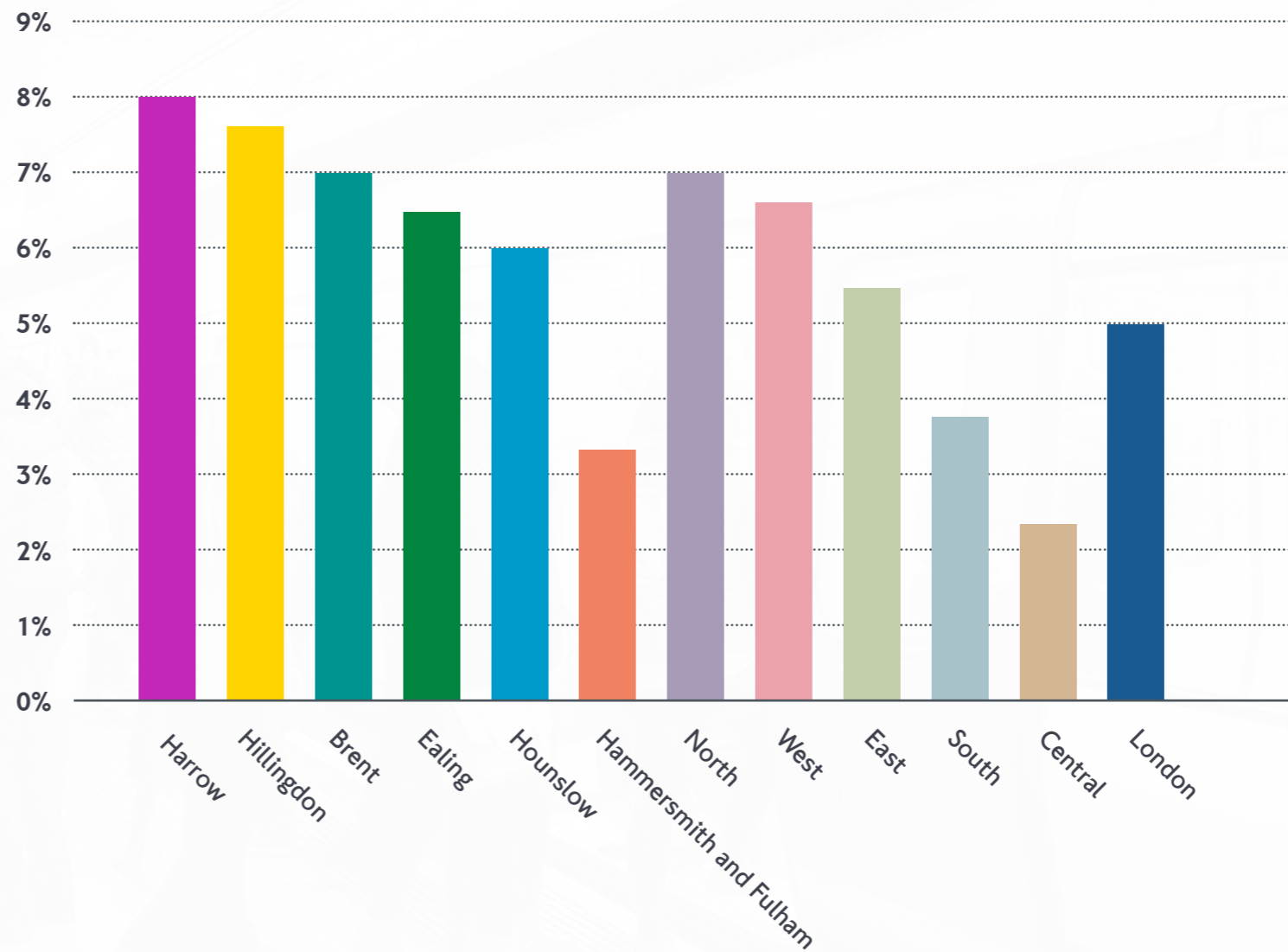
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Average household size has increased by **0.16 persons** across the sub-region

Change in average household size 2001 – 2011



Change in housing stock



Change in average household size

Circle line

UNDERGROUND

**Most of the Wests's population live within areas where access to public transport could be improved**

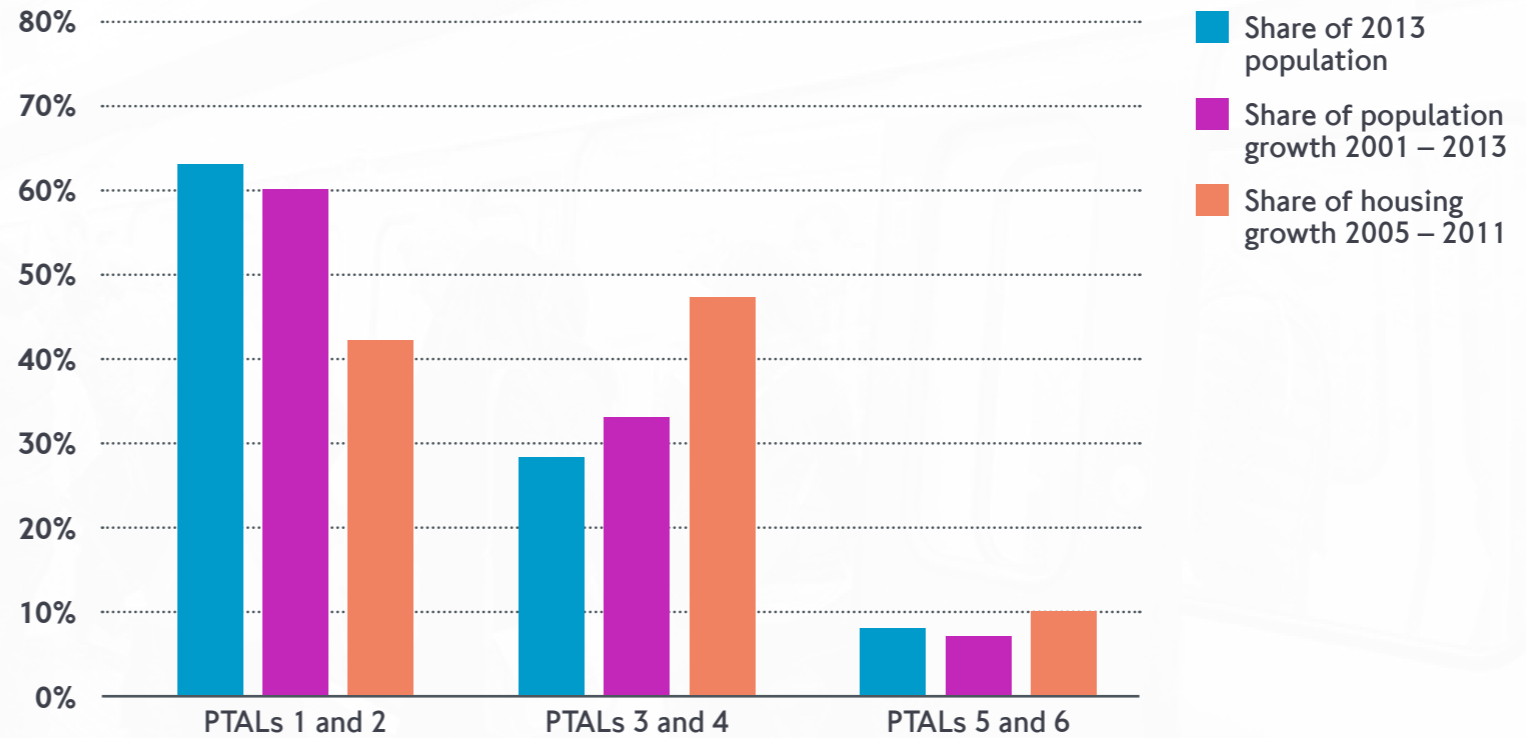
The majority of the sub-region's population live in areas where the Public Transport Accessibility Level (PTAL) is scored as 1 or 2. These are areas where connectivity by public transport is at its lowest. There is scope for the public transport network to be enhanced where it serves existing communities, to support mode shift away from the private car and support the movement of greater numbers of people, particularly as the population of the sub-region continues to grow.

Housing delivery in the sub-region has been slightly more focused on more accessible locations by public transport, although just 10% of all new development has come forward in the most accessible places. As the rate of housing delivery has been slower than the rate of population growth, it has not been possible to contain population growth solely within new development, so it has instead occurred across all parts of the sub-region, with the majority of growth occurring in PTALs 1 and 2.

By expanding the rate of housing delivery in more accessible public transport nodes, it will be easier to shape more sustainable travel behaviour, reduce highway congestion and support London's future economic growth.

63% of the sub-region's population live in PTALs 1 and 2

**Share of population and growth by Public Transport Accessibility Level**

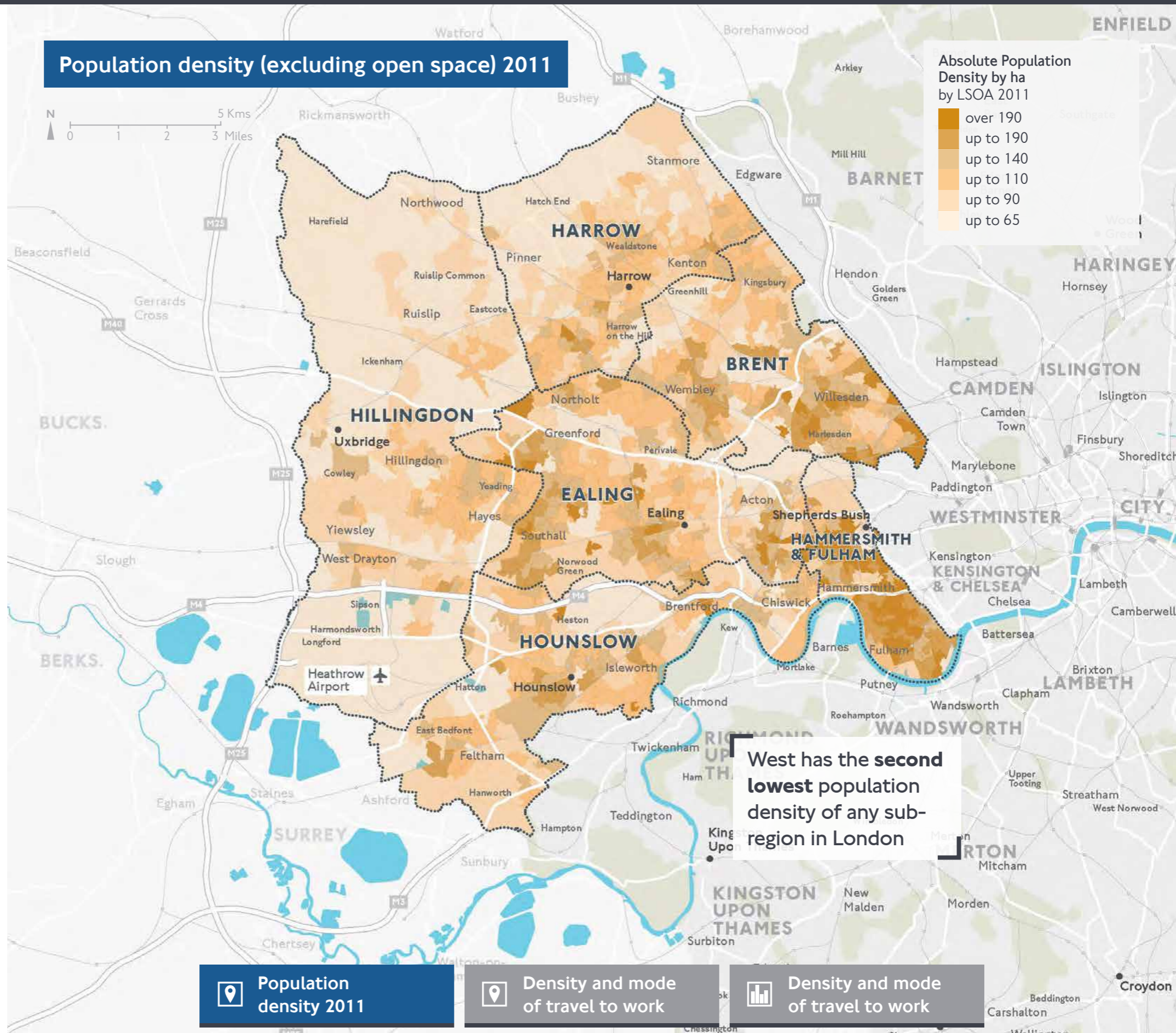


**Increasing population density has driven higher levels of public transport use, with potential for further growth**

Population density across the sub-region varies significantly from Hammersmith & Fulham, which is the most densely populated reflecting its more central location, to Hillingdon, which contains large areas of lower density semi detached housing. There are also pockets of high population density around the Metropolitan town centres and in Ealing, along the Central line.

Across London, there is a positive relationship between the density of development and propensity to travel by public transport, as denser areas typically have access to more extensive public transport access, and the costs of highway congestion are generally higher. As the population of the sub-region continues to densify, it will be necessary to further improve the public transport network to support growth and encourage continued mode shift away from private vehicles to reduce congestion.

There are some areas in Ealing and Hounslow where the population density would be high enough to support a higher proportion of trips by public transport or active modes but private vehicles still form a high proportion of mode share. There is scope to improve the connectivity of the network in these locations to support the shift onto other modes.

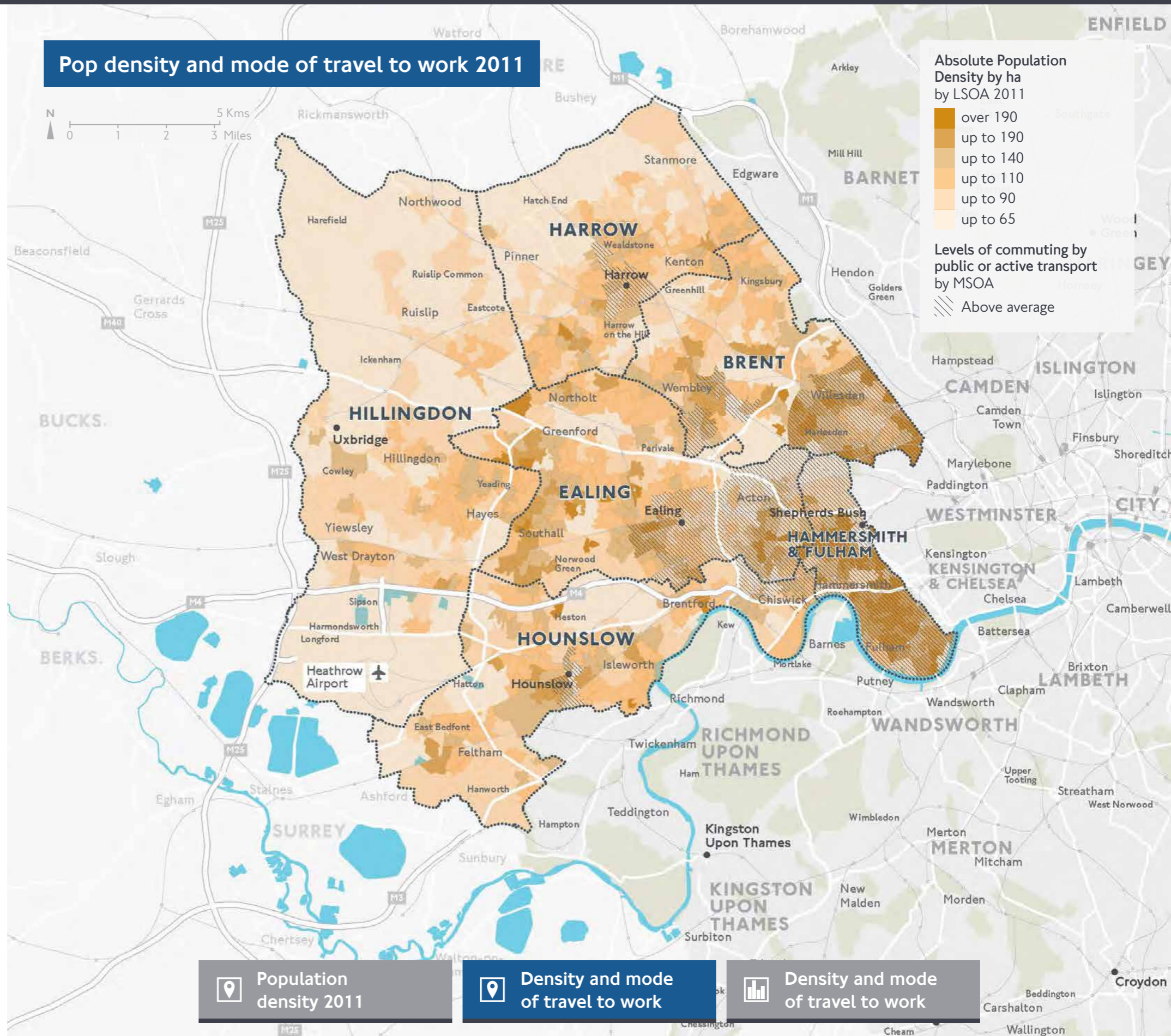


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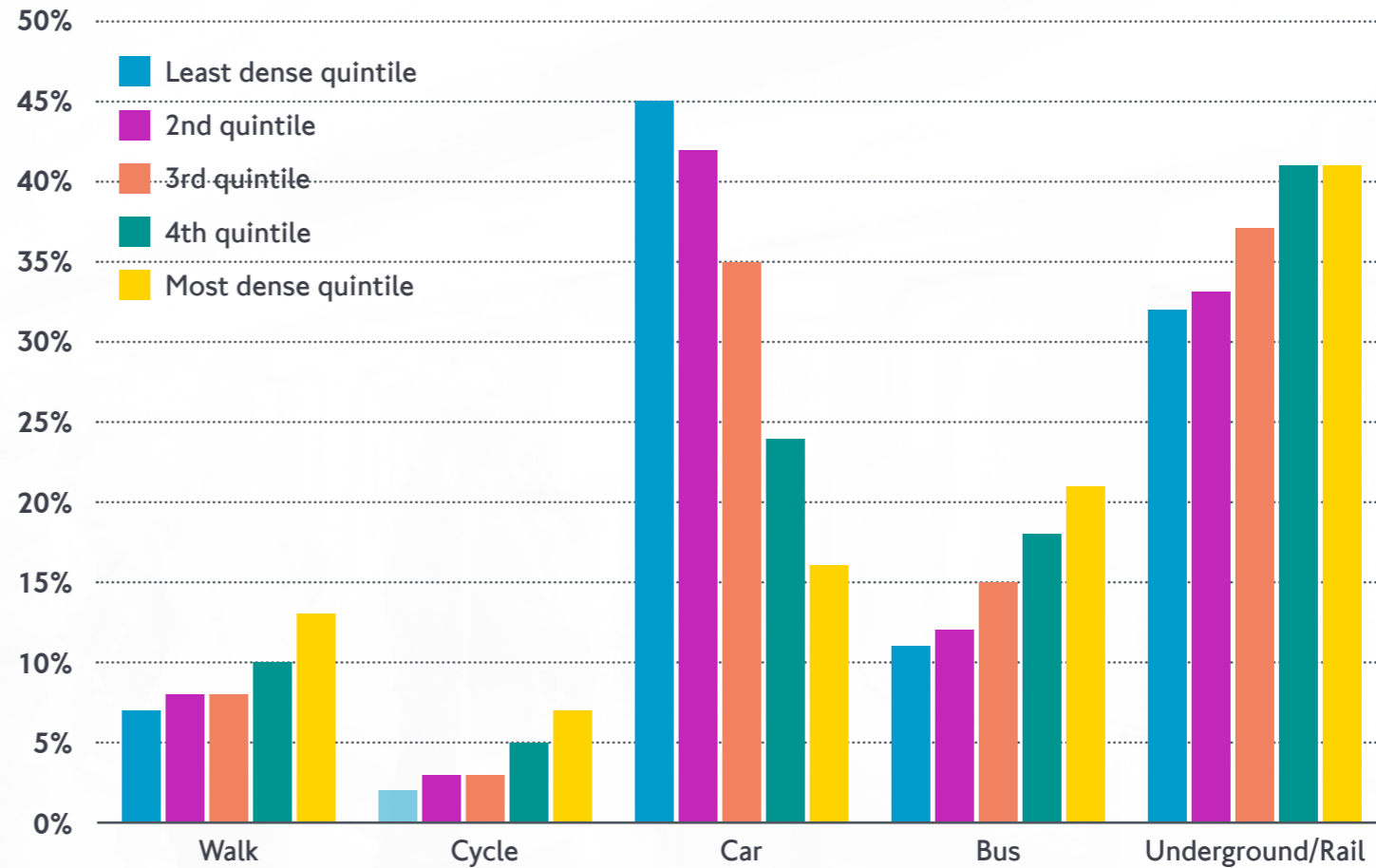
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People that live in London's most dense areas are **three times less likely** to travel to work by car

**Population density and mode of travel to work 2011**



Population density 2011



Density and mode of travel to work



Density and mode of travel to work

# Employment >



**London is the powerhouse economy of the UK, with strong employment growth and an increasing share of GVA**

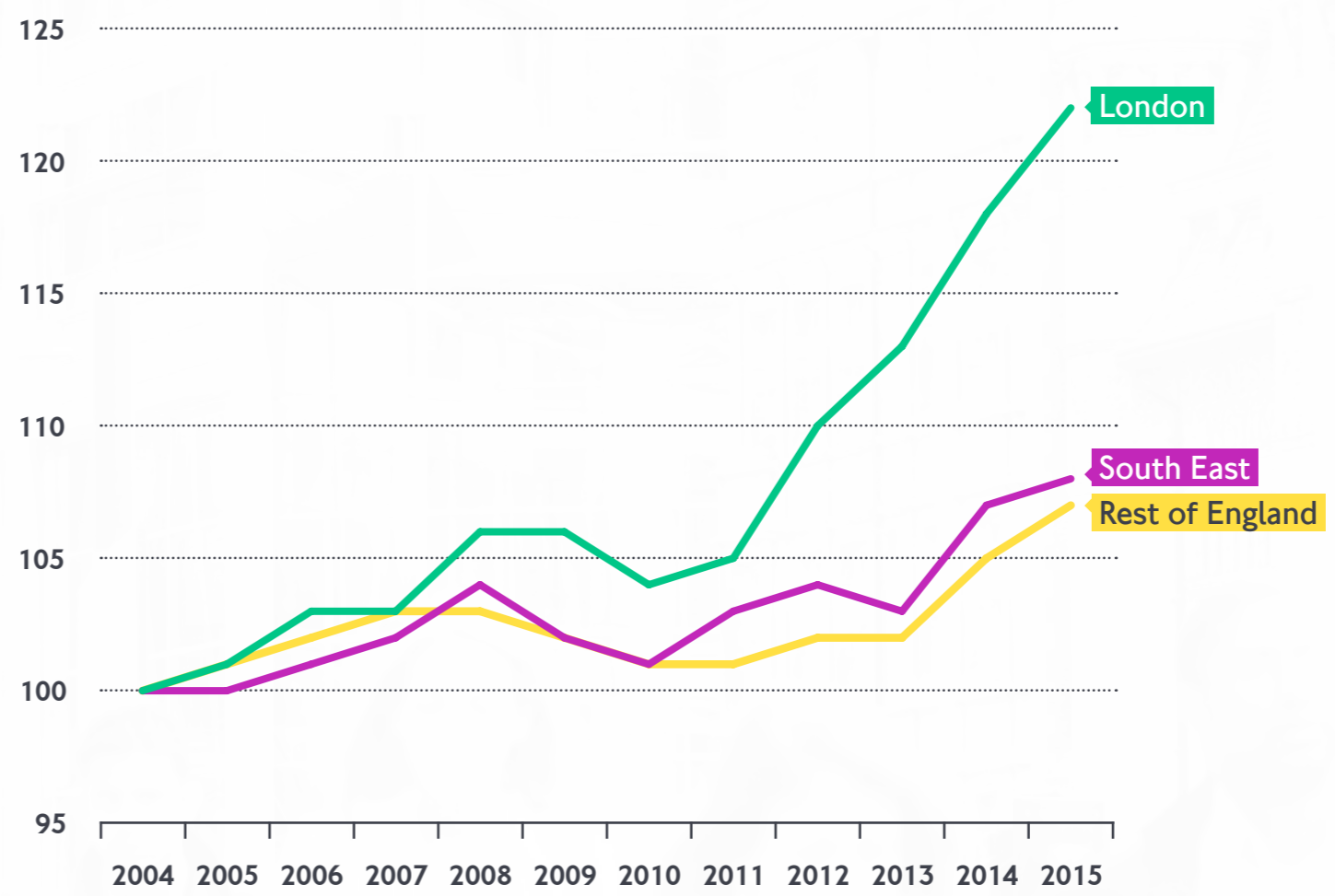
London has one of the most dynamic economies in the world which attracts significant flows of international capital, people and ideas. The Capital's employment growth since 2004 has been much faster than other regions of the UK, growing at nearly three times faster than that of England or the South East since 2004. As a result, London's share of England's Gross Value Added, which is a measure of economic output, has increased.

As London's economy has continued to evolve, it has seen strong growth in high valued-added sectors such as professional and scientific activities, which includes activities as diverse as management consultancy, architecture, and research. These sectors are typically located in areas with the best public transport connectivity, and as they have grown, more people are travelling to work by public transport, particularly by rail.

Conversely, as sectors which are less well served by public transport, such as manufacturing, have contracted, the number of people driving to work has decreased. However, a significant number of jobs created have been in local services such as health and education. As these tend to be more local, with much of this employment in Outer London, the car and bus still play an important role in accessing these growing sectors.

Total workforce jobs have increased by over 1 million in London since 2004

**Growth in workplace jobs 2004 – 2015**



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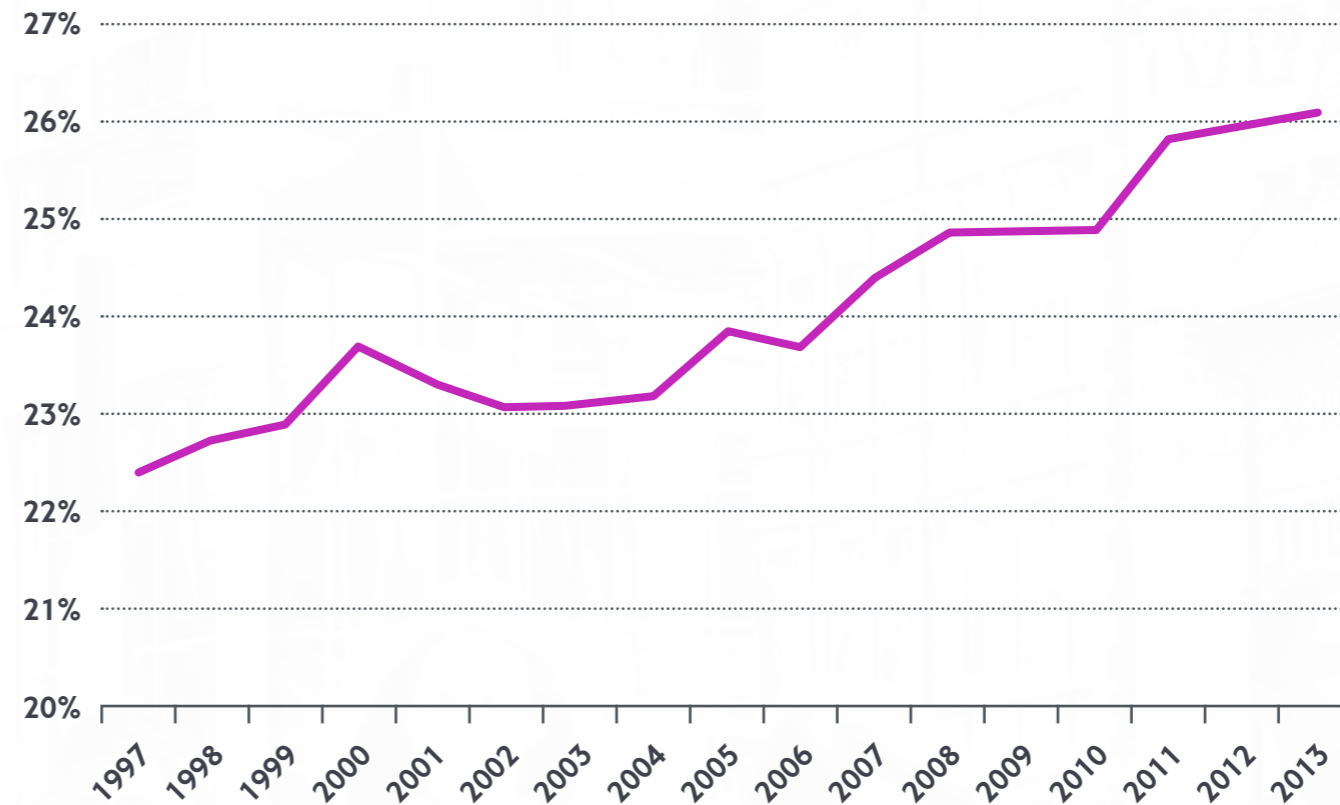
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London's Gross Value Added has increased by over 60% since 2003

**London's share of Gross Value Added (GVA) 1997 – 2013**



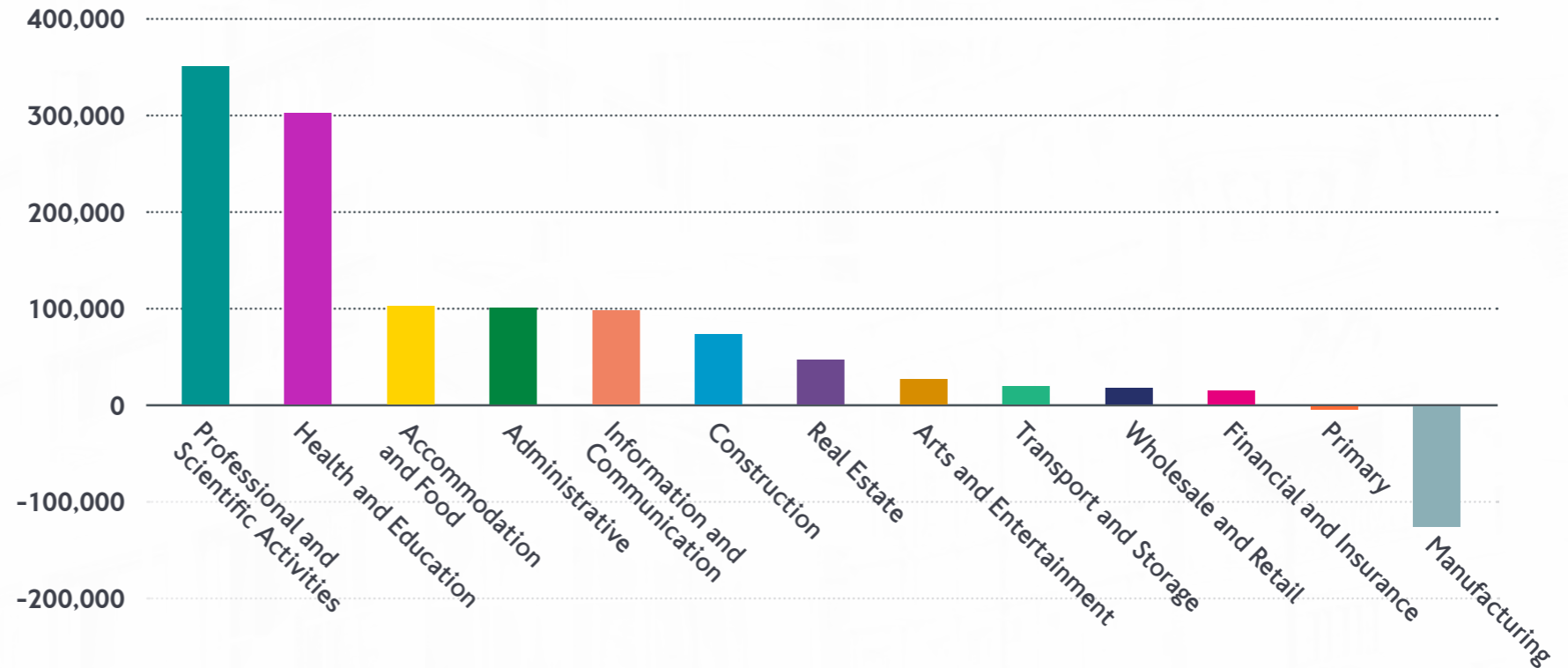
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**Employment growth in London by sector 2004 – 2014**



**Most common modes to employment growth sectors**



**% of employment in PTALs 5 and 6**



Growth in workplace jobs



London's share of (GVA) 1997-2013



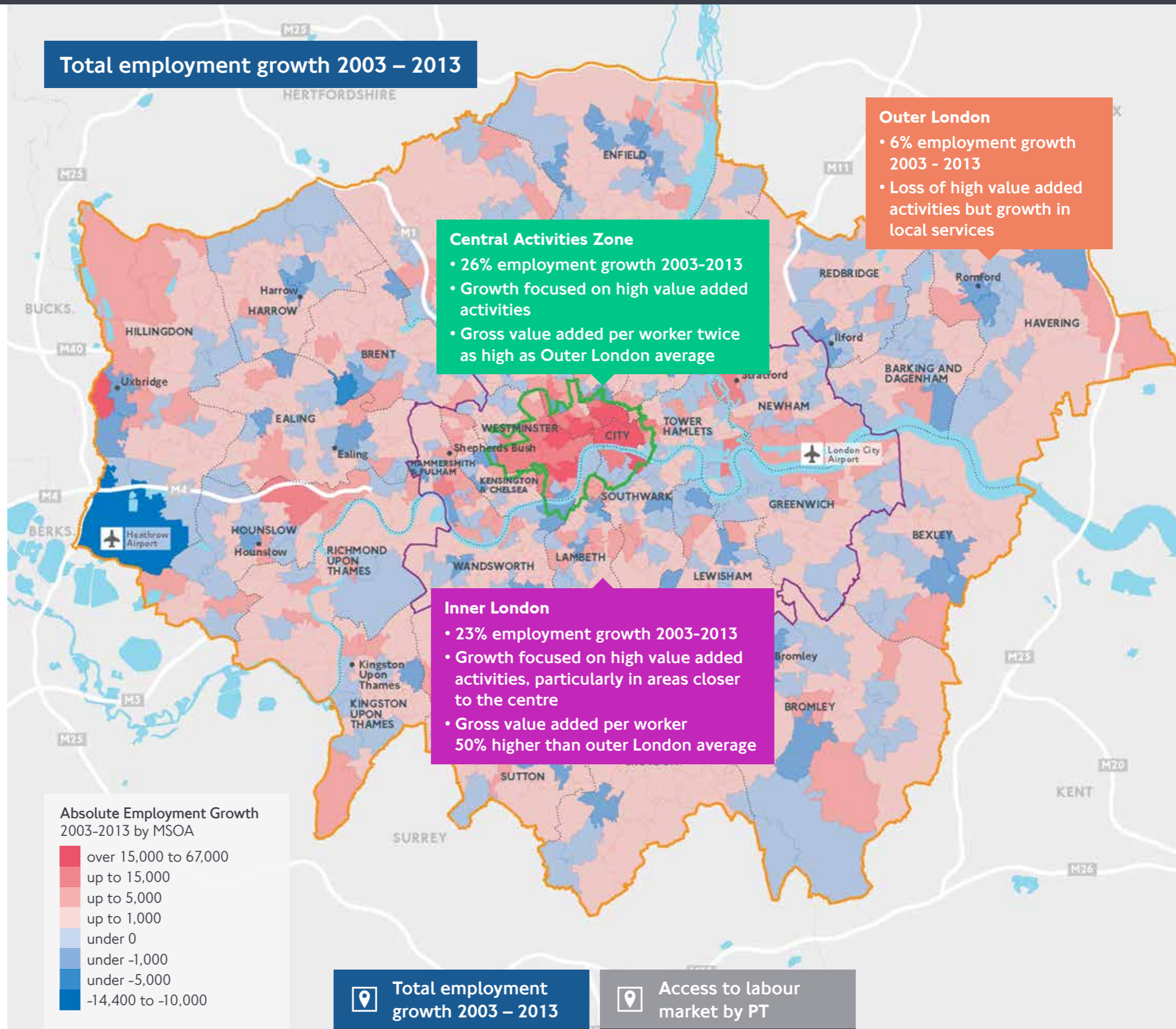
Employment growth in London by sector

**Employment growth has been focused on central and Inner London, which depends on excellent access by public transport**

The excellent levels of transport connectivity required by high value sectors means that central London, which is the best connected part of the UK, is the most attractive part of the Capital for businesses. It is therefore the Central Activities Zone (CAZ) and locations on the edge of the CAZ within Inner London, which have seen the strongest employment growth, which is only been made possible by London's extensive rail network which allows access to over 3million people and thousands of businesses within 45 minutes by public transport.

As the density of businesses and employees increases, firms benefit from economies of agglomeration - they are in greater competition with each other, become more innovative, and are therefore more productive. Employees in central London are twice as productive as those in Outer London. By facilitating the movement of large volumes of commuters into the CAZ, public transport is therefore key to maintaining the city's competitiveness and World City status.

Conversely, as lower value office sectors have increasingly sought less expensive locations outside of the Capital, Outer London has become a less attractive place for businesses. Although there are a number of notable exceptions, most of the employment growth in Outer London has therefore been related to serving a growing population, including sectors such as health, education and retail.

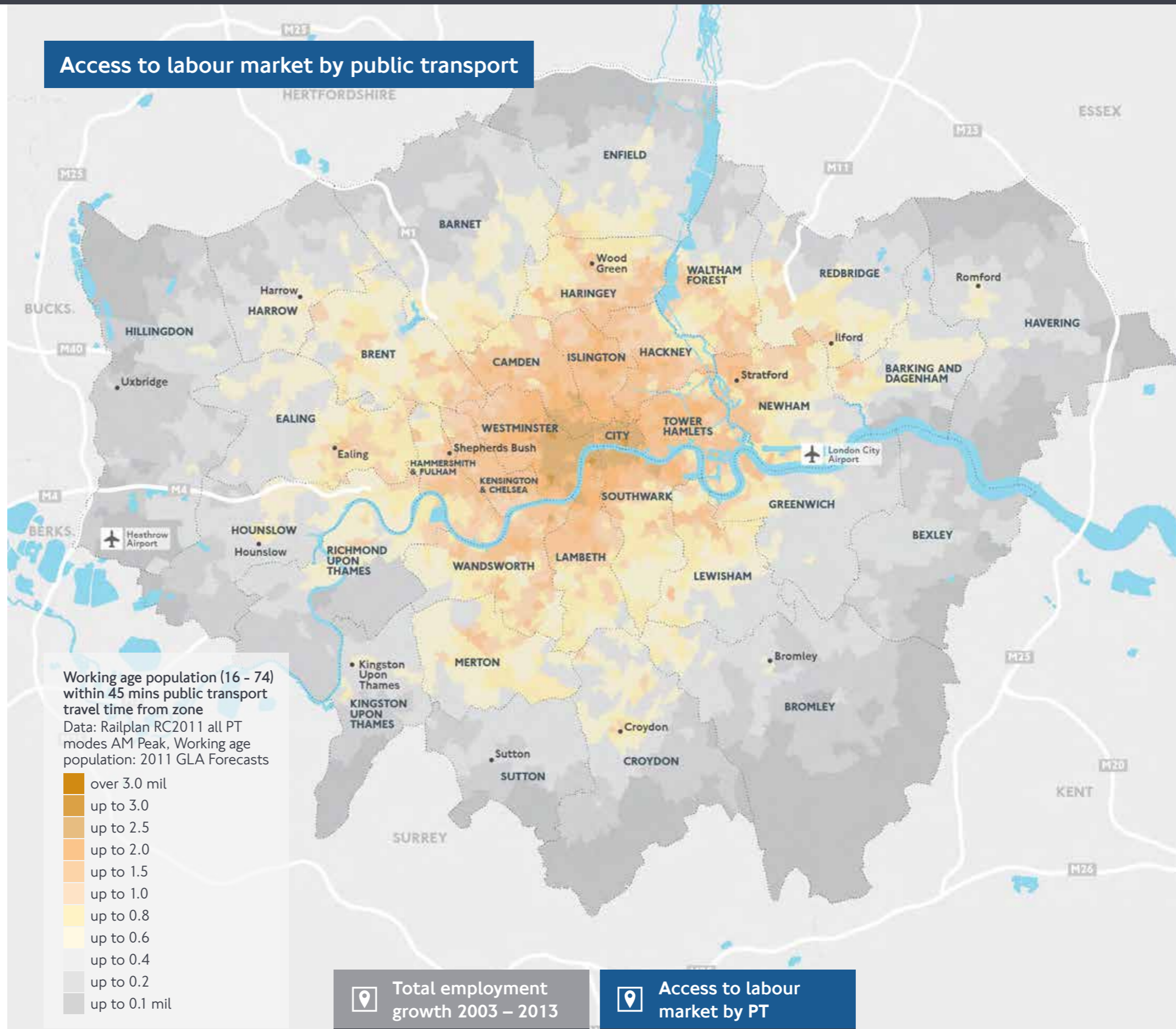


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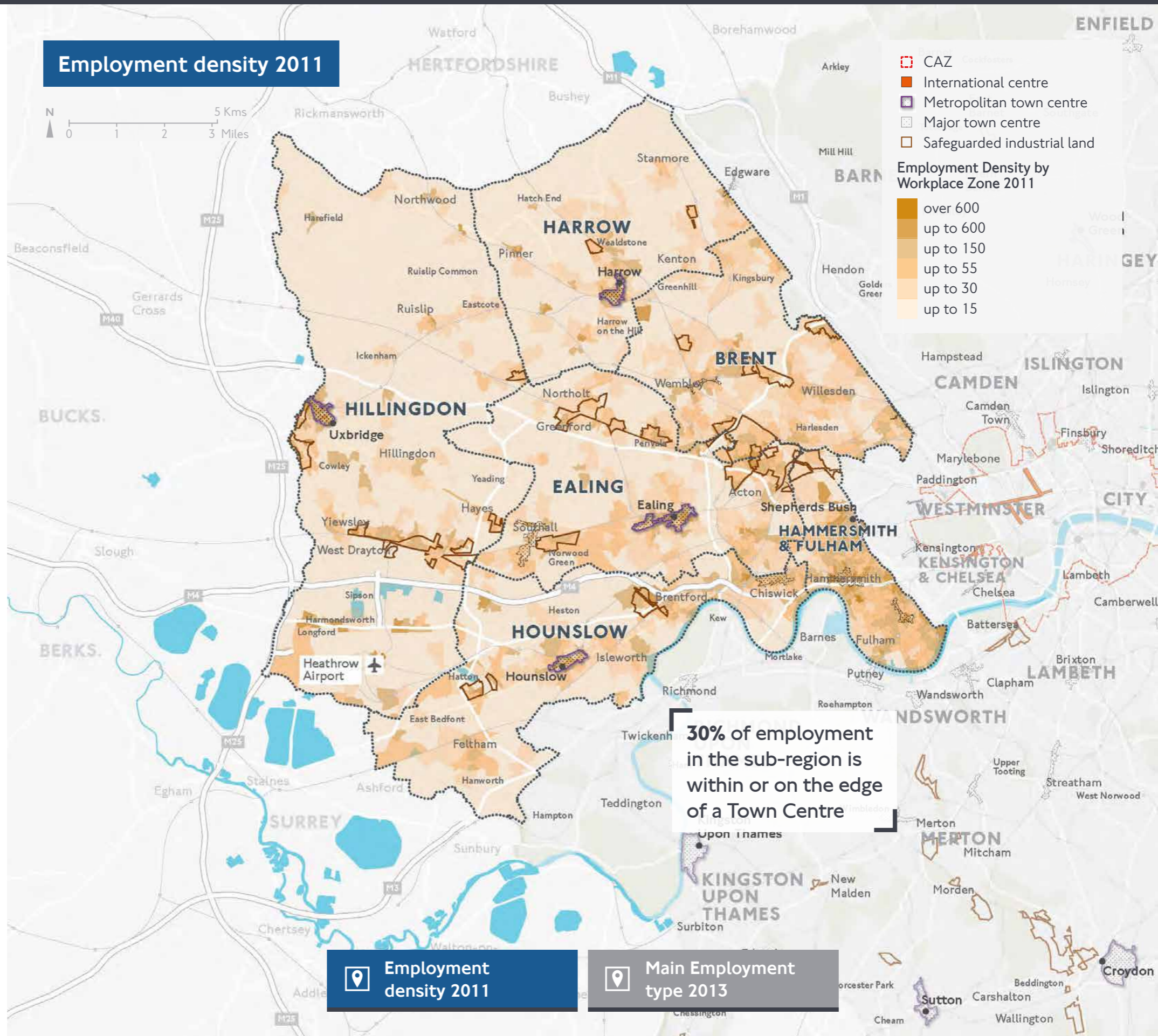


**The West has a diverse economy which relies on different types of transport provision to function effectively**

The West sub-region has a relatively strong, diverse economy which supports a mix of professional services, local public services, retail, industrial activities and logistics and transport services. It is one of the few sub-regions outside central London which is able to attract significant amounts of inward investment from higher value businesses, which value easy access to Heathrow Airport, the M4 corridor and a well qualified labour force.

Much of the retail, as well as some of the public services and office activity is located within the sub-region's town centres, whilst industrial and logistics businesses tend to be located in industrial estates, much of which are protected as Strategic Industrial Land, with some associated with the operations of Heathrow Airport. The sub-region has also seen the growth of office based employment within self contained business parks such, many of which are located along the M4.

These locations all depend on different types of transport provision, with town centres depending on buses, rail and car, and business and industrial parks relying on car as well as van and lorry movements. Maintaining the efficiency of these networks will be key to the future economic performance of the sub-region.



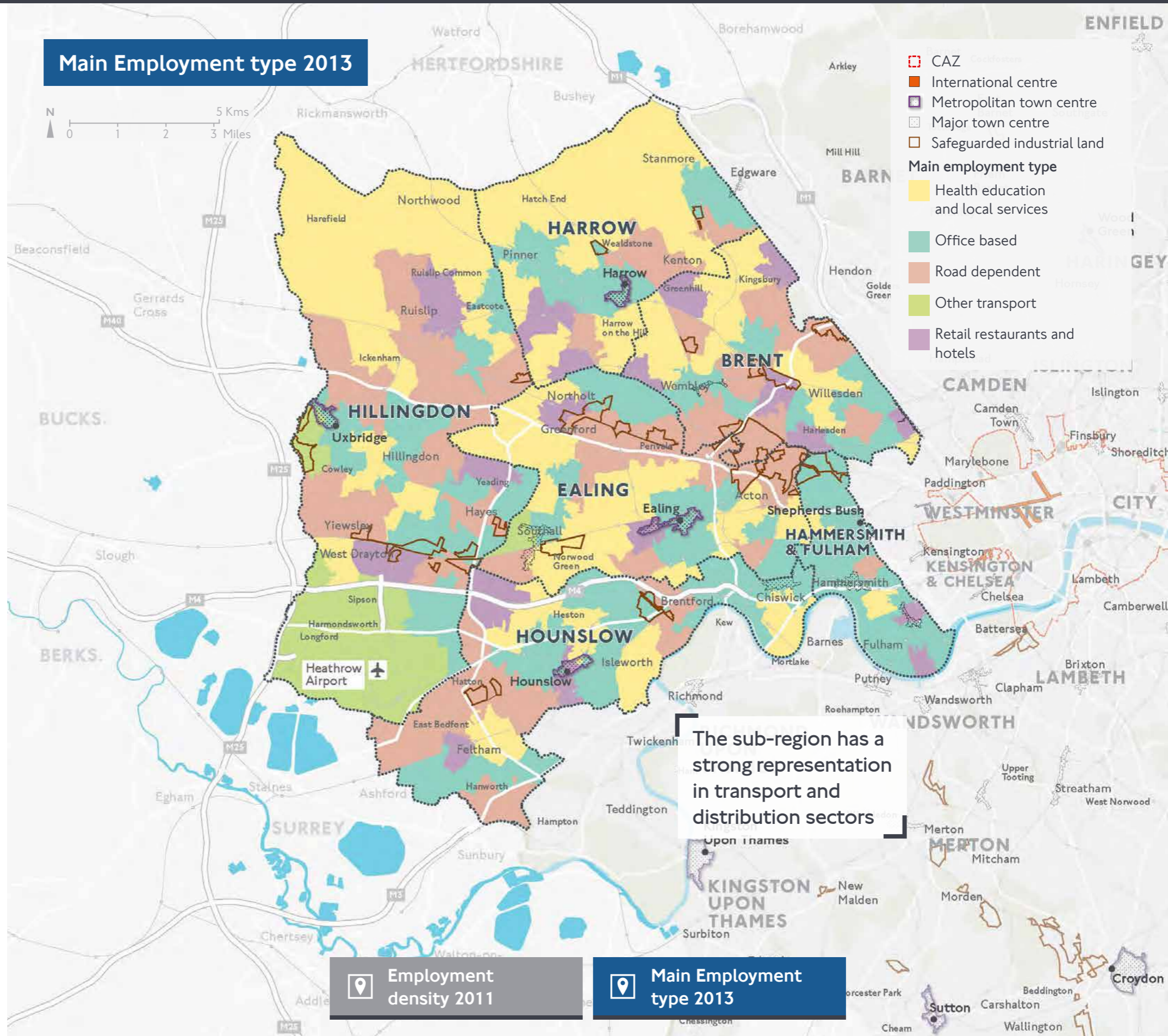


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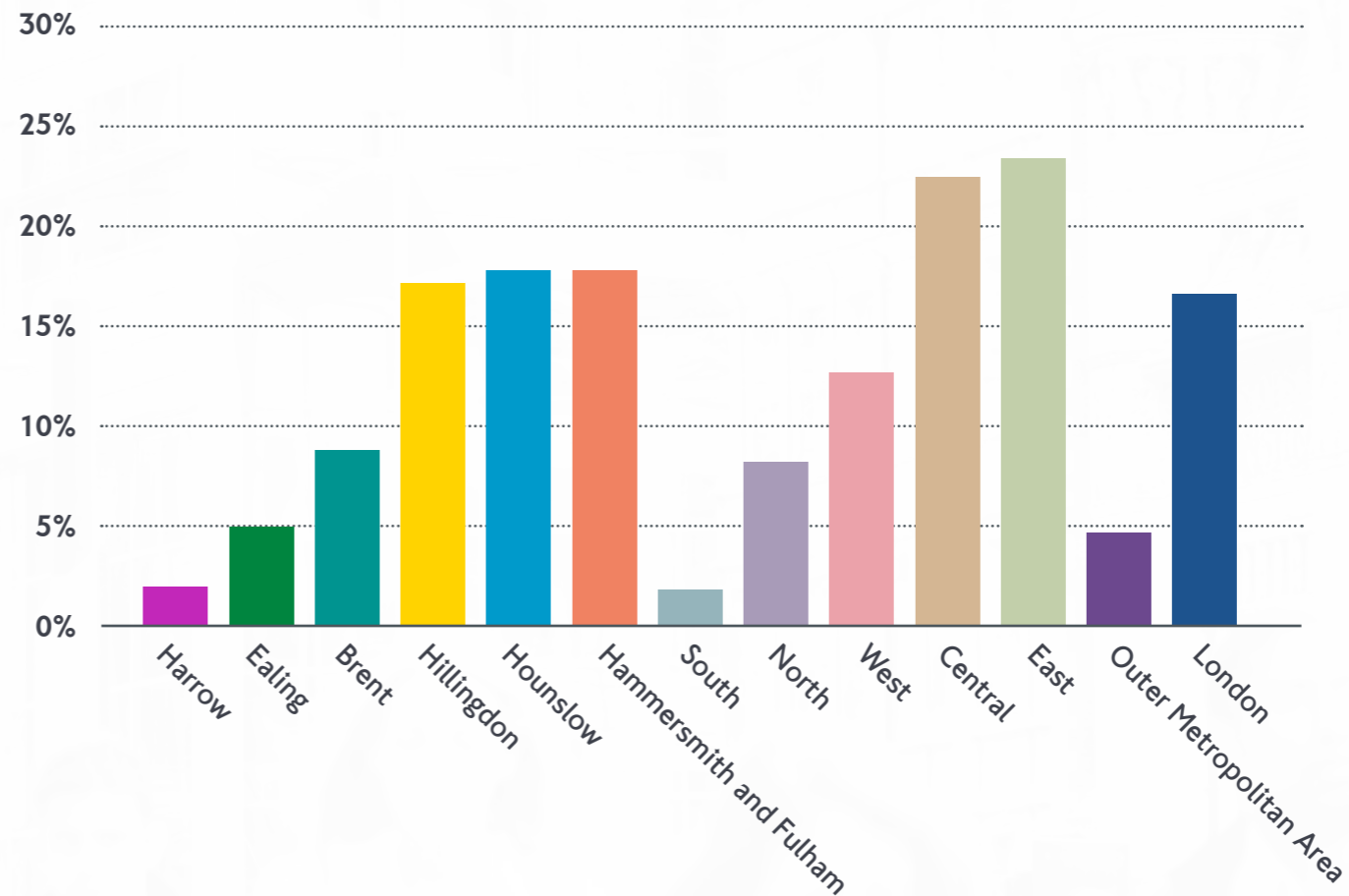
Although the sub-region has experienced reasonable levels of employment growth compared to other sub-regions, the rate of employment growth has slowed in recent years. This is partly due to a reduction in employment at Heathrow, although it is also likely to be due to a shift in business preferences, with central London now being seen as more favourable than car dependent business parks along the M4.

Growth in the sub-region's Gross Value Added has been relatively sluggish, partly due to employment growth in lower value sectors. An efficient transport network will be key to the maintaining the efficient movement of goods and people required to support continued growth. Maintaining links between Heathrow, the sub-region and the CAZ will be particularly important.

Much of the employment growth in the sub-region has taken place in the least accessible areas by public transport. This is contrary to what has been happening in much of the rest of London, where public transport is a key determinant of office construction and employment growth. It also has implications for future travel patterns and the ability of those without a car to access growing employment opportunities.

The rate of employment growth in the sub-region since 2003 has been **just 75%** of that in London

**Employment growth 2003 – 2013**



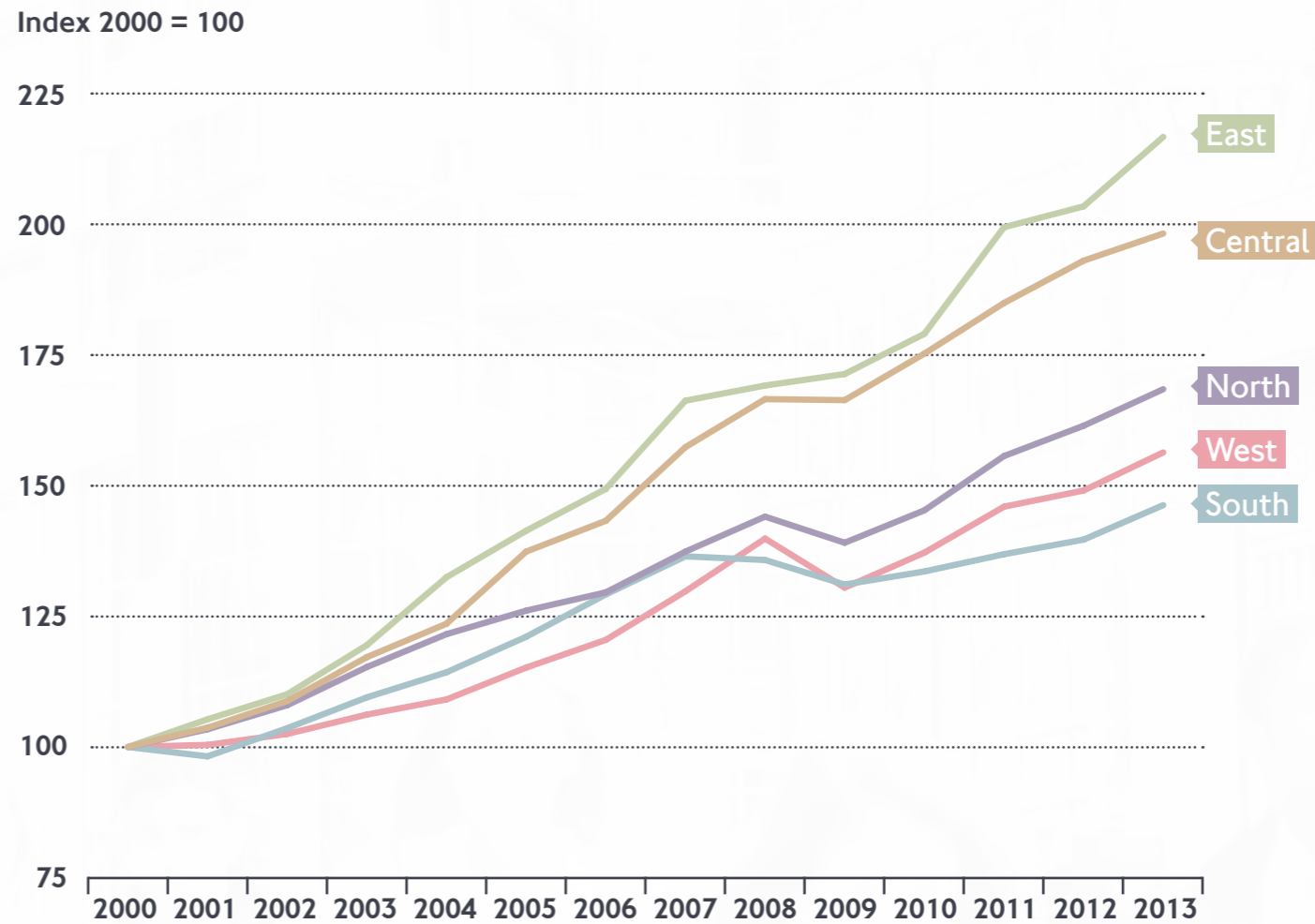
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Growth in the sub-region's Gross Value Added has been relatively sluggish, partly due to employment growth in lower value sectors. An efficient transport network will be key to the maintaining the efficient movement of goods and people required to support continued growth. Maintaining links between Heathrow, the sub-region and the CAZ will be particularly important.

Much of the employment growth in the sub-region has taken place in the least accessible areas by public transport. This is contrary to what has been happening in much of the rest of London, where public transport is a key determinant of office construction and employment growth. It also has implications for future travel patterns and the ability of those without a car to access growing employment opportunities.

