



# Local Economy Impacts: Assessment

November 2014

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# Executive Summary

The objectives of the local economy module are to assess the extent to which the schemes promote employment and economic growth in the local area and the extent to which the associated surface access improvements produce positive outcomes for local communities and the local economy.

## Gatwick Airport Second Runway

The Gatwick Second Runway scheme will bring about both positive and negative impacts for the local community in terms of changes to employment, local transport links, housing stock, social infrastructure and land use.

### Employment & Business

Under expansion, it is estimated that the largest additional employment would be generated under the *low-cost is king* scenario, where an additional 23,600 direct, indirect and induced jobs could be created in 2030, and 32,500 by 2050. Under *global fragmentation*, the jobs created would be significantly lower with 200 jobs in 2030 and 7,900 by 2050.<sup>1</sup>

Table 1: Number of additional jobs		
Year	Assessment	Gatwick Airport Second Runway
2030	Additional jobs	200-23,600
	Jobs (total)	27,800-58,400
2050	Additional jobs	7,900-32,500
	Jobs (total)	28,400-63,000

An alternative approach to assessing the number of jobs created comes from the Spatial Computable General Equilibrium (S-CGE) model, with an estimated 49,600 jobs created under the *assessment of need* scenario by 2050, rising to 90,400 by 2060. This figure is the net impact of the scheme, so takes into account any displacement effects, but it is still larger than the Commission's estimates as it includes the catalytic impacts of the scheme. These effects arise as a result of the wider benefits that air travel provides, improving connectivity and reducing costs through reduced travel times, a greater choice of destinations and more regular flights, as well as reduced country to country trade costs.

<sup>1</sup> This a gross estimate so does not take into account any negative employment effects in other areas as a result of the inflow to the airports local economy

This increase in available destinations also expands the potential markets for businesses, which benefit workers, intermediate goods and services. There may be increased competition across countries and firms could access new markets which would improve efficiency. These effects lead to an increase in employment in the economy, with the largest gains in the manufacturing and services sectors, which are trade intensive.

## Surface Access

Planned improvements to surface access that enable passengers to access the airport will also improve the attractiveness of the airport location and transport corridors through reduced journey times and increased frequencies.

Improvements to Gatwick Airport's surface access planned under the 'do minimum' are expected to accommodate the additional passengers estimated under a second runway scheme. Little difference in local journey times is associated with the expected improvements in surface transport. For example in the rail clock times table (table 38 in Chapter 2 Surface Access), it is demonstrated that few journey times will be reduced, with the biggest improvement being a 9 minute reduction.

## Housing and land

Growth of jobs and businesses associated with the airport has the potential to put pressure on housing in the local area. In order to consider the potential maximum need for additional housing in 2030 as a result of airport expansion, the table below demonstrates the range in the forecast of homes required as a result of airport expansion if all employees are new to the area. Of the additional employees the number seeking residences in the local area is assumed to be consistent with the baseline, at 79 per cent of direct employees and 87 per cent of indirect and induced employees living in the local area.

<b>Table 2: Number of additional households for additional employees</b>		
<b>2030</b>	<b>Low</b>	<b>High</b>
Additional households (direct employees)	0	13,500
Additional households (all employees)	150	18,400

There are many reasons why the additional housing required is unlikely to be as high as the top end of these figures, depending on the assumptions made about population growth, net migration, unemployment and out-commuting. This housing will typically be provided in a phased manner and across the entire assessment area<sup>2</sup> and the demands on an individual local authority are likely to be relatively small. Increased housing densities and renovation of brownfield land could be considered in meeting this need (which could result

<sup>2</sup> The assessment area consists of the local authorities of Crawley, Reigate and Banstead, Tandridge, Mid Sussex, Horsham, Mole Valley, Epsom and Ewell, Croydon, Wealden, Eastbourne, Lewes, Brighton and Hove, Adur, Worthing and Arun.

in additional costs). This additional housing will need to be supported by a limited amount of additional social infrastructure.

## Heathrow Airport North West Runway

The Heathrow North West Runway scheme will bring about both positive and negative impacts for the local community in terms of changes to employment, local transport links, housing stock, social infrastructure and land use.

### Employment & Business

Depending on the scenario, the estimated additional jobs ranges between 47,400 – 112,400 jobs in 2030, and 64,100 – 108,300 jobs in 2050.<sup>3</sup> The upper end of the figure represents the *global growth* scenario, while *global fragmentation* represents the lower end of the range. The direct jobs related to the airport are anticipated to remain relatively low skilled, as in the ‘do minimum’.

Table 3: Number of additional jobs		
Year	Assessment	Heathrow Airport Northwest Runway
2030	Additional jobs	47,400-112,400
	Jobs (total)	238,000-349,400
2050	Additional jobs	64,100-108,300
	Jobs (total)	206,500-329,500

An alternative approach to assessing the number of jobs created comes from the S-CGE model, with an estimated 179,800 net jobs created under the *assessment of need* scenario by 2050. This figure is the net impact of the scheme, so takes into account any displacement effects, but it is still larger than the Commission’s estimates as it includes the catalytic impacts of the scheme. These effects arise as a result of the wider benefits that air travel provides, improving connectivity and reducing costs through reduced travel times, a greater choice of destinations and more regular flights, as well as reduced country to country trade costs. This increase in available destinations also expands the potential markets for businesses, which benefit workers, intermediate goods and services. There may be increased competition across countries with the ability of firms to access new markets which would improve efficiency. These effects leads to an increase in employment in the economy, with the largest gains in the manufacturing and services sectors, which are trade intensive.

<sup>3</sup> This is a gross estimate, so does not take into account any negative employment effects in other areas as a result of the inflow to the airport’s local economy.

## Surface Access

Planned improvements to surface access that enable passengers to access the airport will also improve the attractiveness of the airport location and transport corridors through reduced journey times and increased frequencies.

With an expansion of the airport, the number of surface transport passengers associated with the airport is expected to increase substantially, along with additional users not associated with the airport. Planned improvements to the local transport network, planned in the 'do minimum' are expected to accommodate these extra users. Some journey times will be significantly reduced, with, particular, a 40 minute reduction in rail journeys from Reading.

## Housing and land

Growth of jobs and businesses associated with the airport has the potential to put pressure on housing in the local area. The table below demonstrates the range in the forecast of homes required as a result of airport expansion. Of the additional employees the number seeking residences in the local area is assumed to be consistent with the baseline, at 63 per cent; potentially a conservative assumption given the wider catchment area enabled by the surface access improvements planned.

<b>Table 4: Number of additional households for additional employees</b>		
<b>2030</b>	<b>Low</b>	<b>high</b>
Additional households LHR NWR (direct employees)	11,000	26,000
Additional households LHR NWR (all employees)	29,800	70,800

Although the upper range of these numbers is large, there are many reasons why the additional housing required is unlikely to be as high as these figures, depending on the assumptions made about population growth, net migration, unemployment and out-commuting. In addition this housing will typically be provided in a phased manner and across the entire assessment area<sup>4</sup>, although even then delivery at the upper end of the range would present challenges. Increased housing densities and renovation of brownfield land could be considered in meeting this need (which could result in additional costs). This additional housing will create a requirement for additional social infrastructure including new primary and secondary schools and GP practices.

<sup>4</sup> The assessment area consists of the local authorities of Hounslow, Hillingdon, Ealing, Slough, Spelthorne, Windsor and Maidenhead, Richmond upon Thames, Runnymede, Harrow, Bracknell Forest, Reading, West Berkshire, Wokingham and South Buckinghamshire.



## Heathrow Airport Extended Northern Runway

The Heathrow Extended Northern Runway scheme will bring about both positive and negative impacts for the local community in terms of changes to employment, local transport links, housing stock, social infrastructure and land use.

### Employment & Business

Depending on the scenario, the estimated additional jobs ranges between 47,400 – 96,200 jobs in 2030, and 54,800 – 92,900 jobs in 2050.<sup>5</sup> The upper end of the figure represents the *global growth* scenario, while *global fragmentation* represents the lower end of the range. The direct jobs related to the airport are anticipated to remain relatively low skilled, as in the ‘do minimum’.

Year	Assessment	Heathrow Airport Extended Northern Runway
<b>2030</b>	Additional jobs	47,400 – 96,200
	Jobs (total)	238,000 – 333,200
<b>2050</b>	Additional jobs	54,800 – 92,900
	Jobs (total)	197,100 – 314,000

An alternative approach to assessing the number of jobs created comes from the S-CGE model, with an estimated 163,300 net jobs created under the *assessment of need* scenario by 2050. This figure is the net impact of the scheme, so takes into account any displacement effects, but it is still larger than the Commission’s estimates as it includes the catalytic impacts of the scheme. These effects arise as a result of the wider benefits that air travel provides, improving connectivity and reducing costs through reduced travel times, a greater choice of destinations and more regular flights, as well as reduced country to country trade costs. This increase in available destinations also expands the potential markets for businesses, which benefit workers, intermediate goods and services. There may be increased competition across countries with the ability of firms to access new markets which would improve efficiency. These effects lead to an increase in employment in the economy, with the largest gains in the manufacturing and services sectors, which are trade intensive.

<sup>5</sup> This is a gross estimate, so does not take into account any negative employment effects in other areas as a result of the inflow to the airport’s local economy. This approach is not fully webTAG compliant.

## Surface Transport

Planned improvements to surface access that enable passengers to access the airport will also improve the attractiveness of the airport location and transport corridors through reduced journey times and increased frequencies.

With an expansion of the airport, the number of new passengers associated with the airport along with additional users not associated with the airport is expected to increase substantially. The anticipated changes to the transport system are expected to accommodate these extra users although this is more that the extra users will cause no additional strain than that already anticipated in the baseline. The journey times will be significantly reduced with up to 45 minute reduction in some journeys (e.g. from Hounslow).

## Housing and land

Growth of jobs and businesses associated with the airport has the potential to put pressure on housing in the local area. The table below demonstrates the range in the forecast of homes required as a result of airport expansion. Of the additional employees the number seeking residences in the local area is assumed to remain the same as in the baseline, at 63 per cent; potentially a conservative assumption given the wider catchment area enabled by the surface access improvements planned.

Table 6: Number of additional households for additional employees		
2030	Low	high
Additional households LHR ENR (direct employees)	11,000	22,300
Additional households LHR ENR (all employees)	22,900	60,600

Although the upper range of these numbers is large, there are many reasons why the additional housing required is unlikely to be as high as these figures, depending on the assumptions made about population growth, net migration, unemployment and out-commuting. In addition this housing will typically be provided in a phased manner and across the entire assessment area,<sup>6</sup> although even then delivery at the upper end of the range would present challenges. Increased housing densities and renovation of brownfield land could be considered in meeting this need (which could result in additional costs). This additional housing will create a requirement for additional social infrastructure including new primary and secondary schools and GP practices.

<sup>6</sup> The assessment area consists of the local authorities of Hounslow, Hillingdon, Ealing, Slough, Spelthorne, Windsor and Maidenhead, Richmond upon Thames, Runnymede, Harrow, Bracknell Forest, Reading, West Berkshire, Wokingham and South Buckinghamshire.

# Introduction

The objectives of the local economy module are to assess the extent to which the schemes promote employment and economic growth in the local area and the extent to which the associated surface access improvements produce positive outcomes for local communities and the local economy. In line with the methodology set out in figure A3.1 in the Airports Commission's Appraisal Framework,<sup>7</sup> the opportunities for businesses and local employment have been analysed, as well as the risks related to labour, housing and land markets, both from airport expansion and associated surface access improvements.

The impacts of the shortlisted schemes on their local economy are assessed across the following four areas:

- Employment & Businesses
- Surface Access
- Housing and Social Infrastructure
- Land

## Methodology

PwC's report "Local economy impacts – literature review" provided the Commission with evidence on the impact of airports and in particular airport expansions on their local areas, based on a literature review and case studies, both domestic and international. Adopted and emerging plans for Local Authorities surrounding London Gatwick (LGW) and London Heathrow (LHR) have also been reviewed, both to establish baselines of proposed housing and employment development close to the airport and also to assess the potential for further development.

Historic and forecast data were gathered for all the indicators set out in the Appraisal Framework to establish baselines for the 'do minimum'. The scheme promoters' views, as set out in their submissions to the Airports Commission in May 2014, are commented on and key differences in their analysis and conclusions are identified. Elements of this appraisal treat the Heathrow Airport North West Runway and Heathrow Airport Extended Northern Runway schemes together when assessing the impacts on the local area as the study area is identical. But, scheme promoters' views have been noted where they differ from the Commission's.

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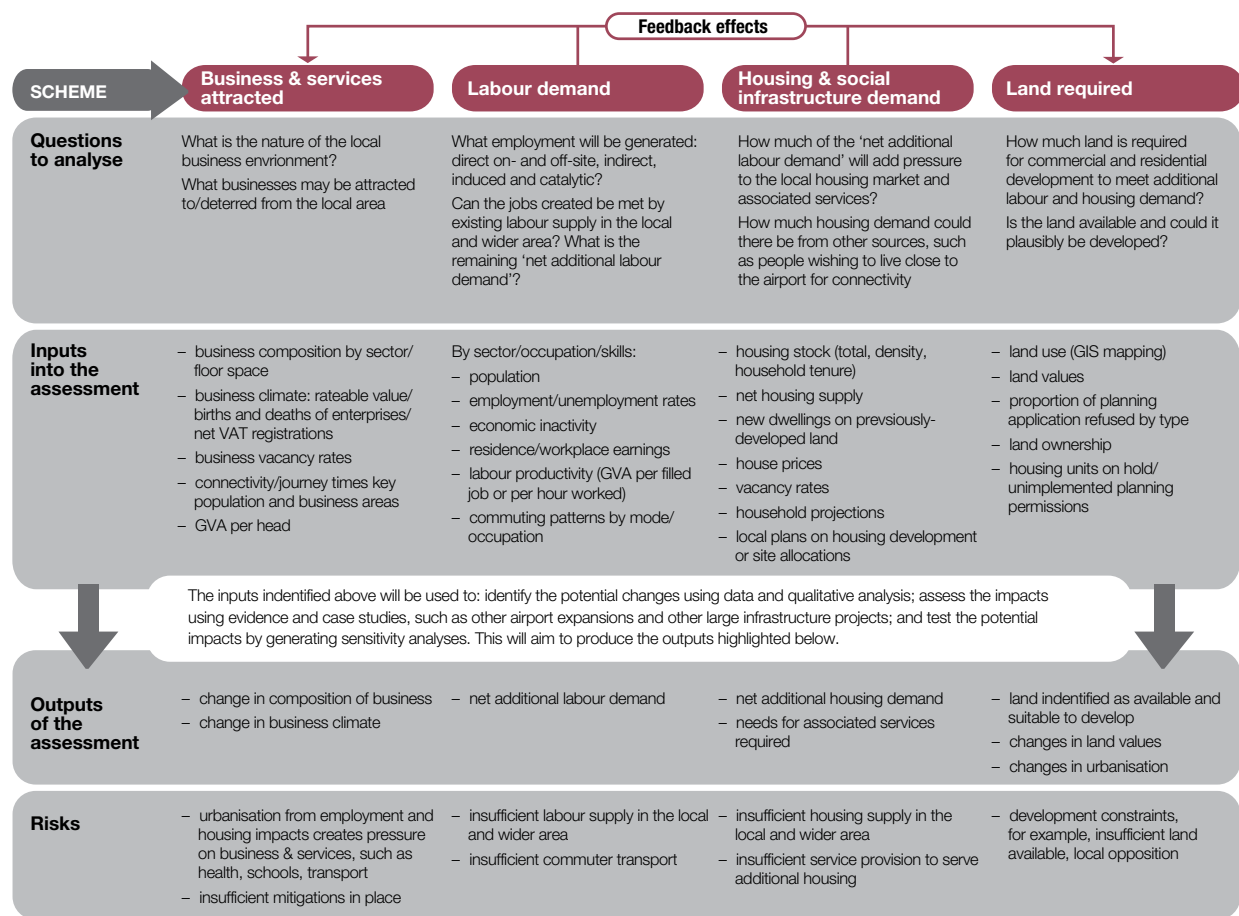
<sup>7</sup> Airports Commission (April 2014) [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/300223/airports-commission-appraisal-framework.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300223/airports-commission-appraisal-framework.pdf)

This report considers the impact on the local economy during the construction phase, in 2030 and in 2050. The increased employment at the airport as a result of expansion is estimated, and the potential impact of this on the local business and labour market is discussed, considering the scale of opportunities and pressures that exist. The impact of surface access is assessed by considering the connectivity offered to non-airport users in the local area as well as airport employees. Housing need is based on the additional employment expected to be generated, and land requirements directly follow from the calculations of the additional commercial and residential space required.

The passenger forecasts used in this assessment reflect the five demand scenarios presented in the “Strategic Fit: Forecasts” report. By 2050 these scenarios have a range of 44 million passengers in the baseline to 96 million under assessment for Gatwick Airport Second Runway (LGW 2R), 91 million in the baseline to 149 million under assessment for Heathrow Airport North West Runway (LHR NWR) and 91 million in the baseline to 142 million in the assessment for Heathrow Airport Extended Northern Runway (LHR ENR).

The methodology is set out below and this report will consider the three shortlisted schemes across these four areas.

**Figure 1: The Airports Commission methodology to assess the local impacts of and airport option**



## Defining the assessment area

PwC's literature review found there is no commonly agreed definition of the local area for this purpose, with different definitions suitable for different airports and dependent on the type of impact being assessed. Defining the local level is a subjective task and the approach taken here is to define the local area in different ways for different impacts, in line with the table below:

Table 7: Definition of assessment area				
	Impact	Basis for defining area	Gatwick area	Heathrow area
1.	Employment & Business – Direct	Local labour market e.g. Residence of airport employees and value added by activities directly linked to the airport	15 Local Authorities with particular focus on Gatwick Diamond areas ( <b>bold</b> ) 1. <b>Crawley</b> 2. <b>Tandridge</b> 3. <b>Reigate and Banstead</b> 4. <b>Epsom and Ewell</b> 5. <b>Mole valley</b> 6. <b>Horsham</b> 7. <b>Mid Sussex</b> 8. Croydon 9. Wealden 10. Eastbourne 11. Lewes 12. Brighton and Hove 13. Adur 14. Worthing 15. Arun	14 Local Authorities with particular focus on five key areas ( <b>bold</b> ) 1. <b>Hounslow</b> 2. <b>Hillingdon</b> 3. <b>Ealing</b> 4. <b>Slough</b> 5. <b>Spelthorne</b> 6. Windsor and Maidenhead 7. Richmond upon Thames 8. Runnymede 9. Harrow 10. Bracknell Forest 11. Reading 12. West Berkshire 13. Wokingham 14. South Buckinghamshire
2.	Employment & Business – Indirect & Induced	Supply chain and local expenditure impacts	Same local authorities as in 1 above	Same local authorities as in 1 above
3.	Employment & Business – Catalytic	Influenced by destinations of arriving passengers and workplace location of airport users. This requires a much broader definition than for other impacts.	Whole UK with focus on South East and London	Whole UK with focus on South East and London
4.	Housing	Greatest focus on those local authorities with high proportion of direct and indirect airport employees currently.	Same local authorities as in 1 above	Same local authorities as in 1 above

**Table 7: Definition of assessment area**

	Impact	Basis for defining area	Gatwick area	Heathrow area
5.	Land	Change in land use will be assessed both at the regional level and at a lower spatial level, looking at the areas geographically closest to the airport (see maps below).	South East and London plus areas of Gatwick Diamond local authorities (bold in list above) which are closest to airport	South East and London plus sections of local authorities closest to the airport (Hillingdon, South Bucks, Runnymede, Windsor & Maidenhead, Spelthorne, Hounslow, Ealing and Slough)

Data on employment, business, housing and land were gathered to provide baselines (and in some cases forecasts) for the spatial areas set out above. The catalytic effects will be quantified by PwC as part of the national economy assessment module, using Computable General Equilibrium (CGE) modelling. Spatial CGE modelling captures the net effect of movements in economic activity by region.<sup>8</sup> Further details on this work can be found in PwC's report "2.4 Wider Impacts Assessment". The CGE model produced the following outputs to inform the local economy assessment:

- Net economic gain by region
- Total jobs by region
- Clustering and Agglomeration effects
- Construction phase employment figures

With respect to the CGE model, it is important that the estimated Gross Domestic Product (GDP) impact of the scheme is additional at the national level. This is because part of the local GDP effects will be coming from the displacement of economic activity from other parts of the country and so the GDP benefits for the scheme will be overstated if these impacts are not accounted for. The employment estimates produced by the Commission do not account for these displacement effects, so an advantage of having access to the CGE model is that it can provide a national net assessment.

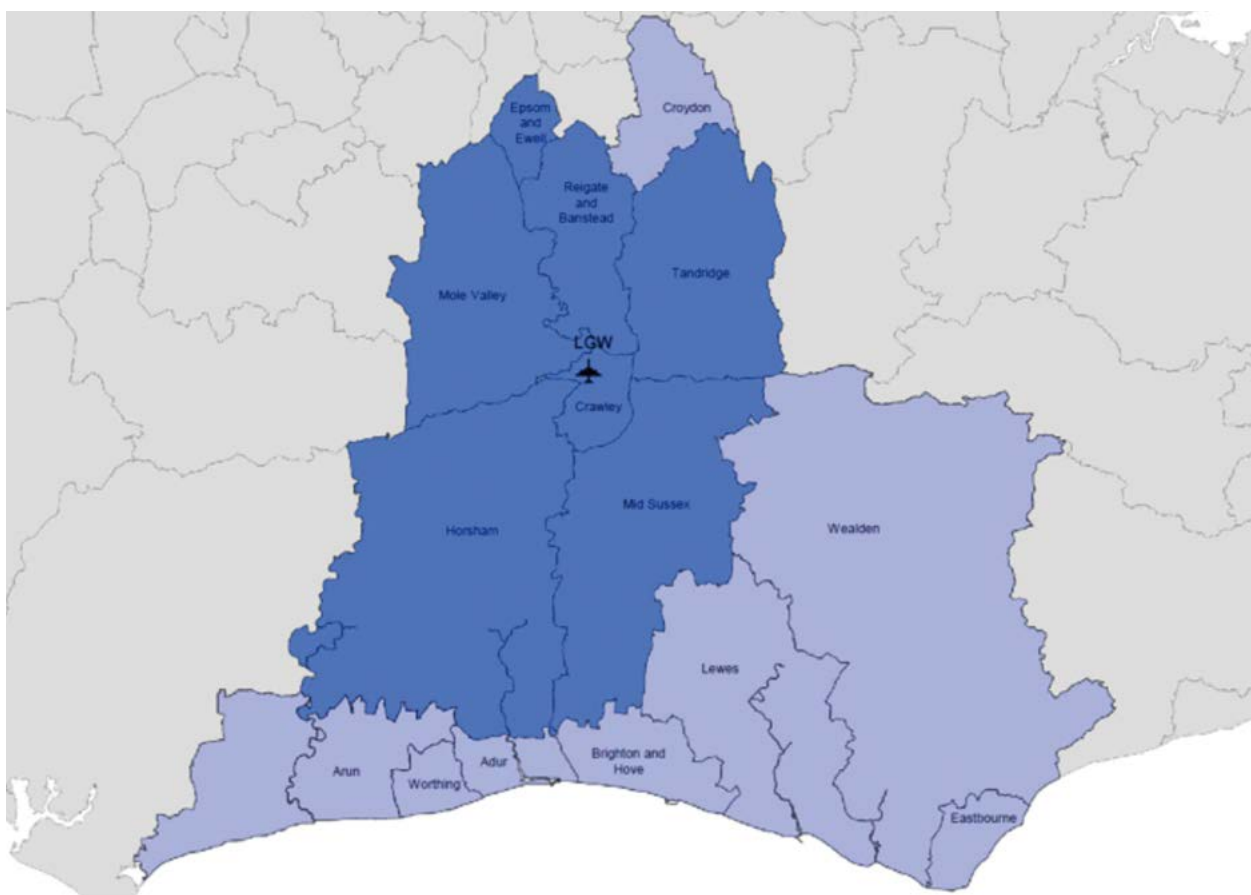
In some cases data availability has been a limiting factor when considering the spatial level at which to undertake the assessment. For example Gross Value Added (GVA) per head data is only available at the Local Economic Partnership (LEP) level making it difficult to assess the value added from an additional airport or airport-related job in its direct vicinity; rather this data has been used to consider the indirect, induced and catalytic impacts across a wider area.

<sup>8</sup> The modelled regions are London and South East, Rest of England, Wales, Scotland and Northern Ireland (as well as regional interactions with the rest of the world)

## Gatwick assessment area

To consider the Gatwick Airport Second Runway scheme an assessment area comprising 15 local authorities was used, covering the authorities listed in **Table 7** above. The authorities are within an established area that corresponds with the Coast to Capital LEP area. This area contains 80 per cent<sup>9</sup> of the current work force employed by Gatwick Airport. The LEP area also contains a focus area known as the Gatwick Diamond which is an area of major economic development. 60 per cent<sup>10</sup> of the current airport employment is sourced from this area, which includes Crawley, Horsham, Mid Sussex, Mole Valley, Tandridge, Reigate & Banstead and Epsom & Ewell. Due to the current established identity of the Gatwick Diamond area as a key area of the airport's employment and economic development, it is appropriate to study this area for the local employment and business impacts. Croydon is also an area of interest as it is a significant employment area for Gatwick Airport, with strong public transport connections.

**Figure 2: Gatwick assessment area**



<sup>9</sup> Gatwick Airport Employment and Travel Survey (May 2012)

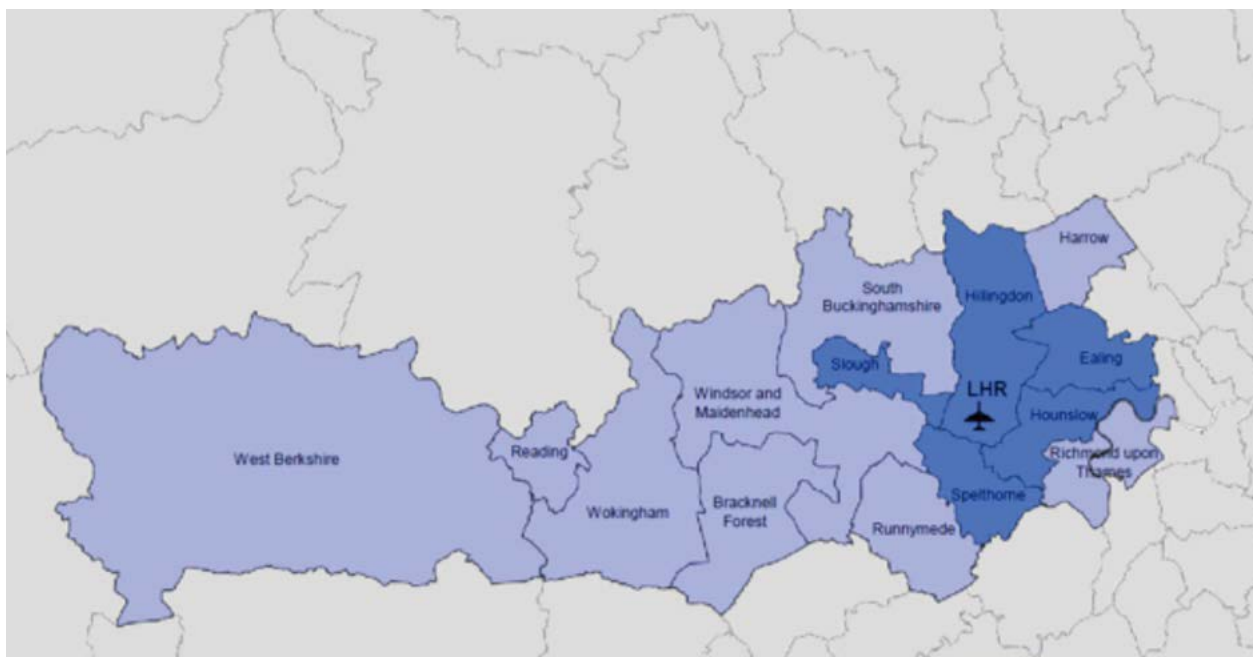
<sup>10</sup> Ibid.

## Heathrow assessment area

14 local authorities make up Heathrow's assessment area. Of these 14, the five immediately closest to Heathrow are considered the most appropriate to study in depth, since 76 per cent of the assessment area workforce live there.<sup>11</sup> These authorities are Hounslow, Hillingdon, Ealing, Slough and Spelthorne.

London is the centre of a city region covering a large part of South East England including the Gatwick and Heathrow study areas. The South East and London area has a combined population of over 17 million people (2013)<sup>12</sup> and about 11.5 million jobs. Rapid growth and development are expected over the next few decades with London and the surrounding 30 kilometres having a forecast of 13 per cent growth in population, 15 per cent growth in households and 13 per cent growth in jobs demonstrating the likely high level of churn and flexibility within the region.<sup>13</sup>

**Figure 3: Heathrow assessment area**



11 Heathrow Airport Limited (2008/9) Heathrow Airport Employment Survey, pg. 11

12 ONS Population forecast data 2013

13 Robin Thompson Associates and Urban Studio. Approaches to Growth – Study of Sub Regional Growth Proposals and Coordination Around London. 2007 used in the London Plan



# 1. Employment & Business

## Overarching

There is a substantial body of research on the number of employees required for airports of different sizes. A report carried out for the Airports Council International (ACI) Europe regarding the social and economic impacts of airports suggested an average of 950 on-site jobs are supported by every million passengers at airports in Europe,<sup>14</sup> within a wide range from around 500 to over 1,500 employees per million passengers. The main drivers include the share of long-haul flights, terminal and passenger experience, level of freight and operating models. Typical hub and spoke style airports are associated with a high prevalence of scheduled, transfer, long-haul and business passengers necessitating them to have more employees per million passengers. High levels of freight are also typically associated with this type of airport. Point-to-point airports, on the other hand, maintain a predominantly short-haul low-cost passenger market which requires less employees per million passengers. Therefore, depending on the type of airport, the multiplier effect on the creation of indirect, induced and catalytic jobs generated with an expansion varies.

The Commission's demand forecasts consider a range of different scenarios for the nature of UK aviation growth. The five scenarios are detailed in **Table 8** below, with further details provided in the "Strategic Fit: Forecasts" report.

These forecasts indicate Gatwick has a wide range of passenger demand forecast under different scenarios. *Low-cost is king* demonstrates a change in operations and the growth of low-cost long haul services potentially changing the nature of the airports traffic. Gatwick currently has 4 per cent transfer, 14 per cent business and 83 per cent leisure passengers. This compares to a national average of 9 per cent transfer, 21 per cent business and 69 per cent leisure passengers.<sup>15</sup>

Under all scenarios Heathrow is likely to continue to have a large proportion of business flights. Heathrow Airport Limited have indicated they are likely to continue to focus on the same mix of traffic in the event of an expansion, albeit with more regional flights. Currently Heathrow Airport has a relatively high proportion of business travellers, long-haul flights and freight. Heathrow Airport shows 26 per cent transfer, 25 per cent business and 48 per cent leisure passengers.

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<sup>14</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg 65

<sup>15</sup> Strategic Fit: Forecasts

**Table 8: Description of scenarios**

<b>Assessment of need (AoN)</b>	<i>This scenario is consistent with the forecasts underpinning the Commission's Assessment of Need. Future demand is primarily determined by past trends and the central projections published by sources such as the Office for Budgetary Responsibility, OECD and IMF.</i>
<b>Global growth (GG)</b>	<i>This scenario sees higher global growth in demand for air travel in the future. It adopts higher passenger demand from all world regions, coupled with lower operating costs and assumes any actions to manage carbon emissions from aviation are taken at the global level.</i>
<b>Relative decline of Europe (RDE)</b>	<i>This scenario sees higher relative growth of passenger demand in emerging economies in the future compared to the growth in the developed world. It adopts higher passenger demand from newly industrialised and developing countries, a strengthened position of Far and Middle Eastern aviation hubs and airlines, and assumes any actions to manage carbon emissions from aviation are taken at the global level.</i>
<b>Low-cost is king (LCK)</b>	<i>This scenario sees the low-cost carriers strengthening their position in the short-haul market and capturing a substantial share of the long-haul market. As with global growth, it also sees higher passenger demand from all world regions, lower operating costs, and assumes any actions to manage carbon emissions from aviation are taken at the global level.</i>
<b>Global fragmentation (GF)</b>	<i>This scenario sees economies close themselves off by adopting more interventionist national policies. As a result, there is a decline in passenger demand from all world regions, coupled with higher operating costs and no global carbon agreement is reached, leading to UK introducing unilateral measures on carbon emissions from aviation.</i>

**Table 9: Passengers per employee**

<b>Airport</b>	<b>Passengers (m)</b>	<b>Direct jobs (on &amp; off airport)</b>	<b>Total jobs*</b>	<b>Number of Passengers per employee (direct jobs)</b>	<b>Number of Passengers per employees (total jobs)</b>
Heathrow	70	84,400	114,100	829	613
Gatwick	34	24,900	33,200	1,373	1,030
Frankfurt am Main	58	78,000	155,500	744	373
JFK New York	62	132,600	224,600	464	274
Paris CDG	62	86,000	195,300	721	317
La Guardia New York	33	55,100	94,300	599	350
Manchester	21	19,300	41,200	1,098	515

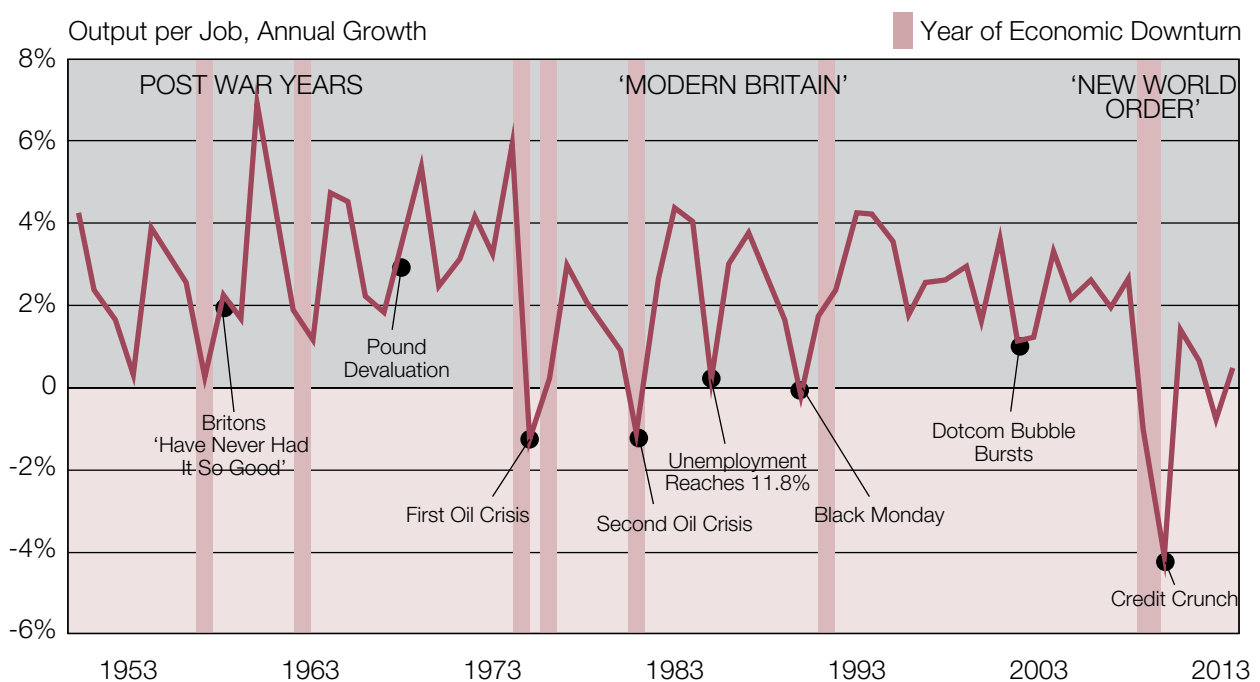
\*Source PwC Airports Commission Local Economic Impacts Literature Review – Table 11, Commission calculations

\*Total includes direct, indirect and induced jobs.

## Productivity

Productivity changes over the next 15 years will be an important factor in determining how many people can be expected to be employed at both airports in 2030 in the 'do minimum'. The Office for National Statistics (ONS) produce data on gross value added per employee for the UK economy as a whole and the graph below shows the trend over the past 60 years, over which period the average annual productivity increase was 2.25 per cent.

**Figure 4: Growth in Output per job 1953 – 2013**



Source: ONS

The Office for Budget Responsibility's (OBR) Economic and Fiscal Outlook December 2013 set out the "productivity conundrum": in recent years UK productivity has fallen but total employment hasn't to the same degree; implying much of the loss of productivity over the recession was structural and will not return even as the economy recovers and the financial system returns to full health. Since it is difficult to explain the abrupt fall and persistent weakness of productivity in the past, it is also hard to judge when or if productivity growth will return to the rate consistent with historical trends.

The OBR forecast productivity growth of 1.6 per cent in 2014, rising gradually to 2 per cent by 2018. The scheme promoters, measuring productivity in terms of passengers per employee, have used a range of assumptions from 0.5 per cent to 2 per cent growth per annum. Therefore considering the very long time frame of this assessment, recent growth

of 1 per cent per annum, and the long run average since 1970 of 1.9 per cent,<sup>16</sup> the Commission have used a range of 1-1.9 per cent. With no reason to consider the airport sector's productivity path different from the whole economy, it is assumed it will remain in line with trend.

## 1.1 Direct

The impacts of the three shortlisted schemes are assessed by first calculating the additional direct employment provided by an expanded airport, compared to a 'do minimum' with no expansion. The passenger demand forecasts set out in the "Strategic Fit: Forecasts" report provide the inputs to this assessment. Additional employment is calculated by multiplying additional passenger numbers by the ratio of passengers to full time equivalent (FTEs) employees at the airport, allowing for some gains in productivity over the forecast period, which is reflected as an increase in the passengers per employee ratio. The current passenger/employee ratios used as the basis for these calculations have been taken from the scheme promoter's material. The number of additional employees in 2030 and 2050 are estimated and this is compared with the scheme promoter's estimates below.

### 1.1.1 Gatwick

#### Number of jobs

In 2011 Gatwick Airport employed 24,900 direct employees<sup>17</sup>. The section below discusses the expected 2030 and 2050 'do minimum' employment. These forecasts depend on productivity gains – if productivity increases, the number of jobs per million passengers will be lower. The airport has some scope to grow passenger numbers, through larger planes and higher load factors, from 35 million at present to 45 million, which represents the limit of its terminal capacity. The Airports Commission's forecasts indicate that across the full range of scenarios passenger numbers would reach this level by the 2030s.

#### Baseline 2030

The direct employment impacts of the airport have been calculated by dividing the total passenger forecast by the expected ratio of passengers/employees at the airport. **Table 10** shows that between 4,300 fewer staff and 1,400 additional staff could be required at Gatwick by 2030 compared to 2011, based on a productivity range of 1 per cent to 1.9 per cent annually. Where fewer staff are required this does not imply current employees will lose their jobs but rather over the next 15 years as workers retire or move on they will not be

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<sup>16</sup> ONS labour productivity figures

<sup>17</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg 13

replaced at the same rate. The key focus is that with capacity constraints, the airport will no longer need to hire as many staff under a higher productivity scenario.

Airports such as Gatwick, which predominantly offer low-cost and short-haul services, typically have lower than average employment densities due to airlines keeping down cost pressures and higher labour productivity.<sup>18</sup> It is the Commission's assumption that in most demand scenarios Gatwick will continue to focus on largely point-to-point low-cost operations with only a relatively small proportion of transfer passengers. The current composition of passengers is 83 per cent leisure, 4 per cent transfer and 14 per cent business passengers. In the 'do minimum', with no significant scope for further market growth, the Commission's forecasts suggest that Gatwick's passenger split would remain broadly one quarter long-haul, three quarters short-haul, although a marginal increase in the long-haul proportion would be seen over time as demand spills over from a constrained Heathrow.

### Baseline 2050

By 2050 direct employment at the airport could be between 15,500 and 23,500 employees. Depending on the productivity assumptions, Gatwick could be employing 1,400 fewer staff or 9,400 fewer than in 2011 by 2050.

**Table 10: Baseline Direct Jobs**

Year	Baseline	Airports Commission	Gatwick Airport Limited (GAL)
2011	<i>Number of passengers (millions)</i>	33.9	33.9 <sup>18</sup>
	<i>Number of employees</i>	24,900	24,900
2030	<i>Passenger forecast (millions, 2030)</i>	41-44	47
	<i>Number of passengers per employee</i>	1,700-2,000	1,800
	<i>Direct jobs (total)</i>	20,600-26,400	26,500
2050	<i>Passenger forecast (millions, 2050)</i>	44-48	50
	<i>Number of passengers per employee</i>	2,000-2,900	2,400
	<i>Direct jobs (total)</i>	15,500-23,500	27,800

Gatwick Airport Limited's own baseline forecasts are broadly comparable to the Commission's, with slightly more passenger traffic forecast in both 2030 and 2050 (though both the Commission and Gatwick Airport Limited forecast the airport to be full over this period). Gatwick Airport Limited estimate an increase in jobs of up to 27,800 by 2050, which is a 2,900 increase on 2011.

<sup>18</sup> Ibid. pg. 13.

<sup>19</sup> These figures have come from the Airports Commission baseline forecasts

## Assessment

As with the baseline, expected job numbers are driven by passenger forecasts. The table below shows that the low end of the Commission's range of passengers forecasts (40 million) is marginally below the 'do minimum' forecast in the *global fragmentation* scenario. The highest forecast (72 million) reflects the *low-cost is king* scenario. It must be stressed that none of these should be considered a 'central' scenario or most plausible future. Rather these scenarios provide a range of potential demand forecasts, reflecting differing potential futures, to understand better the ways in which the appraisal results for each shortlisted option might be affected by long-term structural changes.

Year	Assessment	Airports Commission	GAL
2030	<i>Passenger forecast (millions, 2030)</i>	40 – 72	65
	Number of passengers per employee	1,660 – 1,960	1,964 – 2,000
	<i>Additional Direct jobs</i>	0 – 17,100	6,000 – 6,200
	<i>Direct jobs (total)</i>	20,400 – 43,400	32,500 – 33,100
2050	<i>Passenger forecast (millions, 2050)</i>	60 – 96	95
	Number of passengers per employee	2,020 – 2,860	2,200 – 3,400
	<i>Additional Direct jobs</i>	5,500 – 24,000	14,900 – 15,500
	<i>Direct jobs (total)</i>	21,000 – 47,400	42,700 – 44,000

In the majority of these scenarios, although growth is seen in long-haul routes and passenger numbers, these stay as less than a third of the total and the number of transfer passengers remains low. In contrast, in the *low-cost is king* scenario, more significant changes are seen, driven in particular by the expansion of the low-cost sector into long-haul markets. Long-haul passenger numbers rise higher than short-haul by 2040 and interlining passengers increase significantly at the airport. There could therefore be a relatively lower ratio of staff per million passengers in this scenario than the other four.

Gatwick Airport Limited's forecast for the impact of the expansion is an increase in local employment from 3.5 per cent of baseline employment to 5.5 per cent. Gatwick Airport Limited's productivity range is from 1 per cent to 2 per cent which is based on the long term trend of the UK,<sup>20</sup> however as they use a different passenger forecast, this results in a narrower range than the Commission's estimates.

<sup>20</sup> Optimal Economics (13 May 2014) *Gatwick Local Economy Impacts*, pg. 20

## Construction phase impacts

The scheme's construction could stimulate an external positive supply-side effect to the economy. This investment in the air transport sector flows into other sectors of the economy (especially the construction sector) as increased demand for those sectors' outputs. Expansion in these sectors in turn has various 'multiplier' impacts throughout the economy (for example as intermediate inputs are sourced for construction activities). These effects are, however, counteracted by reduced consumption in the short term and the multiplier effects of this lower consumption. Clearly the construction impacts do not, in themselves, provide reasons for undertaking the scheme. However, the S-CGE model suggests that diverting available resources of the economy towards constructing the airport has significant economic impacts in its own right.

The model suggests that the net impact is to increase GDP, since the positive effects of expanding the construction sector outweigh the negative effects of contractions elsewhere. The model suggests that re-orientating the economy towards building the Gatwick Airport Second Runway scheme increases GDP by around 0.5 per cent in 2022 (the first and largest of the three construction phases). There are also positive employment effects with an estimated 5,800 jobs in construction created by the scheme in 2020. During the construction phases, the model shows there could be a very small increase in house prices – especially in London and the South East – as a result of higher demand, for example from construction workers.