**Growth in Gross Value Added (GVA) by sub-region**

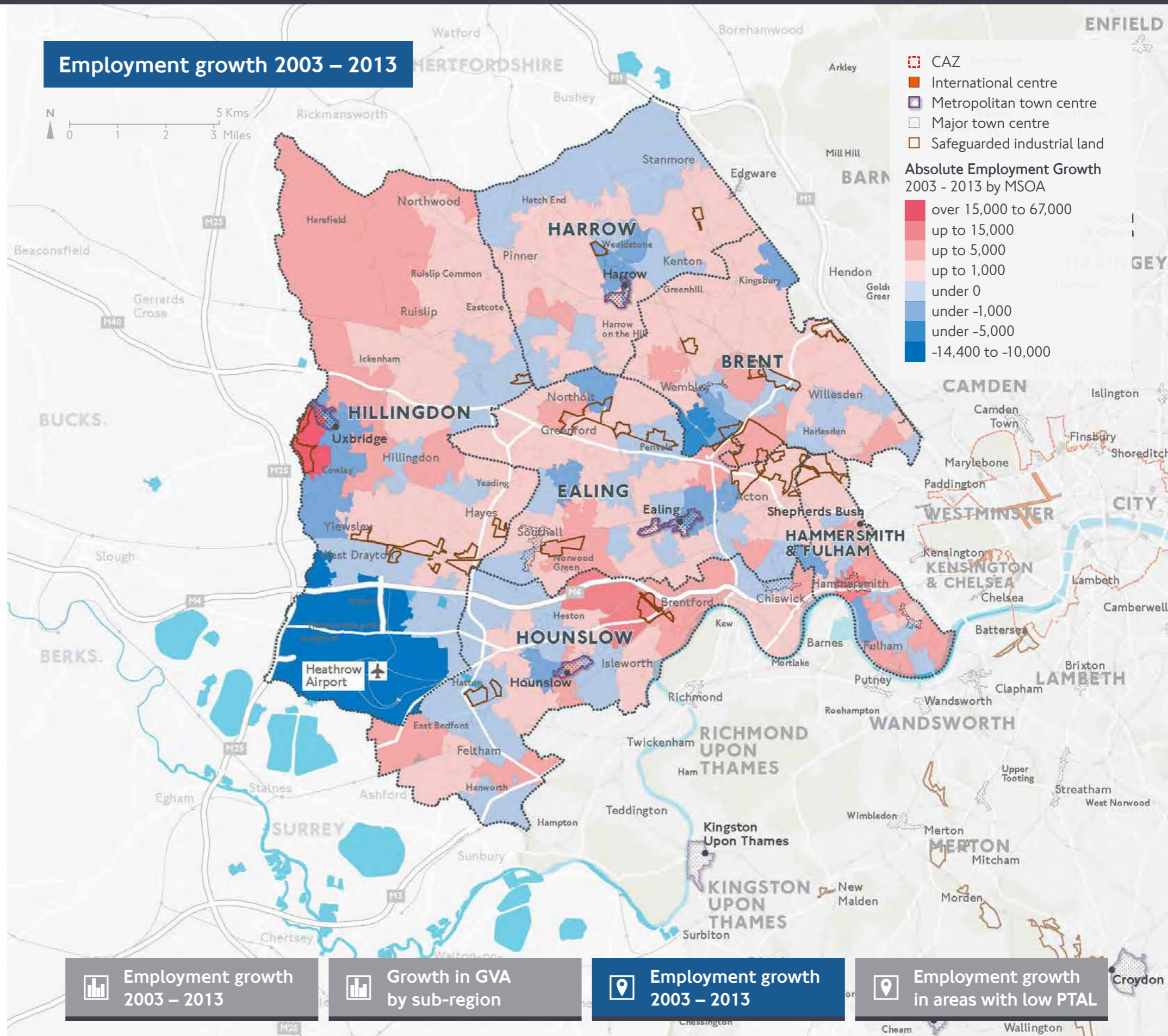


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Employment growth 2003 – 2013

Growth in GVA by sub-region

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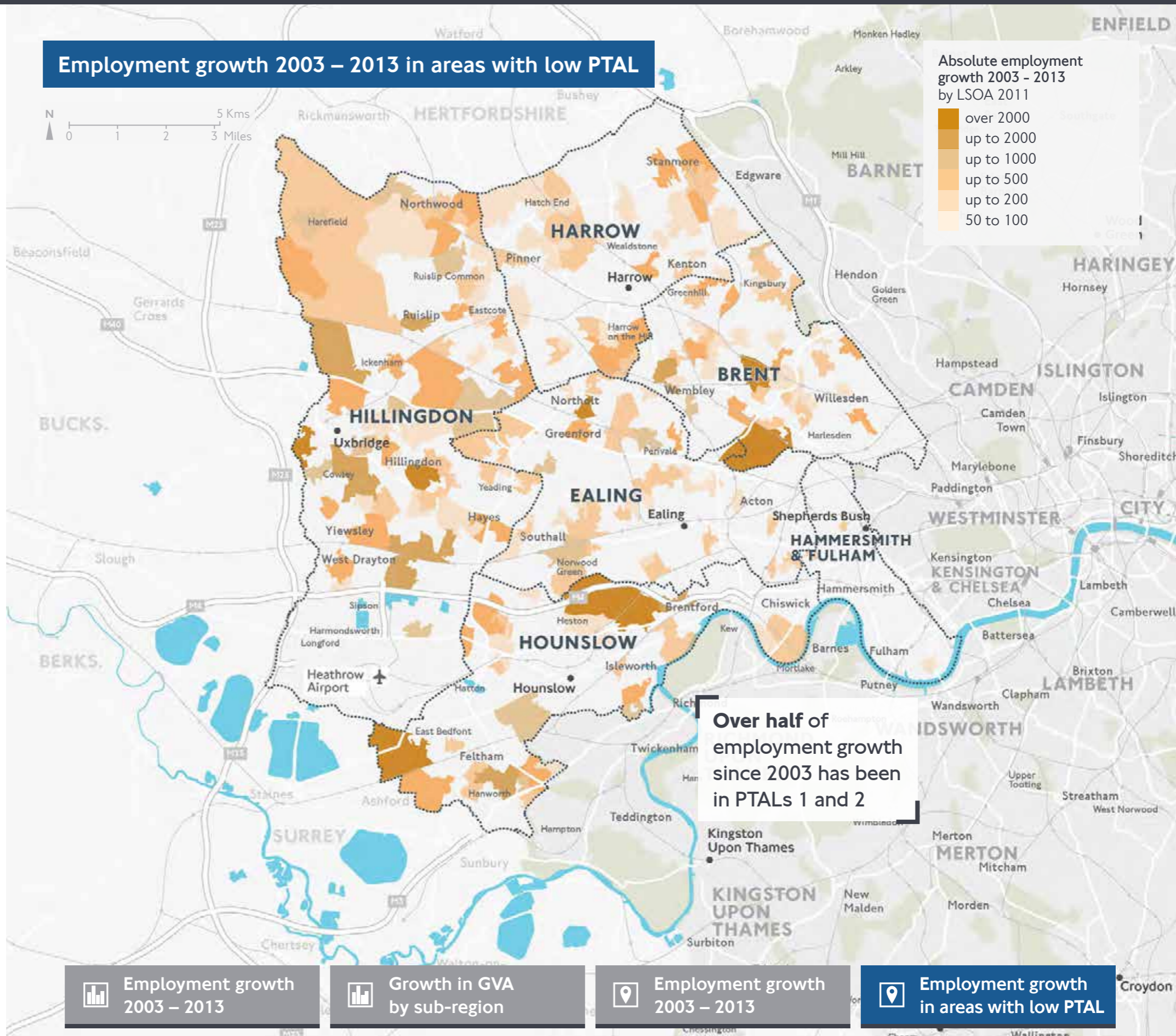
Employment growth in areas with low PTAL

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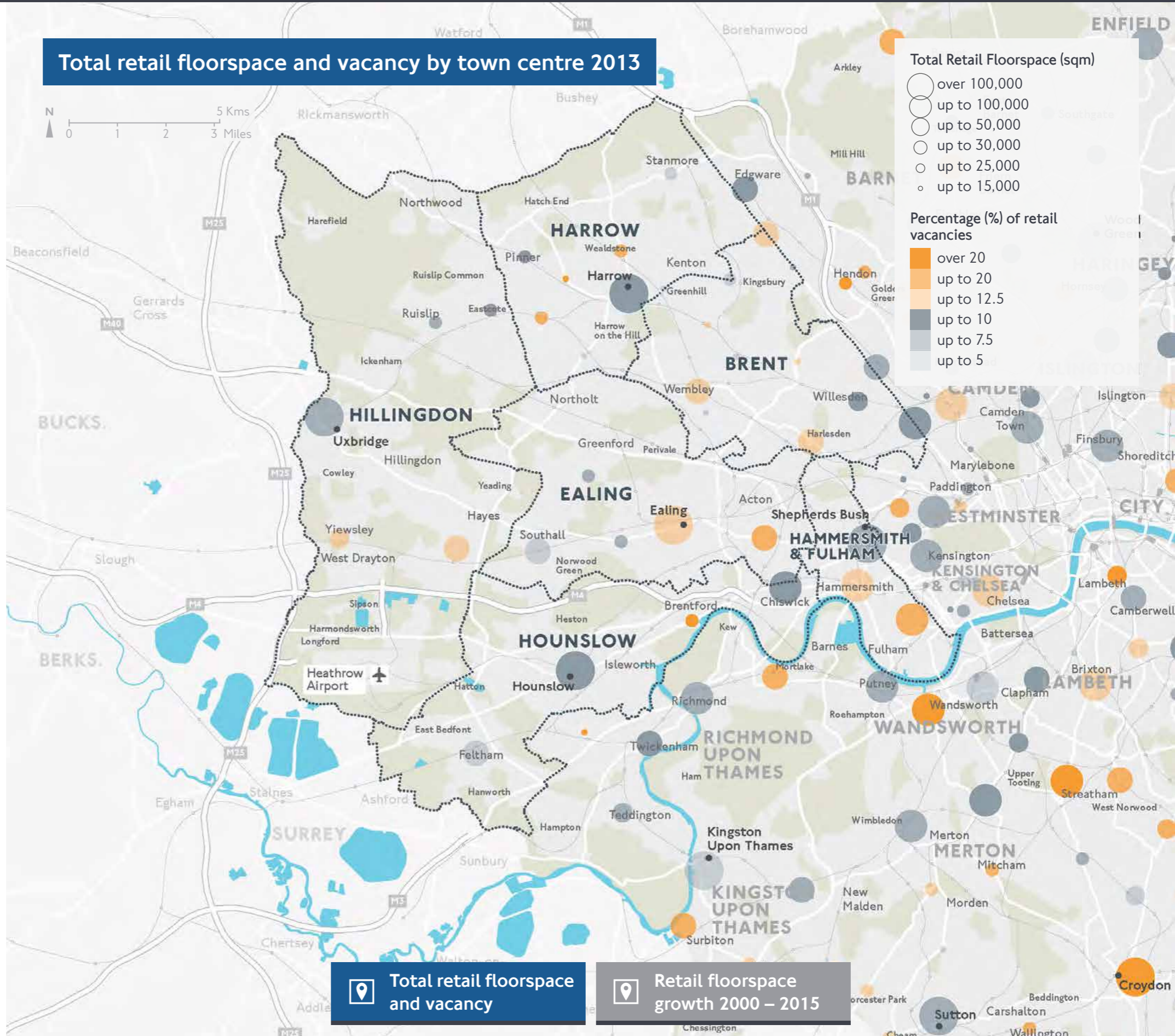


**The West has a strong polycentric network of town centres which depend on good transport links**

The sub-region's Metropolitan town centres appear to be performing reasonably well. However, Ealing, as well as some of the Major and District centres, including Wembley and Brentford have higher levels of vacancy. This is likely to be partly due to an increase in shoppers preferences for larger centres that can offer a bigger range and quality of the retail offer.

The amount of retail floorspace has increased by 10%, mainly as a result of construction of Westfield at Shepherd's Bush which may have affected the viability of smaller centres close by such as Acton and Hammersmith, which have vacancy rates above 10%.

Maintaining the viability of town centres will require multiple actions which include supporting continued access to the catchment areas of town centres, particularly by public transport; maintaining the quality of the place and shopping experience through traffic management and quality of the public realm; maintaining an appropriate level of car parking provision and supporting the efficient delivery of goods.

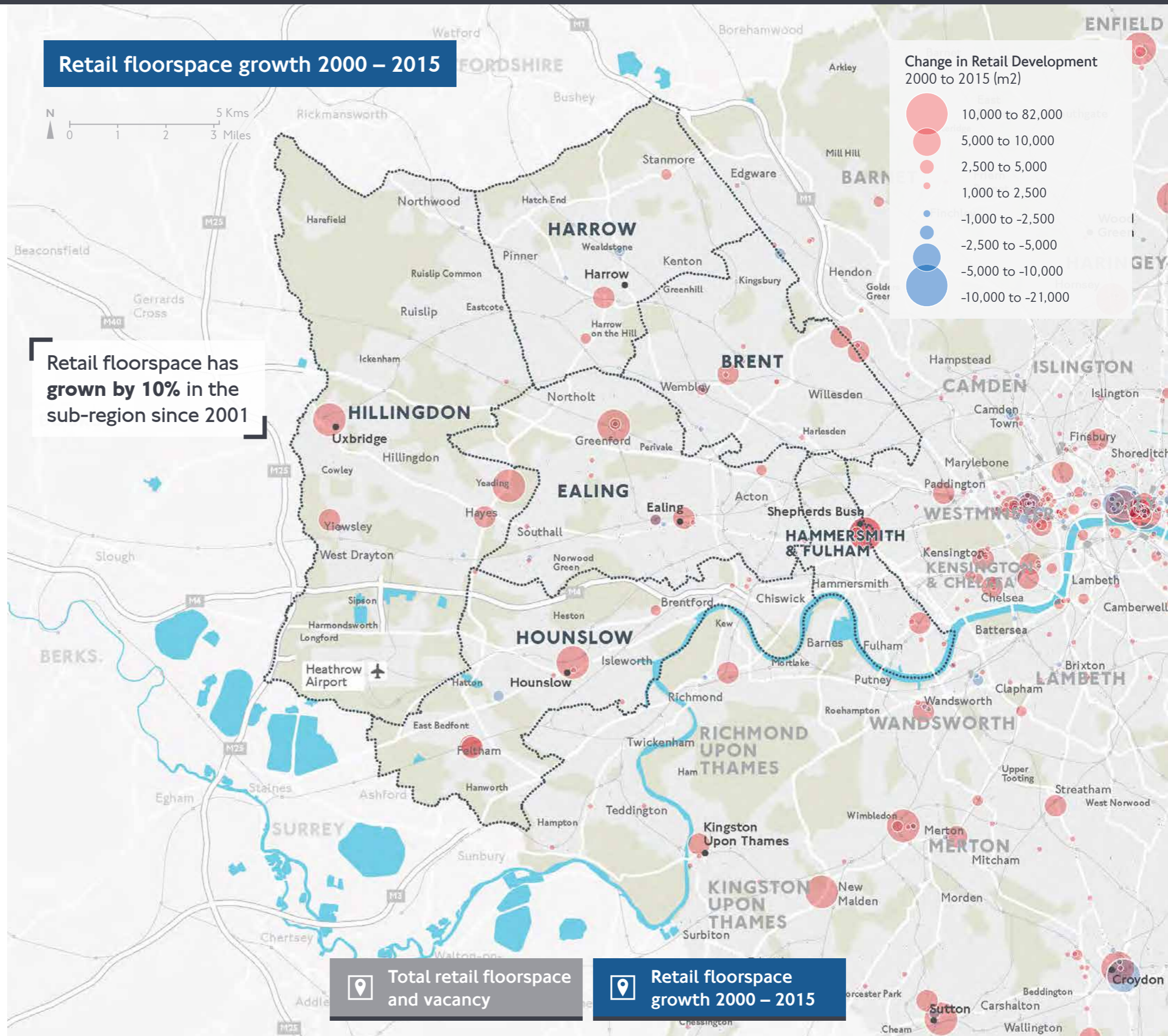


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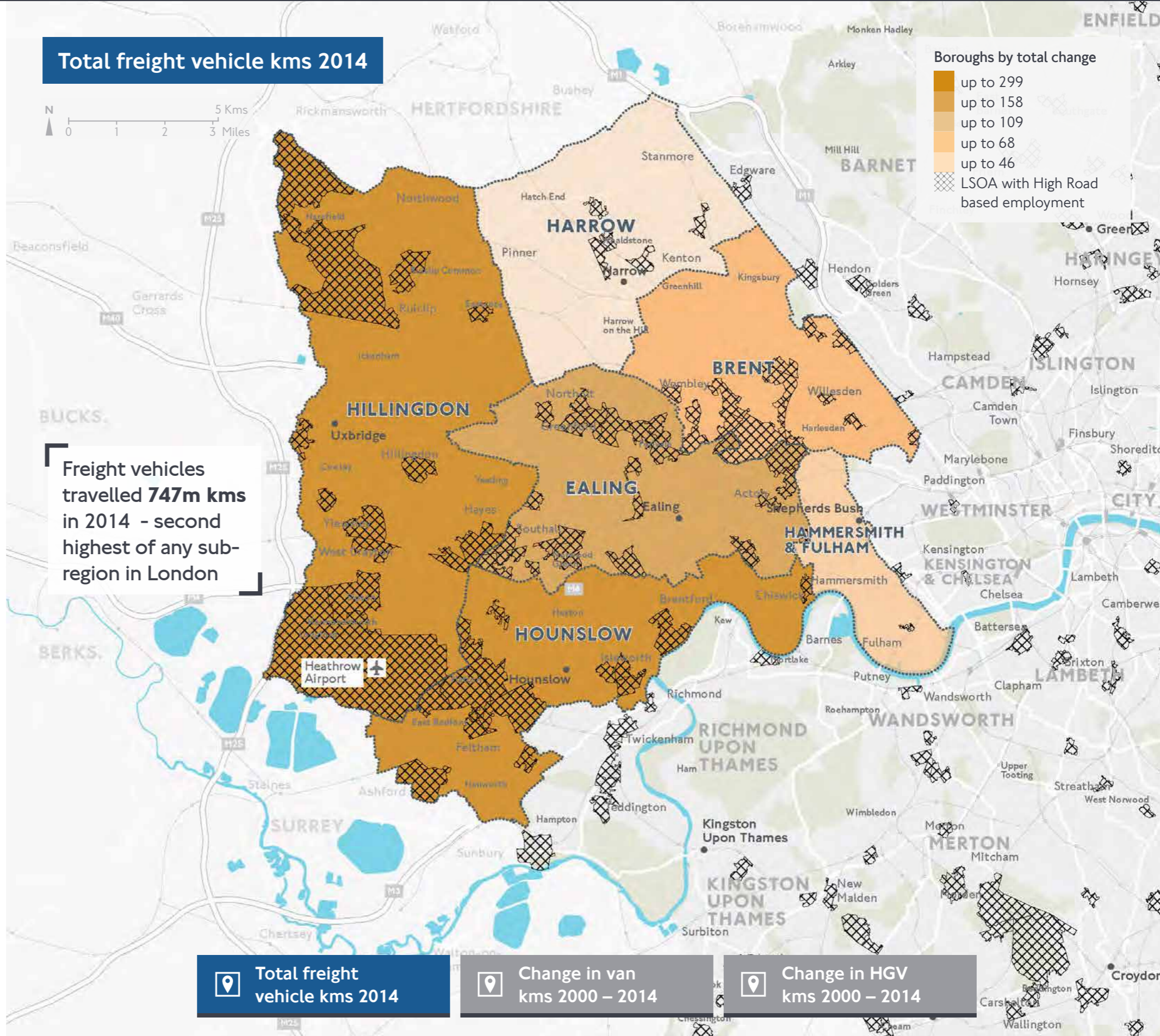
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**Large parts of the West's economy rely on the efficient movement of freight by road**

The sub-region has a significant concentration of businesses where the movement of freight is a key part of their day to day operations, with total freight vehicle kms the second highest of any sub-region in London. However, these businesses both contribute to and suffer from road congestion. Two key areas where freight access is considered fundamentally important to both businesses in the sub-region and London as a whole are Park Royal and the Heathrow area. These are located at a nexus of the national strategic road network, where the M25, M/A40, M/A4 and, to a lesser extent, the M1 all converge with the A406 North Circular linking these locations and corridors together as well as providing the outlay for freight transportation to the rest of London and beyond.

The growth in the number of vans on the sub-region's roads has far outnumbered the growth in HGVs, driven in part by the growth of e-commerce.

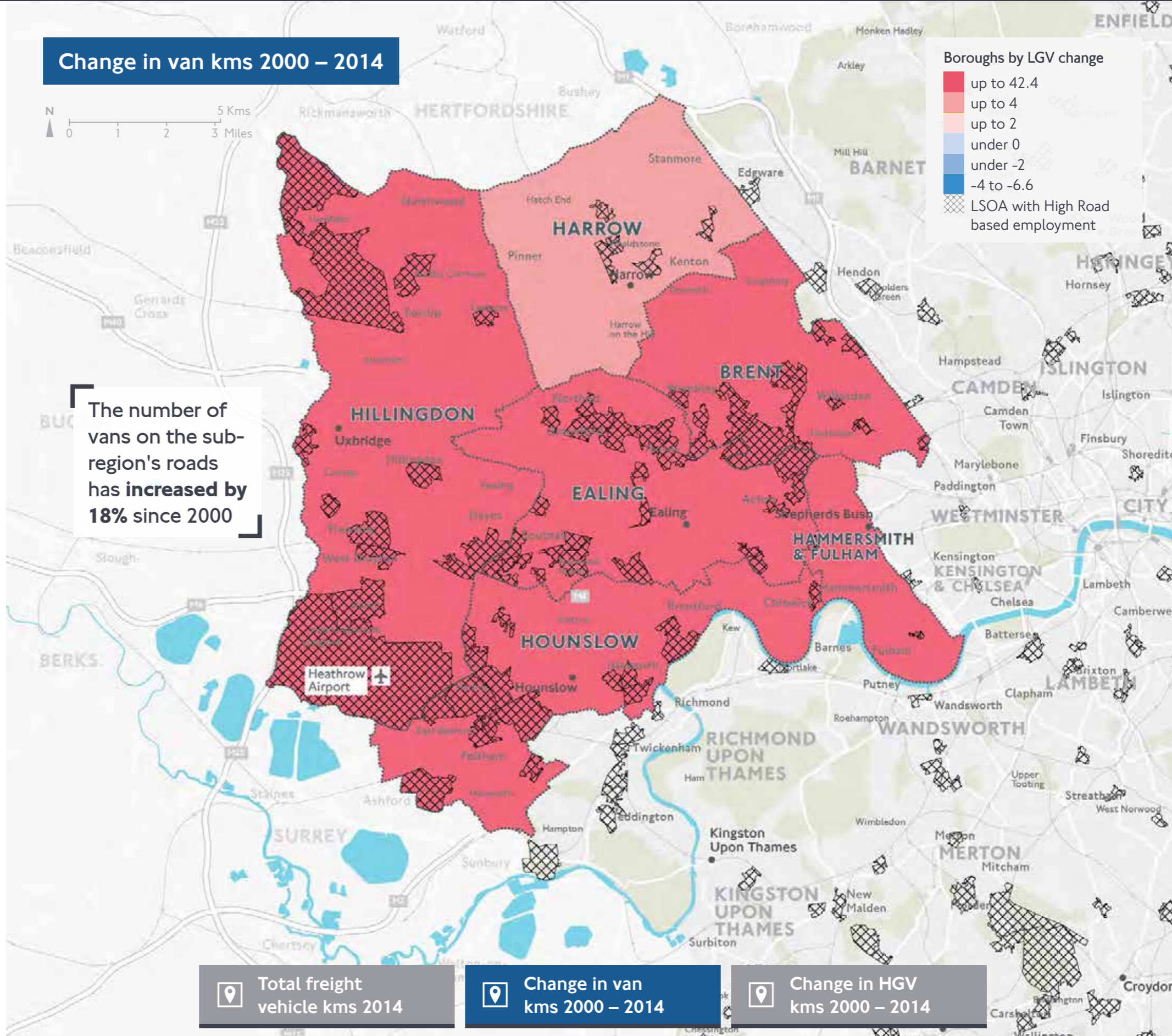




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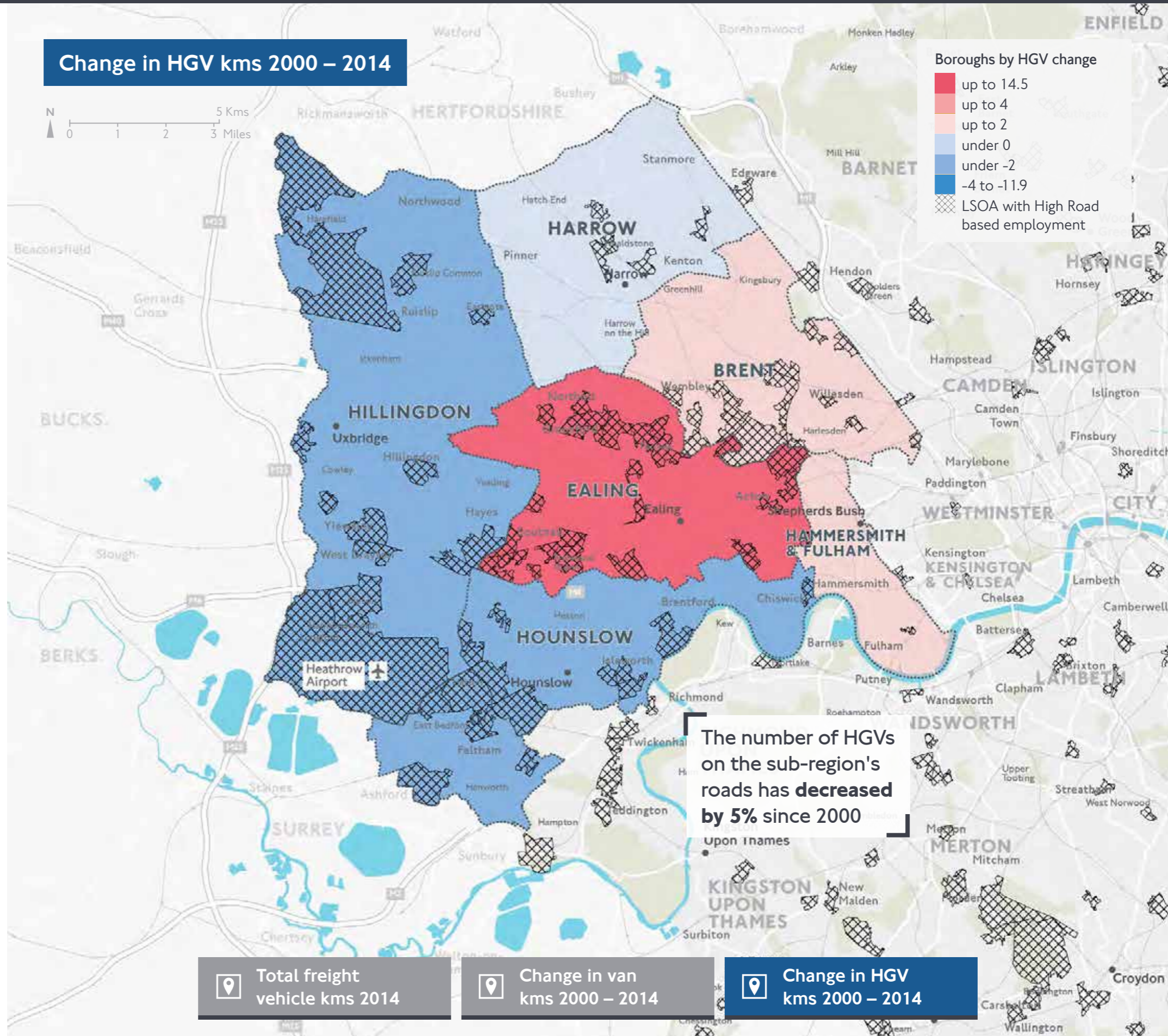
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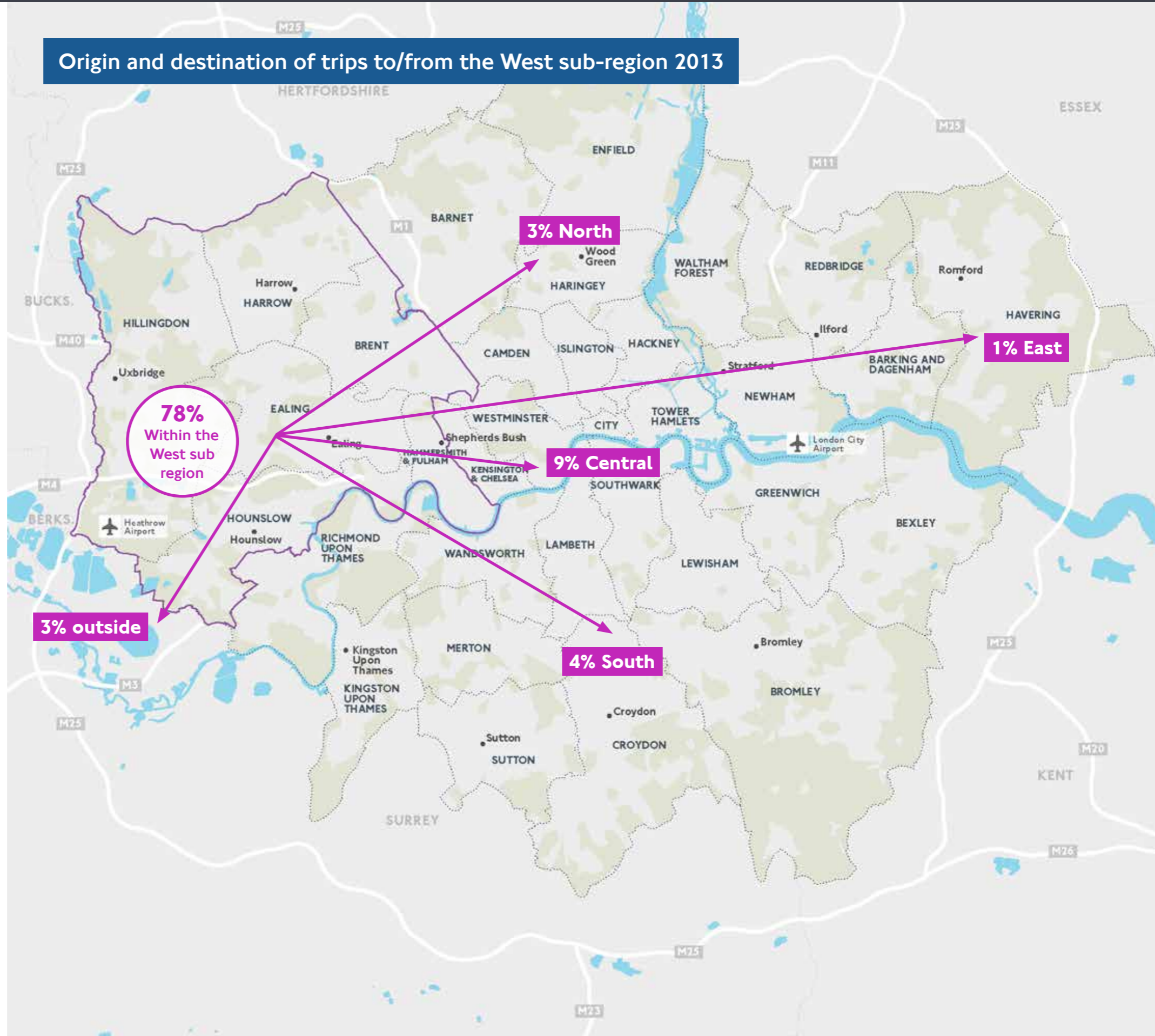
# Mode and movement >



### Most trips in the West start and finish within the sub-region

Although residents of West London make trips to many areas within and outside London, the majority of trips have both their origin and destination within the sub-region. Commuting trips are the most likely to be made outside West London, particularly to central London, whilst education, shopping and leisure trips are all much more likely to be internal to the sub-region. This reinforces the need to ensure a well functioning transport network that can support the huge range of local movements, particularly by bus, walking and cycling, as well as the need for a network that can support both orbital and radial movements.

A relatively high proportion of trips to the South sub-region are made from the West, largely from residents of Hounslow and Hillingdon travelling into Richmond.

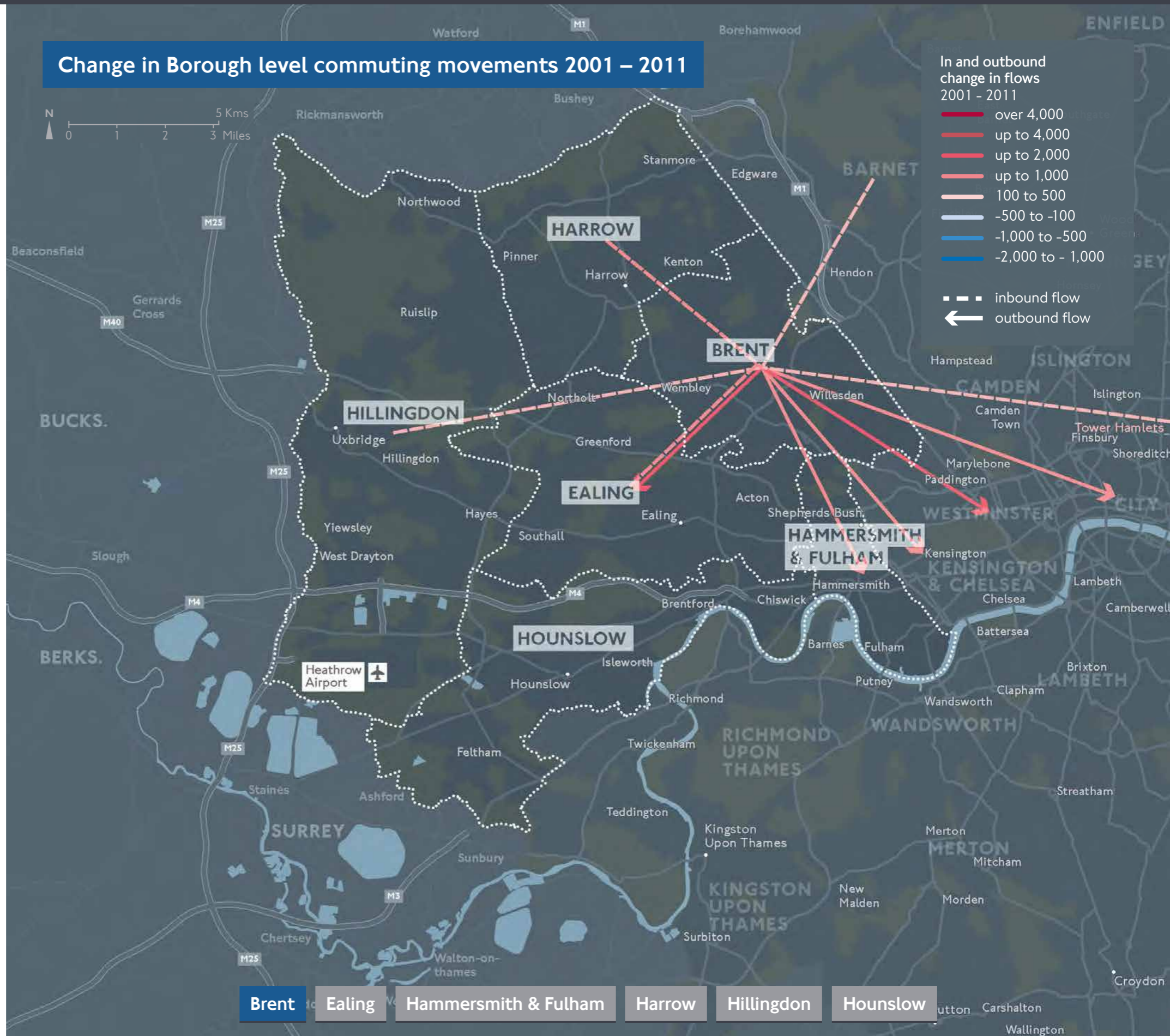


### More people are commuting into central and Inner Boroughs for work

As employment has increased rapidly within central and Inner London, and with lower levels of growth in Outer London, there has been an increase in people commuting towards more central areas. Maintaining the capacity and frequency of public transport connections between the sub-region and central London will be important, both to support employment growth in the most productive part of the UK and also to enable West London's residents to access the huge range of employment opportunities that exist there.

There has also been a increase in commuting flows between some of the sub-region's Boroughs such as neighbouring Hounslow and Ealing as employment and population has grown in both Boroughs. Again, maintaining connectivity between the sub-region's Boroughs is vital to ensure continued access to local jobs, therefore supporting economic growth in West London.

Commuting into Hillingdon has declined from most Boroughs, possibly because of the significant decrease in employment at Heathrow during this period.

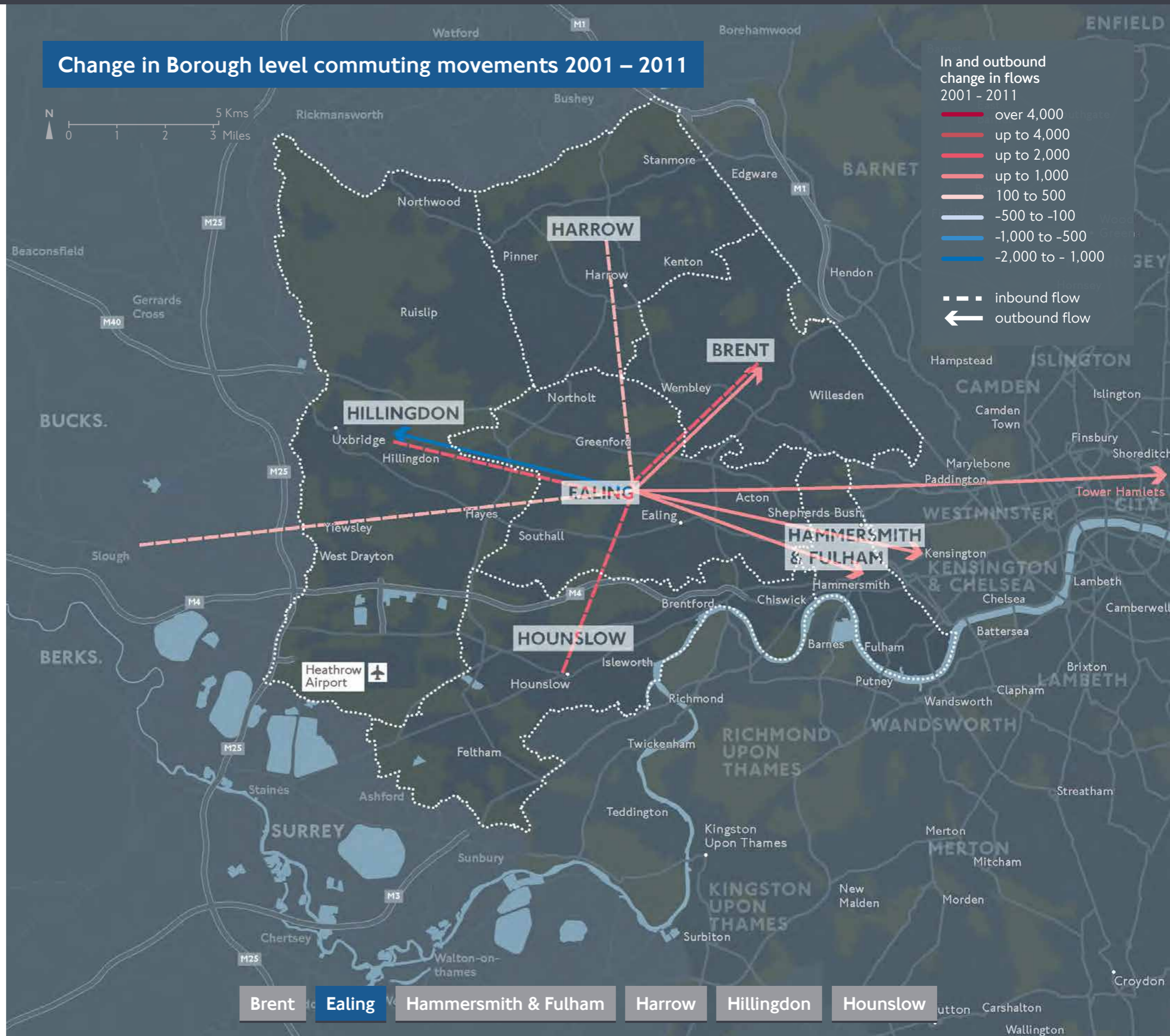


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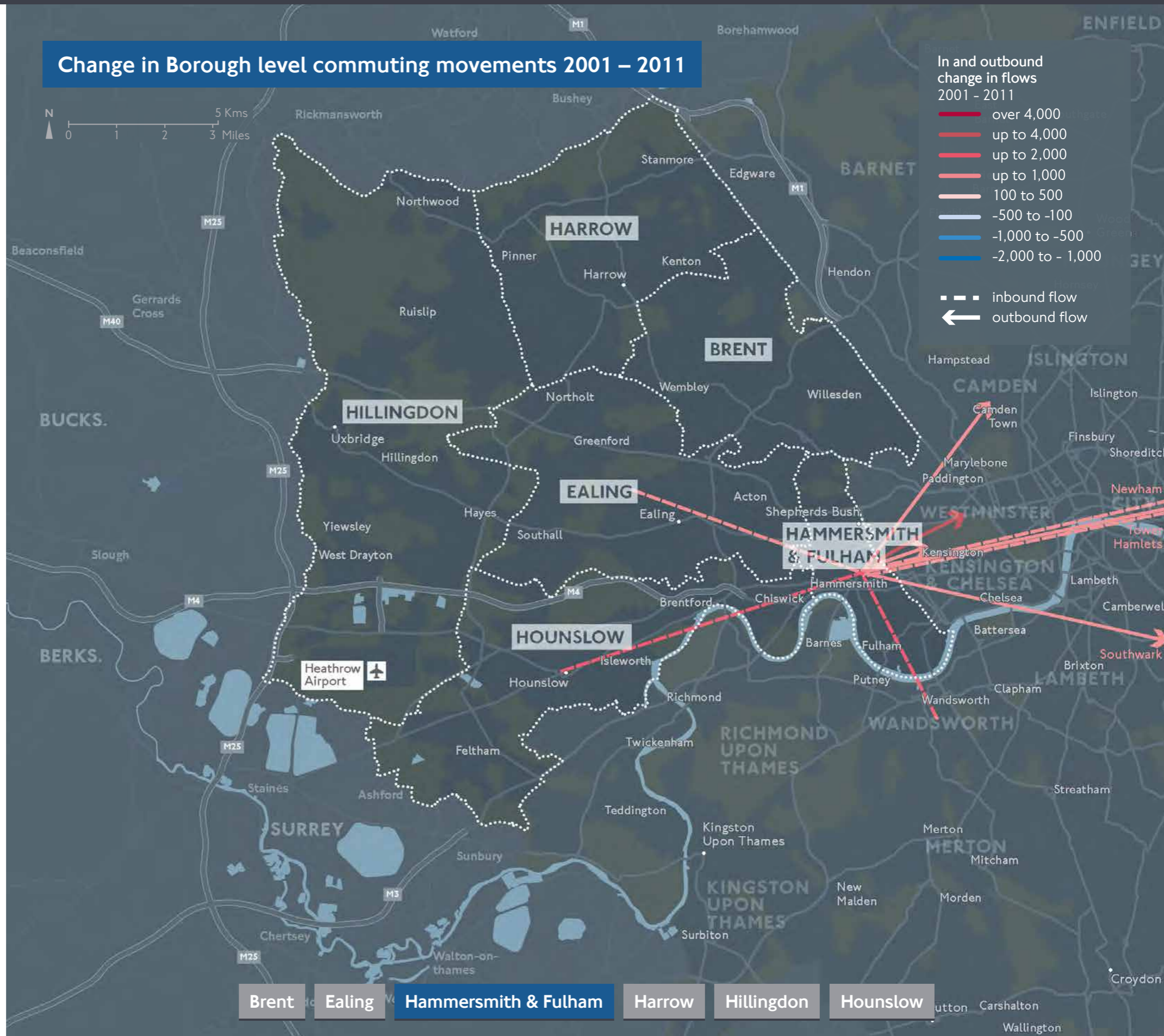


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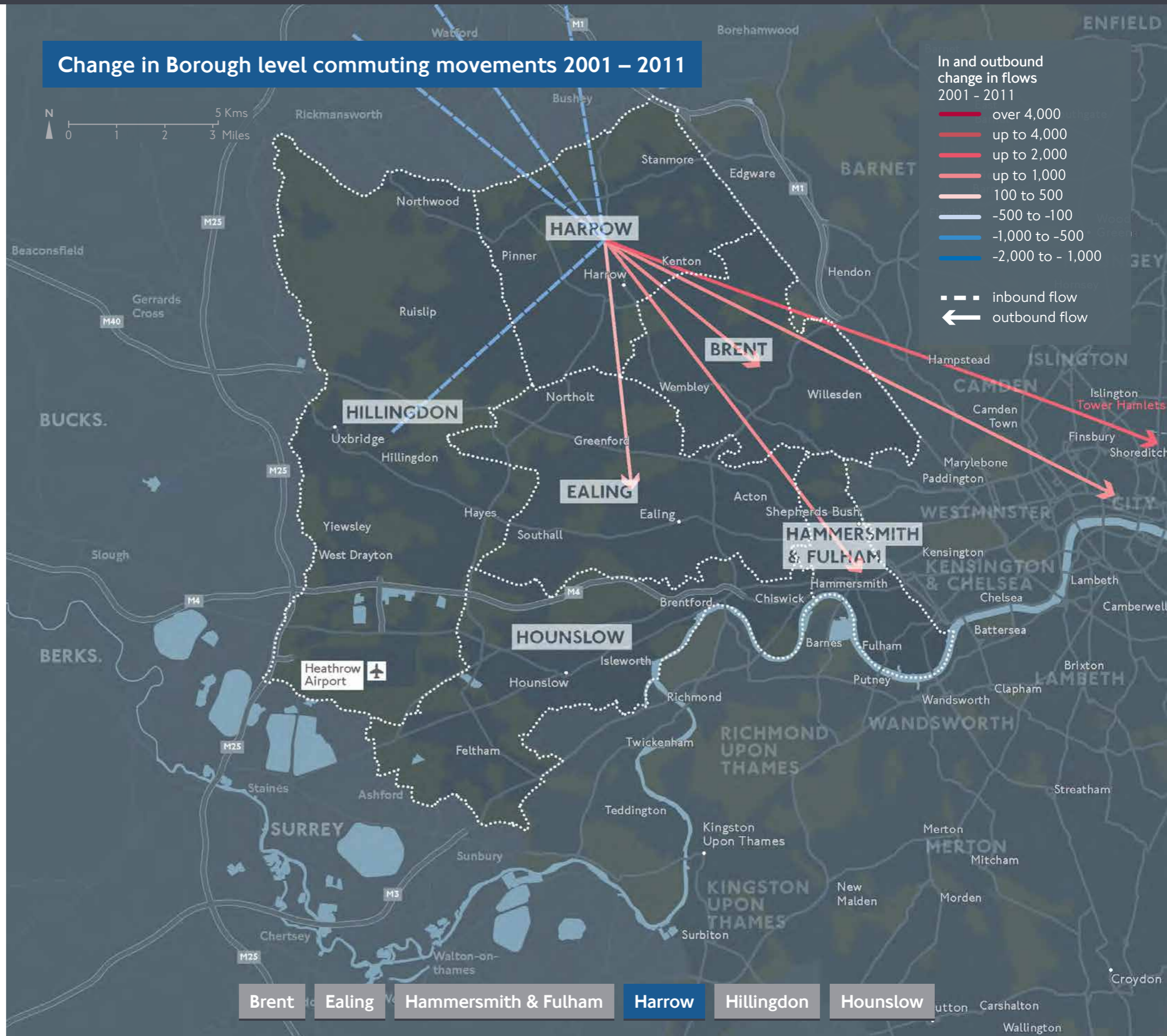


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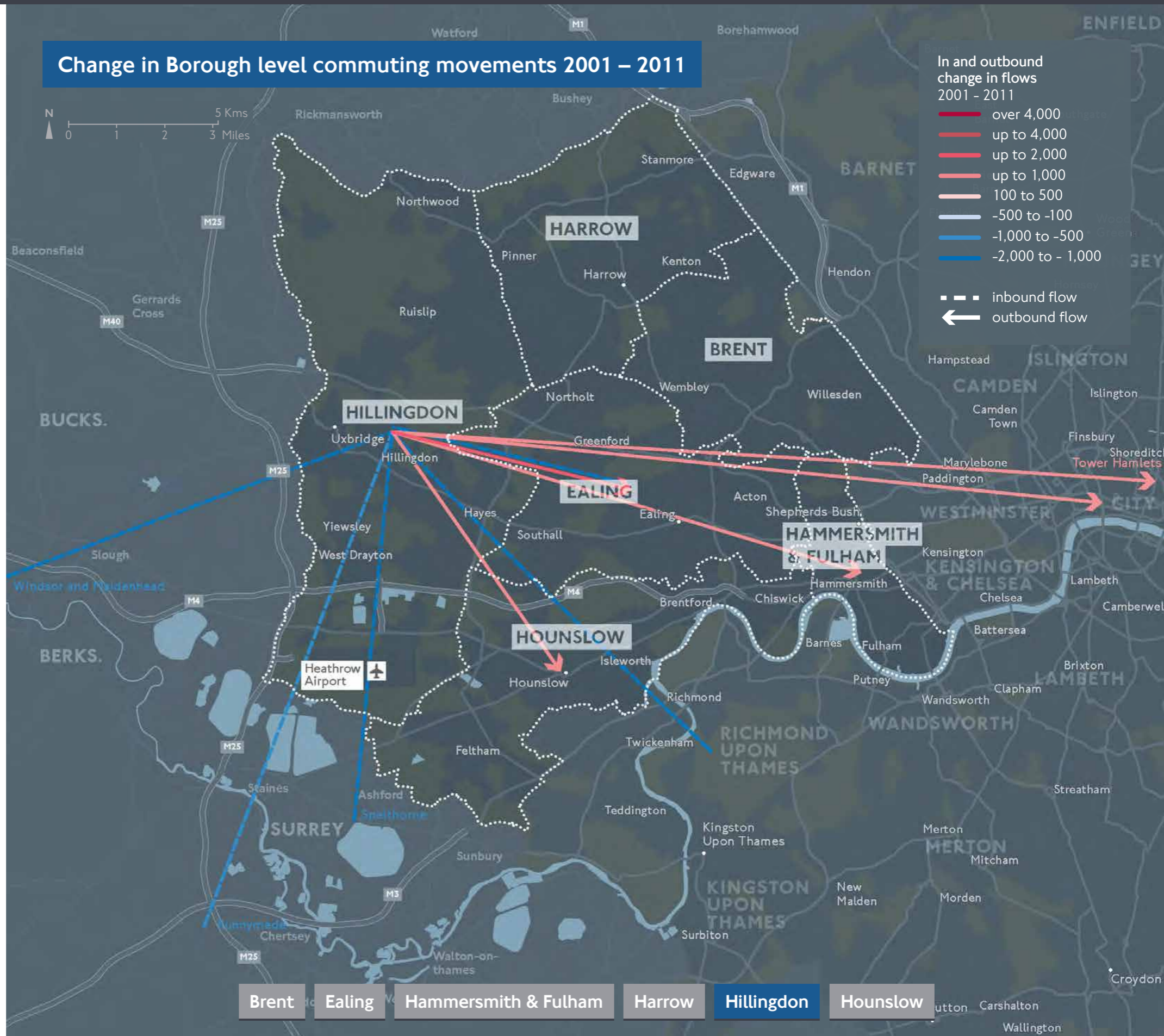


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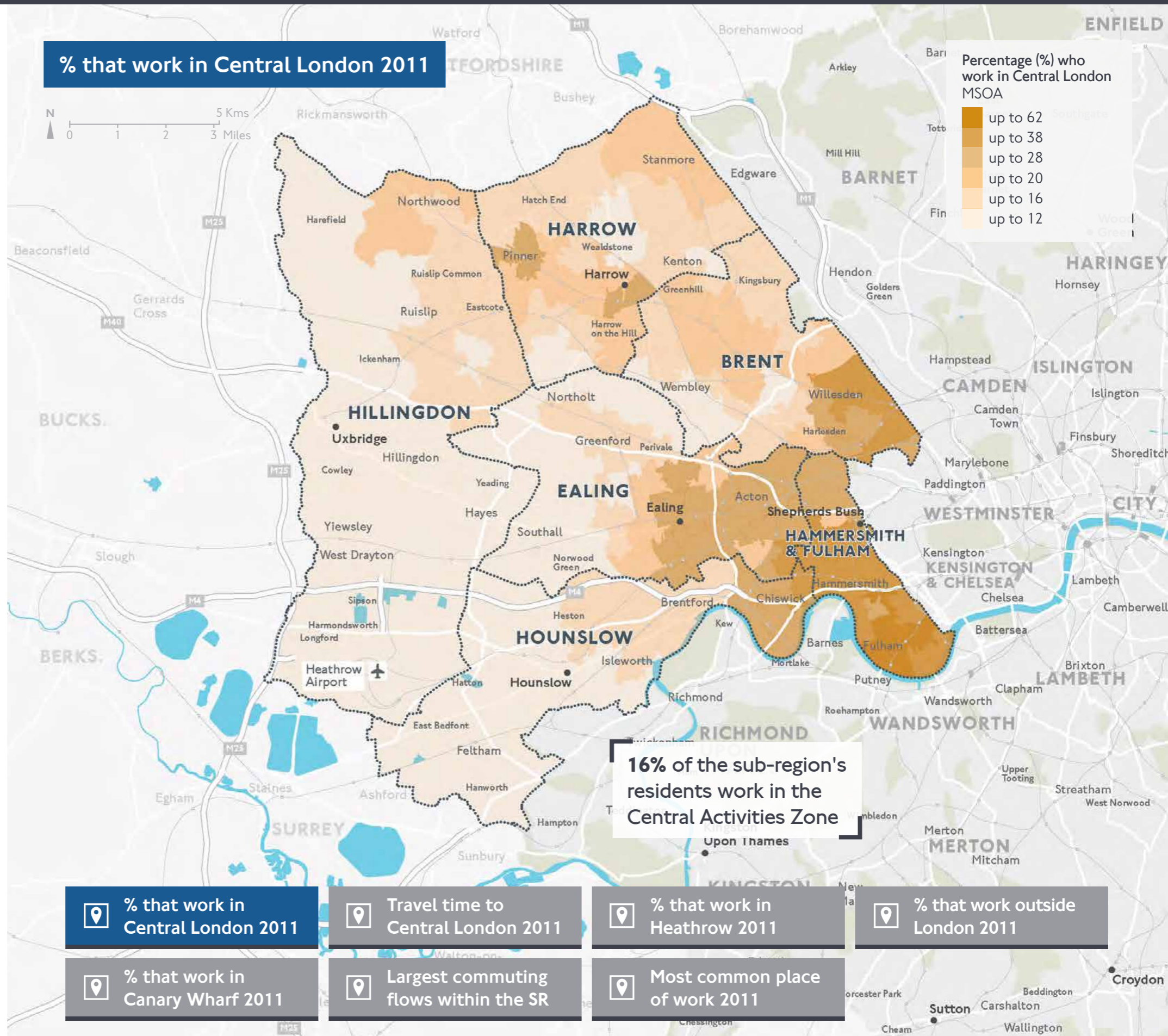




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There is significant variation in where residents commute to work. Whilst 16% of the sub-region works in central London, including a majority of residents in Hammersmith & Fulham and the inner areas of Brent, Ealing and Hounslow, the figure is the lowest for any of the five sub-regions, which demonstrates the strength of local employment opportunities available. 63% of West London's labour force works within the sub-region, within its town centres, business and industrial parks, or other locations.