Gatwick Airport Limited estimate employment in 2024-25 to be 2,000 to 4,000, phase 1 employment in 2028-29 to be 4,000 to 6,000, phase 2 in 2033-34 2,500 to 6,500 and phase 3 in 2038-39 to be 3,000 to 5,000. Gatwick Airport Limited's view is that this poses no labour supply challenges and that the skills required are standard civil engineering and construction skills which are widely available. They estimate peak employment will be equivalent to around 8 per cent of the workforce in their study area and 10 per cent of construction employment.<sup>21</sup>

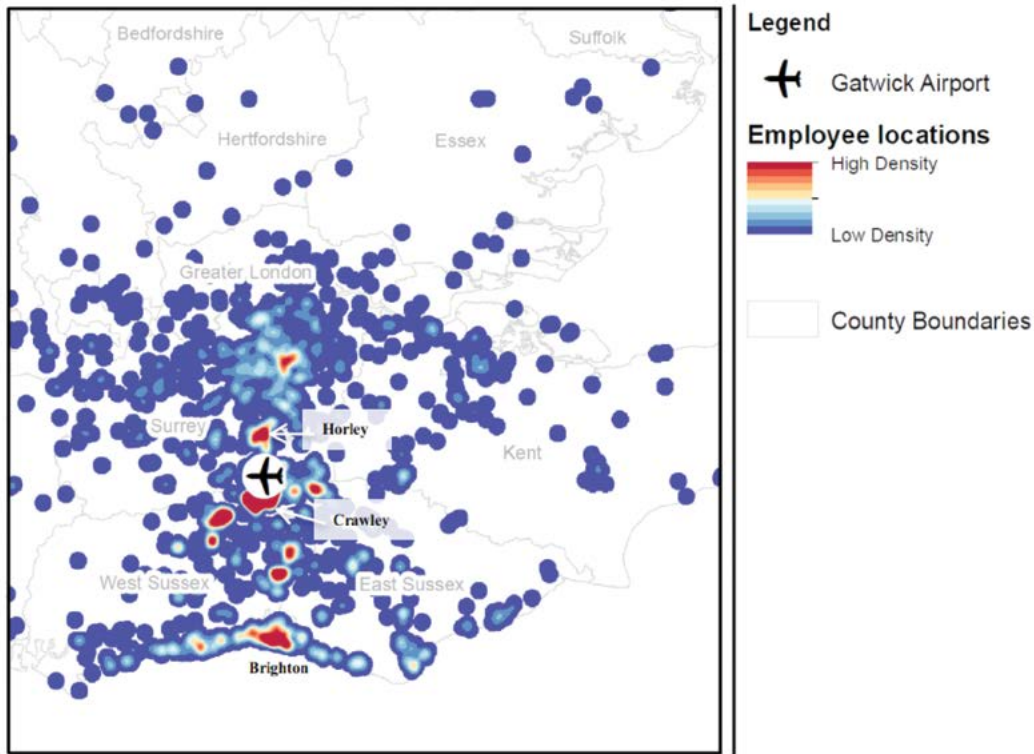
### Direct employees travel to work areas (TTWAs)

Gatwick's workforce is predominantly drawn from Crawley – more than one third of the workforce (35 per cent) lives in Crawley postcode districts, compared to 7 per cent of employees in Horley, 6 per cent in Brighton and 6 per cent in Horsham. Croydon, the Gatwick assessment area's only London Borough is also a high density employee location as demonstrated in figure 5, although not as high as the Gatwick Diamond Authorities.

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<sup>21</sup> Optimal Economics (13 May 2014) *Gatwick Local Economy Impacts*, pg. 19

**Figure 5: Gatwick Airport Employment Density Map**



### **Gatwick Airport employment, workforce skills and salaries mix**

**Table 12** below shows a large range of unemployment rates around Gatwick. There is likely to be some capacity for new jobs to be filled by the unemployed upon a Gatwick expansion, especially in Crawley and Mole Valley. But, the unemployment rate for 2013 only provides a snapshot of the employment picture, and these results could be distorted by the economic crisis, meaning the trend rate may be lower and may be different to the current mix between local authorities.



**Table 12: Direct on-airport employment at Gatwick airport, 2013**

	Number of employees	Share of local authority employment (%)	Local Authority unemployment rate (2013) (%)	
Crawley	1,405	2.6	9.8	
Epsom and Ewell	n/a	n/a	5.7	
Horsham	312	0.5	2.6	
Mid Sussex	363	0.5	2.8	
Mole Valley	62	0.1	7.0	
Reigate and Banstead	417	0.6	3.7	
Tandridge	107	0.3	5.6	
Total of seven local authorities	2,666	n/a	n/a	
Other Areas	1,931	n/a	n/a	
Total	4,597	n/a	<b>Area average</b>	5.1
			<b>UK average</b>	6.4 <sup>23</sup>

As noted by the Gatwick Airport Limited employment survey, staff salaries are varied with 46 per cent of staff earning between £9,000 and £24,000 in 2012, but only 6 per cent earning the top pay salaries of £50,000+. There is also a concentration of lower skilled employees, with 62 per cent of staff not holding a degree (though 25 per cent of staff do have a Bachelor's degree or higher).

The number of high skilled workers (NVQ Level 4 and above) is lowest in Crawley compared to the surrounding area with 27 per cent of working age people having this qualification compared to the national average of 35 per cent.<sup>24</sup> This is supported by evidence from PwC, which noted that this is a trend across the air transport industry where on average under 40 per cent of workers have Level 4 qualifications. This pattern has changed very little from 2008 to 2012 and the Gatwick pay structure isn't expected to change significantly between now and 2030 compared to any other sector in the economy (which would change the distribution of workers at different skill levels across industries). Therefore it would be reasonable to anticipate a similar skills mix in terms of direct employment in the 2030 baseline, although a slight shift away from the lowest skilled jobs can be expected due to efficiency gains. Furthermore, it is difficult to fully anticipate future advances as it may require a different mix of skills at airports, although it is likely that most new employees will be employed by airlines.

<sup>23</sup> ONS (2014) *Unemployment figure*, Q2 2014

<sup>24</sup> Nomis figure Jan 2013-Dec 2013 ONS population survey (% is a proportion of resident population of area aged 16-64)

## Conclusion

Direct employment at the airport in 2030 and 2050 is expected to be based on a similar skills mix and relative earnings as currently, due to the nature of airport employment, although it is acknowledged that over such a long time horizon it is very difficult to predict future changes to employee requirements in the industry. Different demand scenarios provide a range of forecasts, which imply in 2030 at the high end of the range up to 17,100 additional jobs could be created under a Gatwick Airport Second Runway scheme.

### 1.1.2 Heathrow

#### Number of jobs

84,400 direct workers were employed at Heathrow Airport as of 2011.<sup>25</sup> Typically, airports which predominantly offer long-haul services and hub capabilities have higher employment densities, indeed PwC's literature review showed Heathrow has one of the highest employment densities.<sup>26</sup> This section discusses the 2030 and 2050 forecasts of number of jobs in the baseline. These forecasts depend on the level of productivity anticipated at the airport, where if productivity increases in this time period, the number of jobs at the airport would fall.

#### Baseline 2030

Under current capacity constraints, Heathrow will experience lower passenger growth than in the past and therefore lower employment growth too. The airport's terminal capacity has some scope to grow passenger numbers, through larger planes and higher load factors, and it has seen continuing growth in passenger numbers over recent years to reach 72 million in 2013. Heathrow has plans for sufficient terminal capacity to accommodate a maximum of 95 million passengers, and the Commission's forecasts show that without expansion across the full range of scenarios, both carbon traded and carbon capped, this level is predicted to be reached by 2050 or earlier.

Nonetheless under a high productivity assumption of 1.9 per cent, around 14,000 fewer staff could be required by 2030. This is the low end scenario, and does not imply current employees will lose their jobs but rather over the next 15 years as workers retire or move on they will not be replaced at the same rate. The key focus is that with capacity constraints, the airport will no longer need to hire as many staff under a higher productivity scenario. With a low end assumption of 1 per cent productivity gains per year, 3,000 extra employees will be required. With Heathrow expected to continue to cater for a substantial number of business and transfer passengers and to provide hubbing operations. This is

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<sup>25</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg. 13

<sup>26</sup> *Ibid.* pg. 14

evident from the current passenger make up with 26 per cent transfer, 25 per cent business and 48 per cent leisure passengers. It is expected that it will continue to require a relatively large number of staff per million passengers.

### Baseline 2050

By 2050 direct employment at Heathrow could be between 52,700 and 81,800 employees. This is a fairly wide range which is reasonable given the uncertainty in looking so far ahead. Depending on the productivity assumptions Heathrow could be employing 2,600 more staff or over 31,000 less than in 2011 by 2050.

Year	Baseline	Airports Commission	Heathrow Airport Limited (HAL)	Heathrow Hub Limited (HH)
2011	<i>Number of passengers</i>	70.1	70.1 <sup>27</sup>	70.1
	<i>Number of employees</i>	84,400	84,400	84,400
2030	Passenger forecast (millions, 2030)	83–88	80–85	no 2030 assessment
	Number of passengers per employee	1,000–1,200		–
	Direct jobs (total)	70,300–87,400	72,700–75,300	60,000–75,000
2050	Passenger forecast (millions, 2050)	91 – 100	90	92
	Number of passengers per employee	1,220–1,700	–	–
	Direct jobs (total)	52,700–81,800	72,500–75,800 <sup>28</sup>	45,800–68,700

Heathrow Hub Limited estimate a reduction in direct jobs of around 25,000 by 2030 and 40,000 by 2050 under their high productivity case. This is due to the efficiency gains they expect to be realised.

<sup>27</sup> These figures have come from the Airports Commission baseline forecasts

<sup>28</sup> HAL Direct job forecast refers to 2040

## Assessment

Table 14: Assessment Direct Jobs					
Year	Assessment	Airports Commission – LHR NWR	Airports Commission – LHR ENR	HAL	HH
2030	Passenger forecast (millions, 2030)	104-129	104-123	104	
	Number of passengers per employer	1,000-1,190	1,000-1,190		
	Direct jobs (additional to baseline)	17,500-41,400	17,500-35,400	15,600–20,200	
	Direct jobs	87,700-128,800	87,700-122,800	90,900–92,900	60,000-75,000
2050	Passenger forecast (millions, 2050)	132-149	126-142	135	–
	Number of passengers per employee	1,220-1,730	1,220-1,730	–	–
	Direct jobs (additional to baseline)	23,700-40,100	20,300-34,400	32,200–38,000*	19,200-35,500
	Direct jobs	76,400-121,900	72,900-116,200	108,000–110,500 <sup>29</sup>	

Heathrow has a relatively high proportion of transfer passengers currently (25 per cent of traffic) and in the ‘do minimum’ it is expected to continue to serve high volumes of business passengers. It is therefore reasonable to expect that it will continue to require a fairly high number of staff per million passengers. The assessment ranges are provided by the array of scenarios (described previously) used to estimate the potential jobs created. For example, for both Heathrow Airport North West Runway and Heathrow Airport Extended Northern Runway, *global fragmentation* results in the lowest number of direct jobs compared to baseline due to the reduction in overall global demand. Conversely, the high end of the range is provided by the *low-cost is king* (Heathrow Airport North West Runway) and the *global growth* scenario (for Heathrow Airport Extended Northern Runway) as this would see a fall in operating costs as well as an increase in overall passenger demand under both scenarios.

### Heathrow Airport Limited’s Assessment

In 2040, Heathrow Airport Limited expect an extra 17,900 direct employees to the local area, which will be distributed through the five local authorities as follows: 5,100 in

<sup>29</sup> HAL Direct job forecast refers to 2040

Hillingdon, 5,100 in Hounslow, 3,000 in Ealing, 2,500 in Spelthorne and 1,800 in Slough.<sup>30</sup> It is estimated that these jobs are likely to have a similar profile to the current jobs, with a significant proportion being entry level jobs. The direct employees figure falls at the low end of the Commission's range of forecasts and this is due to the lower initial passenger forecast.

### **Heathrow Hub Limited Assessment**

By 2050, Heathrow Hub Limited have forecast that the number of direct jobs created upon expansion of the airport depends on the level of productivity growth expected at the airport. In their assessment, they looked at three rates of growth; 0%, 0.5% and 1.5%. This created a range of anticipated total jobs from 65,000-119,800,<sup>31</sup> which would indicate additional direct jobs of 19,200 – 35,500 compared to baseline. They anticipate the same million passenger per employee proportion upon expansion. This is a similar range to the Airports Commission however it has a slightly higher upper end of the range due to a different productivity expectation.

### **Construction phase impacts**

The scheme's construction can stimulate an external positive supply-side effect to the economy. This investment in the air transport sector flows into other sectors of the economy (especially the construction sector) as increased demand for those sectors' outputs. Expansion in these sectors in turn has various 'multiplier' impacts throughout the economy (for example as intermediate inputs are sourced for construction activities). These effects are, however, counteracted by reduced consumption and the multiplier effects of lower consumption. Clearly the construction impacts do not, in themselves, provide reasons for undertaking the scheme. However, the S-CGE model suggests that diverting available resources of the economy towards constructing the airport has significant economic impacts in its own right.

The model suggests that the net impact is to increase GDP, since the positive effects of expanding the construction sector outweigh the negative effects of contractions elsewhere. The model suggests that re-orientating the economy towards building either the Heathrow Airport North West Runway scheme or the Extended Northern Runway scheme increases GDP by around 0.5 per cent in 2022. It is estimated 16,800 to 19,300 jobs in construction could be created by the Extended Northern Runway or North West Runway respectively in 2020. During the construction phases, the model shows there could be a very small increase in house prices – especially in London and the South East – as a result of higher demand, for example from construction workers.

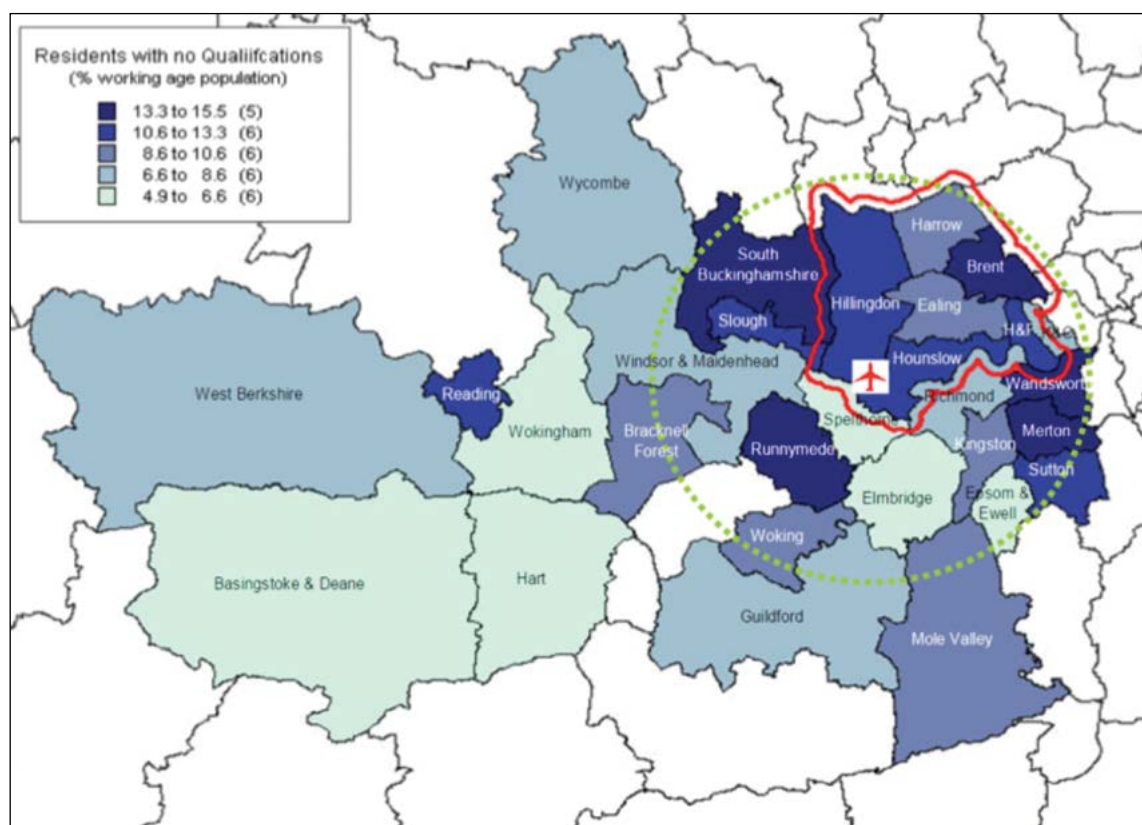
<sup>30</sup> Heathrow Airport Limited (May 2014) *Technical Submission Volume 1*, pg. 83

<sup>31</sup> Airports Commission (May 2014) *HH/RIL Updated Scheme Design*, Pg.27

## Heathrow Airport employment, workforce skills and salaries mix

Heathrow Airport supported 73,430 jobs in 2008-2009<sup>32</sup> although there were several areas of high unemployment in the local area. In a study by Optimal Economics, employee skills were found to be mainly on the lower end of the spectrum, with 75 per cent of those employed in skill sectors Level 1 and 2. This breakdown is also reflected in the salary distribution of on-site employees, with predominantly low paid workers. While Hillingdon itself has a higher than average number of high skilled workers (40.9 per cent compared to national average of 35.2 per cent<sup>33</sup>), this likely reflects the fact that many Heathrow employees commute into work so it is not exclusively Hillingdon residents working at the airport. Indeed Figure 6 demonstrates the percentage of residents in each local authority with no skills, showing that the authorities surrounding Heathrow have a high proportion of non-skilled workers compared to the national average of 9.3 per cent. Air transport as an industry typically has lower skills with under 40 per cent on average having NVQ Level 4 skills.

**Figure 6: Percentage of employees with no qualifications**<sup>34</sup>



**Table 15** below shows relatively high unemployment rates in areas such as Hillingdon and Ealing. Should these rates of unemployment persist, a Heathrow Airport North West

<sup>32</sup> Optimal Economics (Sep 2011) *Heathrow Related Employment*, pg. 6

<sup>33</sup> Nomis figure Jan 2013-Dec 2013 ONS population survey (% is a proportion of resident population of area aged 16-64)

<sup>34</sup> The Heathrow Phenomenon: Impact Analysis (Deloitte) pg. 22

Runway or a Heathrow Airport Extended Northern Runway expansion could provide opportunities for unemployed local residents to fill some new of the jobs.

**Table 15: Direct on-airport employment data Heathrow**

	Number of employees	Share of local authority employment (%)	Local Authority unemployment rate (2013) (%)	
Hounslow	10,760	8.3	7.3	
Ealing	5,760	3.7	9.9	
Slough	4,090	6.1	8.2	
Hillingdon	8,960	6.7	7.7	
Spelthorne	3,920	7.8	4.9	
Total of five local authorities	33,490	n/a	n/a	
Other Areas	39,940	n/a	n/a	
Total	73,430	n/a	<b>Average</b>	9.6
			<b>UK average</b>	6.4 <sup>35</sup>

## Conclusion

Direct employment at the airport in 2030 and 2050 is expected to be based on a similar skills mix and relative earnings, due to the nature of airport employment, although it is acknowledged that over such a long time horizon it is very difficult to predict future changes to employee requirements in the industry. It is reasonable to anticipate a similar skills mix in terms of direct employment in the 2030 baseline, although perhaps with a slight shift away from the lowest skilled jobs due to efficiency gains. Furthermore, it is difficult to fully anticipate future advances as it may require a different mix of skills at airports, although it is likely that most new employees will be employed by airlines. Different demand scenarios provide a range of forecasts, which imply in 2030, between 17,500 and 35,400 additional jobs could be created under a Heathrow Airport Extended Northern Runway scheme and between 17,500 and 41,400 additional direct jobs with a Heathrow Airport North West Runway.

## 1.2 Indirect and Induced

Indirect impacts are generated by the activities of the airports' supply chain, while induced impacts are generated as a result of spending by those employed directly or indirectly by the airport. The level of indirect and induced impacts can be estimated using multipliers (with the direct jobs being multiplied by these figures). This assessment uses multipliers calculated from Gatwick Airport Limited and Heathrow Airport Limited's forecasts.

PwC's literature review found that identifying the appropriate multipliers for an individual airport is challenging, since, depending on the scope of the assessment, the multipliers

<sup>35</sup> Unemployment figure based on Q2 2014 ONS

significantly varied between airports in a non uniform manner. The definition of the region studied was a significant factor, whereas other factors such as size or type of airport seem to make little difference.<sup>36</sup> Therefore, it was not possible to identify with confidence the most appropriate multiplier to use. Given the lack of consensus on the most appropriate multipliers for different airports, the multipliers calculated from the scheme promoters forecasts were deemed most appropriate and also fell within the range identified in the literature review.

### 1.2.1 Gatwick

Using the multipliers implied by Gatwick Airport Limited’s employees figures and passenger forecasts (1.07 for indirect and 1.08 for induced), the tables below demonstrate the expected indirect jobs created under a Gatwick expansion in 2030 and 2050. The ranges are fairly large, but this is to be expected given the ranges of passenger forecasts and productivity assumptions. The low end of the range comes from the *global fragmentation* scenario and the high end of the range is the *low-cost is king* scenario.

#### Baseline

Year	Baseline	Airports Commission	Gatwick Airport Limited (gal)
2030	Passenger forecast (millions, 2030)	41-44	47
	Indirect jobs (total)	1,600-1,700	1,737-2,095
	Induced jobs (total)	5,300-6,700	6,770
2050	Passenger forecast (millions, 2050)	44-48	50
	Indirect jobs (total)	1,000-1,100	1,265-1,856
	Induced jobs (total)	4,000-5,900	6,985-7,295

In the baseline, there is a fairly small range of expected indirect and induced jobs compared to the range on direct employees, due to the relatively small multipliers used. The estimated number of indirect and induced jobs falls between 2030 and 2050 which is due to the expected productivity increases anticipated. Gatwick Airport Limited’s own forecast is shown in a range of varying productivity (1%–2%). The low end of each range either falls between the ranges anticipated in the Commission’s forecast in 2030, however in the upper 2030 range and by 2050, they do anticipate higher numbers due to the higher passenger forecasts.

#### Assessment

As the table below shows, the Commission estimate that with expansion between 200 and 1,500 additional jobs could be created by 2030, plus a further 300 to 5,100 induced jobs.

<sup>36</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg. 21



The range is based upon the Commission's five demand scenarios. Under the *low-cost is king scenario*, the highest number of indirect and induced jobs would be created, while *global fragmentation* provides the low end of the range for additional employment. It must be stressed that none of these should be considered a 'central' scenario or most plausible future. Rather these scenarios provide a range of potential demand forecasts, reflecting differing potential futures, to understand better the ways in which the appraisal results for each shortlisted option might be affected by long-term structural changes.

**Table 17: Assessment indirect and induced jobs**

Year	Assessment	Airports Commission	Gatwick Airport Limited (GAL)
2030	Additional Indirect jobs	200-1,500	600-800
	Additional Induced jobs	300-5,100	2,000
	Indirect jobs (total)	1,800-3,200	2,400-2,900
	Induced jobs (total)	5,600-11,800	8,700-9,000
2050	Additional Indirect jobs	600-1,600	1,100-1,600
	Additional Induced jobs	1,800-7,000	4,600-4,900
	Indirect jobs (total)	1,700-2,600	24,00-3,500
	Induced jobs (total)	5,800-12,900	11,600-12,200

The table below illustrates the total direct, indirect and induced jobs as a proportion of the economically active local population which would be employed at Gatwick after expansion, using the forecasts above. The high and low end of these working population is based on the current spectrum of the economically active population. Even at the high end of the estimated job creation range and with a low working population, only 6.4 per cent of people would be employed by Gatwick airport by 2030. Therefore, the changes in indirect and induced jobs being assessed here are of a relatively small magnitude when considering total employment in the local area. These jobs are unlikely to significantly alter the local economy or add substantial pressure to the local area as it is equivalent to fewer than 150 jobs per local authority per year if all jobs were in these local authorities (though it is unlikely to be split evenly in reality).

**Table 18: Total airport related jobs as a proportion of the economically active population at Gatwick (15 Local Authorities), 2030**

	Total jobs	Population 16-69 (ONS forecast)	Low Working Population (60%)	High Working Population (80%)
Total population	–	1,518,400	911,040	1,214,720
Low	27,800	1.8%	3.1%	2.3%
High	58,400	3.8%	6.4%	4.8%

## Business Composition

The airport's presence influences the type of business and employment in the immediate vicinity. **Figure 7** highlights the concentration of airport related industries in Crawley compared with the national average, with passenger air transport 49.9 times more concentrated here than the national average. Other relative concentrations are combined facilities support activities (12.8), support activities for transportation (10.9), and freight air transport and space transport (5.6). Crawley may face challenges in attracting more productive industries in future with the prevalence of low skilled workers – currently 25 per cent of the working population. In Crawley, it is therefore expected that the addition of indirect and induced jobs would be concentrated in airport related industries, reflecting the skill level. Although predicting the exact industry mix in 2030 and 2050 is not possible, an assessment as to whether airport expansion is likely to change the business mix, and to what scale, is useful.

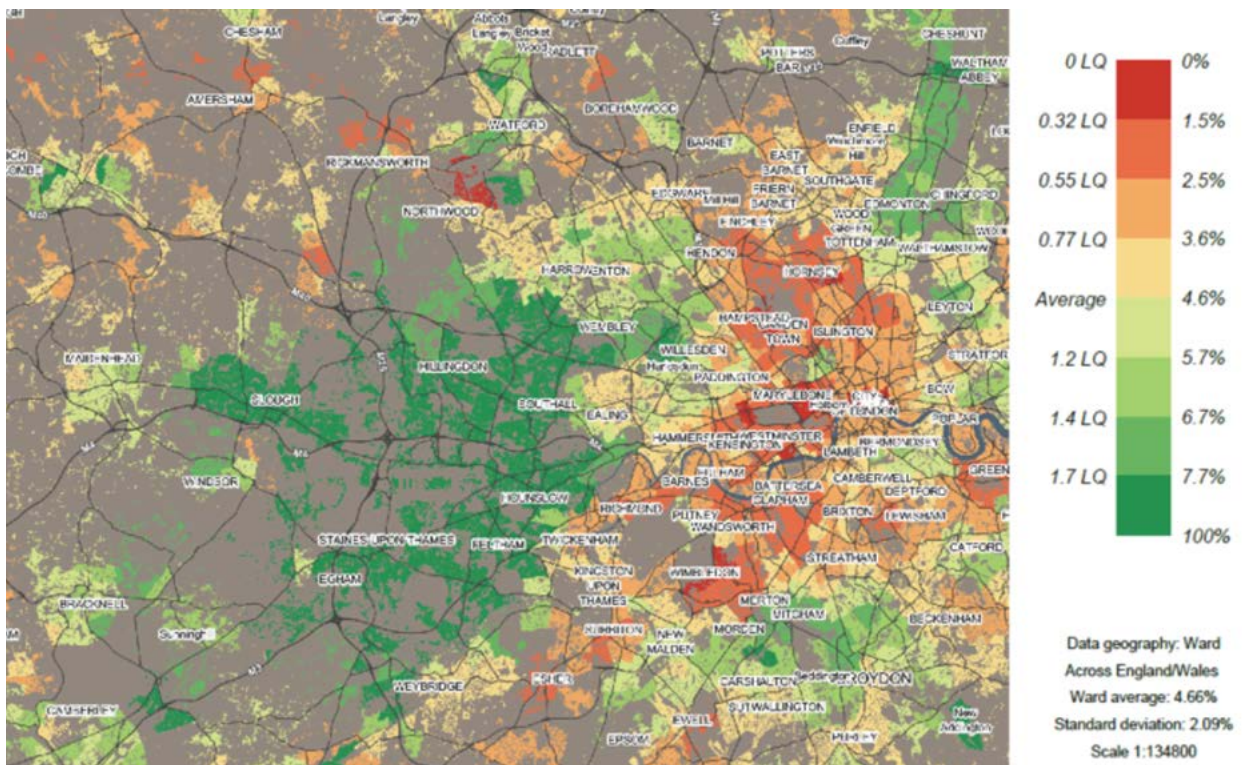
**Table 19: Location industry quotient Crawley 2011 (ONS)**

Crawley	
Passenger air transport	49.49
Combined facilities support activities	12.81
Support activities for transportation	10.85
Manufacture of instruments and appliances for measuring, testing and navigation; watches and clocks	7.1
Freight air transport and space transport	5.59

*Note. The location quotient measures the ratio of concentration of an industry compared to the national average.*

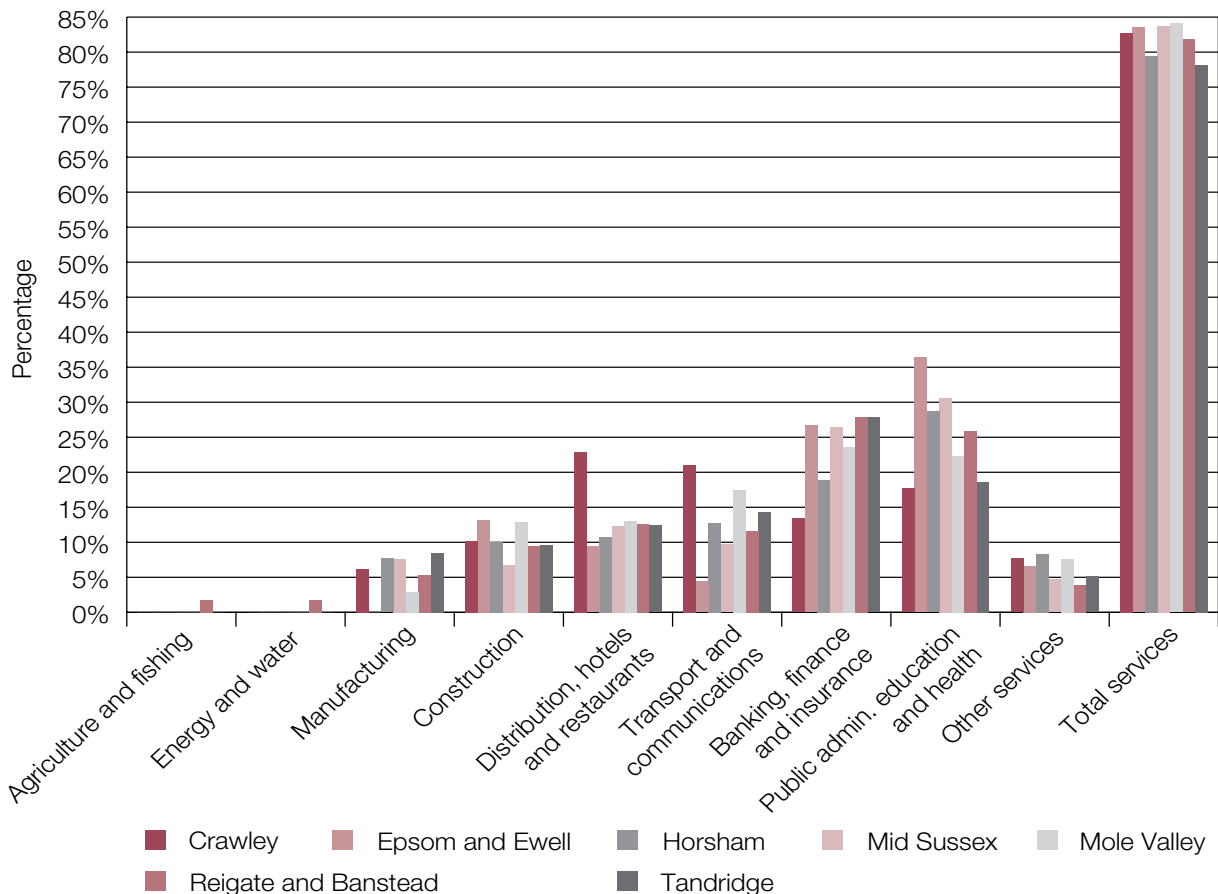
Across the rest of the local authorities, the majority of businesses are property and business services (34 per cent in 2008), retail (11 per cent), and construction (10 per cent). Transport only accounts for around 3 per cent of local business types, much lower than Crawley (8.2 per cent). **Figure 8** highlights the importance of different industries in the different local authorities. It shows services as the main employment sector across all local authorities, a trend which has the potential to be maintained over the next few decades. New sectors are likely to open up, but given the current sectoral mix could not have been predicted 35 years ago, it is similarly unlikely that the composition of sectors can be predicted for 2050 with any confidence. Therefore, this assessment focuses instead on assessing the degree of flexibility of labour in moving between sectors, which will be important in an ever changing economy.

**Figure 7: Map of percentage of businesses associated with transport**



Source: Datashine

**Figure 8: Percentage employment in industrial sectors by Local Authority**



Source: Nomis

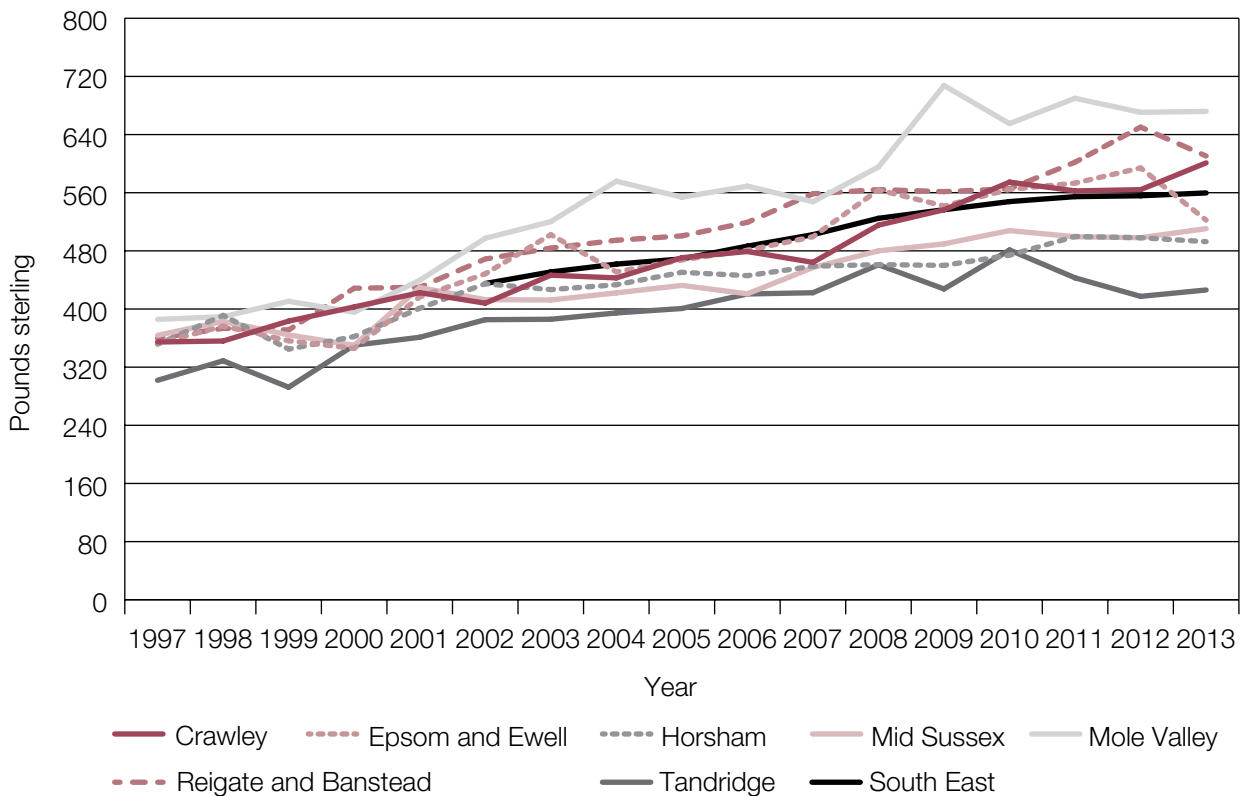
The figure above shows the current composition of business is mixed. This suggests that while the airport is an important employer in these areas, local authorities outside Crawley are not directly dependent upon the airport and can be expected to have a wide range of other industries and employers in the locality. Many businesses close to the airport may be there to take advantage of the connectivity offered by the proximity of the airport. It is therefore possible that more business headquarters could locate near Gatwick upon expansion, however this can only be theorised as similarly to the business mix, it would be unwise to predict individual firm locations over such a long time horizon. International evidence from airports such as Amsterdam Schiphol demonstrates that this is certainly a possibility (see case study in chapter 4: Land). Finance and business sectors are important industries to the local economy, and airport expansion could bring in additional higher value activity. The expected effect is likely to vary by scenario. With the *low-cost is king* scenario, Gatwick would become a more hub-like airport attracting transfer passengers making it more appealing to businesses (currently only 14 per cent of passengers at Gatwick are business passengers). Similarly with the *global growth* scenario Gatwick experiences rapid growth which could lead to a step change in industry in the local area. Of all the scenarios these two have the greatest potential to attract higher value business.

In conclusion, it is not possible to say with any certainty how the Gatwick Airport Second Runway expansion could affect the business mix within the local area. But, with the exception of Crawley, there is a wide spread of industrial sectors, and additional employment will make up at most 2.6 per cent of the study area jobs in 2030. Considering the difference in business mix 20 years ago, it is evident that the local labour market has adapted to the change in sectors over the last 20 years and this trend is likely to continue.

## **Earnings**

Median wages within the Gatwick Diamond have followed a similar path to the wider South East, but there is a substantial variation within the Diamond, with Mole Valley higher and Tandridge lower. Indeed, the gap between the highest and the lowest median weekly earnings have widened post-recession. However there is a wide range of earnings (reflecting different types of business) within these local authorities, which given the mix of skills, sectors and housing stock, is a trend which is likely to continue.

**Figure 9: Gatwick Diamond median weekly earnings by workplace (nominal)**



Source: Nomis

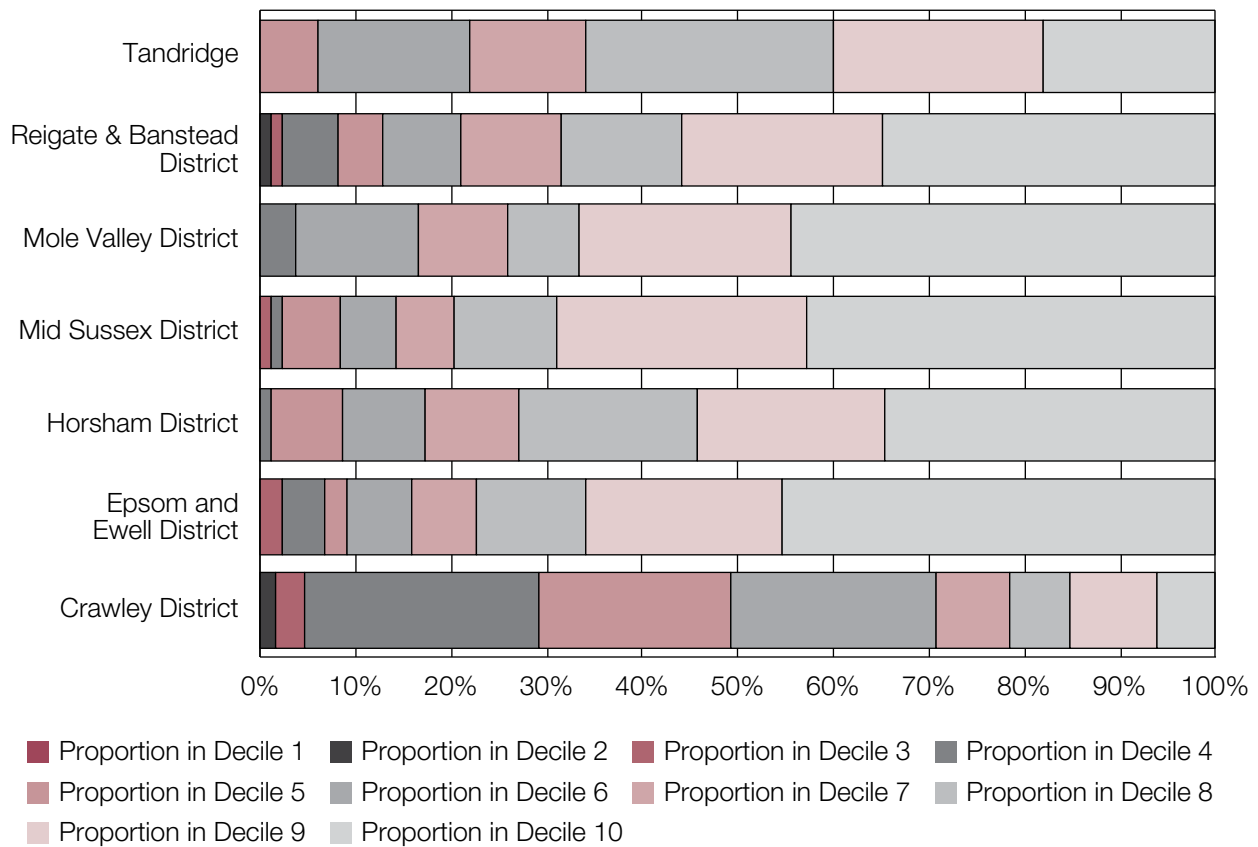
## Unemployment & Deprivation

Differences within the assessment area are further supported by the variations in relative deprivation, as demonstrated in **Figure 10**. The index of multiple deprivation ranks areas on a number of weighted criteria – mainly income and employment.<sup>37</sup> The darkest colour indicates more deprived and the lightest shades represent least deprived. No Gatwick Diamond local authority featured in the lowest decile (56 per cent of Local Authorities contain at least one LSOA amongst the 10 per cent most deprived in England<sup>38</sup>). Crawley stands out as being more relatively deprived, with a much bigger proportion of its LSOAs the lowest five deciles. This suggests that additional jobs created by a Gatwick Airport Second Runway expansion could help to reduce the overall deprivation levels of the area although this would depend on the skill levels of the unemployed and hence their ability to take up new employment opportunities.

<sup>37</sup> But also health, education, barriers to housing, crime and living environment

<sup>38</sup> DCLG (24 Mar 2011) *The English Indices of Deprivation*, pg. 1

**Figure 10: Proportion of LSOAs by IMD 2010 decile<sup>39</sup>**



Source: DCLG

### Indirect & induced employees travel to work areas (TTWA)

Assessing the travel to work area is important as it demonstrates the distance people are willing to travel to work. This also highlights the sphere of employment potentially affected should an expansion of the airport occur.

Many of the Diamond authorities have a high proportion of the working population out-commuting to work, for example, 45 per cent in Mid Sussex<sup>40</sup> and 59 per cent of the workforce in Tandridge.<sup>41</sup> But, as demonstrated by **Figure 11**, a large proportion of employees in Crawley work 2-5km from their work and 51 per cent live less than 5km from their work. It is reasonable to assume the high proportion of Crawley residents employed at the airport is the reason for this fairly narrow TTWA for many of the airport or associated industry staff.

Away from Crawley, many workers from other local authorities in the Gatwick Diamond live substantial distances away from their place of employment, reflecting the willingness to

<sup>39</sup> LSOA's (Lower layer Super Output Areas) are small areas in England which are used in the calculation of deprivation in each area.

<sup>40</sup> Mid Sussex Borough Council (May 2013) Mid Sussex Submission District Plan, pg. 6-7

<sup>41</sup> Tandridge Borough Council (2009) Tandridge Core Strategy 2009, pg 5?

travel and indicating the wider sphere of employment options. **Figure 11** shows that people travel up to 60km, with almost 10 per cent in Mid Sussex travelling 40-60km for work. It is therefore reasonable to expect that the labour force would be able to move wherever there are jobs in the future. Crawley was a small market town before the Gatwick expansion, indeed the airport only employed 1,300 people in 1960 but this expanded to 15,740 by 1985. This coincides with the doubling of commuters from 15,000 to 20,120 over the 10 year period before 1981.<sup>42</sup> While local employment doesn't exclusively rely on Gatwick, Hudson et al (1987) note that the airport provided expansion opportunities for local companies; so we can anticipate that under Gatwick expansion there would be similar growth of local employment.

Transport is also key in understanding the potential employee pool. Currently 65 per cent of workers travel to Gatwick by car, according to the Gatwick Airport Limited Airport Employment Survey. Within the baseline, improvements in surface access are noted (See Surface Transport section) but they are not expected to reduce journey times substantially. As a result it may be reasonable to assume that the employment area for Gatwick will not be considerably widened by the scheme.