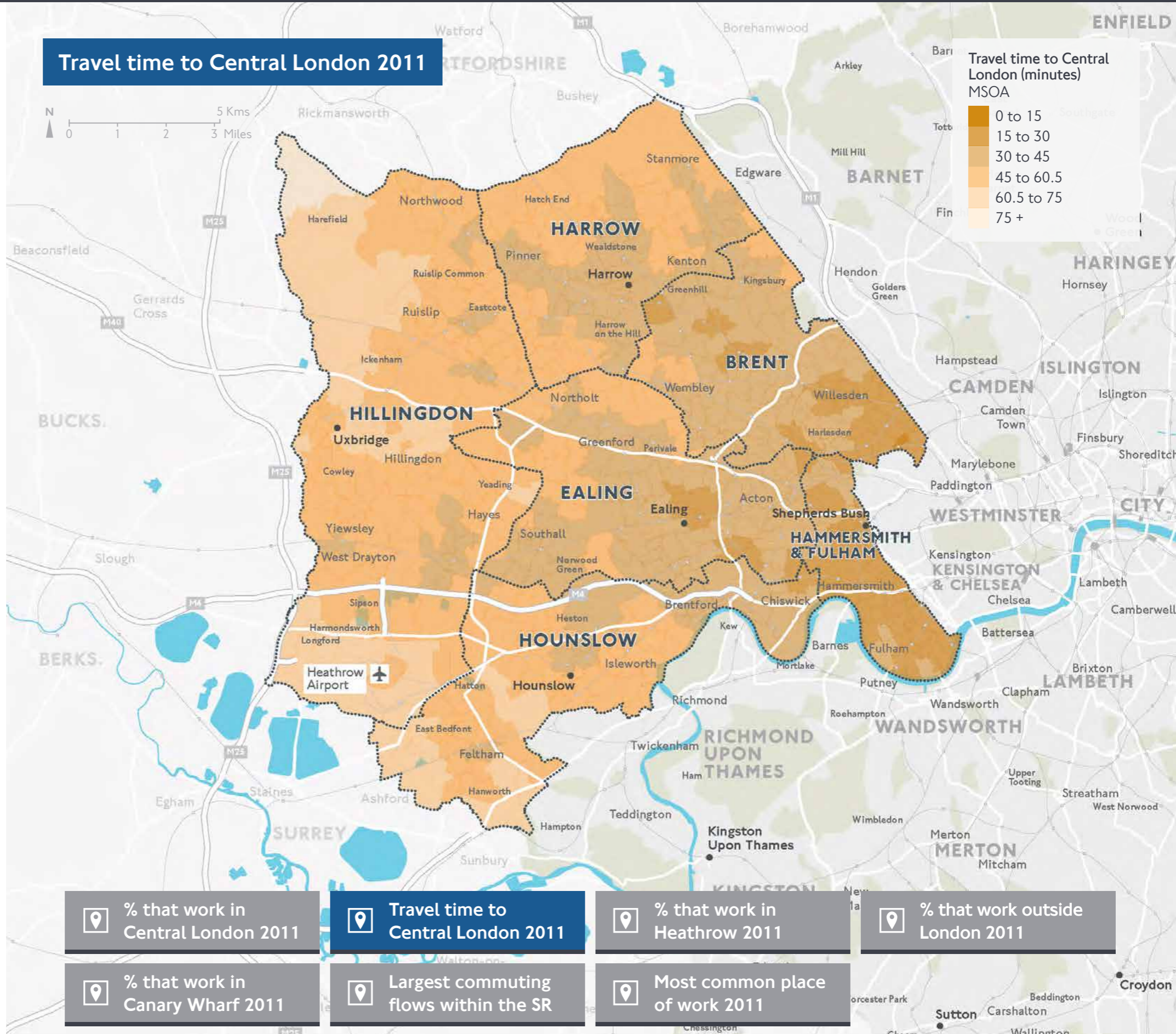
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% that work in Central London 2011

**Travel time to Central London 2011**

% that work in Heathrow 2011

% that work outside London 2011

% that work in Canary Wharf 2011

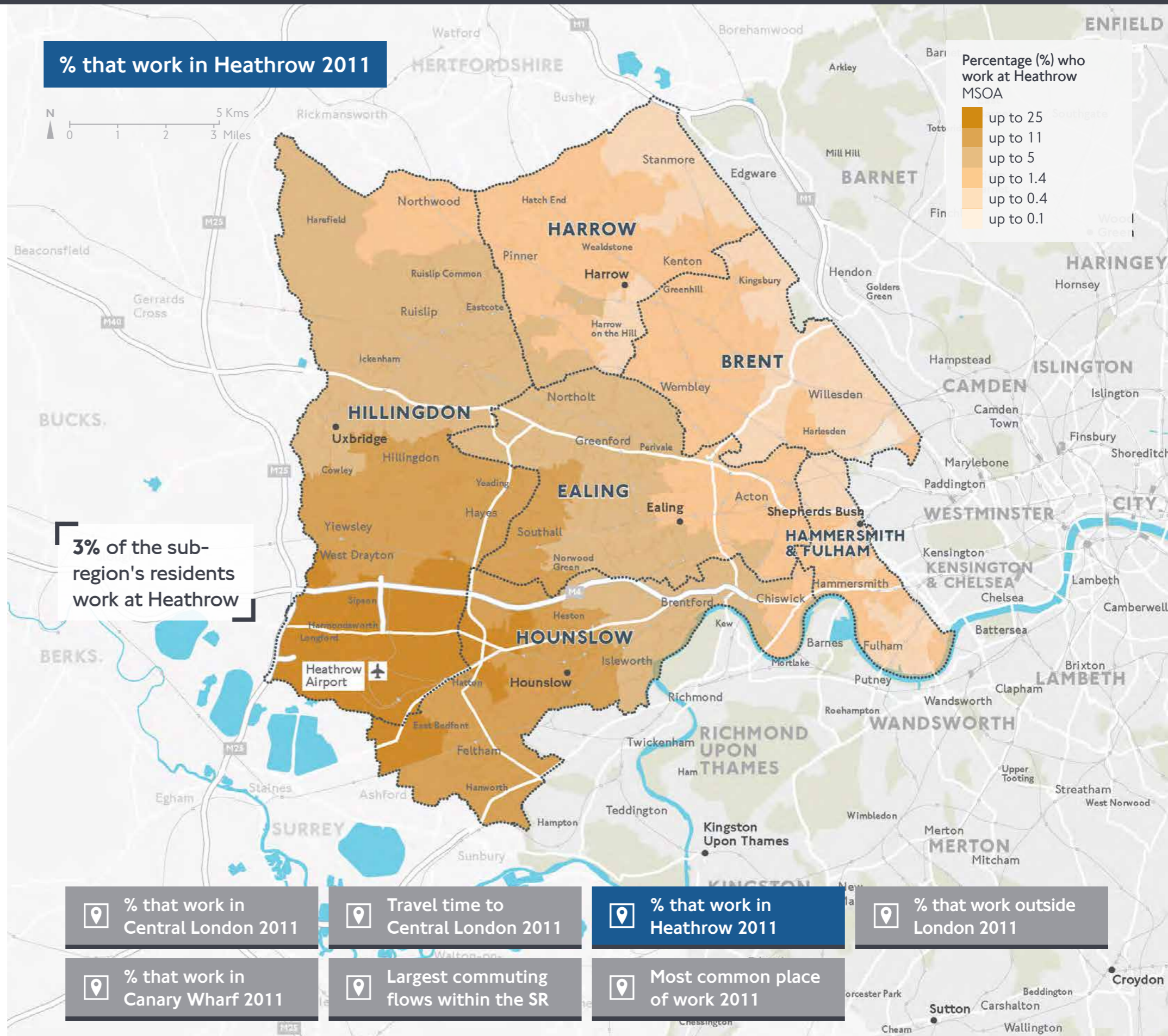
Largest commuting flows within the SR

Most common place of work 2011

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**% that work in Heathrow 2011**

Percentage (%) who work at Heathrow MSOA

- up to 25
- up to 11
- up to 5
- up to 1.4
- up to 0.4
- up to 0.1

**3% of the sub-region's residents work at Heathrow**

% that work in Central London 2011

Travel time to Central London 2011

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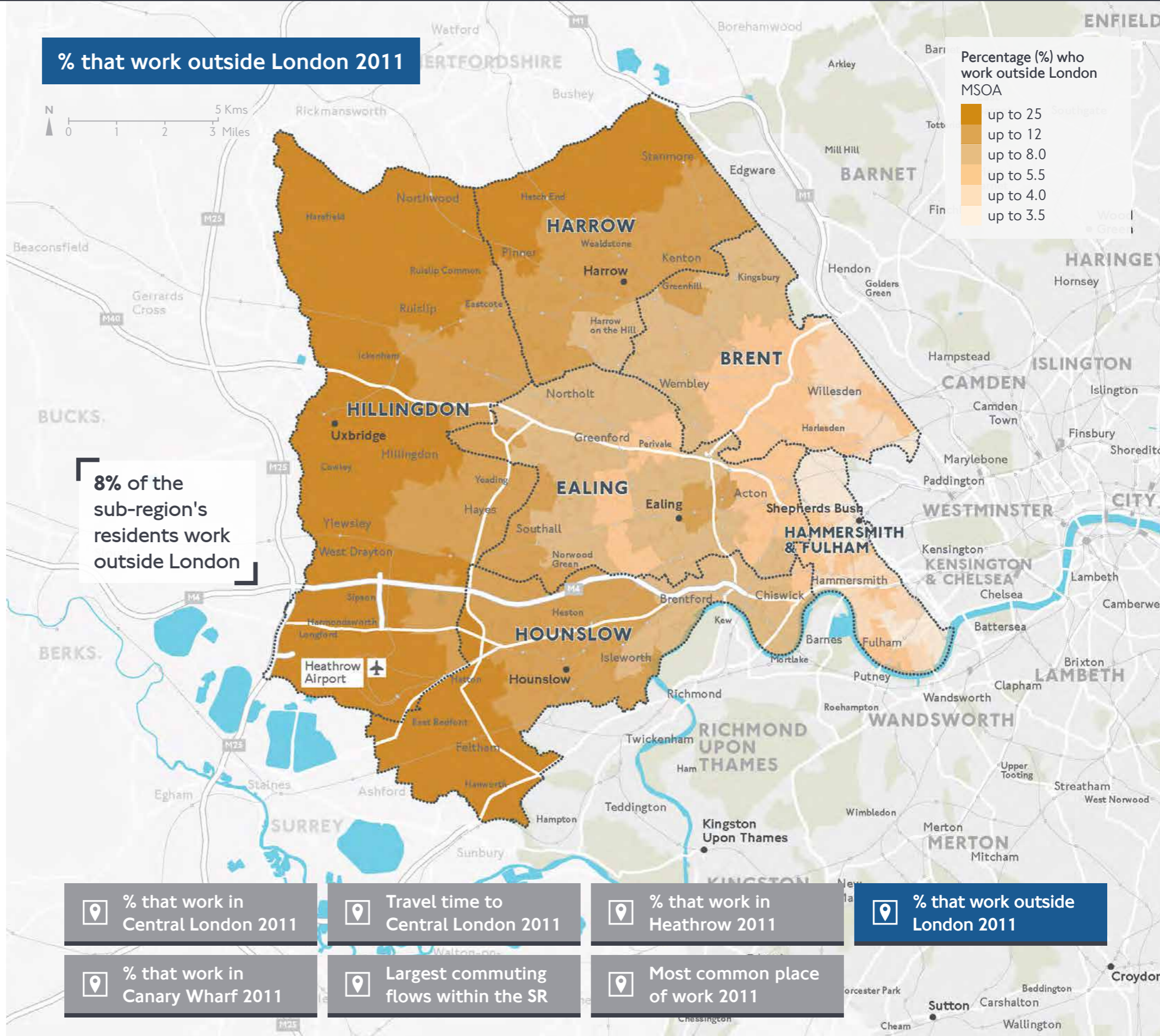
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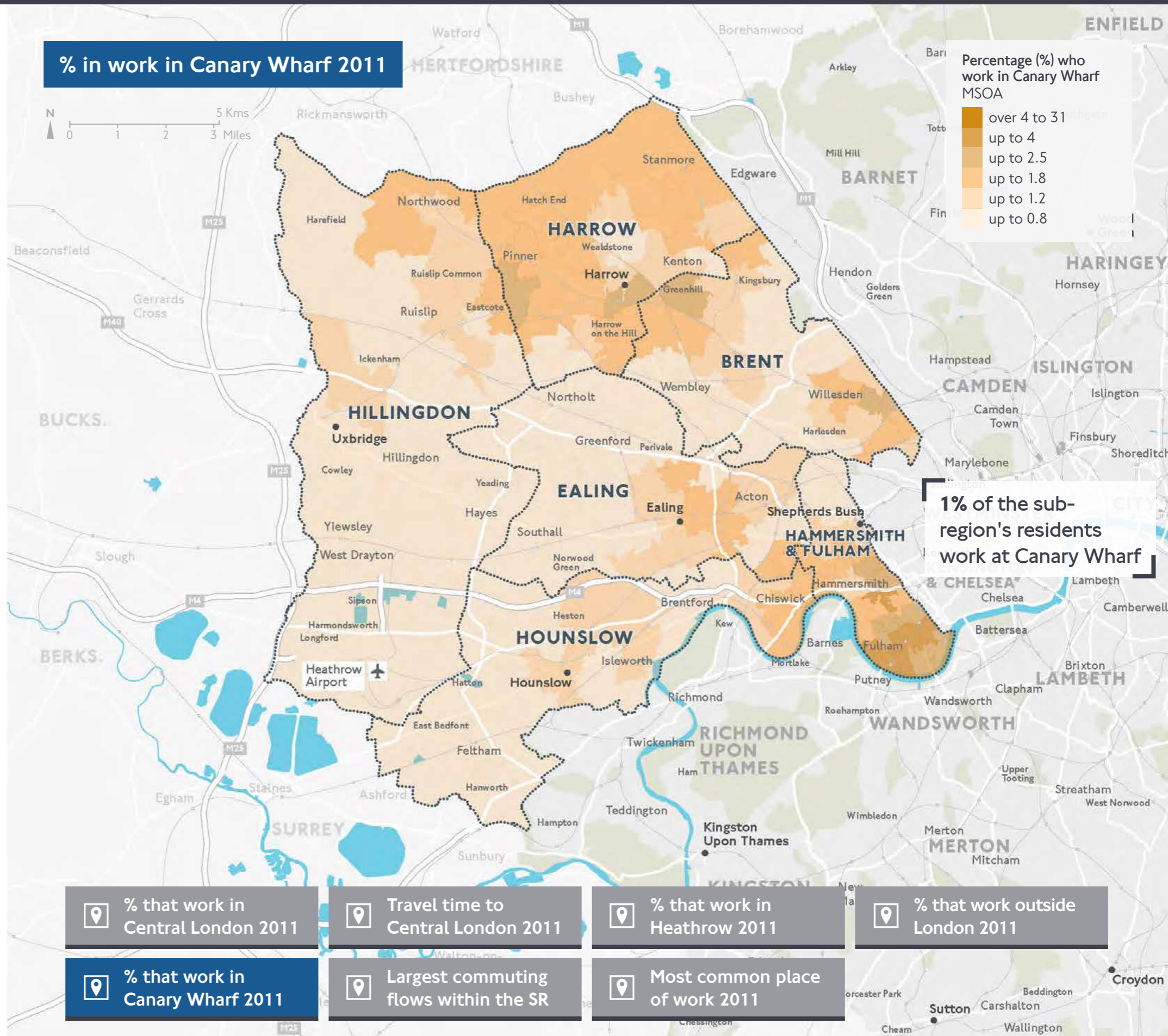


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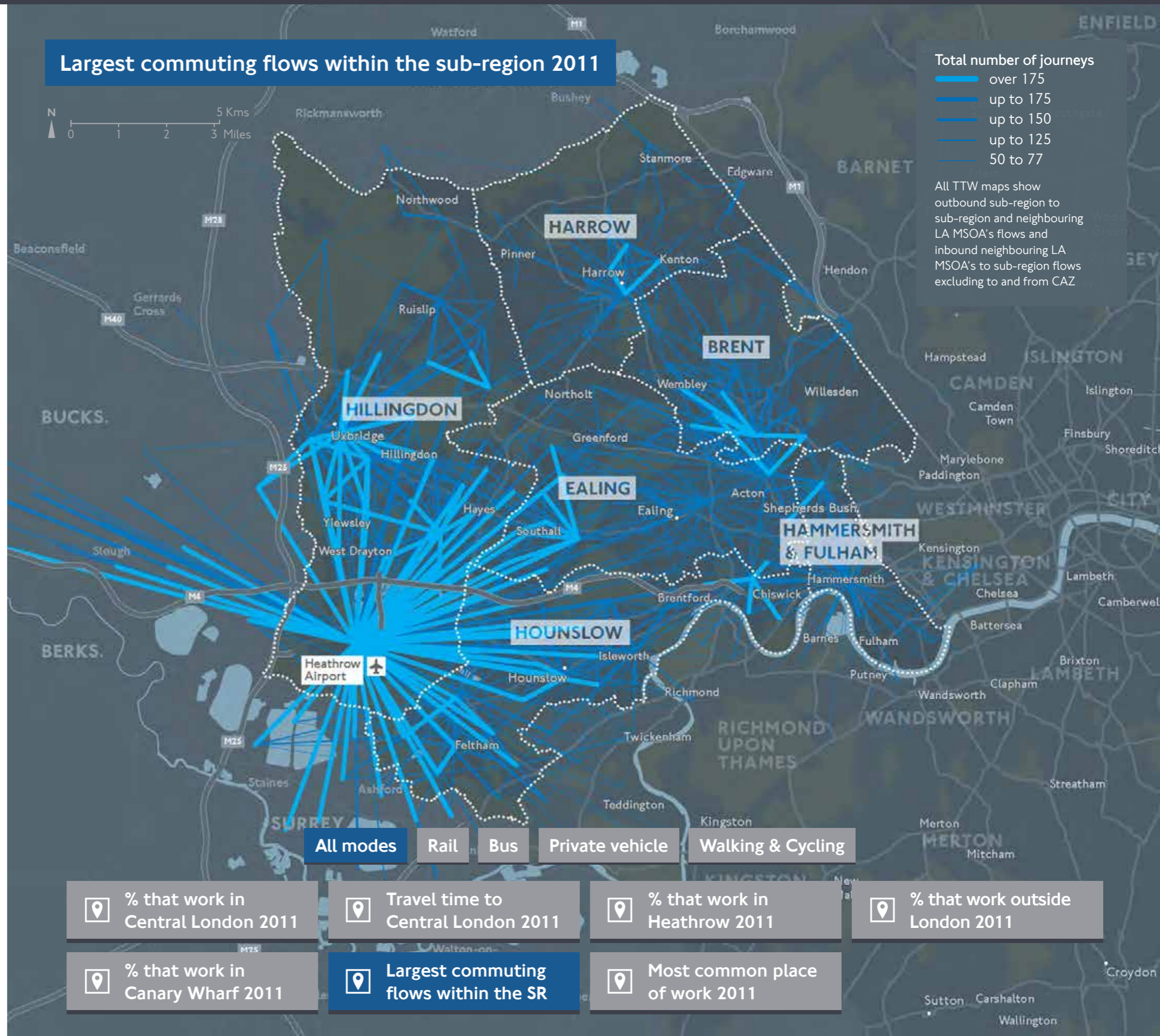
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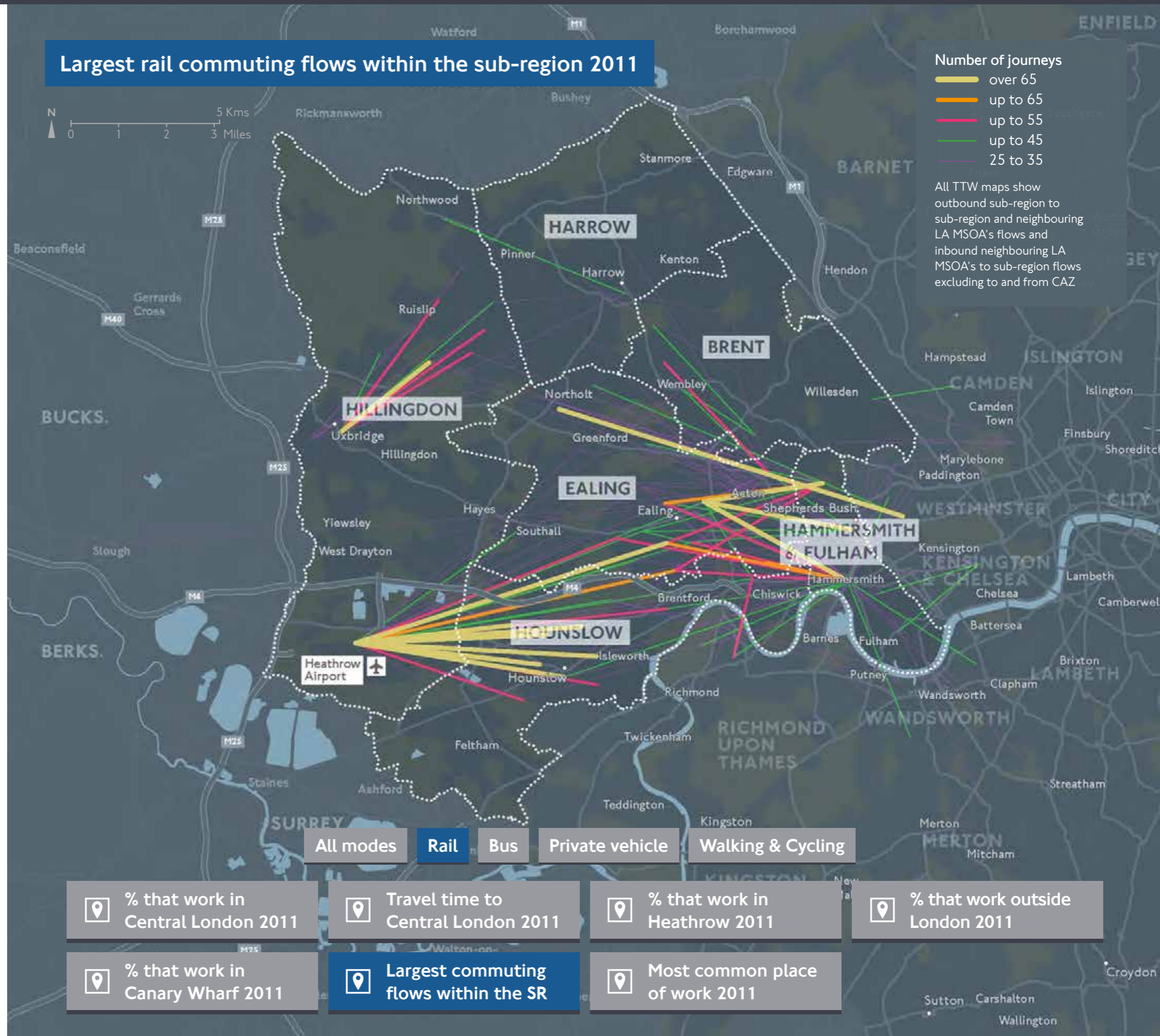




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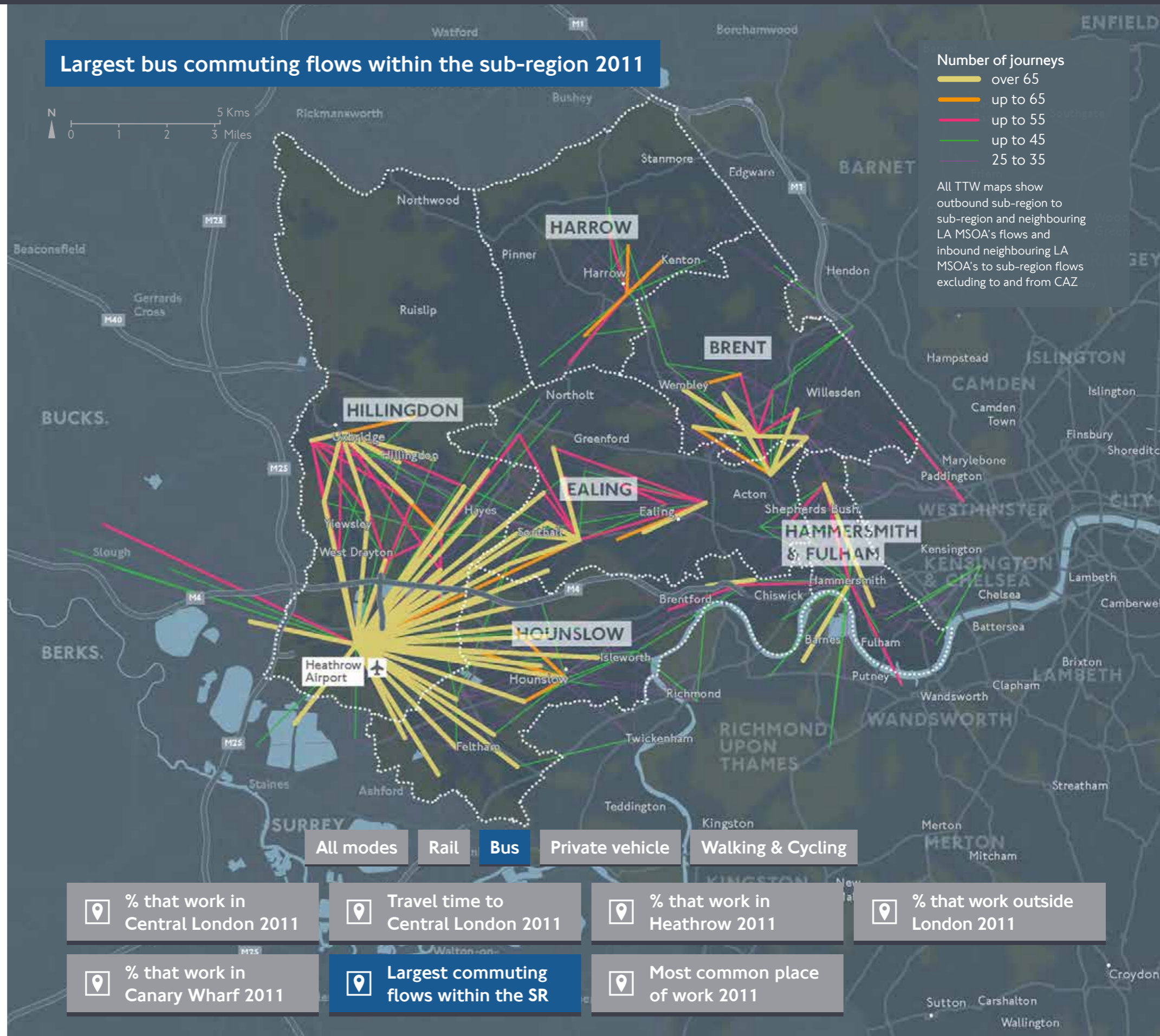
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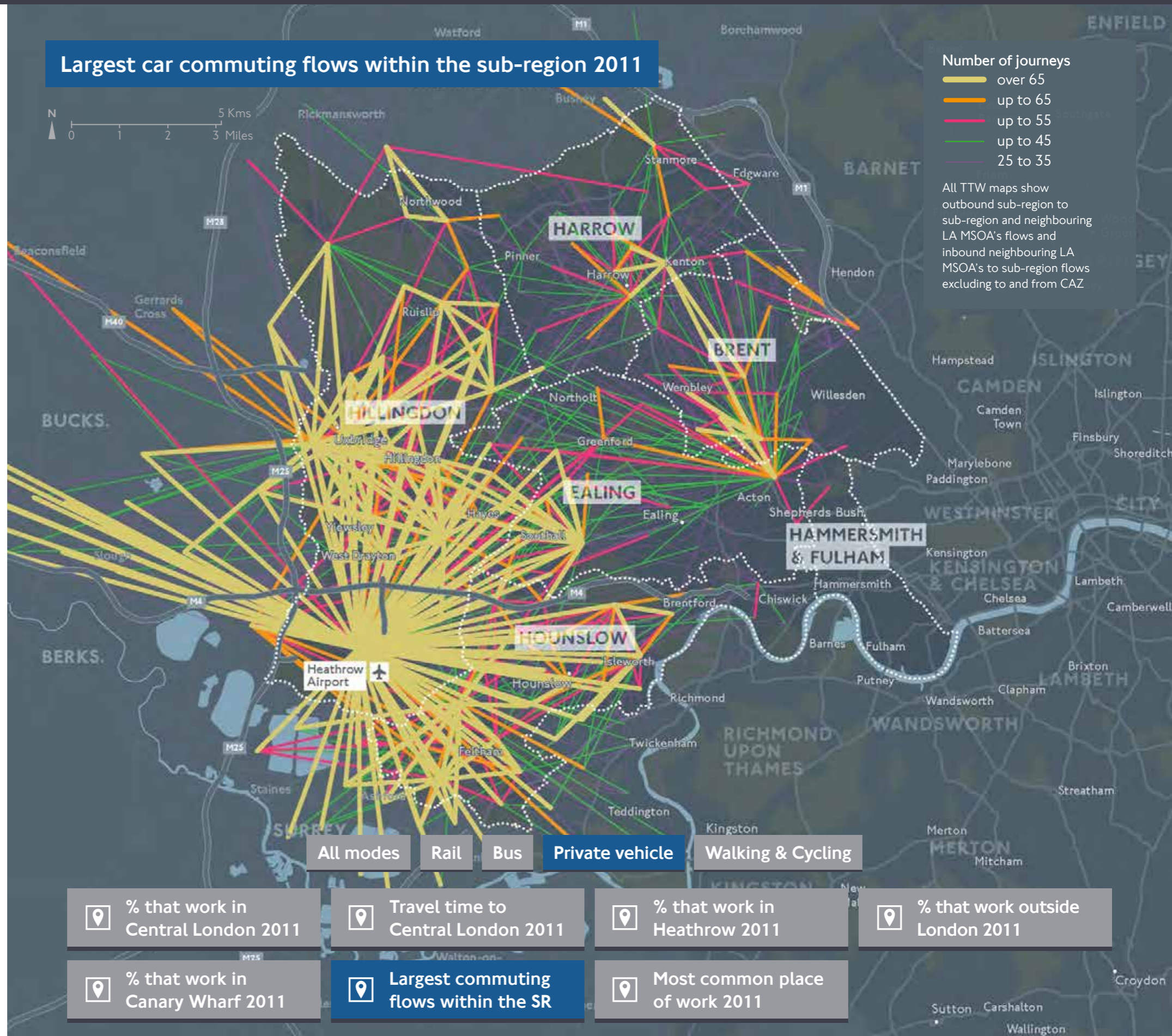
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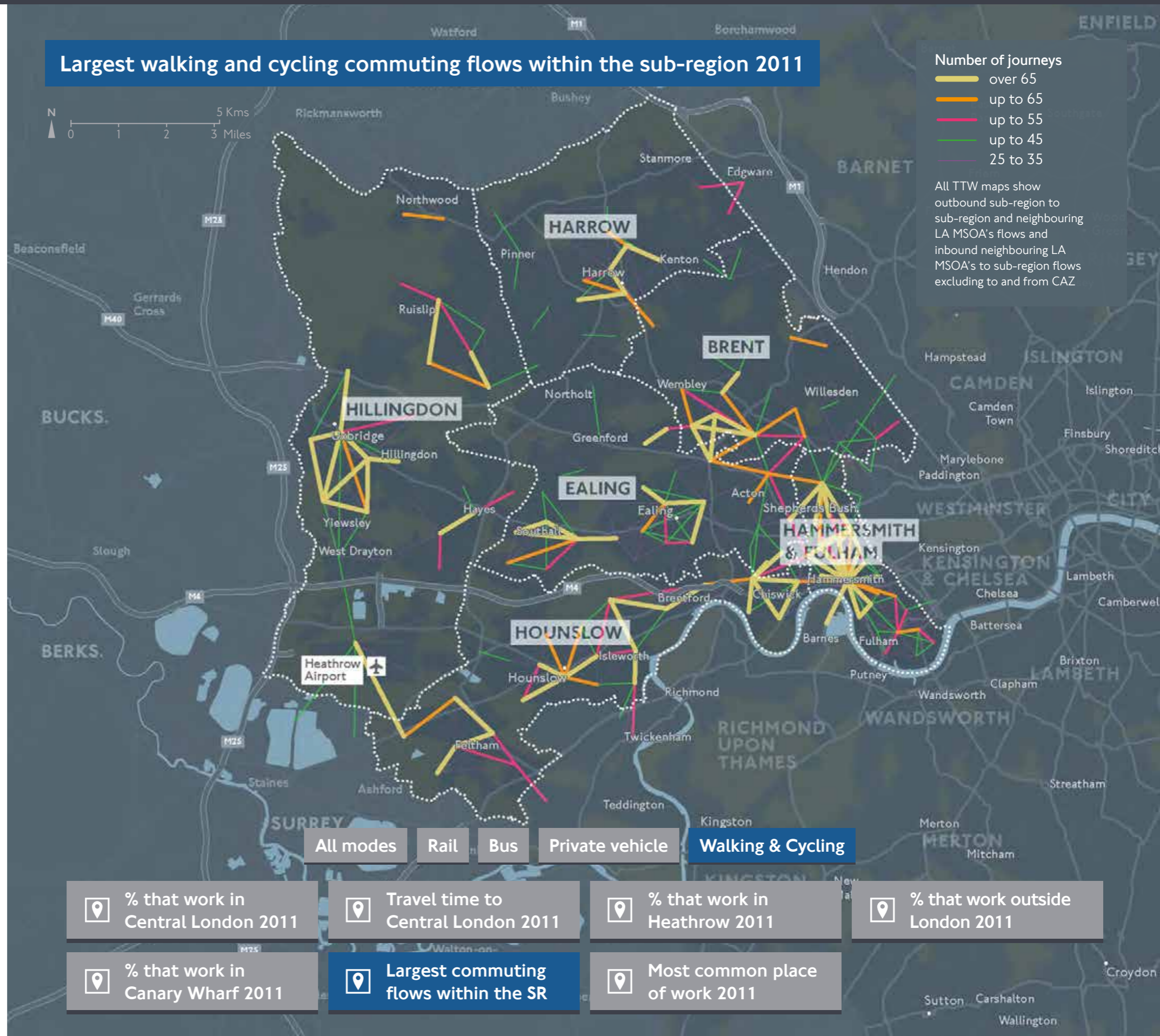
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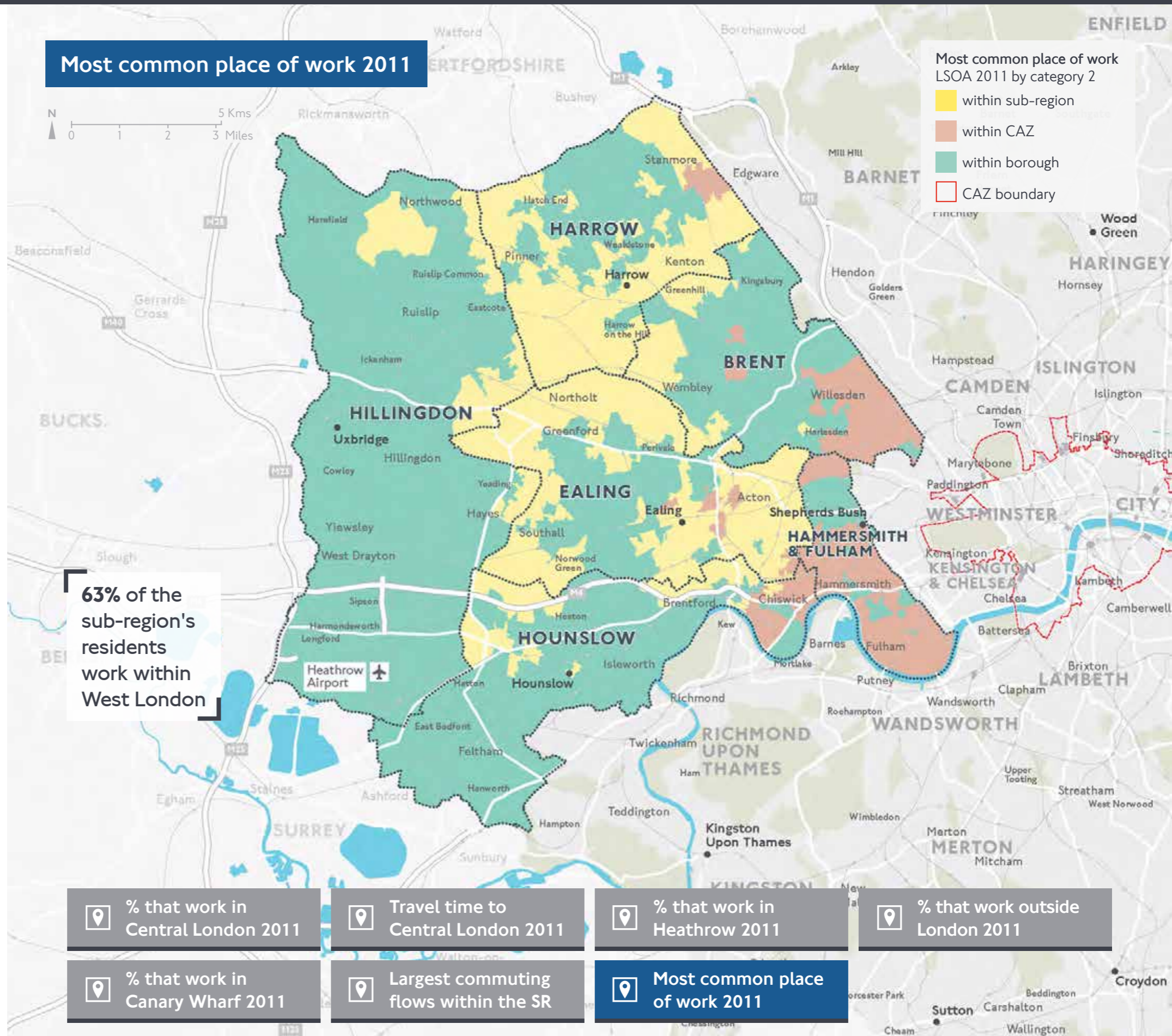
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There is significant variation in where residents commute to work. Whilst 16% of the sub-region works in central London, including a majority of residents in Hammersmith & Fulham and the inner areas of Brent, Ealing and Hounslow, the figure is the lowest for any of the five sub-regions, which demonstrates the strength of local employment opportunities available. 63% of West London's labour force works within the sub-region, within its town centres, business and industrial parks, or other locations.

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**More trips are being made by rail and bus across London as more people travel into central locations and the quality of service improves**

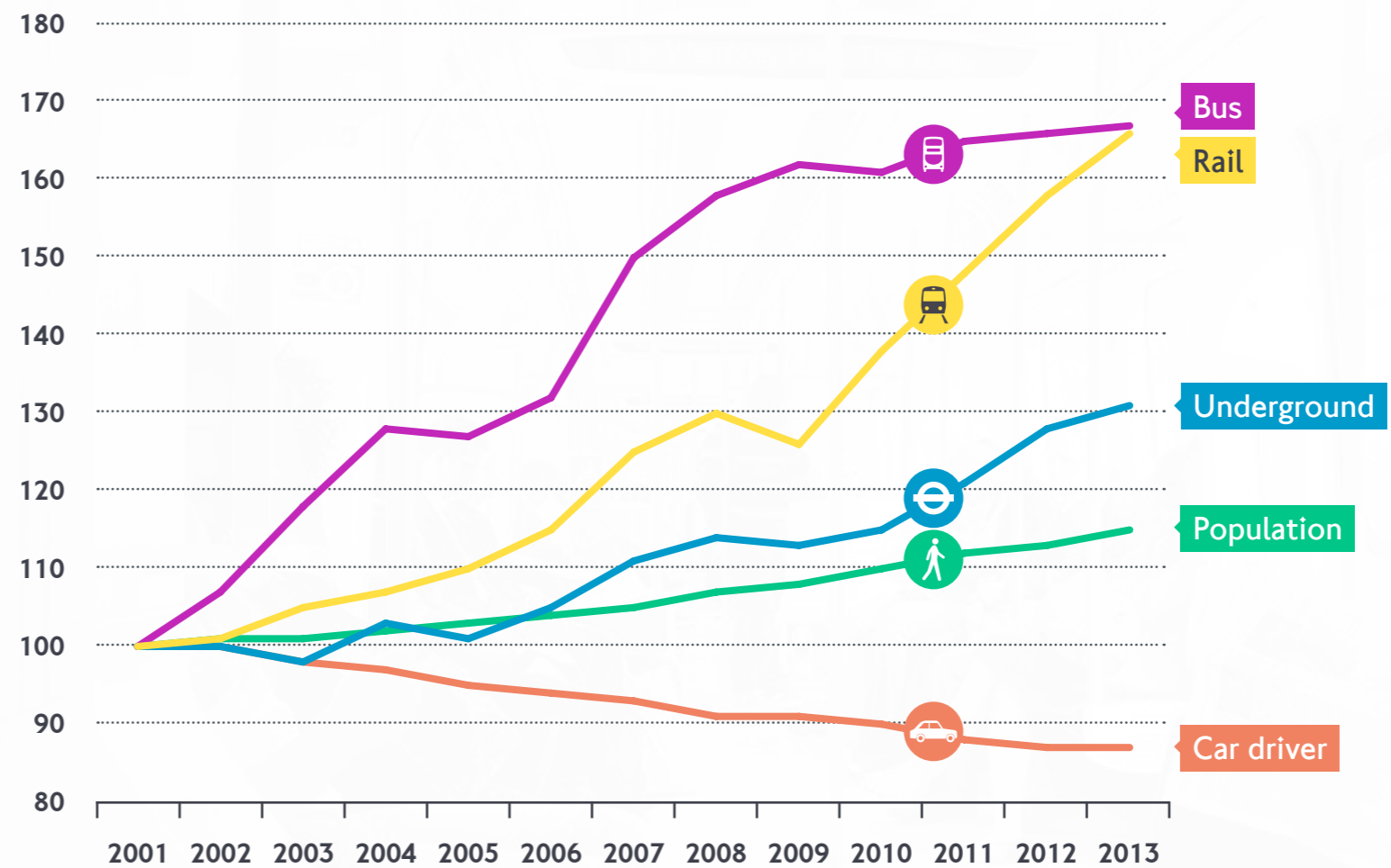
As employment has increasingly moved towards more central locations, which are typically most easily accessed by rail, there has been a strong growth in journeys made using National Rail and the Underground across London. Investment in service quality has also played a major part in this, with customer satisfaction levels across the Tube and London Overground now at historically high levels.

The number of journeys made by bus has also grown rapidly, particularly up to 2010 as significant investment in the network was made during the previous decade to increase frequency, reliability and service quality, although the number of trips by bus has now remained stable in recent years

Conversely, the number of trips made using the private car has fallen during the same period, as people have switched to public transport and active travel modes. The largest shift has been within Central and Inner London, although Outer London has also seen a decline in car use too. Further analysis of the reasons behind this is available in TfL's Drivers of Demand study: <https://tfl.gov.uk/cdn/static/cms/documents/drivers-of-demand-for-travel-in-london.pdf>.

**Growth in journey stages by mode 2001 – 2013**

Index 2000 = 100



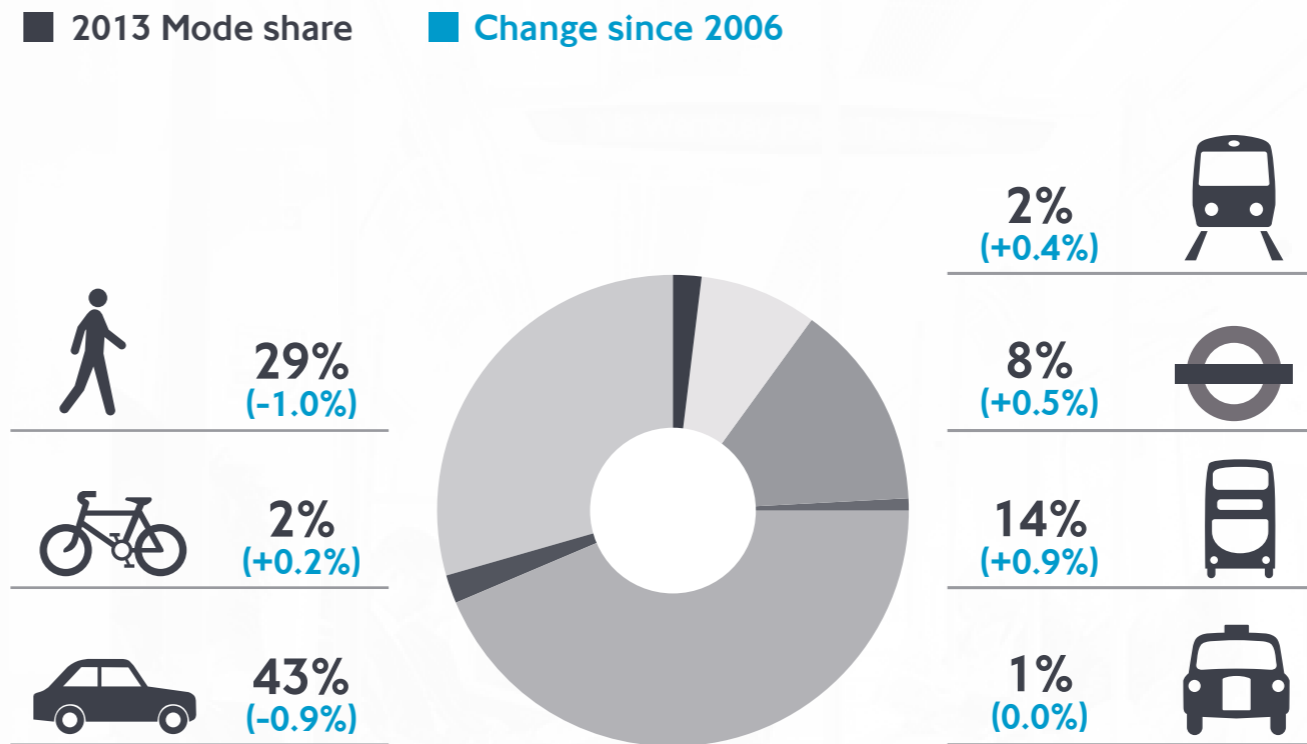
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Bus mode share has increased more than any other sub-region except the South, with notable growth in Brent, Ealing and Harrow, where the network plays a key role in supporting both radial and orbital journeys, particularly to town centres.

**Mode share 2013**

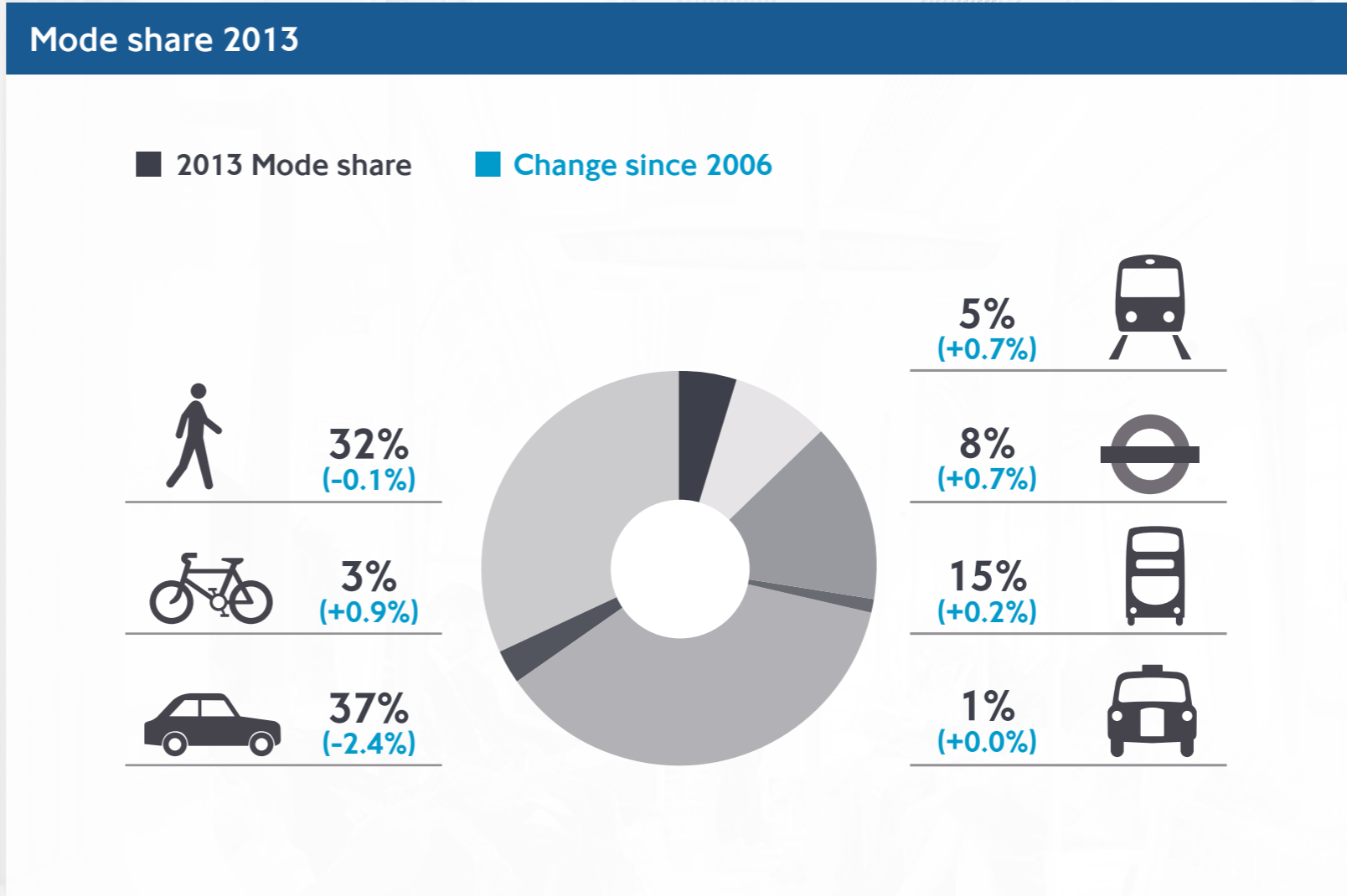


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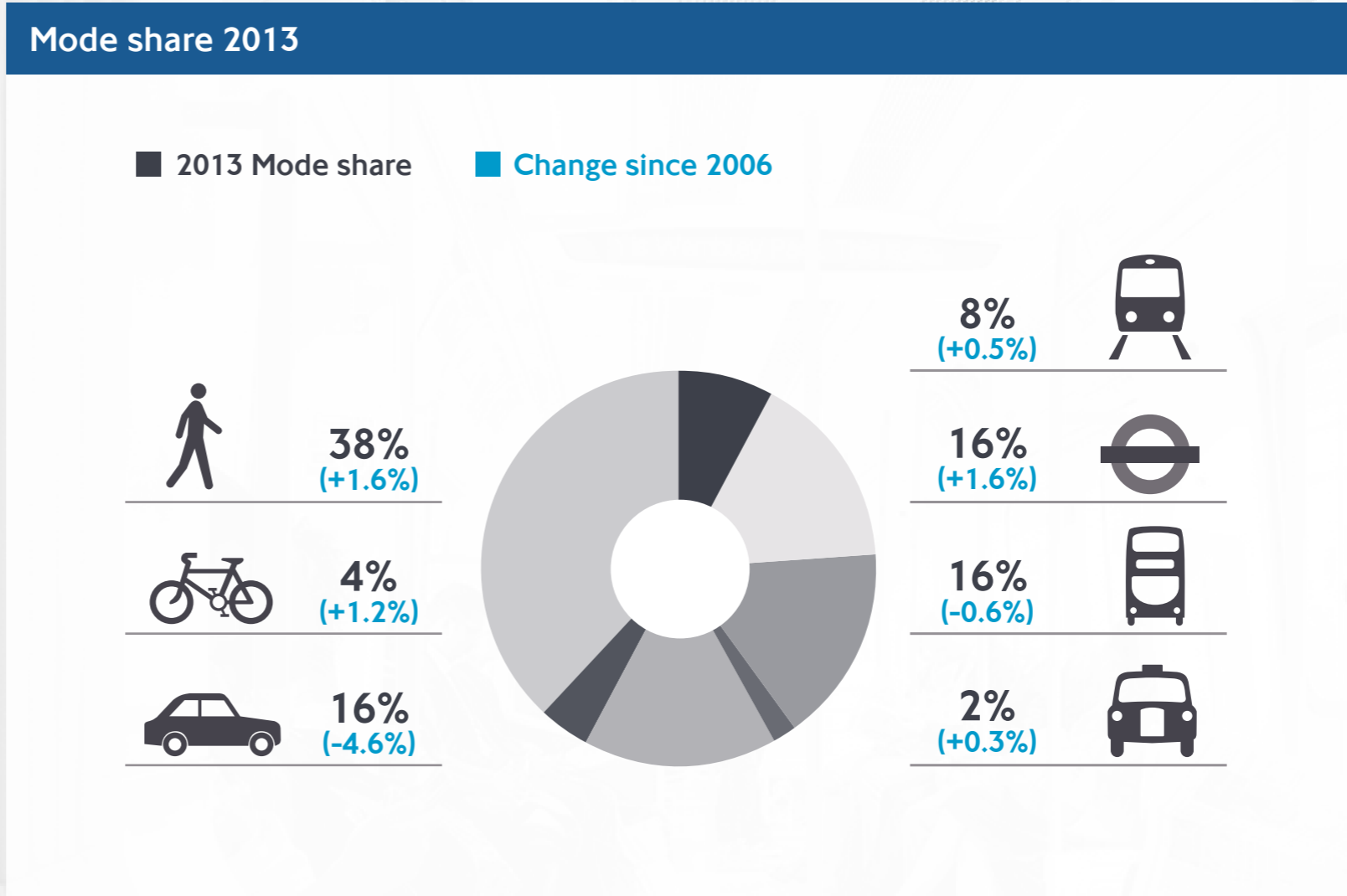


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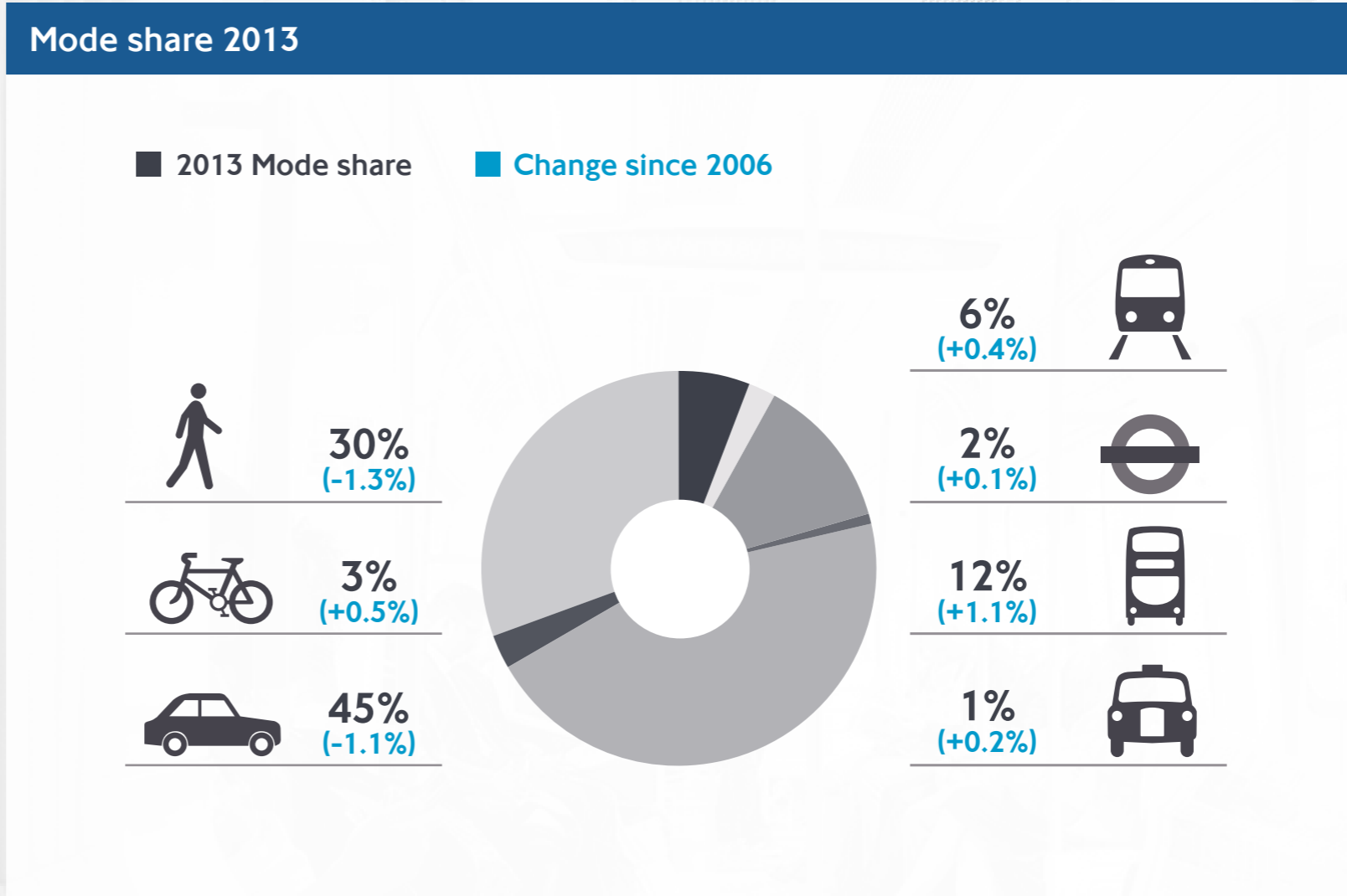


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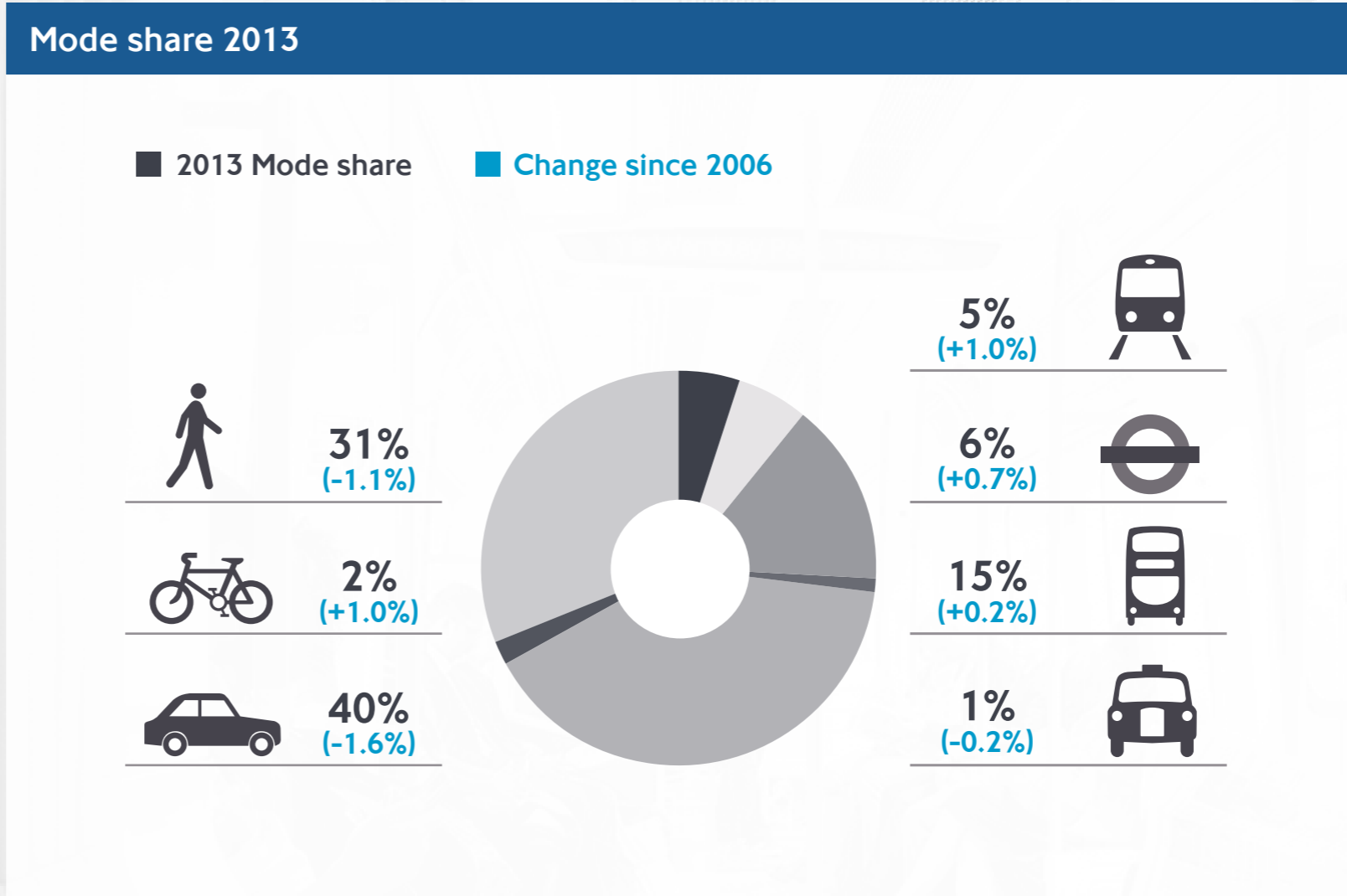


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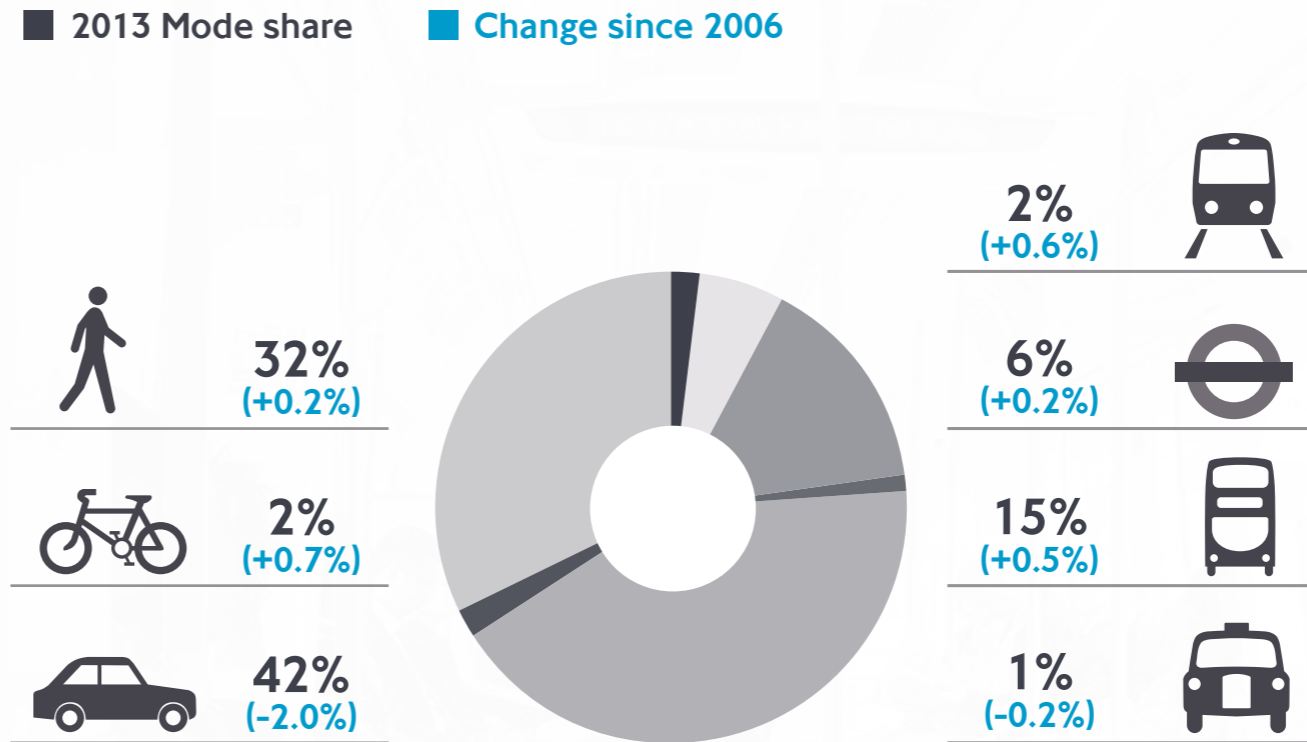
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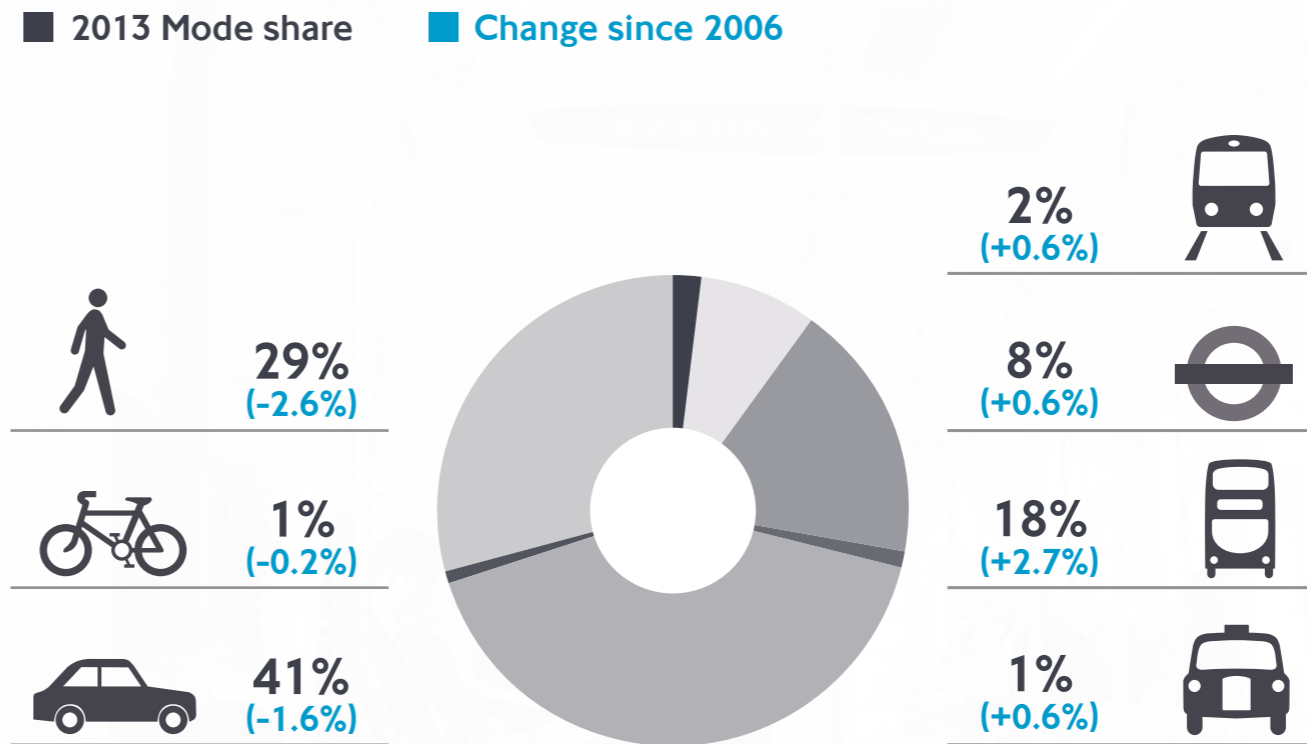
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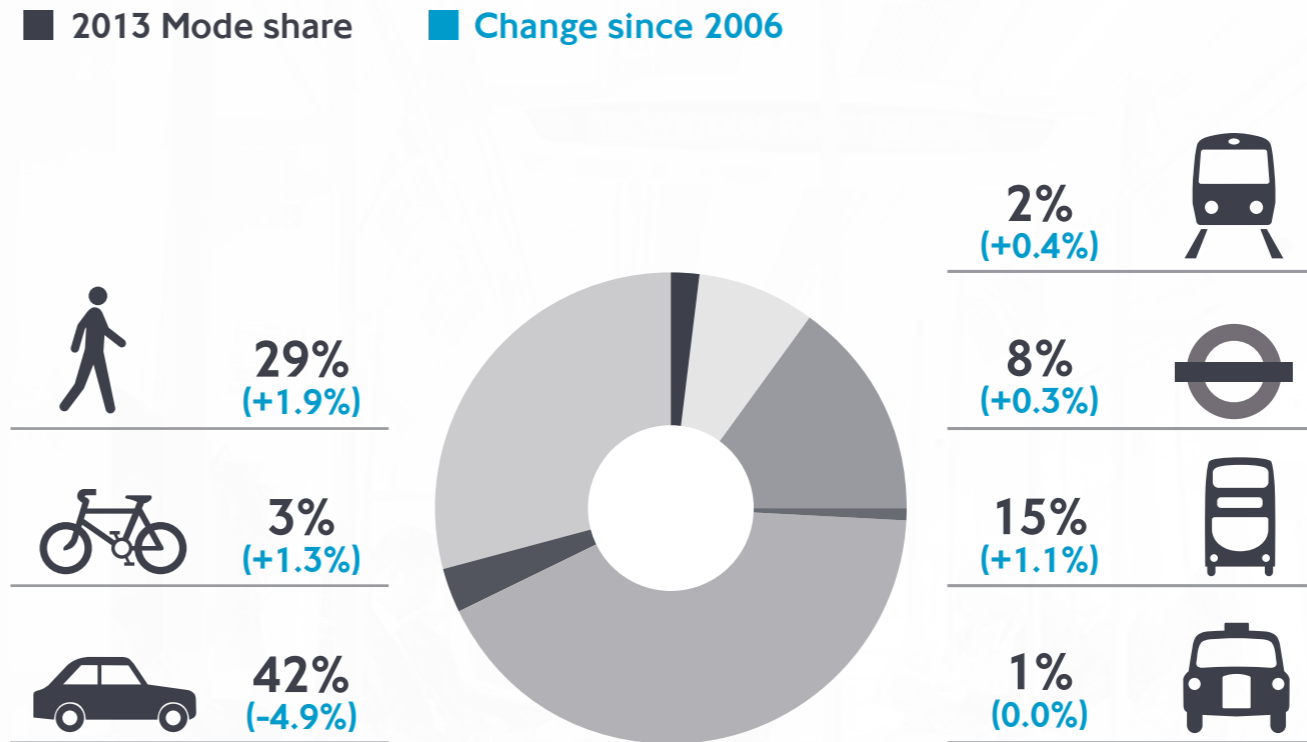
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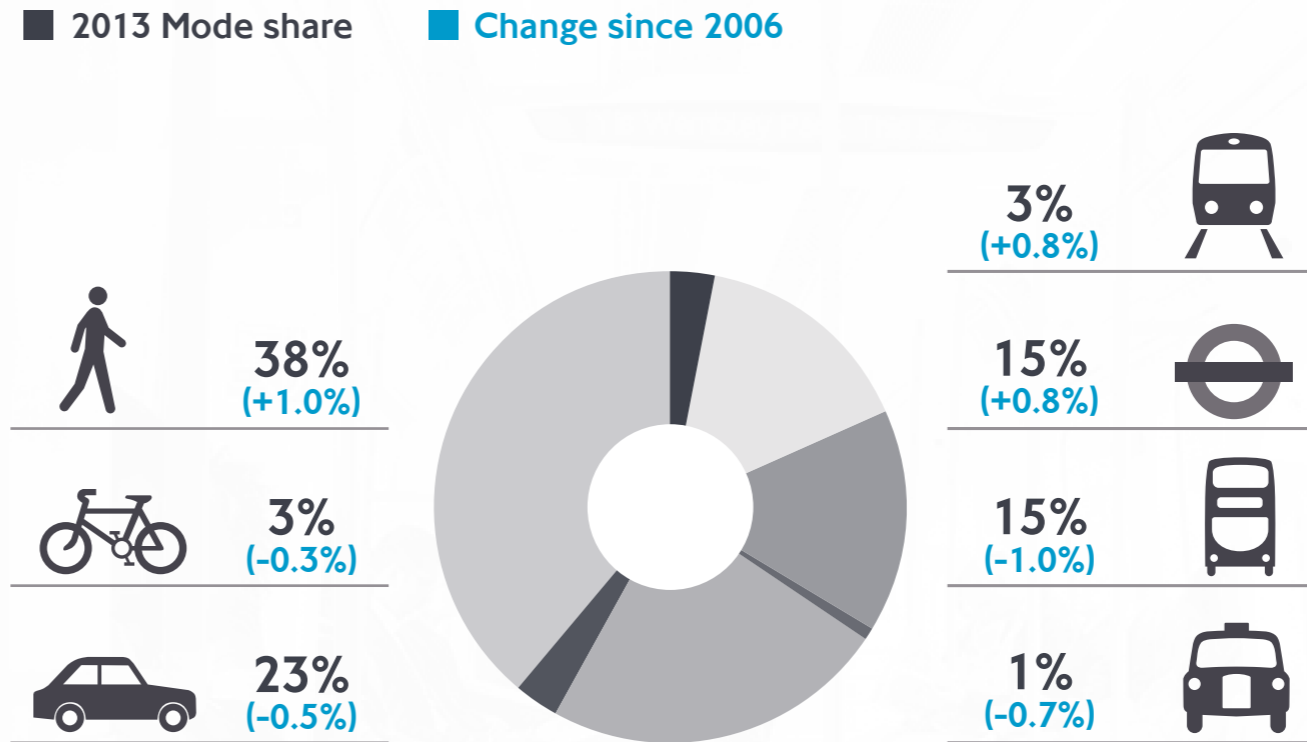
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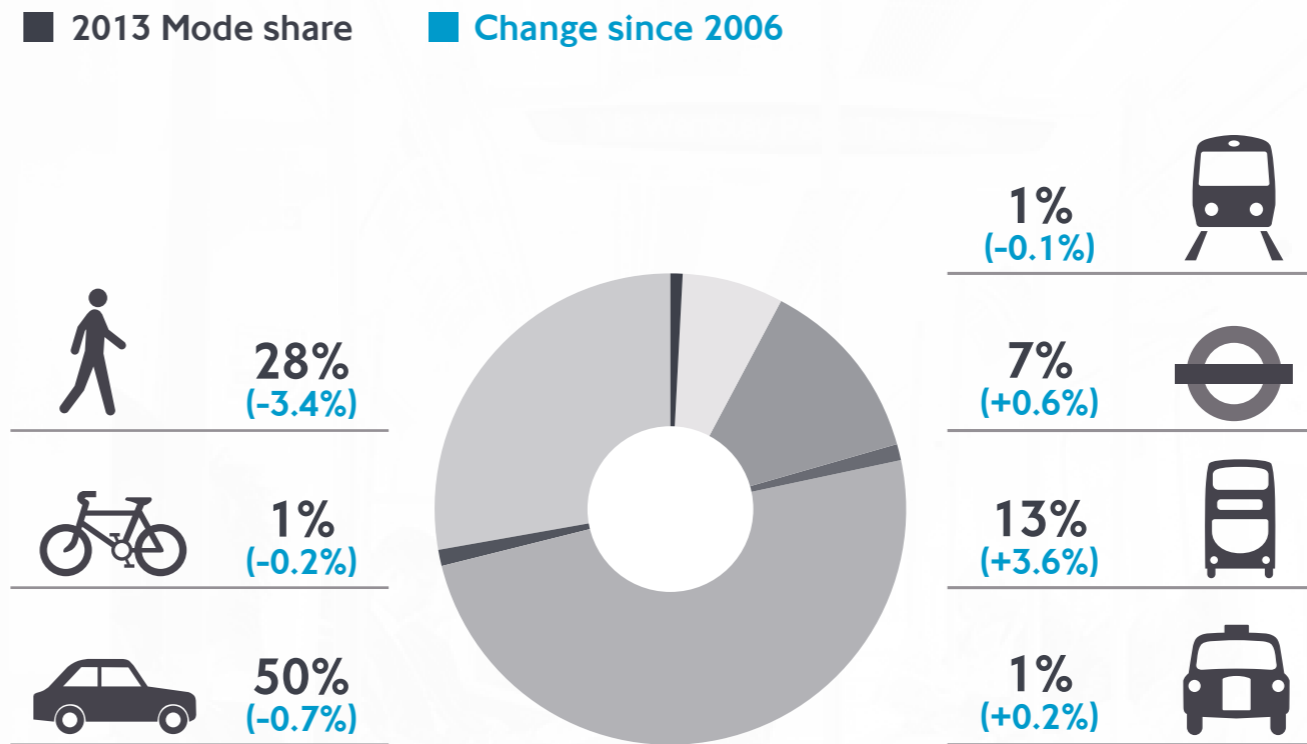
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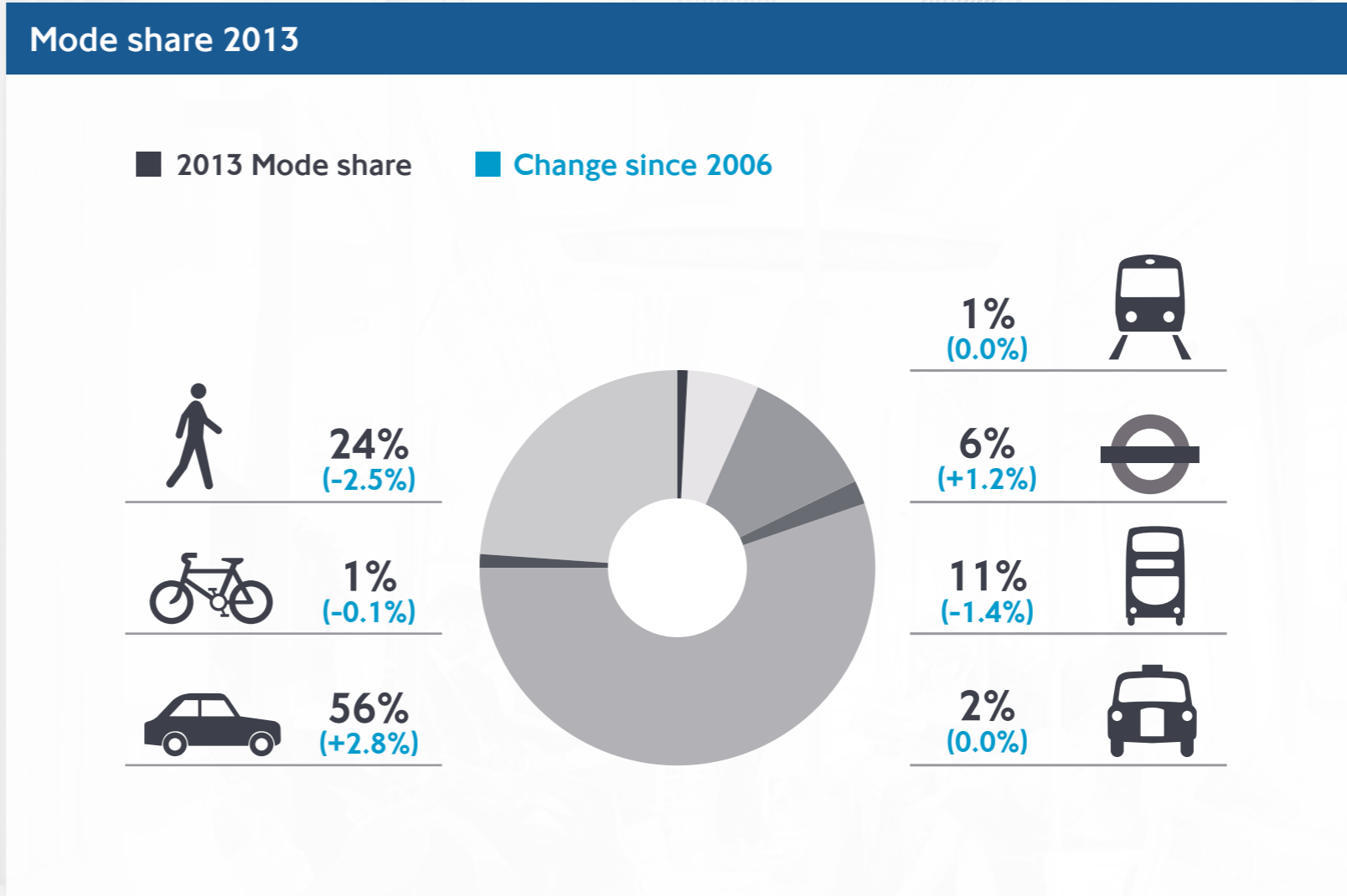


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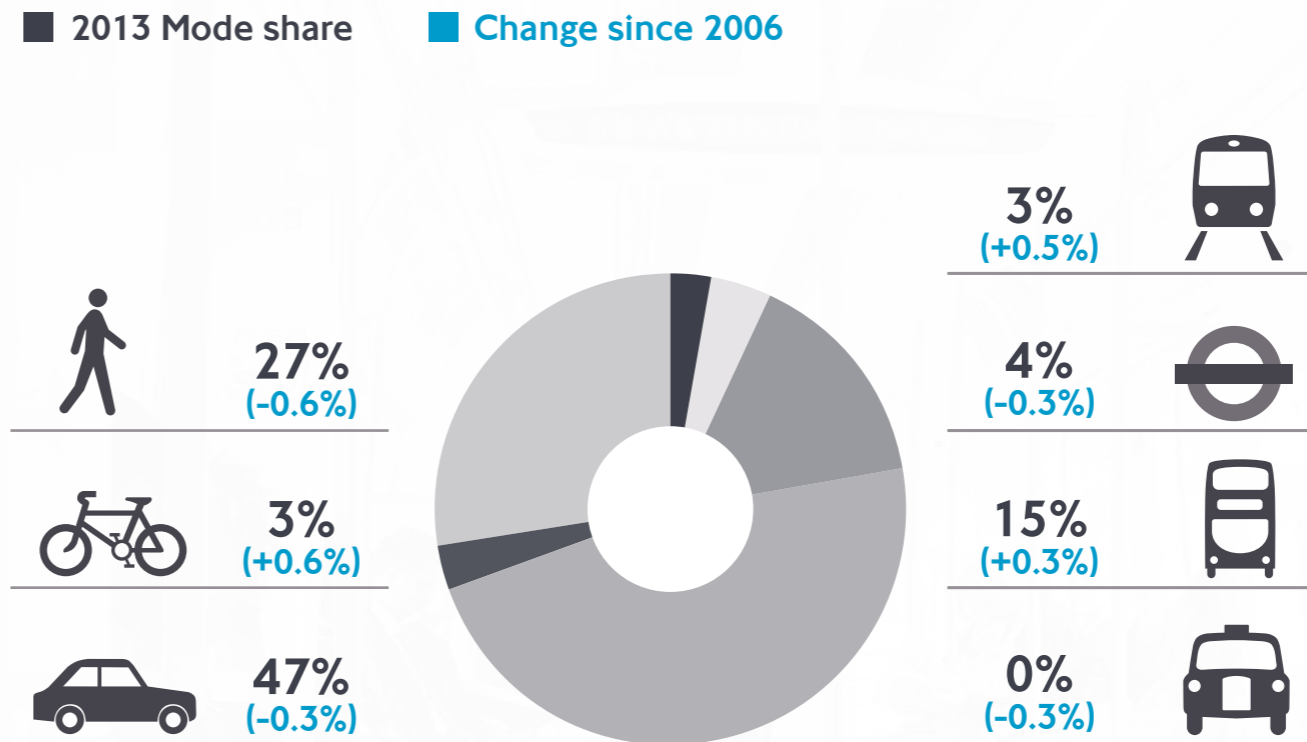
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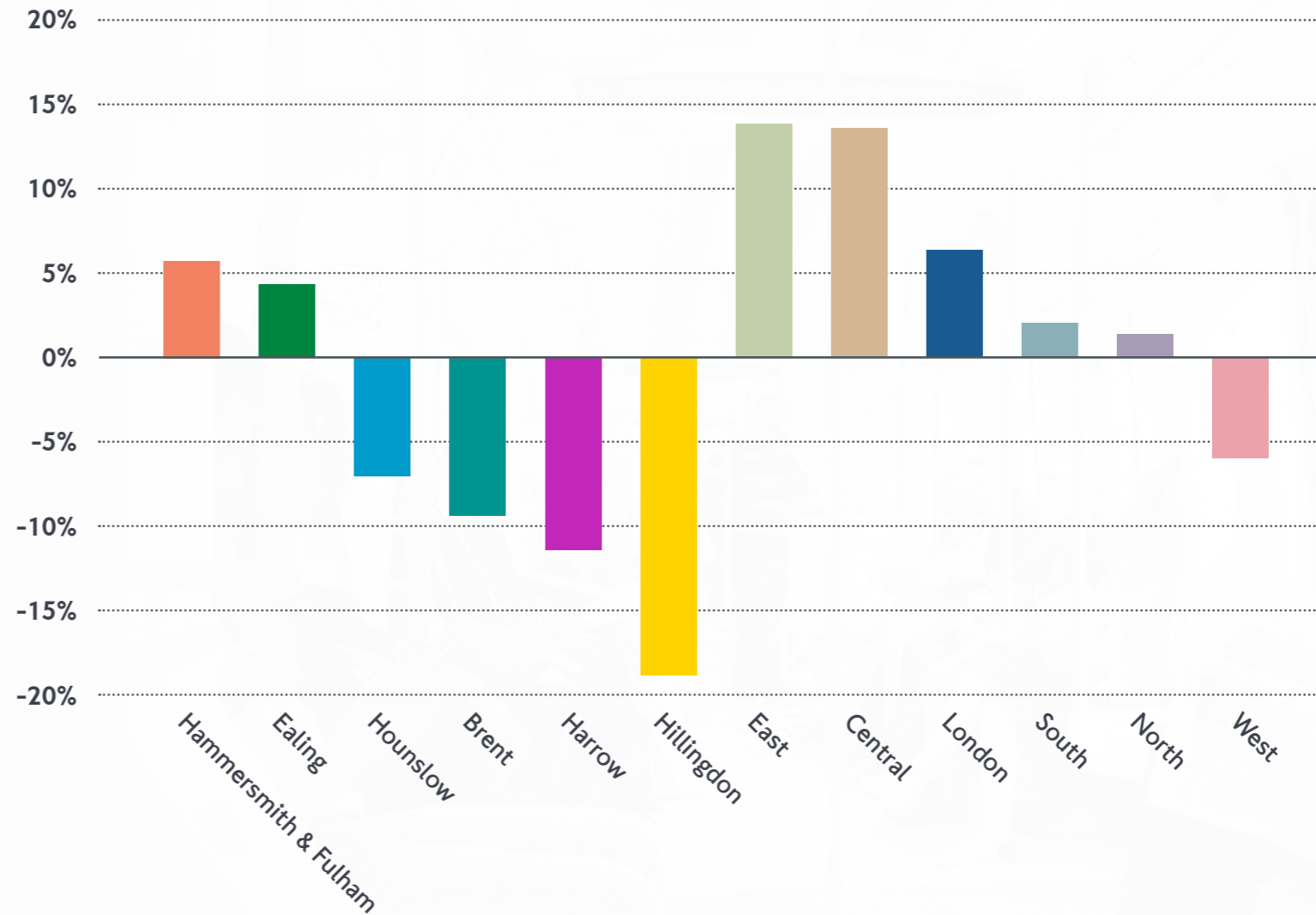
**Contrary to the rest of London, most Boroughs in the sub-region have seen a decline in the number of people walking and cycling**

Although the number of cycling trips grew by 55% between 2007/08 and 2012/13 across London as a whole, in the West the number of cycling trips increased by just 13%. Only Ealing and Hounslow saw an increase in the number of cycling trips, with a decline in all other Boroughs.

The picture is similar for walking trips, which grew by 6.4% in London during the same period, but in the West the number of walking trips declined by 6%, the largest decline of any sub-region. Walking mode share is now the lowest in London.

Enabling the sub-region's residents to make their journeys by cycling and walking will be key to reducing highway congestion as the population continues to grow. Key to this will be the provision of an extensive network of cycle routes to allow simpler and safer access to and around London and local town centres.

**Change in walking trips 2007/08 – 2012/13**



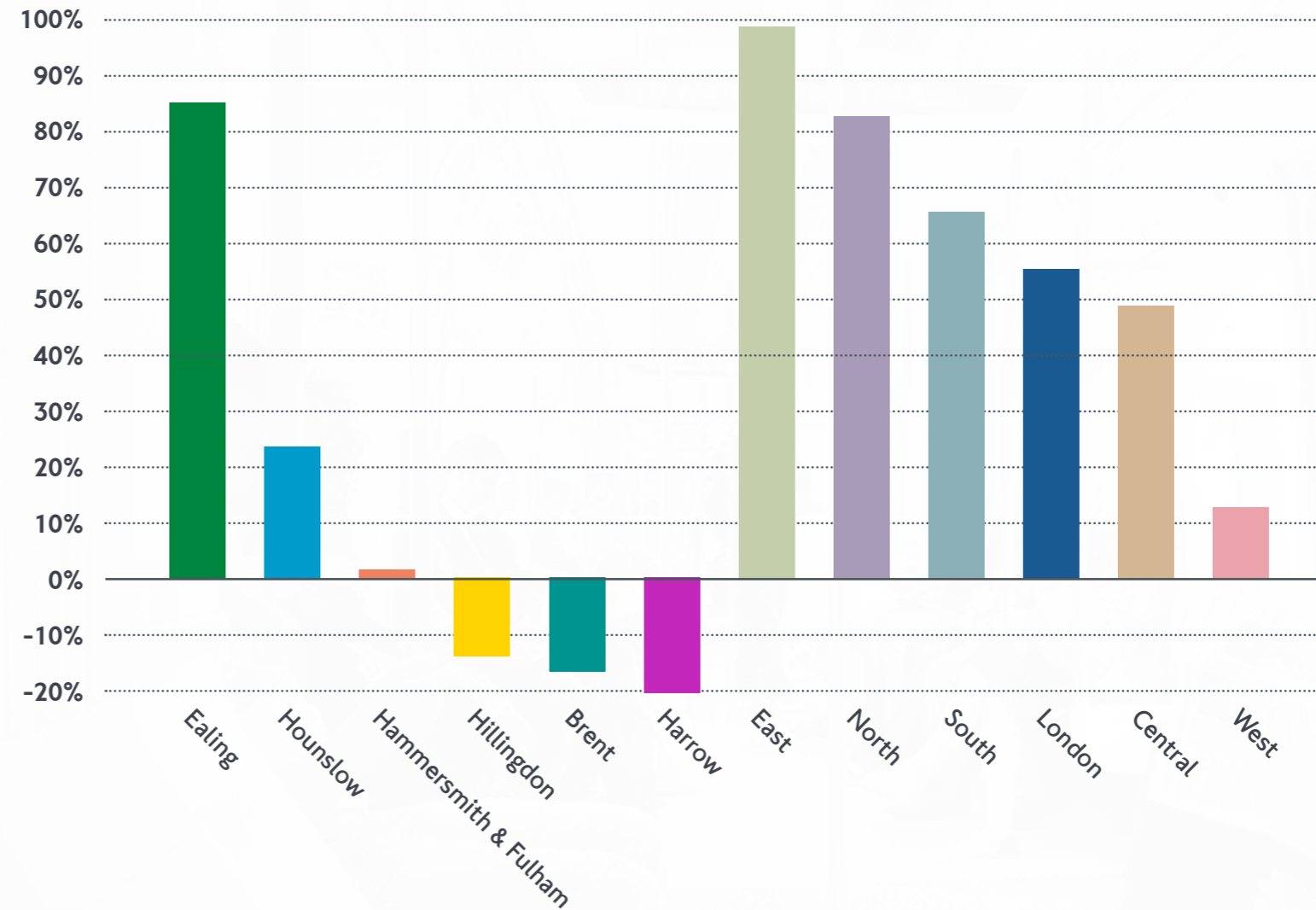
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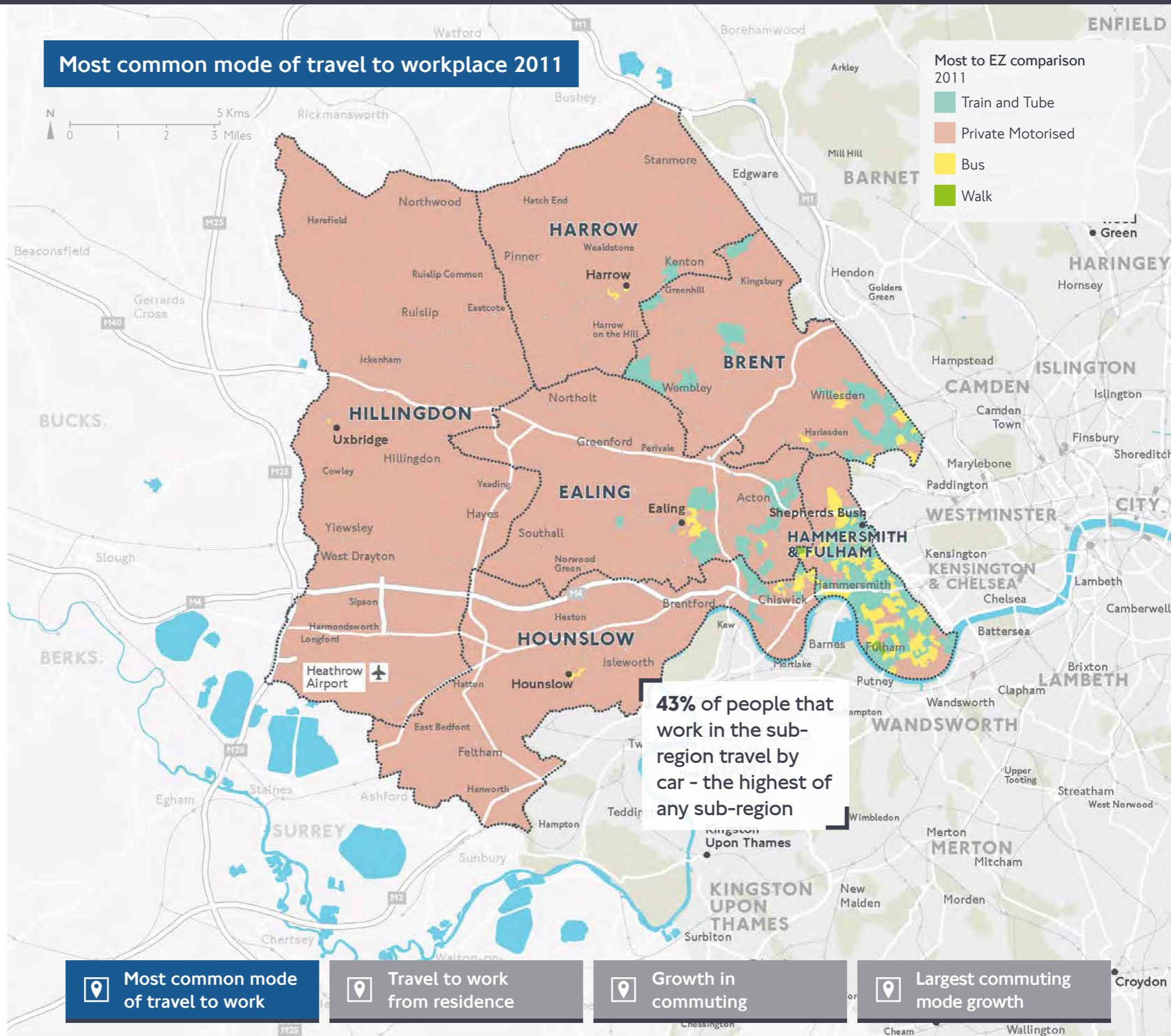
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**Car is still the dominant mode used to travel to work in the sub-region, although bus and train are playing a larger role**

The car is still the dominant mode used to travel to work across much of the sub-region. Most people travel to workplaces in West London by car, although the majority of businesses in Hammersmith and Fulham, as well as the town centres at Hounslow, Ealing and Harrow, are reached by bus or train (including Underground). There has been strong growth in the number of journeys to work by train and Tube, particularly along key radial rail corridors through Brent, Ealing, Harrow and Hounslow, with people working in Central London.

There has also been a strong growth in bus journeys, particularly around Heathrow and Hounslow town centre and in Brent. These are places which have seen strong population growth, but where the rail network does not always cater for shorter trips to employment in town centres, industrial areas and business parks. The number of commuting trips by car has decreased across parts of West London, particularly in more central locations such as Hammersmith and Fulham and Ealing town centre, although there has been growth in other parts, notable around Hillingdon and Hounslow.



**Most common mode of travel to workplace 2011**

Most to EZ comparison 2011

- Train and Tube
- Private Motorised
- Bus
- Walk

**43% of people that work in the sub-region travel by car - the highest of any sub-region**

📍 **Most common mode of travel to work**

📍 **Travel to work from residence**

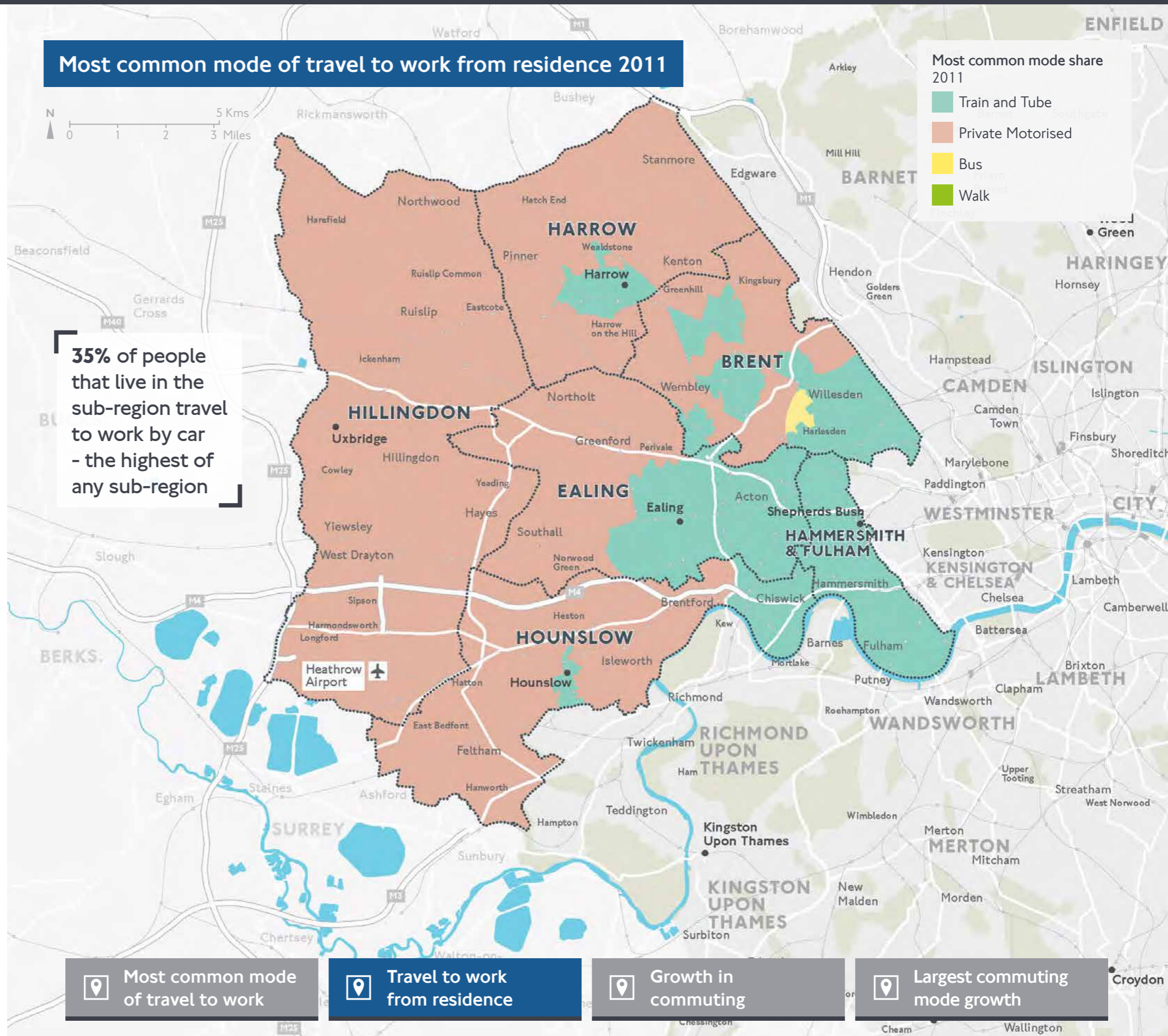
📍 **Growth in commuting**

📍 **Largest commuting mode growth**

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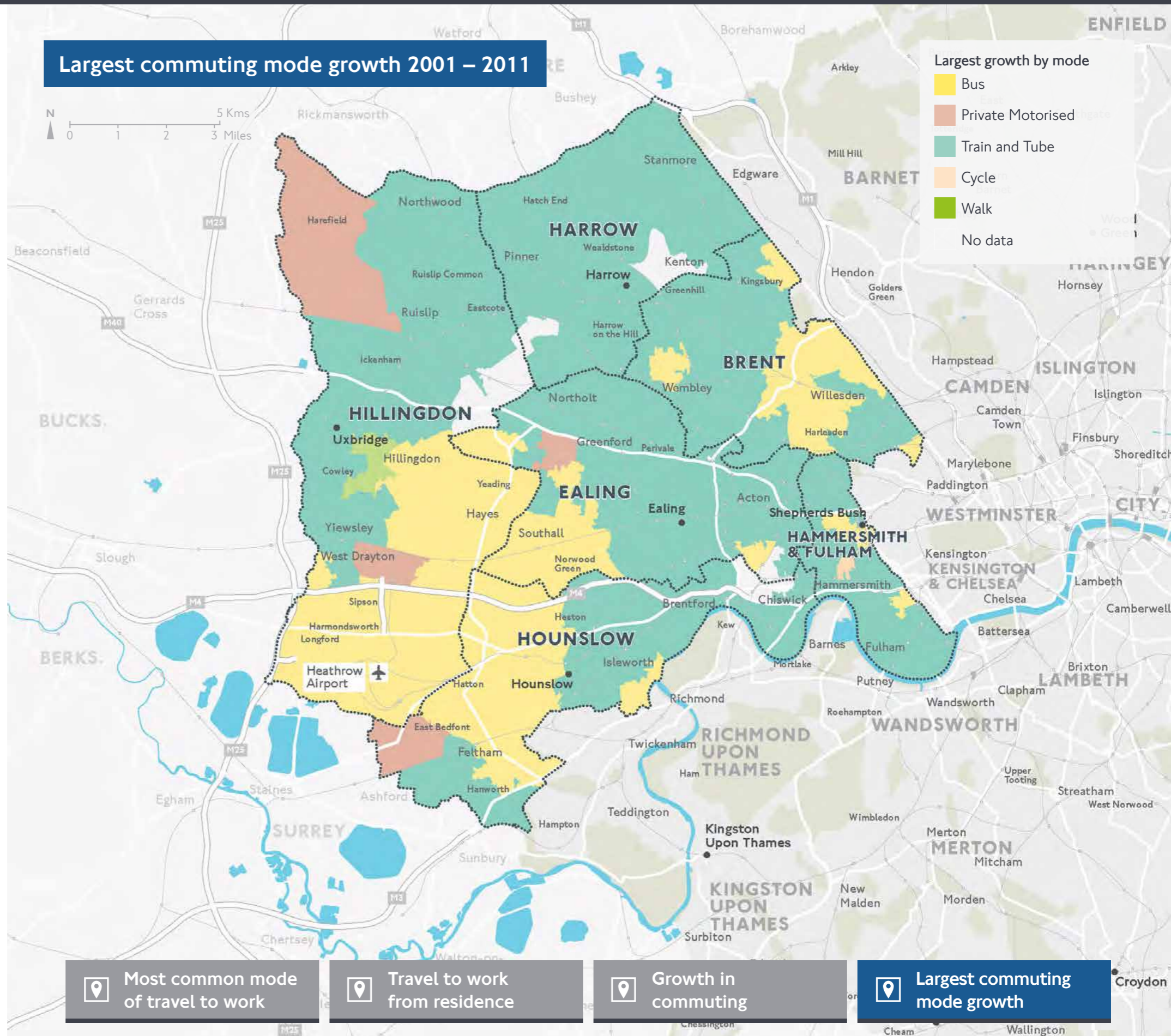




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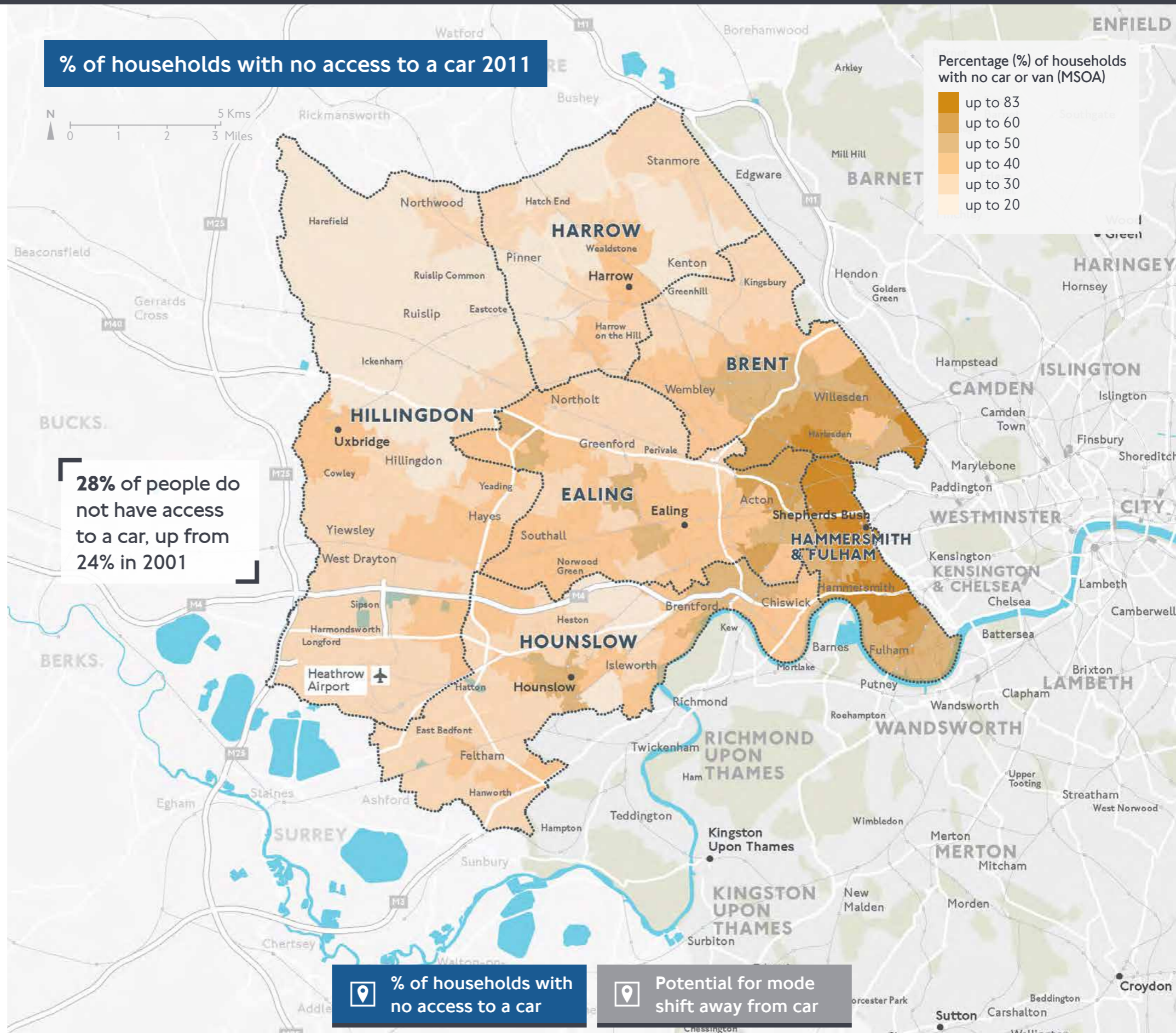
**Car availability is declining as people switch modes. Potential exists for further mode shift, particularly in more central areas**

Levels of car ownership vary quite significantly across the sub-region. Hammersmith & Fulham has the lowest levels of car ownership, with more than half its residents not owning a car, primarily due to its more central location, greater availability of public transport services and limited space allocated to parking.

Large parts of Brent and Ealing also have relatively low levels of car ownership, mostly in areas with good access to public transport. Car ownership levels are highest in Hillingdon.

As residents have switched to public transport, car ownership levels have declined across all Boroughs, but particularly in Hammersmith and Fulham and Brent, which have seen the greatest mode shift to bus and rail.

There is still significant potential for further mode shift away from the car, particularly in Hammersmith and Fulham, Ealing and parts of Hounslow and Brent.



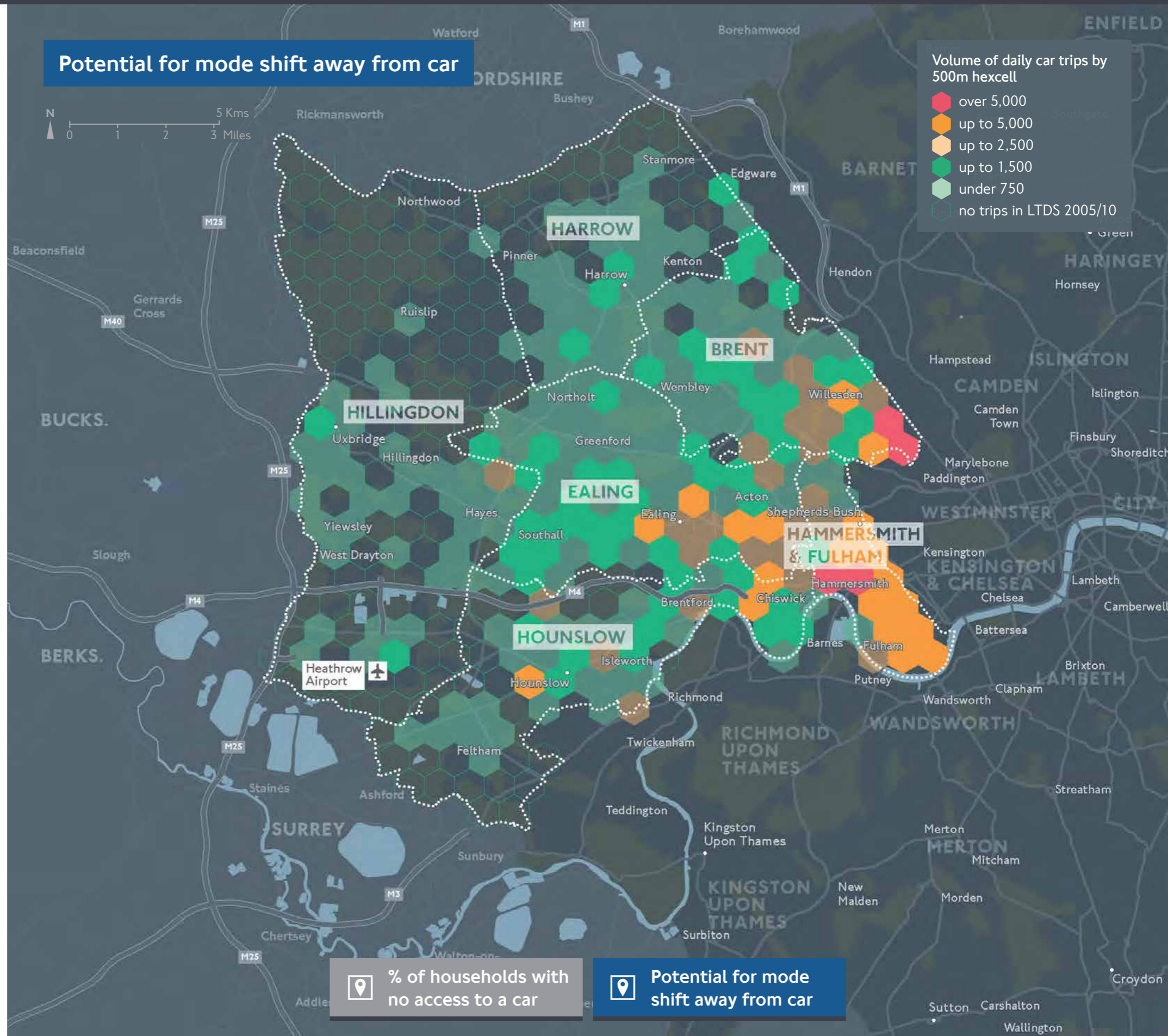
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Potential for mode shift away from car

Volume of daily car trips by 500m hexcell

- over 5,000
- up to 5,000
- up to 2,500
- up to 1,500
- under 750
- no trips in LTDS 2005/10

● % of households with no access to a car

● Potential for mode shift away from car

# Network capacity and connectivity >



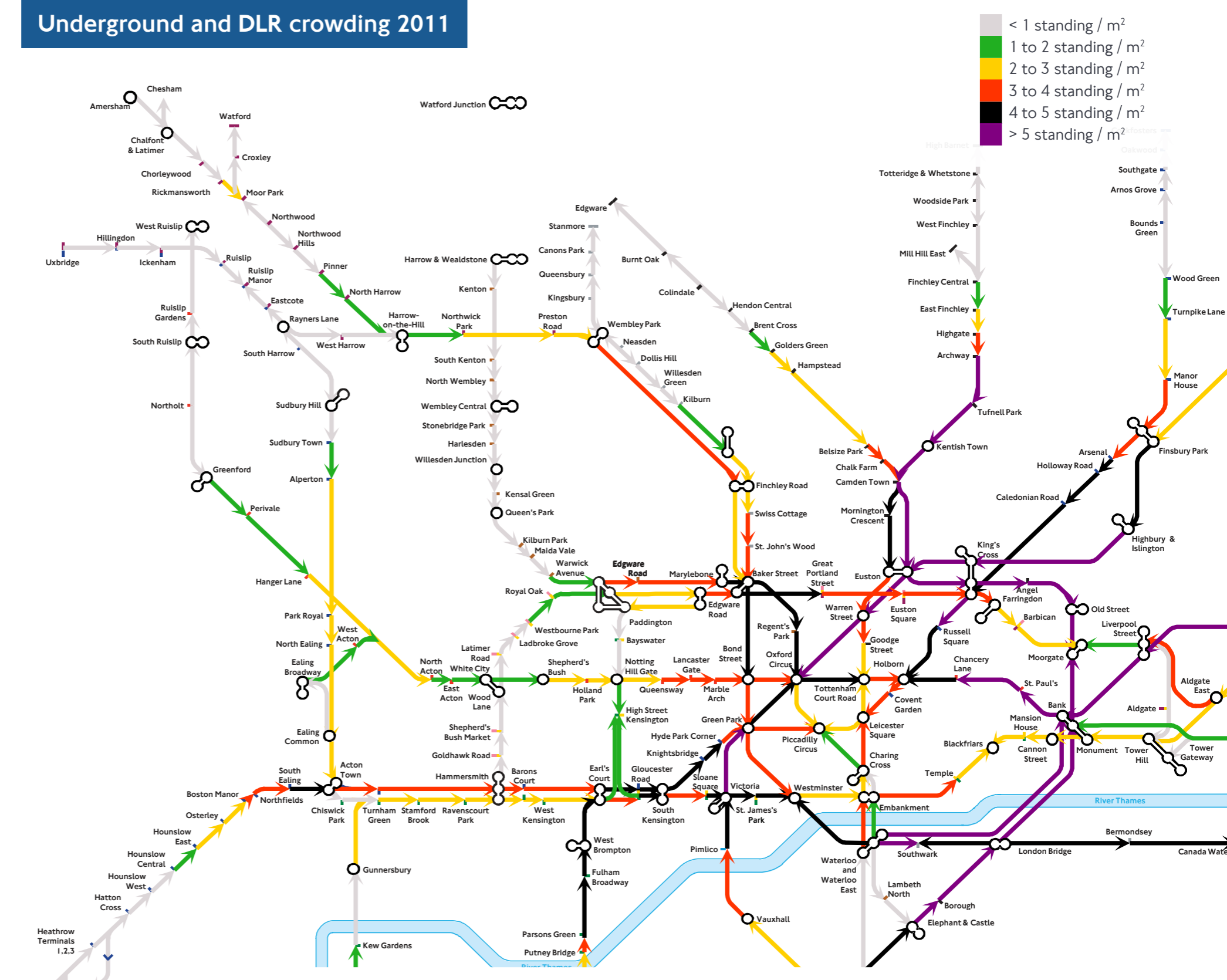
**Although there is sufficient capacity on the rail network at present, low frequency services on National Rail lines may hold back growth**

West London is generally well served by the London Underground network. Crowding levels are generally low within much of the sub-region, but increase as trains approach central London on the Metropolitan, Piccadilly, Central and District lines.

There are a number of radial National Rail routes in the sub-region, with crowding levels relatively low for suburban stopping services. However, National Rail services generally do not provide as frequent a service as the Underground. Frequency is a key component of the overall perception of the quality of service and low levels of frequency can make an area seem less connected, therefore restricting the potential for future housing and employment growth.

Improving the frequency and quality of service of National Rail lines will be key to maximising the growth potential of the sub-region.

**Underground and DLR crowding 2011**



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**National Rail crowding 2011**

**Station frequency 2015**





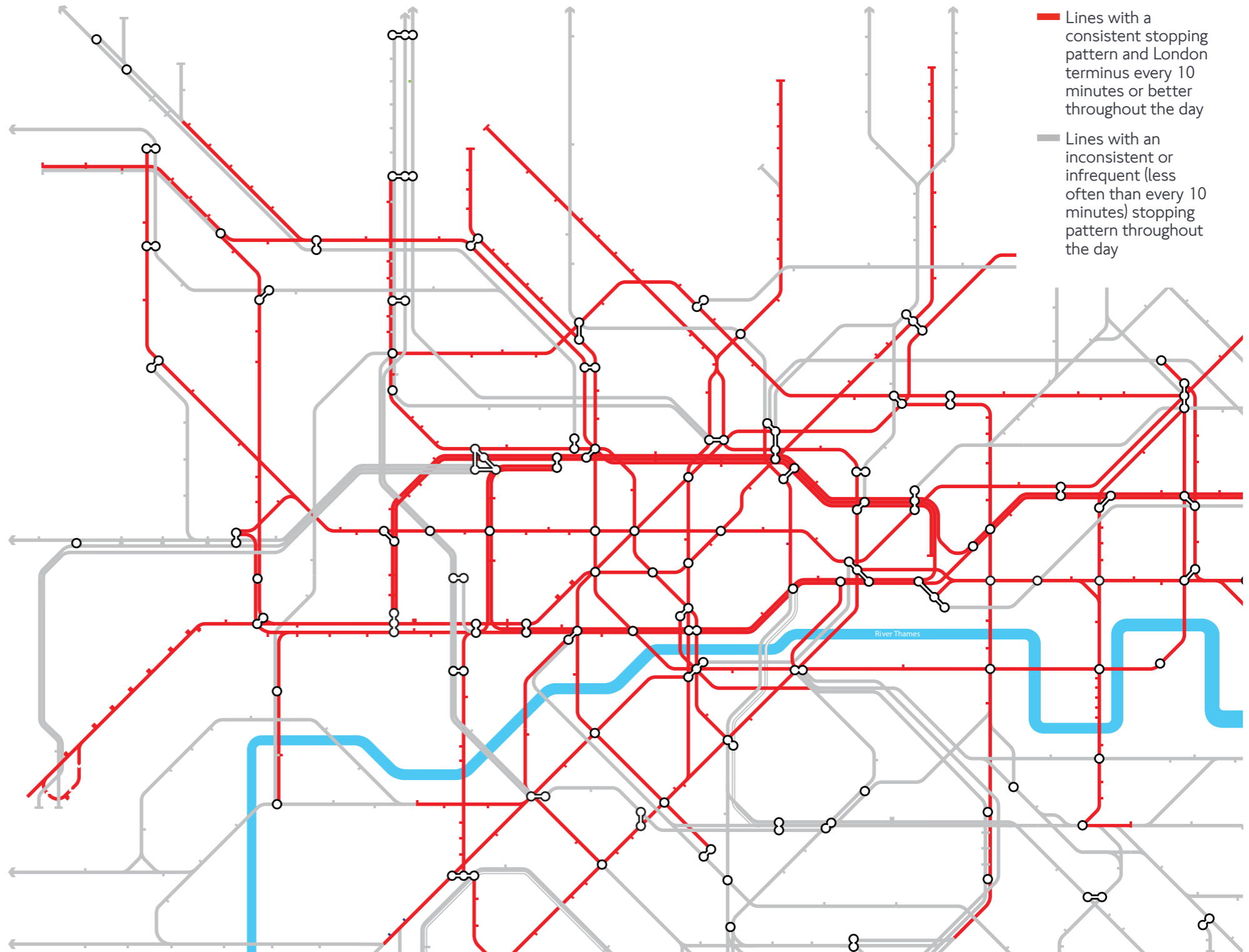
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**Station frequency 2015**



Underground and DLR crowding 2011

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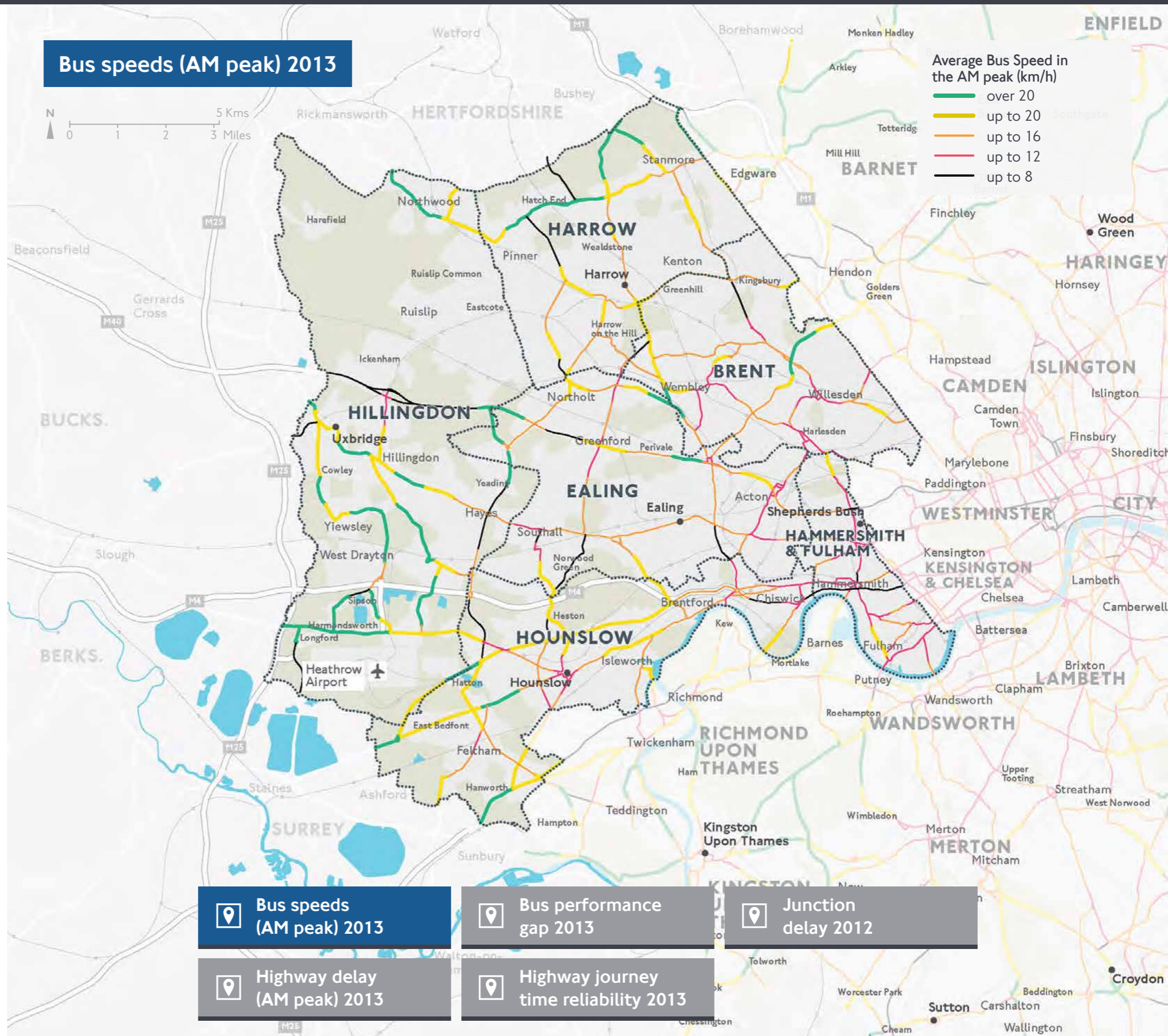
Station frequency 2015

**Increasing congestion has decreased journey time reliability at key locations, and has potential to increase bus wait times**

Highway delays and congestion are a significant problem across the sub-region and affect access to a number of key radial and orbital routes. This may constrain employment growth in these locations, as congestion and poor journey time reliability adds costs to business operations and restricts accessibility to potential customers and suppliers. Continued employment and population growth have meant that congestion has increased in recent years.

Over the past ten years excess wait time for high-frequency buses has continued to fall (and is now just over a minute on average). However, bus wait times have been relatively stable in the sub-region during the past two years, and increasing congestion is likely to increase them in the future without further action. Whilst bus speeds are lowest towards central London there are a number of orbital routes corridors in the West where they are also slow. These tend to be on the routes crossing key radial routes into central London and also around town centres, such as Hounslow, where traffic levels tend to be heavier.

As London continues to grow there is a need to ensure that appropriate measures are taken to maintain attractive and reliable bus services.