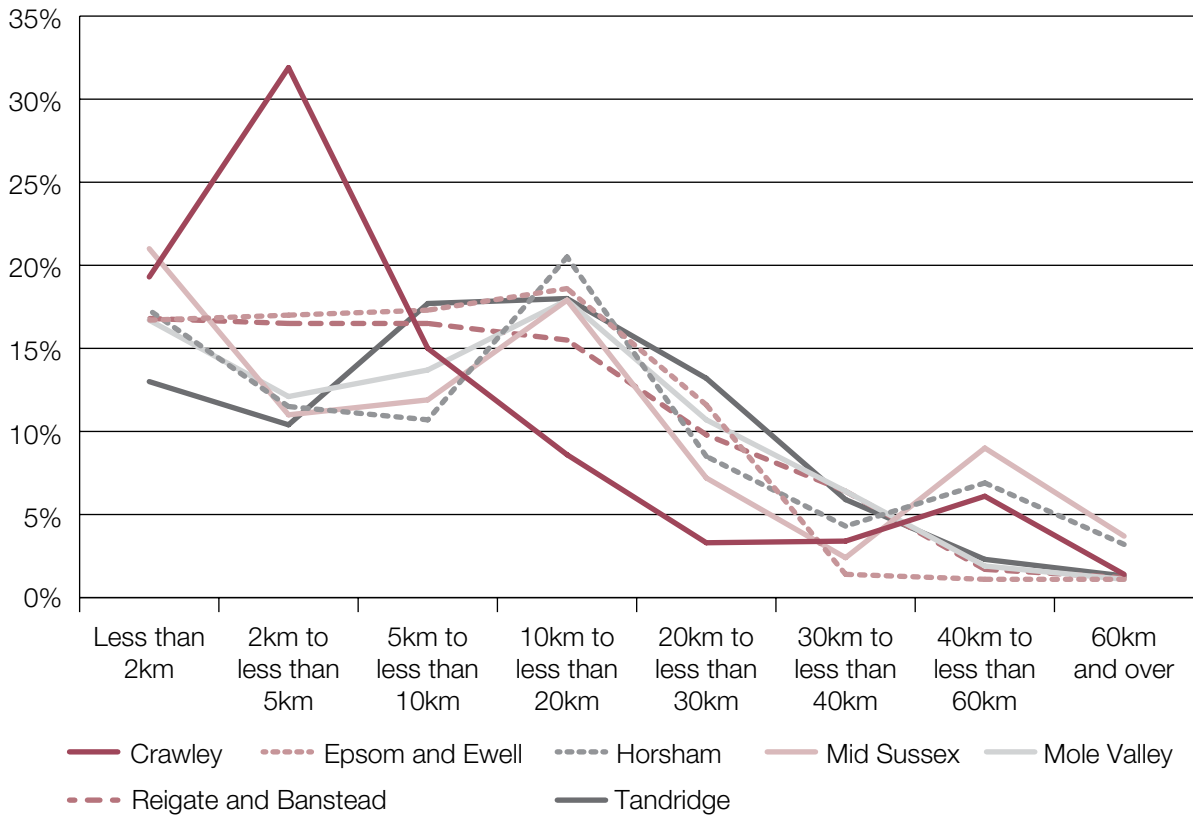
LEP's also enable an expanded sphere of employment with increasing connections between businesses in the South East. This, combined with existing and baseline surface transport provision allows these authorities to be part of the larger London employment area, potentially offering workers a much wider jobs pool in future. Therefore, in 2030, under Gatwick expansion, new jobs could be fairly easily absorbed in the local area due to flexibility in the local labour market (average of 6.3 per cent<sup>43</sup> across all 15 local authorities) and the distances people travel to work. In the baseline there is a high level of out-commuting which will potentially provide flexibility for workers to switch to a job closer to home. It may not be necessary to bring new workers into the area, although this entirely depends on the skills of the existing local workers along with the number of jobs provided at that skill level. Policy changes may also change the travel to work area. For example, car sharing, congestion charges and regulatory changes could all influence employees' travel behaviour.

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42 British History Online (1987) – A History of the County of Sussex: Volume 6 Part 3: Bramber Rape (North-Eastern Part) including Crawley New Town (Hudson, T.P et al.) <http://www.british-history.ac.uk/report.aspx?compid=18418#n72>

43 ONS 2013-2014 figure

**Figure 11: Distance to work in Gatwick Diamond Authorities**



Source: Neighbourhood statistics

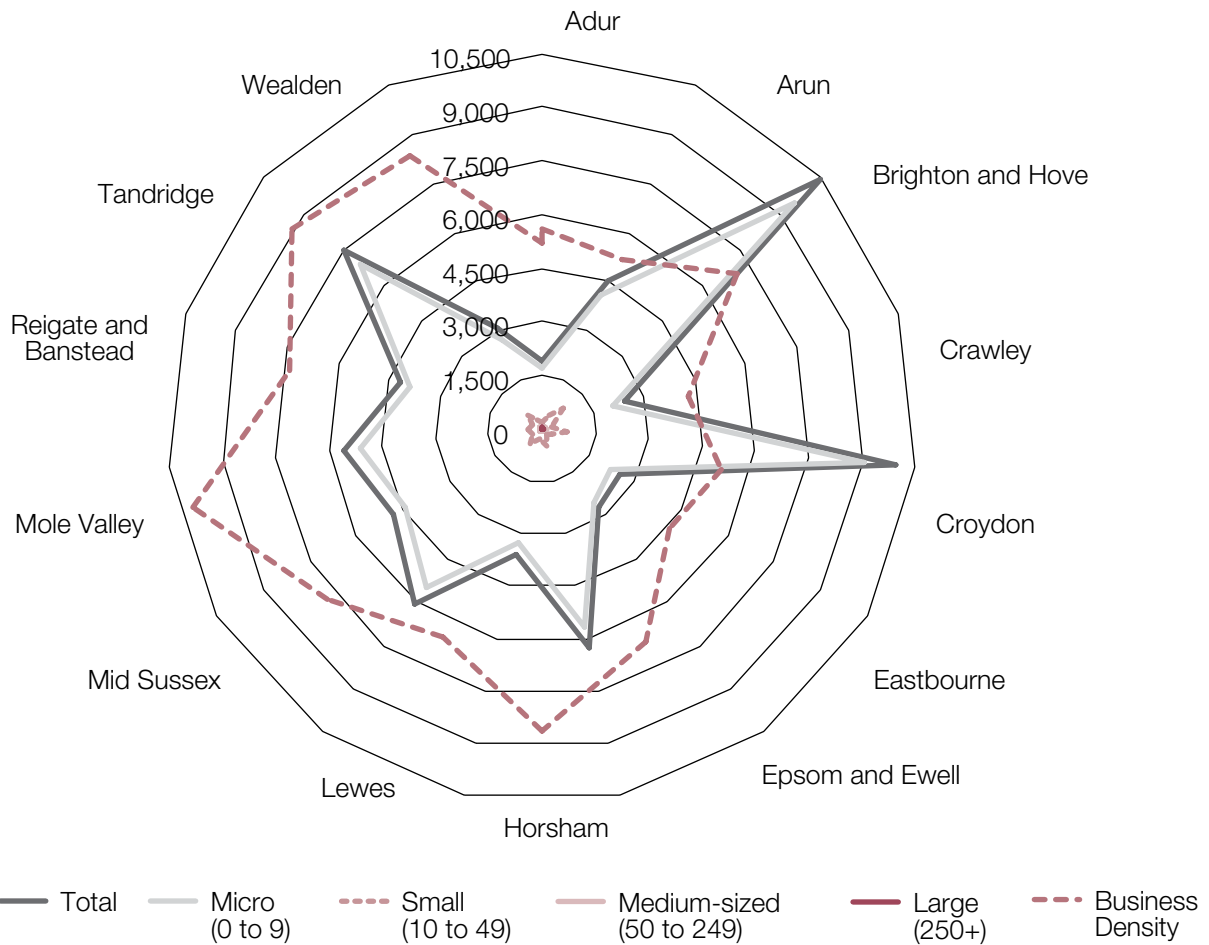
### Business presence

The employment options available are underpinned by a strong business presence around Gatwick, demonstrated by the business density and business counts. This is shown in the graph, with a varied spread of businesses across all the local authorities. The graph also highlights that there are more businesses per head within the Diamond than in those authorities external, although local authorities external to the Diamond, such as Brighton & Hove and Croydon, have a higher overall number of businesses, indicating there is not as strong an industry presence around the airport, apart from the businesses directly linked to it. Upon a Gatwick Airport Second Runway expansion, however, more business may want to take advantage of improved connectivity as well as proximity to London, and therefore an increase in commercial rents around the airport could be expected.



**Figure 12: Local Authority Business Counts 2011**

Gatwick: Local Authority Business Counts 2011



Source: Nomis

Other business opportunities may open up, such as distribution industries benefitting from the supply chain effects. Indeed, the London Plan outlines that strategic logistics provision should be concentrated on preferred industrial locations making use of the road and rail network. This will encourage the effective development of land with provision of freight centres for breaking bulk particularly in South London areas such as the Beddington & Purley Way areas. However, the extent to which air freight grows will depend on connectivity from Gatwick and journey times on surface transport.

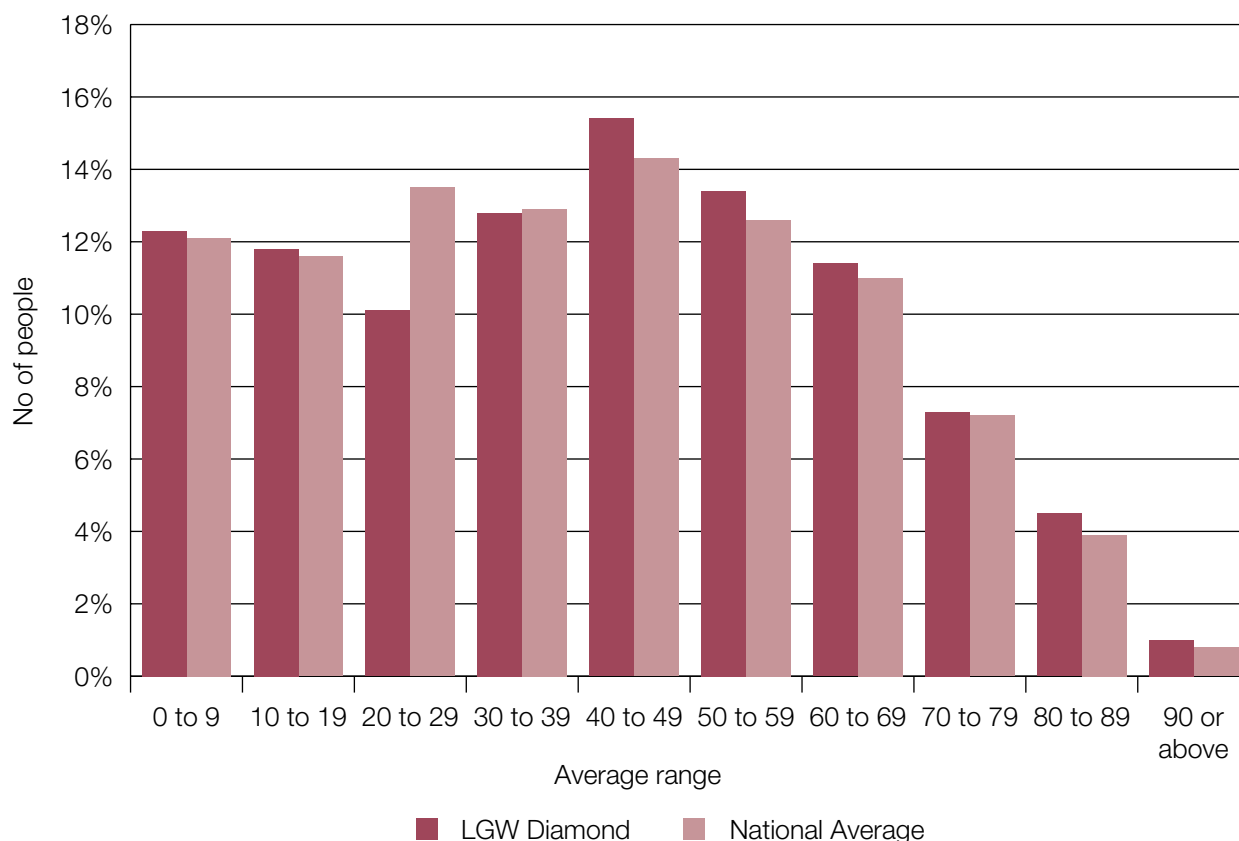
In conclusion, the business presence within Gatwick Authorities is spread around the study area and not wholly dependent on the airport. Should expansion occur, the area surrounding the airport has the potential to attract more businesses and filling vacancies following expansion should not be an issue, with the area flexible enough to absorb new employees particularly with a wide travel to work area. Out-commuting is currently very high across Gatwick authorities, providing flexibility for those working in the area to switch to a job closer to home, depending on the skills match.

## Local population

### Demographics

The Diamond's population contains a slightly above average number of "next working generation" workers, potentially indicating increased capacity for uptake of jobs from the local workforce upon expansion. The spread of workers' age is unlikely to cause any workforce constraints for the future.

**Figure 13: Gatwick Diamond Authorities Population by Age (2013)**

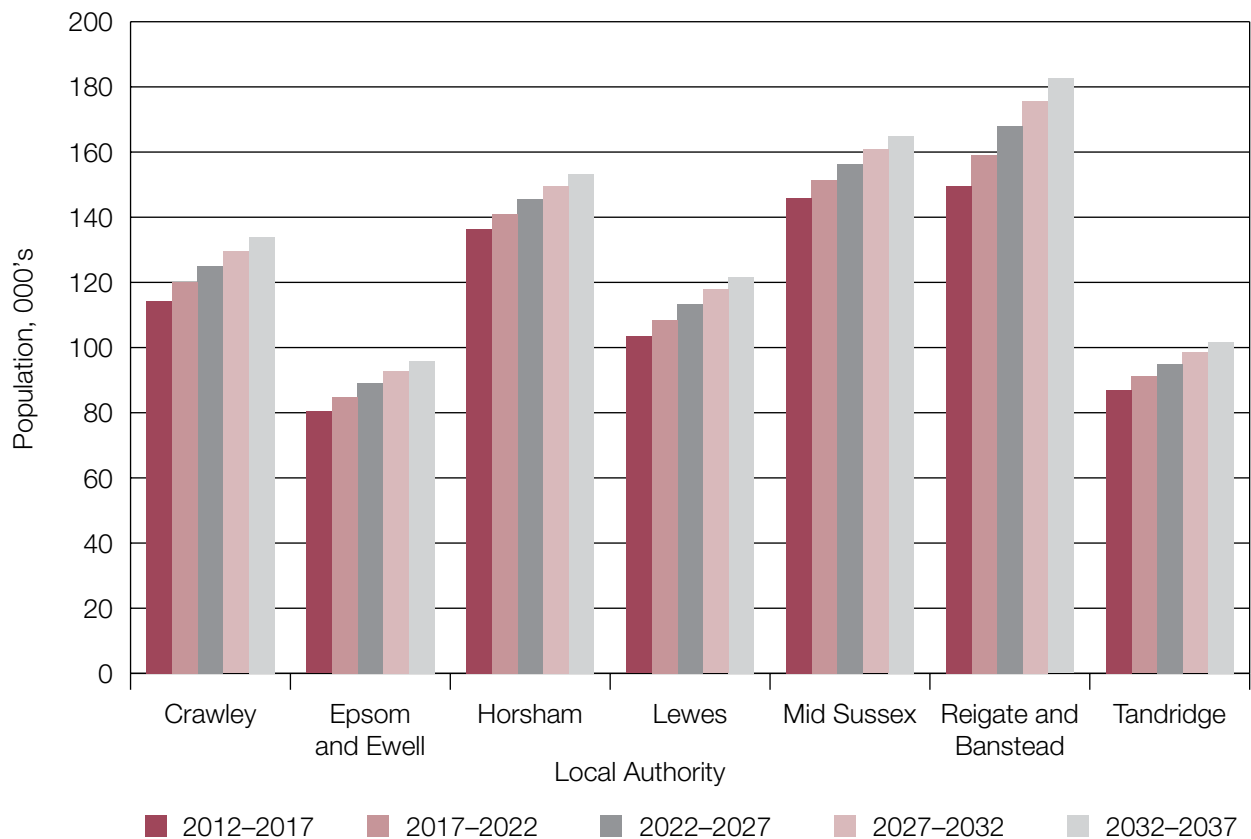


Source: ONS

### Population growth rates

Further potential pressures on employment include population growth. Growth rates look set to rise initially over the next few decades, before slowing and dropping back slightly. As shown in **Figure 14**, several areas are highlighted to have strong growth rates, Reigate and Banstead in particular which looks to see a 6.1 per cent growth in population over the next 5-10 years. This is considerably higher than the national average (England), where population is expected to expand 3.5 per cent as a whole. Depending on the number of jobs relative to the population growth, labour demand could be more of a constraint compared to labour supply due to overall population increases.

**Figure 14: Gatwick Diamond Local Authority Population Forecast**



Source: ONS

### Economically active population

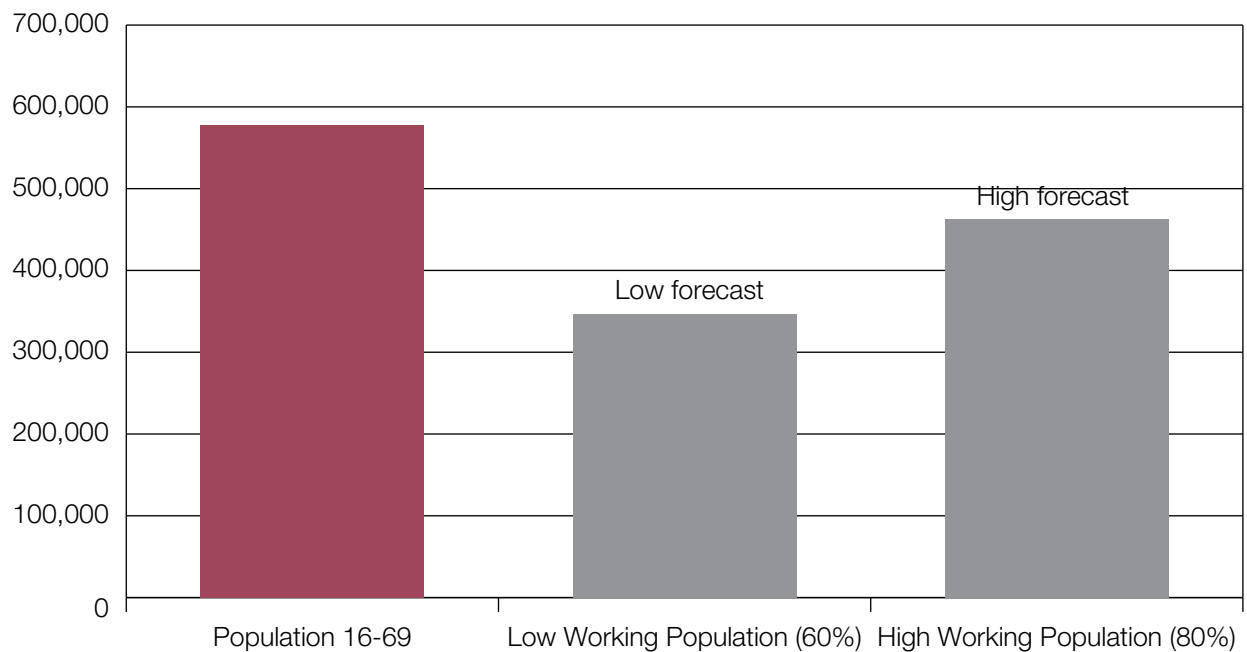
It is estimated that the percentage of the working population that is economically active is likely to remain between 60 per cent and 80 per cent, in line with historic averages across authorities. The effect of the forecast rates is shown in **Table 20**. The recent recession may have skewed the data post 2007 and so a wide range is shown to reflect the level of uncertainty about future trends.

**Table 20: LGW: Economic Activity (16-69)**

	Crawley	Epsom and Ewell	Horsham	Mid Sussex	Mole Valley	Reigate and Banstead	Tandridge
2004-2005	64.5	66.4	69.2	67.6	59.7	64.8	65.2
2005-2006	71.6	68.6	67.1	69.2	58.9	64.8	68.5
2006-2007	69.1	65.8	65.1	63.9	63.2	65.1	64.8
2007-2008	69.4	69.4	63.6	68.1	60.1	70.4	63.3
2008-2009	67.5	68.9	65.4	70.6	64.0	66.0	66.7
2009-2010	61.7	64.5	66.5	70.3	62.7	65.6	67.3
2010-2011	69.4	71.3	65.3	67.2	55.4	67.7	67.1
2011-2012	75.5	67.7	68.6	67.6	60.7	68.3	60.9
2012-2013	67.5	62.8	62.9	71.4	64.3	66.5	65.3
2013-2014	72.4	62.9	67.0	67.6	59.6	69.7	68.8

Source: ONS and Airports Commission calculation

**Figure 15: LGW Economically Active Population forecast (2030)**

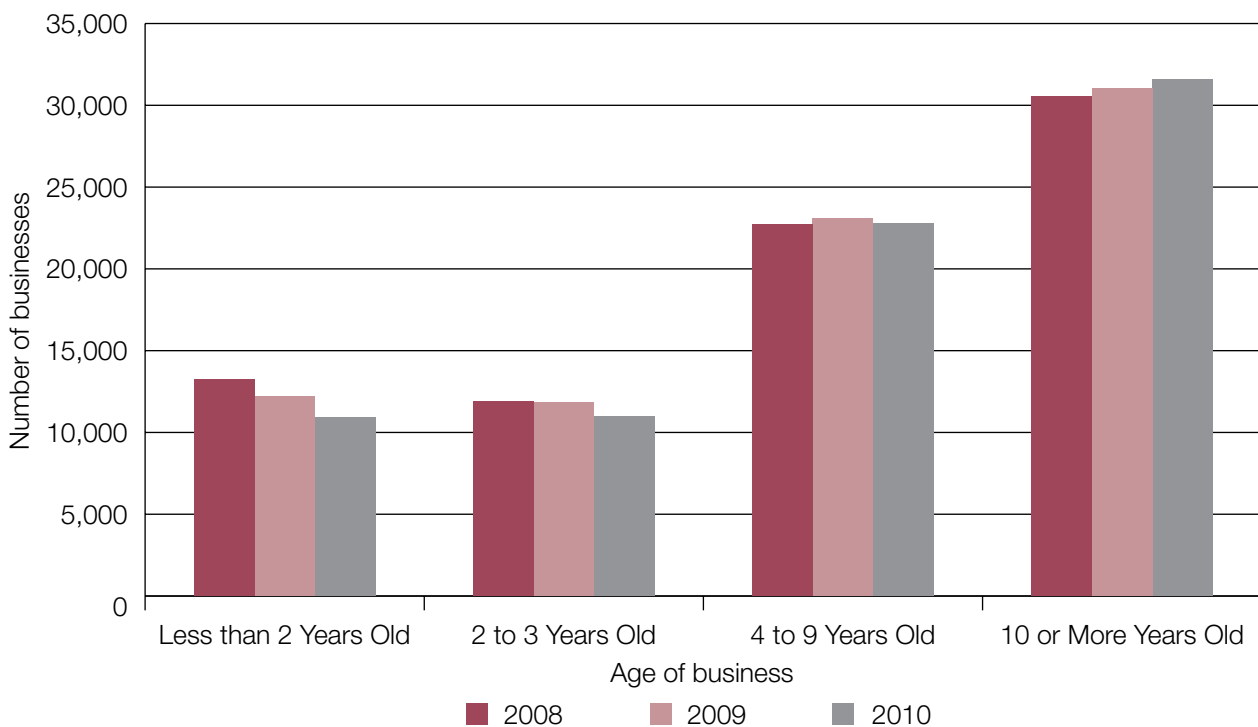


Source: ONS and Airports Commission calculation

## Age of businesses

Many businesses across the local authorities are well established; the majority are over 10 years old as shown in **Figure 16**, and this general picture is not expected to change. There is a falling number of businesses less than two years old (from 13,210 in 2008 to 10,910 in 2010), which can, in part, be explained by the recession (2008-2010). The chart demonstrates the relatively high level of economic activity and churn, which based on the available evidence, is a trend which is likely to continue.

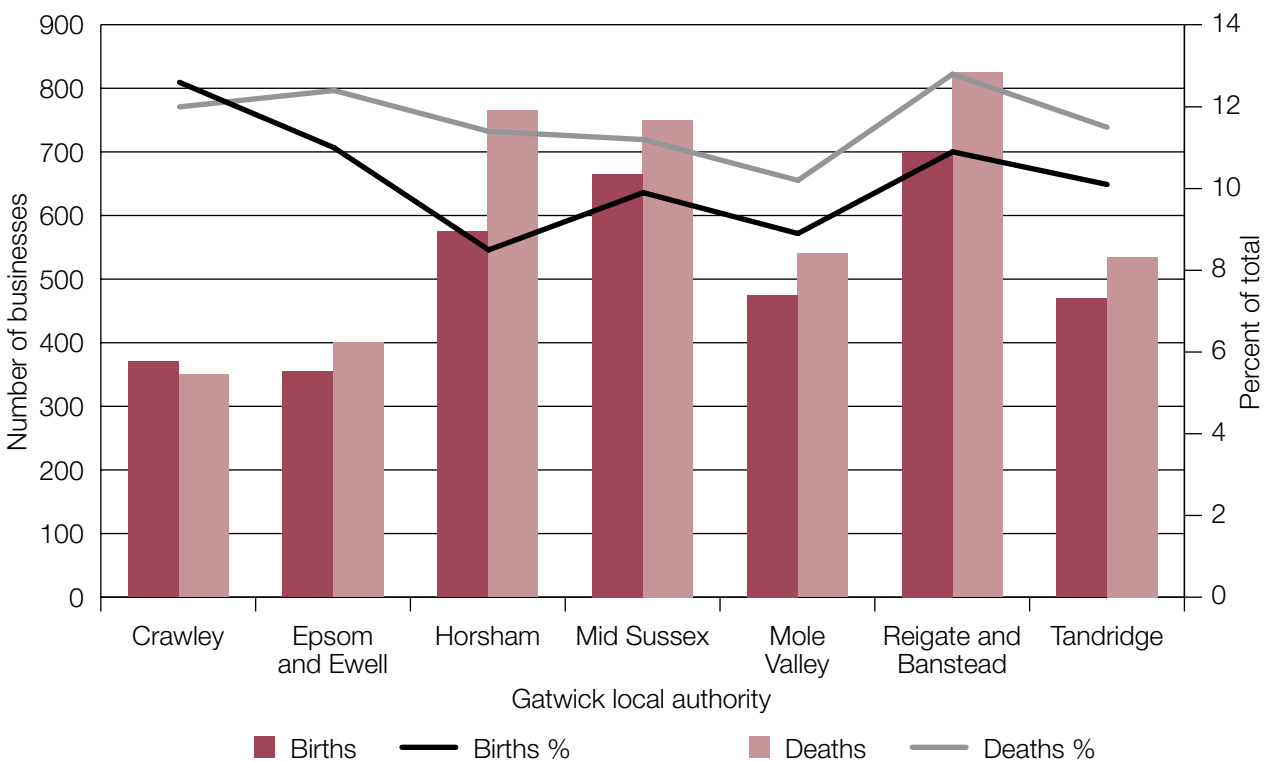
**Figure 16: The Age of Businesses in the 15 local authorities**



Source: Neighbourhood Statistics

This pattern across the Diamond local authorities reflects the continually changing cycle of new businesses. **Figure 17** shows a 2011 snapshot, where businesses closed at a faster rate than new ones are opening, though again this will have been affected by the recession.

**Figure 17: Births and deaths of new enterprises (2011)**



Source: Neighbourhood Statistics

## Local Authority plans

### Business floor-space

Expansion of office space appears to be a key concern within many of the local authorities, particularly due to restricted land capacity. For example, Crawley, Horsham and Mid Sussex are currently unable to make sufficient allocations for employment floor space.<sup>44,45</sup> Brighton's high business count has also resulted in an office space shortage.<sup>46</sup> However, space is not an issue across all local authorities, indeed, in 2008 Mole Valley granted planning permission for 24,900m<sup>2</sup> of office and business floor space along with 19,000m<sup>2</sup> ready to let.

Tandridge<sup>47</sup> and Epsom & Ewell are also providing land and premises in order to meet the needs of both small and larger employees, with Epsom & Ewell looking to provide 6,000m<sup>2</sup> of employment space in the town centre over the next 15 years<sup>48</sup>. Unemployment is currently low, but based on employment forecasts, the authority aims to expand its employment space and is also aiming to expand employment options for semi-skilled

44 Crawley Borough Council (Oct 2008) Core strategy: Chapter 8 Economy, pg. 119

45 Horsham Borough Council (2007) Horsham District Local Development Framework: The Core Strategy, pg ??

46 Brighton and Hove Borough Council (2005) Brighton & Hove Local Plan, pg. 138

47 Tandridge Borough Council (2009) Tandridge Core Strategy, pg. 50

48 Epsom & Ewell Borough Council (Feb 2013)

workers. Office and high tech industries have the highest demand for office space based on current predictions of local jobs in Brighton & Hove's plans. Similarly, Wealden has forecasted that it will need to expand employment space to meet demand which could further stimulate jobs, particularly with the expansion of retail floor space.

Croydon borough is struggling currently to fill vacant office space despite offering low rents and having a relatively strong business count of over 9,000 firms.<sup>49</sup> Croydon is identified in the London Plan as having the scope to accommodate its development targets, in line with future business clusters and is an area which could benefit significantly from an expanded Gatwick with its close proximity to London.

## Conclusion

With a mix of floor space demands, looking forward over the next three decades, it is likely that across the assessment area, there is flexibility to provide space if needed particularly as the local authorities plans are written with the current baseline situation in mind and so could be updated well in advance of the airports expansion (as was the case with the Olympic Park development discussed in **Chapter 4: Land**).

## Labour productivity

Although Brighton and Hove are less dependent on the airport's employment than some local authorities, along with Croydon, they collectively contain the highest business counts (10,455 & 9,065 respectively) which is the largest proportion of non-Diamond business. The number of businesses is one indicator of the flexibility of the area for future employment. There are some potential hindrances to the employment flexibility of the area including labour productivity, which currently is lower than the national average. Although the data is not disaggregated to individual authority level, the wider Gatwick area, which includes Brighton and Hove has labour productivity slightly below the national average (UK=100) at 96.9 in 2012. West Sussex is marginally higher at 99.9 in 2012 but East Sussex is distinctly lower at 88.5 for the same time period. On the other hand Surrey's productivity rate was 118.3, which is more typical of the South East (107.3 in 2012). Furthermore, recent productivity rates in some areas are considered to have been affected by the recession therefore the forecast is for a recovery in productivity across all areas in future.

## Out-commuting

Out-commuting is a common occurrence in many of the local authorities, such as Mid Sussex where 45 per cent of the workforce commute outside the authority.<sup>50</sup> This

<sup>49</sup> Croydon Borough Council (Apr 2013) Croydon Local Plan: Strategies, Policies, pg. 27

<sup>50</sup> Mid Sussex District Council (May 2013) District Plan, pg. 7

characteristic indicates the flexibility of the assessment area workforce with regards to travelling to work. Following a Gatwick expansion, it is likely new employment opportunities could be drawn from across a very wide area, but also from existing residents who are currently out-commuting, depending on skills, salaries and relative cost of commuting.

## 1.2.2 Heathrow

### Baseline

The baseline forecasts for the number of indirect and induced jobs at Heathrow is calculated using the multiplier range outlined by Heathrow Airport Limited (0.62 for 2030 and 0.63 for 2050 for indirect, and 1.10 in 2030 and 1.07 in 2050 for induced).

Year	Baseline	Airports Commission	Heathrow Airport Limited	Heathrow Hub limited
2030	Passenger forecast (millions, 2030)	83-88	80-85	no 2030 assessment
	Direct FTE/million passengers	1,000-1,200	–	–
	Indirect jobs (total)	43,400-54,000	46,100-47,700	–
	Induced jobs (total)	77,000-95,700	49,100-50,800	–
2050	Passenger forecast (millions, 2050)	91-100	90	92
	Direct FTE/million passengers	1,200-1,700	–	–
	Indirect jobs (total)	33,300-51,700	45,900-48,000 <sup>51</sup>	–
	Induced jobs (total)	56,400-87,600	49,000-51,200 <sup>52</sup>	–

### Assessment

The low end of the range for Heathrow Airport North West Runway comes from the *global fragmentation* scenario passenger forecasts whereas the high end of the range is provided by *low-cost is king* and *global growth* scenarios. The range for Heathrow Airport Extended Northern Runway is slightly smaller, with the same scenario of *global fragmentation* at the low end of its range and *global growth* at the upper end, due to the lower expected passenger numbers.

Heathrow Airport Limited proposed multipliers of 0.62 for indirect jobs and 1.10 for induced jobs in 2030. The table below demonstrates the effects of each in 2030 and 2050. The ranges are fairly large, due to the range in passenger forecasts from different scenarios, plus the differing productivity assumptions are considered. Furthermore, as detailed in

<sup>51</sup> HAL predictions for employment refer to 2040

<sup>52</sup> Ibid



chapter 2, the indirect and induced jobs will be supported by expansion of the employment area as a result of substantial intended transport improvements in the baseline.

**Table 22: Assessment indirect and induced jobs**

Assessment		Airports Commission – LHR NWR	Airports Commission – LHR ENR	Heathrow Airport Limited	Heathrow Hub Limited
2030	Additional Indirect jobs	10,800-25,600	10,800-21,900	9,900-12,800	–
	Additional Induced jobs	19,100-45,400	19,100-38,800	10,500-13,600	–
	Indirect jobs (total)	54,200-79,600	54,200-75,900	57,500-58,800	–
	Induced jobs (total)	96,100-141,100	96,100-134,500	61,300-62,700	–
2050	Additional Indirect jobs	15,000-25,300	12,800-21,700	21,000-24,100 <sup>53</sup>	–
	Additional Induced jobs	25,400-42,900	21,700-36,800	22,400-25,700 <sup>54</sup>	–
	Indirect jobs (total)	48,200-77,000	46,100-73,400	69,100-70,000 <sup>55</sup>	–
	Induced jobs (total)	81,800-130,600	78,100-124,400	73,600-74,600 <sup>56</sup>	–

### Heathrow Airport Limited forecast

Heathrow Airport Limited forecast on average the creation of 22,600 indirect jobs, of which 5,650 are in local districts and 10,600 in wider London. Of the 5,650 jobs in the five surrounding local authorities, they estimate 59 per cent could be filled by local residents, and 81 per cent of the London based jobs could be filled by London residents. They forecast the potential for an increase of 9,600 induced jobs in the five districts along with another 11,700 induced jobs in London.

### Heathrow Hub Limited forecast

Heathrow Hub Limited forecast for indirect and induced jobs was assessed as part of context work carried out by Regeneris in 2013. This forecast that suggested that by 2040, around 90,000 indirect and induced jobs would be supported by the expansion of Heathrow. These are not included in the table as the proportions of each are not indicated in the Heathrow Hub Limited submission.

<sup>53</sup> HAL predictions for employment refer to 2040

<sup>54</sup> Ibid

<sup>55</sup> Ibid

<sup>56</sup> Ibid

## Proportion of jobs

As shown in the table below, the low end scenario for Heathrow Airport North West Runway would mean between 15 per cent and 20 per cent of the local working population depending on the percentage of the workforce that is economically active. The high scenario suggests between 22 per cent and 30 per cent of the working population will be in airport related employment.

For Heathrow Airport Extended Northern Runway, the low end scenario forecast is the same as Heathrow Airport North West Runway. However the high end is slightly lower than the Heathrow Airport North West Runway due to the lower initial passenger forecast, so accounting for between 21 per cent and 28 per cent of the working population. The airports travel to work area is significantly widened due to surface transport improvements (which are in the baseline) and further detailed in **Chapter 2: Surface Access**.

**Table 23: Total airport related jobs as a proportion of the economically active population at Heathrow (14 LAs), 2030**

		Total additional jobs	Population 16-69	Low Working Population (60%)	High Working Population (80%)
<b>Total population</b>		-	1,963,100	1,177,860	1,570,480
<b>LHR NWR</b>	Low	238,000	12%	20%	15%
	High	349,400	18%	30%	22%
<b>LHR ENR</b>	Low	238,000	12%	20%	15%
	High	333,200	17%	28%	21%

## Business composition

Hillingdon's employment is closely linked to the airport, with 9,000 local residents working at the airport. As shown by **Table 24** Hillingdon's industry quotients demonstrate the top five industries (compared to the national average) include passenger air transport (67.81), support activities for transportation (10.88), freight air transport & space transport (6.77). This demonstrates the strong knock on effect the airport has in terms of generating the need for airport support industries along with industry in general (activities of head offices is 4.46).

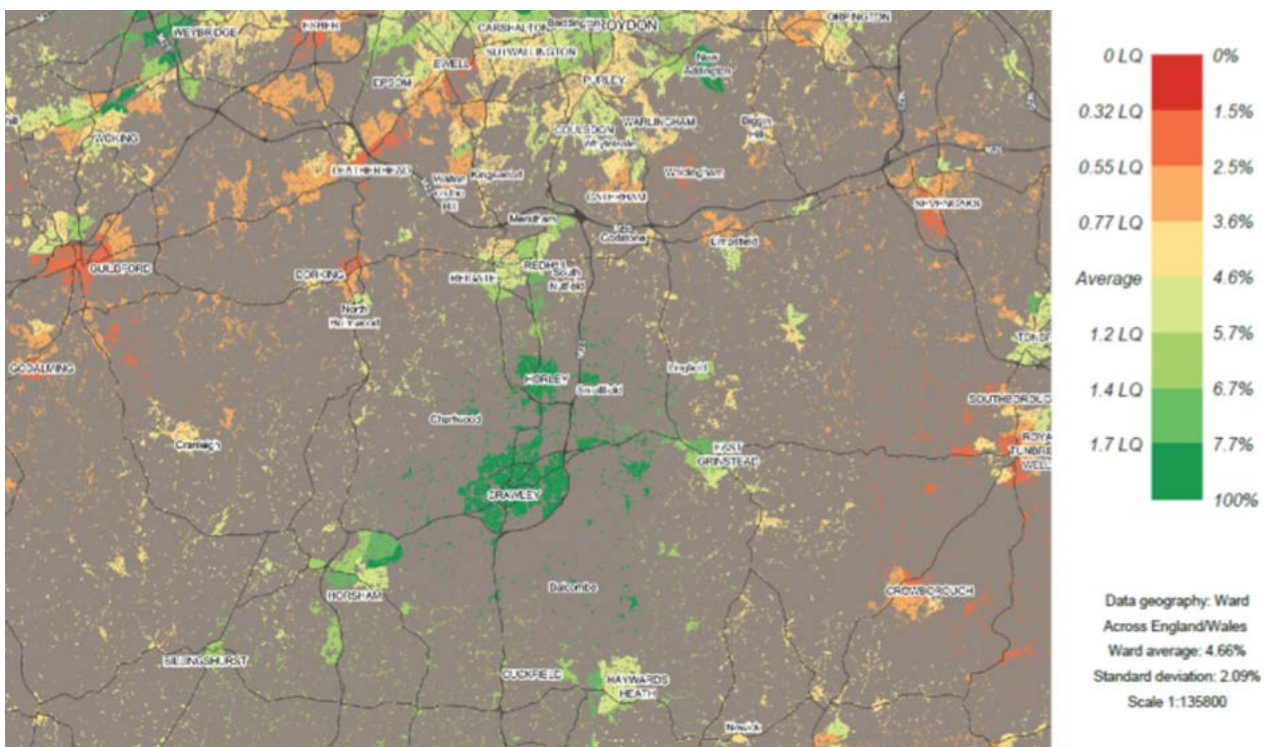
**Table 24: Location Industry Quotient Hillingdon**

<b>Hillingdon</b>	
Passenger air transport	67.81
Support activities for transportation	10.88
Freight air transport and space transport	6.77
Private security activities	5.65
Activities of head offices	4.46

Despite the numerous businesses in Hillingdon providing 188,600 jobs, only 37 per cent of the local jobs are taken by Hillingdon residents and many of the workers are classified as unskilled. There are significant numbers of commuters into the borough, indeed 88 per cent of Heathrow’s work force live outside the borough. This flow of employment may of course change by 2030, as the London Plan projects that up to 12,000 more jobs will be provided in Heathrow’s Opportunity Area linking with the airport. The manufacturing sector will continue to decline, with office-based industries on the rise. Heathrow’s local industries are varied, with strong concentrations of industries of those related directly to the airport as well as those taking advantage of access links.

42 per cent of Heathrow’s workforce live in the five surrounding local authorities. Across these authorities, businesses are predominantly property and business services (35 per cent of industry groups), retail and public administration (11 per cent), and other services (10 per cent). However transport industries only account for 6 per cent of the broad industry groups within these five local authorities, although the share is slightly higher for Hillingdon (7.2 per cent).

**Figure 18: Map of Percentage of Businesses Associated with Transport**

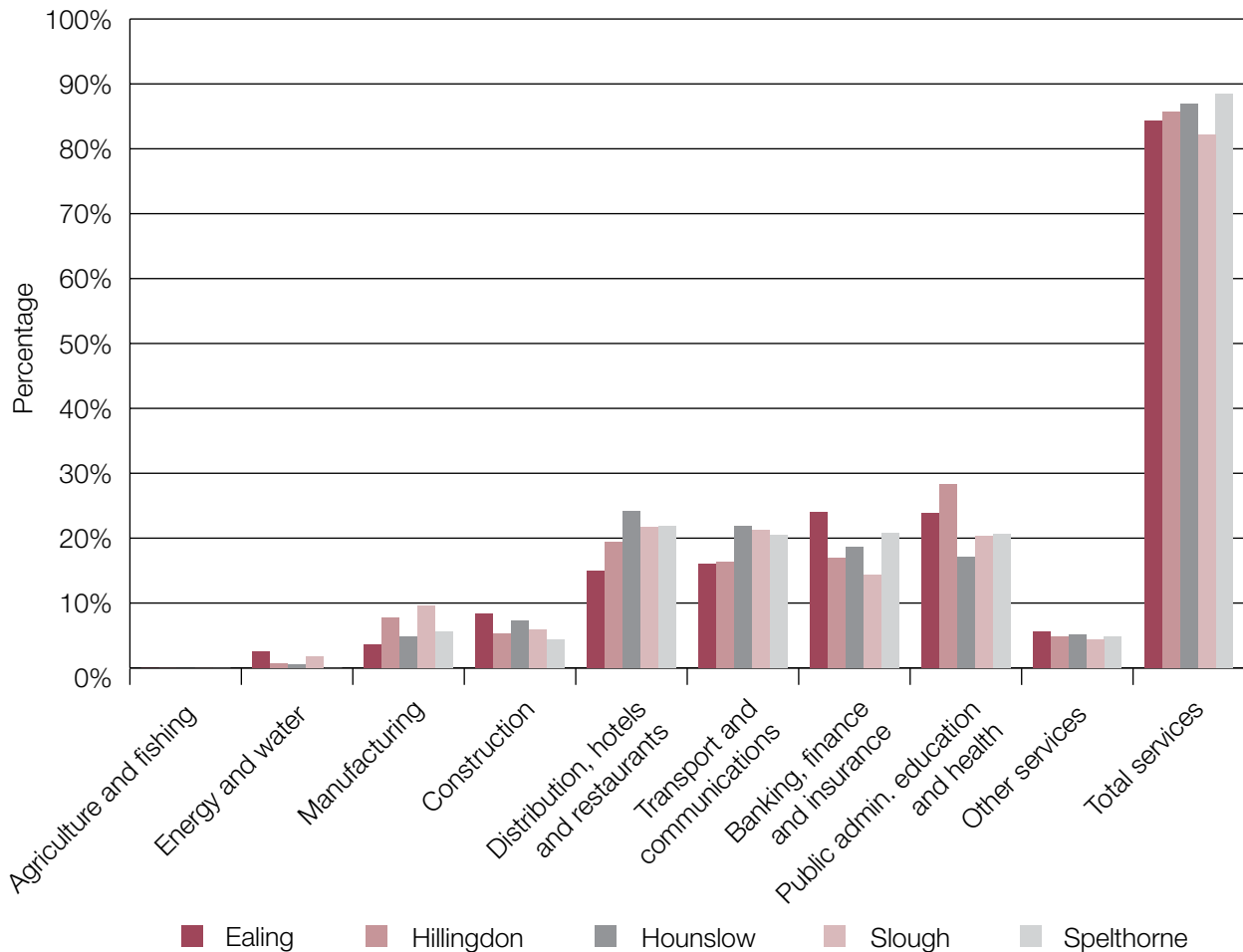


Source: Data Shine

Aside from Hillingdon, Hounslow has a high number of its residents employed in the transport and communication industries, indeed it was the third largest employment industry with 22 per cent of the residents working in the sector.