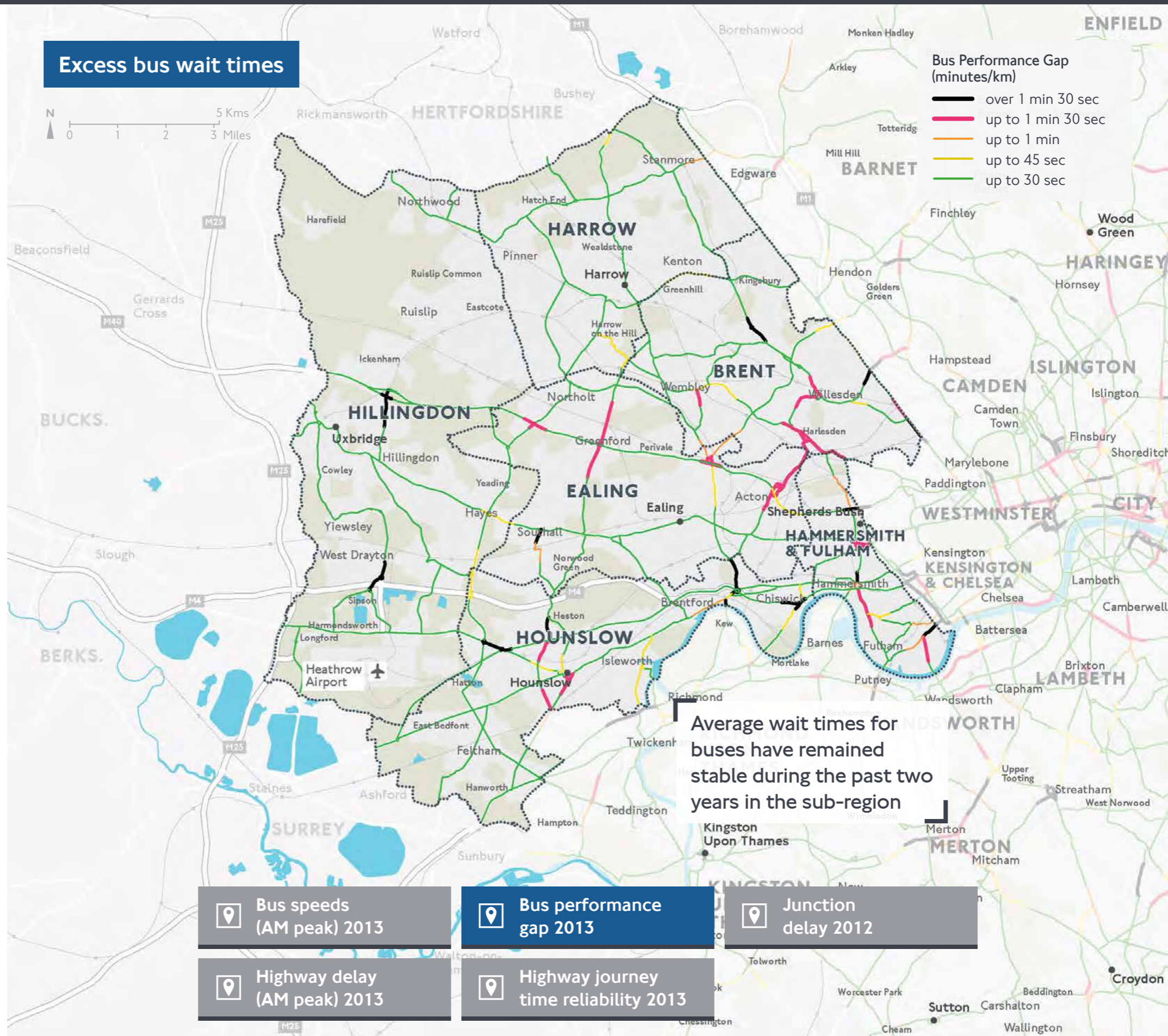


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**Excess bus wait times**

Average wait times for buses have remained stable during the past two years in the sub-region

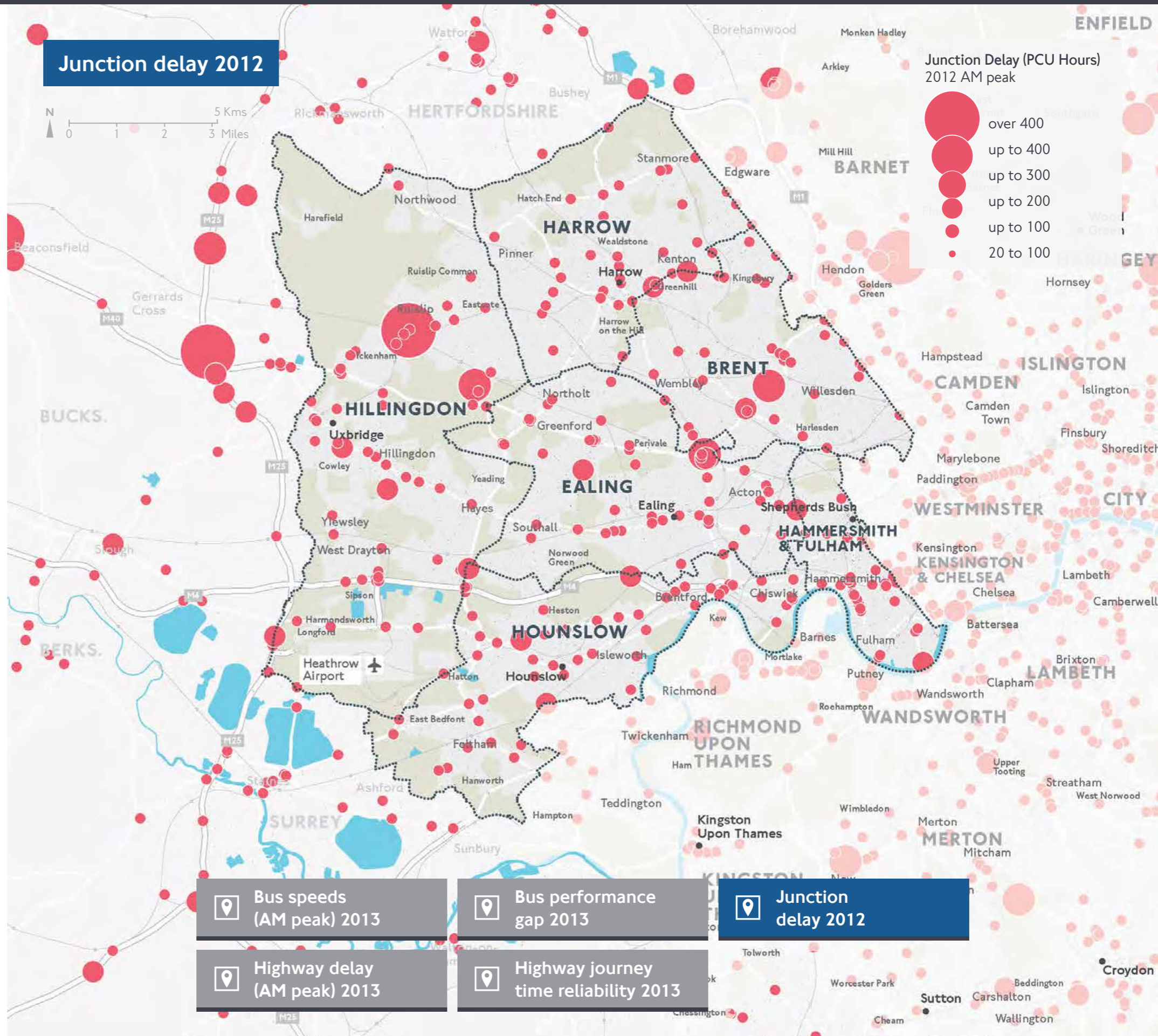
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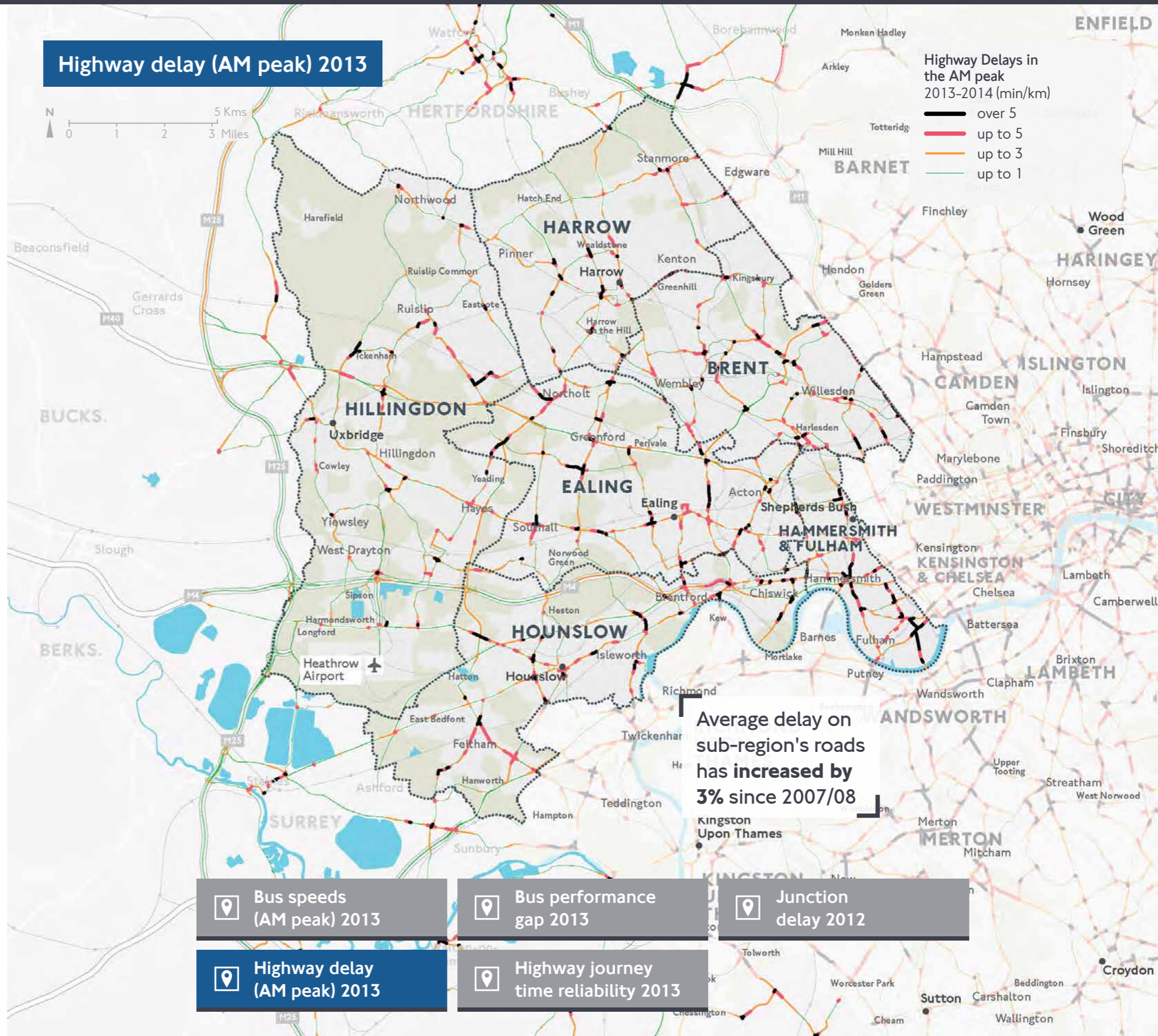


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**Highway delay (AM peak) 2013**

Highway Delays in the AM peak 2013-2014 (min/km)

- █ over 5
- █ up to 5
- █ up to 3
- █ up to 1

**Average delay on sub-region's roads has increased by 3% since 2007/08**

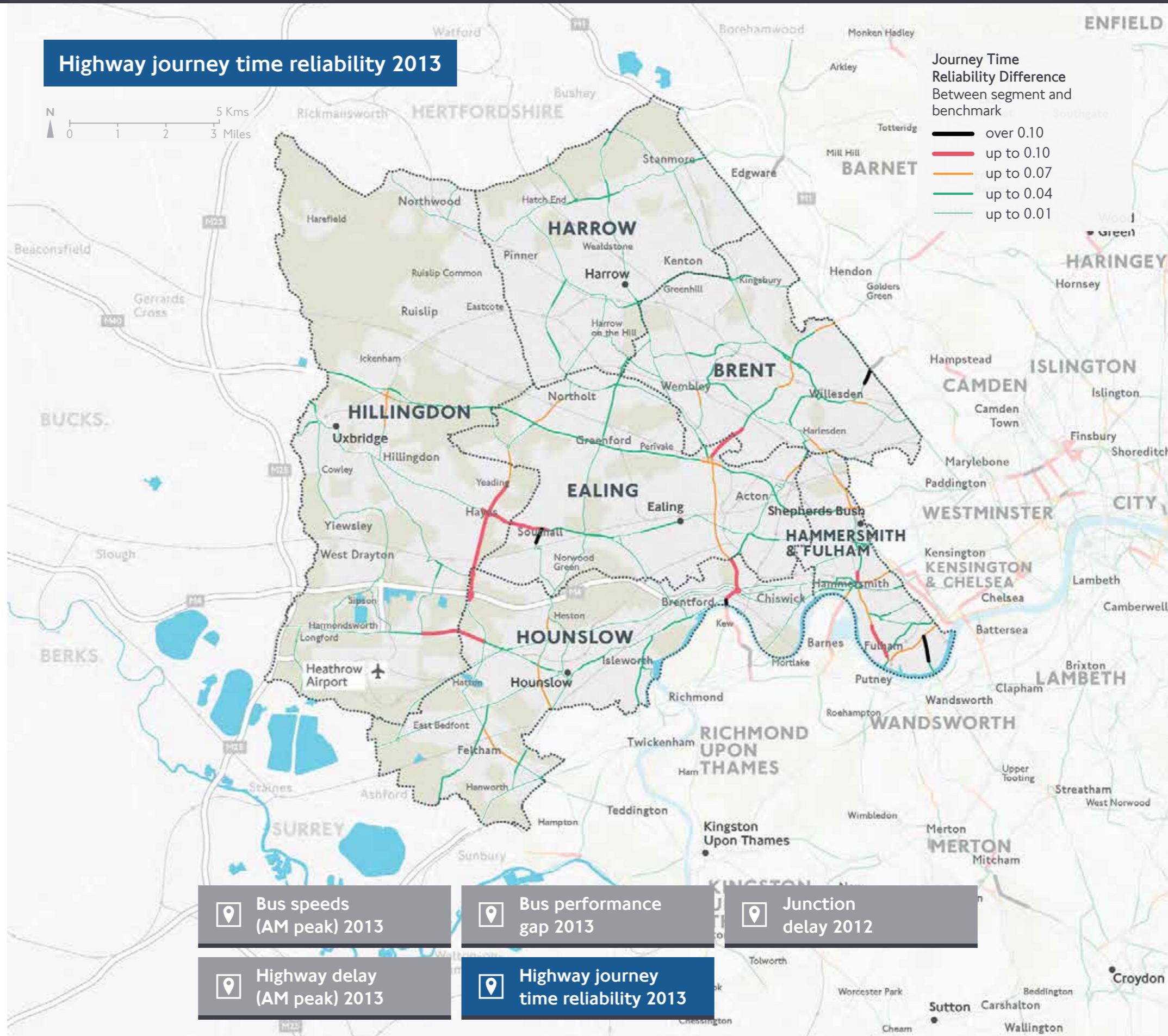
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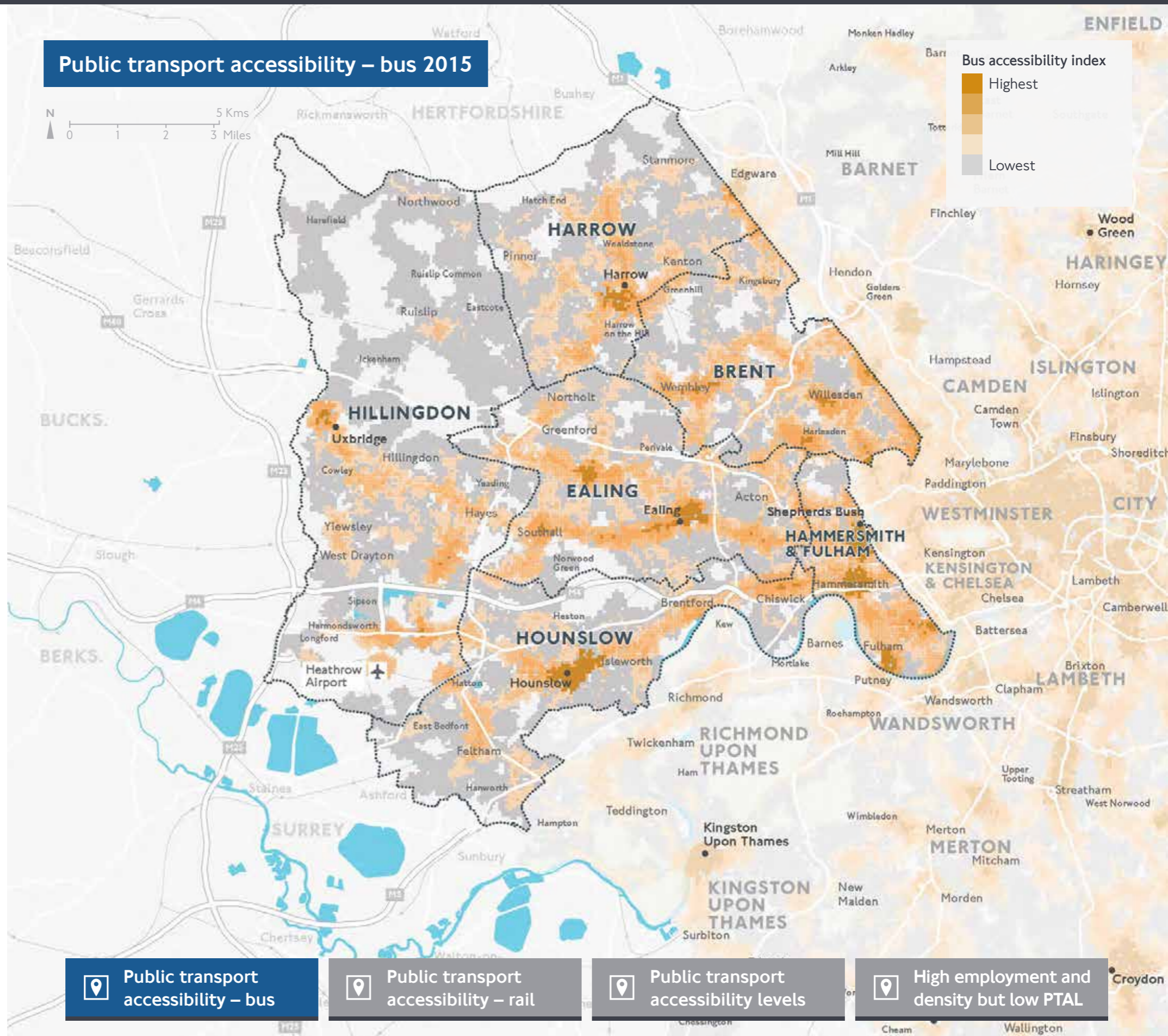
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**Some areas need improvements in public transport connectivity to support high levels of activity**

Public Transport Accessibility Levels (PTALs) are based on the combination of the walk distance to the nearest public transport service and the wait time for that service. The extensive bus network plays a fundamental role in providing public transport connectivity throughout the sub-region, including orbital journeys and journeys to town centres, with rail supporting largely radial journeys.

Poor accessibility levels are located throughout the region but are particularly prominent in parts of Hillingdon and Harrow. There are some areas where total population and employment density is higher than would usually be expected for the PTAL level. These include the edges of Uxbridge town centre, parts of Heathrow, as well as the area along the M4 which has seen significant employment growth in recent years. There may be opportunities to enhance public transport accessibility here, to enable faster journeys for those that already use bus and rail, and to encourage further mode shift away from the car and reduce congestion.

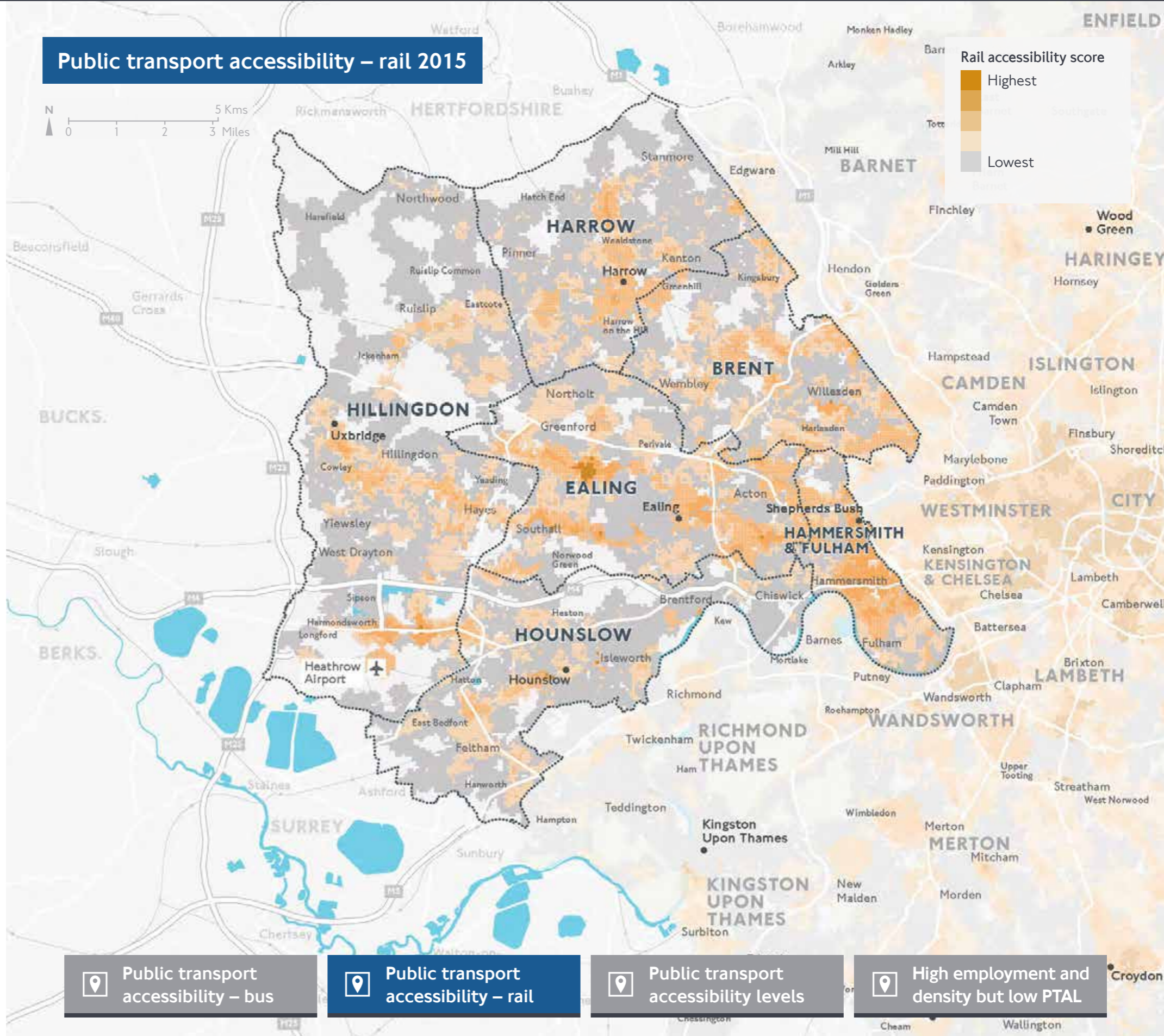




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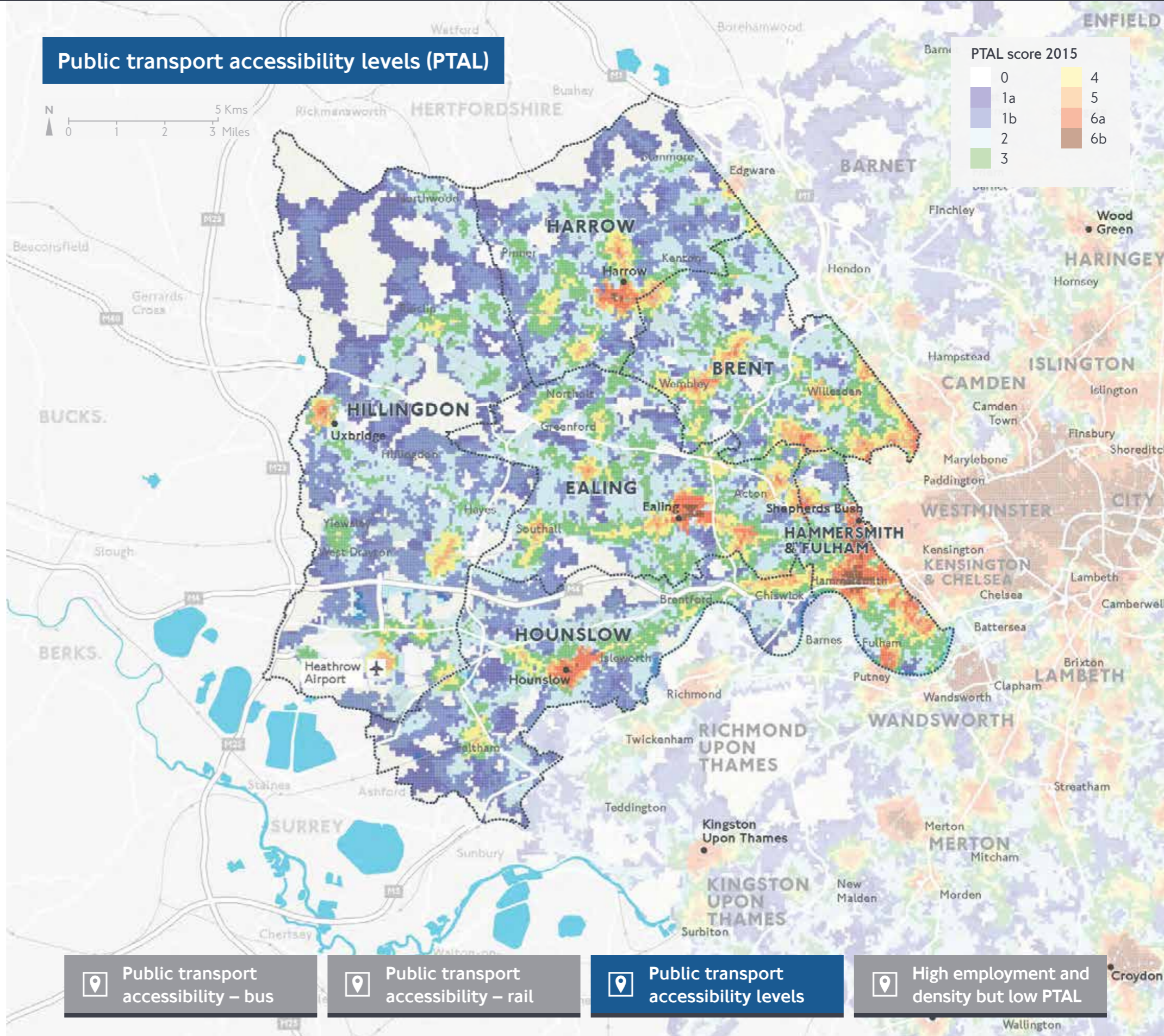
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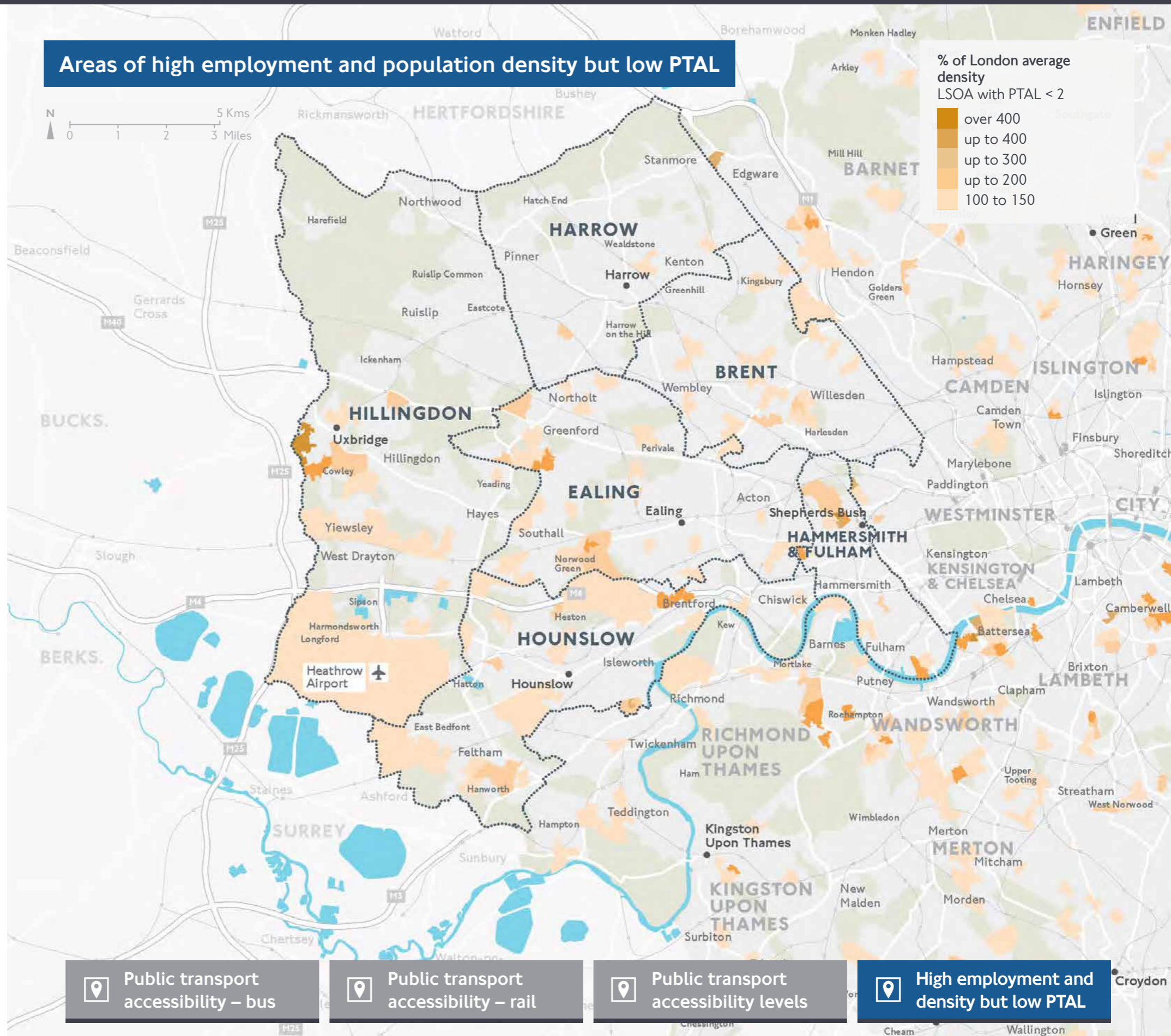
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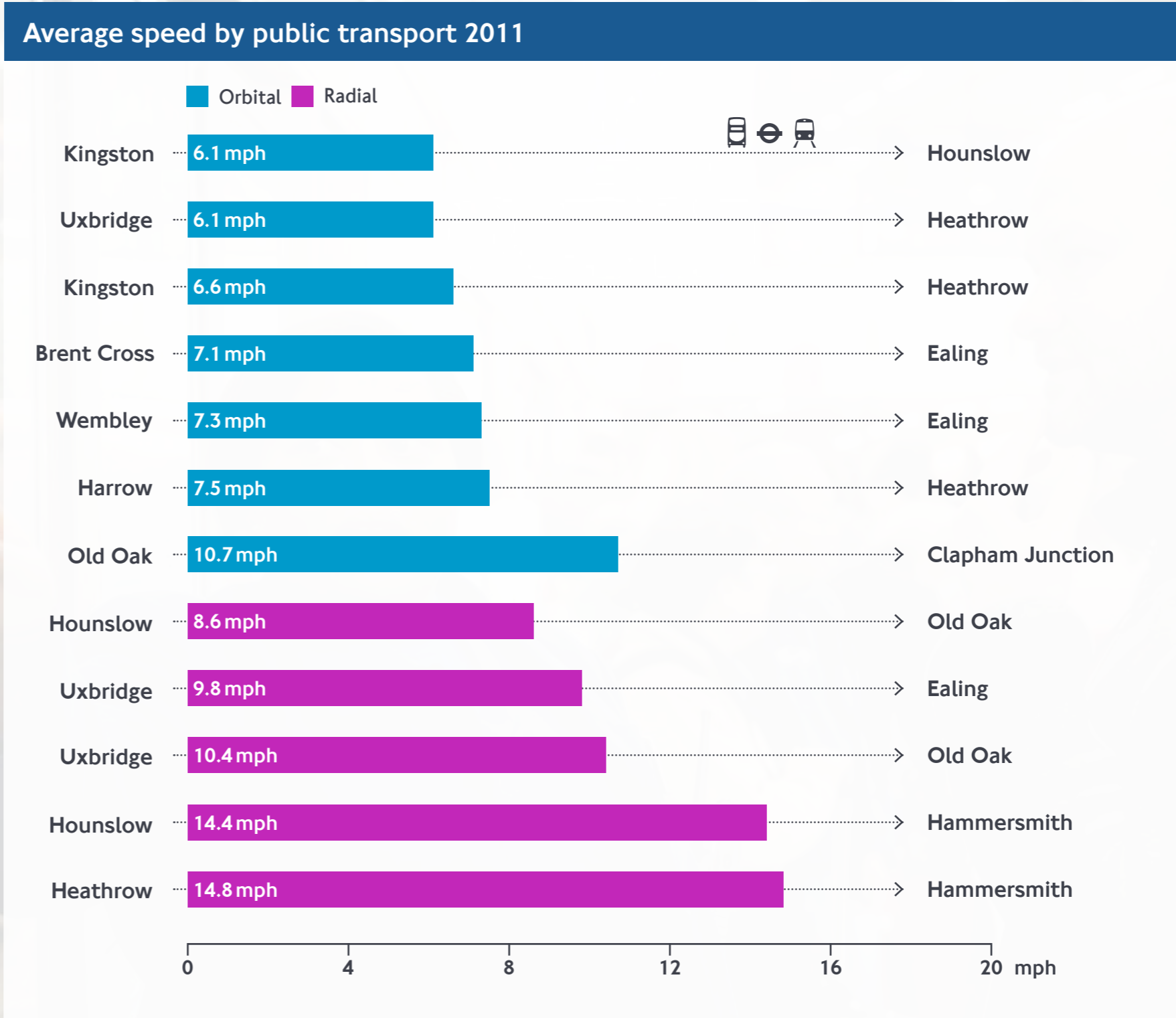


### Radial public transport movements are typically rail based and quicker than orbital movements

One of the key challenges in the West sub-region is enhancing north-south orbital public transport connectivity. Public transport journey times between certain Metropolitan centres are well in excess of one hour and are not competitive with private car journey times. This gives an indication as to why cars are the dominant mode in the West.

Enhancing orbital connectivity, and connectivity between key centres in particular, will be key to ensuring the sub-region remains competitive and can support future employment growth.

Most public transport journeys, and those made by rail based modes in particular, will see small reductions in total journey time between 2011 and 2031 as a result of committed investment. However, journey times by car are expected to increase as a result of growing congestion.



Average speed by public transport 2011

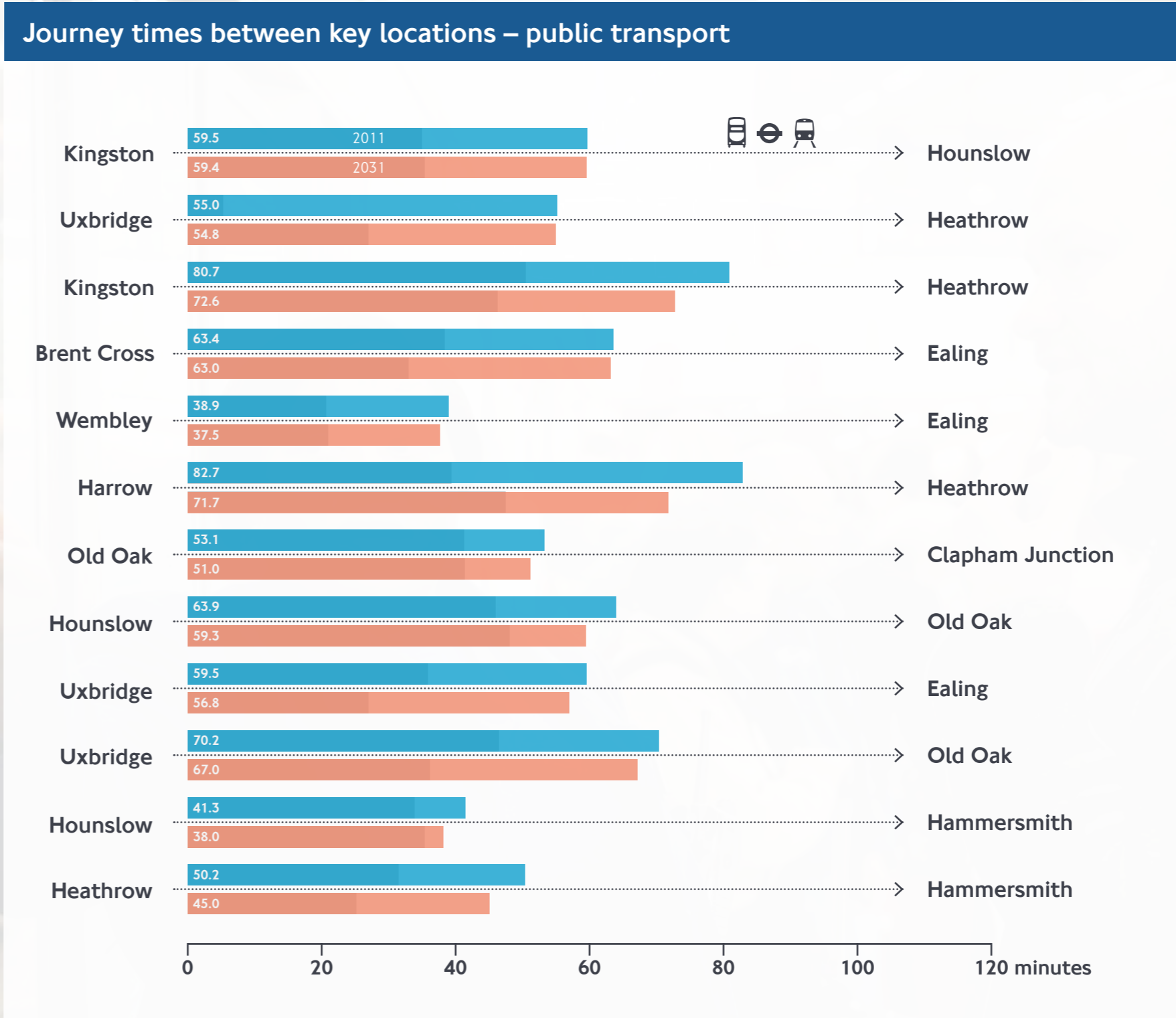
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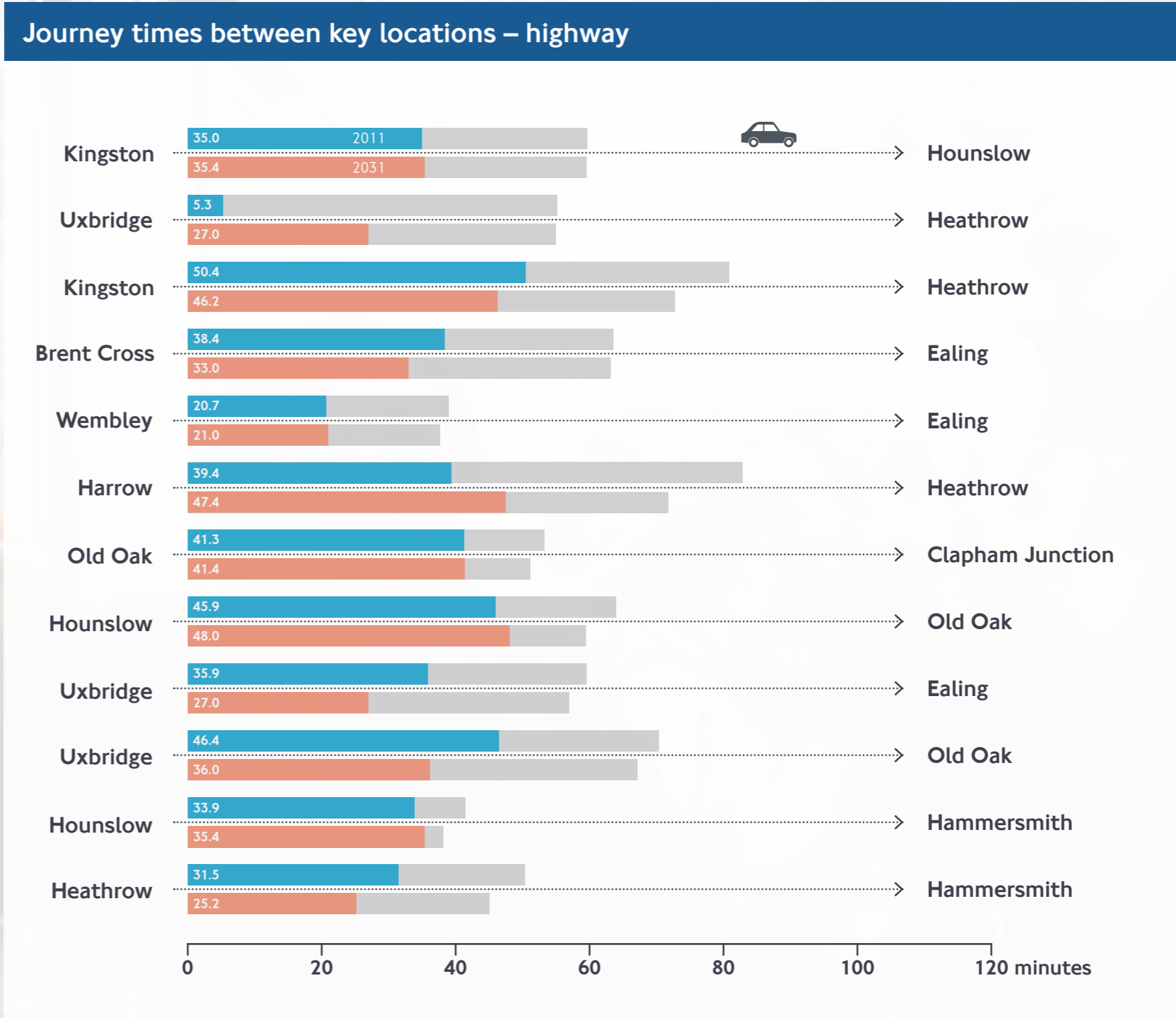
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# Liveability >

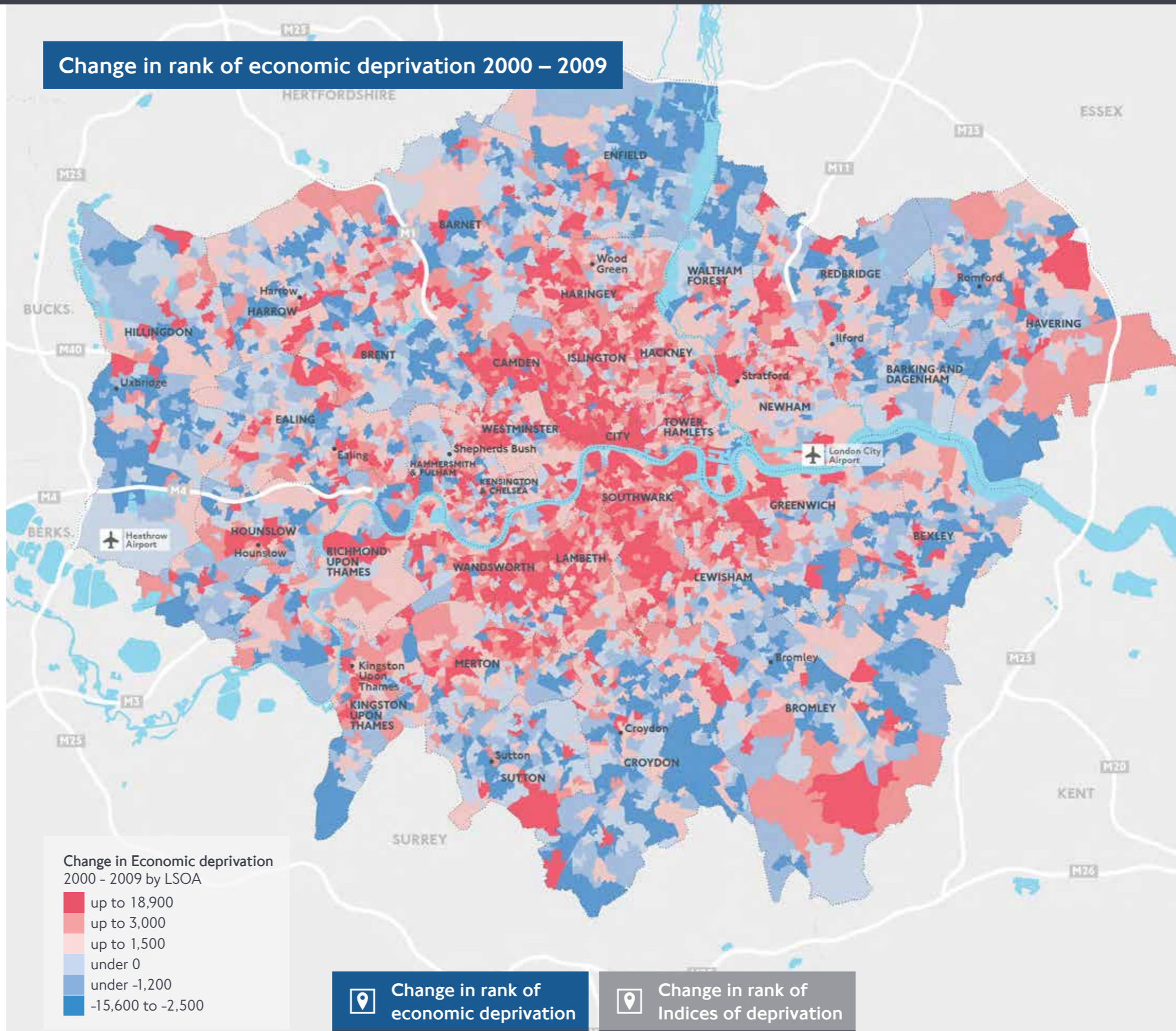


### Outer London has seen an increase in relative deprivation

The pattern of deprivation in London is changing, with Inner London becoming less deprived and Outer London becoming more deprived in relative terms. The reasons for this are complex, but include an influx of well qualified, high earning people into Inner London, as well as housing affordability pressures pushing less affluent groups into Outer London.

Changing patterns of deprivation are not so clear in West London as they are in other sub-regions, although in recent years Hounslow has seen a clear decline in its relative position in the Capital. Maintaining an excellent highway and public transport network will be key to sustaining and improving Outer London's competitiveness and its attractiveness as a place to live, thereby preventing worsening deprivation.

These changes are likely to impact on the demand for travel as people from less affluent socio-economic groups traditionally tend to travel more by bus than rail or Tube, with trips also typically more local.



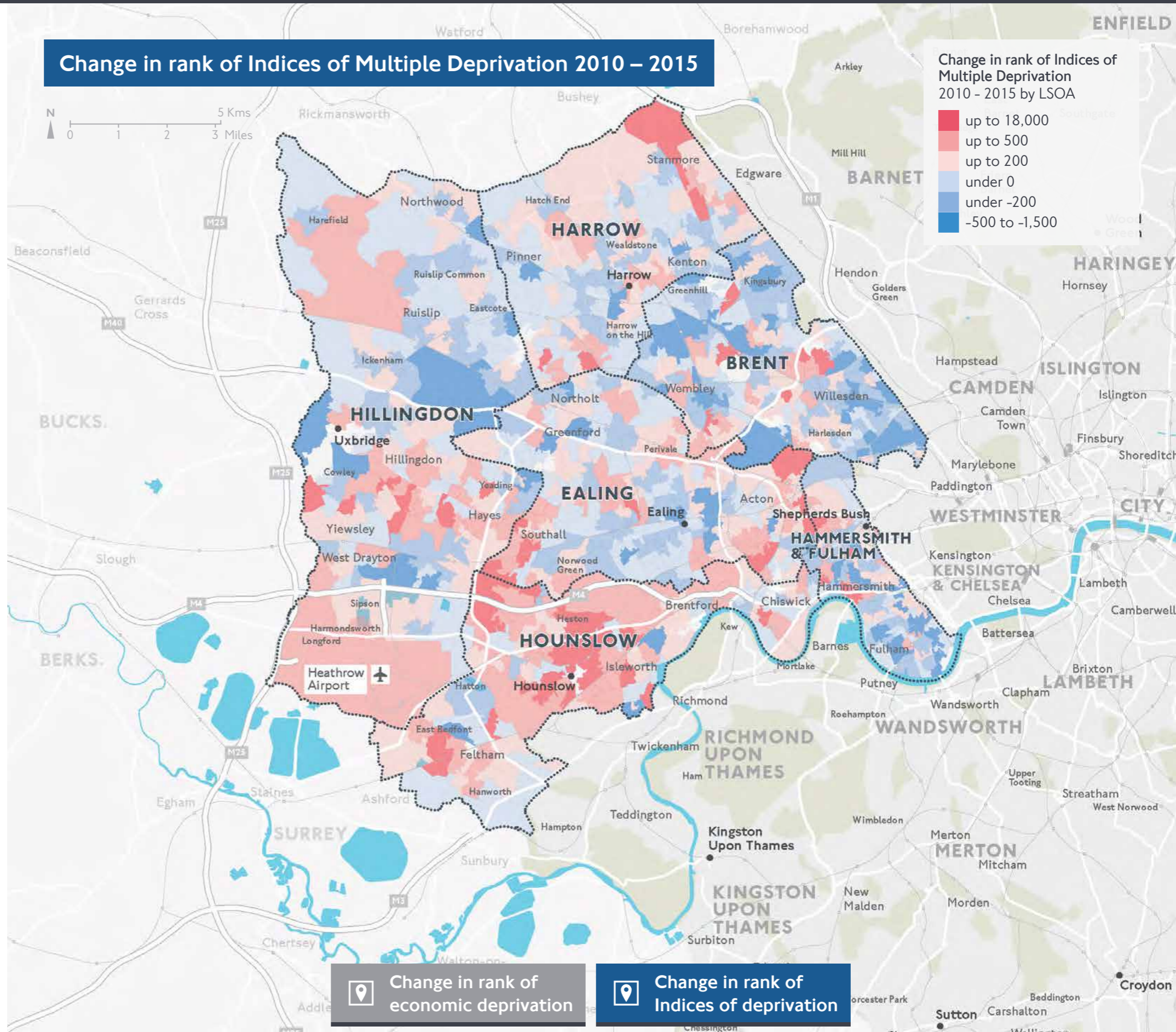


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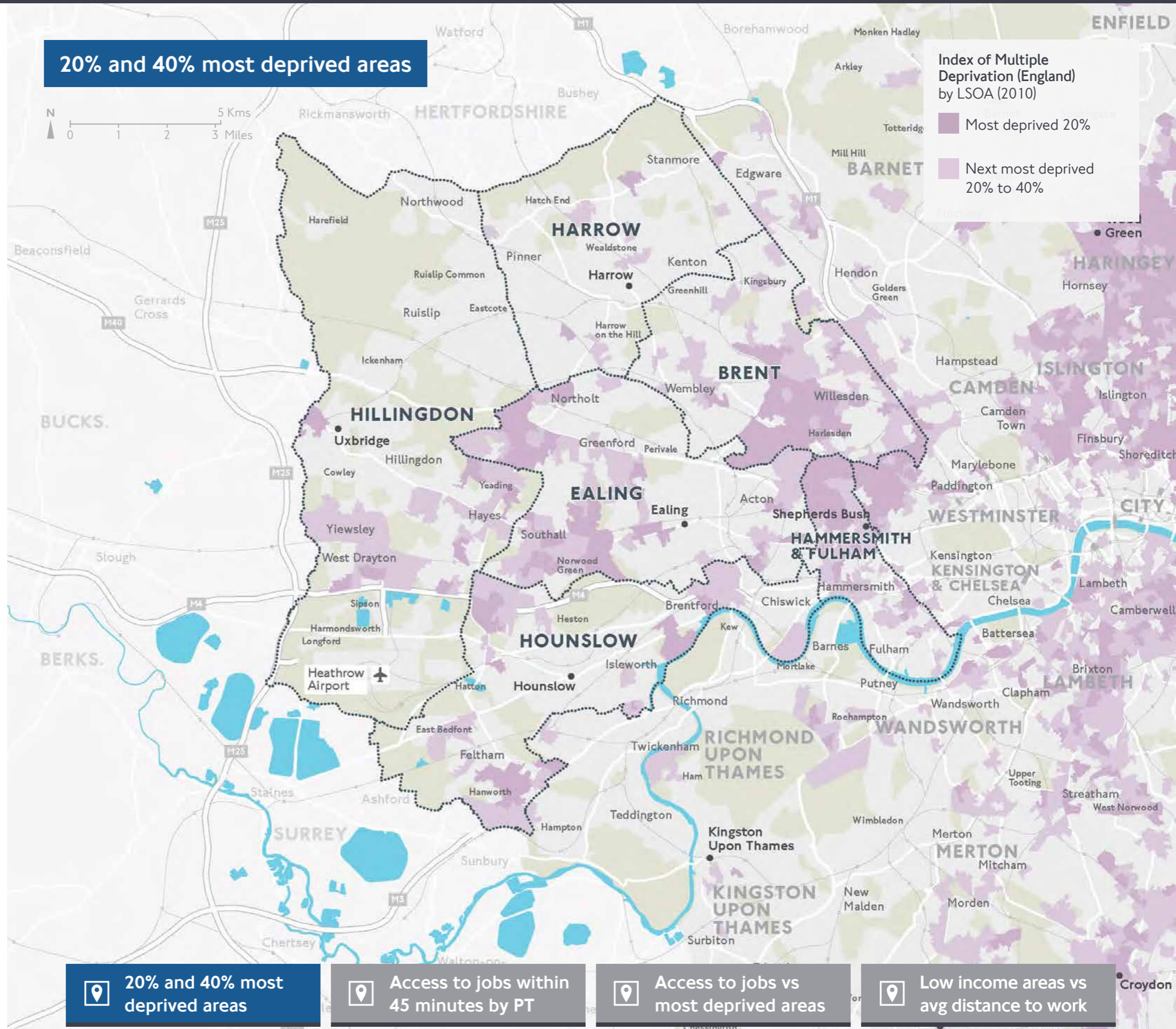


**There are a number of deprived areas in the sub-region where access to jobs could be improved**

West London contains some of the most deprived areas in England, with particular concentrations in Brent and Ealing, although there are smaller pockets present across all other boroughs in the sub-region.

Ensuring that residents of deprived areas have sufficient access to a range of suitable employment opportunities is key to tackling deprivation. At present, a large proportion of the sub-region's most deprived areas have access to fewer jobs by public transport within 45 minutes. This is particularly the case in west Ealing and southern Hillingdon. The introduction of Crossrail will help to address this in some places, but it might be necessary for improved bus links from these areas to provide access to a greater range of employment opportunities.

Affordability of transport is also a key issue to ensure equality of access to employment opportunities. Most of the sub-region's residents with the lowest incomes live in the centre of the sub-region, in Ealing and Hounslow, as well as parts of Brent. There are parts of northern Ealing and Brent where incomes are low and high proportions of people travel more than 10km to work, with costs for these journeys also likely to be higher.



**20% and 40% most deprived areas**

**Index of Multiple Deprivation (England) by LSOA (2010)**

- Most deprived 20%
- Next most deprived 20% to 40%

**20% and 40% most deprived areas**

**Access to jobs within 45 minutes by PT**

**Access to jobs vs most deprived areas**

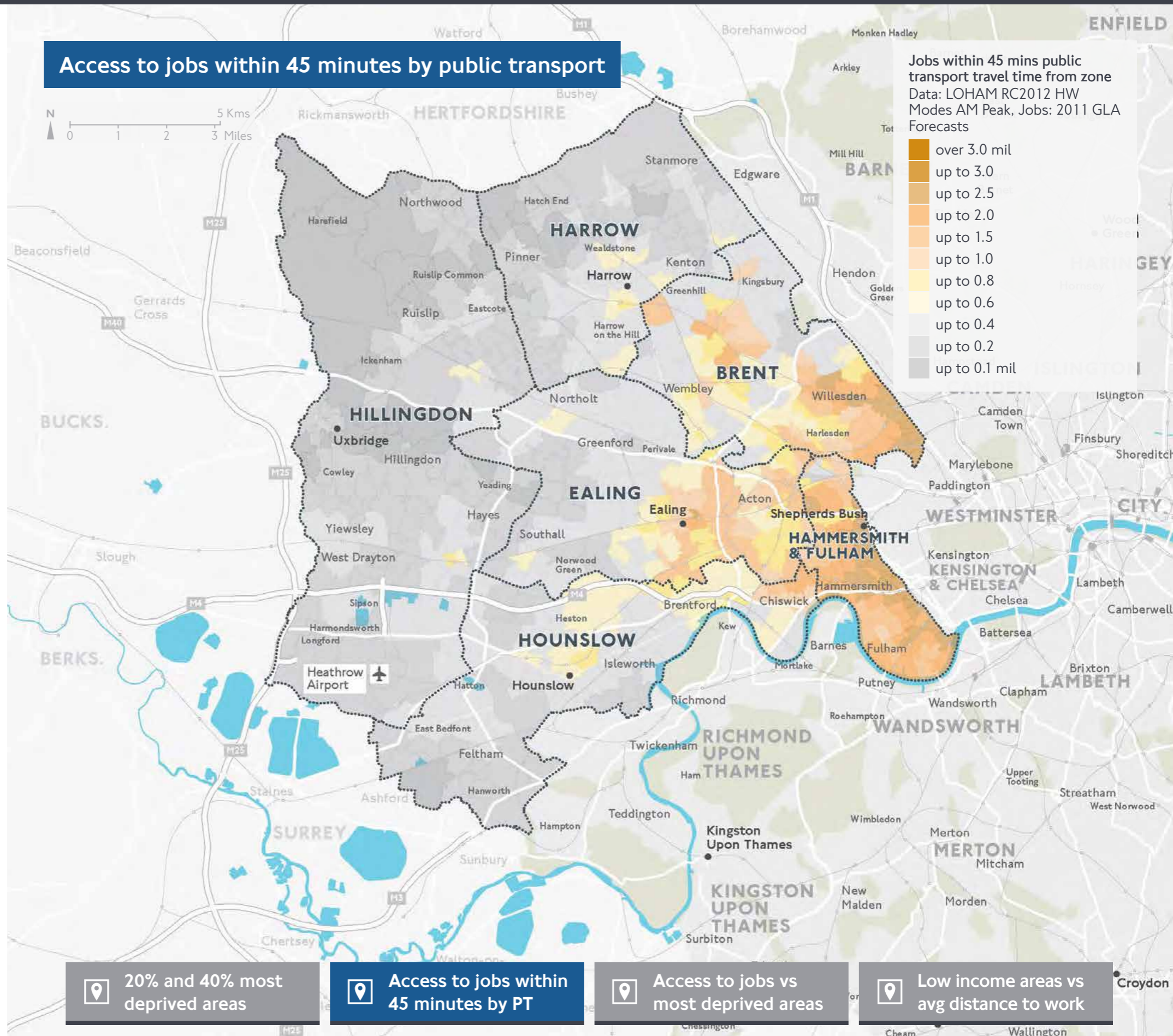
**Low income areas vs avg distance to work**

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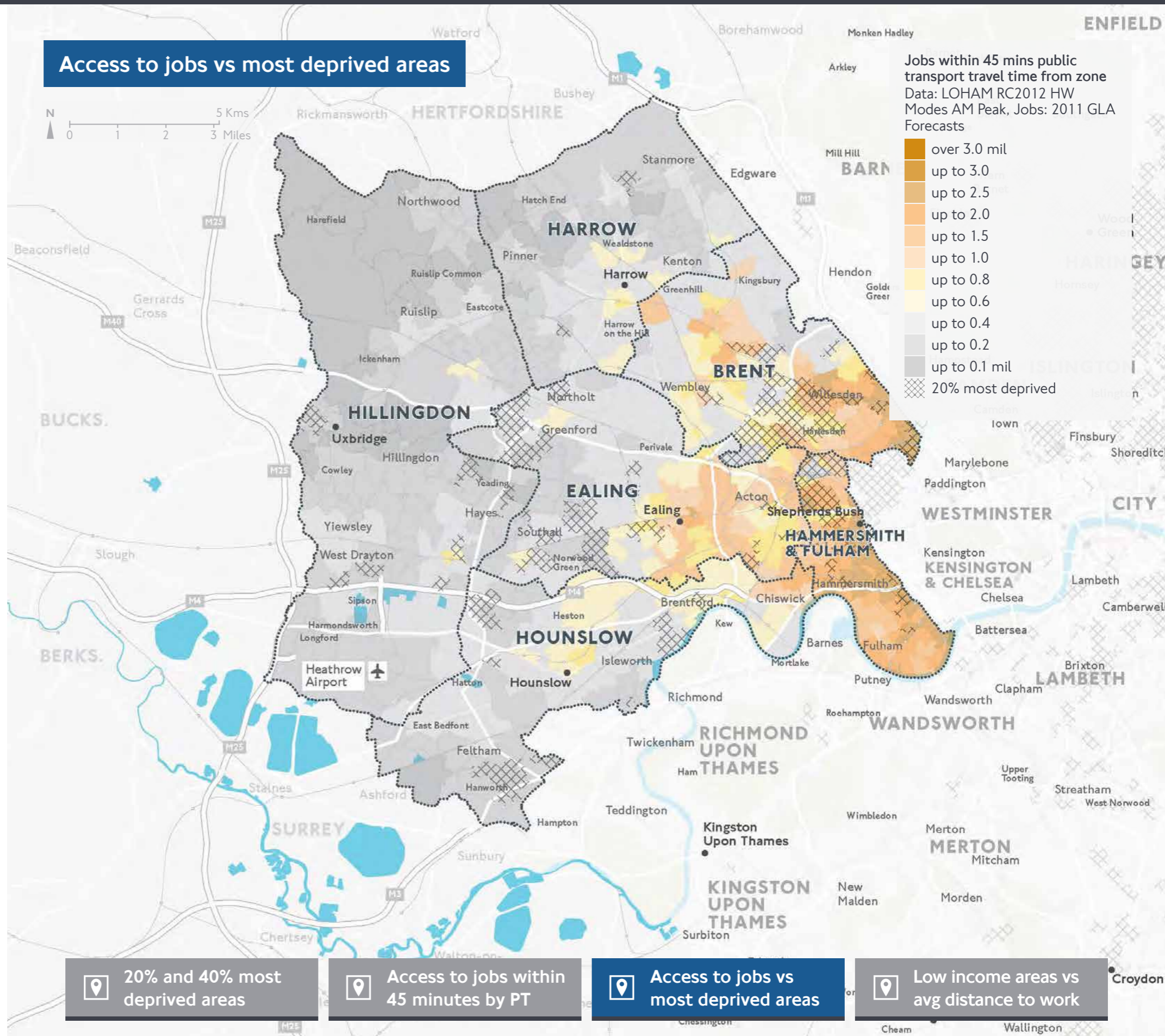


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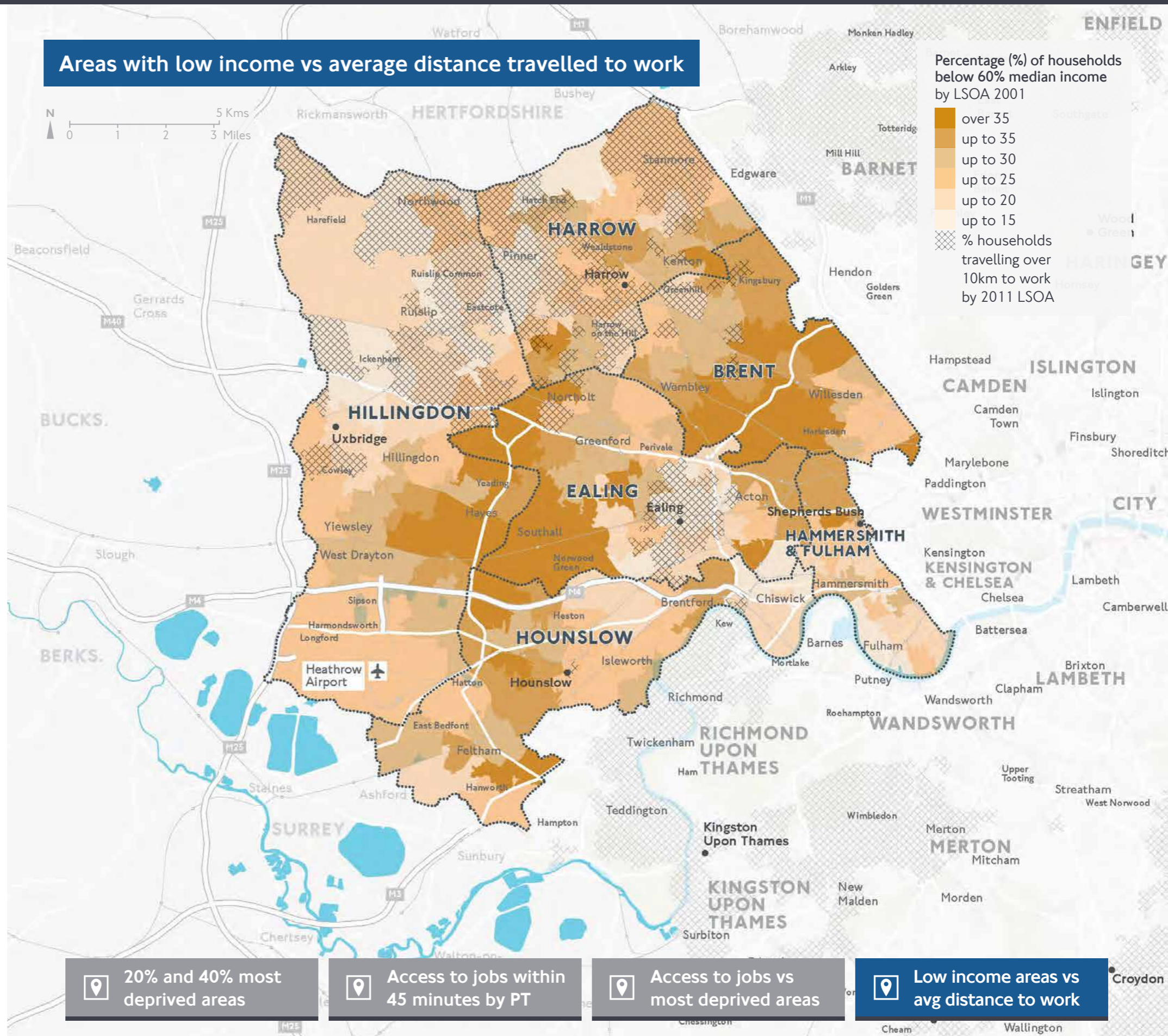


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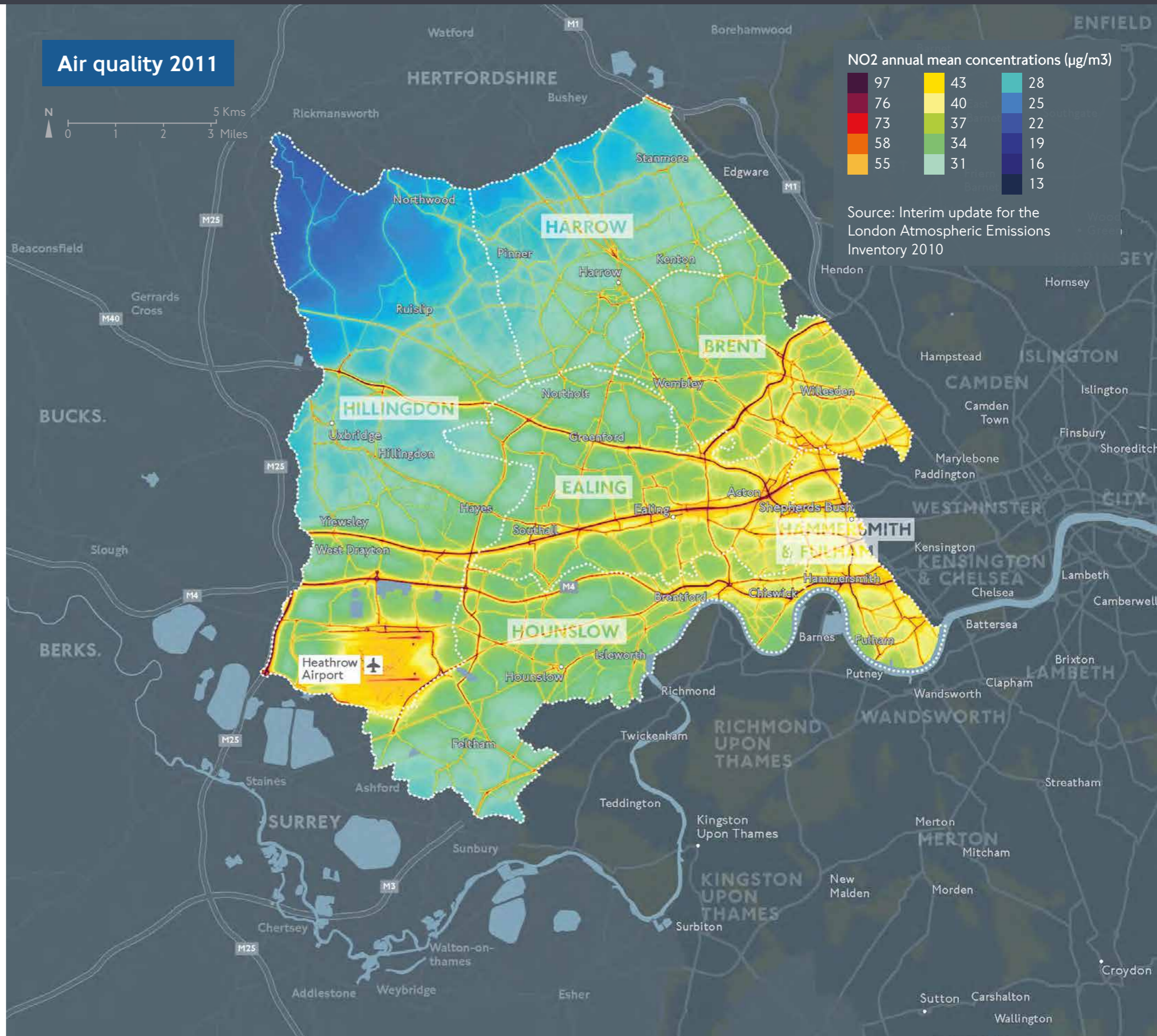
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### Air quality in the sub-region is amongst the poorest in London

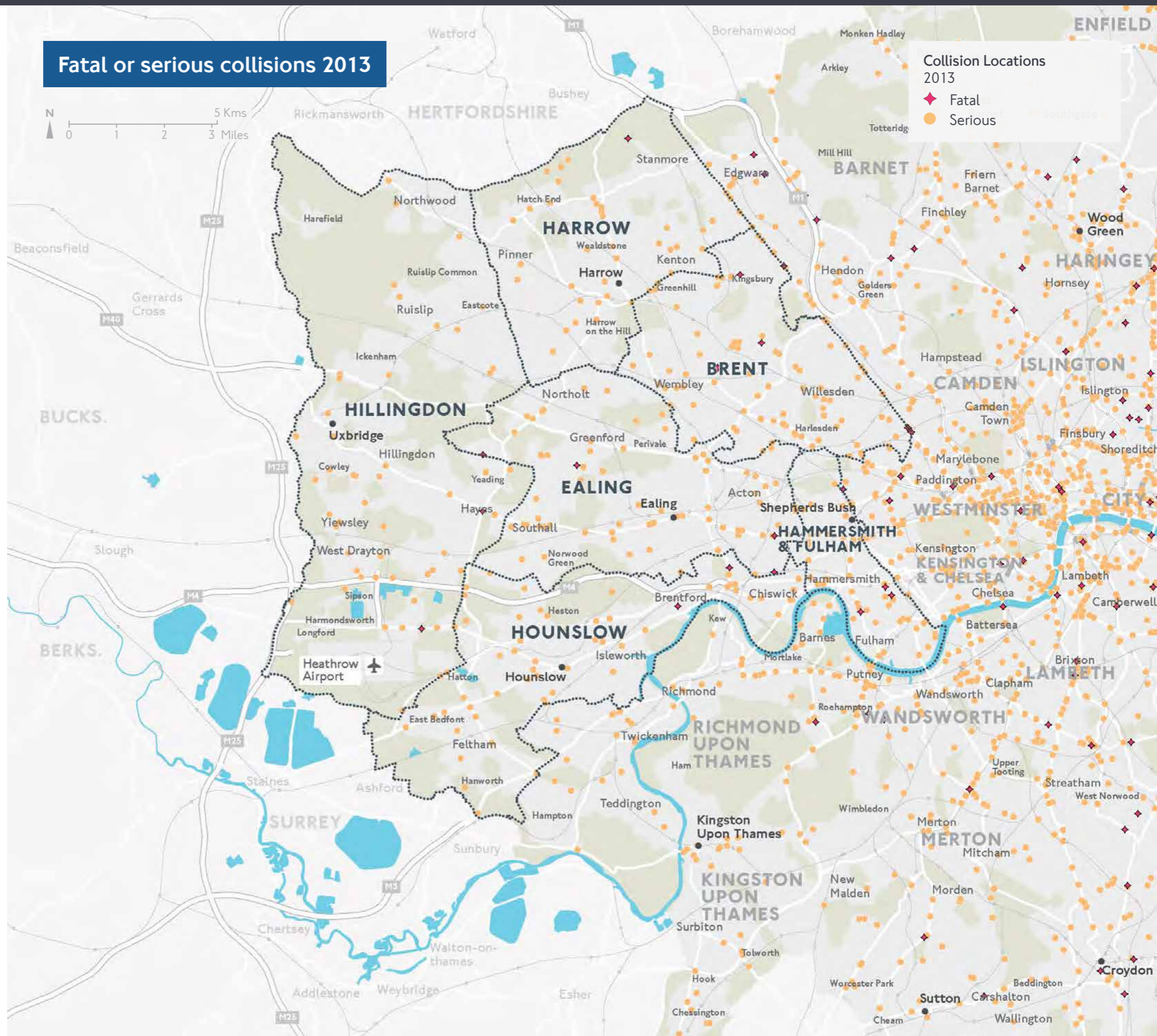
The west sub-region has poor air quality compared to other parts of the UK and London. Heathrow and highway links to the airport are a particular generators of poor air quality in west London. Air quality is also generally poorest around major road and rail corridors and urban centres such as Ealing where a mix of traffic, industrial and commerce and residential development contribute to elevated air quality levels. With the exception of Heathrow, air quality is also generally poorer in inner west London e.g. Hammersmith & Fulham than outer west London.