Business and service sector industries make up a large proportion of total industry in the assessment area, as demonstrated in **Figure 19**. For example Slough's placement near the M4 corridor provides benefits for businesses, indeed this is estimated to have stimulated new office space expansion of 180,000m<sup>2</sup>.<sup>57</sup> This relative strength has the potential to continue over the next few decades considering the substantial percentage of employment and business currently established within the service sector, it must also be acknowledged that new sectors will develop, moving away from the current mix.

**Figure 19: % Employment in Industrial Sectors 2013**



Source: Nomis

## Earnings

Local wages are fairly high, and are predominantly above the South East average. There is little variation between the five focus authorities with each demonstrating an upward trend over the demonstrated time period. Ealing appears to remain at the lower end of the wage spectrum with £100 less weekly earnings than Hillingdon in 2013.

<sup>57</sup> Slough Borough Council (Nov 2010) Slough Local Development Framework, pg. 13)

**Figure 20: LHR: Median weekly earnings by workplace (nominal)**



Source: Nomis

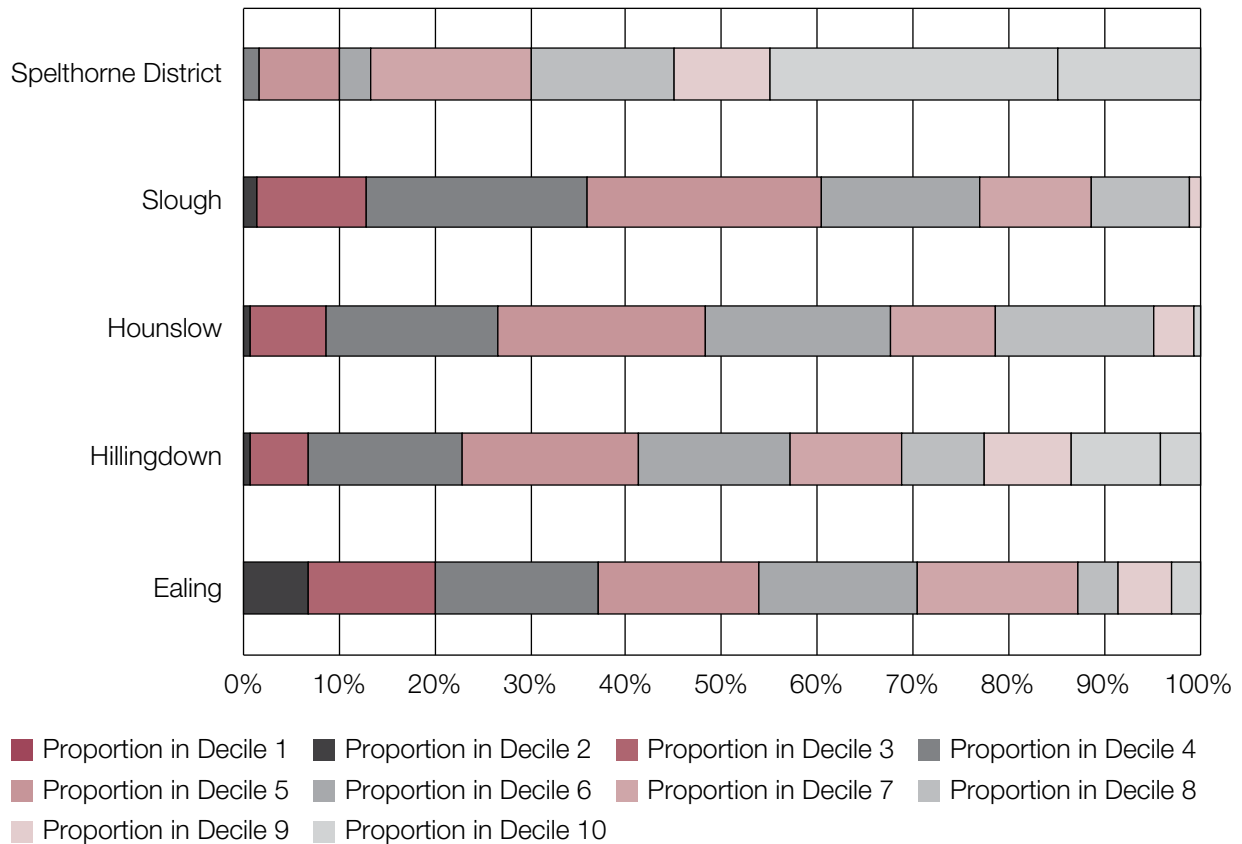
## Unemployment & Deprivation

The index of multiple deprivation ranks small areas on a number of weighted criteria – mainly income and employment.<sup>58</sup> **Figure 21** demonstrates the variation in each local authority with the darkest colour indicating most deprived areas and the lightest shades representing least deprived areas. Heathrow’s five focus local authorities have a spread of LSOAs (Lower Layer Super Output Areas) in each decile. Slough is the most deprived of the five focus local authorities with no LSOA’s in the two least deprived deciles despite not having the lowest median wage. Hillingdon, however, appears to have the widest spread of results. However, the overall higher median wages level is consistent with the relatively high employment rates. Slough in particular has a strong employment centre in part due to its location near the M4 corridor. Indeed, all focus authorities, with the exception of Ealing (9.9 per cent), have lower unemployment than the London average (6.9 per cent average).

58 But also health, education, barriers to housing, crime and living environment

**Figure 21: Proportion of LSOAs in each local authority by IMD 2010 decile**

Decile calculated by RANK OF IMD SCORE (where 1 is most deprived)



Source: DCLG

## Labour Productivity

Low unemployment and strong growth characterise many of the local authorities, with Runnymede, for example, aiming to increase the employment rate to 80 per cent<sup>59</sup> after enjoying a substantial job growth rate of 25 per cent over the previous decade of up to 47,500 jobs. This is reinforced by the labour productivity, which is substantially higher than the UK average (UK=100) in the Heathrow area.<sup>60</sup> Berkshire, for example, had the highest rates outside of London at 128.8 in 2012 and Surrey’s productivity rate was 118.3. This trend of high productivity is typical of the South East (107.3 in 2012).

However, in the event of an expansion at Heathrow Airport, areas of relatively high unemployment could benefit from the additional resulting jobs. The job mix at Heathrow Airport is predominantly low skilled, and if new employees are already resident in the area, this would reduce pressure on local housing and services of additional employees moving into the local area.

<sup>59</sup> Runnymede Borough Council (Aug 2013) *Local Plan Core Strategy*, pg 15

<sup>60</sup> Table A1: Nominal (smoothed) GVA per hour worked indices; NUTS 2 and NUTS 3 sub-regions, 2004-2012

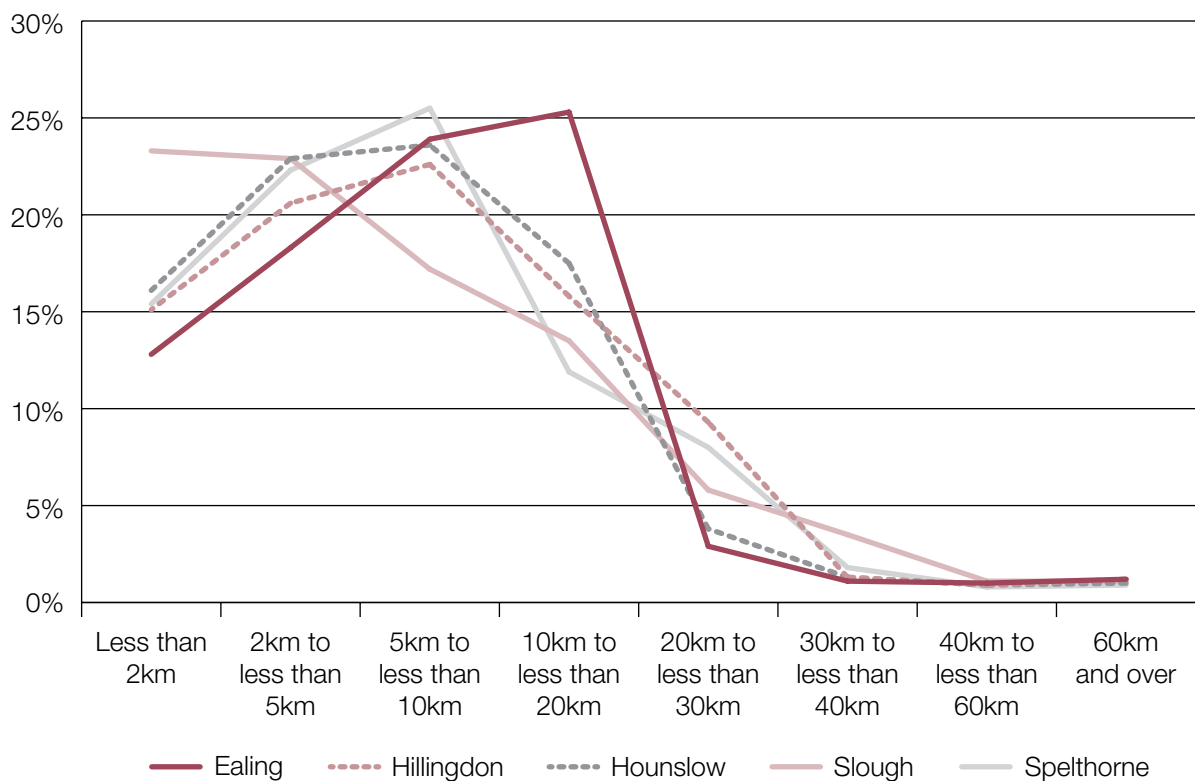
### Indirect and induced employees travel to work areas (TTWAs)

Employment opportunities are currently spread across the local area, with the majority of local authorities noting that most residents commute 5-20km to work, as shown in **Figure 22**. Very few commute over 30km, suggesting that employment prospects are currently fairly accessible. Given the surface access improvements planned, this availability of jobs and proximity to the London market is expected to continue.

Following expansion residents may choose to take up jobs nearer the airport if new industries move in and jobs become available, especially given the surface transport improvements in the baseline (See **Chapter 2**), potentially increasing the distances people are likely to be able to travel to get to work.

National government policies can also shape the employment patterns in the area around the airport. For example, Heathrow Airport Limited have discussed the concept of a congestion charge.<sup>61</sup> The status of employees regarding any charge would have an impact on the employee mix. Whilst there is little value in attempting to predict the policy environment it is important to remember that wider changes will also affect the local outcomes.

**Figure 22: Distance to work in Heathrow local authorities 2001**



Source: Neighbourhood Statistics

61 BBC (9 May 2014) *Heathrow Airport congestion charge proposed* 9th May 2014 (<http://www.bbc.co.uk/news/uk-england-london-27344169>)

## Business presence

There is a strong business presence around Heathrow, with the average business density very high. As demonstrated by **Figure 23**, business counts vary considerably but it is worth noting that the business density remains high across all of the boroughs. In terms of an expansion at Heathrow requiring more employees, there is a reasonable level of out-commuting which potentially provides flexibility for those working in the area to switch to a job closer to home and therefore not necessarily bring new workers into the area. This reduces the problems associated with a labour supply constraint or excessive housing or land pressures.

Creation of new employment is not entirely dependent on proximity to the airport though, but also on other local factors such as transport infrastructure, education levels and skills mix. Indeed, the London Plan outlines that strategic logistics provision should be concentrated in preferred industrial locations which make use of the road and rail network. This will encourage the effective development land with provision of freight centres for breaking bulk in London areas near Heathrow.<sup>62</sup> Air freight already has a strong presence near Heathrow, which is expected to increase if the expansion proceeded and this would lead to increased international connectivity.

Following an expansion at Heathrow, higher value firms may continue to move into the area. This could increase business densities and/or drive up land prices near the airport, such that lower value-added businesses may be displaced.

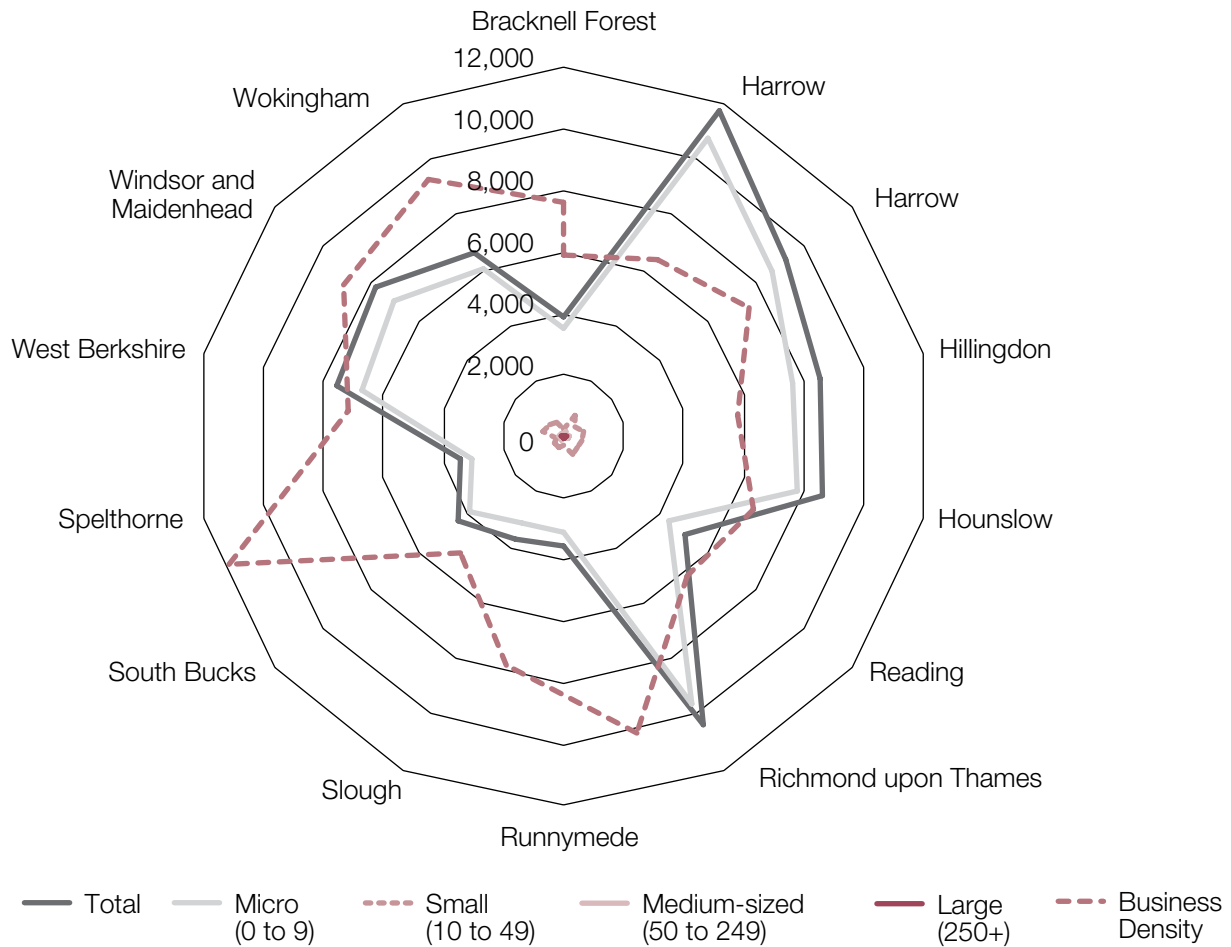
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<sup>62</sup> Greater London Authority (Oct 2009) *The London Plan*, pg. 69



**Figure 23: Heathrow Local Authorities Business Counts 2011**

Heathrow: Local Authority Business Counts 2011



Source: Nomis

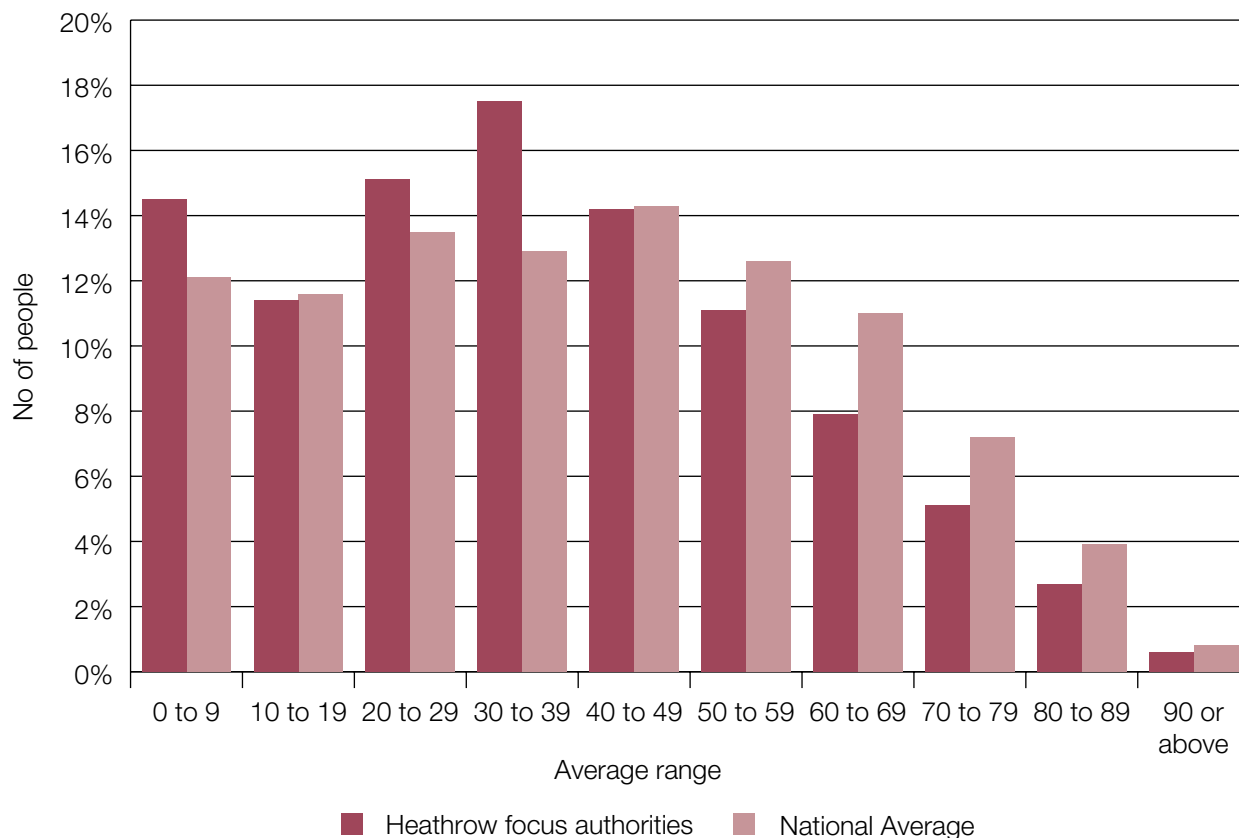
The five local authorities around Heathrow have very different compositions, for example Spelthorne has a very high business density whereas Hillingdon, Slough, Ealing and Hounslow all have high business counts but lower densities. Ealing includes the edge of Park Royal Business Park, explaining its high count. The relatively high number of businesses per head indicates the flexibility of the area for future employment, which is supported by the population demographics. Currently Heathrow's local authorities have predominantly working age populations with higher than average number of people at the younger end. This indicates the potential for employing from within the local working age population.

## Local Population

### Demographics

The demographics of the Heathrow area authorities demonstrate a higher percentage of younger people than the national average, along with lower than average older population as shown in **Figure 24**. This suggests a local workforce more capable than average to take up jobs following any airport expansion.

**Figure 24: LHR Focus Five LA's: Population by Age**

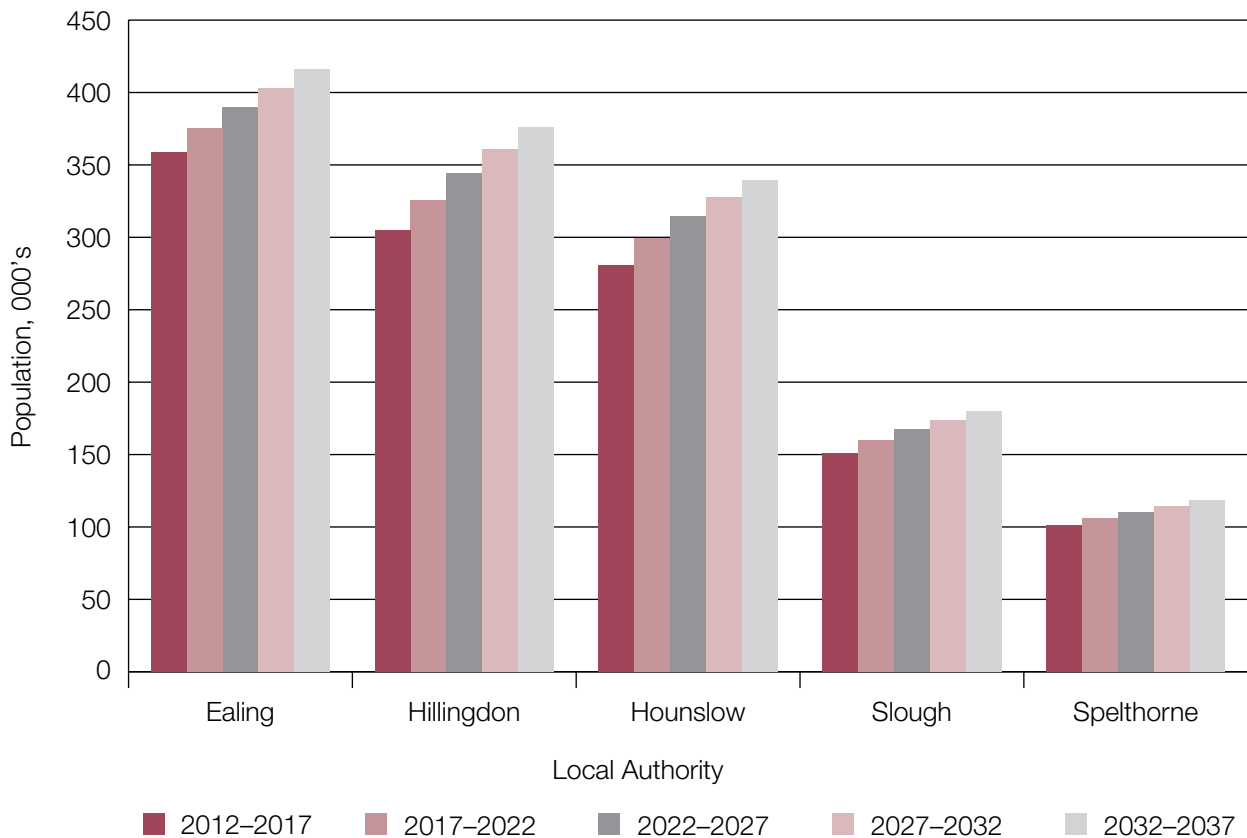


Source: ONS

### Population growth rates

Further potential pressures on employment include population growth. Growth rates look set to rise initially over the next few decades, as shown in **Figure 25**, before slowing and dropping back slightly. Hillingdon and Hounslow demonstrate above 6 per cent growth rates over the next 5-10 years, substantially higher than the English national average of 3.5 per cent as a whole. This further suggests sufficient local labour, reducing potential supply constraints. There is lower expected growth in less urban areas with a lower current population such as Runnymede and South Buckinghamshire.

**Figure 25: London Heathrow: Local Authority Population Forecasts**



Source: ONS

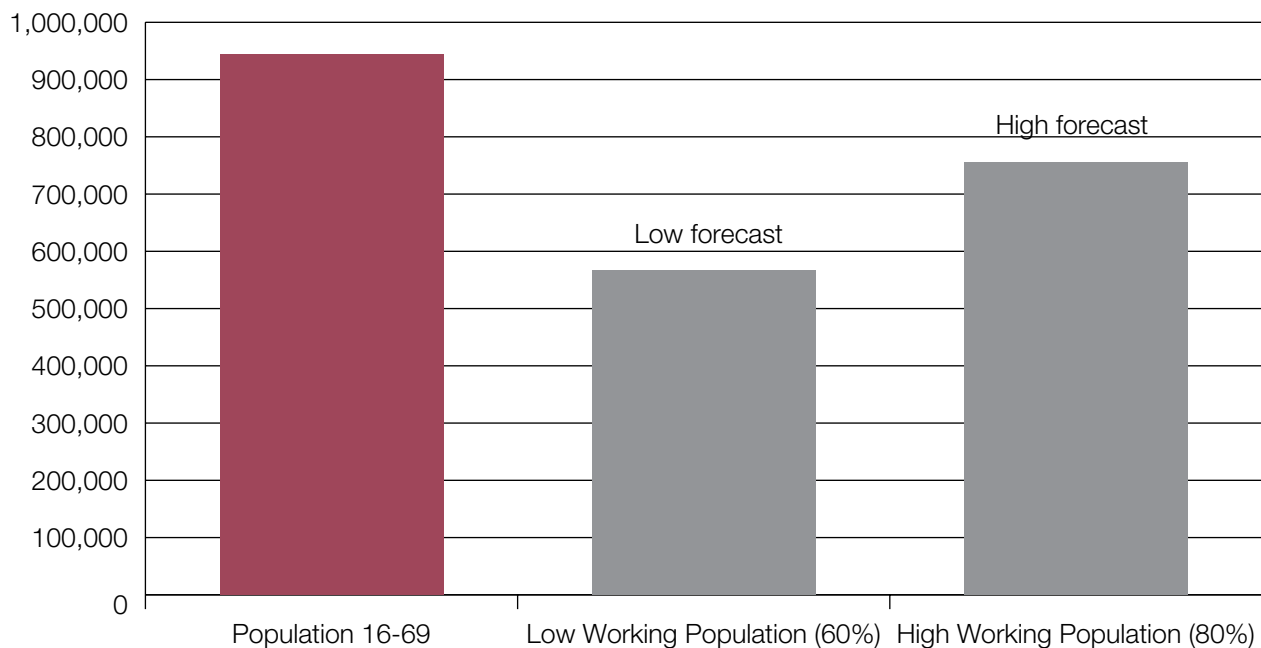
### Economically active population

It is estimated that the percentage of the working population that is economically active is likely to remain between 60 per cent and 80 per cent, in line with historic averages across authorities. The effect of the forecast rates is shown in **Table 24**. Hounslow has this highest economic activity rate, although Slough is also relatively high at 70.2 in 2013-2014. The recent recession may have skewed the data post 2007, which is why a longer-term picture is shown.

Table 25: London Heathrow: Economic Activity (16-69)					
	Ealing	Hillingdon	Hounslow	Slough	Spelthorne
2004-2005	66.3	63.7	66.4	67.8	65.6
2005-2006	65.0	66.5	71.7	67.9	63.3
2006-2007	68.0	63.0	70.5	68.7	64.1
2007-2008	64.5	60.7	66.6	66.0	66.7
2008-2009	67.0	67.2	67.4	68.3	67.4
2009-2010	66.8	69.3	69.3	68.8	65.8
2010-2011	67.3	66.5	71.4	66.4	66.8
2011-2012	66.9	64.9	70.0	69.2	71.4
2012-2013	67.9	67.3	69.5	67.7	73.2
2013-2014	66.9	67.8	71.3	70.2	68.8

Source: ONS and Airports Commission calculation

**Figure 26: Economically Active Population Forecast (2031)**

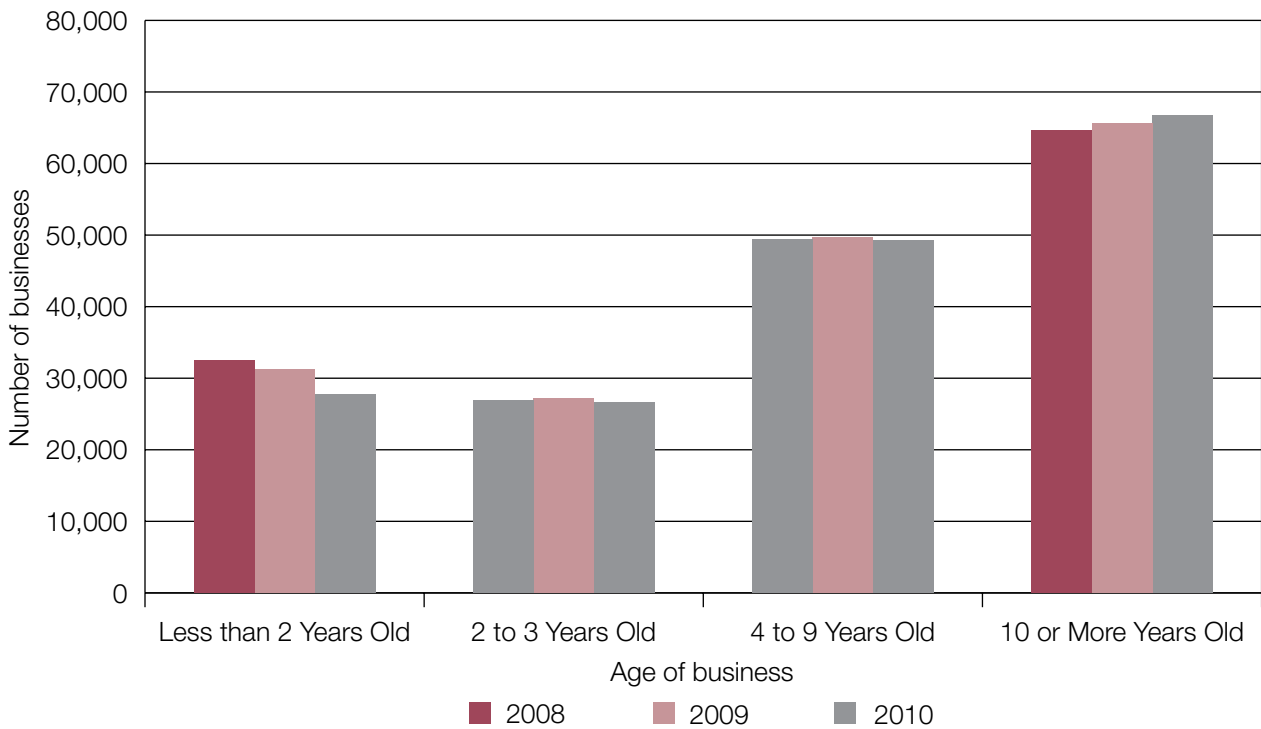


Source: ONS and Airports Commission calculation

### Age of businesses

The businesses across the Heathrow local authorities are well established, with the majority over 10 years old (**Figure 27**). However, there is a falling number of businesses less than 2 years old – from 32,505 in 2008 to 27,715 in 2010 but this drop can be partly attributed to the recession.

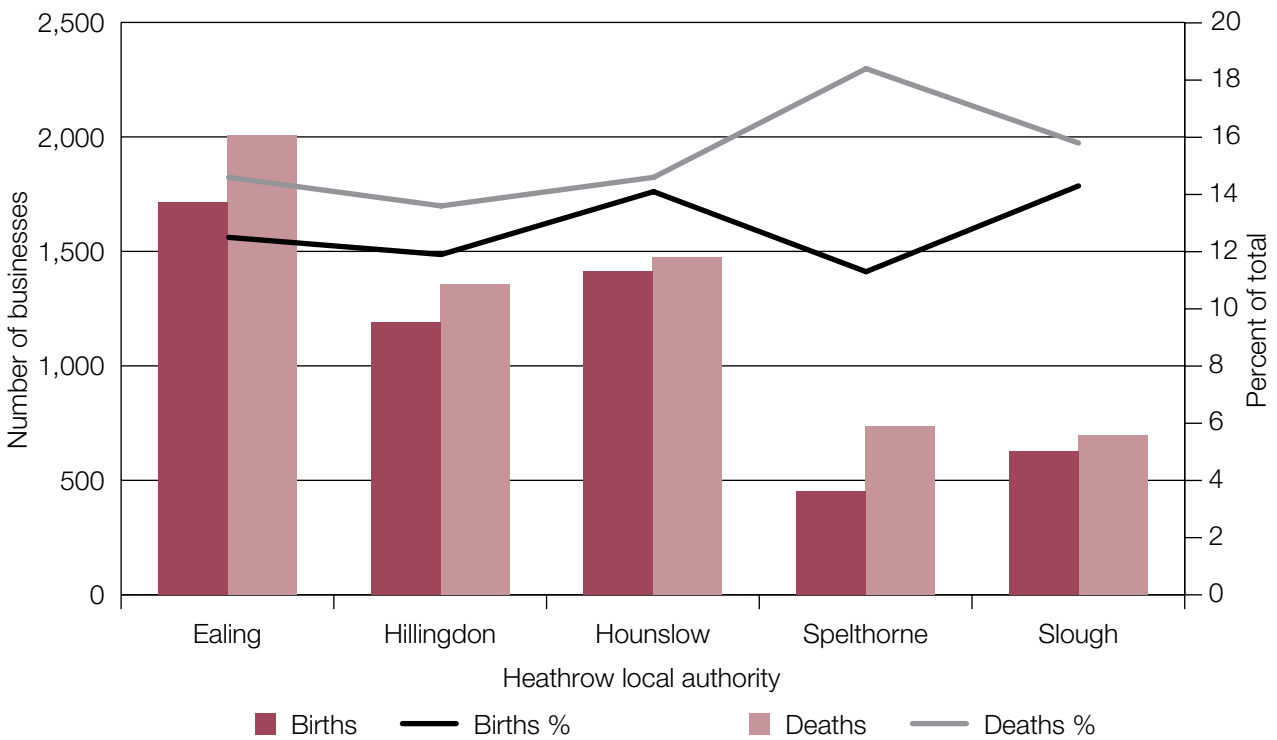
**Figure 27: London Heathrow: The Age of Business in the 14 local authorities**



Source: Neighbourhood Statistics

This pattern across the local authorities reflects the continually changing cycle of new businesses. **Figure 28** shows a 2011 snapshot, where businesses closed at a faster rate than new ones opened. This seems particularly relevant to Spelthorne where business closures are a much higher percentage of the total, although the 2008 recession may have distorted the picture so it is difficult to use this to make any predictions about future changes in the local area.

**Figure 28: London Heathrow: Births and deaths of new enterprises**



## Local Authority Plans

### Business floor-space

Office space and increasing the number of jobs are key themes throughout the local authorities' plans. In Slough, office space has been allocated for expansion of the growing professional services and banking sectors.<sup>63</sup> Similarly, Ealing aims to provide up to 94,500m<sup>2</sup> of office space over the next 15 years, in order to provide 5,000 more jobs.<sup>64</sup> Runnymede is intending to expand its employment area by up to 25,700m<sup>2</sup> over the next few decades in order to support employment growth.<sup>65</sup> Bracknell's future plans are mainly to support the town centres by providing 2,500m<sup>2</sup> of office space,<sup>66</sup> and Windsor and Maidenhead has highlighted the need for over 3,000m<sup>2</sup> in order to support the potential creation of over 13,000 jobs to address local unemployment.<sup>67</sup>

Considering the amount of space required over the length of time under consideration there is perhaps more flexibility than currently anticipated by local authorities, particularly when the business space needed is spread over a large number of authorities. Also, a rise in

63 Slough Borough Council (Mar 2004) *The Local Plan for Slough*, pg 37

64 London Borough of Ealing (3 Apr 2012) *The Development (or core) Strategy (DPD)*, pg. 10

65 Runnymede Borough Council (Dec 2013) *Runnymede Local Plan core Strategy*, pg. 132

66 Bracknell Forest Borough Council (Feb 2008) *Core Strategy Development Plan Document*, pg. 28

67 Windsor & Maidenhead Borough Council (2004) *Local Plan Chapter 4: Housing*, pg. 5

business rents following airport expansion could lead to higher value adding firms displacing those less location sensitive businesses that could relocate elsewhere.

### **Links to the airport**

Links to Heathrow are common features of local authority plans, with Ealing highlighting that 5,760 jobs are taken by Ealing residents.<sup>68</sup> 10 per cent of the workforce in Spelthorne is employed at Heathrow.<sup>69</sup> Local residents employed at Heathrow are typically nearer the lower end of the skills spectrum. Spelthorne's local plans note that it suffers from a low or unskilled workforce, and therefore skills development plans are its primary focus as office space is provided to meet future demand.

### **Out-commuting**

Commuting in and out of boroughs also remains an important consideration for many local authorities. South Buckinghamshire experiences a high level of in-commuting due to its specialised software and digital media sector. This is similar to Reading, which has been attracting more in-commuters becomes more of a centre for a variety of industries, particularly high tech and ICT. Hillingdon also has extensive in commuting with only 30 per cent of the local employees taking up local jobs.<sup>70</sup> Runnymede's transport links support 43,900 in-commuters daily but there is extensive out-commuting with 39,000 leaving the borough.<sup>71</sup> The distance travelled through commuting is often fairly extensive, with many areas such as Harrow stating that over 20 per cent of its workforce commuting to London.<sup>72</sup> Therefore following a Heathrow expansion, the fluctuation of commuting means that it is likely that new employment opportunities could be drawn from across a very wide area, but also from existing residents who are currently out-commuting, depending on skills, salaries and the relative cost of commuting.

## **1.3 Catalytic**

Catalytic effects arise as a result of the benefits that increased air travel provides. Air travel can lead to improved connectivity and reduced generalised costs, predominantly through reduced travel times, a greater choice of destinations and more regular flights, as well as reduced country to country trade costs. The increase in available destinations also expands the potential markets for businesses, which benefits all economic agents including workers and intermediate goods and services and improve knowledge and information. It also provides the ability for workers to consume goods and activities along with expansion of

68 London Borough of Ealing (3 Apr 2012) Development (or Core) Strategy (DPD) pg. 5

69 Spelthorne Borough Council (Feb 2009) *Spelthorne Core Strategy and Policies DPD, Section 7: Economy and Employment Provisions*

70 Heathrow Local Plan pg.11

71 Ibid. pg.17

72 Harrow Borough Council (2005) *Harrow Core Strategy Final*, pg.13

areas they can use their labour. An increase in consumer surplus could also be generated through the reduced costs of leisure travel. This also expands to increased competition across countries with the ability of firms to access new markets which would improve efficiency through the removal of uncompetitive firms.<sup>73</sup>

Catalytic effects are difficult to quantify and therefore this is rarely done in the literature around the economic impact of individual airports. **Table 26** below demonstrates the wide variety of estimates for several European airports, including London airports. There are references to the benefits of a strong transport network in investment decisions of firms within the UK, indeed access to air transport is considered vital or very important by 40 per cent of companies (ahead of cost of labour and business taxes).<sup>74</sup> However it is important to note that the type of business often dictates how influential connectivity is and whether these types of businesses are found in the local economic context of the airport.

Table 26: Estimates of the catalytic multipliers associated with airports		
Location/airport	Study Area	Catalytic multiplier
Paris – Orly and Charles de Gaulle	Ile-de-France	2.1
London airports	South East England	1.3-1.8
Manchester	North West England	1.6-4.1
Copenhagen	Copenhagen region	2.1-2.5
Dusseldorf	Nord Rhein Westfalen	5.5

Source: Hakfoort et al, The regional economic impact of an airport: the case of Amsterdam Schiphol Airport, 2001

## Supply chain spending

The catalytic effects of an expansion will be felt over the full UK economy however some sectors will experience more of an effect than others, therefore it is important to assess the impacts across sectors, starting with current expenditure. As demonstrated by **Table 27**, financial and business services is the sector that spends the most on air transport services, which reflects the nature of international businesses requiring face-to-face engagements. This is highlighted by the higher proportion of supply chain spending by the service and communication sectors that are in the top four in the table. Those at the bottom end of the table such as energy and water are far less likely to require air transport services due to the nature of the business.

<sup>73</sup> PwC, Thames estuary study, pg.32

<sup>74</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.3



**Table 27: Share of supply chain spending on air transport services, 2010**

Sector	Purchases of aviation
Financial and other business services	1.1
Other Services	0.6
Wholesale and Retail	0.6
Information and communication	0.5
Agriculture	0.4
Transport and storage	0.4
Public admin, education and health	0.4
Manufacturing	0.2
Energy and water	0.1
Construction	0.1
Accommodation and food services	0.0

### Number of jobs & GDP impact by sector

The predicted number of jobs associated with the catalytic impacts are shown in the following tables. These results show the effects of the airport expansion in terms of job creation at the national and regional level.

These results are produced by an S-CGE model, which is based on several assumptions. In the model, the baseline employment grows in line with the ONS long term estimates at 0.8 per cent per annum. The job figures produced are net figures and so incorporate the various gains and losses in different sectors. The earlier analysis in this chapter was a gross assessment where displacement effects were not considered so it is useful to consider these alternative approaches alongside each other in the assessment.

The different impacts between sectors will be based on changing demand for the goods and services that results in some sectors being able to pay lower or higher wages. As a result, workers switch jobs or new workers could be attracted into the labour market, as the model assumes that labour is flexible and so workers can move between sectors and regions. But it is important to note that there would be a lag time if workers chose to switch jobs, due to the need to retrain, therefore the model does assume a temporary loss in productivity to account for this.

## Gatwick Airport Second Runway

The table below shows 49,000 jobs could be created by 2050, fairly evenly split between London and the South East (25,100) and the rest of England (21,500). There are positive impacts in every region of the UK and the number of jobs continues to increase out to 2060, the end of the modelling period.

LGW 2R Total jobs (000's)	2019	2022	2025	2028	2031	2040	2049	2058
London and South East	7.8	14.4	15.9	15.2	16.5	17.7	25.1	47.3
Rest of England	4.6	7.1	7.5	8.1	11.4	13.3	21.5	37.7
Rest of UK	0.2	0.3	0.1	2.2	1.8	1.4	3	5.4
<b>Total</b>	<b>12.6</b>	<b>21.8</b>	<b>23.5</b>	<b>25.5</b>	<b>29.7</b>	<b>32.4</b>	<b>49.6</b>	<b>90.4</b>

The catalytic impact of a Gatwick Airport Second Runway expansion on real GDP is demonstrated in **Table 29** below. The most significant impact is shown to be in the air passenger transport and freight sector, which is unsurprising due to the direct boost to this sector. This impact is greatest slightly after the new capacity is added, in 2050. Aside from this, there is little impact on other sectors, with construction showing the second highest result by 2060 at 2.2 per cent. The initial construction impacts in 2020 (9.5 per cent) are purely associated with scheme construction.

Sectors with international linkages such as manufacturing experience positive impacts which is mainly due to the decline in air travel costs. This leads to an increase in productivity within the sectors and international competitiveness, therefore increasing output. The efficiency benefits for non-aviation sectors will be magnified through the *reorganisation effect*, where they shift their production processes towards air transport.<sup>75</sup>

The negative impacts on GDP are also important to note. Other freight and other passenger transport reductions are fairly understandable outcomes as they are substitute goods i.e. using a plane to transport goods may replace using a train in some incidences. But, less obvious are the reductions to the retail and wholesale trade sector along with the health, education and public sector. These reductions can be attributed to the knock on effects of airports, i.e. in the public sector, workers may take advantage of the higher wages that would result through the airport expansion. For the retail and wholesale sector, the reduced air transport costs increase competition, leading to a fall in profitability. As a result, prices fall and this effect is not offset by the fall in air transport costs (inputs) resulting in an overall negative effect on GDP in these sectors.

<sup>75</sup> PwC Wider Impacts Assessment pg. 64

**Table 29: Gatwick Airport Second Runway, breakdown of impact on the level of real GDP by sector, Assessment of Need scenario**

LGW 2R change in sector GDP (%)	2020	2030	2040	2050	2060
Agriculture and mining	-0.4	0	0.5	0.9	1.1
Manufacturing	0	0.3	0.9	1.5	1.4
Utilities	-0.4	0	0.5	0.8	1.1
Construction	9.5	0	-0.3	1.6	2.2
Retail and wholesale trade	-0.2	-0.2	-0.3	-0.5	-0.3
Air passenger transport and freight	0.8	3.4	7.2	21	15.1
Other freight	-0.2	-0.5	-0.7	-1.7	-1.2
Other passenger transport	0	-0.6	-0.8	-2.7	-1.9
Accommodation and food services	-0.1	0.1	0.5	0.8	0.9
Other services	-0.9	-0.5	-0.1	-0.2	0.4
Health, education and public spending	0.1	0.12	0	-0.1	-0.1

**Table 30** below sets out the number of jobs expected in each sector, with the highest number unsurprisingly generated in the air passenger transport and freight sector. These job numbers increase over time from 900 in 2020 to 42,200 in 2060. The change in this number reflects to the demand profile expected at Gatwick. Construction is also high initially due to the airport development. Manufacturing and other services are the largest sectors in the model, and they increase by the largest amount following expansion. Both sectors benefit from increased trade as a result of reduced transport costs, enabling an increase of jobs in these sectors. The other services sector is made up of financial services, business services and telecommunications, that gradually (by 2060) benefit from the increased access to air transport due to its lower cost. However the negative impact seen before this is due to the increased competition from abroad as non-domestic companies would also benefit from lower costs of air travel. There are several marginally negative effects on other sectors. This is in line with effects on GDP per sector as outlined above.