### Safety on the network has been improving but more needs to be done on key routes

Significant improvements in road safety have been achieved in London during the last 15 years. However, there is still scope for further improvement. In 2013, Hammersmith & Fulham suffered substantially more fatalities than any other borough in the sub-region. Each borough had at least one fatality. Incidences of serious injury were also evenly spread across the sub-region.

Where there is evidence of clusters of accidents occurring consideration should be given to implementing local road safety schemes. The majority of KSIs occurred on 30mph 'A' roads in the west sub-region, although there were also some on the local highway network. While reductions in speed limits are generally not appropriate for these roads, there could be scope for targeted enforcement and public information campaigns to improve awareness and behaviour across all road users.

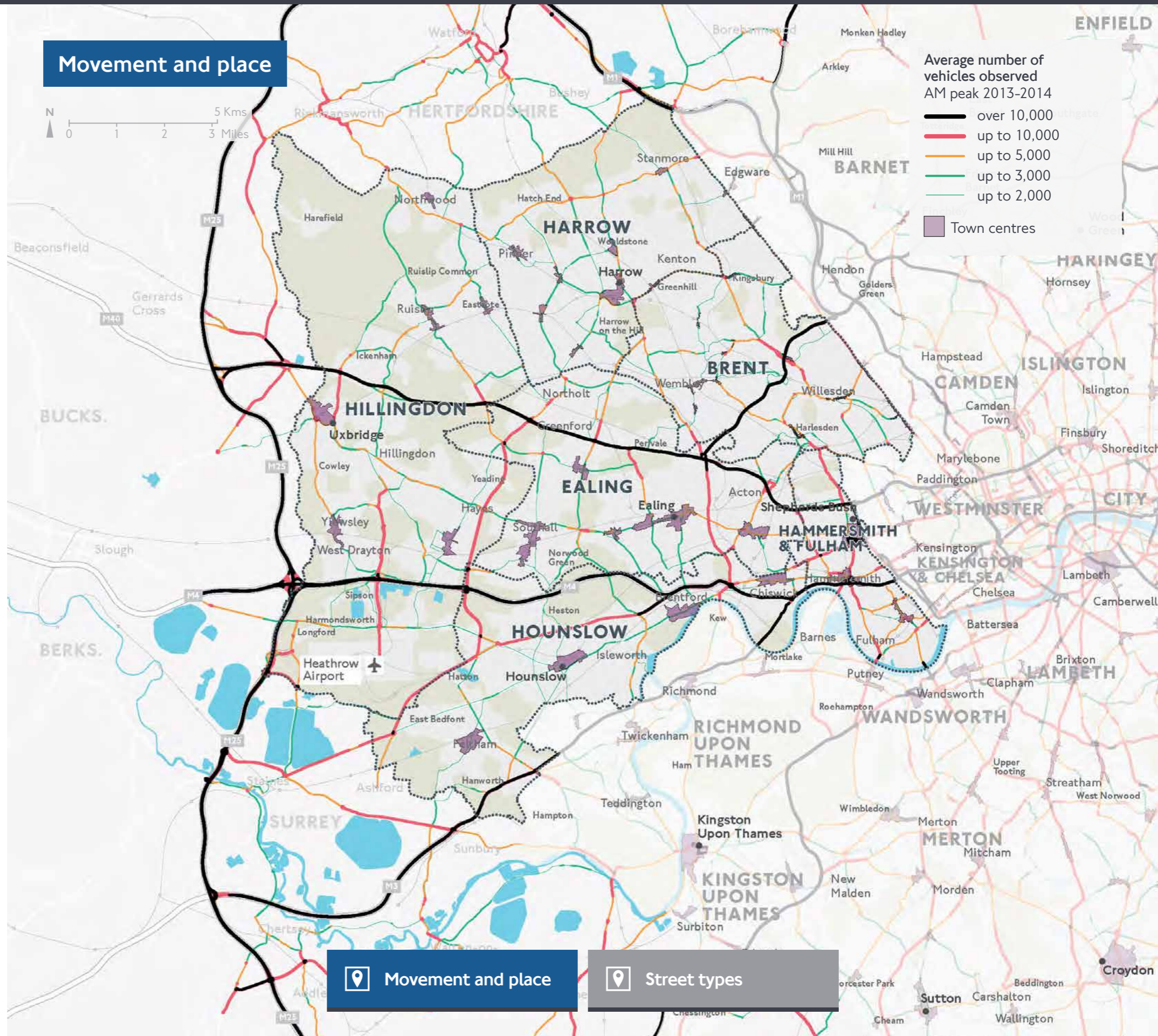


### The sub-region needs to balance efficient movement with quality of place

The sub-region's streets perform a wide range of movement functions from roads carrying very high volumes and mixed of vehicular traffic and people to streets which only have a local movement function.

But the sub-region's streets also perform a wide variety of functions which are specific to the quality of place. These include living and functioning and are equally as important to movement. They have an impact economically as well as on quality of life of local residents.

Many of the sub-region's main 'A' roads carry significant flows of traffic, in particular the A40 through the boroughs of Hillingdon and Ealing, and the A406 through Brent. Some of these roads pass through town centre locations where quality of place is very important, including Hayes, Hammersmith and Brent Cross. Managing and mitigating the impact of heavy flows of traffic on these places will be important to maintain the attractiveness and viability of the retail and service offer here.



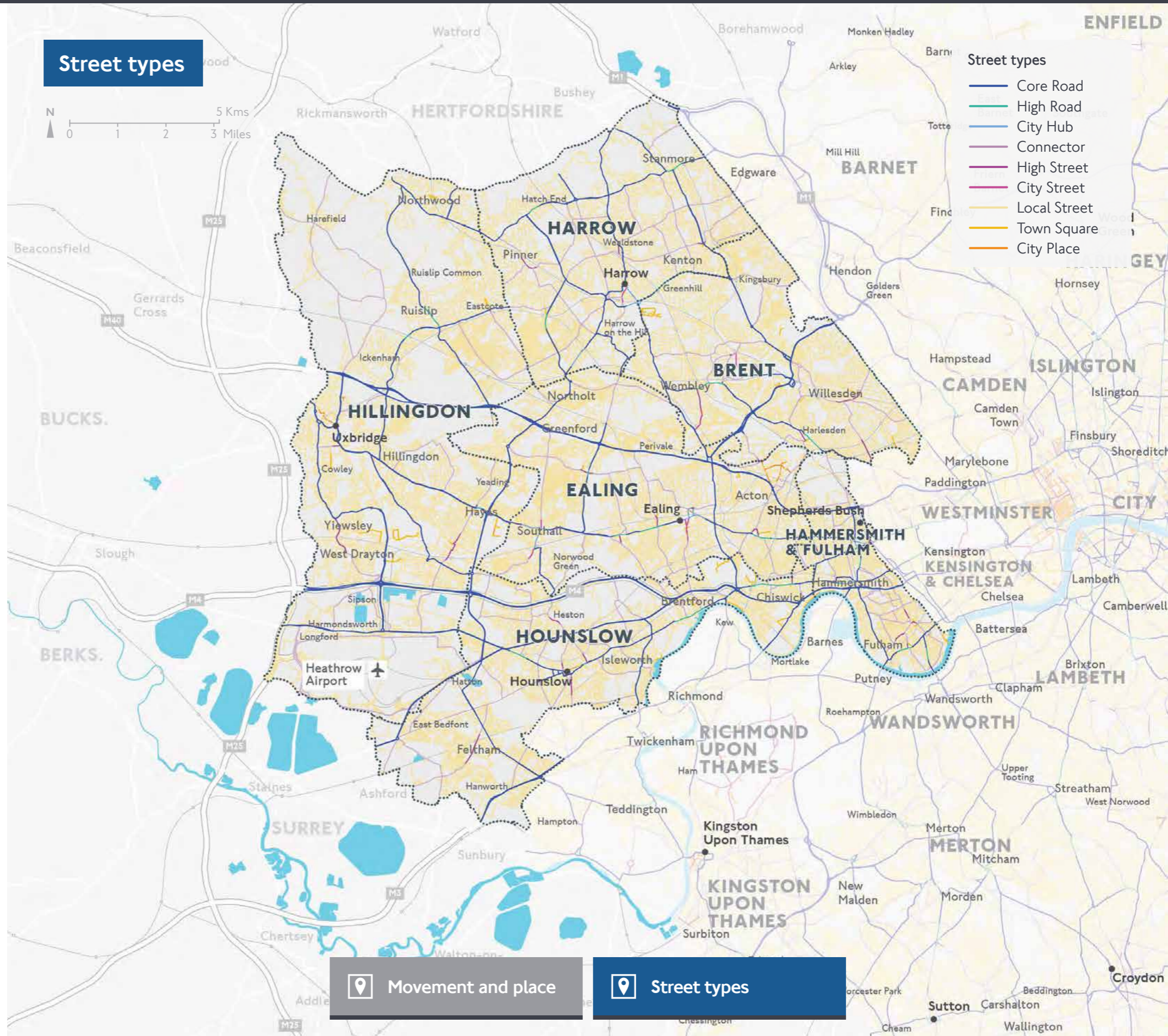


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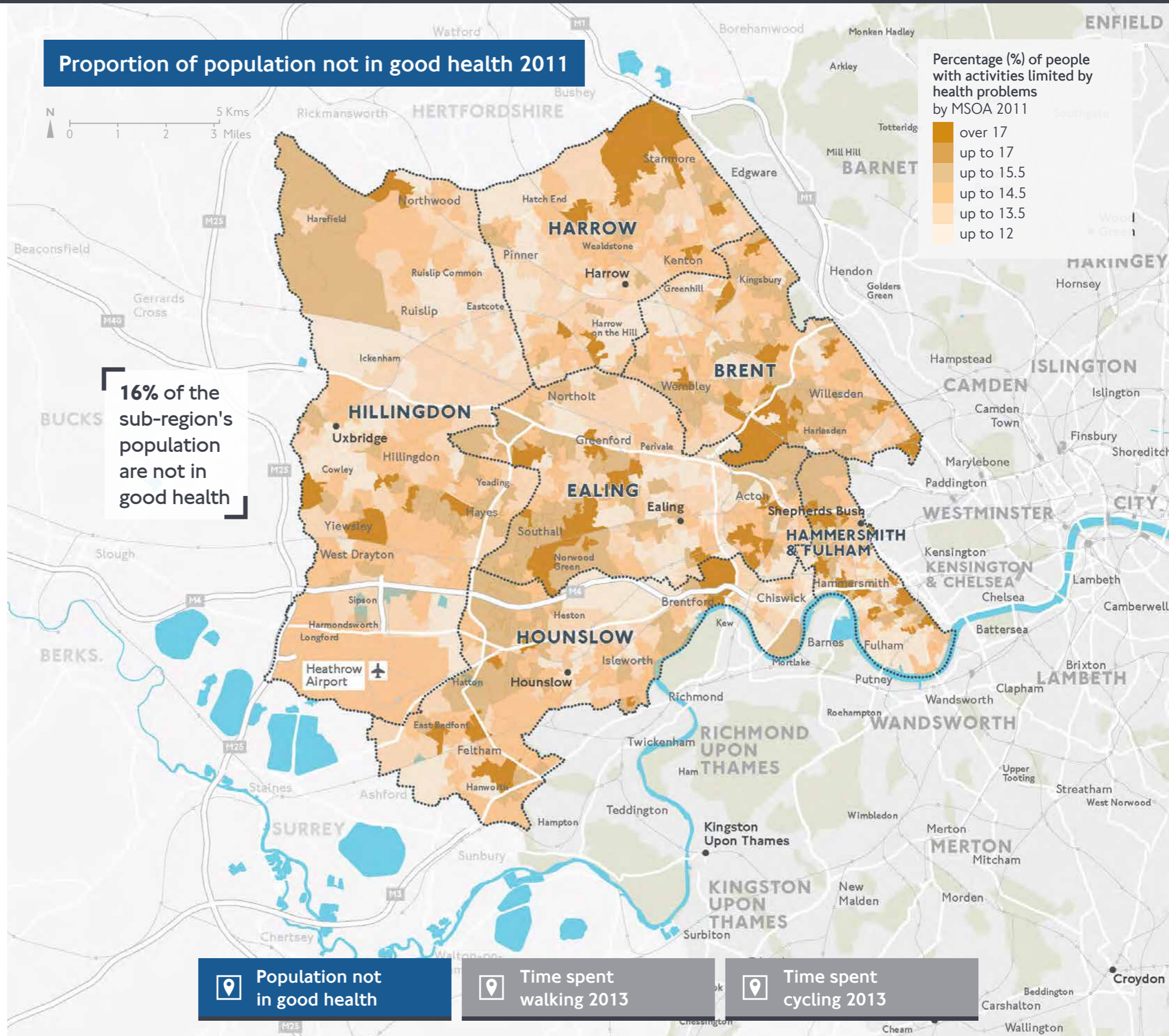


**There is significant potential to increase active travel to address health issues across the sub-region**

London's transport system plays an important role in people's health by providing access to jobs, education, services and leisure, all of which are essential for a healthy, fulfilling life. It also provides access to healthcare. But the biggest role of transport in health is to help people stay active and prevent a wide range of illnesses including heart disease, stroke, depressions, type 2 diabetes and some cancers.

TfL is taking a whole-street approach to improving health in London, to make them good for health and attractive places to spend time. Further details of the whole street approach can be found in TfL's 'Improving the health of Londoners' transport action plan: <http://content.tfl.gov.uk/improving-the-health-of-londoners-transport-action-plan.pdf>.

There is significant scope to improve levels of physical activity across the sub-region, and therefore improve health. As set out in the previous section, the number of journeys made by walking or cycling have fallen in most Boroughs. Providing a safe environment to support the growth of trips on these modes will be important to supporting the health of the West London's residents.





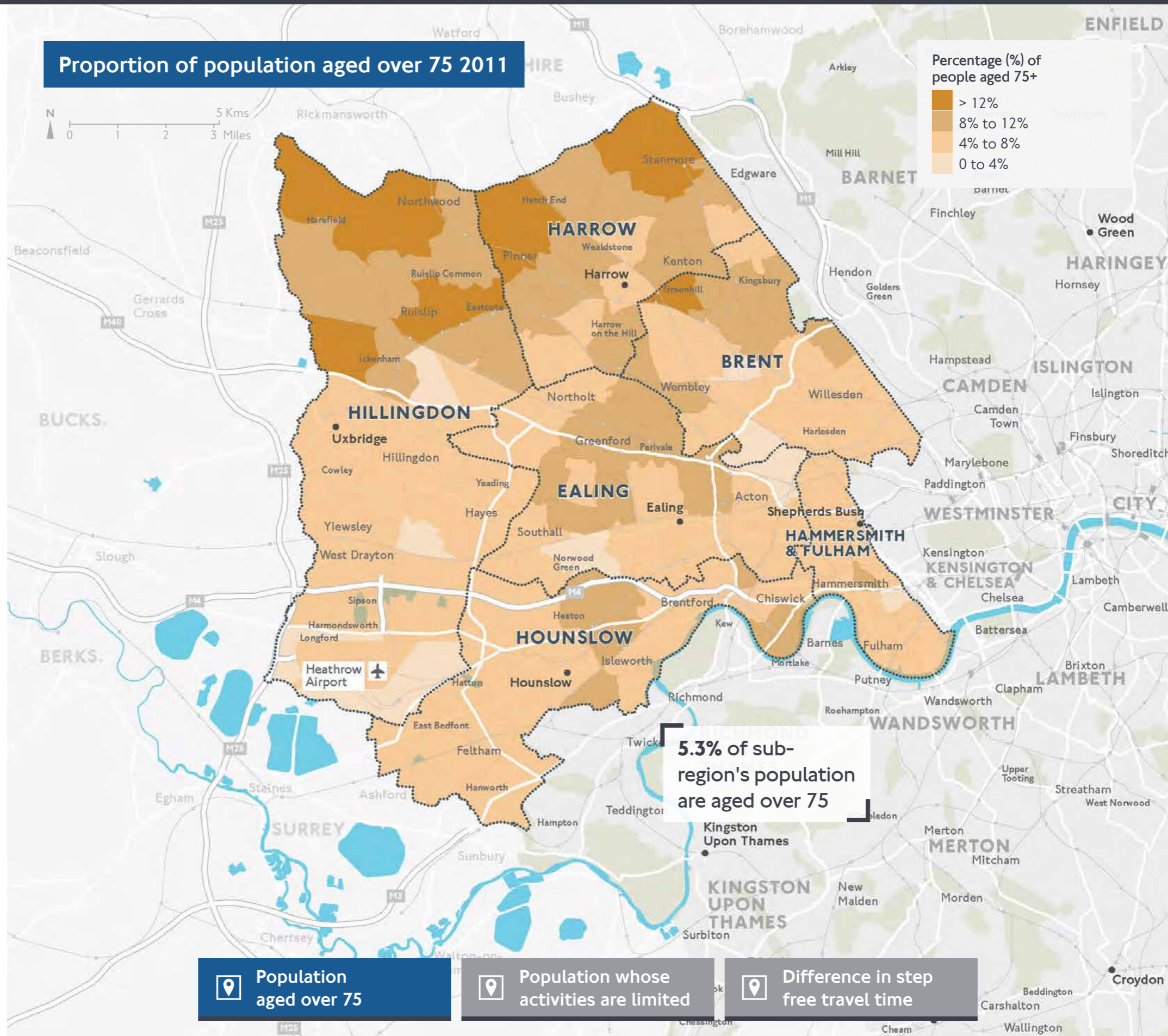


### Travel times on the step free network have improved but more needs to be done

As London's population ages, its transport network will need to adapt to allow more people with mobility impairment to access services. Parts of outer Harrow and Hillingdon have a high proportion of older people, where public transport accessibility is not particular extensive. There are also high concentrations of people whose day to day activities are limited, particularly in west Ealing, which coincides with a pocket of deprivation in this area.

Other residents may have problems accessing the transport network due to mobility issues and a corresponding lack of step-free access. In particular there are large parts of Ealing and some areas in central Hillingdon where a lack of step-free access increases journey times for those with mobility needs. Consideration should be given to implementing measures which could help to rectify this.

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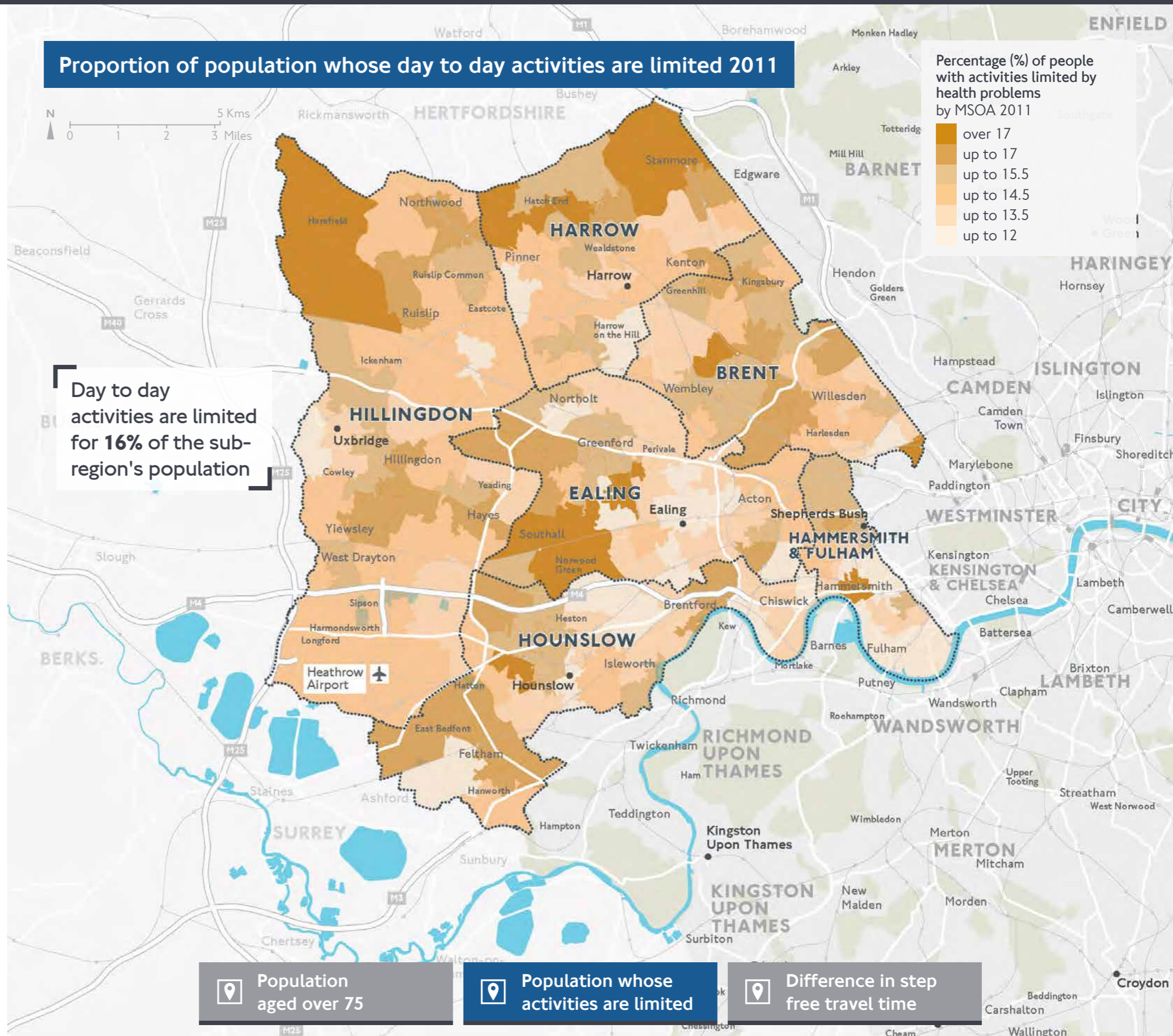


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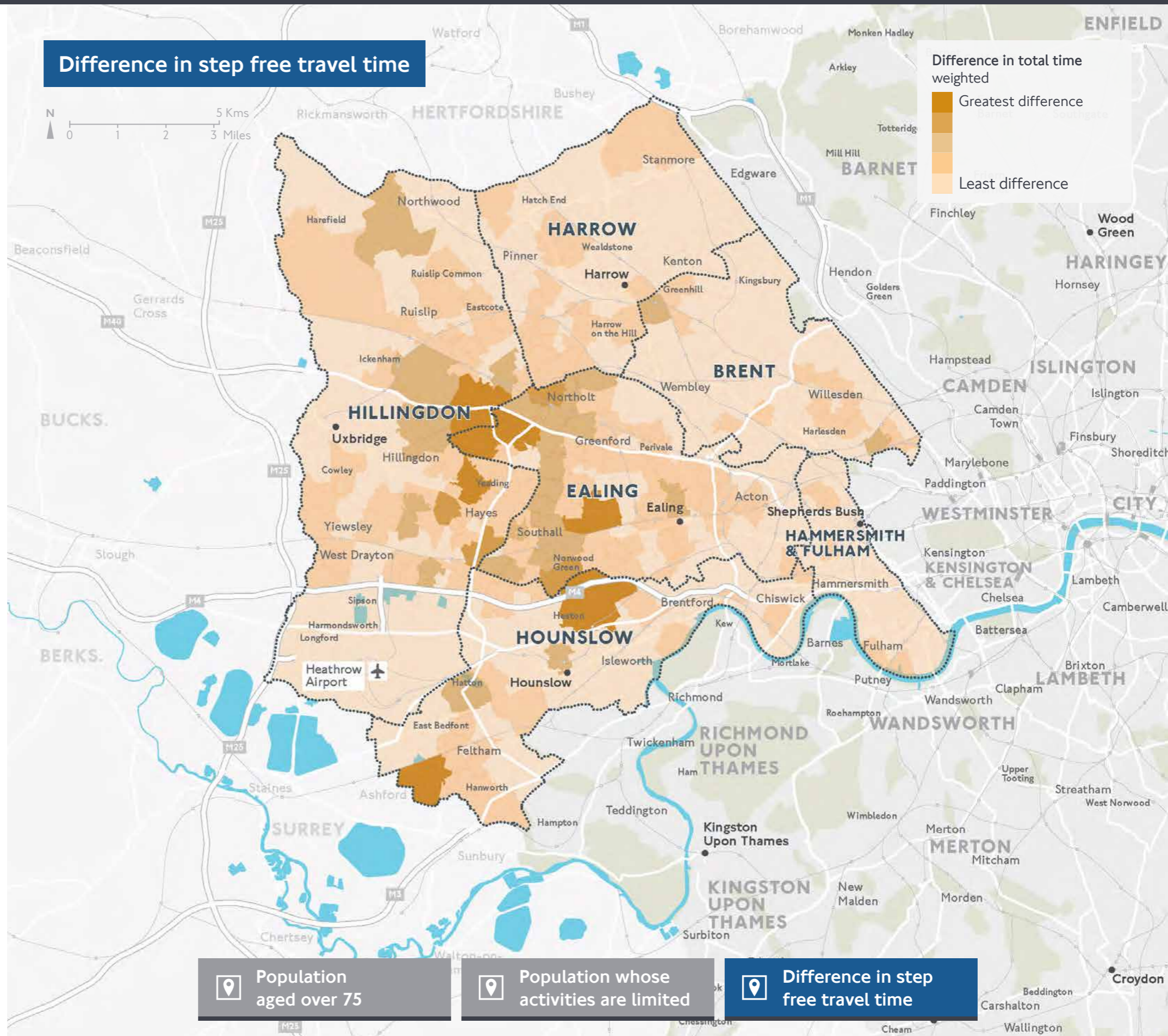


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Physical accessibility involves the design and layout of all the main component parts of the transport network; vehicles, stations and streets. Improving one of these alone however is likely to produce little benefit and all three need to be addressed simultaneously to have significant impacts.



# Future growth >





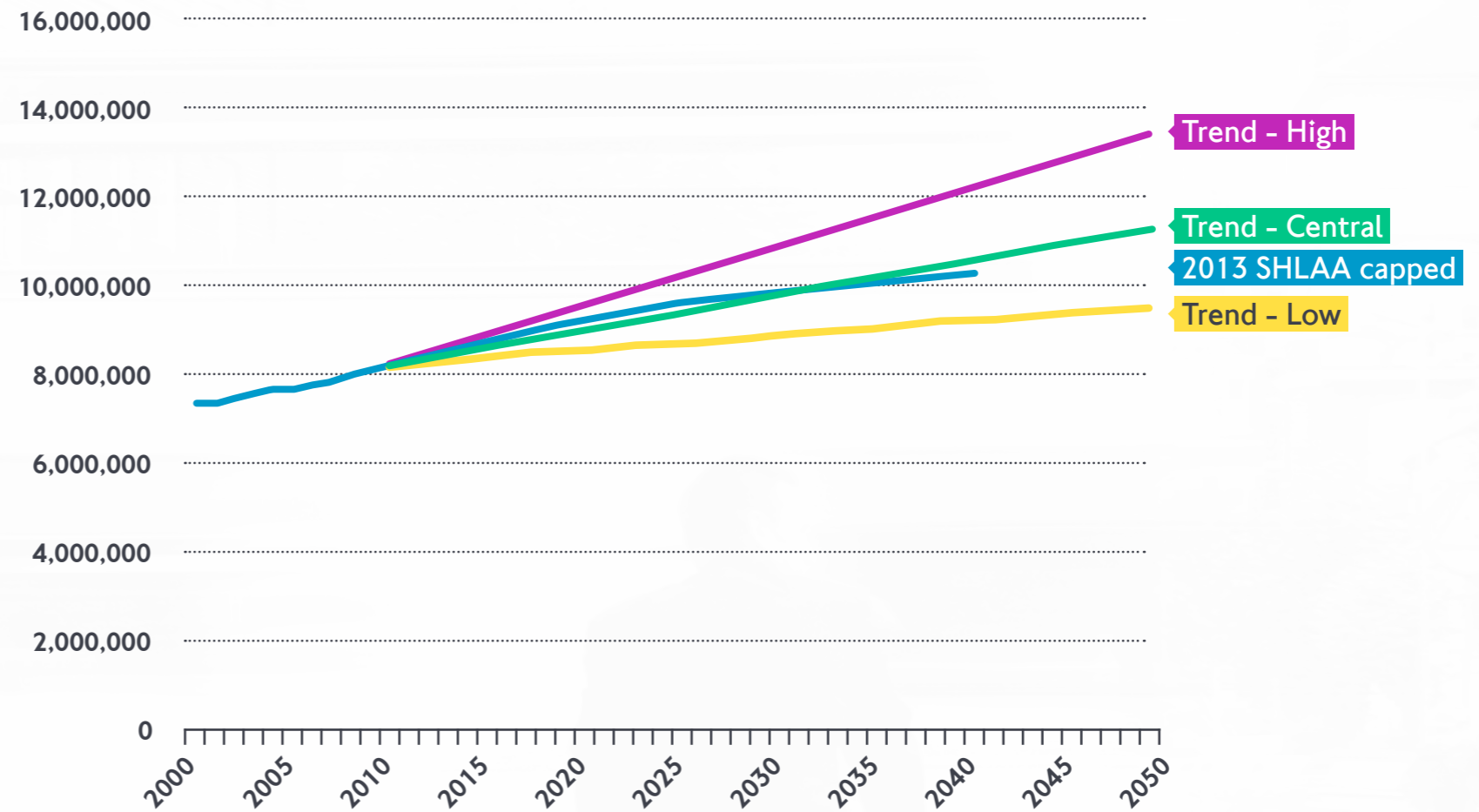
### London's population will continue to grow, generating more demand for transport

Population projections which informed the Further Alterations to the London Plan estimate that the Capital's population will increase to almost 10 million by 2030.

Further projections produced to inform the London Infrastructure Plan 2050 estimate that the population will continue to grow to almost 11.5 million by 2050. This will only be possible if sufficient infrastructure, particularly transport infrastructure, is delivered to support what will be a much larger and denser city compared to today.

Despite previous predictions of homeworking and technology reducing the need to travel, trip rates have remained stable for many years. While there may be some more flexible working, individual trip rates are likely to remain fairly stable and, with increasing population, overall the number of trips are expected to increase. This would mean an increase of 35-40% in the number of trips under the central population projection by 2050, with an increase in public transport trips of about 70% compared to today.

London's future population growth



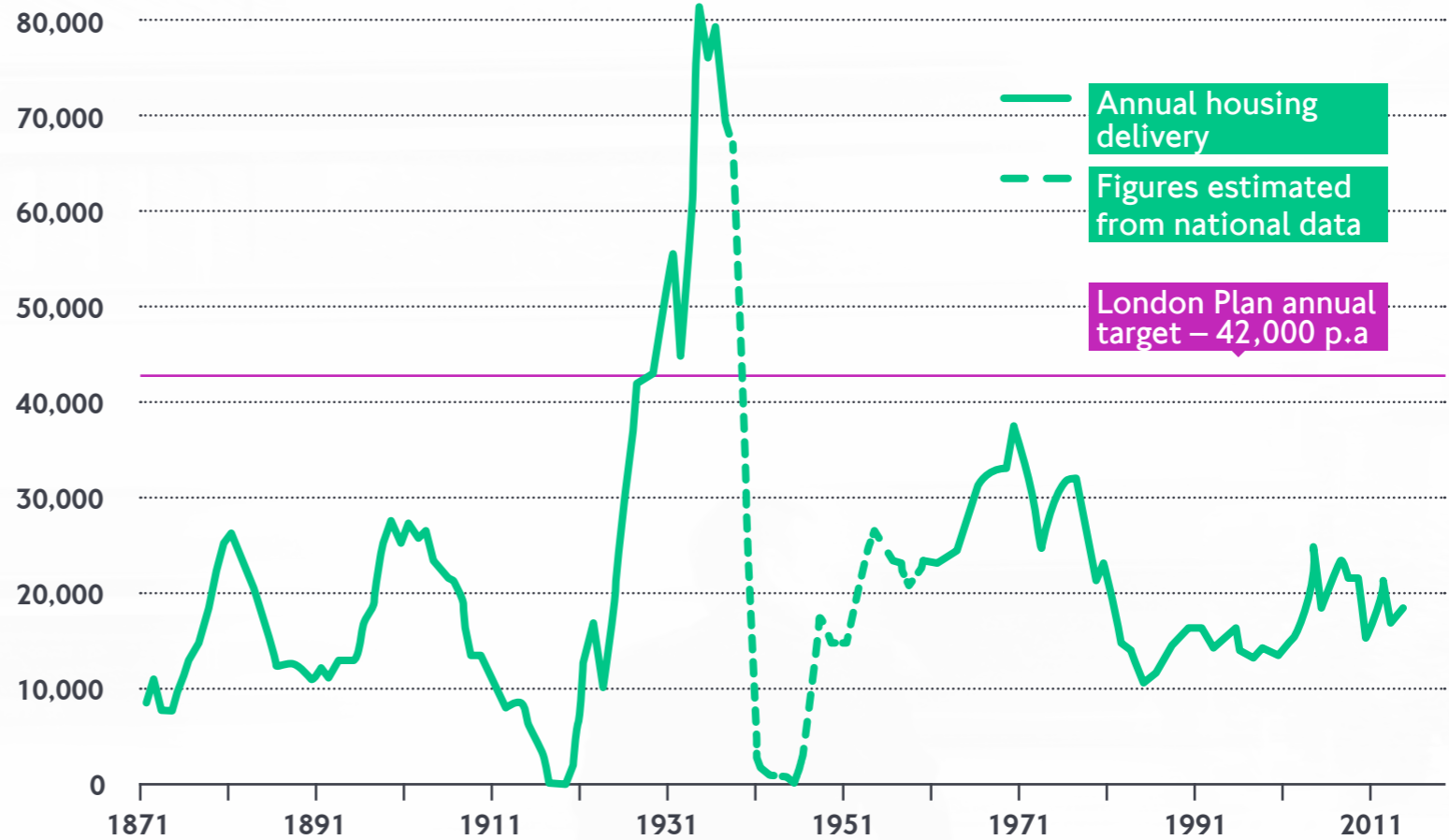
**Insufficient levels of housing are a risk to London's competitiveness. Transport is key to unlocking new homes**

In order to cater for London's rapidly growing population, the GLA estimates that the city will need 49,000 housing units a year. However, just half this rate is currently being delivered across the city. The only time that London has ever built more than 49,000 units was in the interwar period, although during this time London did not have a planning system or a Greenbelt to manage growth.

The shortage of housing has been a key factor in rising prices, with low levels of affordability driving overcrowding, restricting locational choice and causing concern from businesses who believe that it is constraining the labour market and hurting London's competitiveness.

Good transport connectivity, as well as frequency and quality of service are key drivers in unlocking housing. Accessible places are more attractive, attract higher prices and therefore increase the viability of housing development. Investment in the existing network, as well as extensions to the network, can help to unlock significant levels of housing.

**Delivery of housing units vs current London wide housing target**



**Insufficient levels of housing are a risk to London's competitiveness. Transport is key to unlocking new homes**

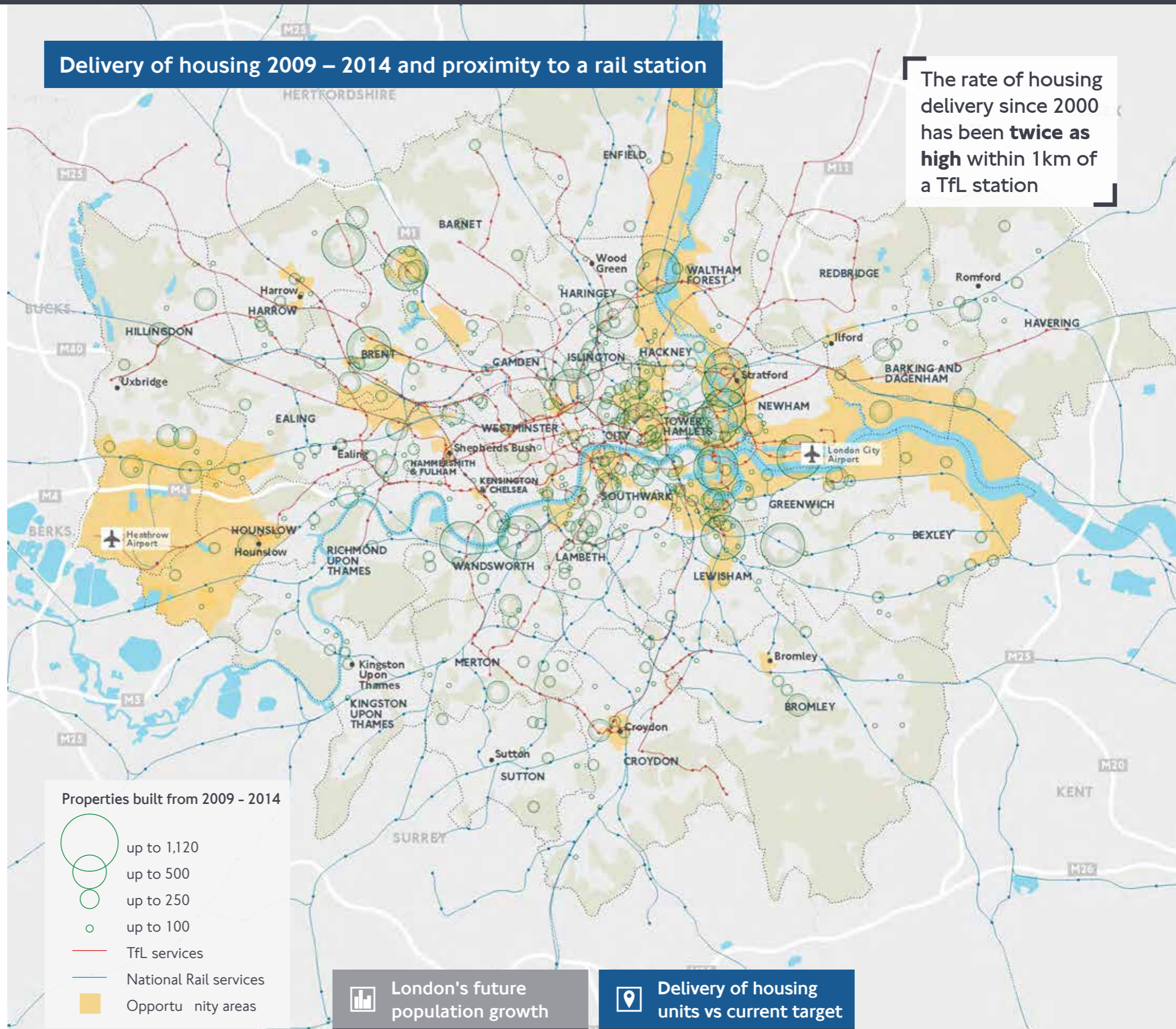
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**Delivery of housing 2009 – 2014 and proximity to a rail station**

The rate of housing delivery since 2000 has been **twice as high** within 1km of a TfL station



**Properties built from 2009 - 2014**

- up to 1,120
- up to 500
- up to 250
- up to 100
- TfL services
- National Rail services
- Opportunity areas

London's future population growth

Delivery of housing units vs current target

### Future employment growth in office based sectors will increase demand for rail based modes

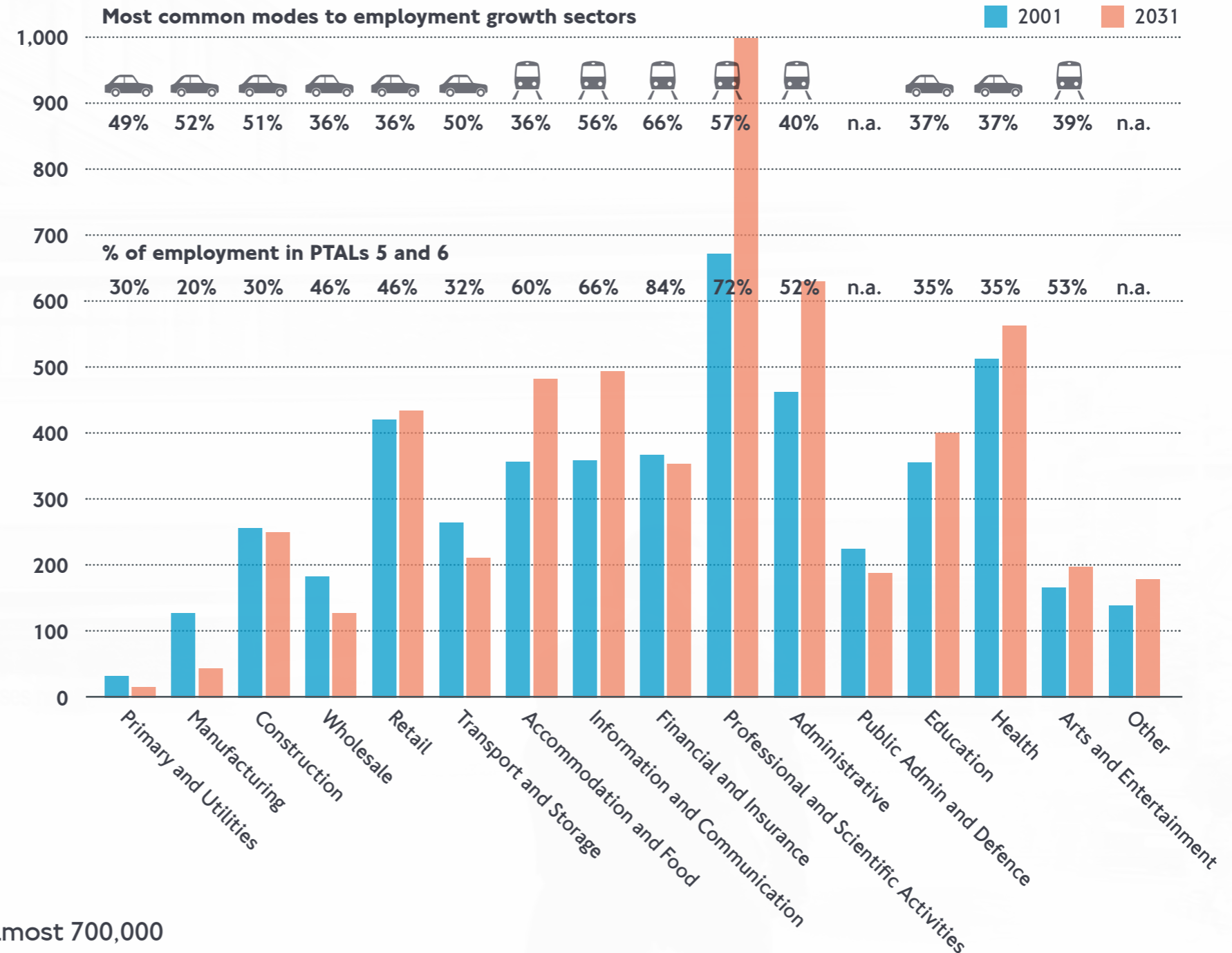
London's strong employment growth is expected to continue, with a 14% increase in employment across all sectors to 2031.

Growth is expected to continue in office based sectors, including professional and scientific activities, whilst employment in manufacturing, transport, wholesale and construction will decline.

As office based sectors are increasingly seeking the most accessible locations by public transport, particularly in Central London, demand for public transport modes is likely to increase. It will be important to ensure there is sufficient capacity on the network to serve these growing sectors, and support London's economic growth.

Most of the sectors which are expected to contract are typically access by car, which could continue to push down commuting to work by car. The decline of these sectors also has the potential to free up land for housing or other land uses for more intensive development.

### Change in employment sectors in London 2011 – 2031



Almost 700,000 additional jobs in London by 2031

### The sub-region's population will continue to grow, along with its housing need

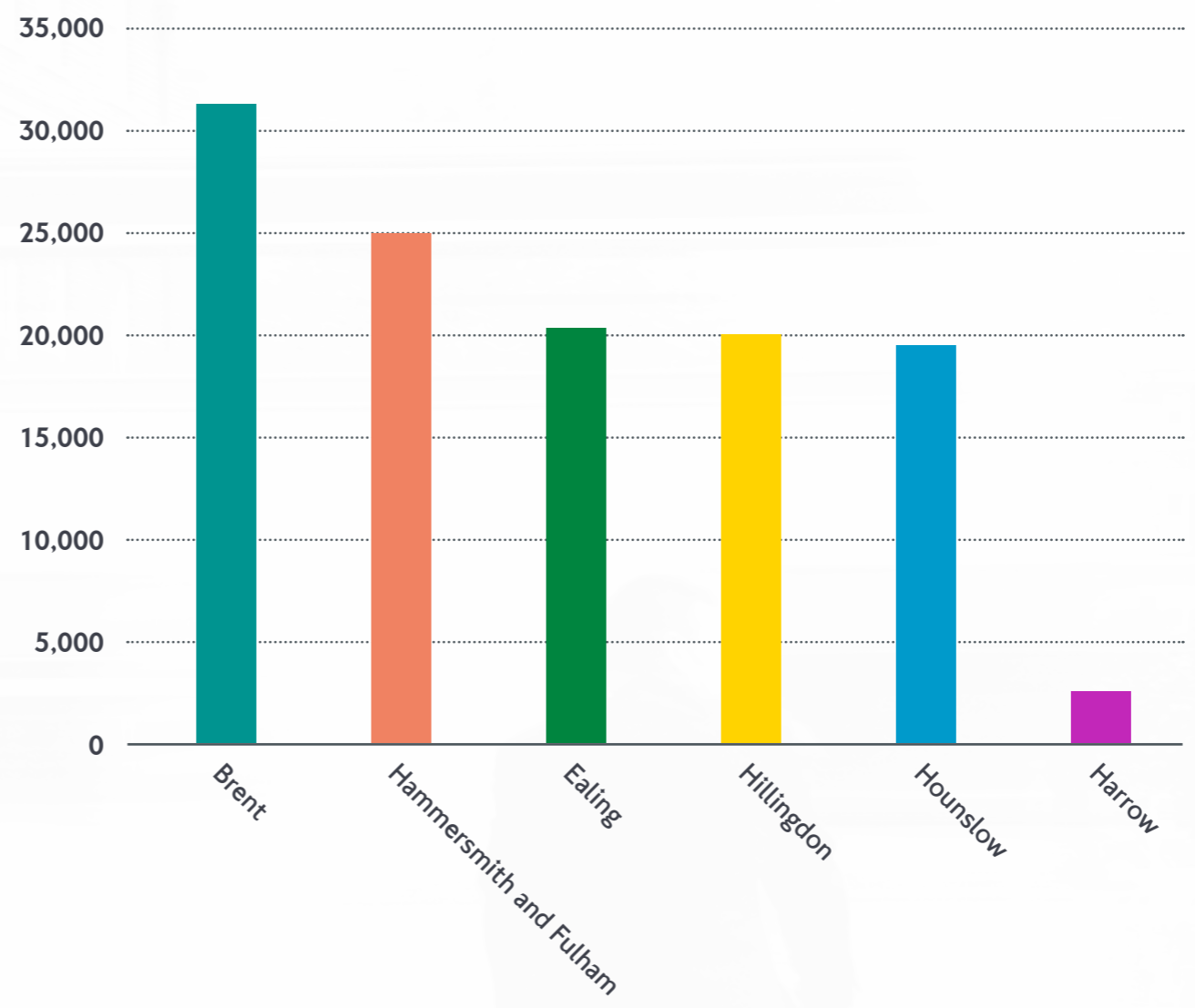
Population projections which informed the Further Alterations to the London Plan estimate that the population of the sub-region will grow by an additional 120,000 people between 2011 and 2031, with some boroughs expected to see significantly higher levels of growth than others.

The two boroughs where there is significant potential for housing growth, Hammersmith & Fulham and Brent, are expected to see the greatest population increase. At the other end of the scale, population growth in Harrow, where there is little housing development planned, is expected to be relatively low.

Hounslow, Hillingdon and Harrow have relatively low housing targets, which could be met by continuing recent rates of delivery. Rates of housing delivery will need to increase in Hammersmith & Fulham, Ealing and Brent, with a well functioning transport network key to achieving this.

120,000 additional people in the sub-region by 2031

### Population growth 2011 – 2031



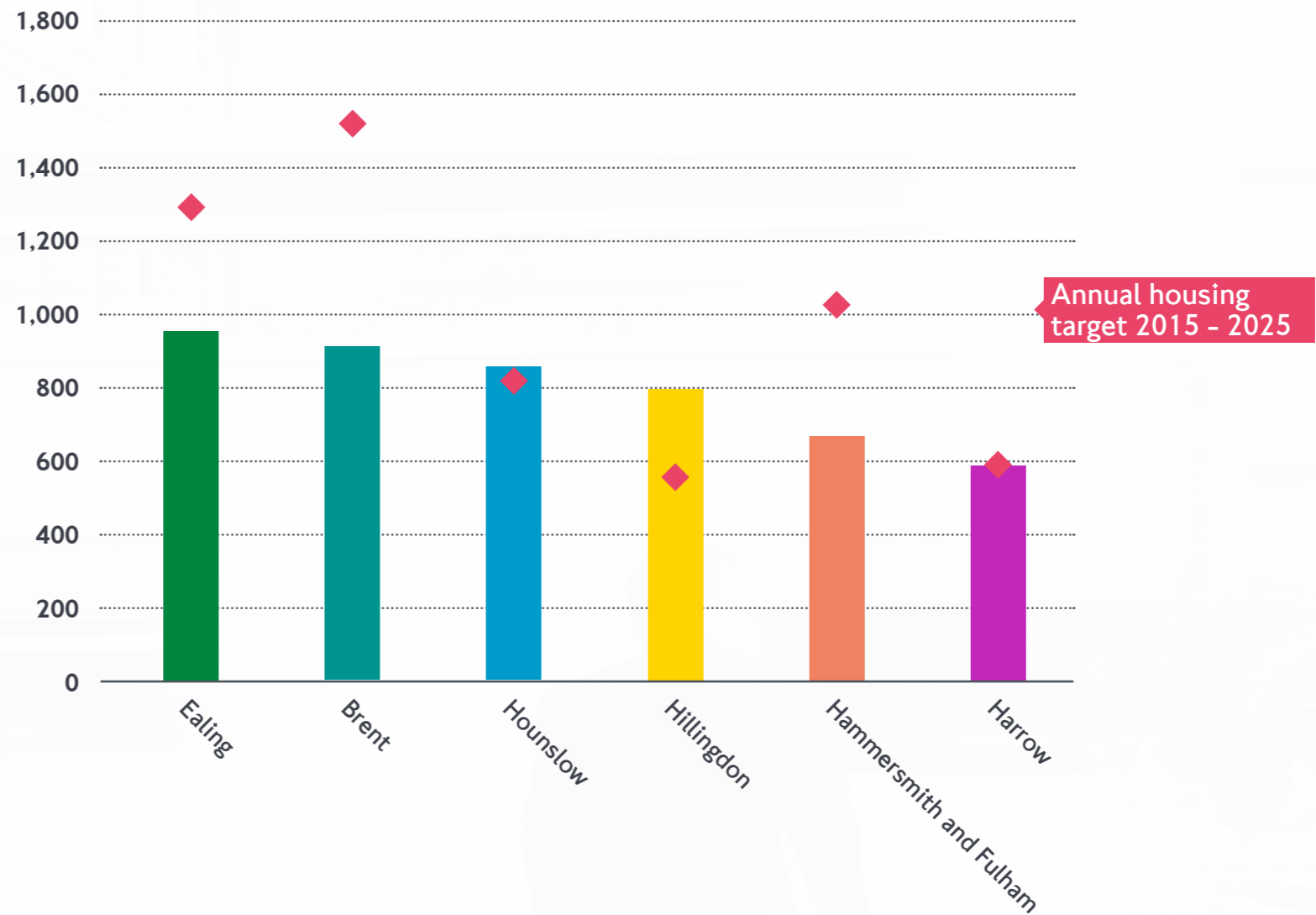
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Annual housing delivery 2004 – 2014



London's future population growth

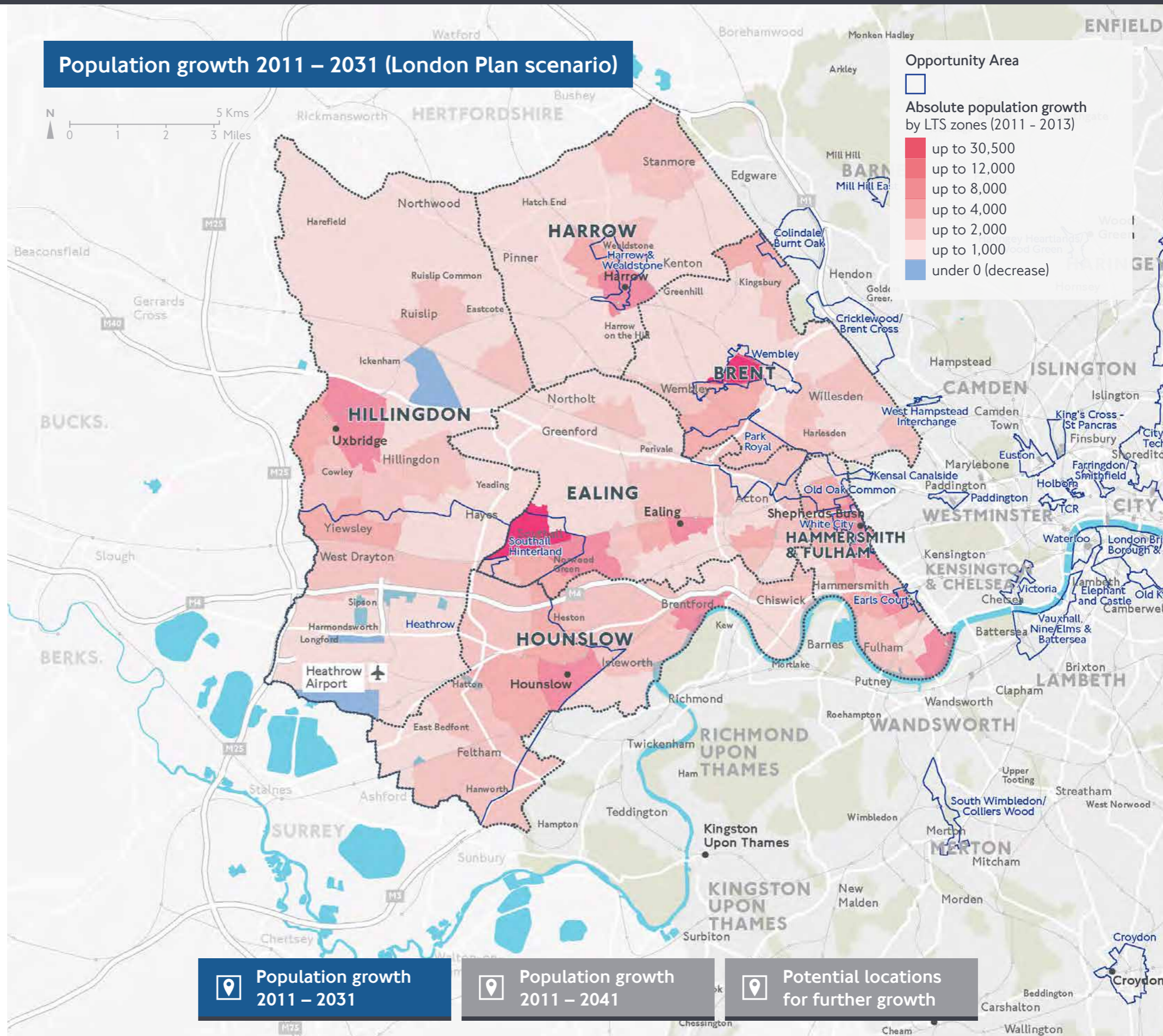
Delivery of housing units vs current target

**There is potential to support higher levels of population growth than currently being planned for**

The Further Alterations to the London Plan identified opportunities for significant housing growth at Southall, Wembley, Harrow town centre and White City. Maintaining the capacity and connectivity of the transport network will be key to unlocking these growth sites. Other locations throughout the sub-region will also see housing growth from conversions, infill and smaller development schemes.