**Table 30: Gatwick Airport Second Runway, breakdown of impact on net job creation by sector, Assessment of Need scenario (000's of jobs)**

LGW 2R (000s of jobs)	2020	2030	2040	2050	2060
Agriculture and Mining	2.9	0.4	0.3	0.6	1.1
Manufacturing	2.5	18.5	14.3	24.3	36.9
Utilities	3.3	0.4	0.0	-0.1	-0.3
Construction	5.8	1.5	0.5	1.4	1.5
Retail and wholesale trade	1.4	0.2	0.0	1.2	1.8
Air passenger transport	0.9	8.7	18.4	24.1	42.2
Air freight	0.0	0.1	0.1	0.2	0.2
Other freight	0.7	-0.1	-0.2	-0.6	-1.8
Other passenger transport	0.2	-1.0	-1.0	-0.8	-1.7
Accommodation and food services	1.2	0.8	0.7	1.9	2.5
Other services	1.2	-0.4	-0.7	-1.8	9.5
Health, education and public spending	1.7	0.5	-0.2	-0.8	-1.6
Total	21.8	29.7	32.4	49.6	90.4

## Heathrow Airport North West Runway

The table below shows 179,800 jobs could be created by 2050 as a result of the Heathrow Airport North West Runway option. The largest number of jobs (102,900) would be located in London and the South East although the rest of England and the rest of UK, with increase of 64,600 and 12,300 respectively, are also predicted to experience employment benefits from the scheme.

**Table 31: Total number of jobs generated by Heathrow Airport North West Runway**

LHR NWR Total jobs (000's)	2019	2022	2025	2028	2031	2040	2049	2058
London and South East	47.1	56.7	61.1	54.9	62.5	74.5	102.9	106.4
Rest of England	4.3	14.7	17	30.3	33.1	56.5	64.6	69.7
Rest of UK	0.3	0.5	0.2	-0.7	6.0	10.5	12.3	12.5
Total	51.7	71.9	78.3	84.5	101.6	141.5	179.8	188.6

The catalytic impact of a Heathrow Airport North West Runway expansion on real GDP in this sector is demonstrated in **Table 32** below, with the highest impact, unsurprisingly, being to the air passenger transport & freight sector. The reduced capacity constraints enable a direct boost to the sector which causes a maximum 15 per cent increase in level of real GDP in 2050. This falls slightly in 2060 due to the capacity constraint which begins to occur post 2040 when Heathrow is full again. Aside from this, there is a much lower impact on other sectors. An anomaly to this is the construction sector impact on GDP is

substantial (33 per cent) in 2020 however this can be explained by the high construction costs associated with the expansion of Heathrow.

Sectors with international linkages such as manufacturing experience positive impacts which is mainly due to the decline in air travel costs. This leads to an increase in productivity within the sectors and international competitiveness, therefore increasing output. The efficiency benefits for non-aviation sectors will be magnified through the *reorganisation effect*, where they shift their production processes towards air transport.<sup>76</sup>

The negative impacts on GDP are also important to note. Other freight and other passenger transport reductions are fairly understandable outcomes as they are substitute goods i.e. using a plane to transport goods may replace using a train in some incidences. However less obvious are the reductions to the retail and wholesale trade sector along with the health, education and public sector. These reductions can be attributed to the knock on effects of airports, i.e. in the public sector, workers may take advantage of the higher wages that would result through the airport expansion. For the retail and wholesale sector, the reduced air transport costs increases competition, leading to a fall in profitability. As a results, prices fall and this effect is not offset by the fall in air transport costs (inputs) resulting in an overall negative effect on GDP in these sectors.

**Table 32: Heathrow Airport North West Runway, breakdown of impact on the level of real GDP by sector, Assessment of Need scenario**

LHR NWR change in sector GDP (%)	2020	2030	2040	2050	2060
Agriculture and mining	0.41	0.64	1.44	1.5	1.46
Manufacturing	0.49	1.54	2.13	2.0	1.89
Utilities	0.34	0.49	1.28	1.36	1.34
Construction	33.05	0.51	2.72	2.74	2.55
Retail and wholesale trade	0.19	-0.58	-0.53	-0.47	-0.41
Air passenger transport and freight	1.52	8.3	12.98	15.42	12.93
Other freight	-0.11	-1.18	-1.25	-1.42	-1.19
Other passenger transport	-0.55	-0.87	-1.09	-1.63	-1.17
Accommodation and food services	0.09	0.86	1.34	1.35	1.34
Other services	0.59	-0.8	0.07	0.27	0.37
Health, education and public spending	0.28	-0.01	-0.11	-0.14	-0.14

The figures in **Table 33** below highlight the number of jobs expected in each sector, with a large numbers of jobs generated in the air passenger transport and freight sector. These job numbers increase over time from 1,500 in 2020 to 52,500 in 2060. The reduction by 2060 is due to the demand profile expected at Heathrow with the airport reaching full capacity between 2030 and 2042 on this service. A substantial initial increase in

76 PwC (Nov 2014) Wider Impacts Assessment

construction jobs is due to the large scale construction expansion associated with the scheme.

Manufacturing is very trade intensive and it is expected that the largest effect occurs in this sector with 91,900 jobs created. The other services sector is made up of financial services, business services and telecommunications, which benefit from the increased access to air transport and greater connectivity. Therefore, a substantial number of jobs (46,700 in 2060) are created in this sector, particularly under a Heathrow expansion, with its relatively high proportion of long-haul and business flights. However the negative and lower initial percentage impact is due to the increase in competition from non-domestic businesses who also benefit from the reduced air travel costs. There are several marginally negative effects on other sectors. This is in line with effects on GDP per sector as outlined above.

LHR NWR (000s of jobs)	2020	2030	2040	2050	2060
Agriculture and Mining	1.0	2.0	5.0	6.3	4.9
Manufacturing	22.5	34.2	58.5	94.9	91.6
Utilities	3.9	3.4	-0.2	-1.6	-1.3
Construction	19.4	-1.4	-0.8	-0.3	-0.6
Retail and wholesale trade	4.7	-2.0	-7.0	-14.8	-8.8
Air passenger transport	1.5	38.1	53.6	54.1	52.3
Air freight	0.1	0.2	0.3	0.3	0.4
Other freight	0.2	-0.9	-1.6	-2.0	-0.8
Other passenger transport	0.5	-2.3	-4.1	-9.1	-4.3
Accommodation and food services	4.1	7.2	10.1	15.6	15.4
Other services	13.5	22.6	31.1	44.9	46.7
Health, education and public spending	0.6	0.5	-3.3	-8.4	-7.0
Total	72.1	101.6	141.5	179.8	188.6

### Heathrow Airport Extended Northern Runway

The table below shows 163,300 jobs could be created by 2050 under a Heathrow Airport Northern Runway Extension. 81,700 of these jobs are expected to be in London and the South East with a further 71,100 in the rest of England and 10,500 in the rest of the UK.

HH total jobs (000's)	2019	2022	2025	2028	2031	2040	2049	2058
London and South East	46.1	67.8	59.5	59.8	59	72	81.7	86.7
Rest of England	6.8	11.2	12.1	20.9	32.6	53.7	71.1	76.5
Rest of UK	0.2	1.1	1.3	0.7	7	9.7	10.5	10.5
Total	53.1	80.1	72.9	81.4	98.6	135.4	163.3	173.7

The catalytic impact of a Heathrow Airport Extended Northern Runway expansion on real GDP is demonstrated in **Table 35** below, with similar effects to a Heathrow Airport North West Runway expansion, however with the reduced capacity the effects are slightly lower. The highest impact is to the air passenger transport and freight sector, which is not unexpected. The reduced capacity constraints enables a direct boost to the sector which causes a maximum 12 per cent increase in level of real GDP in the sector 2050. This falls slightly in 2060 due to the capacity constraint which occurs post 2040 when Heathrow is full again. Aside from this, there is a much lower impact on other sectors. An anomaly to this is the construction sector impact on GDP is relatively high (24 per cent) in 2020 however this can be explained by the high construction costs of building the Heathrow Airport Extended Northern Runway expansion.

**Table 35: Heathrow Airport Extended Northern Runway, breakdown of impact on the level of real GDP by sector, Assessment of Need scenario**

LHR ENR change in sector GDP (%)	2020	2030	2040	2050	2060
Agriculture and mining	0.47	0.65	1.31	1.32	1.27
Manufacturing	0.3	1.5	1.91	1.79	1.67
Utilities	0.41	0.52	1.18	1.21	1.17
Construction	24.11	0.84	2.53	2.49	2.28
Retail and wholesale trade	0.18	-0.55	-0.45	-0.4	-0.35
Air passenger transport and freight	1.43	8.42	10.64	12.26	10.24
Other freight	-0.13	-1.08	-1.03	-1.16	-0.97
Other passenger transport	-0.57	-0.78	-0.95	-1.36	-0.97
Accommodation and food services	0.09	0.85	1.15	1.13	1.12
Other services	0.73	-0.7	0.14	0.27	0.33
Health, education and public spending	0.27	-0.02	-0.1	-0.12	-0.12

The figures in **Table 36** below highlights the number of jobs expected in each sector in the air passenger transport and freight sector where job numbers increase over time from 2,000 in 2020 to 48,900 in 2060. The reduction by 2060 is due to the demand profile expected at Heathrow with the airport reaching full capacity once more. A substantial initial increase in construction jobs is due to the large scale construction expansion.

Manufacturing is very trade intensive and it is expected that the largest effect occurs in this sector with 75,200 jobs created. The other services sector is made up of financial services, business services and telecommunications, which benefit from the increased access to air transport and greater connectivity. Therefore, a substantial number of jobs (39,800 in 2060) are created in this sector, particularly under a Heathrow expansion, with its relatively high proportion of long-haul and business flights. However the negative and lower initial percentage impact is due to the increase in competition from non-domestic businesses

who also benefit from the reduced air travel costs. There are several marginally negative effects on other sectors. This is in line with effects on GDP per sector as outlined above.

**Table 36: Heathrow Airport Extended Northern Runway, breakdown of impact on net job creation by sector, Assessment of need scenario (000's of jobs)**

LHR ENR (000s of jobs)	2020	2030	2040	2050	2060
Agriculture and Mining	1.3	3.5	4.2	4.7	4.2
Manufacturing	29.6	30.7	45.8	69.8	75.2
Utilities	5.0	3.1	-0.2	-1.2	-1.1
Construction	16.9	-1.2	-0.7	-0.2	-0.6
Retail and wholesale trade	0.6	1.8	5.9	7.0	7.5
Air passenger transport	2.0	34.3	45.2	44.9	48.9
Air freight	0.1	0.2	0.3	0.3	0.4
Other freight	0.3	-0.8	-1.4	-1.5	-0.7
Other passenger transport	0.7	-0.2	-1.2	-2.8	-3.7
Accommodation and food services	5.3	6.4	8.6	15.5	9.7
Other services	17.6	20.3	26.1	33.1	39.8
Health, education and public spending	0.7	0.4	2.8	-6.2	-6.0
Total	80.1	98.6	135.4	163.3	173.7

## Agglomeration effects

An increase in catalytic jobs as a result of the expansion can have further impacts such as agglomeration effects. Agglomeration refers to the concentration of economic activity over an area. Agglomeration impacts arise because firms derive productivity benefits from being close to one another and from being located in large labour markets. If transport investment brings firms closer together and closer to their workforce this may generate an increase in labour productivity above and beyond that which would be expected from the direct user benefits alone.<sup>77</sup>

These effects can arise from shared supply chains (leading to greater competition and specialisation of suppliers) and economies of scale and scope. The sectors which accrue the greatest benefits from agglomeration are more likely to form concentrated clusters. Physical proximity to other firms, workers and consumers, may help firms in the day-to-day business of producing goods and services. This implies that the productivity of individual firms will rise with the overall amount of activity in other nearby firms, or with the number of nearby workers or consumers.

The benefits of these clusters have been highlighted in the literature reviews and broken into three key areas; knowledge spill overs, access to labour and input effects. The full

<sup>77</sup> PwC Wider Economic Impact Report Pg.15



impact of these three areas depends on the type of industry surrounding the airport. The effects of clustering can be demonstrated at Amsterdam Schiphol (see Case Study), where the value of rents around the airport have increased to levels higher than that of the city centre.

**Table 37: Agglomeration elasticities (with respect to productivity) by sector**

Sector	Elasticity of impact changes in effective density on productivity
Banking, finance and insurance	0.237
Business Services	0.224
Transport, storage and communications	0.223
Real estate	0.192
Distribution, hotels and catering	0.153
Whole Economy	0.119
IT	0.082
Manufacturing	0.077
Construction	0.072

By being able to use airport sector services more efficiently and by being able to connect to more international destinations, UK-based businesses that use aviation products as an input into their production process may become more efficient if UK aviation capacity expands. This is known as a “productivity effect”.

In **Table 37**, density of employment, a proxy for agglomeration, is shown, as well as the elasticity (responsiveness of the variable) of productivity estimates which show how changes in agglomeration impact firm’s productivity. A score of 0.15 means that a 10 per cent increase in agglomeration increases productivity by 1.5 per cent. Therefore to assess the effects of an airport expansion, how industry clusters might develop is an important consideration, including the degree of agglomeration which could occur.

### **Gatwick**

Currently the local area around Gatwick has a mix of businesses however there is little evidence of strong clustering around the airport. Expansion of the airport has the potential to encourage clustering although the likelihood of this occurring depends on the scenario anticipated. *Low-cost is king* sees a move towards a more hub-like airport rather the current point-to-point dominated traffic. Under this scenario, the passenger mix may change to include more business passengers and high value long-haul. A hub type airport is typically associated with strong clustering (see Amsterdam case study) as businesses will be attracted to the ease of access. The *assessment of need* has a similar effect of increasing business passengers (without a hub like effect). How far this develops into

extensive clustering is difficult to anticipate but it is important to acknowledge the potential impact.

The CGE model only provides a regional picture of the possible impacts and so does not provide results at a disaggregated enough spatial level to make any predictions about the location of new business clusters.

## **Heathrow**

Heathrow has high value development land surrounding it currently due to the clustering effects experienced. The expansion of the airport to increase capacity could potentially result in an increase of these effects. The extent of an increase in agglomeration effects would vary by demand scenario. But, under all scenarios, Heathrow is forecast to experience an increase in business passengers. This has the potential to increase the agglomeration effects further with high value businesses moving into the area.

The CGE model does not provide results at a disaggregated enough spatial level to make any predictions about the location of new business clusters. Considering the difference in business mix 20 years ago in the local area, it is difficult to consider the changes that will occur in the future. However it is evident that the local labour market has adapted to the change in sectors over the last 20 years and this trend is likely to continue. Therefore it is sensible to consider the regional level as being the appropriate spatial level at which to consider the possible effects of airport expansion on agglomeration.

### **Case study of clustering effects: Amsterdam Schiphol airport (AMS)**

An example of the potential effects of clustering can be seen at Amsterdam Schiphol. The area around this airport has developed business parks, including a substantial number of distribution centres. These centres account for over half of the Netherlands' distribution centres. In a study by Warffemuis (2010), the businesses highlighted that location factors were more important than the airport itself due to the benefits associated with agglomeration such as being close to required goods and services. This meant that only a minority of the businesses located in the area were directly linked to the airport and that most other firms were only indirectly linked through the agglomerative benefits.<sup>78</sup>

## **Local Enterprise Partnerships**

The LEPs around London & the South East play a strong economic role. For example, the Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) contributes £28.3bn to

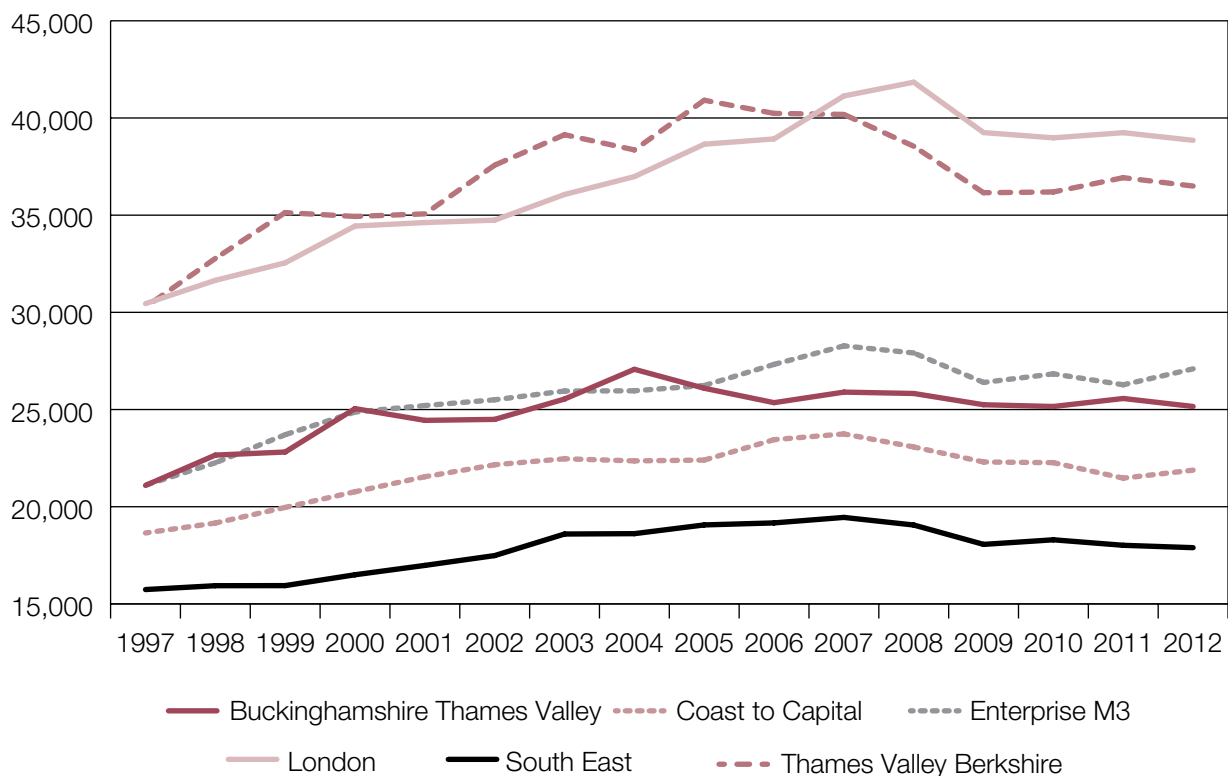
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<sup>78</sup> PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.26

the UK economy every year. As demonstrated by **Figure 29** all the LEPs demonstrate above £15,000 real GVA per head, which is indicative of the economic activity in the area. According to trends, the best labour market performance tends to be in areas of the South East around London, particularly the area stretching west of London through to Oxfordshire and encompassing Thames Valley Berkshire and Enterprise M3 LEPs. These areas typically have high employment, low unemployment and high resident and workplace salaries. This is part of a long running trend which demonstrates the increasing real GVA that highlights the business activity in the area supported by airports, indeed the Thames Valley LEP has the highest proportion of foreign-owned enterprises across the 39 LEP areas in the UK.

The area is important to London as whole with the London Plan highlighting areas such as the Western Wedge (west London to the Thames Valley), the Wandle Valley (South London towards Gatwick Airport) and the London-Luton-Bedford strategic coordination corridor as key development areas.<sup>79</sup> The catalytic benefits of the airports would therefore be underpinned by the London Plan itself, which is inherently focused upon greater economic cohesion across the London area. Long term economic trends in the area are further supported by the outer London policy where addressing constraints and opportunities are part of the economic growth plans.

**Figure 29: Real Gross Value added per Head (£) by Local Enterprise Partnership 1997-2012**



79 Greater London Authority (Oct 2009) *The London Plan*, pg.43

In the UK and US transport industry jobs are more skilled and more productive than the national average whereas jobs in the storage, trade and retail sectors tend on average to be relatively lower skilled.<sup>80</sup> The UK Commission for Employment and Skills (2012) looked at productivity of jobs in the transport and storage sector. The average GVA per head in the air transport sector is approximately £67,000 (nearly 50 per cent above the average). However sectors such as wholesale & retail trade and wider transport & storage, which represent a significant share of direct jobs created by an airport, are noticeably less productive.<sup>81</sup>

## **Gatwick**

Since 1999 growth in GVA in the Gatwick Diamond has been below the South East average,<sup>82</sup> a development consistent with GVA data the Enterprise and Coast to Capital LEPs. The *Gatwick Diamond Local Authorities* found that there is a lack of knowledge based industries in the area, meaning a lower skilled workforce. They see a need to attract the type of businesses employing those with higher skill levels. The key potential growth areas are therefore seen to be the corridor between Gatwick and Redhill, including town centres, as demonstrated in the local authority reports.

Gatwick Airport Limited have not calculated catalytic impacts, preferring to conduct a qualitative assessment, as they state that there is no conclusive and recognised method of calculation of calculating them, particularly in a planning context. Gatwick Airport Limited particularly highlight the London Plan's policies for developing relationships between Gatwick, London and the South East. Gatwick Airport Limited also mention this 'area of potential' in relation to the LEPs (discussed previously) where the Coast to Capital LEP, in which Gatwick features, was ranked 7<sup>th</sup> as an area of international competitiveness. They emphasise the expansion as a strong reason for strengthening the relationship with London as outlined in the London Plan. However the key element brought out in the discussion, is the agglomeration effects caused by the airport expansion. The Optimal Economics<sup>83</sup> report commissioned by Gatwick Airport Limited highlighted that the agglomeration effects would be as a result of the clustering of businesses in the areas around airports due its location for ease of access.

## **Heathrow**

Growth in GVA has been above average in the LEPs areas near Heathrow (Buckinghamshire Thames Valley, Enterprise M3, and Thames Valley Berkshire). The

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80 PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.2

81 PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.39

82 Gatwick Diamond (Mar 2012) *Local Strategic Statement*, pg. 5-6

83 Optimal Economics (May 2014) *Gatwick Related Employment*, pg.44

majority of firms based around Heathrow are UK-owned but there is also an extensive cluster of foreign owned firms around Heathrow, which contribute over 170,000 jobs.

### **Heathrow Airport Limited**

Heathrow Airport Limited's study of the catalytic effects associated with a Heathrow expansion focused on the additional trade and FDI. From additional direct flights from a North West Runway, which would result in additional direct business and leisure passengers compared to a two runway scenario. The business passengers are associated with increased meetings etc. which links to trade and FDI, a link verified in extensive literature reviews discussing the benefits of face-to-face meetings. Leisure passengers increase tourism and their benefits are linked to average spending using ONS estimates. Both of these result in an increase in GDP and employment. The predicted overall effect is a further 42,000 jobs and a £2.3billion addition to GDP.

Further catalytic effects acknowledged by Heathrow Airport Limited, are the increasing clusters of business growth around the airport. They highlight that there are new commercial areas that have the ability to accommodate this growth. Other development strategies include further increased concentration of businesses in areas such as offices in Southall. This being said, there is also a need for regeneration which may result in opportunity areas such as Stockley Park seeing homes and jobs in the area.

### **Heathrow Hub Limited assessment**

Heathrow Hub Limited conclude GVA per worker would increase by 2 per cent in the M4 corridor and by 1.5 per cent in outer London (nationally 1 per cent) as a result of Heathrow expansion. Economic growth in the M4 corridor would comprise be 30 per cent employment 70 per cent productivity growth. The split in Outer London would be 45 per cent/55 per cent. Heathrow Hub Limited estimate that the M4 corridor has a base workforce of 1.2 million people and expect an increase of 200,000 by 2050. Heathrow Hub Limited expect that the Outer West and North West London will have over 100,000 new jobs within Opportunity/Growth Areas. Heathrow Hub Limited also highlights that there is limited expansion for housing or business units in the local area and as a result, they anticipate that the rents and average costs will rise. This would be as a result of the area moving up the value chain through attracting more productive businesses. If companies are more price sensitive or indeed, less location sensitive, they will move away from the area. Old Oak Common is a key area in Heathrow Hub Limited's employment and housing plans. Over 90,000 jobs are forecasted for the area with the ability to 'unlock' over 155 hectares of underused land close to both Heathrow and Central London.

Increasing value of businesses may provide higher-value jobs that local people may miss out on unless they are upskilled. Improving skills is a key aspect of regeneration and of particular relevance if there are airport jobs being replaced due to technology (e.g. baggage handling).

## **Tourism**

Airport expansions offer stronger transport connections providing knock-on benefits for industries reliant on them. However the impact of tourism on the local businesses and services will depend in part on the definition of the local area. The benefits may not be felt primarily in the immediate surroundings of the airport but for surrounding metropolitan areas, the impacts may be more significant.<sup>84</sup> Several local authority plans highlight the benefit of the airports on tourism within their boroughs. Windsor & Maidenhead local plans highlights that tourism is a key feature in its authority and the good links to Heathrow is often considered a reason for this. Similarly Brighton and Hove attracts 8 million visitors a year, bringing about £380 million a year to the local economy. Gatwick is seen as a support to this industry.<sup>85</sup>

It is also important to highlight that the type of flights within the airport will also impact tourism such as the percentage share of long-haul and international flights. Indeed, the UK finds that spending from non-EU tourists is double that of EU tourists (£1,027 compared to £451).<sup>86</sup> The impacts of tourism are difficult to measure due to the area being considered. The expansion impacts are also challenging depending on the expected mix of long-haul and short-haul flights.

A macroeconomic view of the tourism impacts is provided by the CGE model, which can assess the effect of a change in passenger flows on spending in the economy. Further details can be found in the PwC Wider Impacts Assessment report.

## **Conclusion**

The CGE analysis shows there could be significant wider impacts on local employment beyond the direct, indirect and induced effects estimated by the Commission. These benefits are largest in London and the South East though there are also net gains forecast in the rest of England and the rest of UK too.

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84 PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.10

85 Brighton and Hove Borough Council (2005) *Brighton & Hove Local Plan*, pg.137

86 PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*, pg.10

## 2. Surface Access

Planned improvements to surface access that enable passengers to access the airport will also improve the attractiveness of the airport location and transport corridors through reduced journey times and increased frequencies. In addition there will be benefits to non-airport users who are residents in the area, in the form of improved labour and market access. This will lead to some additional benefit to the individuals and potentially the local economy.

### Gatwick

The surface access analysis used the scheme promoters' demand forecasts. The baseline used the Gatwick Airport Limited passenger forecast of 47 million passengers in 2030 with around 26,500 employees. This compares to Commission forecasts of 41 – 44 million and a forecast of 19,600 – 29,200 employees. Therefore the scheme which has been assessed is within, and towards the top end, of the range considered by the Commission. The assessment takes a forecast of 65 million passengers and 33,000 employees in 2030 with a new runway. The Commission passenger forecasts range from 40 – 72 million. The number of employees is estimated to be between 27,000 and 48,000.

The assessment indicated that the net surface access impact of a second runway would effectively amount to an additional 17.5 mppa in 2030 (a total of 65 mppa in the two-runway scenario less 46 mppa in the one-runway scenario, assuming that 8% of all passengers in both scenarios are interliners). Jacobs's analysis of the surface access proposition found that already committed improvements such as the high speed Thameslink-Southern-Great Northern (TSGN) timetable post 2018 and a number of additional schemes which are likely to be needed regardless of expansion will suffice to meet the additional demand associated with a second runway. Similarly the committed and planned Highways Agency (HA) improvements to the Strategic Road Network by 2025 will provide enough capacity to accommodate airport users as well as background demand. Therefore, compared to the 2030 baseline, there should not be significant change to the surface transport situation for many residents of the Gatwick assessment area.

## Employees mode of travel

Table 38: Mode of travel for journey to work at Gatwick		
Mode	2008 (%)	2012 (%)
Car	65	60
Car + passenger		6
Car passenger	4	5
Rail	11	11
Public bus or coach	13	12
Taxi	2	1
Company transport	1	1
Walk	1	1
Motorcycle	0.6	0.7
Bicycle	0.8	1.6
Plane	0	0.6

Source: Gatwick employment survey

The target mode share for employee commuting was defined as 20 per cent rail, 20 per cent bus/coach and 60 per cent private vehicle. This compares to a current mode share of 75 per cent private vehicle, 12 per cent bus/coach and 13 per cent rail.

### Rail

The modelling produced a forecast of 1,200 additional rail trips to the airport in the AM peak in 2030 as a result of the second runway. This was combined with Network Rail forecasts for background demand on the Brighton Main Line (BML) and the analysis indicates that the additional passengers related to the second runway at Gatwick are a very low proportion of the total forecast volumes on the BML in 2030. For example on the section between Three Bridges and Redhill (where airport passengers are most concentrated) passenger demand is only 2 per cent higher with expansion.

The BML scheme is as yet uncommitted but with this improvement it is likely demand by both airport and local users would be able to be accommodated. If this scheme was not delivered there would be severe overcrowding for both airport and other users. The table demonstrates the change in journey times from each of the local authorities between 2012 and 2030. The changes shown reflect when the transport schemes in the baseline come into effect. The minimum rail clock time analysis below highlights how little difference there is in journey times between 2012 and 2030.



**Table 39: Comparison of minimum clock times from key districts to Gatwick in 2013 and 2030**

District	Representative station	Gatwick 2012		Gatwick 2030		Difference	
		Standard Rail	GEX	Standard Rail	GEX	Standard Rail	GEX
Gatwick assessment area							
Croydon	East Croydon	19	68	17	68	-2	0
Brighton and Hove	Brighton	41	122	32	122	-9	0
Eastbourne	Eastbourne	72		72	138	0	NA
Mid Sussex	Haywards Heath	17		17	97	0	NA
Arun	Littlehampton	81		81	155	0	NA
Horsham	Horsham	0		0		0	NA
Heathrow assessment area							
Richmond upon Thames	Richmond	52	74	47	74	-5	0
Ealing	Acton Town	69	69	64	69	-5	0
Hillingdon	Hatton Cross	91	91	87	91	-5	0
Hounslow	Hounslow Central	86	84	82	84	-5	0
Harrow	South Harrow	88	88	84	88	-5	0
Reading	Reading	0	3	0	3	0	0

One section of the BML, between East Croydon and London Bridge, is forecast to be over capacity with background demand alone. Therefore, the risks associated with this need to be taken into consideration when looking at delivery of the airport expansion.

Although the baseline in 2030 may deliver significant benefits for residents (for example as a result of TSGN services) only the incremental impact of the airport demand on the network is assessed and the Commission concludes there is unlikely to be any significant impact on local residents and employees beyond the baseline.

## Roads

The Jacobs analysis forecast a net impact of up to 1,000 additional trips to the airport in the AM peak as a result of a second runway. If M23 J8-J10 improvements are delivered then no further capacity enhancements are forecast to be required by 2030.

## Sensitivity Tests

Two sensitivity tests were carried out using the passenger numbers from the Commission's scenarios and both indicated a less significant net second runway surface access impact than the analysis using GAL's forecast. As a result, these sensitivity test did not change the conclusions of the central scenario road and rail assessments, which did not assign any rail or strategic road-related costs to the delivery of a second runway at Gatwick in 2030.

An additional test assessed the impact in turn of higher staff numbers at the airport associated with the Commission's 'low productivity' scenario. In this scenario the number of staff assumed to work at the airport increases from the 29,685 estimate applied in the central 2030 Jacobs forecast to around 43,000, in line with the ratio of 1,509 annual passengers per employee indicated for Gatwick in 2030 in the low productivity employment scenario.

This increase in staff numbers has no impact on headline or sub-rail mode share in the Jacobs model as the generalised costs estimated for the logit model were fixed costs, but it does increase the number of rail and road trips forecast to and from the airport during the AM peak hour.

For rail, the net impact of the second runway amounts to around 1,300 additional rail trips to the airport in the AM peak hour, increasing from just under 1,200 in the central scenario. The scale of the increase is related to the overall staff rail mode share, which is assumed to remain fixed at 20 per cent in both scenarios. As a result, because the increase in rail trips in this scenario is low and the vast majority of trips on the Brighton Main Line are not related to the airport, the conclusions arising from the rail assessment undertaken for the central 2030 scenario in the main report do not change.

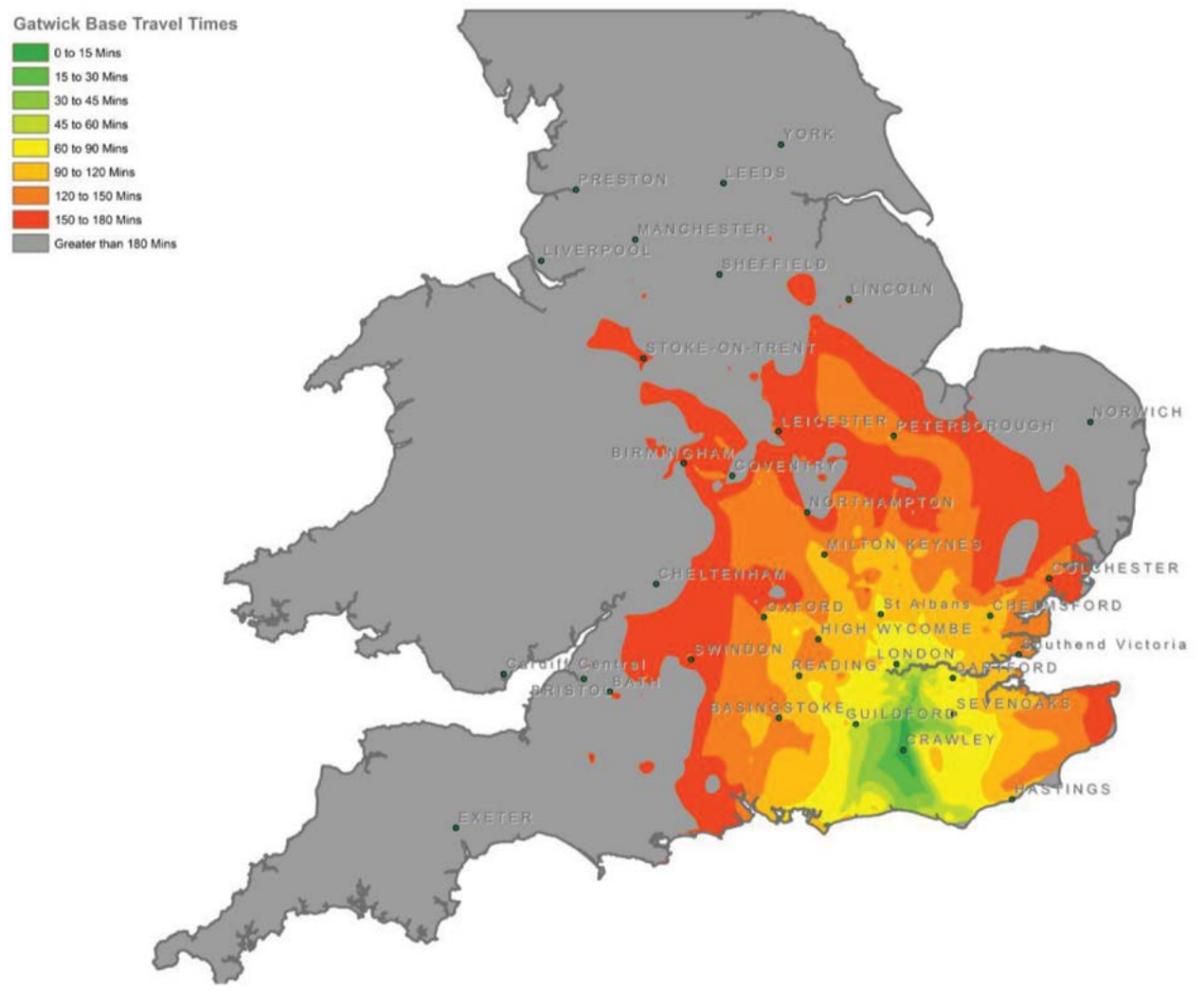
The additional vehicles on the road network as a result of the increase in staff numbers does however impact on the findings of the roads assessment, as 60 per cent of staff are assumed to travel by car. As a result, this sensitivity test does identify one link (the M25 between junctions 6 and 7) that exceeds the 100 per cent volume/capacity ratio threshold as a result of second runway traffic – this amounts to a 4.3km stretch of motorway. It should be noted that this link was also flagged as requiring capacity enhancement as a result of the second runway in the sensitivity test undertaken to assess the impact of applying the 2012 headline mode share in the 2030 model, which is summarised in the Gatwick Airport 2R Surface Access report.

A final sensitivity test was undertaken on the impact of removing the premium fare for the Gatwick Express (GEX). The result of this was an increase in the number of passengers using the GEX (compared to the forecast decrease if the pricing structure remained as current), shifting the mode share slightly towards an increase rail share. Therefore in terms of road assessment, there is a marginal reduction in car mode share compared with the central scenario resulting in no road links requiring capacity enhancements under a second runway expansion.

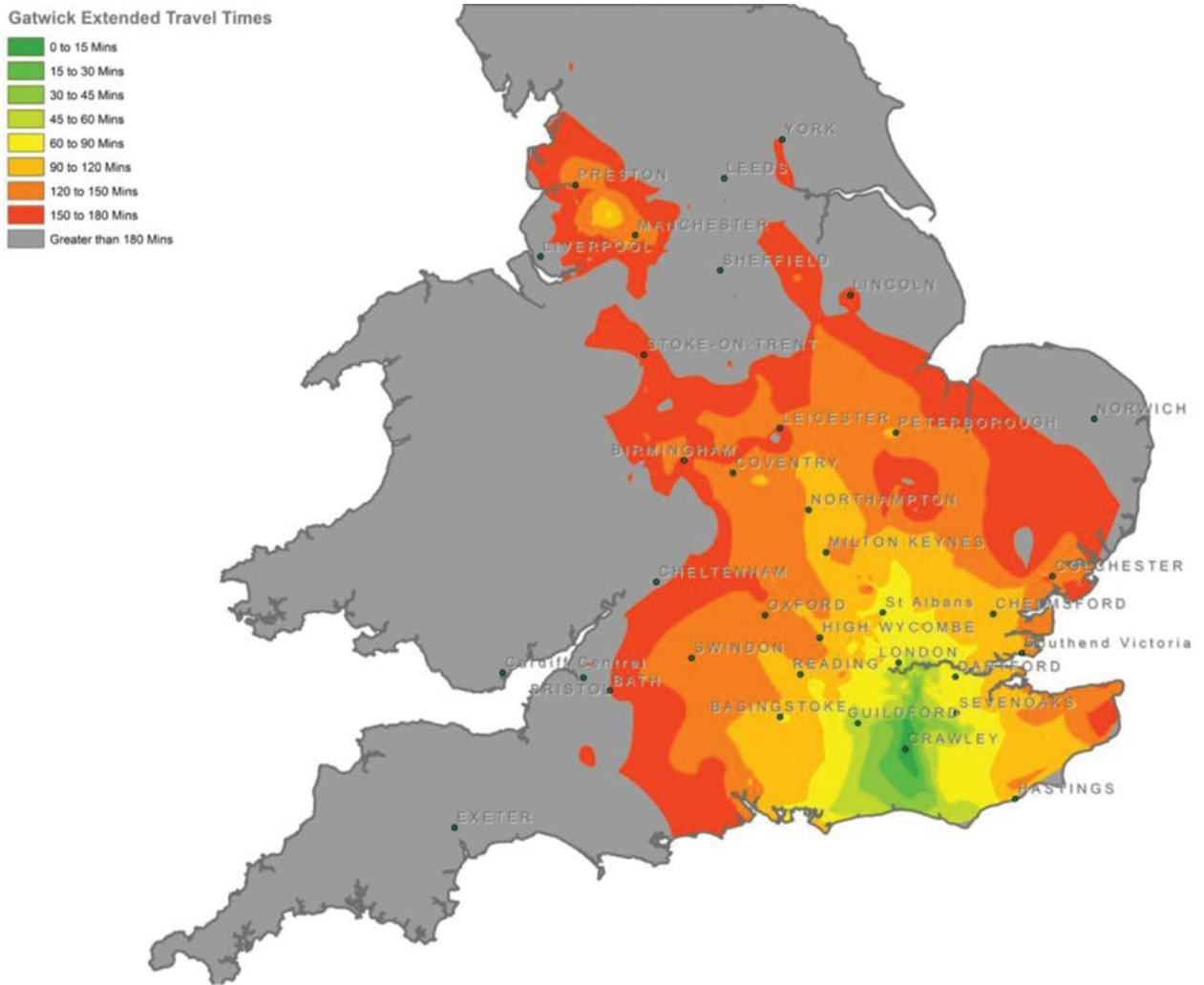
## Accessibility

The map below shows the accessibility-by-travel time isochrones around Gatwick Airport based on the current and Extended Baseline public transport networks, identifying areas of the UK that become more accessible by public transport as a result of committed and planned service enhancements. The Extended Baseline plan indicates improved accessibility from the North West as a result of HS2, and from a number of other areas across the Midlands and East Anglia as a result of Thameslink. It should be noted however that small changes under 15 minutes are not picked up within the time bands identified on the plans and so the benefits derived from improved service frequencies on the BML for example are not immediately evident.

**Figure 30: Map of Baseline Surface Access**



**Figure 31: Map of Assessment Surface Access**



## Heathrow Airport North West Runway

Full details of the surface transport baseline and assessment can be found in the Surface Access module reports.

The Heathrow Airport North West Runway surface transport baseline is:

1. Heathrow Express: continues to provide 4 trains per hour (tph)
2. LU Piccadilly Line: 18 tph by 2030
3. Crossrail: 4 tph to central London
4. Western Rail Access: rail link between Reading and Heathrow with 4 tph planned
5. HS2: connection from Old Oak Common to Heathrow. Heathrow Express and Crossrail expected to connect Heathrow to Old Oak Common, allowing effective interchange between airport rail and high speed services.

The additional package proposed for Heathrow Airport North West Runway includes:

1. Southern Rail Access: planned service linking Heathrow to Staines with 4tph.
2. Crossrail: increased frequency of 6tph

The key road schemes included in the assessment are:

1. New southern road tunnel to Heathrow East
2. Collector-distributor road to segregate airport traffic from other M25 traffic between junction 14 and 15
3. One way access for Heathrow West
4. Hard shoulder running on sections of the M4, M25, M23 and M3

The Jacobs surface access model forecast the net impact of up to 2,400 additional rail trips in the morning peak in 2030 as a result of the airport expansion, with up to 1,400 additional trips leaving the airport. These forecasts were combined with background demand forecasts (developed with Network Rail and TfL) and compared with capacity estimates to assess the surface access.

The surface access baseline takes a passenger forecast of 82.5 million passengers in 2030 in the baseline with 72,100 employees. This compares to Commission forecasts of 83 – 88 million in 2030 and a forecast of 60,000 – 87,000 employees. Therefore the baseline is broadly comparable. The surface access assessment takes a forecast of 104 million passengers and 90,000 employees in 2030 with a new runway. The Commission passenger forecasts range from 132-149 million, considerably higher than the scheme

promoters own assessment. The number of employees is estimated to be between 61,000 and 134,000.

Employee commuting mode share is assumed to be 43 per cent public transport and 47 per cent private vehicles in 2030, compared to 43 per cent public transport and 42 per cent private in 2013. The geographic distribution of employees are assumed to be in line with current travel patterns and so the mode share remains relatively stable.

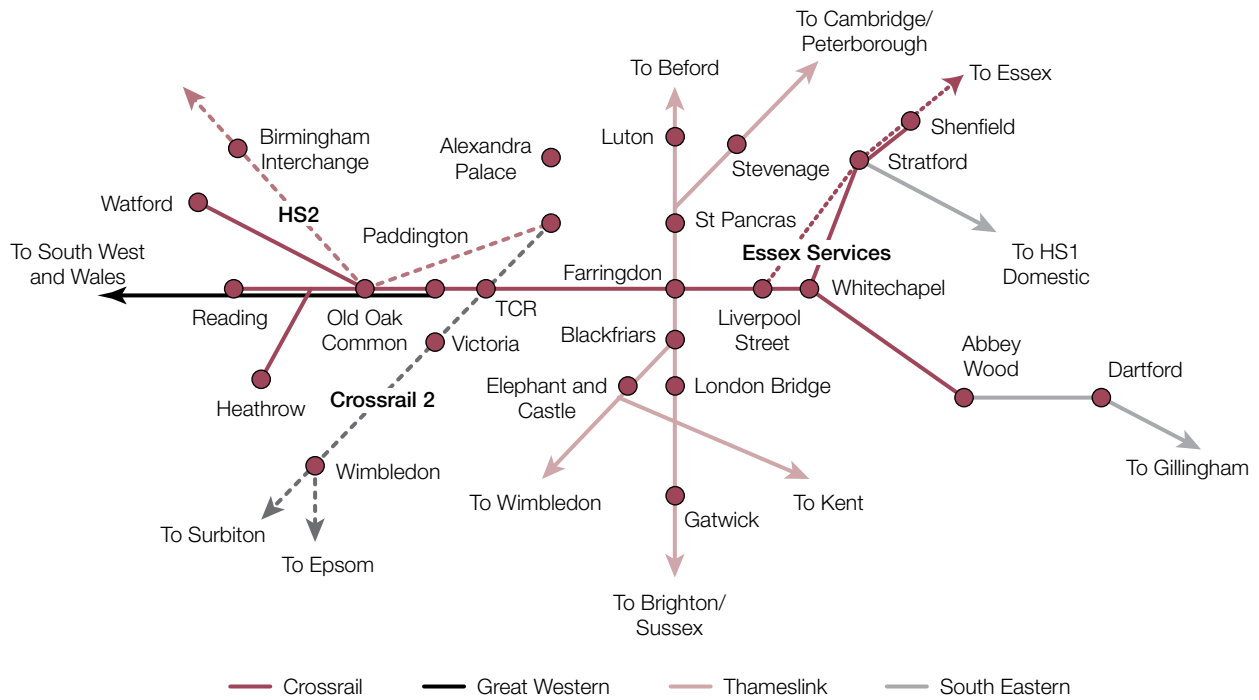
Better access to Heathrow from the west and south will open up opportunities for employees and local residents in 2030 when compared to 2012. The proportion of rail trips originating outside London is forecast to increase from 7 per cent to 35 per cent; including a jump from 2 per cent in the South East to 18 per cent using rail. There will also be improved resilience compared to today as with three main routes from Heathrow into central London if there is a problem on one it will be easier to redistribute demand between the other two services and improve the passenger experience of the service.

## Rail

Jacobs analysis found the surface access options proposed will present adequate capacity for non-airport rail users. New rail services will reduce demand for the Piccadilly line and increase resilience on the network. There will be fewer airport related passengers on the over capacity service. Forecast background and airport demand will be within the seated capacity threshold for all lines at most times of the day in 2030, but at peak times the Piccadilly line and Crossrail will exceed seated capacity. The Piccadilly line is forecast to be over capacity by 2030 without any airport expansion. This tube route is an important access point for employees in Ealing and Hounslow. These risks need to be taken into consideration when looking at the delivery of the airport capacity.

Crossrail will improve connectivity for passengers from outside London by serving intercity and commuter stations, such as Farringdon (Thameslink) and Stratford (HS1). Passengers from Sussex will see reduced journey times. Crossrail rolling stock is primarily designed for commuter so local users of this line will benefit from the high occupancy layout and it will offer cheaper fares than the Heathrow Express service (as it is part of the TfL route network).

**Figure 32: Schematic map of improvements in connectivity due to Crossrail**



Western rail access adds connectivity and reduces journey times for large areas west of Heathrow, including many residents of the assessment area. Employees travelling from Slough and Maidenhead would benefit from direct rail access to Heathrow for the first time, as well as better connectivity to Reading and Oxford, two important growth cities. Connections from Reading would also provide an alternative interchange point to London for cross country services. Fares between Reading and Waterloo will also be cheaper than the current Paddington service. For example a fare from Reading to Heathrow is estimated to be £43 via Heathrow Express but only £13 via Western Rail Access.

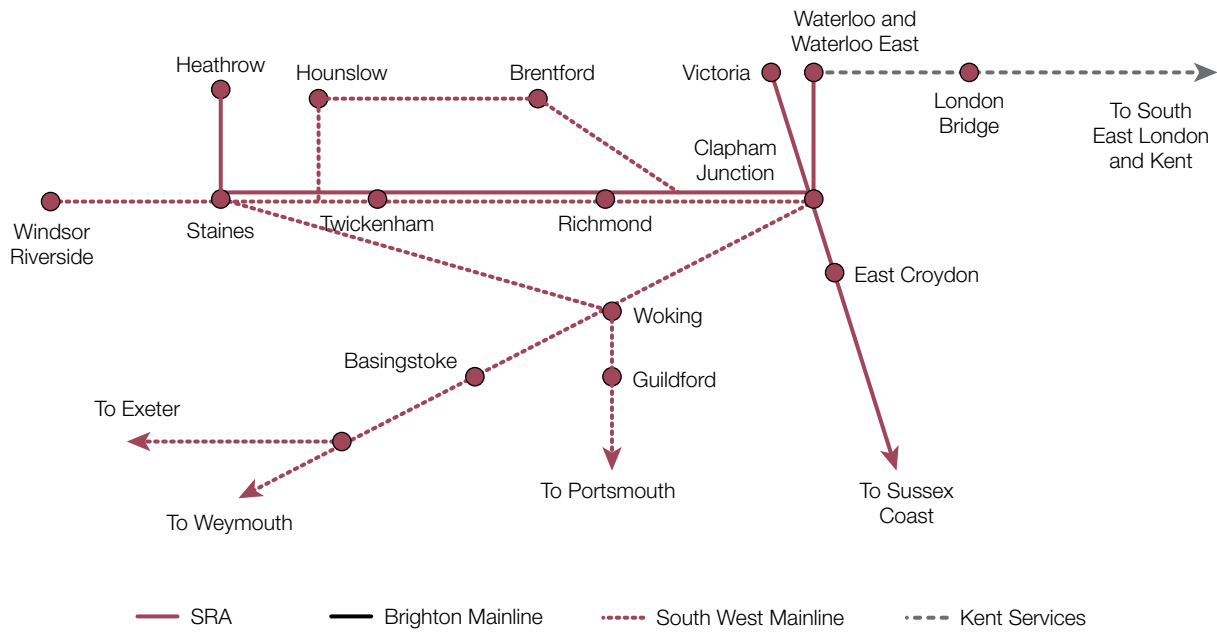


**Figure 33: Schematic map of improved Connectivity due to Western Rail Access**



With Southern Access linking Staines to Heathrow there will be benefits to employees and residents of this area travelling to the airport and in South West London. It will also open up opportunities for those west of London to get to Richmond, Clapham Junction and Waterloo directly, in much shorter times. The service between Staines and London is predicted to be very busy at peak times and operate over seated capacity by 2030 (between 95 per cent and 191 per cent). There could be some conflict with commuting passengers for seats. Southern Rail Access is likely to be popular with employees from nearby areas who could access the airport directly or with a single interchange at Staines.

**Figure 34: Schematic map of improved Connectivity due to Southern Rail Access**



## Journey Times

### Rail

The table below shows the shortest possible rail clock times with the new surface access in 2030, from a number of districts with high public transport flows to Heathrow in 2013. The changes shown reflect when the transport schemes in the baseline would come into effect. As seen in the table, the standard rail changes in particular show significant reductions in journey times such as an improvement of over 40 minutes from Reading due to the Western Rail Access to Heathrow scheme.

**Table 40: Comparison of minimum clock times from key districts to Heathrow in 2013 and 2030**

District	Representative station	Heathrow 2012			Heathrow 2030			Difference		
		Standard Rail	Tube	HEX	Standard Rail	Tube	HEX	Standard Rail	Tube	HEX
<b>Heathrow Assessment Area</b>										
Hillingdon	Hatton Cross	95	7	58	56	7	61	-39	0	3
Richmond upon Thames	Richmond	85	54	50	41	54	49	-30	0	-1
Harrow	South Harrow	106	50	84	53	50	88	-53	0	4
Hounslow	Hounslow Central	79	14	54	55	14	57	-24	3	-1
Ealing	Acton Town	58	27	57	34	27	60	-24	0	3
Reading	Reading	82	86	61	41	86	54	-41	0	-7
<b>Gatwick Assessment Area</b>										
		Standard Rail	Tube	HEX	Standard Rail	Tube	HEX	Standard Rail	Tube	HEX
Croydon	East Croydon	122	85	98	77	88	80	-45	3	-18
Brighton and Hove	Brighton	157	125	134	121	125	110	-36	0	-24
Crawley	Crawley	134	105	110	117	105	110	-17	0	0

## Road

Jacobs's analysis concluded that the surface access proposal presents adequate capacity for user by other road users. A third runway at Heathrow only marginally increases traffic on the strategic Road Network in an already constrained system, primarily because of a switch in mode share to public transport and higher car occupancy predicted for employees. Background demand is by far the majority of 2030 demand, with the exception of roads directly serving the airport such as the M4 spur. The reduction in mode share for car trips from Surrey actually increases in 2030 compared to 2012 due to improvements in public transport.

There may also be some very localised road impacts around the airport itself. However detailed analysis has not been undertaken to estimate traffic flows on local surface roads around the airport.

## Sensitivity Tests

As with all the short-listed airport expansion options, the initial basis of the analysis for a new North West Runway at Heathrow was the scheme promoter's own forecasts. Sensitivity tests were undertaken using the headline numbers from two of the Commission's demand scenarios. These tests resulted in significantly increased numbers of passengers arriving and departing at Heathrow during the peak hour in 2030 when compared with the HAL submission forecasts.

The HAL numbers indicate that the net surface access impact of a new North West Runway would effectively amount to an additional 13.7mppa in 2030 (a total of 103.6mppa in the three-runway scenario less 82.5mppa in the two-runway scenario, assuming that 35% of all passengers in both scenarios are interliners). Comparing this against the carbon capped *assessment of need* scenario there is a net surface access impact of 10.4 mppa (109.3mppa with 32 per cent interlining with three runways, less mppa 84.9mppa with 24.7 per cent interlining with two runways).

Overall the impact of the the carbon capped assessment of need scenario passenger levels show little change from the Extended Baseline with SRA assessment. No further rail or road packages would be required to support the new North West Runway under this scenario.

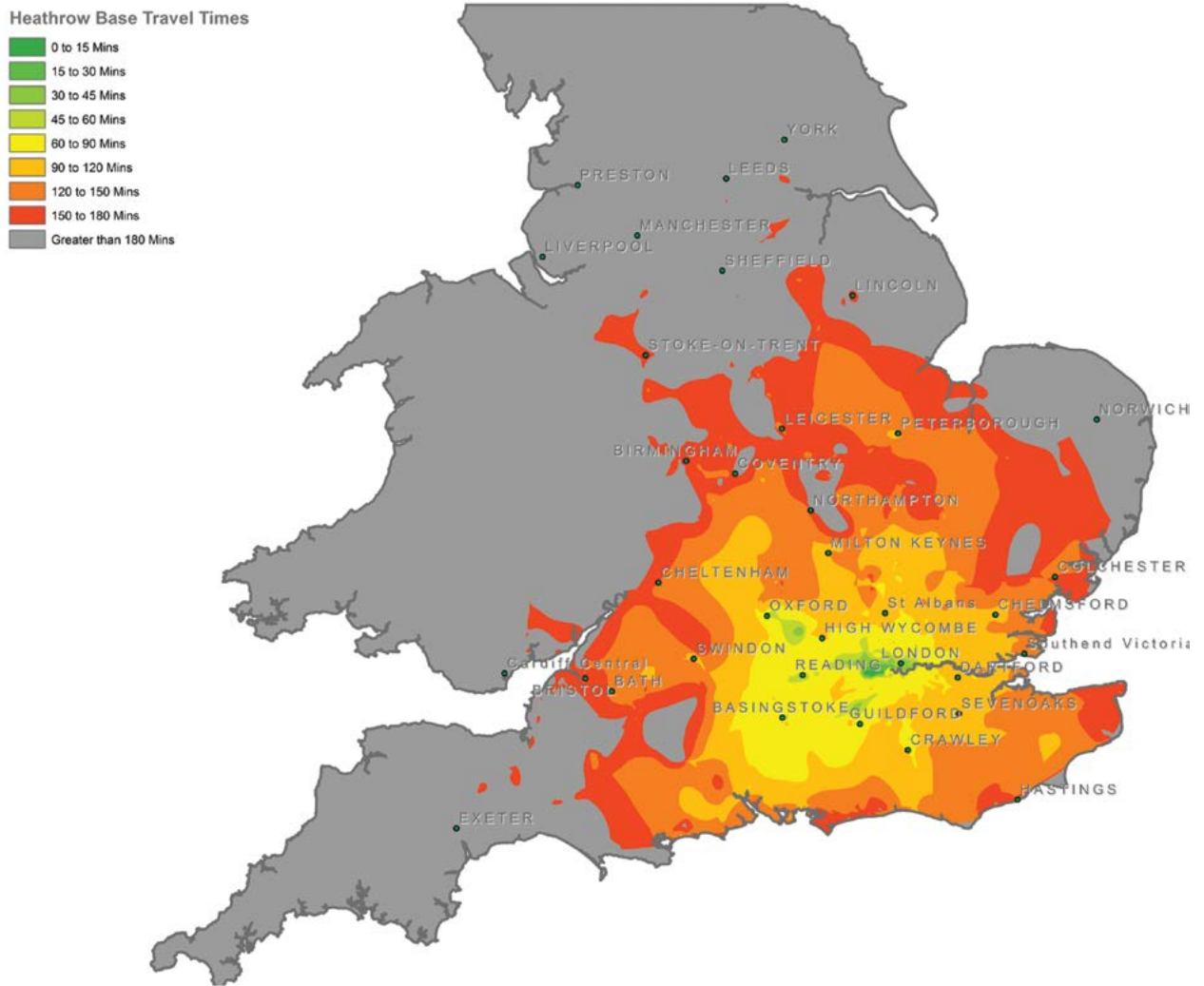
Under the carbon-traded *global growth* scenario, the Airports Commission forecasts a higher number of passengers impacting surface access. This increases the overall number of airport related rail flows but in relation to the overall rail demand, this is a relatively small effect. Therefore the rail demand would still operate in a similar manner to the baseline, with all sections predicted to operate within crush capacity or in line with the Jacobs scenario in 2030. Overall although the busiest sections of the road and rail sections are predicted to get busier in this scenario, no further new infrastructure schemes are required.

A further sensitivity test was completed on the impact of changing the pricing structure of the Heathrow Express (HEX) to match the Oyster Card fare level. This would triple HEX's share of rail traffic to the airport and provide a more balanced rail usage in terms of Crossrail, the Piccadilly line and HEX. Although airport passengers remain a small proportion of overall passengers, the price change is predicted minimally reduce some congested services. Overall, however, the impact shows little change compared to the baseline.

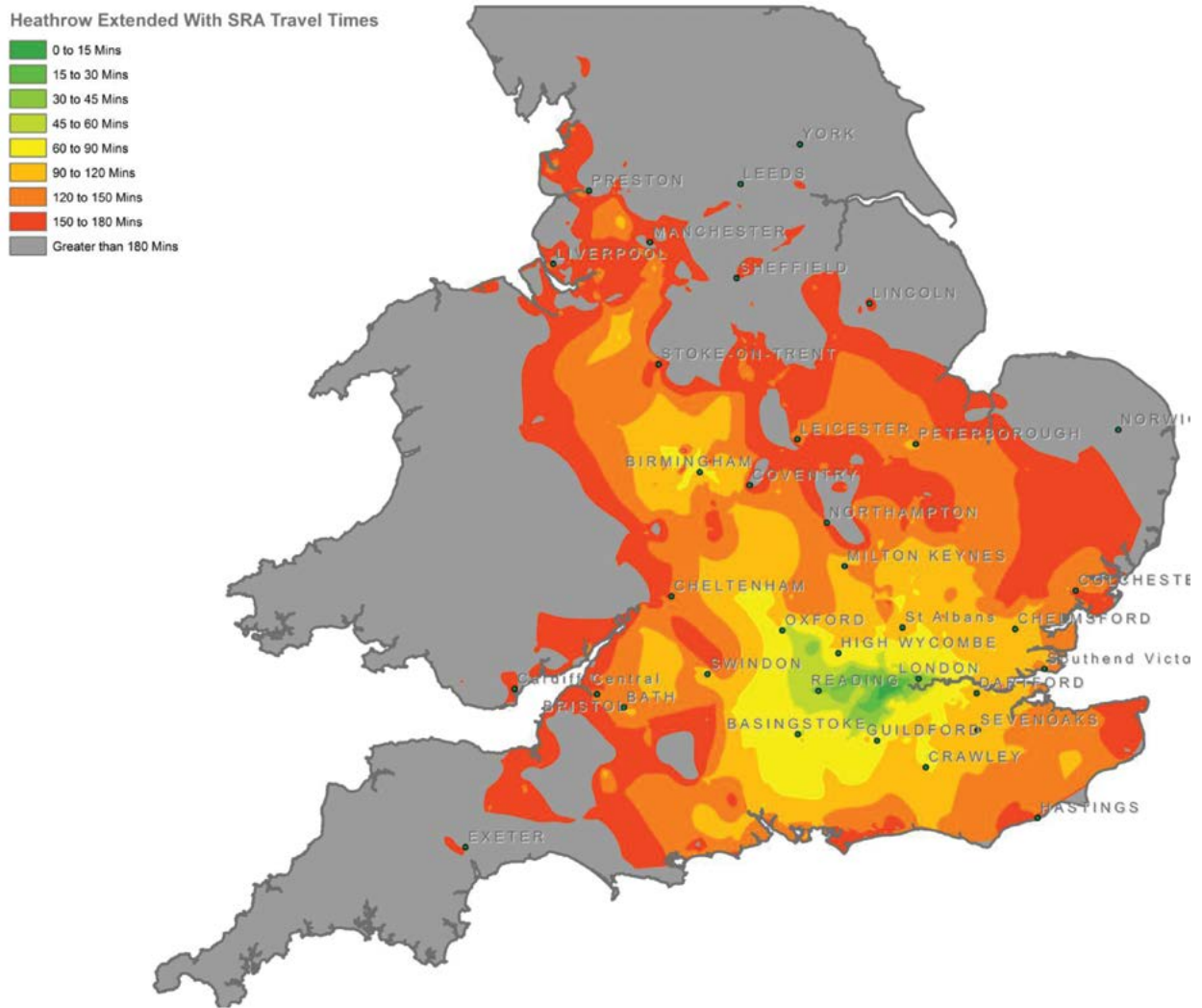
## Accessibility

The map below shows the accessibility by travel band isochrones from Heathrow Airport for the base year and the Extended Baseline with Southern Rail Access in 2030 respectively. The figures show large improvements in accessibility to the North and West due to the WRA (and HS2) in accessing Heathrow.

**Figure 35: Map of Baseline Surface Access**



**Figure 36: Map of Assessment Surface Access**



## Heathrow Hub Limited (HH)

Full details of the surface transport baseline and assessment can be found in the Surface Access module reports. The surface transport baseline is:

1. Heathrow Express: continues to provide 4 trains per hour (tph)
2. LU Piccadilly Line: 18 tph by 2030
3. Crossrail: 4 tph between Heathrow and central London
4. Western Rail Access: rail link between Reading and Heathrow with 4 tph planned
5. HS2: connection from Old Oak Common to Heathrow. Heathrow Express and Crossrail expected to connect Heathrow to Old Oak Common, allowing effective interchange between airport rail and high speed services.

The additional package assessed includes:

1. Southern Rail Access: planned service linking Heathrow to Staines with 4tph.
2. Crossrail: increased frequency of 6tph

The key road schemes included in the assessment are:

1. M25 tunnelling to give four separate bores between M25 J13 and J15 (6 full time lanes in either direction)
2. Southern Road Tunnel to Heathrow East
3. Improved access from J13 M25 and A4

This assessment assumes the provision of an ‘on-site’ surface access package for the Heathrow Extended Northern Runway Scheme. Heathrow Hub Ltd has proposed as an alternative the provision of a new hub station on the Great Western Main Line to the north of the airport. Heathrow Hub Ltd believe that the journey time benefits associated with this hub station could result in £2.2 billion of benefits, with the associated agglomeration and efficiency being much higher, in the region of £5 billion to £10 billion. The Commission’s analysis of the hub station proposal is set out in the report, *Appraisal Framework Module 4: Surface Access – Heathrow Airport Hub Station Option*.

The surface access baseline takes a passenger forecast of 82.5 million passengers in 2030 in the baseline with 72,100 employees. This compares to Commission forecasts of 83-88 million in 2030 and a forecast of 60,000 – 87,000 employees. Therefore the baseline is broadly comparable in both. The surface access assessment takes a forecast of 104 million passengers and 90,000 employees in 2030 with a new runway. The Commission passenger forecasts range from 132-149 million, considerably higher than the scheme

promoters own assessment. The number of employees is estimated to be between 61,000 and 134,000.

Employee commuting mode share is assumed to be 43 per cent public transport and 47 per cent private vehicles in 2030. The geographic distribution of employees are assumed to be in line with current travel patterns and so the mode share remains relatively stable.

Overall better access to Heathrow from the west and south will open up opportunities for employees and local residents in 2030 when compared to 2012. The proportion of rail trips originating outside London increases from seven per cent to 35 per cent; including a jump from two per cent in the South East to 18 per cent using rail. There will also be improved resilience compared to today as with three main routes from Heathrow into central London if there is a problem on one it will be easier to redistribute demand between the other two services and improve the passenger experience of the service.

## Rail

Jacobs's analysis found the surface access options proposed will present adequate capacity for non-airport rail users. New rail services will reduce demand for the Piccadilly line and increase resilience on the network. There will be fewer airport related passengers on the over capacity service. Forecast background and airport demand will be within the seated capacity threshold for all lines at most times of the day in 2030. At peak times the Piccadilly line and Crossrail will exceed seated capacity. The Piccadilly line is forecast to be over capacity by 2030 without any airport expansion. This tube route is an important access point for employees in Ealing and Hounslow. These risks need to be taken into account when looking at the delivery of the airport capacity.

Rail journey times to an expanded Heathrow Airport are set out in Table 40 above, and connectivity improvements due to Crossrail, Western Access and Southern Access are shown in Figures 32–34.

Crossrail will improve connectivity for passengers from outside London by serving intercity and commuter stations, such as Farringdon (Thameslink) and Stratford (hs1). Passengers from Sussex will see reduced journey times. Crossrail rolling stock is primarily designed for commuter so local users of this line will benefit from the high occupancy layout and it will offer cheaper fares than the Heathrow Express service (as it is part of the TfL route network).

Western rail access was modelled without background flows, however it would be expected that services to Reading would be attractive to non-airport users too and the increased frequencies offered by Heathrow's expansion would benefit them. This scheme improves connectivity and reduces journey times for large areas west of Heathrow,



including many residents of the assessment area. Employees travelling from Slough and Maidenhead will benefit from direct rail access for the first time, as well as better connectivity to Reading and Oxford, two important growth cities. Connections from Reading also provide an alternative interchange point to London for cross country services. Fares between Reading and Waterloo will also be cheaper than the current Paddington service. For example a fare from Reading to Heathrow is estimated to be £43 via Heathrow Express but only £13 via Western Rail Access.

With Southern Access linking Staines to Heathrow there will be benefits to employees and residents travelling to the airport and around South West London (with direct services to Richmond, Clapham Junction and Waterloo). The service between Staines and London is predicted to be very busy at peak times due to the high number of commuting passengers. However overall Southern Rail Access is likely to be popular with local residents and employees from nearby areas who could access the airport directly (or with a single interchange at Staines) and benefit from improved connectivity to central London.

## **Rail**

Jacobs forecast a net impact of 2,400 additional rail trips in the peak AM to Heathrow in 2030 and 1,400 leaving the airport. This demand was added to background demand forecasts developed with Network Rail and Transport for London and then compared with total capacity estimates. The analysis shows that the network is likely to have sufficient capacity to accommodate forecast demand, including background demand from residents and employees in the local area.

The introduction of Crossrail and Southern Rail Access mean the pressure on the Piccadilly line from additional passengers will not be severe (up to 10 per cent total demand on busiest sections) although background patronage is high so the seated capacity on most of the line is exceeded. Crossrail reduces journey times and interchanges for many outside of London, including Sussex which falls within Gatwick's assessment area.

## **Sensitivity Tests**

The HAL forecast was used as the central scenario in this study, in line with the approach adopted for all the short-listed expansion options of using scheme promoter forecasts (where available) as the initial basis of the analysis. Two sensitivity tests were carried out using the passenger numbers from the Commission's demand scenarios, and an additional sensitivity test assessed the impact of the removal of the premium fare for the Heathrow Express (HEX) rail service.

Under the carbon-traded *global growth* scenario, the Airports Commission forecasts a higher number of passengers. This could increase the overall number of airport related rail

flows but in relation to the overall rail demand, this is a relatively small effect. Therefore the rail demand would still operate in a similar manner to the baseline, with all sections predicted to operate within crush capacity. Although the busiest sections of the road and rail sections are predicted to get busier in this scenario, no further new infrastructure schemes are required.

A sensitivity test was also completed on the pricing structure of the Heathrow Express (HEX) which is not expected to change in the baseline. If prices were set at Oyster Card level, this would triple HEX's share of rail traffic to the airport and provide a more balanced rail usage in terms of Crossrail, the Piccadilly line and HEX. Although airport passengers remain a small proportion of overall passengers, the price change is predicted to minimally reduce some congested services. Overall, however the impact shows little change compared to the baseline.

## Conclusion

### **Gatwick**

The improvements to Gatwick Airport's surface access planned under the 'do minimum' are expected to accommodate the additional passengers estimated under a second runway scheme. However there is little difference in journey times associated with the expected improvements in surface transport so no benefits to local residents or the local economy anticipated beyond the 'do minimum' baseline.

### **Heathrow**

Under either expansion proposal at Heathrow, the number of surface transport passengers associated with the airport is expected to increase, along with additional users not associated with the airport. Under the 'do minimum' scenario, the planned improvements to the local transport network, particularly rail, result in some significant journey time reductions. This will provide increased benefits of connectivity to those near these routes, reducing travel to work time considerably. This benefit is particularly felt through the improvements of Western Rail, where residents located along the line, see increased opportunities. Also the increased number of travel options improves the resilience of the travel system.

# 3. Housing and social infrastructure

The purpose of this chapter is to assess the impact that an expanded airport would have on housing and social infrastructure needs in the surrounding local area. Local plans have been reviewed and historic and forecast data analysed. The assessment looked at housing provision, affordability and densities in the area in 2030 and then calculated the housing need based on the likely additional labour demand set out in **Chapter 1**.

There are inherent interactions between businesses, labour and housing markets, which will determine the house prices, business rates and the existing labour pool in the area. Although major swings in any of these variables due to airport expansion are not expected, any changes will be reflected in the responses of the players. For instance, if housing supply remains constrained in the areas near the airport and leads to an increase in house prices, employees could choose to move away from the immediate neighbourhoods. Furthermore, while airport expansions are often associated with stimulating housing demand from an influx of new workers, the negative externalities associated with airports such as noise may make the area less attractive and dampen housing demand.<sup>87</sup> This being said, it is unlikely within the areas we are considering that these effects will balance out, particularly with the present high land demand and considering that people may also consider moving into the area due to the improved surface transport (see **Chapter 2**).

## Gatwick

### Baseline housing provision

Before considering potential future need scenarios due to airport expansion, it is important to derive a baseline of housing and social infrastructure provision in the assessment area without airport expansion.

A review of local authority plans indicated that many authorities expect to face challenges in providing sufficient housing provision by 2030, even in the absence of airport expansion. This is a result of a combination of factors – growth from within the current population, changes in household sizes and numbers, and in-migration from neighbouring areas and elsewhere in the country. All local authorities within the Gatwick Diamond plan to increase baseline housing stock. For example, between Tandridge<sup>88</sup> and Croydon,<sup>89</sup> local authorities

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87 PwC (Oct 2014) Airports Commission Local Economy Impacts Literature Review, pg ??

88 Tandridge Borough Council (2009) Tandridge core Strategy, pg. 18

89 Croydon Borough Council (Apr 2013) Croydon Local Plan: Strategic Policies, pg. 18

plan to meet the demand for 125 to 1,000 additional homes per annum in the next 15 to 20 years. Together Mole Valley,<sup>90</sup> Mid Sussex, Tandridge and Croydon plan to build about 1,900 additional homes per annum to 2031.

Boroughs outside of the Gatwick Diamond share similar core housing pressures, and are developing strategic plans to increase housing stock in the short to medium-term. Adur's 2011 Housing Needs Study indicates a need to provide 270 new homes per year between 2011 and 2028,<sup>91</sup> and Wealden Council has plans to provide around 9,440 dwellings between 2006 and 2027.<sup>92</sup> As for the London area in general, the London Plan outlines targets for increasing London's supply of housing: a minimum figure of 30,500 additional homes per year in a scenario without airport expansion, although much of this development will take place outside of the Gatwick assessment area, rendering the impact of increases in housing provisions – such as the need for land, social services and access to transport modes – quite limited on these particular local authorities.<sup>93</sup> However it provides a useful benchmark for the additional housing need calculated here.

## Additional Housing Need

In order to consider the potential maximum need for additional housing in 2030 as a result of airport expansion, we have used the figures for the range of additional employees in the local area. There are many reasons why the additional housing required is unlikely to be as high as these figures, depending on the assumptions we make about population growth, net migration, unemployment and commuting. This is explained in more detail in the following sections. However it is helpful to consider the worst case in terms of housing provision to assess the potential risks associated with this scenario.

The table below sets out the potential number of new households assuming one worker is resident per household and the proportion of employees living in the assessment area remains the same as in today, with 79 per cent direct employees and 87 per cent indirect and induced employees living in the 14 local authorities considered.

<b>Table 41: Additional households required upon expansion</b>		
<b>2030</b>	<b>Low</b>	<b>High</b>
Total additional direct households	0	13,500
Total additional households	0	18,400
Gatwick Airport Limited	8,100	9,300

90 Mole Valley Borough Council (Oct 2009) *Mole Valley Local Development Framework*, pg. 25-26

91 Adur Borough Council (2012) Draft Adur Local Plan

92 Wealden District Council (Feb 2013) *Core Strategy Local Plan*, pg. 5

93 Greater London Authority (Oct 2009) *The London Plan*, pg. 64

Although at first sight these numbers appear quite large at the high end, they will typically be provided in a phased manner and across the entire assessment area, so the demands on an individual local authority are likely to be relatively small. For example, if we assume these properties are provided over a 10 year period (2020 – 2030) and split evenly across the 14 local authorities<sup>94</sup> (which of course is unlikely in reality but a reasonable assumption to make at this point), then the additional annual housing need for each LA is up to 130 homes per year at the high end. The likelihood is that the additional housing need will fall between the two extremes.

Gatwick Airport Limited's assessment estimates that an additional runway would generate demand for an additional 9,300 households (based on 22,000 additional jobs and zero net migration) or about 5 per cent additional growth over current trends to 2050. Similar to the Commission analysis at the individual LA level, the figure proposed by Gatwick Airport Limited would have a limited impact. Gatwick Airport Limited have outlined compensation to those impacted should the expansion go ahead, including property values (either existing use or development value), disturbance & reinvestment costs (including the movement of a residential occupier or business including businesses that may close), loss payments and fees (including surveyors, legal fees).

Using the assumption of one worker per household, housing projections provided by DCLG, and population projections by ONS, we have calculated the expected household projections in the baseline. As demonstrated in the table below, we expect the number of households to grow across all local authorities up to 2030. The additional housing required as a result of airport expansion is on average 1,300 homes per local authority. To take an example, Crawley are forecasting a 7 per cent in households in the baseline from 48,700 in 2020 to 52,500 in 2030; an additional 1,300 homes in 2030 would only increase this to a 10 per cent rise. Furthermore, this is the highest number anticipated for all additional households including housing need created from direct, indirect and induced jobs expected to be delivered over a decade. These estimates are based on a range whereas in reality the number of homes required would be likely to fall between these ranges.

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<sup>94</sup> Epsom and Ewell is not included in the housing assessment due to a lack of data

**Table 42: Household Projections (Thousands)<sup>95</sup>**

	2020	2030
Crawley	48.7	52.2
Epsom and Ewell	32.9	35.5
Horsham	61.3	64.8
Mid Sussex	62.4	65.9
Mole Valley	39.4	41.8
Reigate and Banstead	64.0	69.8
Tandridge	37.2	39.9

Source: DCLG

Although many local authorities currently struggle to meet their housing provision targets, it is clear the additional housing required is not of the scale which is likely to constrain the areas, development or require transformational policies to be achieved. We do acknowledge that some areas, housing targets are more achievable than others as noted by the percentage of dwellings completed. It is also important to highlight that this is a worst case assessment for the number of new homes required as in reality, it is expected some new employment opportunities could be taken up by local people, potentially decreasing out-commuting for work of the local population.

**Table 43: Percentage of dwellings completed (2013/2014)<sup>96</sup>**

	Dwellings started	Dwellings completed	All (%)
Adur	90	60	66.7
Arun	550	320	58.2
Brighton and Hove UA	370	240	64.9
Crawley	120	140	116.7
Croydon	1960	1530	78.1
Eastbourne	70	200	285.7
Epsom and Ewell	120	200	166.7
Horsham	980	730	74.5
Lewes	60	80	133.3
Mid Sussex	..	..	#N/A
Mole Valley	140	70	50.0
Reigate and Banstead	450	500	111.1
Tandridge	180	130	72.2
Wealden	690	670	97.1
Worthing	310	80	25.8

Source: Neighbourhood Statistics

<sup>95</sup> These housing projections were provided by Department for Communities and Local Government forecasts up to 2021, and have then been extended using the population forecasts up to 2030.

<sup>96</sup> This data comes from Department for Communities and Local Government 2013/2014

## Increased economically active population

**Table 44** below shows the forecasts for total population and working age population in 2030 across the assessment area local authorities. The total population is expected to be 84,000 higher in 2030 than 2012, although the pool of economically active workers on which to draw could be smaller (15,800 fewer at our low end) or could see many more workers in the area in the baseline (288,000 at the high end of our estimated range). Indeed given the range, the economically active population would probably be larger than today.

<b>Table 44: Estimated working population in 2030</b>			
<b>2030</b>	<b>Population 16-69 (000)</b>	<b>Low estimate working population (60%) (000)</b>	<b>High estimate working population (80%) (000)</b>
Adur	44.4	26.6	35.5
Arun	104.7	62.8	83.8
Brighton and Hove	230.2	138.1	184.2
Crawley	88.2	52.9	70.6
Croydon	283.5	170.1	226.8
Eastbourne	70.1	42.1	56.1
Epsom and Ewell	60.2	36.1	48.2
Horsham	92.7	55.6	74.2
Lewes	71.3	42.8	57.0
Mid Sussex	101.9	61.1	81.5
Mole Valley	60.2	36.1	48.2
Reigate and Banstead	112.9	67.7	90.3
Tandridge	61.8	37.1	49.4
Wealden	102.2	61.3	81.8
Worthing	78.5	47.1	62.8
<b>Total</b>	<b>1518.4</b>	<b>911.04</b>	<b>1214.72</b>
Difference 2012-2030	<b>84</b>	<b>-15.8</b>	<b>287.9</b>

Source: DCLG

There is potential for the natural growth of population in the area, combined with an increase in the economic activity rate, to provide enough workers to fill all the additional jobs at the airport without any increase in housing provision. But it is extremely difficult to predict what share of future jobs will be Gatwick related so no reduction in inward migration is included in the core housing assessment to reflect a worst case.

## Reduced unemployment

The expansion of Gatwick airport could provide opportunities for unemployed local residents to take up new roles and the creation of these additional jobs could increase the local supply of labour if it encourages residents to switch away from jobs outside the local

area. The ability of the unemployed to be matched to a job at the airport is made more likely when we consider the typical skills profile of airport employees as being fairly low skilled. However for those out commuting to switch would require suitably skilled jobs to come as a result of expansion potentially from the induced or catalytic jobs. Although it is not possible to forecast the number or characteristics of the unemployed in 2030, it is possible to use current and historic evidence to estimate the broad scale. The unemployment rate was 5.1 per cent across the Gatwick Diamond authorities which is relatively low compared to the London average of 6.9 per cent.

### **Reduced out-commuting**

Out-commuting in the local authorities around Gatwick airport is high with over 100,000 people commuting outside their local authority, many to London. If there were less out-commuting, this would reduce pressure on local housing and services.

### **Accommodating additional housing development**

Many local authorities foresee housing pressures due to population growth and changing household patterns, regardless of airport expansion and the potential influx of new workers it could bring. For example Croydon aimed for a target of 27,000 additional new dwellings by 2013, which they did not achieve, only building 20,200 homes due to limited land available for development.<sup>97</sup> Limited supplies of land exist for new homes without eroding the Metropolitan Green Belt, Metropolitan Open Land and locally protected open spaces, leading Croydon's local authority to plan for 7,300 homes in the borough's Opportunity Area, with a further 5,600 homes to be built outside of this area.

The physical location of housing developments has been considered at length by the local authorities surrounding Gatwick airport in their strategic plans. Crawley, the authority most dependent on the airport for local employment, has identified its town centre as a location for long-term residential developments.<sup>98</sup> Developing urban areas and brownfield sites for housing provisions is by no means unique to Crawley, but is a common stratagem practiced by local authorities in the Gatwick region and beyond.

### **Development of brownfield land**

The table below shows the increasing popularity of brownfield redevelopment for housing within the Diamond over recent years which is especially supported by current government policy. In its local plan, Horsham sets itself a target for just over 4,000 dwellings to be provided on previously developed land, equating to 48 per cent of the proposed new

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97 Croydon Borough Council (Apr 2013) *Croydon Local Plan: Strategic Policies*, pg. 17

98 Croydon Borough Council (Oct 2013) *Core Strategy*, pg. 82



homes in the district by 2018.<sup>99</sup> Epsom and Ewell has a similar approach with the majority of its 181 new dwellings per annum target set for location on previously developed land, as outlined in their 2007 core strategy. Adur has two options for development to take place between the years 2011 and 2028, providing up to 2,835 dwellings and seeking to achieve growth and regeneration by developing urban areas and greenfield sites on the urban fringe.<sup>100</sup>

Local Authority	1996-1999	2000-2003	2004-2007	2008-2011
Crawley	24	69	60	76
Epsom and Ewell	93	94	95	86
Horsham	31	57	69	69
Mid Sussex	33	76	58	55
Mole Valley	87	85	90	85
Reigate and Banstead	79	85	95	60
Tandridge	72	92	90	79

Source: Neighbourhood Statistics

There is some scope for future housing provision to involve reuse of previously developed land though over the next 35 years it may become more difficult and expensive to bring more land back into residential use if local authorities continue to target brownfield land for housing provision. Although it has been encouraged by central government for years, particularly in relation to increasing housing density, it is also dependent on future government strategy in this area to some degree, so it would be unwise to entirely count on brownfield land being available to accommodate all new households.

## Empty homes

Empty homes statistics for the Gatwick Diamond boroughs show that the average percentage of empty dwellings is slightly above 2 per cent; a figure which has been consistent for these boroughs over the past half-decade. The average long-term empty dwelling statistic – between 0.5 per cent and 1 per cent – is also consistent during this time frame. Vacant dwellings therefore offer only limited scope for housing provision, particularly as the actual figure is likely to be somewhat lower when taking into account the suitability of vacant units in terms of the type of building and accessible transport links.

<sup>99</sup> Horsham Borough Council (2007) Horsham District Local Development Framework: The Core Strategy, pg 14

<sup>100</sup> Adur Borough Council (2012) *Draft Adur Local Plan*, pg 35-36

**Table 46: Empty Homes**

2013	Total Dwellings	Total Empty	% Empty	Long Term Empty	% Long Term Empty
Crawley	42,801	485	1.13%	47	0.11
Epsom and Ewell	30,649	545	1.78	210	0.69
Horsham	56,624	1,216	2.15	369	0.65
Mid Sussex	59,170	1,301	2.20	442	0.75
Mole Valley	36,678	805	2.19	240	0.65
Reigate & Banstead	57,735	1,289	2.23	537	0.93
Tandridge	35,037	833	2.38	275	0.78
<b>Total</b>	<b>45,528</b>	<b>925</b>	<b>2.01</b>	<b>303</b>	<b>0.65</b>

Source: Neighbourhood Statistics

### Increasing Housing density

Some local authorities around Gatwick are considering plans which will lead to increased housing densities, especially in the light of low densities compared to central London. Reigate and Banstead, for instance, outline a number of ways in which they plan to restrain spatial development, including the maintenance of Green Belt to prevent the outward spread of existing settlements, and the allocation of land for only modest increases in housing stock. Land scarcity in the Adur district has led the council to target densities of a minimum of 35 dwellings per hectare and development in defined town/village centres, which is expected to achieve higher densities.<sup>101</sup> Dwelling density figures remain comparatively very low in the boroughs surrounding London compared to London itself, particularly in the Gatwick region, as demonstrated by the table below. Indeed aside from Crawley and Epsom & Ewell where it is mostly urban area, the rest of the Diamond Authorities are fairly rural as demonstrated by the low number of dwellings compared to land.

<sup>101</sup> Adur Borough Council (2012) Draft Adur Local Plan, pg. 110

	Total Dwellings	Total land area (ha)	Dwellings per hectare of land
Crawley	42,622	45.2	0.943
Epsom and Ewell	30,319	34.1	0.888
Horsham	56,243	530.4	0.106
Mid Sussex	58,117	334.	0.174
Mole Valley	36,684	258.1	0.142
Reigate and Banstead	57,197	129.3	0.442
Tandridge	34,870	247.9	0.141
LONDON	3,364,839	1596.2	2.108

Source: DCLG London Neighbourhood Statistics

Thus, local authorities could act to increase housing density, providing more homes on the same footprint and therefore accommodating most of the expected growth without increasing the amount of land required or elevating densities to levels regarded as ‘high’.

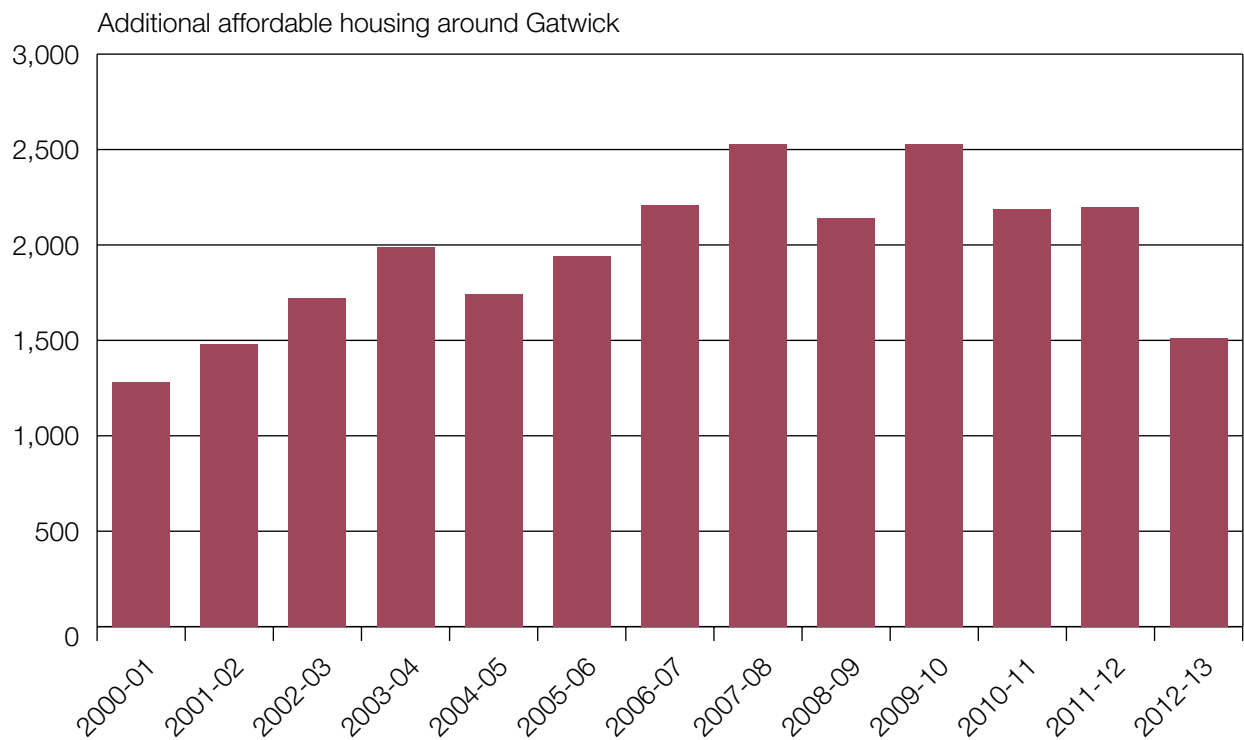
## Affordability

Many local authority strategic plans focus heavily on the delivery of affordable housing which is a challenge for the area now, and this is likely to continue to be a big issue in 2030. The table below shows the gap between the demand and supply of socially rented homes, which is growing.