There is also significant potential for higher levels of growth than those set out in the Further Alterations to the London Plan, particularly at locations already well served by transport infrastructure and at places where significant improvements are planned. In particular there is potential for significant growth at Old Oak Common, which will become a major hub connecting the proposed high speed rail network with London wide and local services. Over x units could be accommodated here.

Denser levels of development could also come forward around station locations, subject to addressing wider planning policy objectives.

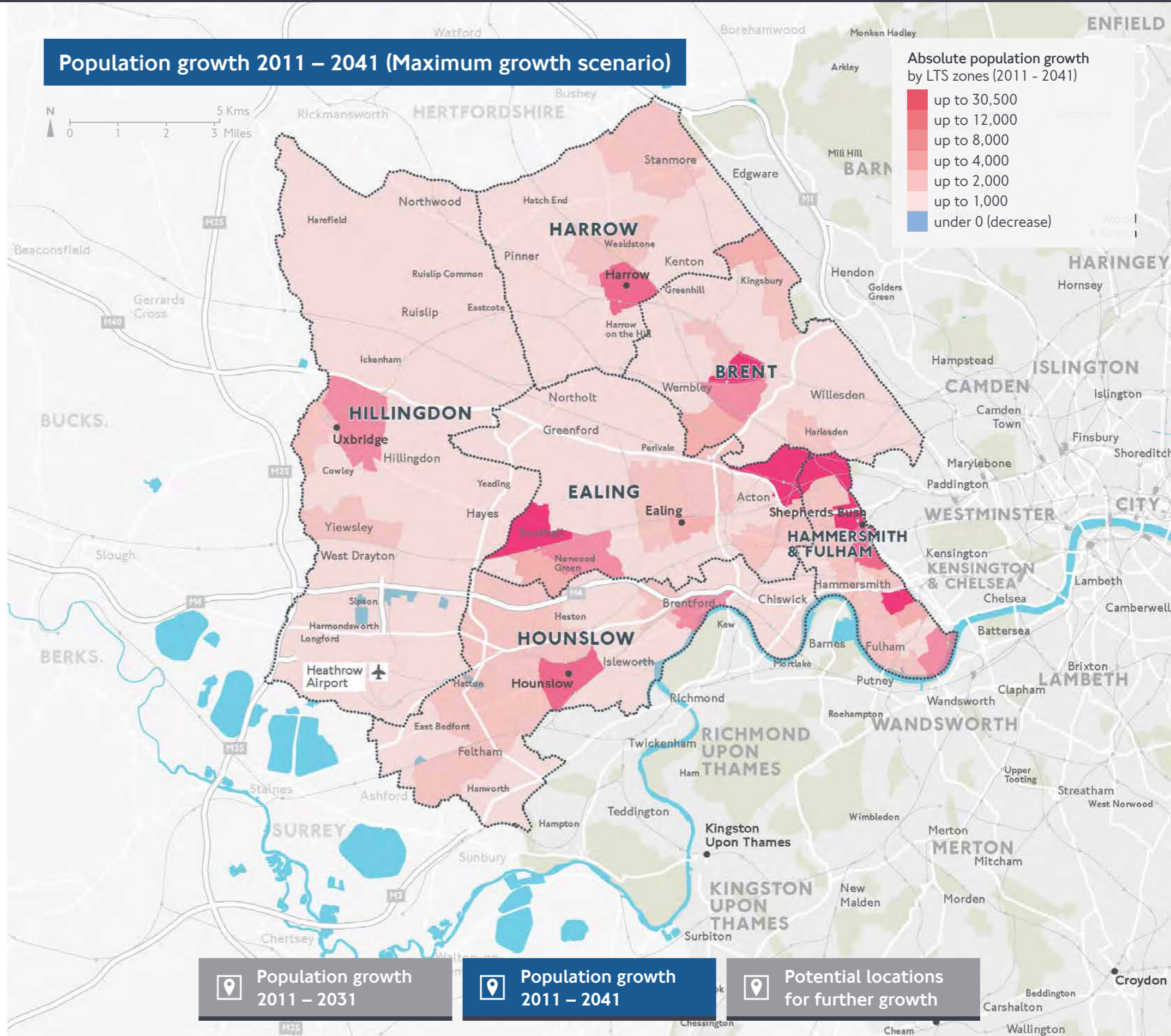


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**Population growth 2011 – 2041 (Maximum growth scenario)**

**Absolute population growth by LTS zones (2011 - 2041)**

- up to 30,500
- up to 12,000
- up to 8,000
- up to 4,000
- up to 2,000
- up to 1,000
- under 0 (decrease)

Population growth 2011 – 2031

Population growth 2011 – 2041

Potential locations for further growth

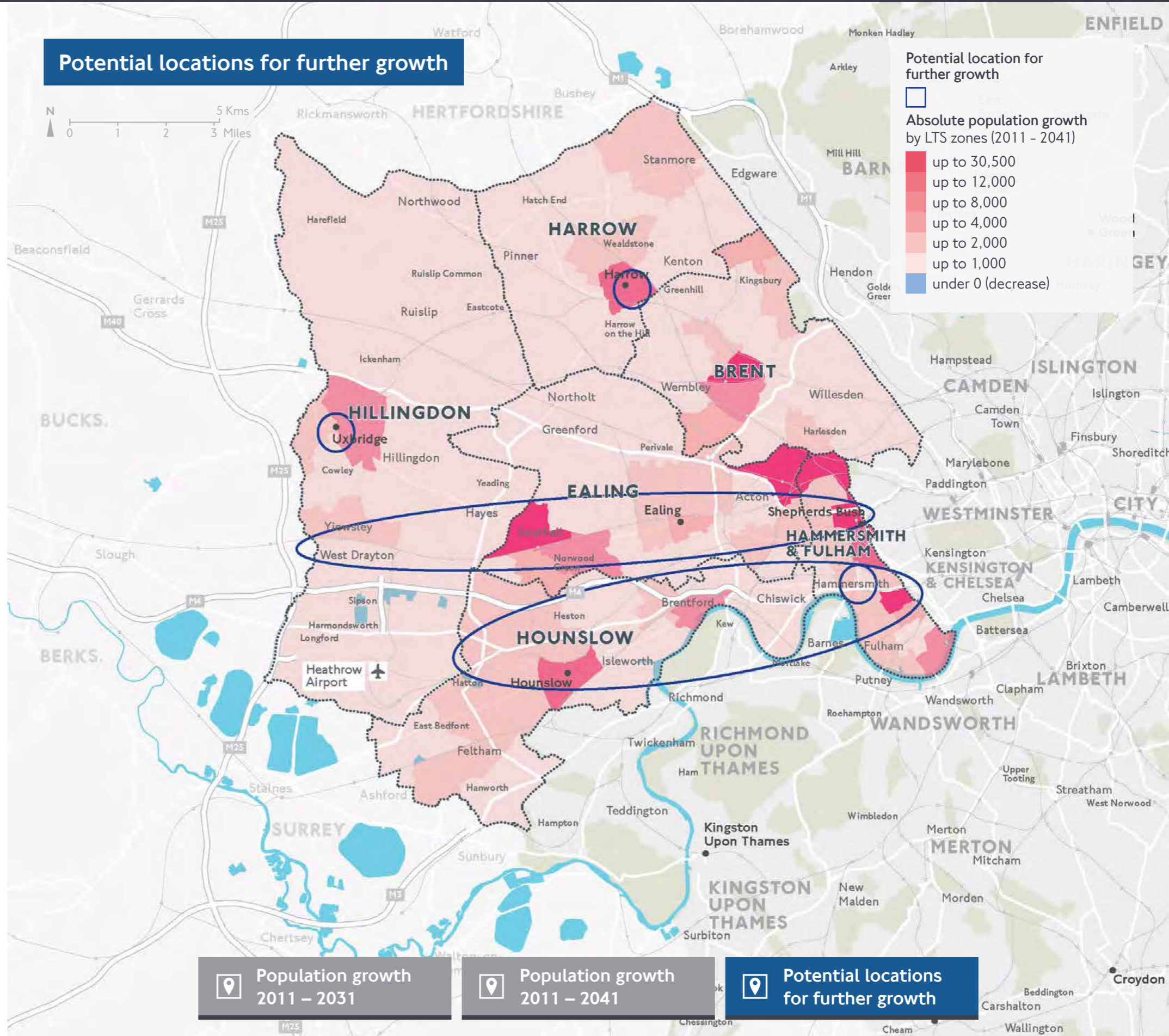


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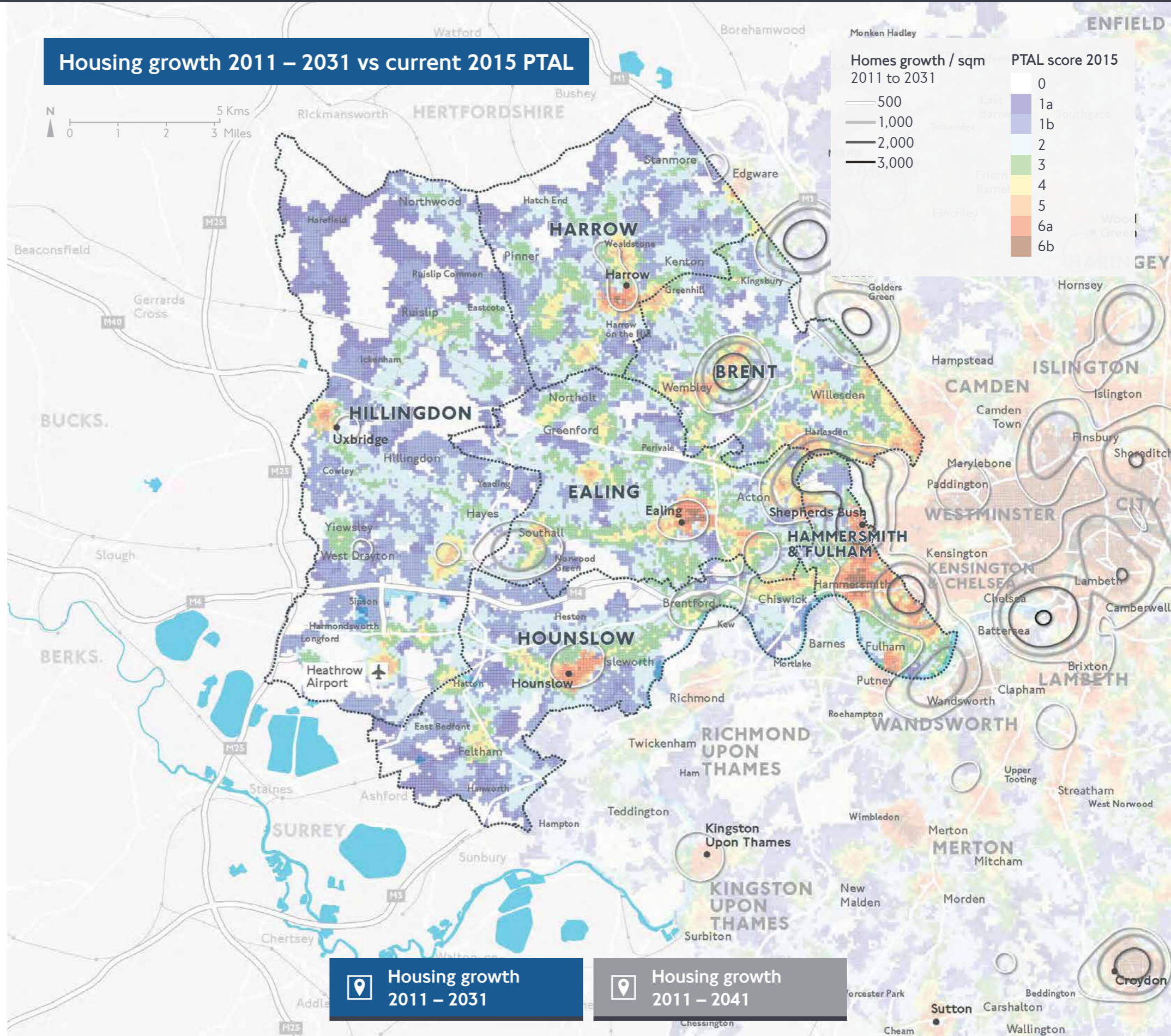
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**Some major growth locations will need better public transport connectivity to unlock development**

As the shift to public transport modes continues, with households increasingly less likely to own a car, proximity to the public transport network is becoming ever more important to where people chose to live. Housing development is therefore increasingly dependent on good public transport access.

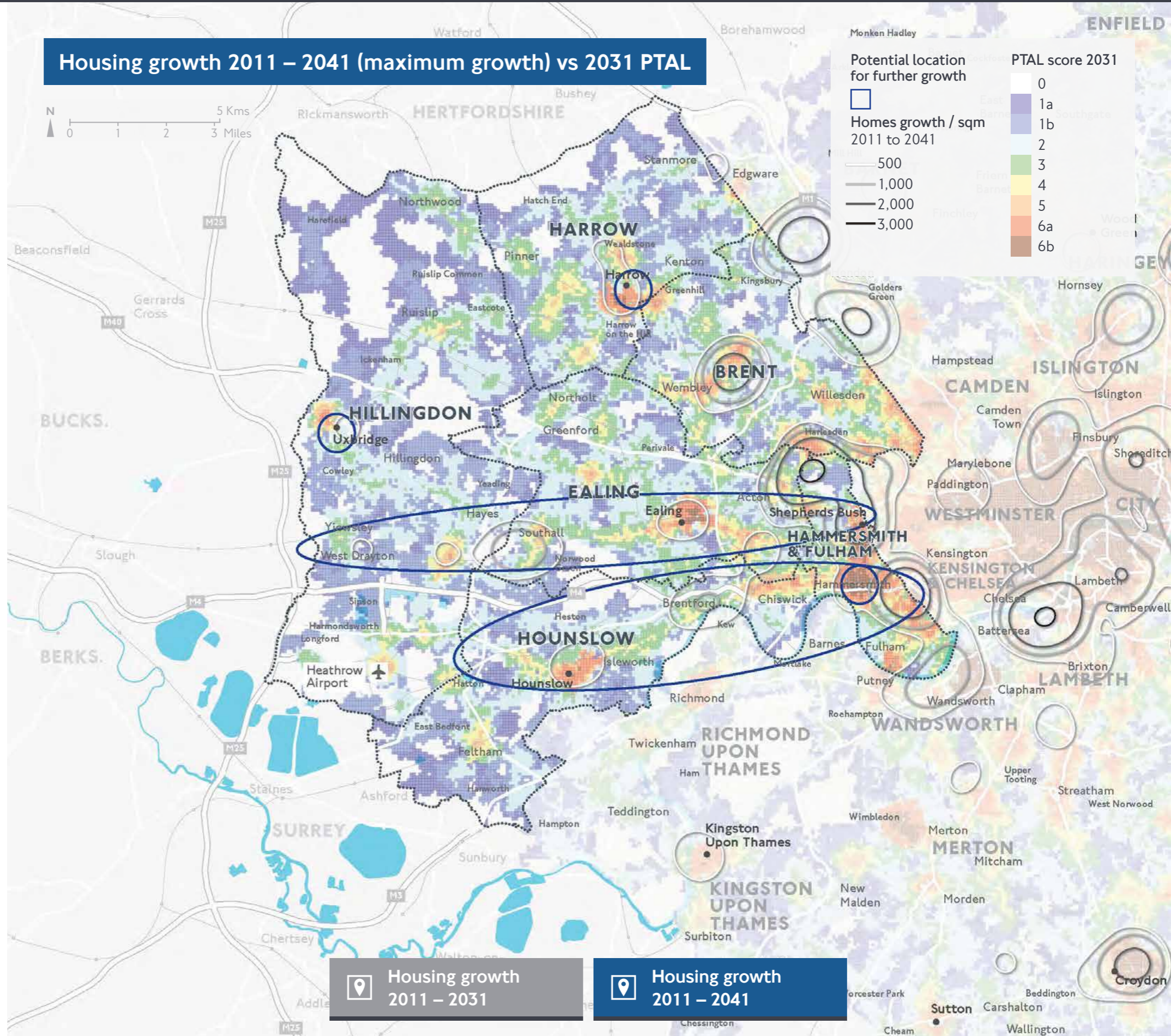
Most places where significant housing development is planned already have good public transport accessibility within the sub-region, although there will be a need to improve access around Old Oak Common to maximise the significant growth potential that exists here. Whilst the proposed high speed rail will provide a step change in connectivity, local transport links will be required to ensure the sub-region's residents can access jobs here, and Old Oak Common residents can access jobs and local services elsewhere in the sub-region.



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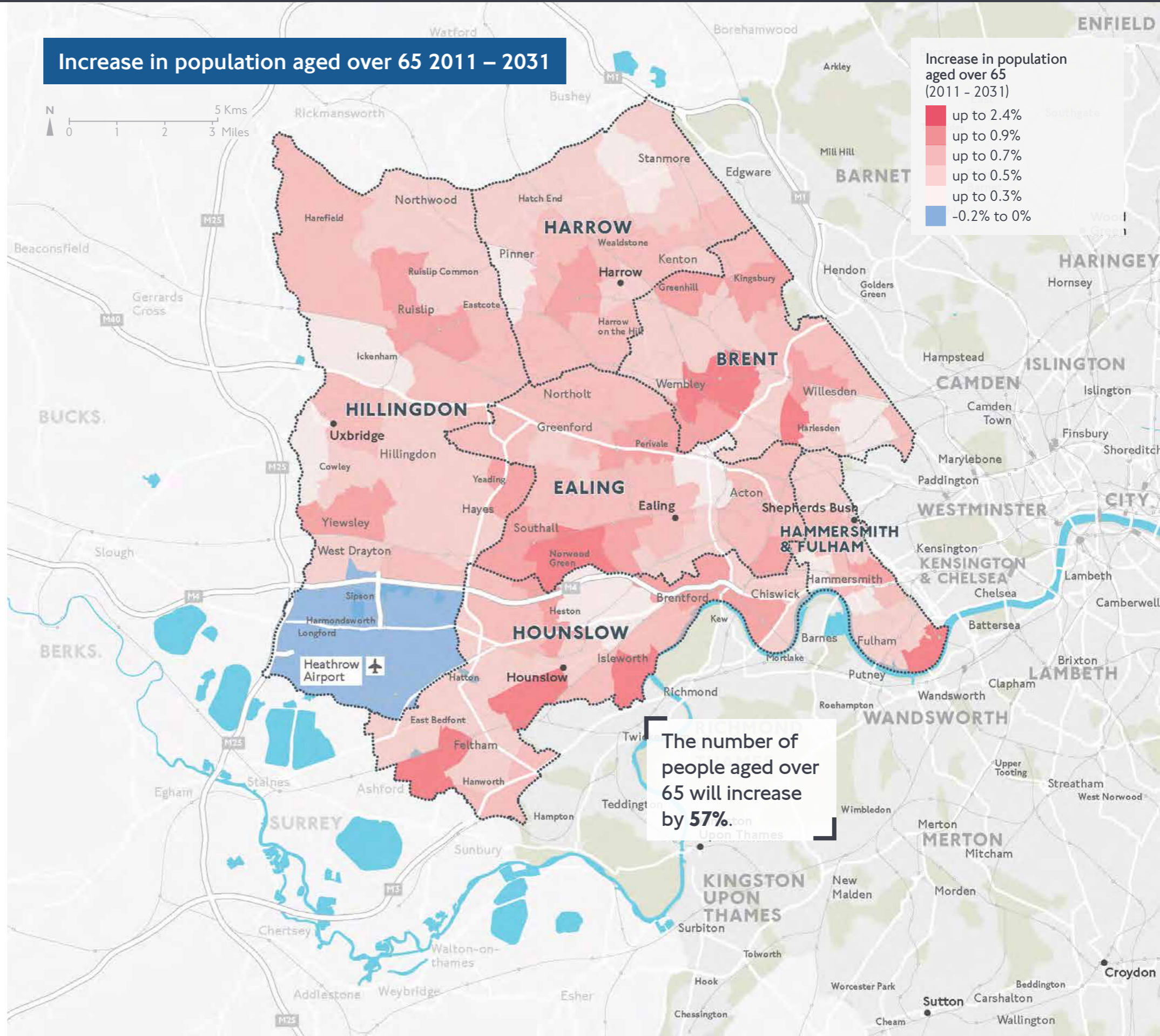
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**The proportion of older people will increase, generating more demand for an accessible transport network**

'The number of people aged over 65 is expected to increase between 2011 and 2031, with the greatest percentage increase in Hounslow. These areas may need to be considered for the prioritisation of measures to enhance step free access, particularly in Ealing and Hounslow, where the difference between the step free and non-step free travel time is already greatest.



**There is potential to support higher levels of employment growth at key transport nodes**

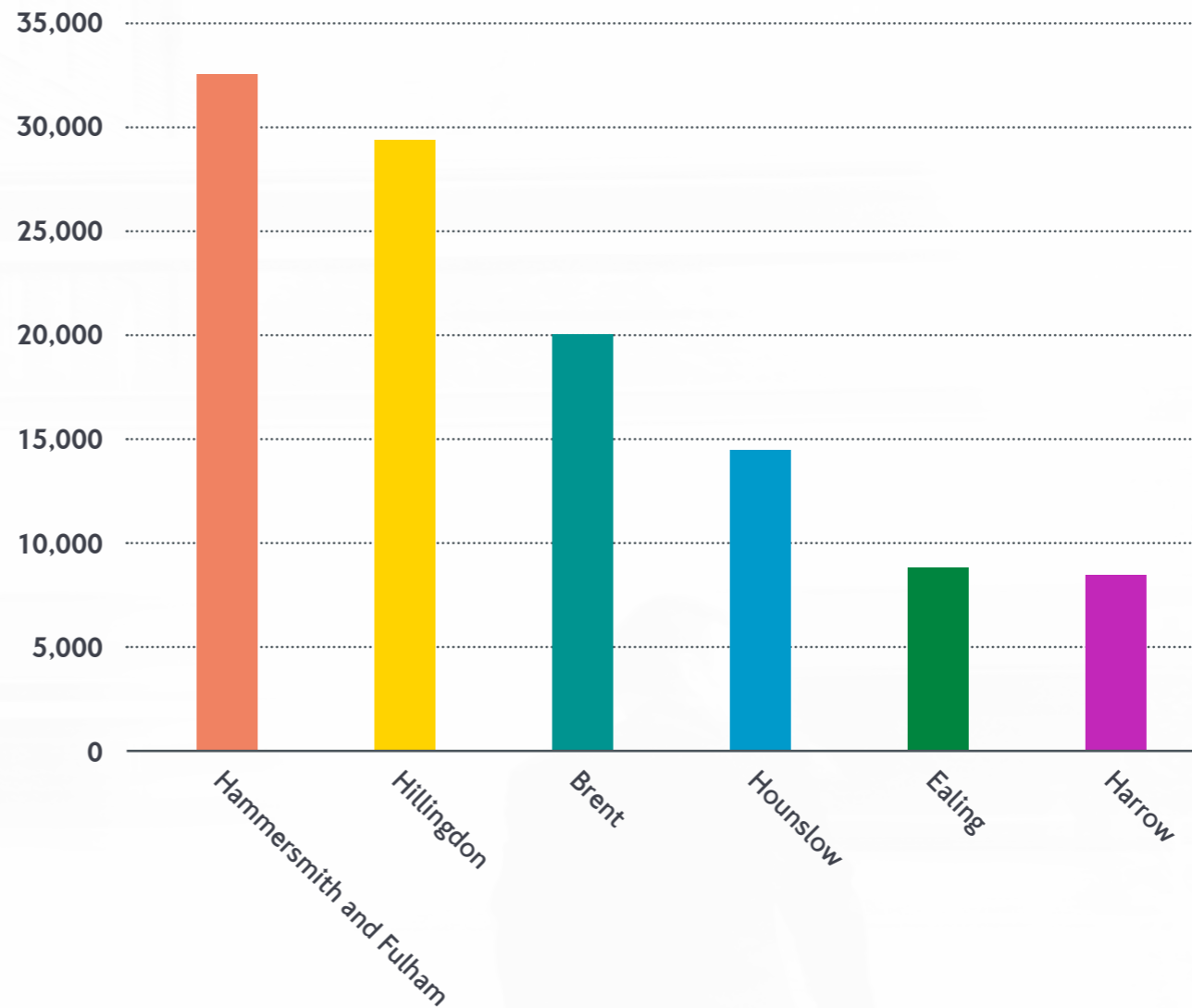
The Further Alterations to the London Plan identified that employment could grow by 14% between 2011 and 2031 in the sub-region. The Plan also identified opportunities for significant employment floorspace growth at Park Royal, Shepherd's Bush and Wembley, Maintaining the capacity and connectivity of the transport network will be key to unlocking these growth sites. Other locations throughout the sub-region will also see employment growth through redevelopment and the expansion of existing businesses.

There is also significant potential for higher levels of growth than those set out in the Further Alterations to the London Plan, particularly at locations already well served by transport infrastructure and at places where significant improvements are planned. In particular there is potential for significant employment growth at Old Oak Common.

Retail floorspace in the sub-region's town centres is also expected to grow, with most of the growth expected to occur in the Metropolitan centres, and smaller District Centres expected to contract.

**115,000** more jobs in the sub-region by 2031

**Employment growth 2011 – 2031**



**Employment growth 2011 – 2031**



**Employment growth 2011 – 2031**



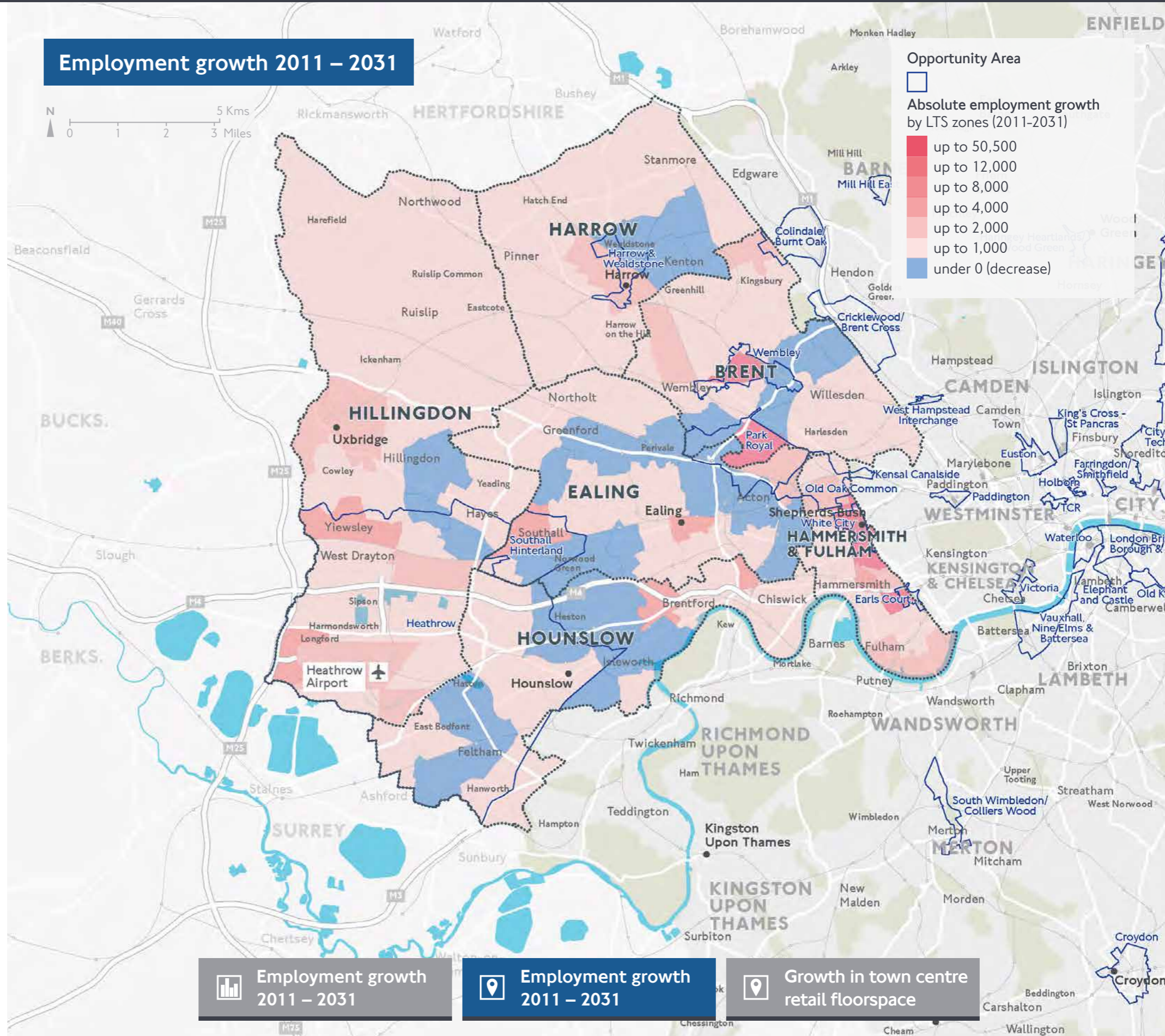
**Growth in town centre retail floorspace**

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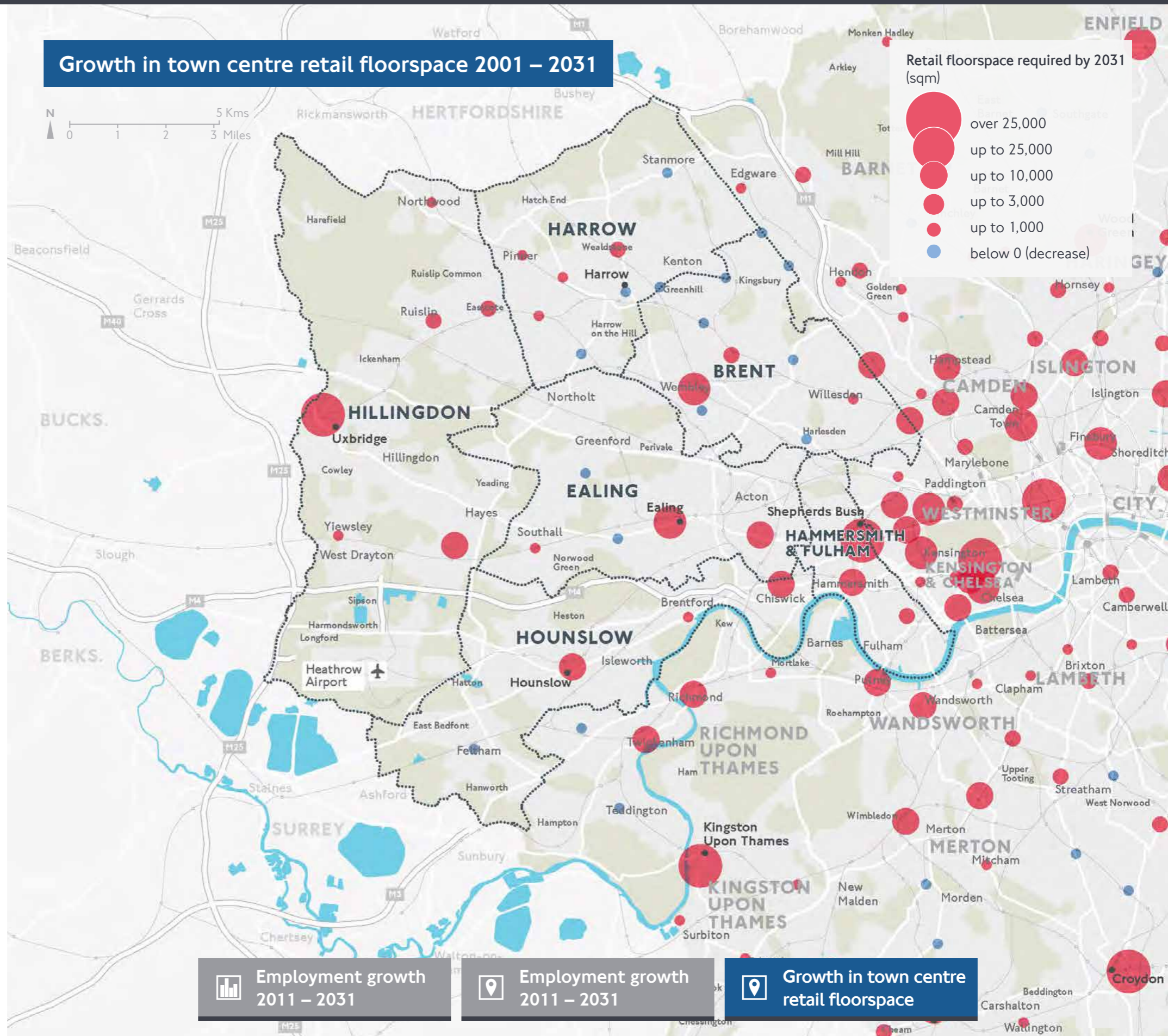


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**Growth in town centre retail floorspace 2001 – 2031**

**Retail floorspace required by 2031 (sqm)**

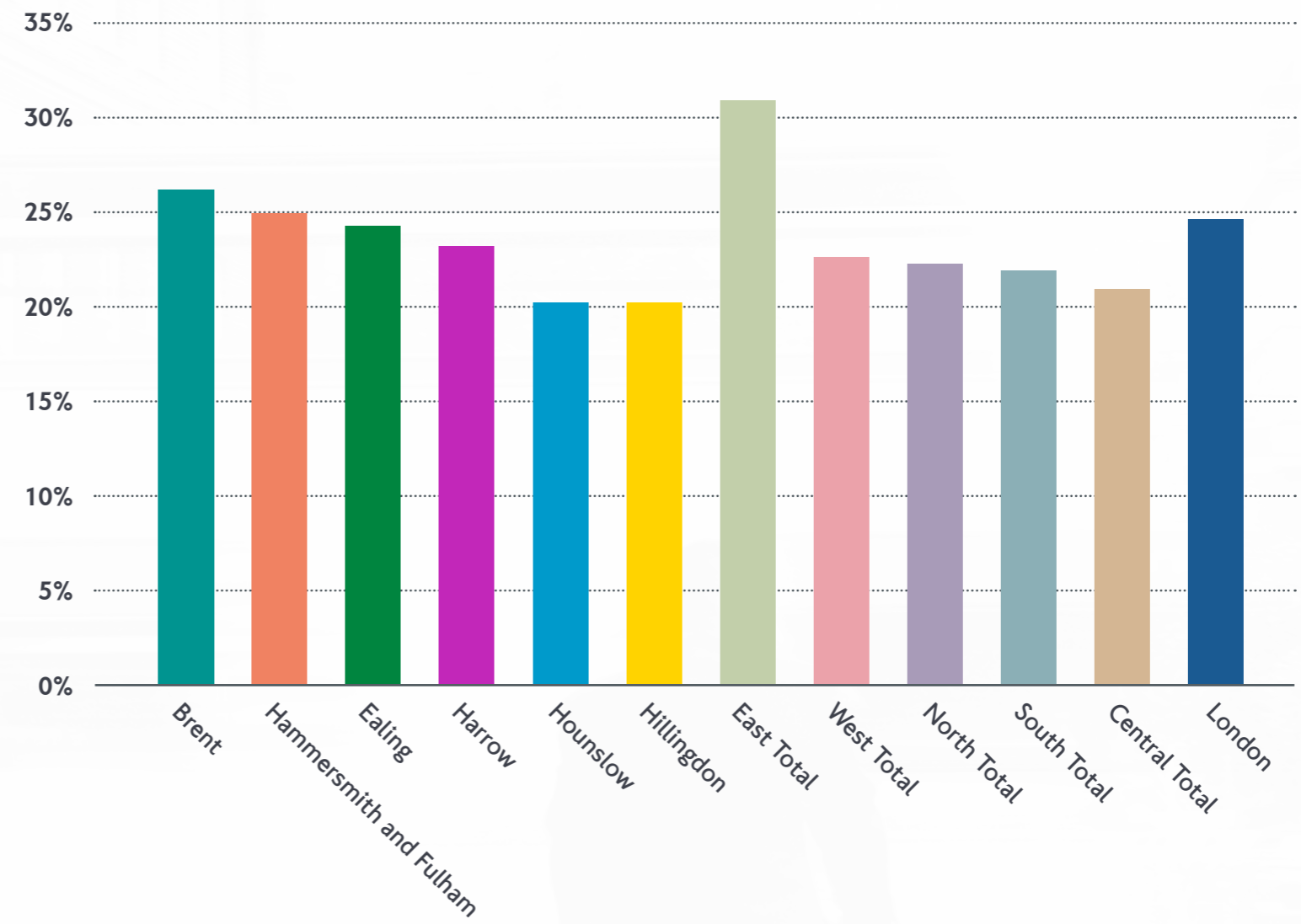
- over 25,000
- up to 25,000
- up to 10,000
- up to 3,000
- up to 1,000
- below 0 (decrease)

### The number of vans on the highway network will continue to grow

The logistics sector plays a key role in supporting London's economy, providing vital support to commercial activities through the delivery of goods. Online commerce is expected to continue growing, in part contributing to an estimated 23% increase in demand for vans on the sub-region's roads.

Vehicle kms by van expected to increase by **23%** by 2031

### Growth in van vehicle kms 2011 – 2031

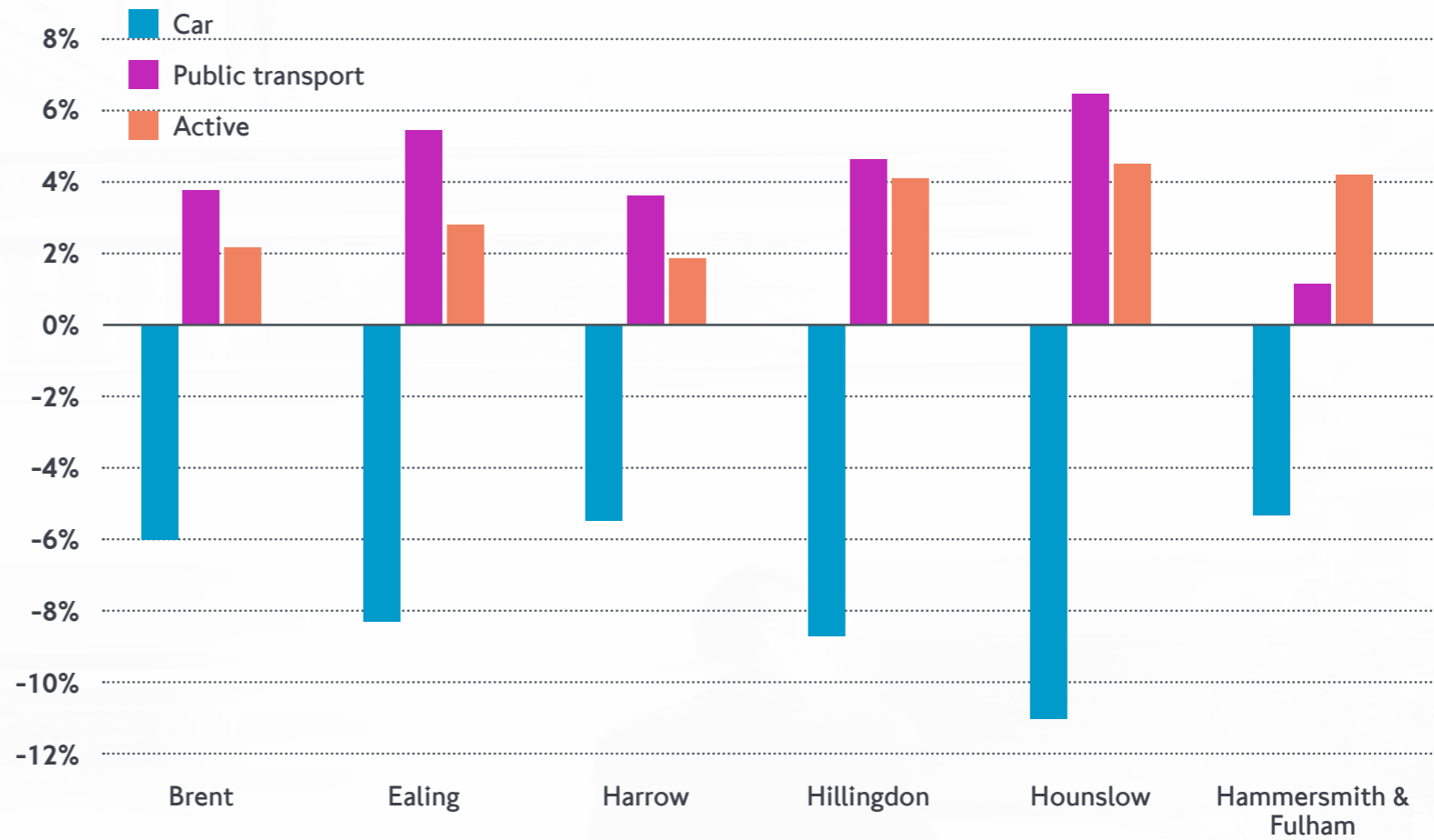




**Public transport mode share will continue to increase, but only if capacity is increased to accommodate growth**

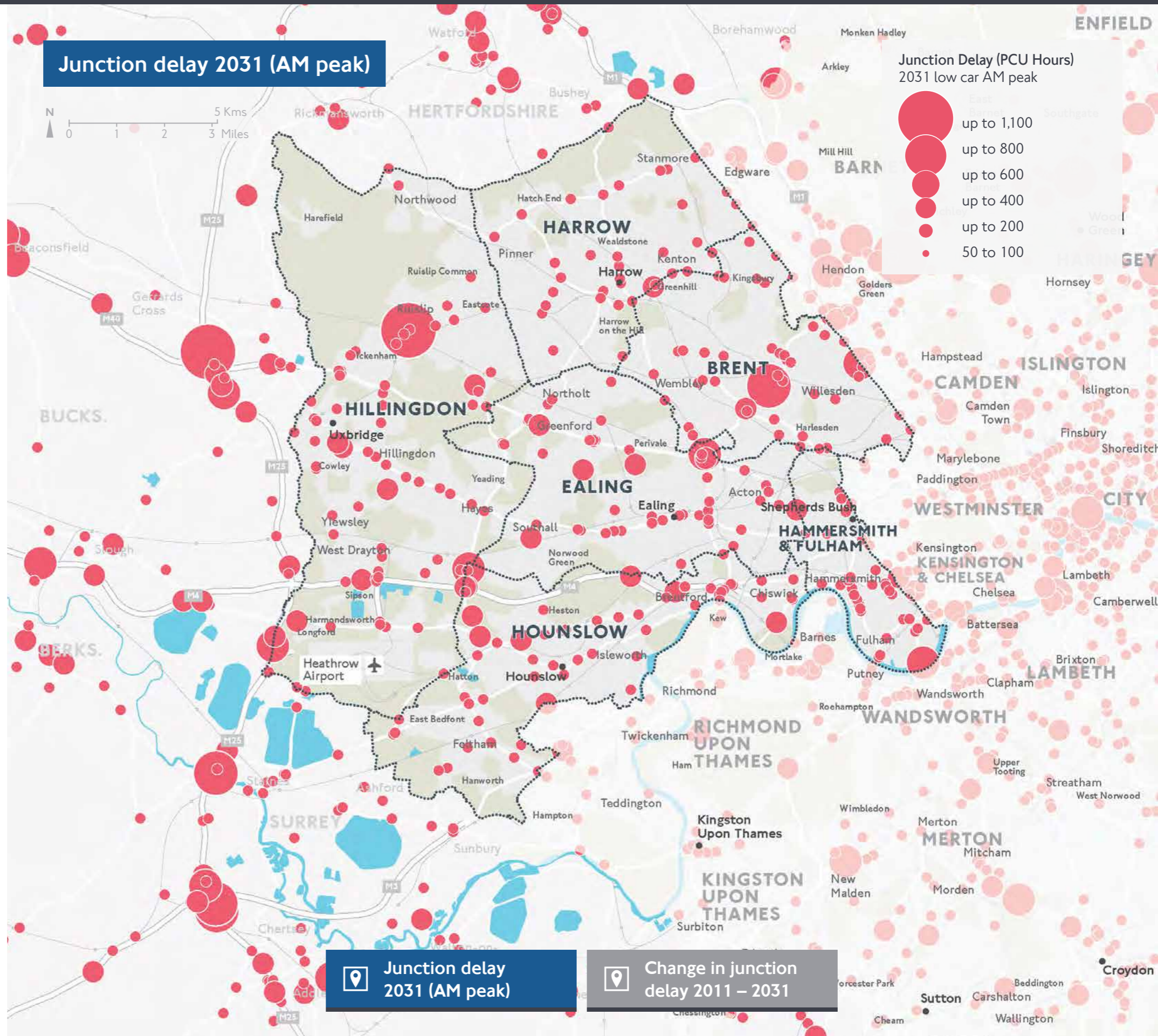
Based on the continuation of recent trends, mode share of public transport and active travel modes will increase as mode share for car falls. Much of this change is expected to come about from new residents, whose travel patterns are often different to existing residents. Boroughs will therefore need to take action to encourage mode shift amongst existing travellers too. In order to achieve this shift to more sustainable modes there will need to be considerable behavioural change in addition to investment in infrastructure. Measures to encourage a shift away from car could include smarter travel initiatives and measures to turn walking and cycling potential into reality. Other measures still allow access to services without having to travel as far, for example through better use of IT and freight consolidation.

**Mode shift 2011 – 2031**



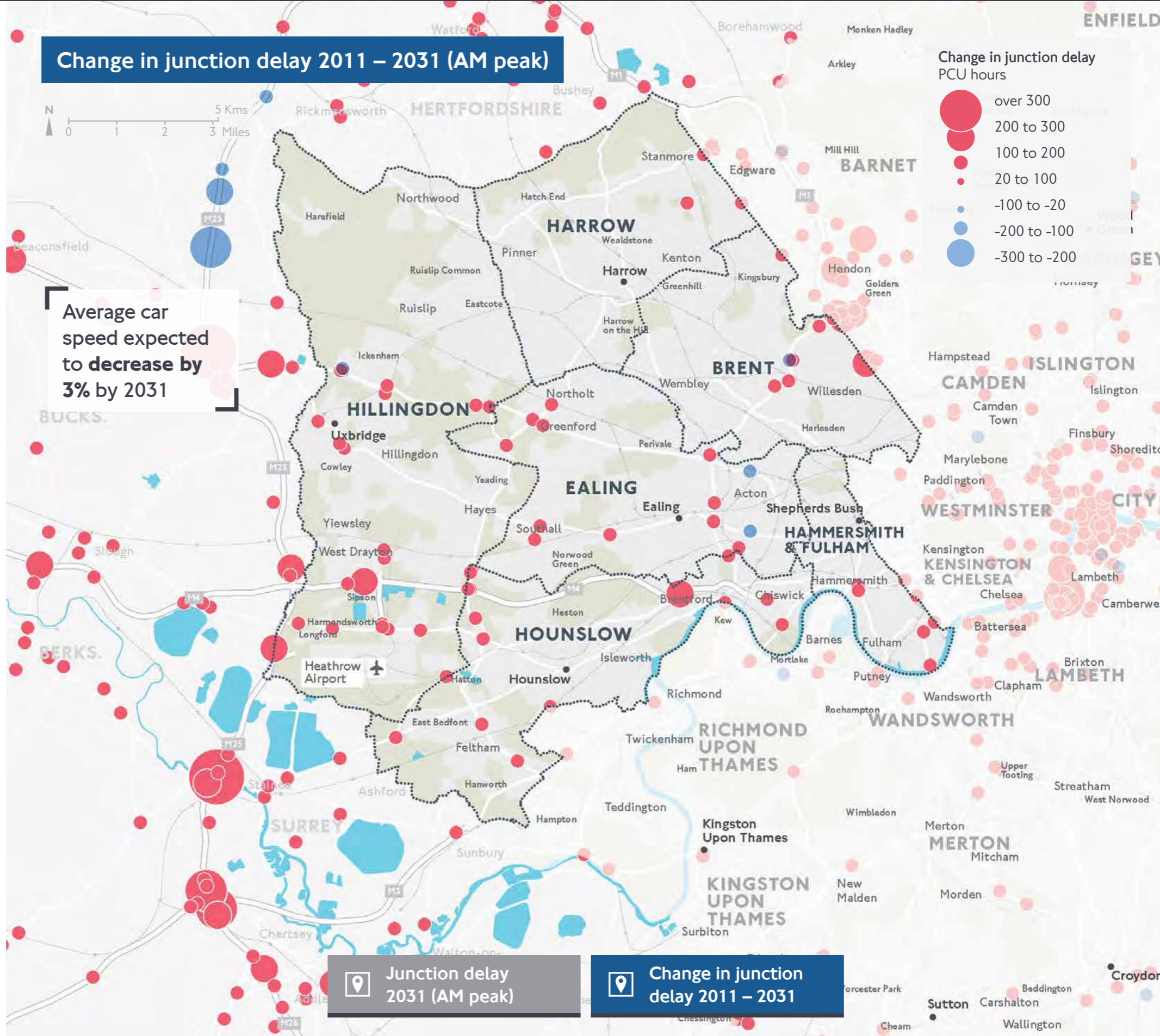
### Highway congestion will get worse without many more people switching to alternative modes

Under current forecasts, whilst car mode share will fall, population and employment growth mean there will be an increase in the number of cars using the highway network in the sub-region, resulting in increased congestion. This could constrain economic growth, lower quality of life for existing residents and prevent the sub-region from fulfilling its growth potential. Particular locations where congestion is expected to increase include the A40, particularly within Hillingdon, the A4, the A406 North Circular and a number of roads which link to Heathrow Airport.



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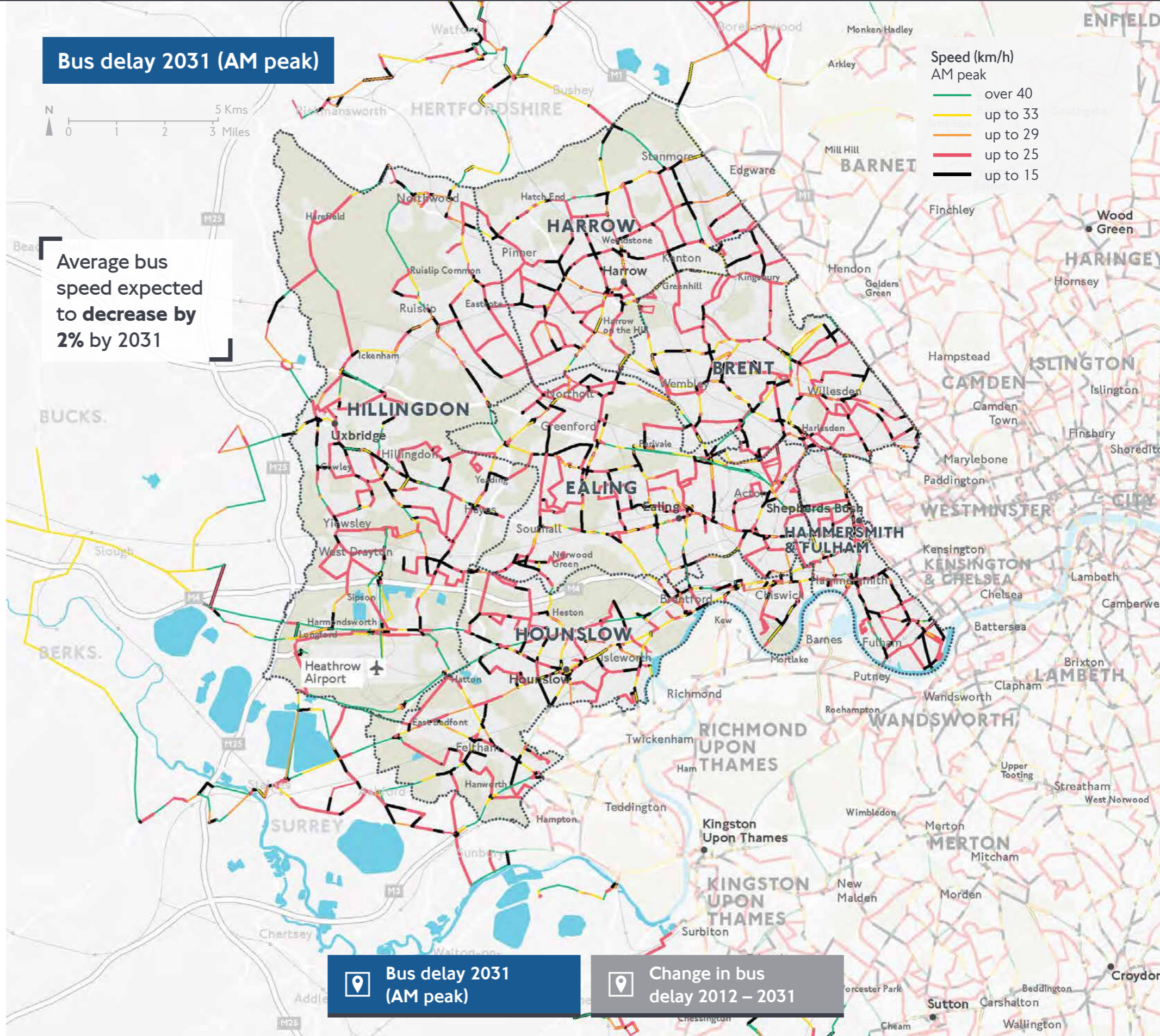


**Increased levels of congestion will slow bus services, which are a vital element of the public transport network in the sub-region**

For many people, buses provide the main means to access their local jobs, schools, shops and services across the sub-region. But as highway congestion increases, this could have the result of reducing average bus speeds without measures to further prioritise bus operations.

This also needs to be set against an anticipated increase in overall bus demand, driven by increasing levels of population and employment growth, in the sub-region. Services will need to respond to changes in demand through the process of continuing consultation and review, with new or expanded services desirable, particularly to serve growth areas.

Any measures to maintain bus reliability and journey times will need to be designed to complement measures for pedestrians, cyclists, smoother traffic flows and the urban realm.



**Bus delay 2031 (AM peak)**

**Average bus speed expected to decrease by 2% by 2031**

**Bus delay 2031 (AM peak)**

**Change in bus delay 2012 - 2031**

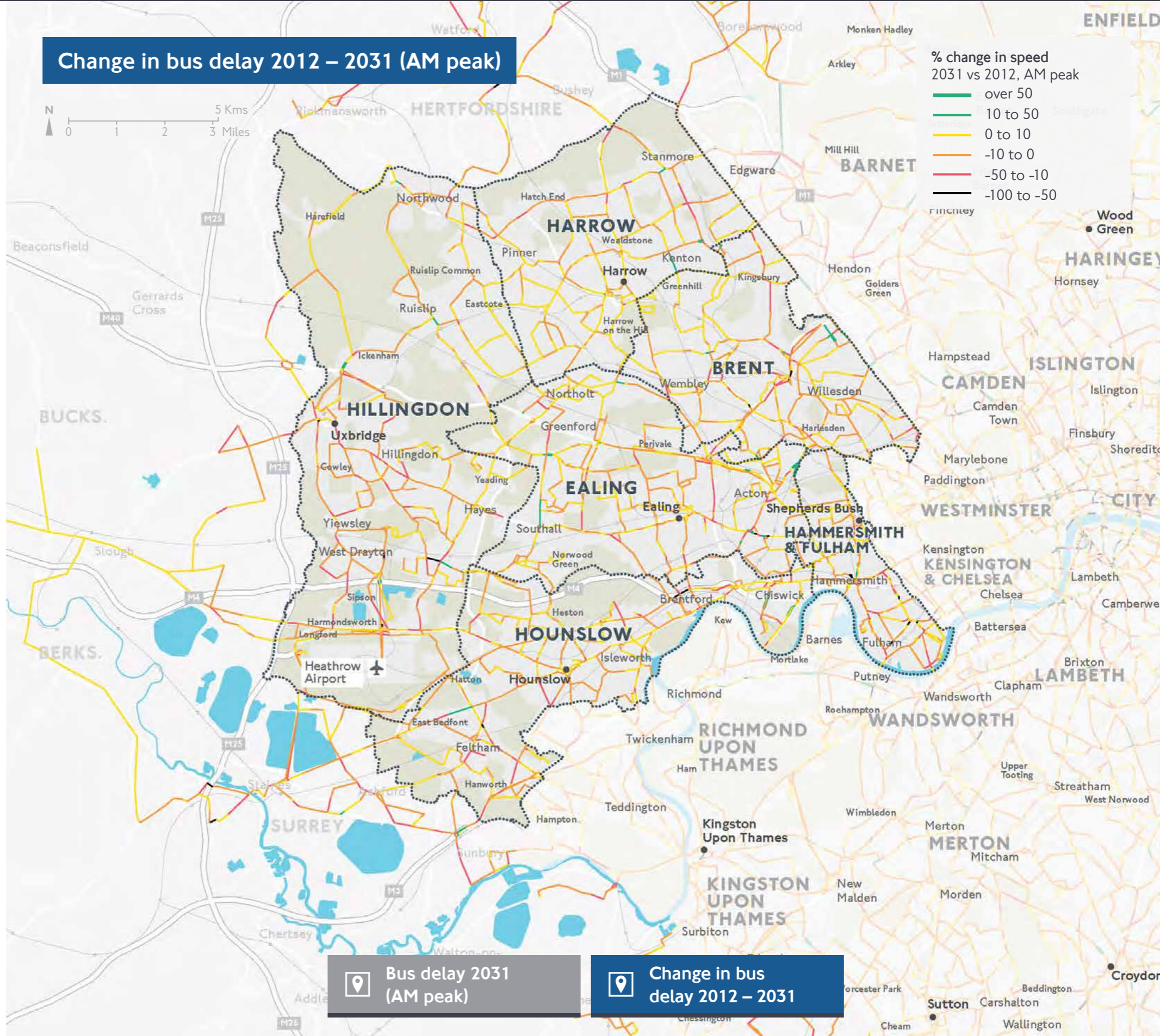
**Speed (km/h) AM peak**  
 over 40  
 up to 33  
 up to 29  
 up to 25  
 up to 15

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**Change in bus delay 2012 – 2031 (AM peak)**

% change in speed  
2031 vs 2012, AM peak

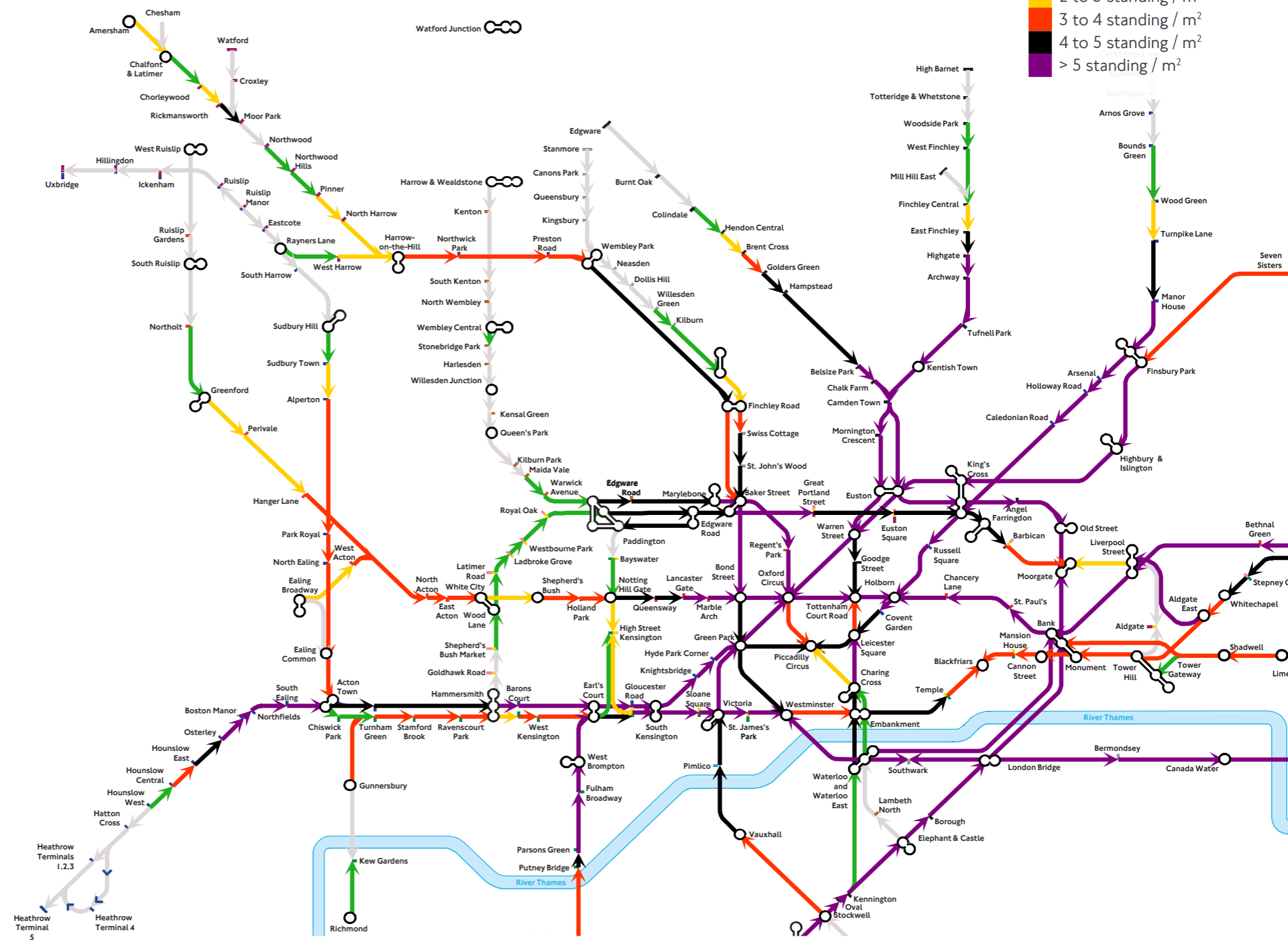
- over 50
- 10 to 50
- 0 to 10
- 10 to 0
- 50 to -10
- 100 to -50

📍 Bus delay 2031 (AM peak)      📍 Change in bus delay 2012 – 2031

### Without investment in the rail network, many lines will be at capacity, constraining growth

As the sub-region's population continues to grow, and as its residents increasingly use rail based modes to access growing employment opportunities across London, the demand for rail and Underground trips will increase significantly. Without investment, this will mean sections of both the Underground and National Rail network will be over capacity by 2031. The Piccadilly line will be over capacity approaching central London, as well as the whole of the Great Western mainline. National Rail connections from Harrow on the Hill, the Overground from Harrow and Wealdstone, and the Central and Metropolitan lines will also be very crowded. Without investment, this will restrict the number of people that can access jobs and services from, to and within the sub-region, harming quality of life and constraining growth.