	2010-2011		2000-2001	
	All Households on the LA Register	LA Dwellings Let	All Households on the LA Register	LA Dwellings Let
Crawley	2,618	392	2,046	805
Epsom and Ewell	1,915	–	427	–
Horsham	1,197	–	1,154	265
Mid Sussex	3,165	–	1,407	–
Mole Valley	1,489	–	1,211	388
Reigate and Banstead	2,758	–	1,136	555
Tandridge	1,663	200	939	371

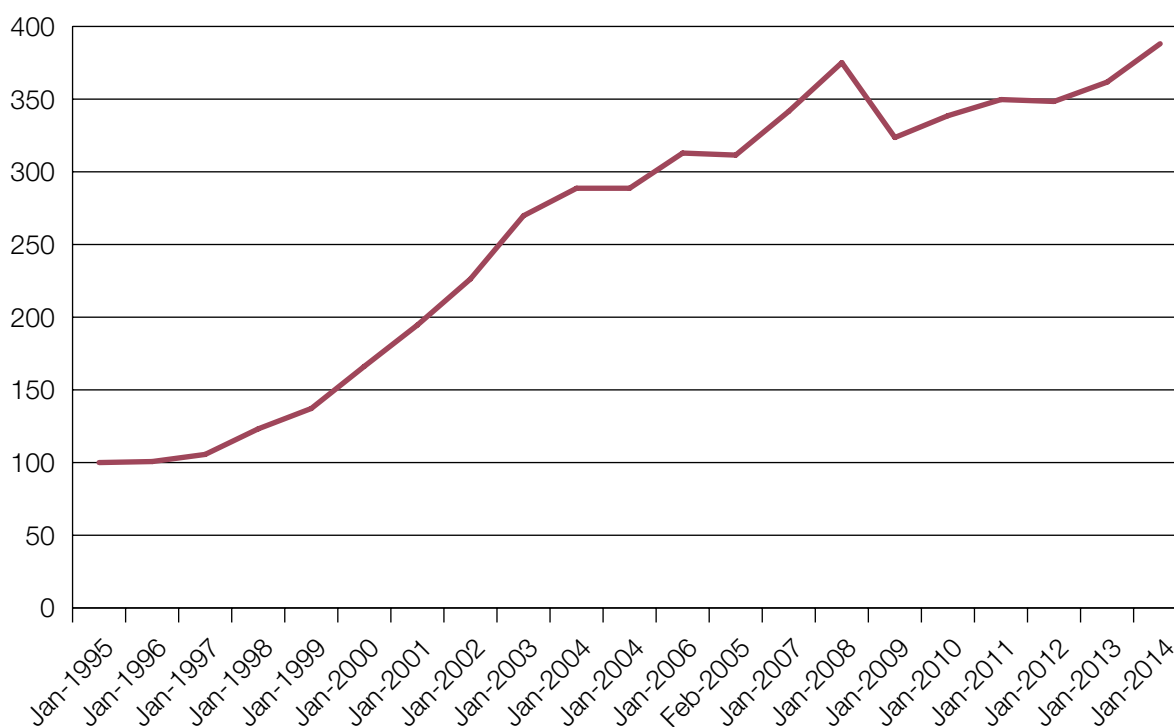
Source: Neighbourhood Statistics

**Figure 37: The provision of affordable housing over the past decade**



Source: Neighbourhood Statistics

Furthermore, the need for more affordable housing is rising due the increase in house prices (**Figure 38** below) without an equivalent increase in earnings, as seen in the significant increase in the median house price to earnings ratio in **Table 49** below across local authorities.

**Figure 38: House Price Index (January 1995 = 100)**

Source: Land Registry

**Table 49: Median house prices to earnings ratio**

	1997	2012	% change 1997 – 2012
Crawley	3.54	6.30	78
Epsom and Ewell	5.44	10.16	87
Horsham	4.77	10.19	114
Mid Sussex	4.16	9.43	127
Mole Valley	5.60	10.15	81
Reigate and Banstead	4.58	7.65	67
Tandridge	6.34	13.02	105
<i>Average</i>	<b>4.92</b>	<b>9.56</b>	<b>94</b>

Source: DCLG

Some local authorities such as Epsom & Ewell, Horsham, Mole Valley and Tandridge have ratios in excess of ten, meaning housing affordability is already under severe pressure in 2012. However, local authorities closest to the airport – the locations for which the majority of airport employees have historically resided – remain relatively more affordable compared to the other boroughs in the assessment area: Crawley, Croydon and Reigate and Banstead have all experienced slower increases in the ratio than the national average. Therefore housing within these authorities remains relatively affordable.

To remedy this, Croydon aims for 25 per cent of all new homes developed in the borough to be either affordable rented homes (homes which are up to 80 per cent market rent) or homes for social rent, as well as 10 per cent of intermediate affordable housing for low cost shared home ownership managed by a Registered Social Landlord.<sup>102</sup> Tandridge council plan to maximise the supply of affordable housing by requiring developments to ensure that up to 34 per cent of the dwellings will be affordable, taking the form of social rented, intermediate or a mix of both. It may require up to 75 per cent of the affordable housing on such sites to be social rented.<sup>103</sup> Adur's 2012 Housing Strategy sought to increase the number of affordable homes, setting itself the target of increasing affordable housing stock by 50 dwellings per annum.<sup>104</sup>

### **Case study: Olympic Boroughs**

It is of little surprise that the housing provision for residents by 2030 remains an ubiquitous issue across all boroughs, including those sharing the closest connections with Gatwick and Heathrow airports. Indeed, the same is true for boroughs throughout the wider London region and the South East in general. But that is not to say that the existence of housing and social infrastructure requirements equates to a 'show stopper' for airport expansion. There are many examples of similar situations forming the backdrop to large-scale infrastructure projects, with such projects nonetheless achieving great success; one example being that of the 2012 London Olympics.

The Olympic Park in the east of London was the location for one of the biggest and most ambitious regeneration projects in Europe, with the 246 hectare Olympic Park site centred on Stratford. Like most areas of the capital during the years preceding 2012, the East End of London – including the district of Stratford – suffered a dearth of housing, both affordable and otherwise. A core legacy objective of the Olympic Village was the creation of some 2,800 homes, ranging from one bedroom apartments to four bedroom townhouses, equipped with balconies, spacious terraces and gardens, centred on private courtyards with neighbouring public spaces. Such homes were set for delivery following the Games, achieved through the transformation of athletes' accommodation into the 'East Village'. The first homes occupied were of shared ownership status, enabling many Londoners to get a foot on the property ladder, as well as providing social and intermediate rented accommodation. Some 1,379 of these affordable properties were provided by Triathlon Homes, with Get Living London – a company privately renting homes on the Village site – providing a further 1,439 properties. This transition remains a key London 2012 legacy achievement with all homes in the former Olympic Village handed over and the sale of the Village to its long-term owners, although it must be noted that there were major delays in this process.<sup>105</sup>

102 Croydon Borough Council (Apr 2013) *Croydon Local Plan: Strategic Policies*, pg. 18

103 Tandridge Borough Council (2009) *Tandridge core Strategy*, pg. 24

104 Adur Borough Council (2012) *Draft Adur Local Plan*, pg 107

105 Village handover delays – <http://www.building.co.uk/olympic-village-handover-faces-further-delay/5066940.article>

### Case study: Olympic Boroughs continued

In addition, the legacy of the games goes well beyond the provision of housing. For example; previously contaminated land was cleansed and brought back into practical use; dozens of unsightly high-rise pylons were removed during the process of burying miles of cabling; not to mention the construction of world-class sporting venues within the capital city, for use by the local community and to stage major events. East Village also features a new Academy school and a Health Centre as well as other accessible services. The Olympics project led to the transformation of large areas of East London in addition to the creation of jobs and the instigator of huge investment in local transport such as to the London Underground with new tube stations such as Wood Lane along with upgrades to Stratford. The regeneration of East London was central to London's bid to host the London 2012 Games and the movement of residents into the East Village exists as proof that the Olympic Legacy continues to be delivered. There is some debate to the extent of this being associated with other elements such as Westfield Shopping centre which is also associated with increased employment in the area. The changes being assessed here are not of the same scale but this example serves to illustrate how much transformation can take place in an area in a very short space of time under the right conditions.

### Associated infrastructure

The need for additional housing provision to house the increase in residents in the area around the airport will also need to be supported by the provision of additional social infrastructure such as schools, hospitals and leisure centres. The Commission's assessment suggests that provision of additional housing will need to be supported by the provision of additional form entries in local schools and 2 additional GPs per local authority to 2030.

The additional number of schools in **Table 50** is calculated using the maximum number of potential households as stated previously. Using the national average sizes of school, a maximum of 25 primary schools will be required across all 15 local authorities as well as 3 secondary schools. This calculation uses very strong assumptions such as assuming that all students go to a standard state schools, the South East schools are the size of the national average and that none of the places will be available in current schools. Furthermore, the household number is likely to fall within the range rather than be the either extreme. Therefore, considering these implications, the social infrastructure required is within the capability of the local area.

<b>Table 50: Number of schools needed upon expansion</b>		
	<b>Total</b>	<b>Per local authority</b>
Number of primary school children	5,400	360
Number of primary schools required (national average school size 220)	24.5	1.6
Number of secondary school children	2,600	170
Number of secondary schools required (national average school size 950)	2.7	0.18

Source: GLA methodology

There is also likely to be a need for additional parks or open spaces. For instance, the Earl's Court Masterplan is based on the principle that all residential properties should be within 100 metres of an area of publicly accessible public green open space. The Mayor of London's Supplementary Planning Guidance on 'Providing for Children and Young People's Plan and Informal Recreation' suggests that play spaces should be provided very close to new properties.

Gatwick Airport Limited has pledged £46.5 million to help local authorities deliver essential community infrastructure based on their individual need for infrastructure to support the additional housing needed from expansion at Gatwick.

## **Conclusion**

The local authorities in the assessment area are all taking steps to increase housing provision to 2030 due to changing patterns of living, such as growing a demand for smaller, more numerous units of accommodation (such as flats), organic population growth or the result of positive net migration fuelled by increased jobs. They also recognise the need to provide affordable housing provision in local authority plans. The analysis of the housing required as a result of airport expansion indicates up to 18,400 more homes may be required by 2030. This amounts to up to 130 additional housing units per local authority per year. The scale of the change is unlikely to significantly increase the housing pressures further than the current local authorities' plans and between the entire area, the housing needs are manageable although it is acknowledged it will be easier in some authorities than others.



## Heathrow

### Baseline housing provision

Local authorities surrounding Heathrow airport are equipped with detailed short-to-medium plans to increase housing supply. This renders Heathrow's 'do minimum' baseline similar to that of Gatwick's. The resemblance is particularly evident for the five boroughs immediately surrounding the Heathrow airport: Hounslow, Hillingdon, Ealing, Slough and Spelthorne which have planned an aggregate housing provision of about 2200 homes per annum up to 2026. For instance, Hounslow borough council have set themselves a target of 12,300 new homes between 2015 and 2030,<sup>106</sup> 820 additional homes per year and the Greater London Authority's (GLA) 2011-2026<sup>107</sup> population forecast for Ealing suggests the need to provide 14,000 additional homes by 2026, primarily concentrated in the Uxbridge Road/ Crossrail corridor and the A40/Park Royal corridor.

The Royal Borough of Windsor and Maidenhead has experienced consistently high demand for housing over recent decades; as a consequence of its prosperous local economy and attractive location within the Thames Valley (close to London and other employment centres). The rate of house building over decades has not kept up with the substantial demand for housing. Housing provisions fell from an average of 280 dwellings per year in the period 1991-1996 to 190 dwellings per year in period 2001-2006.<sup>108</sup> Similarly high levels of demand have been felt in other boroughs located on the periphery of major employment centres. The South East Plan indicates that the borough of Reading needs to provide a total of 12,220 dwellings from 2006 to 2026.<sup>109</sup> Bracknell Forest borough council have identified a need for 10,780 new dwellings in the borough between 2006 and 2026, equating to an annual average of 539 dwellings.<sup>110</sup>

### Additional Housing Need

In order to consider the potential maximum need for additional housing in 2030 as a result of airport expansion, the estimated range of additional employees from Section 1 has been used. There are many reasons the additional housing required is unlikely to be as high as these figures, depending on the assumptions we make about population growth, net migration, unemployment and commuting. This is explained in more detail in the following sections. However it is helpful to consider the "worst case" in terms of housing provision to assess the potential risks associated with this scenario.

<sup>106</sup> London Borough of Hounslow (Mar 2014) *Local Plan Proposed Submission 2015–2030*, pg 18–21

<sup>107</sup> London Borough of Ealing (3 Apr 2012) *Development (or Core) Strategy (DPD)*, pg. 10

<sup>108</sup> Windsor & Maidenhead (2004) *Local Plan Chapter 5: Housing*, pg. 3

<sup>109</sup> The South East Plan (Jul 2008) *section B Core Regional Policies*, pg. 55

<sup>110</sup> Bracknell Forest Borough Council (Feb 2008) *Core Strategy Development Plan Document*, pg. 31

The table below sets out the potential number of new households that might be required to support the increased employment at the airport, based on an assumption that one worker would be resident per household. Currently, 10 local authorities account for 63 per cent of employment at Heathrow. For this assessment, we have assumed 63 per cent of workers continue to live in the local area, but have widened this to 14 local authorities, in the light of the surface access improvements included in the baseline, which widen the airport's travel to work area. For example, the rail journey time to Reading is reduced by approximately 40 minutes due to the proposed Western Access to Heathrow scheme. The 63 per cent figure also provides a reasonable mid-range between the airport's estimates of the proportion of airport employees living in London as a whole (80 per cent) and living in the five nearest local authorities (57 per cent).

<b>Table 51: Number of additional households upon expansion</b>		
<b>2030</b>	<b>Low</b>	<b>high</b>
Direct additional households LHR NWR	11,000	26,100
Total additional households LHR NWR	29,800	70,800
Direct additional households LHR ENR	10,500	22,300
Total additional households LHR ENR	22,900	60,600
HAL estimate	0	0
HH estimate	0	0

The high end numbers are significant and would be present some delivery challenges. It should be borne in mind, however, that any new housing would be delivered in a phased manner over a period of 10 or more years and spread across some 14 local authorities, reducing the scale of the impact in any single area. On this basis, the average additional housing need for each local authority would be between 200 and 500 homes per year under the Heathrow North West Runway scheme or up to 400 per year under the Heathrow Extended Northern Runway scheme. In addition, the London Plan's encouragement of high density housing and redevelopment of brownfield land may reduce the required land take further.

Heathrow Airport Limited's own modelling suggests that the additional jobs (72,000 – 75,000 to 2030) will not cause an influx of new workers, straining housing and other services. Rather, they expect it will provide jobs for the growing local population, owing to the large and sophisticated labour markets around Heathrow and improved public transport access from elsewhere in the region. They have also pledged to help fund replacement housing schemes within land previously earmarked for development by local authorities for homes lost to airport expansion.

Heathrow Hub Limited's assessment suggests that as the draft further alterations to the London Plan (FALP) set out that Greater London could create 5.8m jobs by 2036 (18 per

cent increase on 2011) and accommodate 420,000 new homes by 2025. Therefore the local authorities in question will have implicitly accounted for the effects of Heathrow expansion and thus, additional direct jobs from expansion (60,000 to 75,000 to 2030) will not require any additional housing.

As demonstrated in the table below, we expect the number of households to grow across all local authorities up to 2030. The additional housing required as a result of airport expansion is estimated between 2,100 and 5,100 homes per LA over 10 years under the Heathrow Airport North West Runway scheme. To take Hillingdon as an example, they are forecasting a 10 per cent increase in households in the baseline from 114,200 in 2020 to 124,900 in 2030; an additional 5,100 homes in 2030 would increase this to a 14 per cent rise. It is also important to note that in reality, the housing figure would likely fall between the range rather than that either extreme.

	2020	2030
Ealing	140.29	149.79
Hillingdon	114.24	124.88
Hounslow	111.04	120.60
Slough UA	58.74	63.34
South Bucks	29.38	31.49

Source: DCLG

It is clear that the additional housing needed at the upper end of these ranges – an average of some 400 to 500 homes per year in each of 14 local authorities – may be challenging to deliver, especially given that many local authorities struggle to meet current housing targets. It would require a noticeable increase on present rates of completion in many areas as shown in Table 53 below. However, the rate of provision of additional housing is not significantly out of line with many existing plans for the period to 2026 or with the rate of growth envisaged in the London Plan, although some further increase would be needed unless a substantial majority of planned growth in housing in these areas is used to accommodate airport workers. In addition, the number of local authorities involved would also allow some flexibility in how new housing may be delivered across the area as a whole. It should also be noted that this is a worst case assessment for the number of additional homes required, which assumes, for example, the highest demand forecasts and lowest productivity improvements and that no more than one airport worker would live in any home. It also assumes that no employment opportunities would be taken up by local people. In practice, many of these opportunities may be attractive to those without work living locally and natural population growth in these areas will also increase the size of the local labour pool.

**Table 53: Percentage of dwellings completed (2013/2014)**

	Dwellings started	Dwellings completed	All (%)
Bracknell Forest	310	360	116.1
Ealing	650	970	149.2
Harrow	420	80	19.0
Hillingdon	410	290	70.7
Hounslow	720	520	72.2
Reading	280	370	132.1
Richmond upon Thames	90	220	244.4
Runnymede	340	140	41.2
Slough	410	160	39.0
South Bucks	100	110	110.0
Spelthorne	260	170	65.4
West Berkshire	430	410	95.3
Windsor and Maidenhead	460	310	67.4
Wokingham	440	420	95.5

Source: Neighbourhood Statistics

### **Increased economically active population**

The table below shows the forecasts for total population and working age population in 2030 across the assessment area local authorities. The total population is expected to be 240,900 higher in 2030 than 2012, although this could see either a slight reduction in the pool of economically active workers on which the airport could draw (2,300 fewer at the low end) or it could lead to many more workers in the area in the baseline (390,300 at the high end of our estimated range).

<b>Table 54: Economically Active Population</b>			
<b>2030</b>	<b>Population 16-69 (000)</b>	<b>Low Working Population (60%) (000)</b>	<b>High Working Population (80%) (000)</b>
Bracknell Forest	<b>91.3</b>	54.8	73.0
Ealing	<b>283.5</b>	170.1	226.8
Harrow	<b>197.7</b>	118.6	158.2
Hillingdon	<b>244.9</b>	146.9	195.9
Hounslow	<b>231.8</b>	139.1	185.4
Reading	<b>121.4</b>	72.8	97.1
Richmond upon Thames	<b>156.1</b>	93.7	124.9
Runnymede	<b>66.3</b>	39.8	53.0
Slough	<b>119.8</b>	71.9	95.8
South Bucks	<b>49.2</b>	29.5	39.4
Spelthorne	<b>64.3</b>	38.6	51.4
West Berkshire	<b>110.5</b>	66.3	88.4
Windsor & Maidenhead	<b>108.8</b>	65.3	87.0
Wokingham	<b>117.5</b>	70.5	94.0
<b>Total</b>	<b>1963.1</b>	<b>1177.86</b>	<b>1570.48</b>
<b>Difference 2012- 2030</b>	<b>240.9</b>	<b>-2.3</b>	<b>390.3</b>

Source: DCLG

There is potential for the natural growth of population in the area, combined with an increase in the economic activity rate, to provide enough workers to fill all the additional jobs at the airport without any increase in housing provision. This does still rely on those working or unemployed in the area being able to move into the jobs at the airport and also currently have housing. It is also extremely difficult to predict what share of future jobs will be Heathrow related so no reduction in inward migration is included in the core housing assessment to reflect this.

### **Reduced unemployment**

The expansion of Heathrow could provide opportunities for unemployed local residents to take up new roles and the creation of these additional jobs could encourage more people to switch employment depending on the jobs that become available. The ability of the unemployed to be matched to a job at the airport is made more likely when the typical skills profile of airport employees is considered. Although it is not possible to forecast the number or characteristics of the unemployed in 2030 it is possible to use current and historic evidence to estimate the broad scale. Heathrow Airport Limited have also highlighted that they plan to recruit and upskill local workers through programmes such as Heathrow Academy. This being said, any increased employment pressure within the area

may force the airport to consider further schemes in order to gain the workforce they require.

### **Reduced out-commuting**

The area around Heathrow airport is part of a much larger London labour market and only 63 per cent of Heathrow Airport's current employees are based in the assessment area. Therefore it is reasonable to assume there is some scope for drawing more employees from the existing out-commuters in these local authorities, particularly with the baseline improvements in public transport. No assumption aside from the 14 local authorities has been made in the additional households figure above but if there were less out-commuting this would of course reduce pressure on local services and housing plans.

### **Accommodating additional housing development**

Many local authorities foresee housing pressures due to population growth and changing household patterns, regardless of airport expansion and the potential influx of new workers it could bring. In terms of the spatial location of additional housing, it has been considered at length by the local authorities surrounding Heathrow airport in their strategic plans, with town centres targeted by many boroughs. For example, Bracknell Forest Borough Council have allotted areas of their town centre as the site for around 950 units between 2006 and 2017.<sup>111</sup> During this time, the council has plans to locate around 1,100 units from other sites with outstanding planning permission, supplemented by a further 1,650 units from previously developed land within settlements.<sup>112</sup> Virtually all development proposed under Reading's strategy is brownfield land, with the exception of some degraded land at Green Park 3 (North).<sup>113</sup>

### **Development of brownfield land**

As can be seen in the table below, there has been a high amount of development on brownfield land, which reflects the extent of the area that is urban and not green field land.

There is some scope for future housing provision to involve the reuse of previously developed land though we can expect over the next 35 years it will become more difficult and expensive to bring more land back into residential use if local authorities continue to target brownfield land for housing provision, as supported by current central government policy.

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111 Bracknell Forest Borough Council (Feb 2008) *Core Strategy Development Plan Document*, pg. 32

112 as at 31st March 2006

113 Reading Borough Council (Jan 2008) *Adopted Core Strategy Document*, pg. 50

Proportion of new dwellings on previously-developed land (percentage)				
Local Authority area	1996-1999	2000-2003	2004-2007	2008-2011
Ealing	82	88	93	99
Hillingdon	84	91	95	82
Hounslow	68	88	100	99
Slough	57	72	84	59
Spelthorne	82	98	100	94

Source: Neighbourhood Statistics

## Empty homes

In terms of alternative policies, boroughs around Heathrow appear to have limited scope to utilise existing empty homes. The table below provides the 2012 and 2013 empty homes statistics for the boroughs bordering Heathrow. The figure for these years show consistently very low percentages of empty homes – averaging just 1.7 per cent. Such low figures suggest that strategies to utilise these empty homes will have limited effect in the quest to increase housing provisions.

2013	Total Dwellings	Total Empty	% Empty	Long Term Empty	% Long Term Empty
Ealing	128,054	2,535	1.98	516	0.40
Hillingdon	105,148	1,715	1.63	645	0.61
Hounslow	96,608	1,788	1.85	427	0.44
Slough	50,361	528	1.05	163	0.32
Spelthorne	40,769	816	2.00	239	0.59
<b>Total</b>	<b>84,188</b>	<b>1,476</b>	<b>1.70</b>	<b>398</b>	<b>0.47</b>

Source: Neighbourhood Statistics

## Increasing Housing density

An alternative way to increase housing provision while preserving greenfield land is to increase the housing density. As seen in the table below, compared to the London average housing density of 2.11 dwellings per ha of land in 2011 and projected to be 2.38 in 2021 (assuming no change in available land), most local authorities around Heathrow airport have the scope to increase housing density to meet the need for additional housing provision.

**Table 57: Density of housing (number of homes per Hectare) March 2011**

	Total Dwellings	Total land area hectares	Dwellings per hectare of land
Ealing	127,694	55.443	2.303
Hillingdon	105,089	115.576	0.909
Hounslow	96,081	56.707	1.694
Slough	50,489	32.125	1.572
Spelthorne	40,792	50.82	0.803
London	3,364,839	1596.244	2.108

Source: DCLG/Neighbourhood Statistics

West Berkshire Council believe town centres have the potential for above 50 dwellings per hectare of housing provision, especially along main transport routes and close to transport nodes. New residential developments predominantly consist of family sized housing achieving densities of between 30 and 50 dwellings per hectare. Further down the density scale are those villages that are particularly sensitive to the impact of intensification and redevelopment and consist of sub 30 dwellings per hectare.<sup>114</sup> Thus, local authorities could act to increase housing density, providing more homes on the same footprint and therefore accommodating most of the expected growth without increasing the amount of land required or elevating densities to levels regarded as ‘high’. This is similar to the process in inner and central London as demonstrated by comparison of London in **Table 57**.

## **Affordability**

Another common theme amongst borough council strategic plans is that of affordable housing provision. Each borough has made explicit reference to this necessity; however there are significant disparities in affordable housing targets for the forthcoming decades set by each council. The table below shows the existing ownership structure of homes in boroughs close to Heathrow.

<sup>114</sup> West Berkshire Borough Council (Jul 2012) *West Berkshire Core Strategy (2006–2026)*, pg. 45



Table 58: Housing Ownership Structure					
	Ealing	Hillingdon	Hounslow	Slough	Spelthorne
All Households	124,082	100,214	94,902	50,766	39,512
Owned; Owned Outright	28,414	27,921	20,048	9,502	13,403
Owned; Owned Outright %	22.9	27.9	21.1	18.7	33.9
Owned; Owned with a Mortgage or Loan	35,006	35,090	27,514	17,253	15,268
Owned; Owned with a Mortgage or Loan %	28.2	35	29	34	38.6
Shared Ownership (Part Owned and Part Rented)	2,174	1,280	2,245	686	540
Shared Ownership (Part Owned and Part Rented) %	1.8	1.3	2.4	1.4	1.4
Social Rented; Rented from Council (Local Authority)	13,007	10,481	14,296	6,656	636
Social Rented; Rented from Council (Local Authority) %	10.5	10.5	15.1	13.1	1.6
Social Rented; Other	9,465	6,271	7,386	3,820	4,275
Social Rented; Other %	7.6	6.3	7.8	7.5	10.8
Private Rented; Private Landlord or Letting Agency	32,696	16,691	21,099	11,713	4,633
Private Rented; Private Landlord or Letting Agency %	26.4	16.7	22.2	23.1	11.7
Private Rented; Other	1,486	1,450	1,107	635	371
Private Rented; Other %	1.2	1.4	1.2	1.3	0.9
Living Rent Free	1,834	1,030	1,207	501	386
Living Rent Free %	1.5	1	1.3	1	1

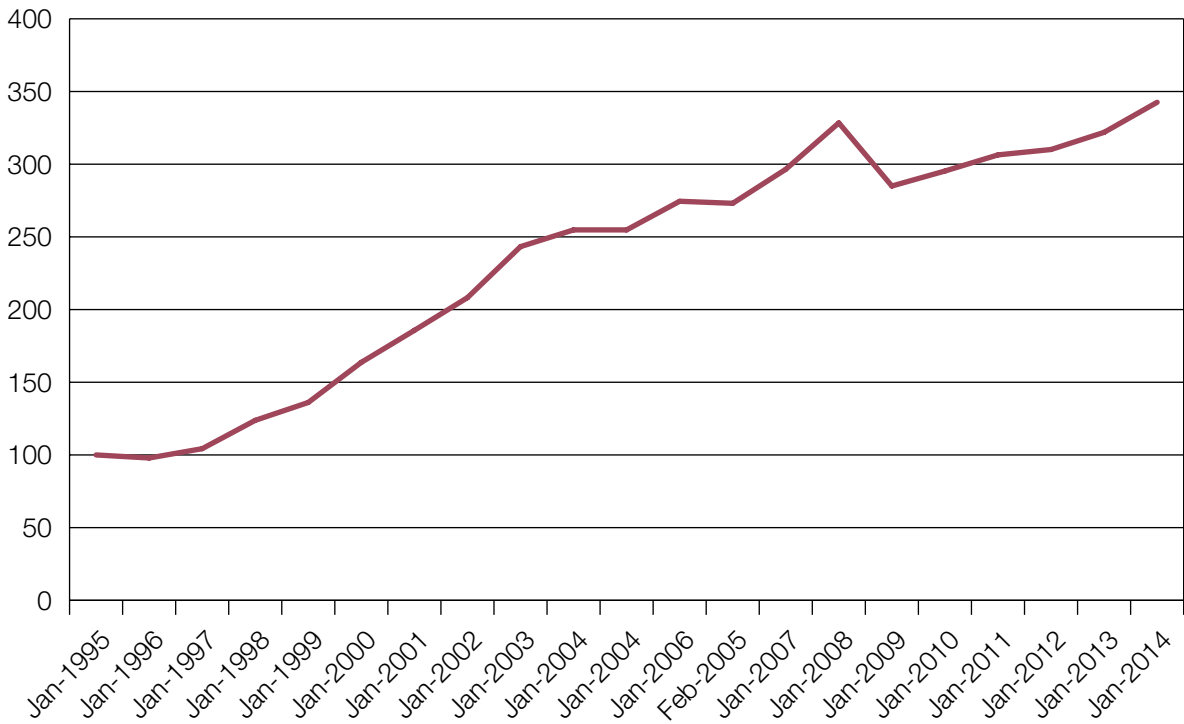
Source: Neighbourhood Statistics

The Strategic Housing Market Assessments for different councils suggest proportions of affordable housing units from 50 (Hillingdon) to 88 for Wokingham Borough Council.<sup>115</sup> South Bucks have principally supported the development of small scale sites for 100 affordable housing within or adjacent to villages within designated parishes (known as 'Rural Exception sites'). Slough and Reading have employed a quota system which requires a significant proportion (30 to 50 of units) of new build housing sites to have the status of rental property or an alternative comparable form of affordable housing. Housing size is also important as demonstrated by Bracknell Forest Borough Council where a range of needs are addressed, from 1-bed to 4/5-bed properties, and different types of accommodation including flats, houses, and bungalows.<sup>116</sup>

<sup>115</sup> Berkshire Strategic Housing Market Assessment (October 2007), pg. 43

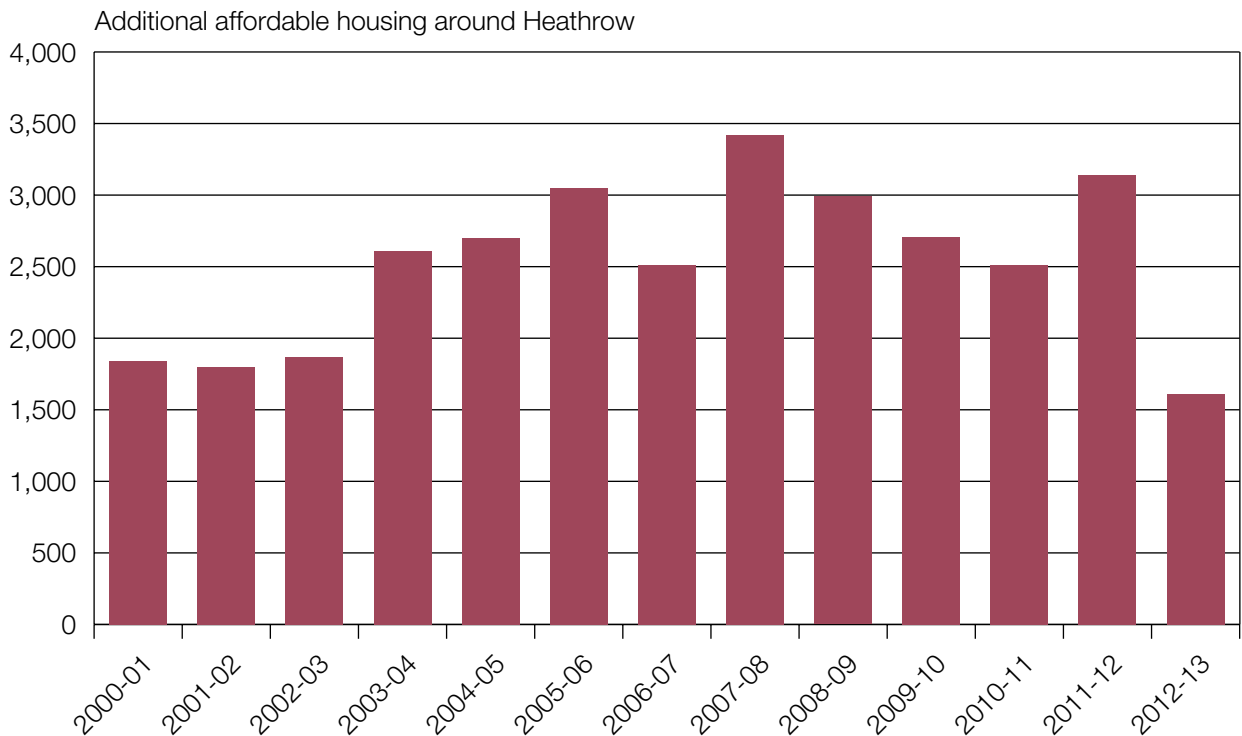
<sup>116</sup> Bracknell Forest Borough Council (Feb 2008) *Core Strategy Development Plan Document*, pg. 32

**Figure 39: House price index (January 1995 =100)**



Source: Land Registry

**Figure 40: Provision of affordable housing over the past decade.**



Source: Neighbourhood Statistics

<b>Table 59: Median house prices to earnings ratio</b>			
<b>Heathrow Airport's neighbouring boroughs</b>	<b>1997</b>	<b>2012</b>	<b>% change 1997-2012</b>
Hounslow	3.80	8.21	116
Hillingdon	3.54	7.79	120
Ealing	4.43	10.01	126
Slough	3.02	6.13	103
Spelthorne	4.57	7.18	57
	<b>3.87</b>	<b>7.87</b>	<b>105</b>

Source: DCLG

The table above demonstrates the substantial rise of median house price to earnings ratios between 1997 and 2012 for the boroughs bordering Heathrow airport, at rates which far exceed the national average. Local authorities such as Richmond, Harrow, South Bucks and Ealing have ratios in excess of 10, meaning housing affordability is already under severe pressure in these areas; an issue which is further exacerbated by the recent tightening up of mortgage lending conditions. These five local authorities have historically acted as the permanent location for around 50 per cent of airport employees. By 2030 there is likely to be a severe affordability challenge for airport workers to afford housing in some of these areas, regardless of airport expansion plans. However given the wide travel to work area of Heathrow airport staff and improvements to surface access compared to today it is likely airport staff, and other low earning local employees, will be able to locate somewhere in the assessment area. As discussed in **Chapter 2** (Surface Access), it is likely the travel to work area for the airport will widen so the range of housing across Heathrow's travel to work area will remain.

### **Associated infrastructure**

The need for additional housing provision to house the increase in residents in the area around the airport will also need to be supported by the provision of additional social infrastructure such as schools, hospitals and leisure centres. Our assessment suggests that provision of additional housing will need to be supported by the provision of additional schools, 2 additional health centres (14 GPs) and 2 primary care centres per local authority to 2030.

The additional number of schools in **Table 60** is calculated using maximum number of potential households as stated previously. Using the national average sizes of school, a maximum of 50 primary school (under Heathrow Airport North West Runway scheme) will be required across all 14 local authorities as well as 6 secondary schools. This calculation uses very strong assumptions such as assuming that all students go to a standard state schools, the South East schools are the size of the national average and that none of the

places will be available in current schools so is the very high end estimate. Furthermore, the household number is likely to fall within the range rather than be the either extreme. Therefore, considering these implications, the social infrastructure required is within the capability of the local area.

<b>Table 60: Number of schools required upon expansion</b>		
	<b>Total</b>	<b>Per local authority</b>
<i>Heathrow Airport North West Runway</i>		
Number of primary school children	10,900	800
Number of primary schools required (national average school size 220)	50	3.5
Number of secondary school children	5,300	400
Number of secondary schools required (national average school size 950)	6	0.4
<i>Heathrow Airport Extended Northern Runway</i>		
Number of primary school children	9,300	700
Number of primary schools required (national average school size 220)	42	3
Number of secondary school children	4500	300
Number of secondary schools required (national average school size 950)	5	0.3

Source: GLA methodology

There may also be a need for additional parks or open spaces. For instance, the Earl's Court Masterplan is based on the principle that all residential properties should be within 100 metres of an area of publicly accessible public green open space. The Mayor of London's Supplementary Planning Guidance on 'Providing for Children and Young People's Plan and Informal Recreation' suggests that play spaces should be provided very close to new properties.

## **Conclusion**

The local authorities in our assessment area are all taking steps to increase housing provision to 2030 due to changing patterns of living, such as growing a demand for smaller, more numerous units of accommodation (such as flats), organic population growth or the result of positive net migration fuelled by increased jobs. They also recognise the need to provide affordable housing provision in local authority plans. The analysis of the housing required as a result of airport expansion indicates that between 29,800-70,800 more homes may be required by 2030 under a Heathrow Airport North West Runway, or 22,900-60,600 under an Extended Northern Runway. At the high end this could amount to an additional 5,100 homes per local authority over a 10 year period.

## 4. Land

Development of the local areas, both part of London's "mega region", is of course to be expected with or without airport expansion. The purpose of this assessment is to consider the marginal impact expansion will have on the land availability in the local area. The Commission has reviewed adopted and emerging local plans, analysed historic data and undertaken land use mapping using the National Land Use Database (NLUD). Its estimates of housing and commercial land requirements in **Chapter 1** and **Chapter 3** inform the assessment of the likely scale of land required.

Typically, airports have an extensive amount of land on the airport that is not associated with aviation and more likely used for commercial and light industry purposes. The use of this land for non-aviation purposes often causes further strain on support systems. An example of this is transport, where the addition of those accessing these industries causes increased demand. This is a process associated with modern airports, such as those in Europe, North America and Asia that act as hubs with a range of land uses.<sup>117</sup> Therefore, it is important to note when considering land requirement upon expansion that business land will not predominantly be used by aviation related industries.

It is difficult to estimate where commercial and residential land needs will be greatest, not least because we do not know with any certainty what level of growth will need to be accommodated and we are considering a relatively large spatial area. Furthermore, it is reasonable to assume that the economic impacts of the airports on the areas surrounding Gatwick and Heathrow, and their general close proximity to London, means that there will be continued pressure in the long term for residential, employment and retail developments in these areas with or without additional airport capacity.

Given the location of both airports are within the London City Region, before considering the scheme specific land impacts it is helpful to consider the picture across this much wider area. The London Plan informs much of this analysis and remembering the Plan should be considered a flexible planning instrument not a blueprint is useful when thinking about how either runway expansion fits into the wider London economy. Indeed the London Plan highlights that it is unrealistic to use national guidance for London as it is quite individual in its pressures and the 'churn' in its land market.

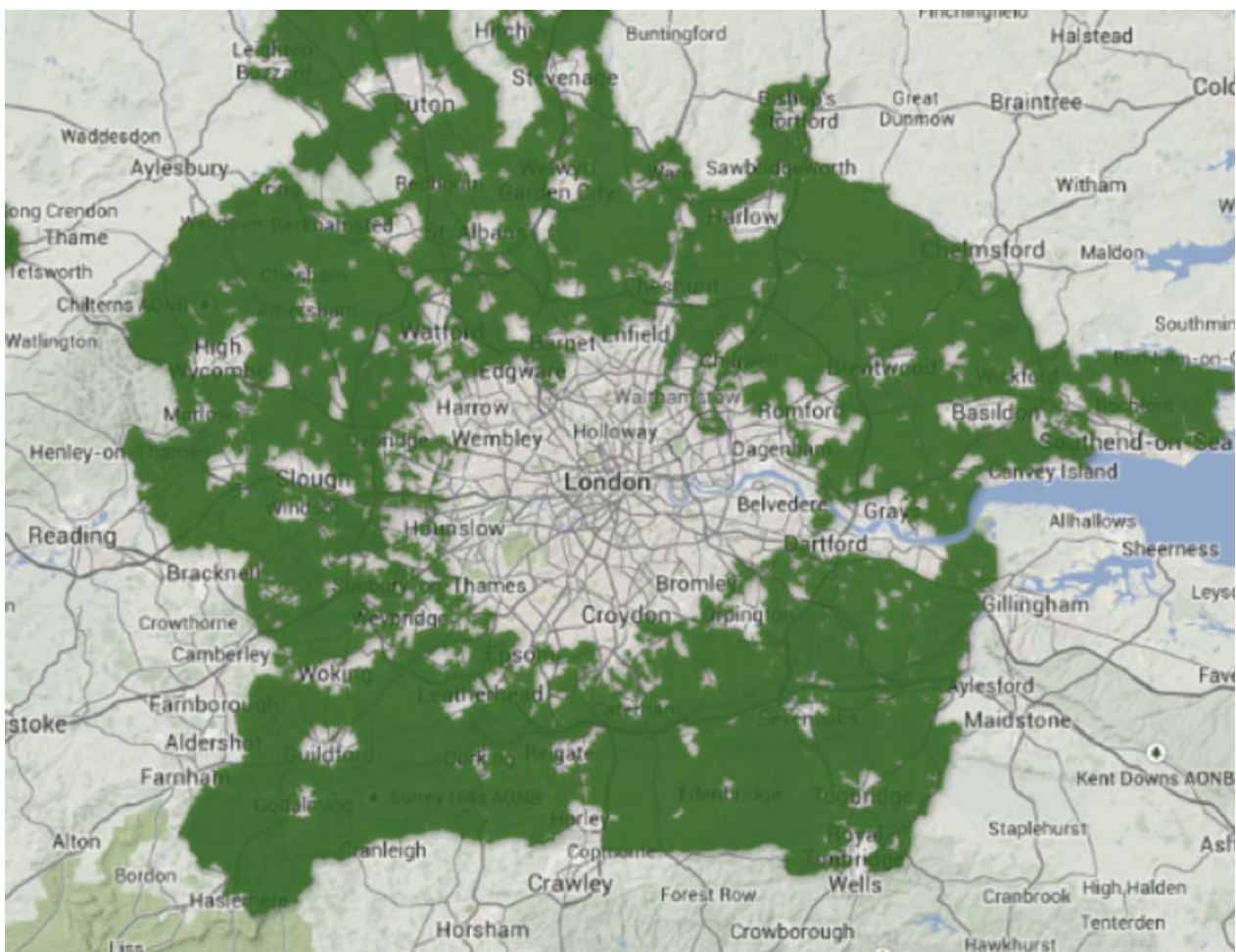
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117 PwC (Oft 2014) *Airports Commission Local Economic Impacts Literature Review*, pg. 50

## Land use

A key current constraint on the land use in the outer London area is the metropolitan Green Belt. Green Belt covers more than 5000 square kilometres outside London and although it is commonly thought there are no large urban centres in the Green Belt there are in fact fifteen towns or cities with over 50,000 residents located in London's Green Belt.<sup>118</sup> 14 per cent of Green Belt is built up but development opportunities are statutorily limited. Despite housing demand and planning policy encouraging higher density residential development the housing in Green Belt typically has low density, with an average density of 420 people per square kilometre.

**Figure 41: Green Belt land in the South East region**



## Redevelopment of brownfield land

London has a substantial reservoir of brownfield land which has the capacity to provide new housing and other commercial and development space, particularly those already linked or with easily improved links to public transport. This has the potential of providing

<sup>118</sup> LSE Cities (2011) *The tale of two regions*

up to 5,000 new jobs and 2,500 new homes per Opportunity Area as outlined in the London Plan.<sup>119</sup> As demonstrated by **Figure 42**, the percentage of new dwellings built on brownfield sites in London is much higher than that of England as a whole. Therefore, this trend of redevelopment of brownfield land is expected to continue at the London level though limits may be reached at a much more local level in terms of available brownfield land for redevelopment in a cost effective manner.