## Underground and DLR crowding 2031 without investment



Underground and DLR crowding 2031

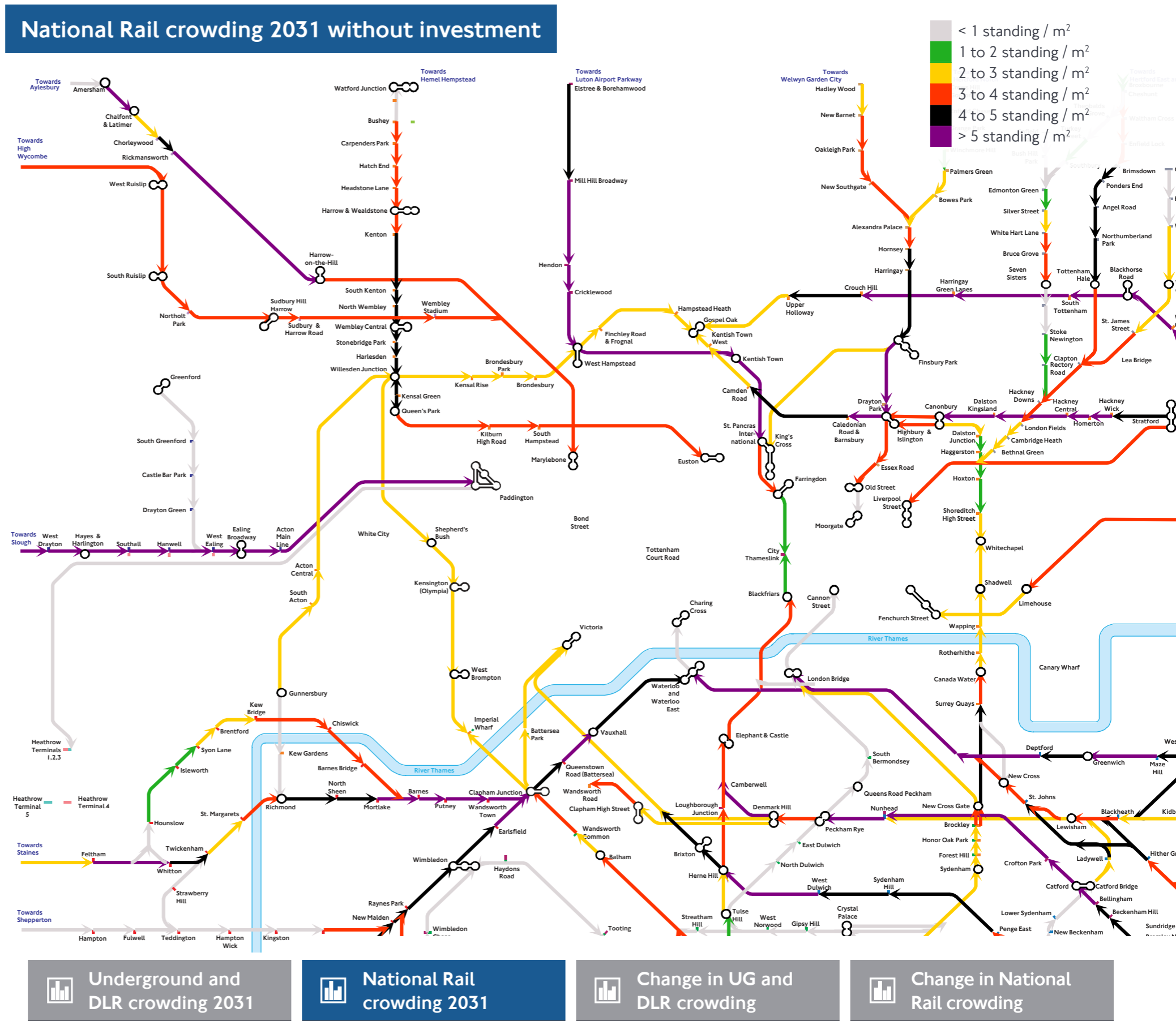
National Rail crowding 2031

Change in UG and DLR crowding

Change in National Rail crowding

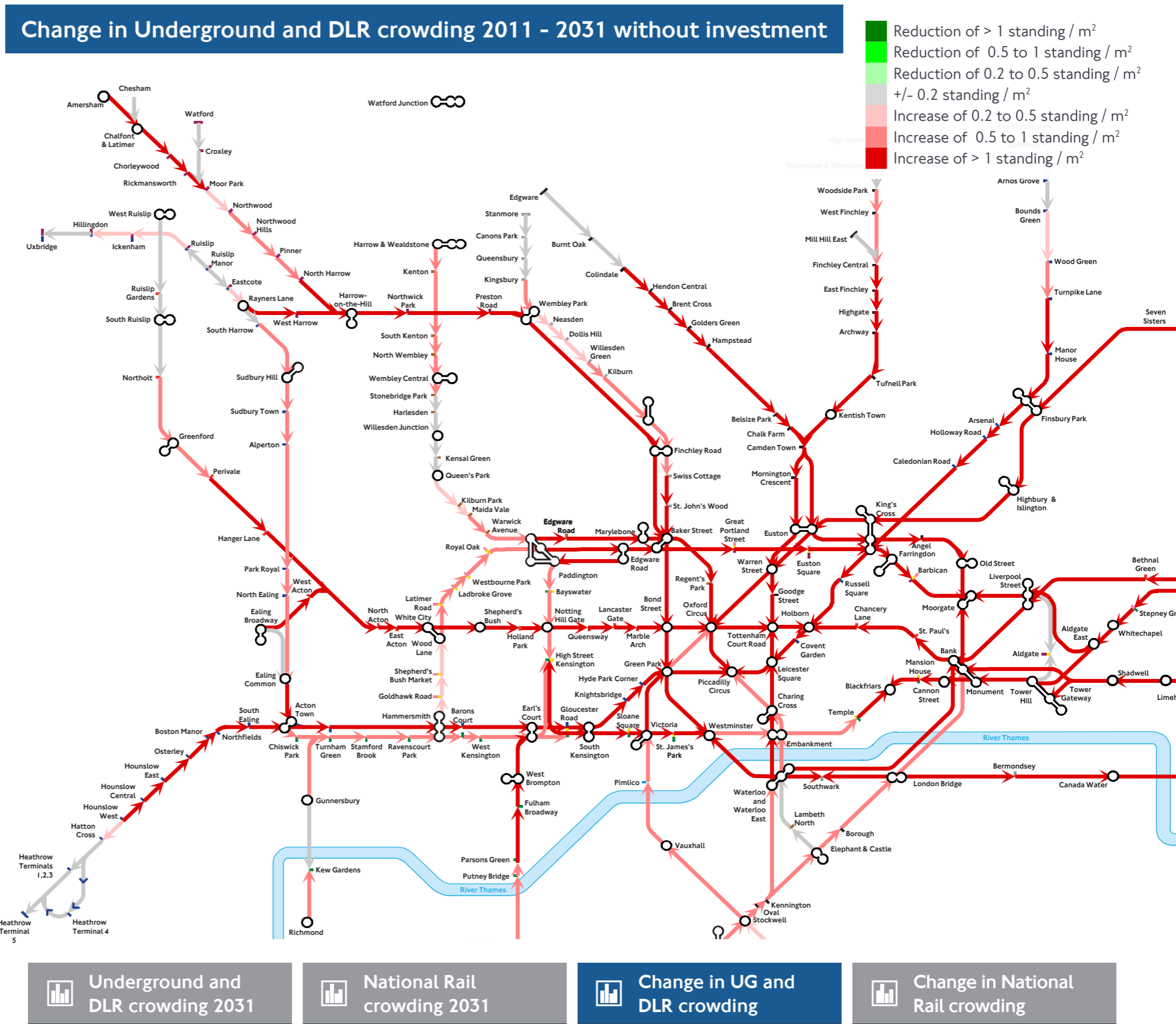
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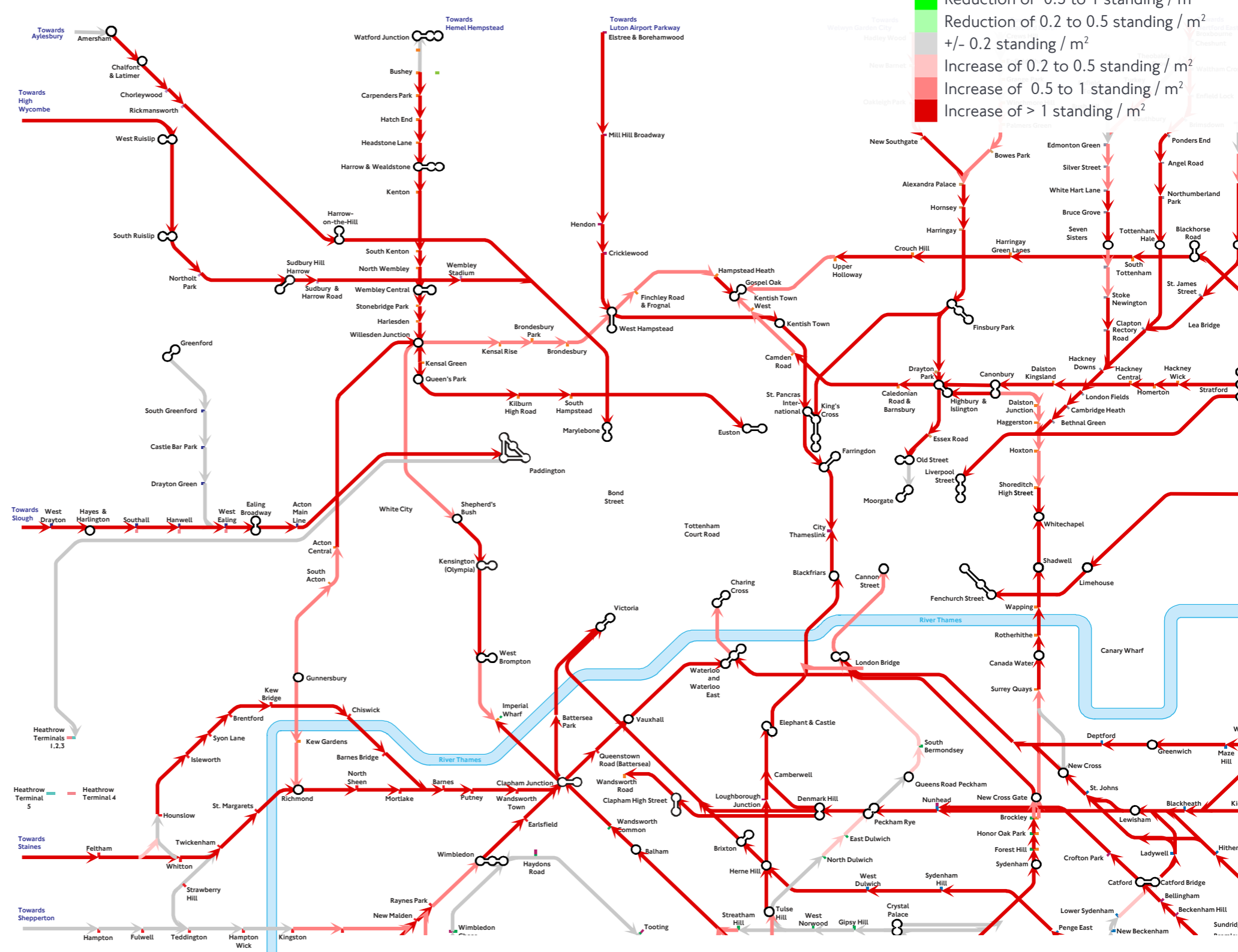




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## Change in National Rail crowding 2011 - 2031 without investment



Underground and DLR crowding 2031

National Rail crowding 2031

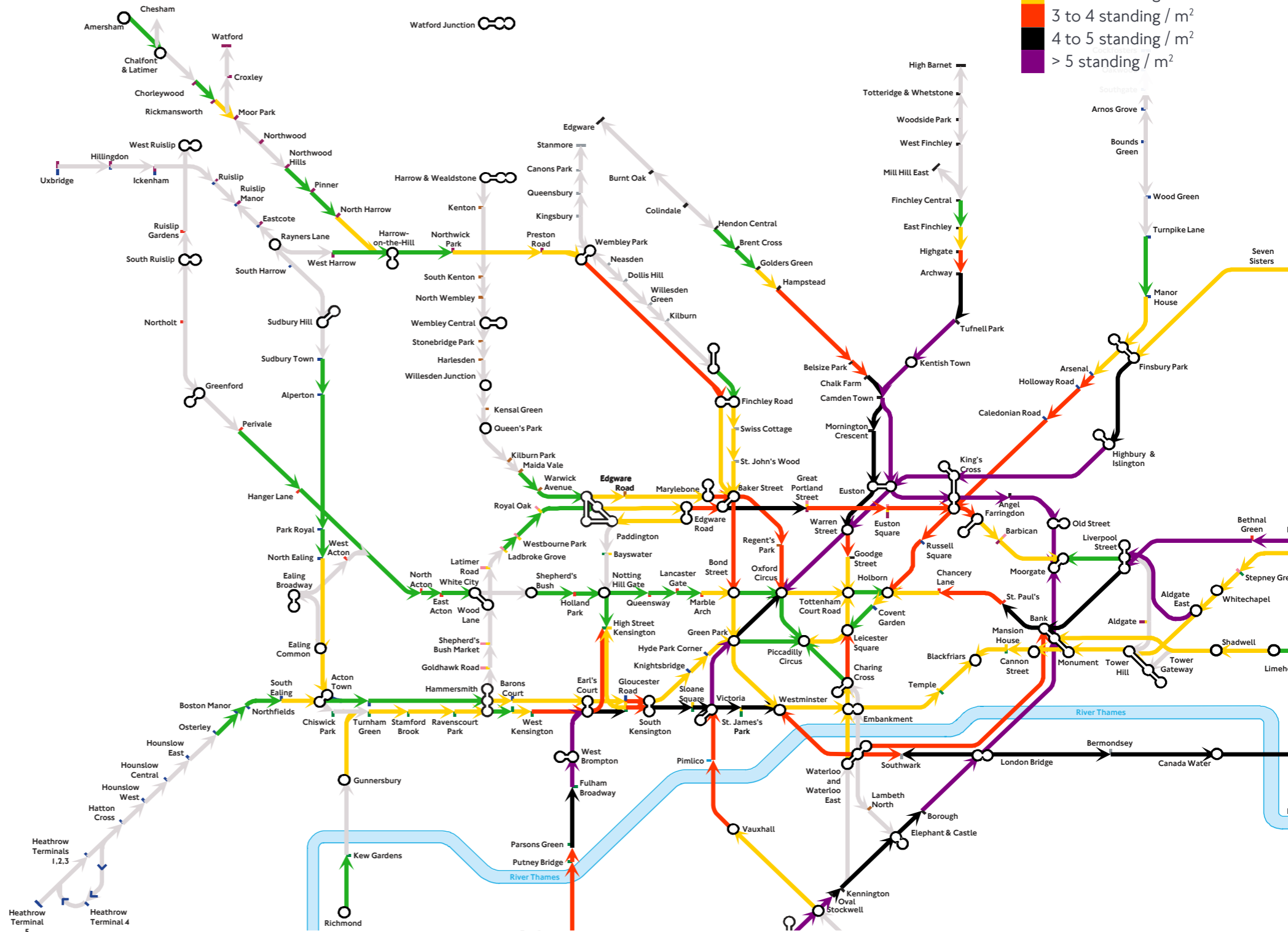
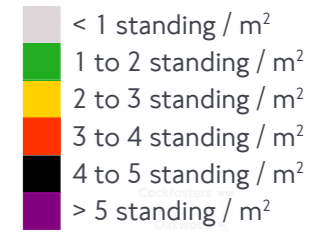
Change in UG and DLR crowding

Change in National Rail crowding

### With planned levels of investment in the rail network, there will be sufficient capacity to support growth to 2031

In order to address the forecast increase in demand for rail, both TfL and Network Rail have committed to investment which will increase the capacity of rail lines serving the sub-region. This investment will bring estimated crowding down to levels slightly below those experienced today by 2031, which could mean that the sub-region could support higher levels of growth in some areas. However, this still means that, despite funded interventions, crowding will worsen on a number of lines, including the Great Western Mainline and connections from Wembley and Harrow/Ruislip into Marylebone.

## Underground and DLR crowding 2031, with investment as per 2015 business plan



Underground and DLR crowding 2031

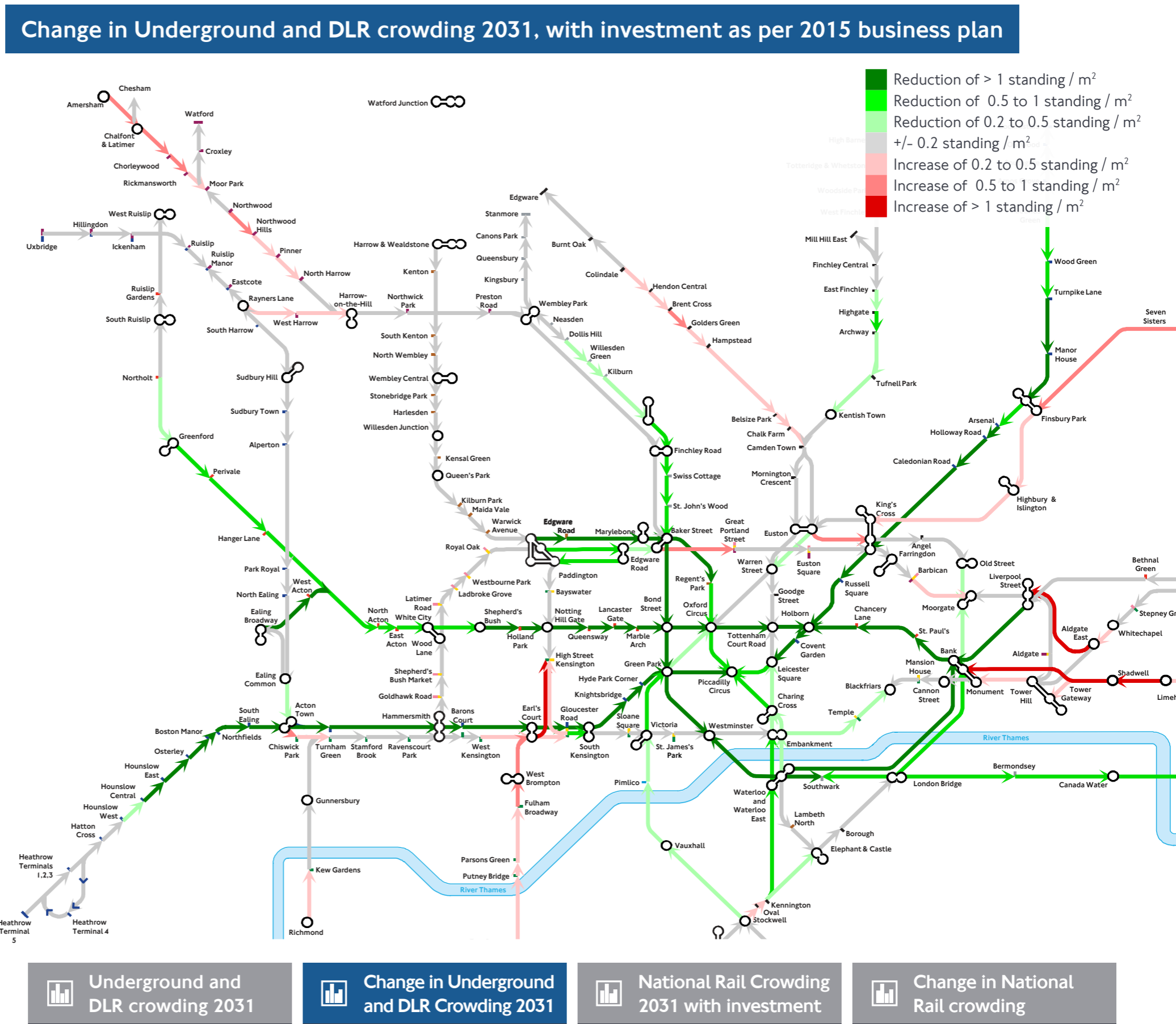
Change in Underground and DLR Crowding 2031

National Rail Crowding 2031 with investment

Change in National Rail crowding

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In order to address the forecast increase in demand for rail, both TfL and Network Rail have committed to investment which will increase the capacity of rail lines serving the sub-region. This investment will bring estimated crowding down to levels slightly below those experienced today by 2031, which could mean that the sub-region could support higher levels of growth in some areas. However, this still means that, despite funded interventions, crowding will worsen on a number of lines, including the Great Western Mainline and connections from Wembley and Harrow/Ruislip into Marylebone.

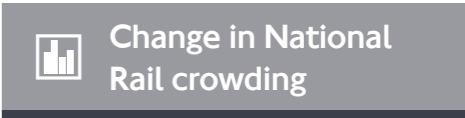
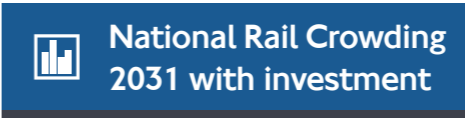
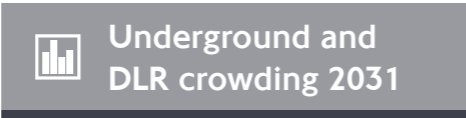
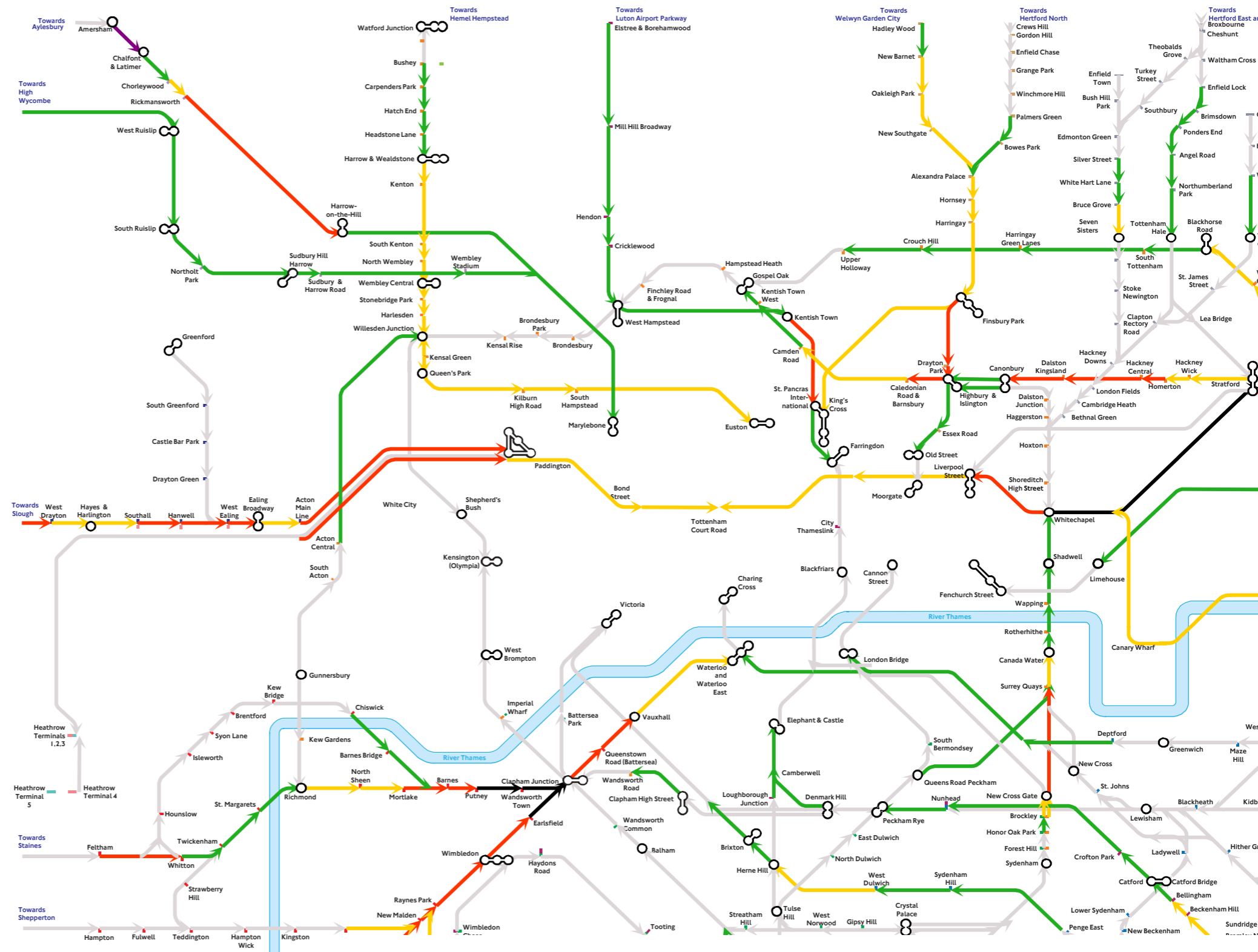




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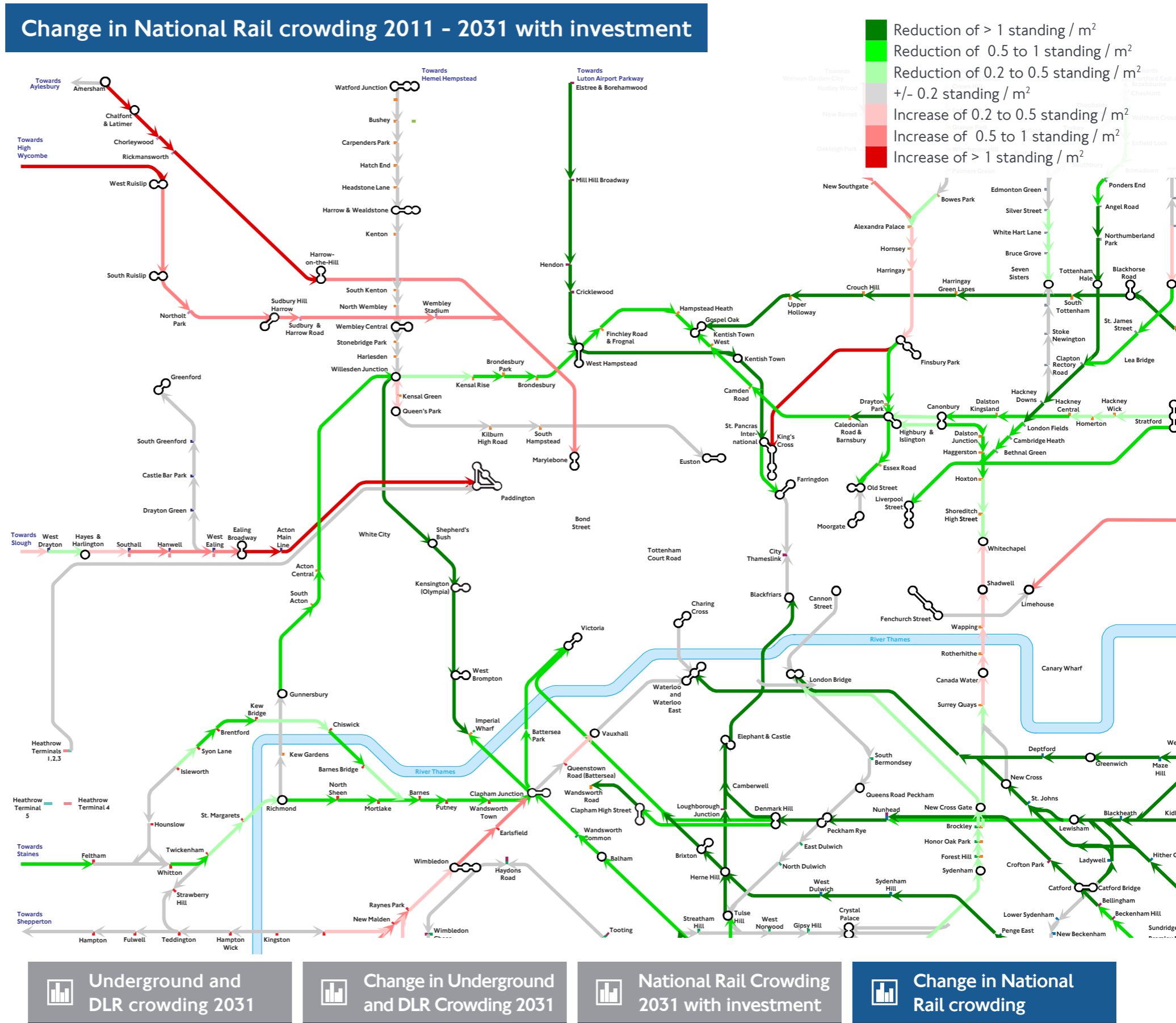
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## National Rail Crowding 2031 with investment



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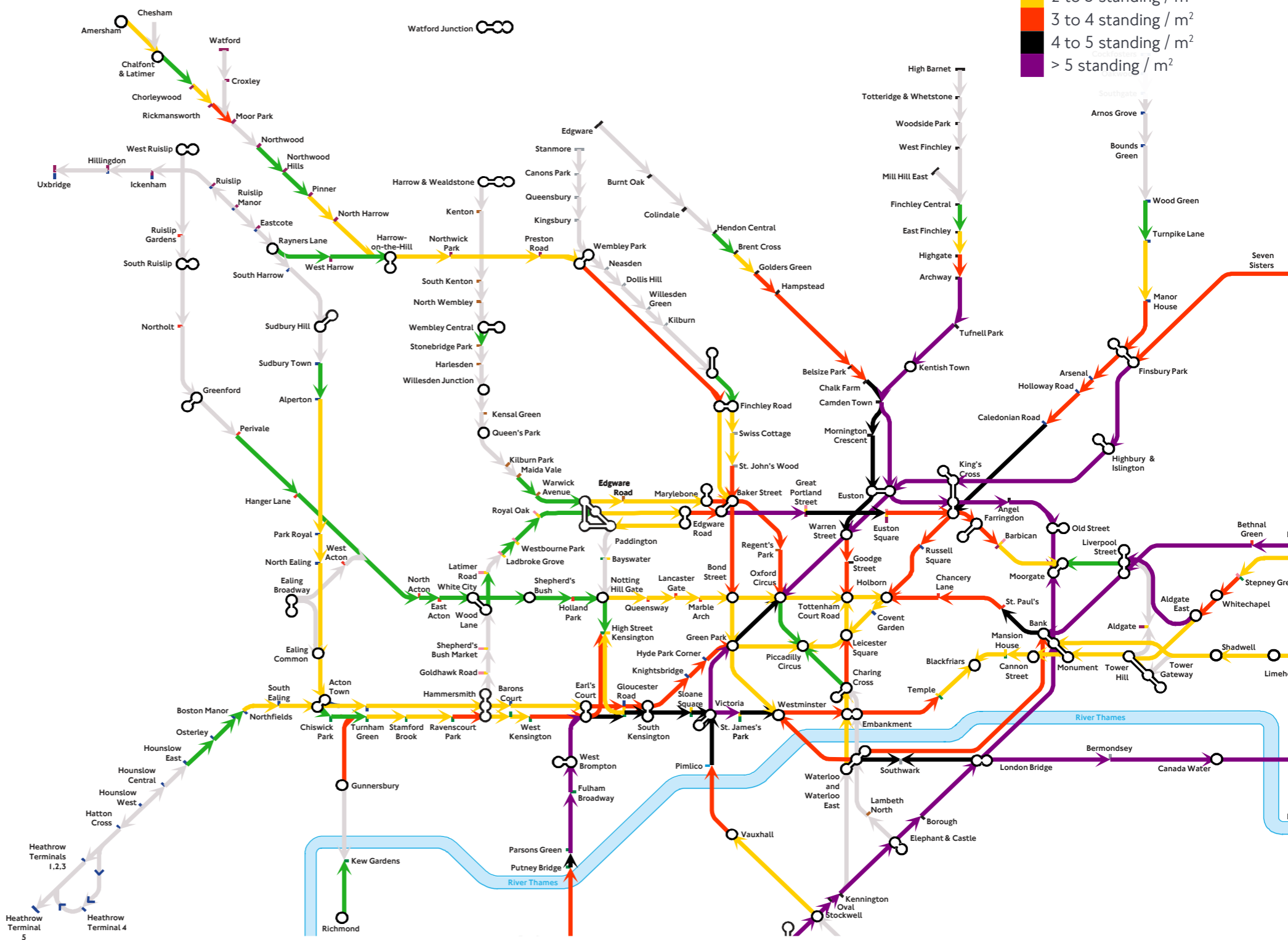
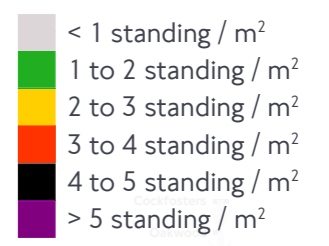
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### But further investment on the rail network above that already committed will be required to support higher levels of growth

Once higher levels of growth to 2041 are taken into account, crowding is expected to worsen further on the Great Western Mainline, as well as routes from Wembley and Harrow/Ruislip into Marylebone. The Metropolitan and Bakerloo lines will also see higher levels of crowding than currently experienced today. However, there may be opportunities for further growth to be accommodated along the Piccadilly line in particular to take advantage of the significant increase in capacity associated with planned upgrades to the line.

## Underground and DLR crowding 2041, with investment as per 2015 business plan



Underground and DLR crowding 2041

National Rail crowding 2041

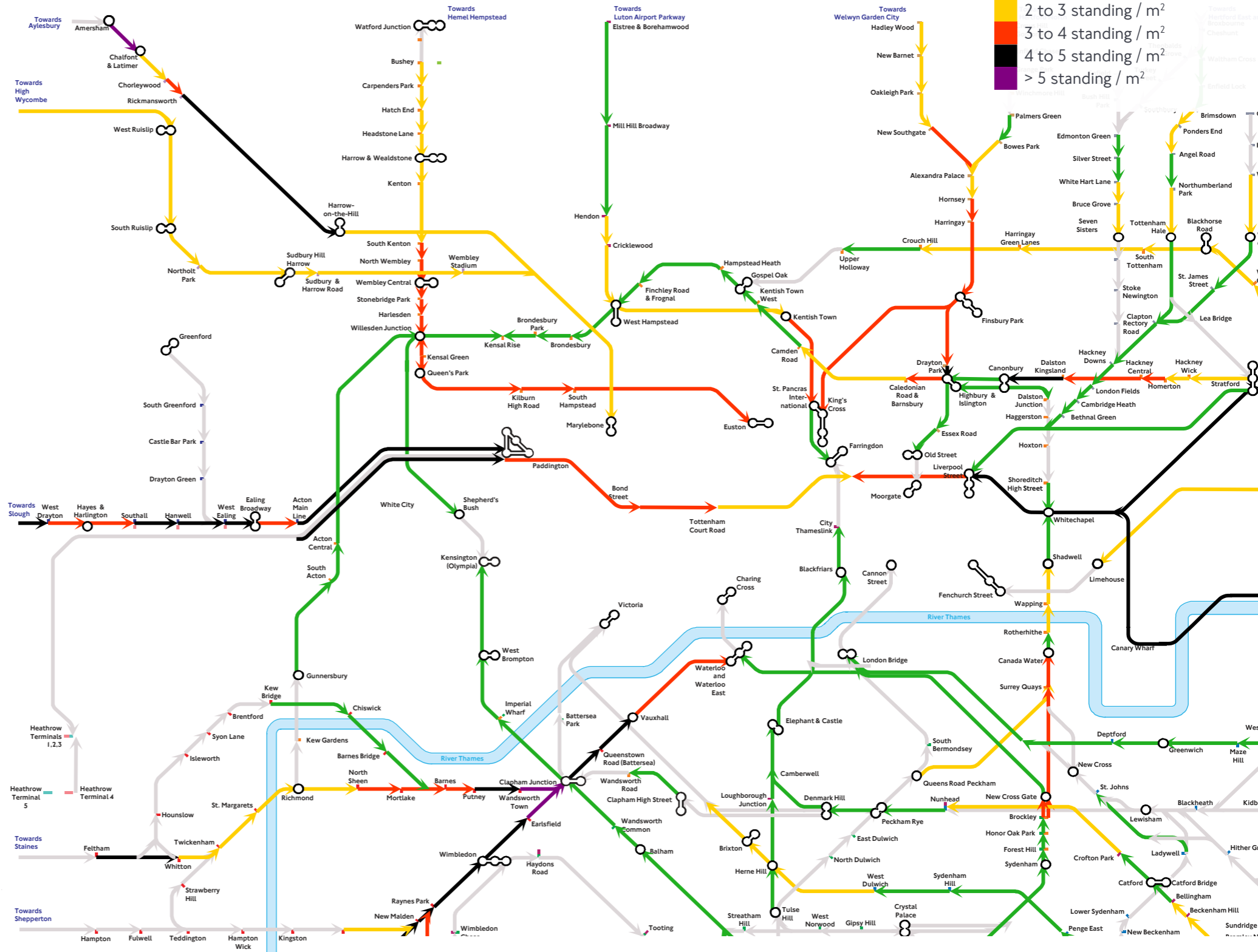
Change in UG and DLR crowding

Change in National Rail crowding

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## National Rail crowding 2041 with investment



Underground and DLR crowding 2041

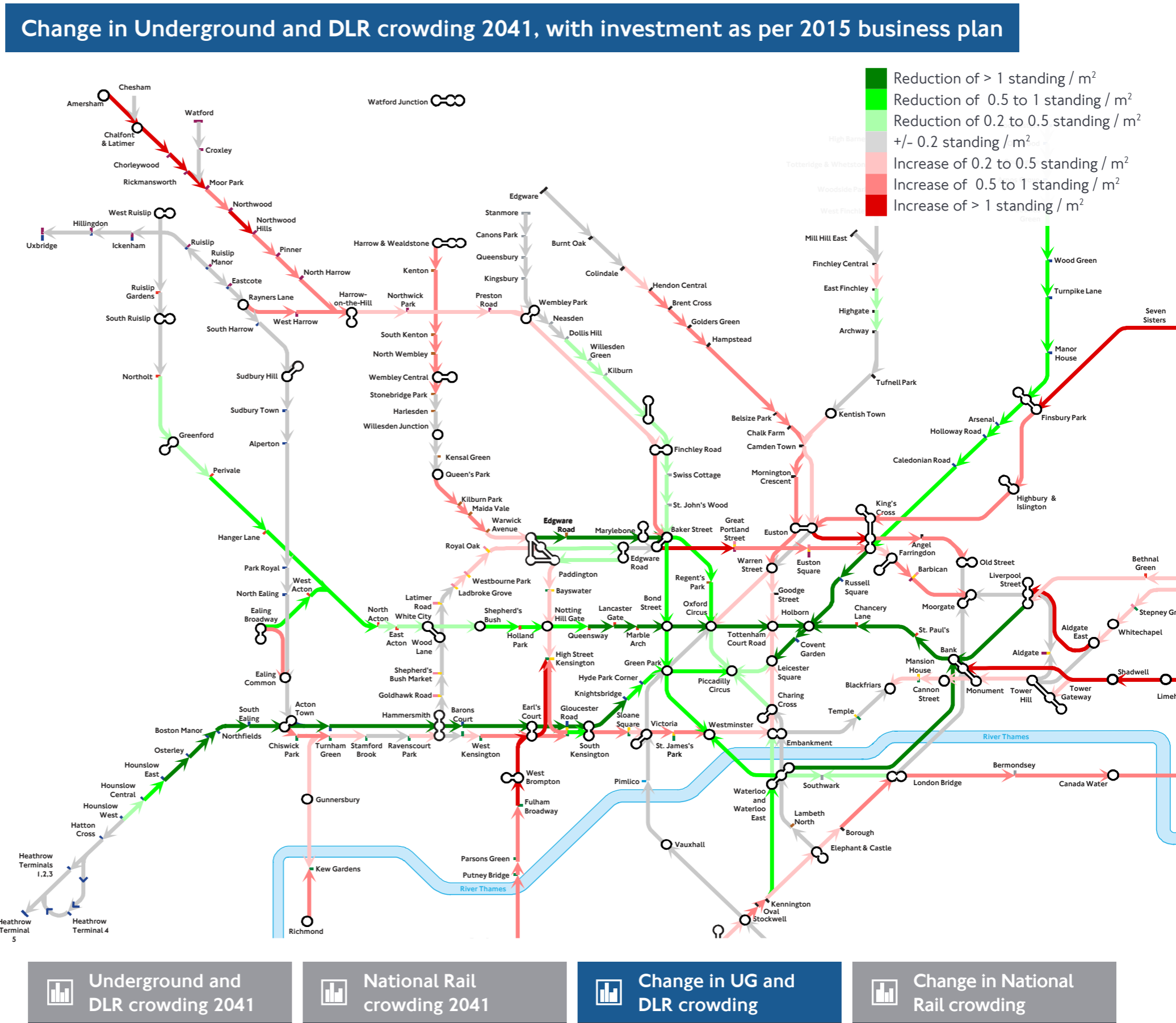
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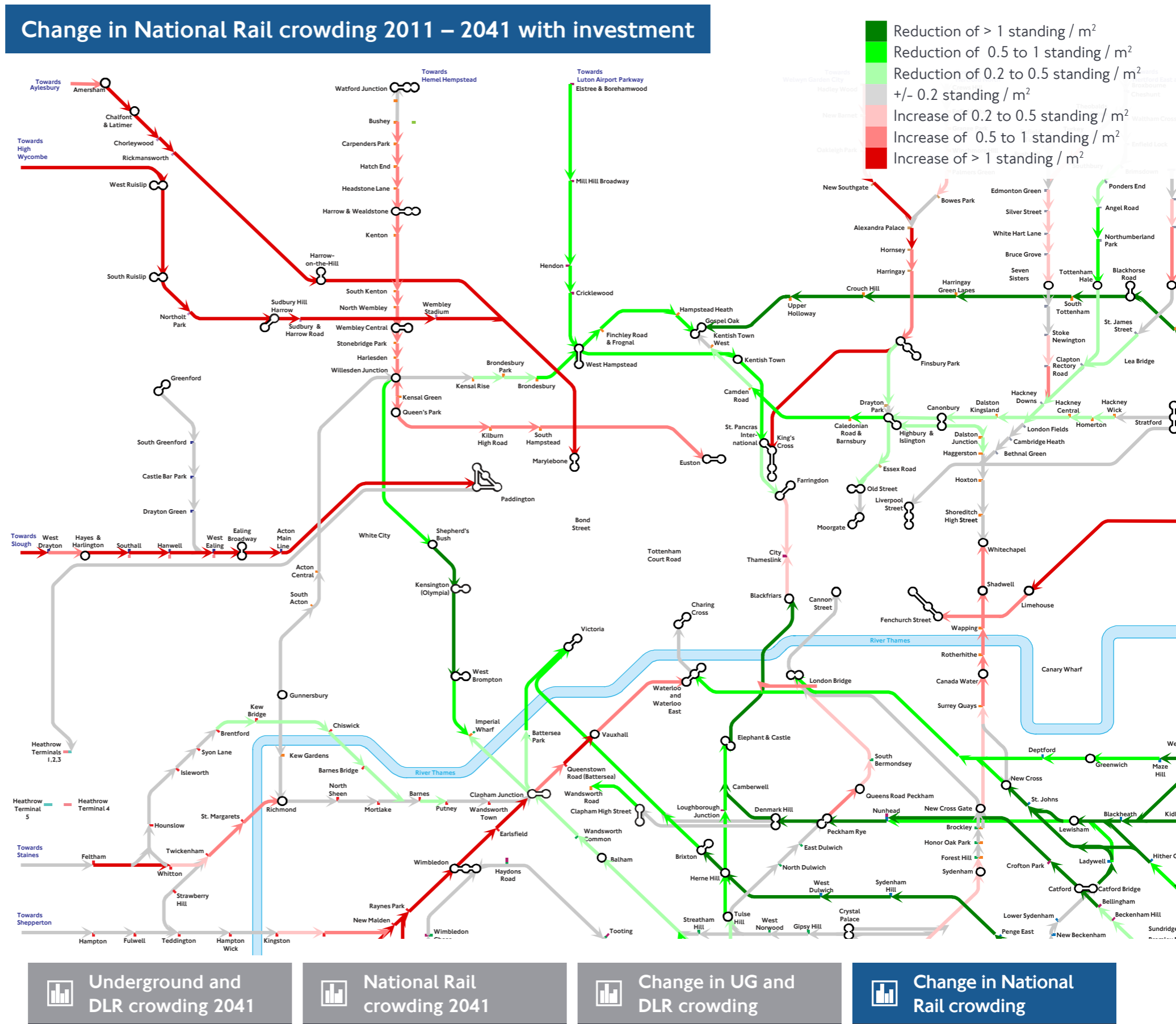






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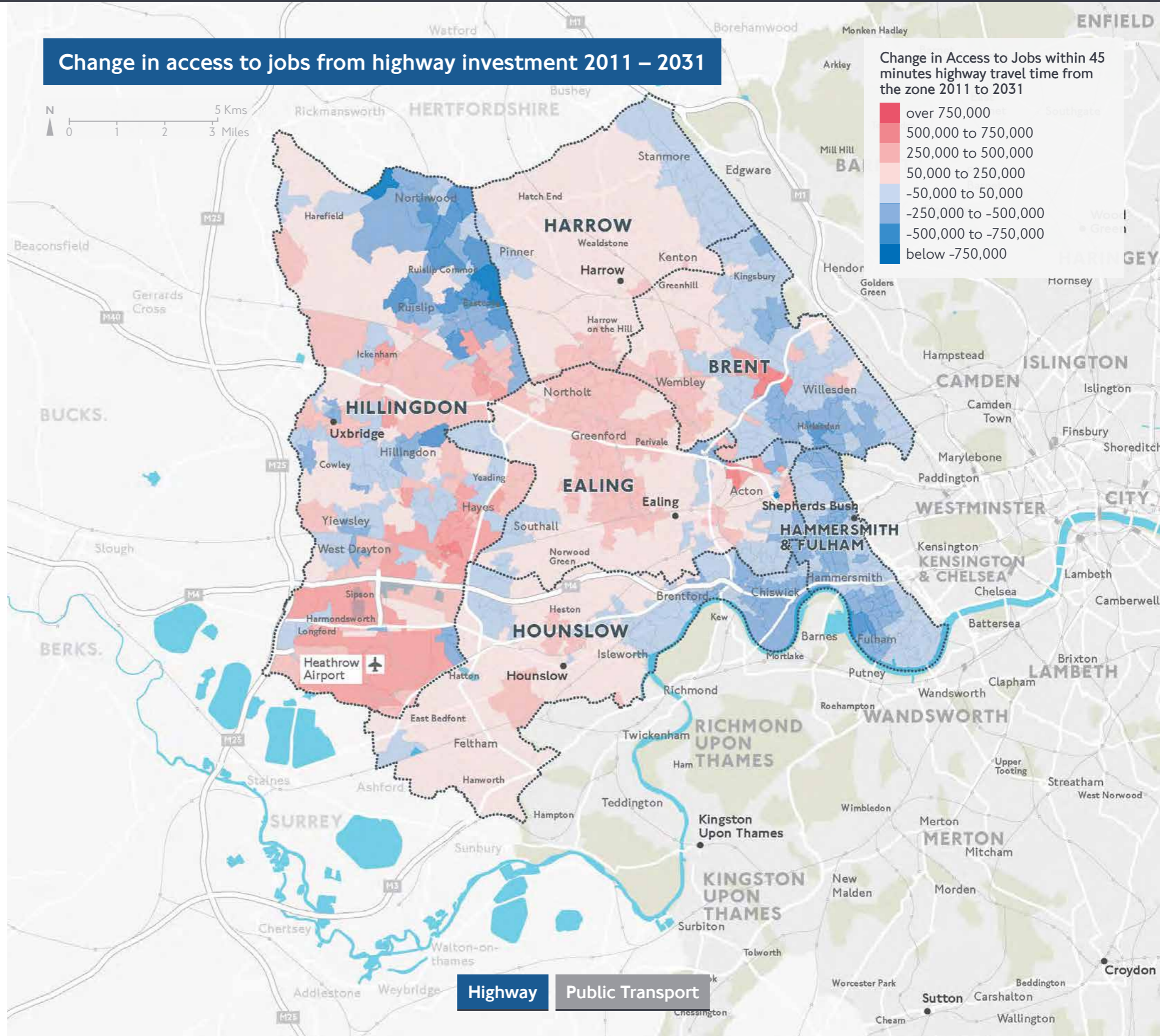
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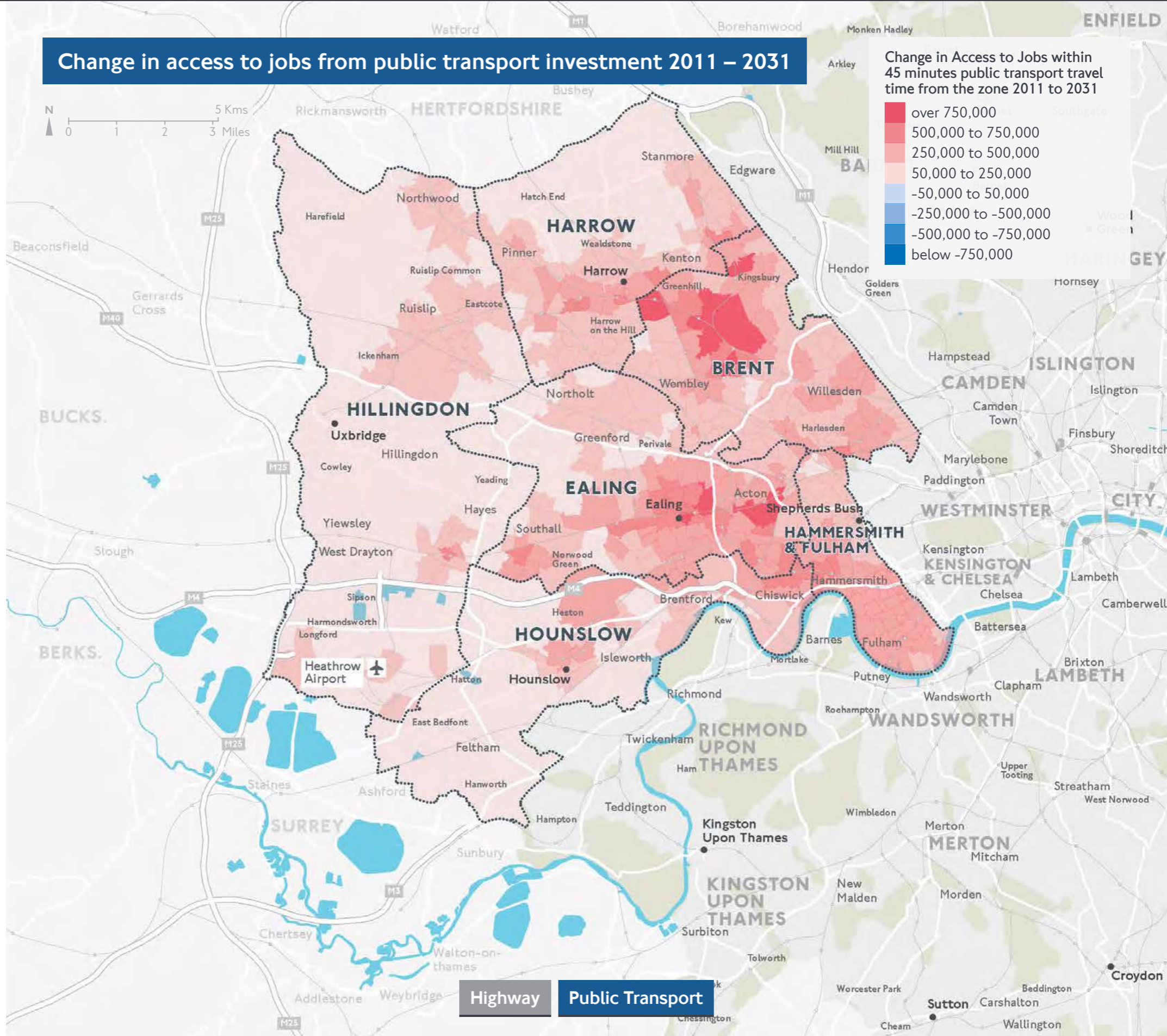
**The number of jobs accessible by public transport will increase, although congestion will reduce access to jobs by car in some areas**

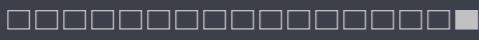
Committed investment in the Underground network will result in increased frequency and capacity that will mean residents of the sub-region will be able to access a greater number of jobs by public transport within a 45 minute travel time. However, due to forecast increases in highway congestion, fewer jobs will be accessible within 45 minutes by car from some places. This means that residents of places which do not have good access to the Underground network, such as in northern and central Hillingdon, are at a disadvantage. Measures to improve public transport access, such as bus priority measures, will be required to ensure residents of these areas have the greatest possible range of employment opportunities, and maintain quality of life.



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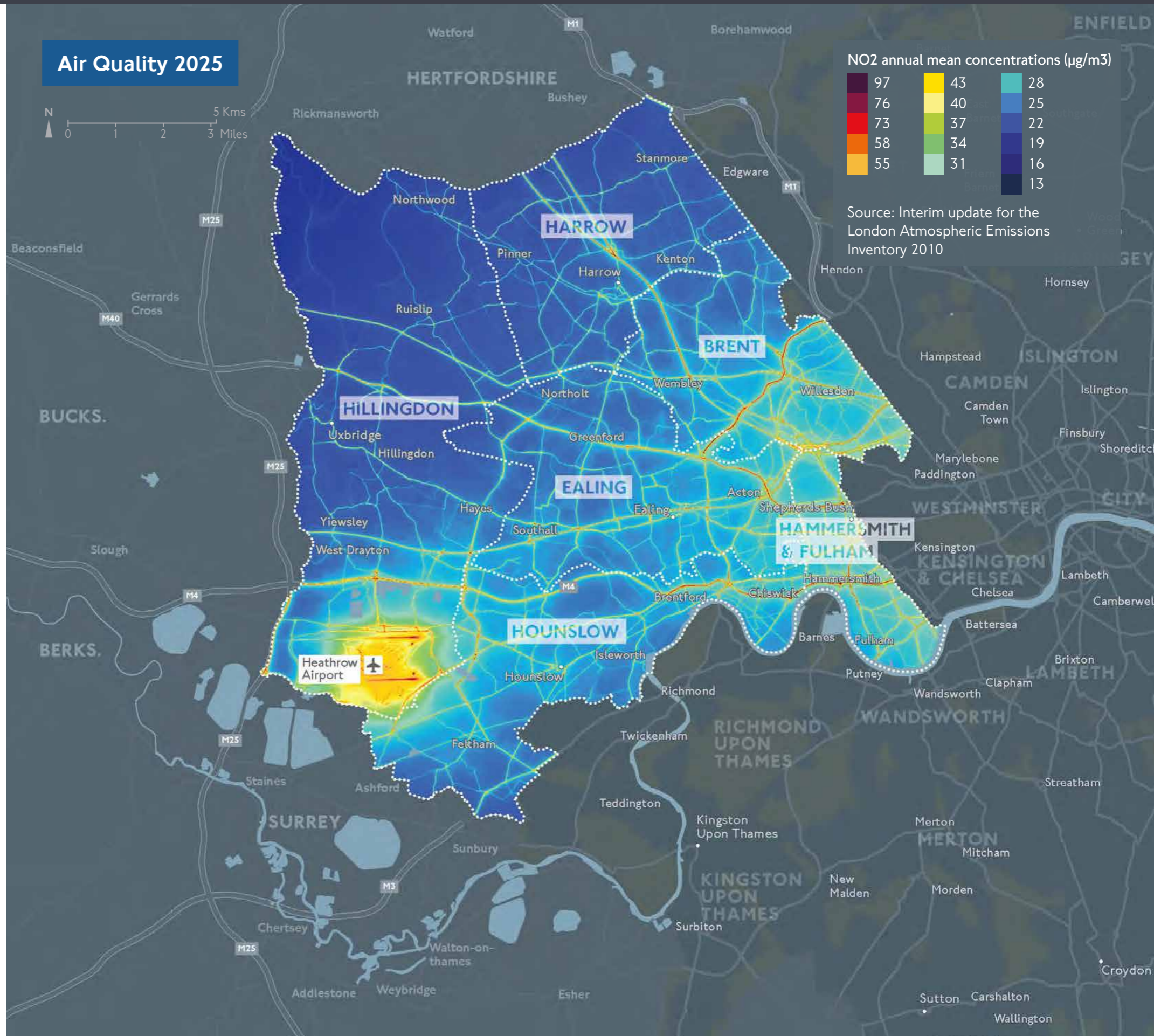
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**Air quality is expected to improve with technology, but more will need to be done**

Although harmful emissions from vehicles are expected to reduce as engines become more efficient, growth and development in the sub-region presents challenges in terms of balancing air quality management with economic and transport aspirations. In addition, strategic industrial areas in the sub-region including Park Royal may result in higher movements of LGVs, or increased industrial emissions – the potential air quality impacts associated with these increases need to be sustainably managed.





# West London Sub-Regional Transport Plan

Story of Growth - 2016 Update

## Maps

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## Images

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