**Figure 42: New Dwellings on Previously Developed Land**

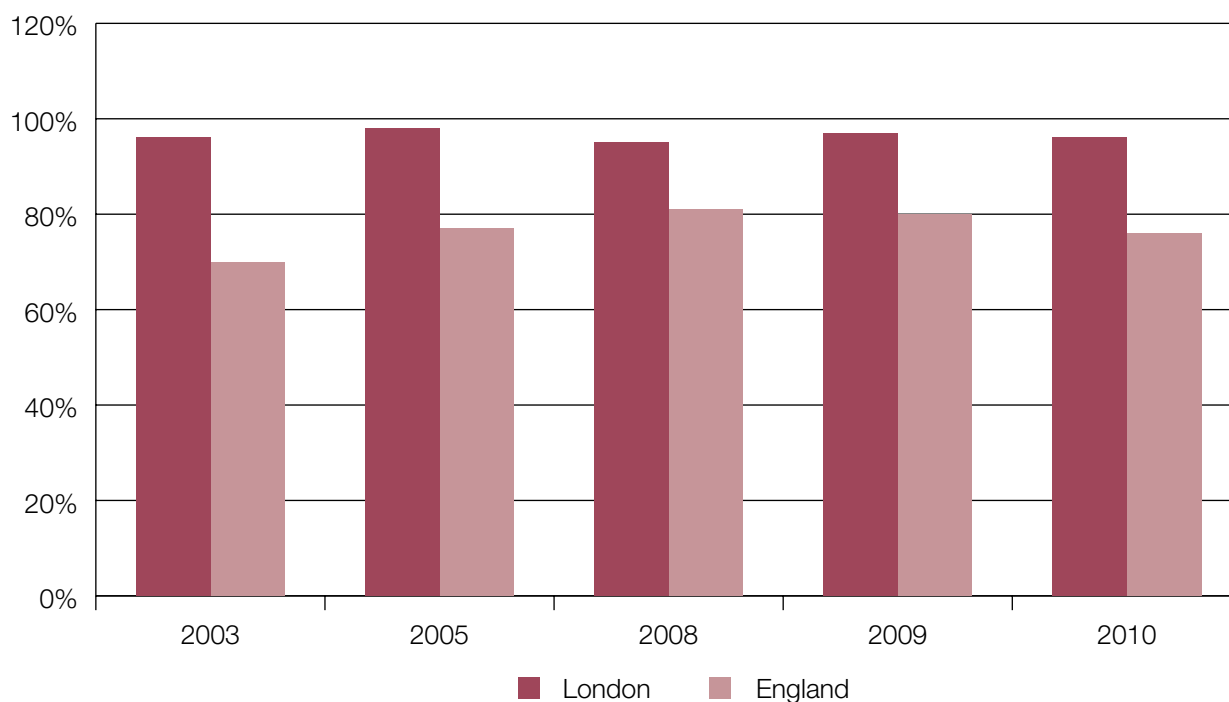


Figure 3 the London Green Belt (2011) – Department for Communities and Local Government (the Telegraph)

## Housing density

Current housing densities around Heathrow and Gatwick are fairly low if we compare to London and the South East. It is therefore possible that housing density could increase substantially which would reduce the demands on new land without actually having a high density urban area.

Housing density is a crucial factor in the supply of housing and the land requirements associated with this. Historically the term higher density housing has often had negative connotations, particularly in the context of London and the South East development. It is true that some high density housing has problems with design, location, tenure combination, lack of management and maintenance and allocation policies.<sup>120</sup> However, the highest densities in London are in fact found in areas such as Notting Hill, as the

<sup>119</sup> Greater London Authority (Oct 2009) *The London Plan*, pg. 69

<sup>120</sup> Cabe-Better Neighbourhoods: Making higher densities work

medium rise (3-4 storeys) provides the optimum form of housing for maximum density (see case study). Therefore moving from a low to a higher (though not necessarily ‘high’) density development in an area can be a desirable way to limit the land requirements associated with development.

### **Case Study: Beaufort Court, North Fulham**

A development of 65 homes, flats and maisonettes arranged in three blocks of between two and six stories on a restricted site in central London with an average density of 116 dwellings per hectare. Built and developed by the Peabody Trust on land bought from the local authority, the London Borough of Hammersmith and Fulham, the scheme provides a mixture of affordable tenures in an area of high housing costs and high demand. All of the flats have been sold, demonstrating the demand in the area. The scheme is still running successfully and has been well maintained.

## **Land Values**

Land values are also an important consideration as the purchase of land, particularly in London is a costly venture. The price of Inner and Outer London land on average is over £5 million per hectare compared with the rest of England average of £1.75 million. While the South East is lower than London at £2.35 million, this is still substantially higher than England. However land prices are a reflection of the high level of demand in London, therefore it demonstrates the drive in the market for new development. These land costs will be prohibitive for some firms in some areas but given the large area we are considering and variable land prices today it is likely there will continue to be affordable land relatively close to either airport in future.

<b>Table 61: July 2010 – Residential Building Land Figures (£s per hectare)</b>		
<b>England (excluding London)</b>	<b>Inner and Outer London</b>	<b>South East</b>
1,750,000	5,550,000	2,350,000

Table 1- Homes and Communities Agency and Valuation Office Agency (VOA) -Residential Building Land Figures (Based on the regional averages for bulk land and uses representative authorities for each area)



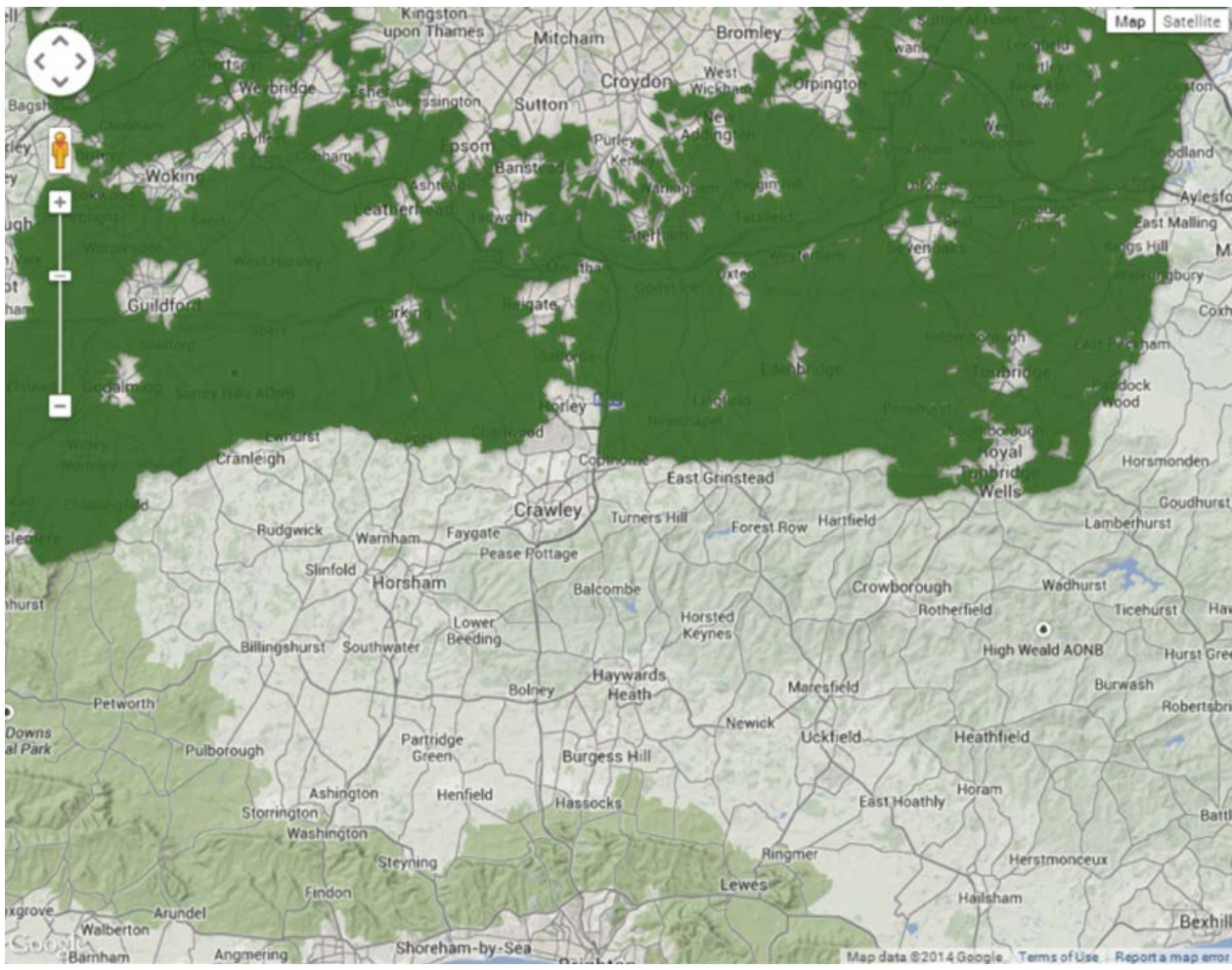
## Gatwick

### Land supply

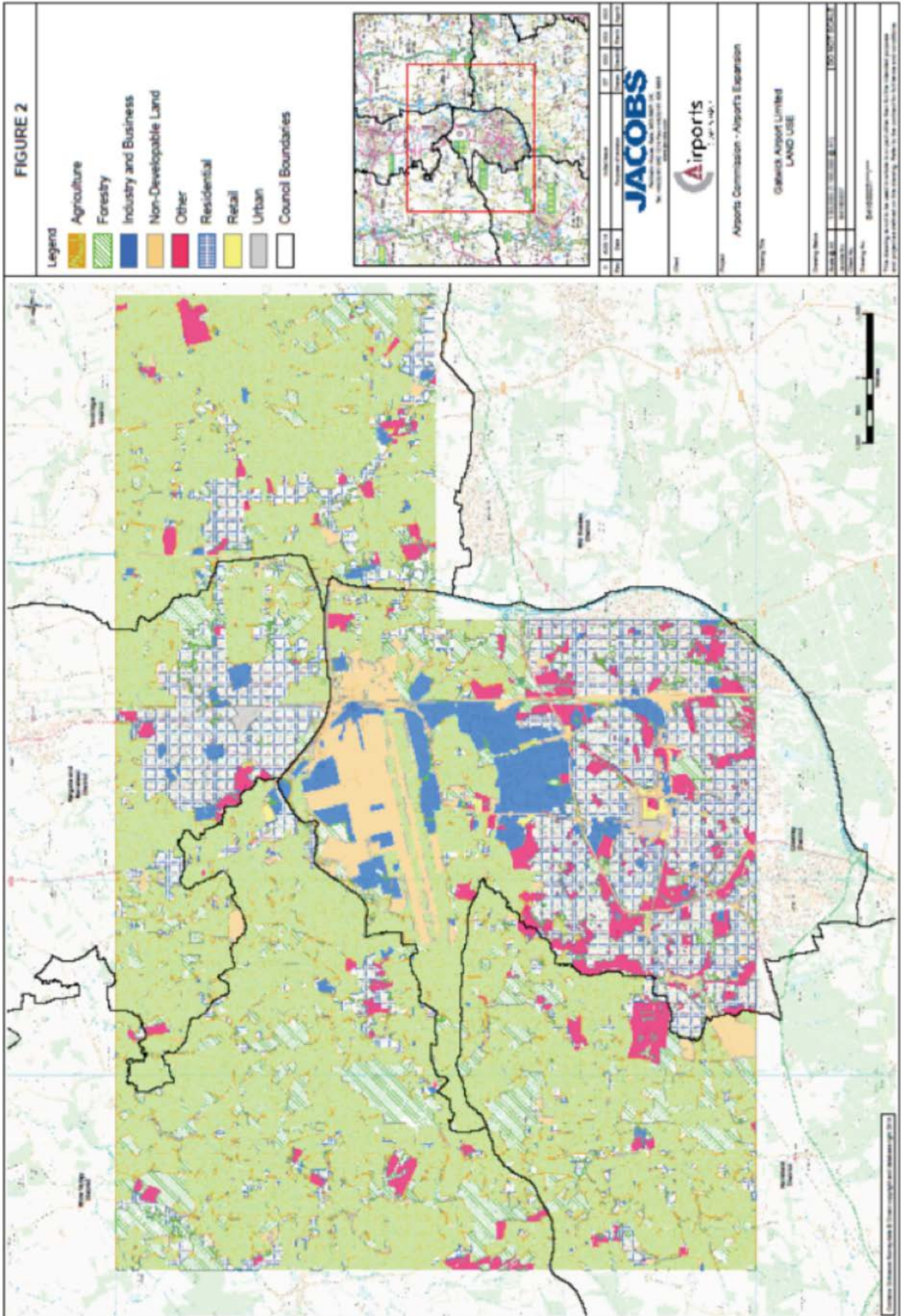
Some parts of north Crawley are already heavily developed and many remaining green spaces in the borough are designated as Sites of Nature Conservation Importance or appear to be used for recreation, which means that they are unlikely to be available for development in the future. **Figure 43** shows the current land use in Crawley. The large open area to the north east of the borough (south of Gatwick) is already allocated for development in the adopted core strategy. Therefore there are not obvious areas of opportunity to find a substantial amount of land for development in the longer term in Crawley borough, particularly as a large area to the north of the borough (south of Gatwick) is allocated as 'Gatwick Safeguarding' in the local plan. It is noted that this area is also designated a potential area of search for employment and residential development in Crawley's emerging local plan if the Gatwick expansion did not go ahead. This large area could be a suitable area for further growth in the long term. A large area west of Crawley is allocated for a mixed use development. As there are no key constraints such as Green Belt within the borough, for the purposes of this high level appraisal it is reasonable to assume that the borough as a whole could accommodate substantial growth in the longer term.

Looking more widely, the map below shows the Green Belt covers much of the area north of Crawley Borough, though does not stretch as far as Croydon. The majority of land to the north west of Gatwick in Mole Valley District is within the Green Belt and, further west, an Area of Outstanding Natural Beauty (AONB). Current Green Belt policy could severely constrain the expansion of urban district centres as national and local planning policies seek to protect the openness of the Green Belt, meaning a future change in planning policy would be required for their development. It is assumed the AONB would continue to be protected from inappropriate development. The main urban areas of Mole Valley District are Leatherhead, Dorking, Ashstead, Bookham and Fetcham, which are located further away from Gatwick. These urban areas are the most sustainable locations within the district for growth, so are the most likely to be the focus for development in the longer term.

**Figure 43: Green Belt areas around Gatwick Airport**



Horsham District, to the south west of the airport, is less developed and constrained than Crawley. Reigate and Banstead is to the north east of Gatwick and the majority of the district is within the Metropolitan Green Belt and AONB. The town of Horley is on the north eastern edge of the airport and is allocated for growth in the District's emerging core strategy. The town is surrounded by Green Belt and an area designated as 'Countryside beyond the Green Belt'. Similar to areas in Mole Valley, further development in the longer term at the town could be constrained unless there was a future change in planning policy. Other urban areas in the district include Reigate and Redhill which are also surrounded by Green Belt and AONB. Continuing high demand for housing in South East England and rural areas in particular is resulting in strong pressure for development on the edge of or adjacent to the High Weald AONB boundary and pressure to bring forward land for housing in and around larger villages.



## Land demand

### Commercial and residential floorspace

Within the 15 boroughs of assessment around Gatwick, local plans all highlight that expansion of office and industry floor-space is necessary to cope with anticipated levels of employment demand by 2030 regardless of airport expansion. Equally emphasised by the plans, is the need for land for housing developments as detailed in the previous sections.

As demonstrated in **Table 62**, the number of jobs created could be reasonably high. However if the opportunities were shared equally across the 15 local authorities around Gatwick per year up to 2030, it is likely only a fairly small amount of commercial floorspace would be required to accommodate demand, particularly as this is based on the highest number of jobs we consider in the assessment. Equally for housing, at only 130 per year at the high end, the area appears flexible enough to absorb these homes. Some additional commercial and residential premises would be needed but it is still likely that across the entire assessment area, this would be not be a constraint on realising the benefits of the airport expansion.

<b>Table 62: Maximum Additional Jobs &amp; Housing per Local authority 2020-2030</b>	
<b>Gatwick Airport Second Runway</b>	
Highest potential number of jobs over all 15 local authorities	23,600
Number of jobs per local authority per year	150
Highest potential number of homes over all 14 local authorities	18,400
Number of homes per local authority per year	130

*Table 2 – figures calculated using total additional jobs/homes divided between local authorities using data in Employment & Business and Housing sections*

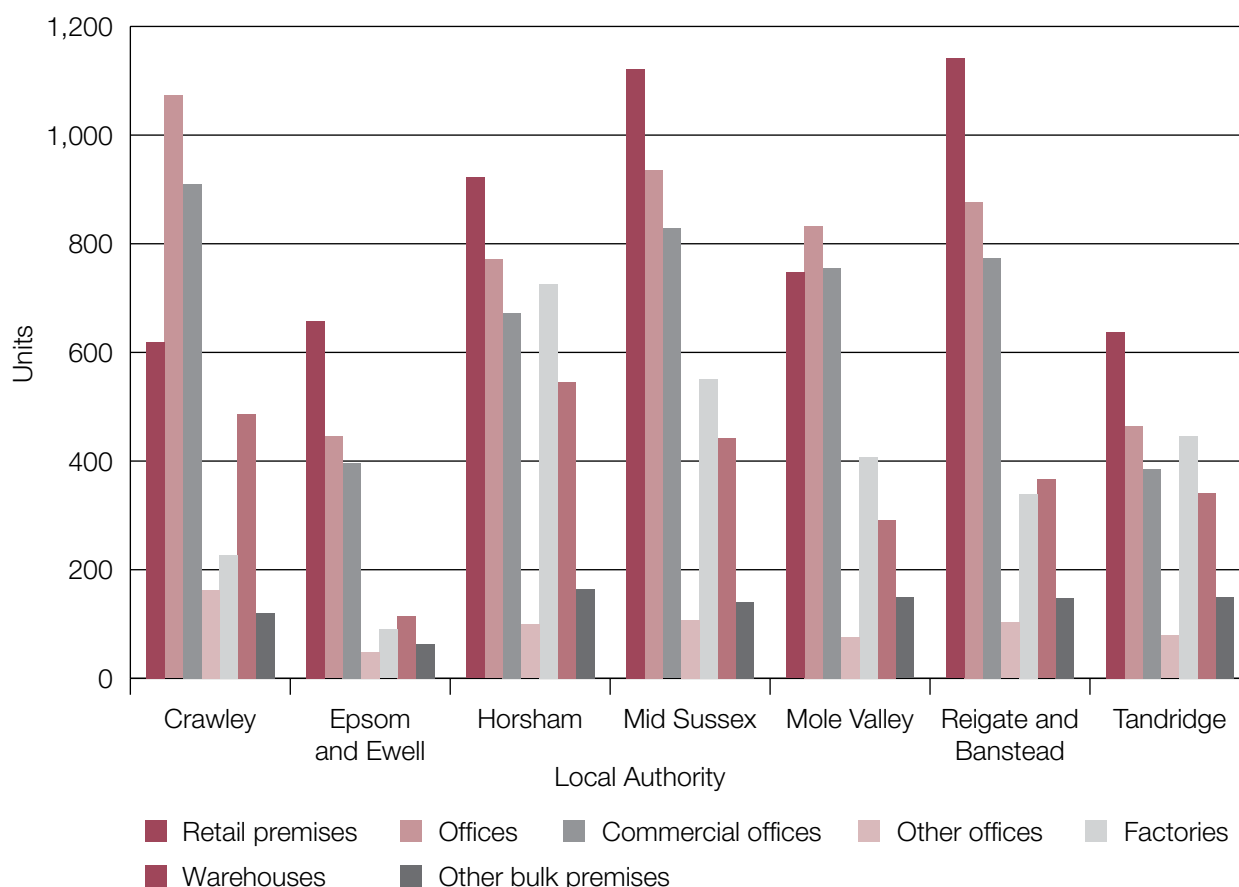
It is estimated that if current average housing densities in these areas continue, up to 4,800m<sup>2</sup> of additional land will be required to meet the additional housing need from expansion at Gatwick. The low end of the range is close to zero additional land requirement. Moving closer to average London housing densities could reduce the top end estimate to 600m<sup>2</sup>. In addition, the range for land required for additional social infrastructure such as health centres is from no increase on today to 600m<sup>2</sup>.

Although we demonstrate that the housing per local authority is not an unreasonable number, we do acknowledge that there will no doubt be areas which are challenging for individual authorities and potentially de-designation of areas of Green Belt could be required. This being said, the low number of homes required overall mean that land supply should not be considered a barrier to airport expansion or to realising the benefits associated with that expansion.

## Land Values

Gatwick has a mix of land values in the assessment area, many of which are affordable for industrial premises. As demonstrated by **Figure 44**, retail and office floor space comprise the highest number of units in every local authority apart from Crawley, where offices were one of the highest, reinforcing the business presence.

**Figure 44: Number of units by Local Authority**



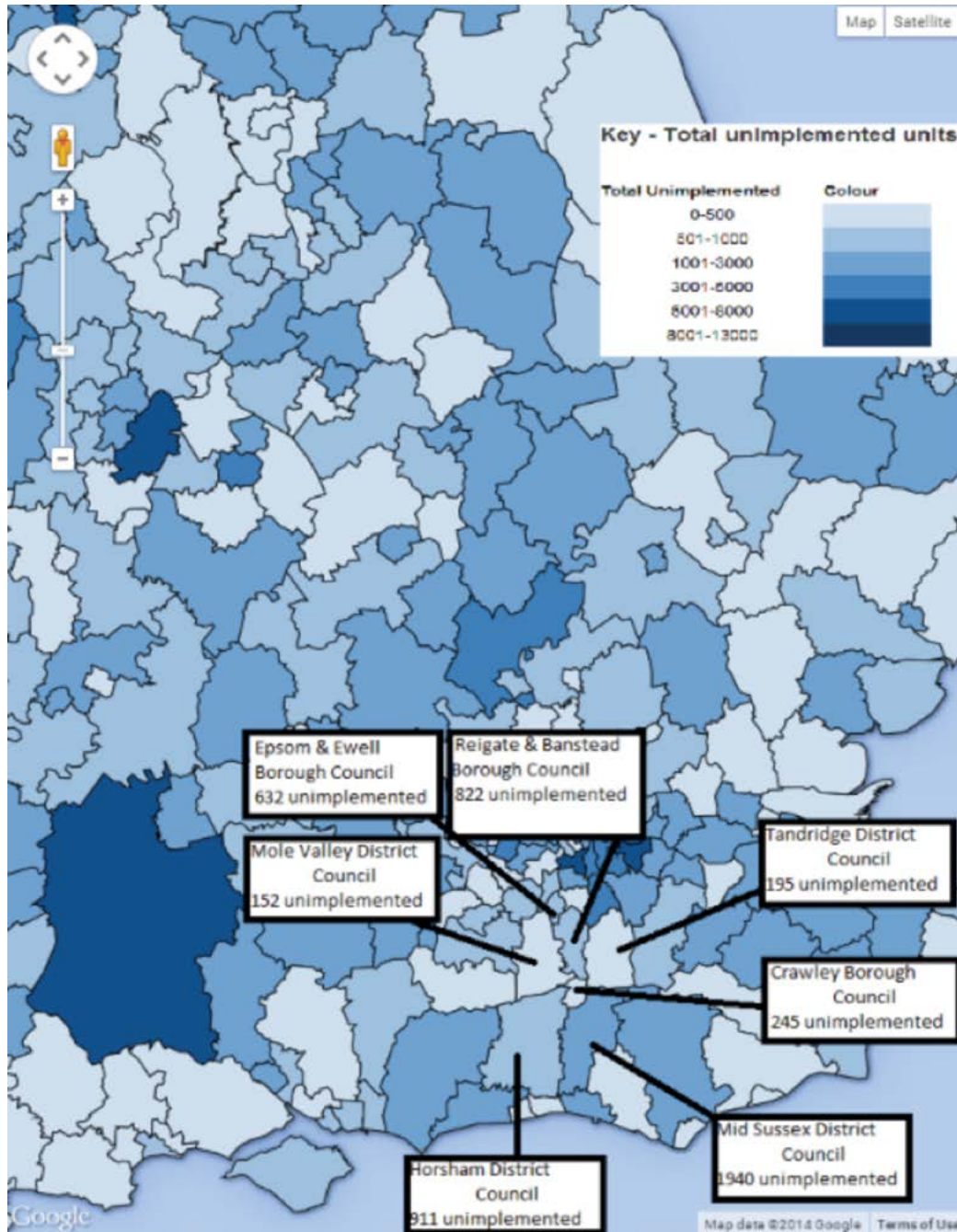
Land values are difficult to assess as the runway would not be built until 2020-2030 but it is reasonable to assume that the relationship between housing and land prices will continue. This would assume that there may be a potential increase in prices but considering the current spread of house prices in the area, there is no reason to think affordable housing would not be available.

## Planning Applications

Historic local planning applications give a strong indication of the attitudes towards development in local authorities. Crawley may have had only 19 major developments and 91 minor developments, but over 85 per cent for both were accepted. Croydon had a high number of planning applications (981 minor developments and 57 major), fewer major were accepted (53 per cent) indicating that while there is recognition for development, minor

developments were more acceptable. This is in line with the average in England where above 85 per cent of all planning applications were accepted (although within varying timescales).

**Figure 45: Total unimplemented units in London Gatwick Authorities**



Gatwick Diamond-Unimplemented planning permissions by local authority area 2012-  
<http://www.local.gov.uk/mapping-unimplemented-planning-permissions-by-local-authority-area>

As demonstrated by **Figure 45**, the Gatwick Diamond authorities do not appear to have large numbers of unimplemented planning permissions compared to the wider London and South East area, where the East of London has the highest number in the region (12,525).

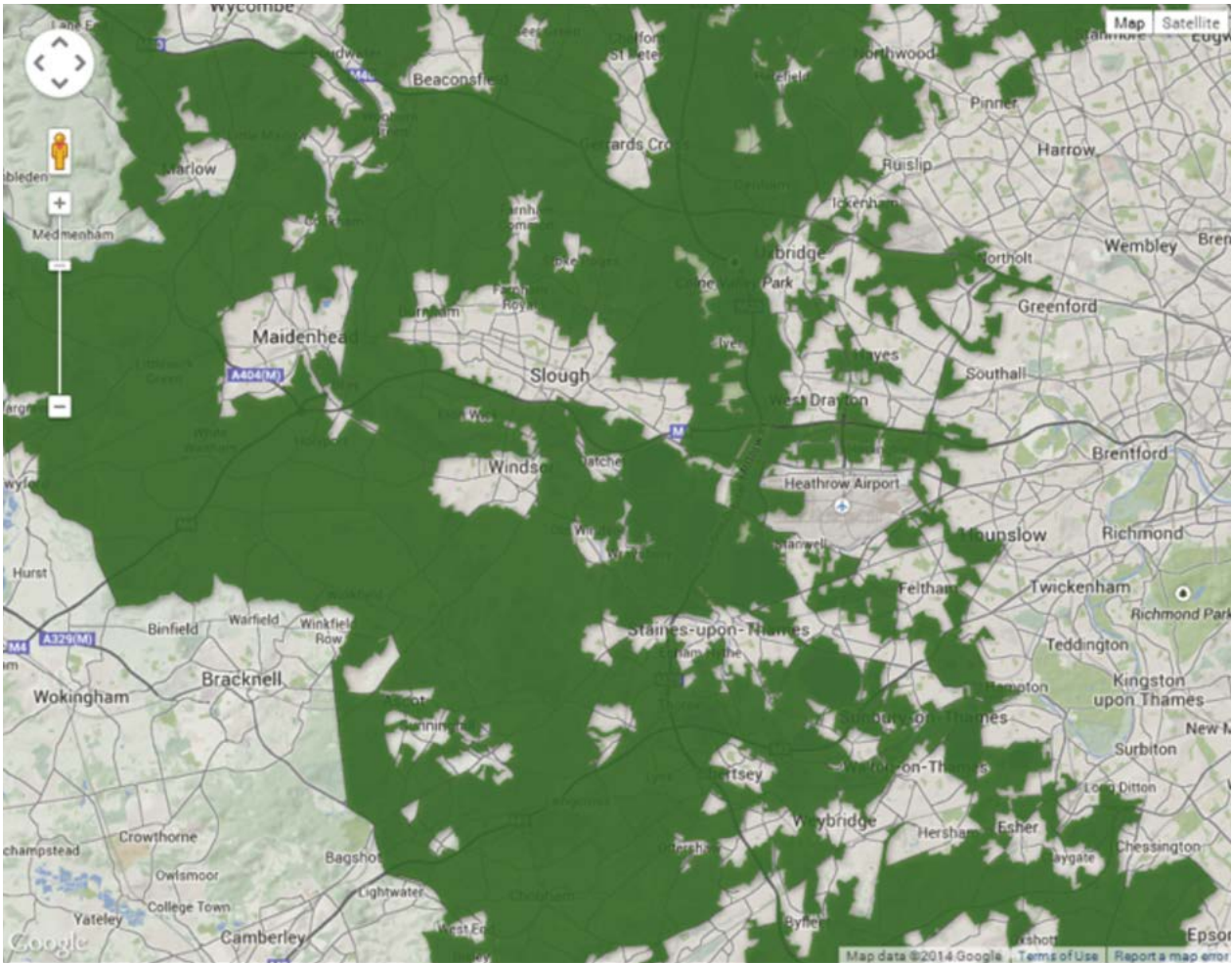
## Heathrow

Heathrow is located in the south of Hillingdon Borough. Part of the development proposed in the Borough's adopted local plan is within the London Plan growth area; the 'Heathrow Opportunity Area' just to the north of Heathrow. Heathrow has a large impact on the borough's economy and will continue to be a driver for development in the longer term with or without the expansion. Large areas of the borough however, are within the Metropolitan Green Belt, including around the Heathrow Opportunity Area. The Green Belt and the developed nature of the borough means it may be a challenge to find suitable major development opportunities in the longer term.

### **Land Supply**

Hounslow Borough lies to the south east of Heathrow, partly within the metropolitan Green Belt. The map below shows the built up character of the area. Spelthorne Borough is on the south western edge of Heathrow. The area closest to Heathrow consists of the urban area of Stanwell, the Metropolitan Green Belt and three large reservoirs including the Wraysbury Reservoir Complex and the Queen Mother Reservoir. Further afield are the urban settlements of Ashford and Staines where development is proposed in the adopted core strategy. Again, the presence of Heathrow impacts on the economy and will be important in driving development requirements in the longer term. Scope for development is also heavily constrained by Flood Zone 3, particularly to the south.

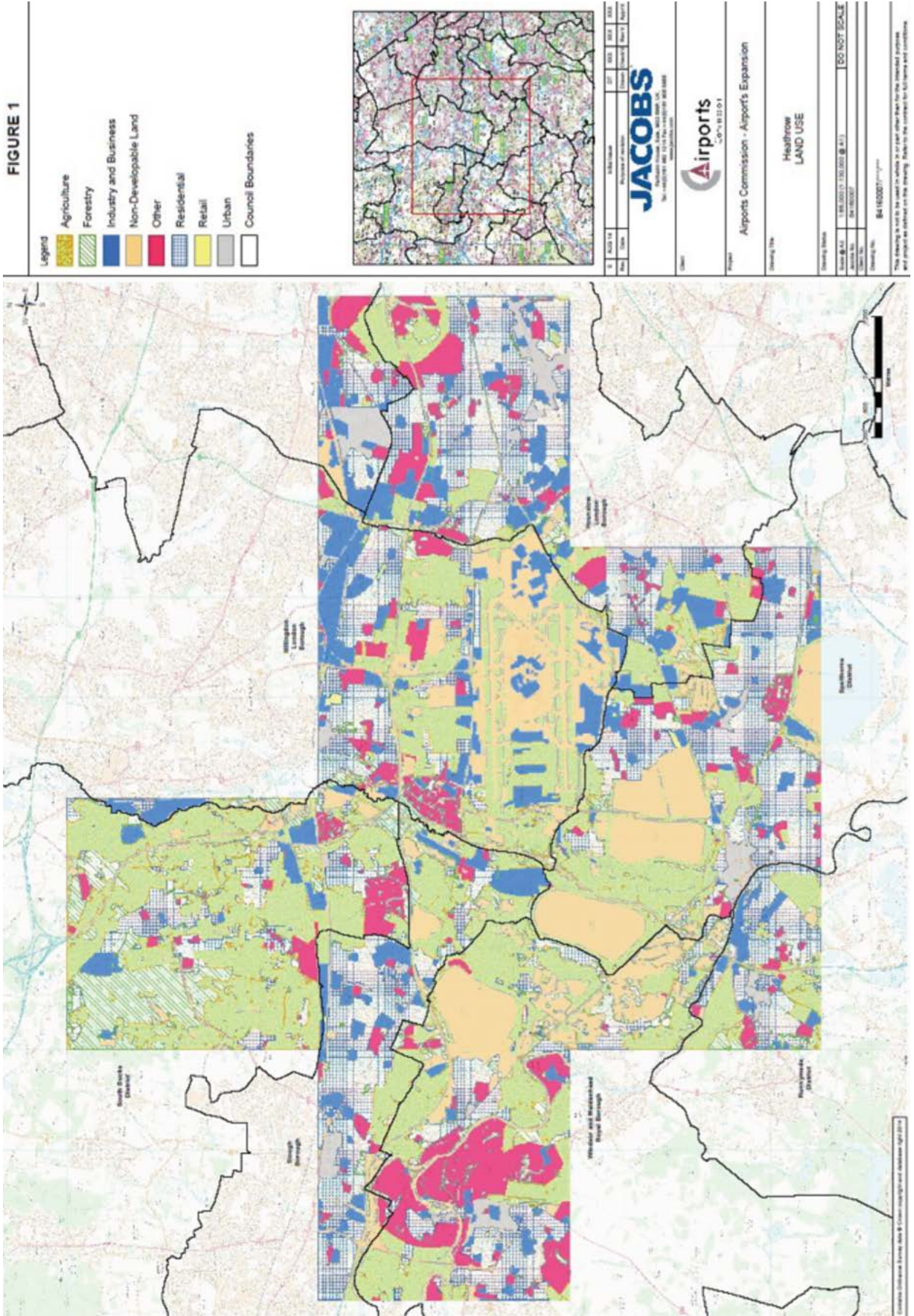
**Figure 46: Green Belt Land around London Heathrow**



Slough Borough to the west of Heathrow currently has a large strategic gap between the main urban areas of the borough and Heathrow allocated in its adopted core strategy to remain undeveloped. The rest of the area is heavily developed with a number of open spaces on the edge of the borough which are designated as Green Belt constraining development.



FIGURE 1



## Land Demand

### Commercial and residential floor-space

There is currently a general shortage of available premises for industrial and office space, particularly in the London boroughs, becoming less of a challenge moving out along the Western Wedge towards Reading. Within the 14 boroughs of assessment around Heathrow, local plans all highlight that expansion of office and industry floor-space is necessary to cope with anticipated levels of employment demand by 2030.

As demonstrated in **Table 63**, the number of jobs per authority generated per year up to 2030 is 295 for a Heathrow Airport North West Runway expansion and 240 for a Heathrow Airport Extended Northern Runway expansion. We can reasonably assume these businesses would need commercial premises but it is still likely that across the entire assessment area this would not be a constraint on realising the benefits of the airport expansion. Similarly for housing, with a maximum of 400 or 500 homes per year, the large area considered can be expected to be flexible enough to accommodate this although at the high end this will be more challenging.

<b>Table 63: Maximum Additional Jobs &amp; Housing per Local authority (2020–2030)</b>	
<b>Heathrow Airport North West Runway</b>	
Number of jobs per local authority per year	800
Number of homes per local authority per year	500
Highest potential number of jobs over all LA's	112,400
Highest potential number of homes over all LA's	70,800
<b>Heathrow Airport Extended Northern Runway</b>	
Number of jobs per local authority per year	700
Number of homes per local authority per year	400
Highest potential number of jobs over all LA's	96,200
Highest potential number of homes over all LA's	60,600

### Housing Density

Although the housing required per local authority that there will be areas which are challenging for individual authorities and potentially de-designation of areas of Green Belt could be required. This being said, the numbers per local authority do not suggest land supply is a barrier to airport expansion and realising the benefits associated with that expansion.

It is estimated that if current average housing densities in these areas continue, 4200m<sup>2</sup> to 9900m<sup>2</sup> of additional land per local authority will be required to meet the additional housing need from expansion under the Heathrow Airport North West Runway proposal

and 3200m<sup>2</sup> to 5600m<sup>2</sup> under the Heathrow Airport Extended Northern Runway. Moving closer to average London housing densities could reduce this range to 1000m<sup>2</sup> to 2400m<sup>2</sup> under Heathrow Airport North West Runway and to 800m<sup>2</sup> to 2100m<sup>2</sup> under Heathrow Airport Extended Northern Runway. In addition, up to 2000m<sup>2</sup> is required for additional social infrastructure such as health centres.

Each borough council's plan contains a theme of greenfield land preservation; an intention synonymous with that of the development of town centres for housing purposes. For example, Spelthorne has stated that the borough's housing requirements can be met without turning over Green Belt for development purposes since it has no contingency to release Green Belt land. While most local authority plans have shied away from Green Belt development, this strategy may need to be considered given the housing pressures and limited alternatives.

**Table 64: population and employment densities in Local authorities near Heathrow airport, 2012**

Area	Location	Population density (number of people per hectare)	Employment density (number of workplace-based jobs per hectare)
<b>Heathrow airport</b>	Ealing	61	20
	Hillingdon	24	16
	Hounslow	45	23
	Slough	43	25
	Spelthorne	21	8
<b>West London</b>	Hammersmith and Fulham	111	79
	Kensington and Chelsea	131	97
	Brent	72	23
<b>Central London</b>	City of London	26	1,240
	Westminster	102	296
	Southwark	100	64
	Islington	139	128
	Camden	101	133

Source: ONS, PwC Analysis

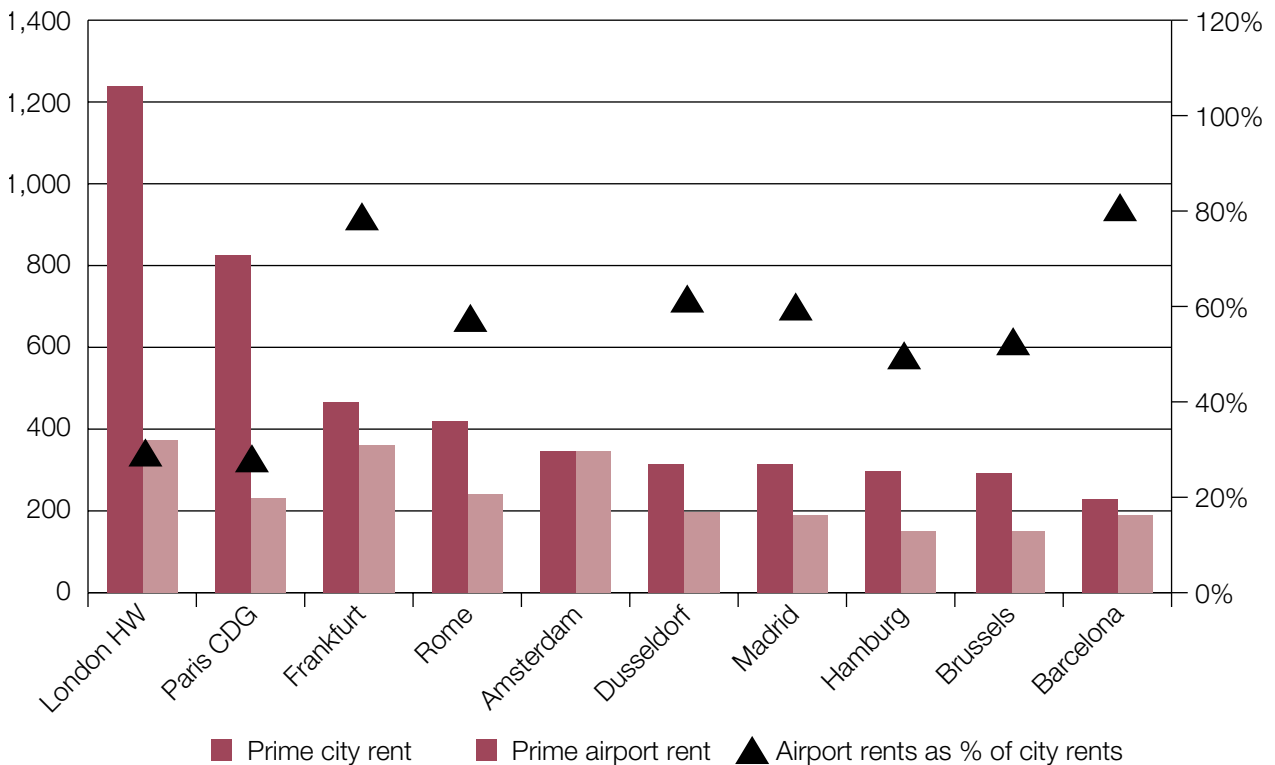
## Land Values

Heathrow already has the highest industrial land values in the UK<sup>121</sup> around it, with most industrial space off airport. Lambert Smith Hampton estimate there is around 7.7 million

<sup>121</sup> Lambert Smith Hampton, (25 Sep 1013) UK Airport Strategy: dicing with the property market, 25 Sept 2013 pg. 12

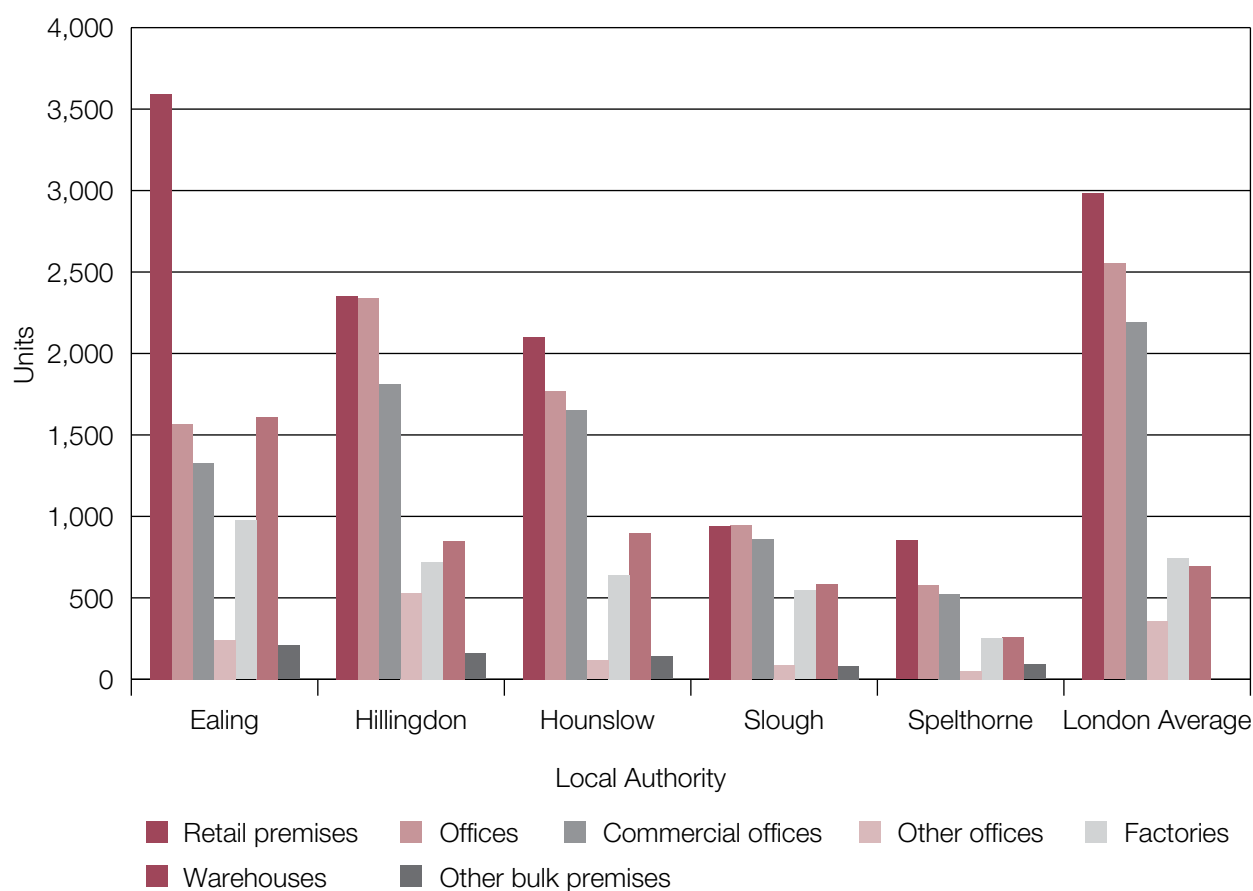
square feet of office space within a close radius of Heathrow and over 30 million square feet within a four mile radius. This being said land costs that are not purely industrial are much lower than in central London. In contrast, for Amsterdam Schiphol Airport, city centre rents are lower than at the airport. This demonstrates the potential growth options for Heathrow in terms of airport rents.

**Figure 47: Land rent values in European Cities**



Source: CBRE

Rents for office space in Heathrow are typically between £25 and £30 per sq. ft. (£27 per sq. ft. in Q2 2013); well above the UK regional average (excluding Central London) of £22.50 per sq. ft. Currently, all of the local authorities immediately around Heathrow have the largest proportion of retail space in their mix. Indeed aside from Ealing; retail and offices are the largest in each councils mix.

**Figure 48: Commercial and Industrial Floorspace (2005 Revaluation)**

The potential influx of new businesses and workers to the area could result in some land price effects i.e. greater demand pushing up land values. However it is reasonable to assume the influx of new business would provide local benefits and there may be some shift of lower value businesses further away from the airport.

Heathrow Hub Limited highlight the supply constraint in their airport masterplan for physical expansion. They see this as an opportunity for the area to move up the value chain through the attraction of highly productive business wanting to be near a potentially expanding global hub airport. This higher productivity would provide greater value economic activity and the businesses would strength the agglomeration effects with Heathrow and the surrounding area through the technical and knowledge based business clusters currently present.<sup>122</sup>

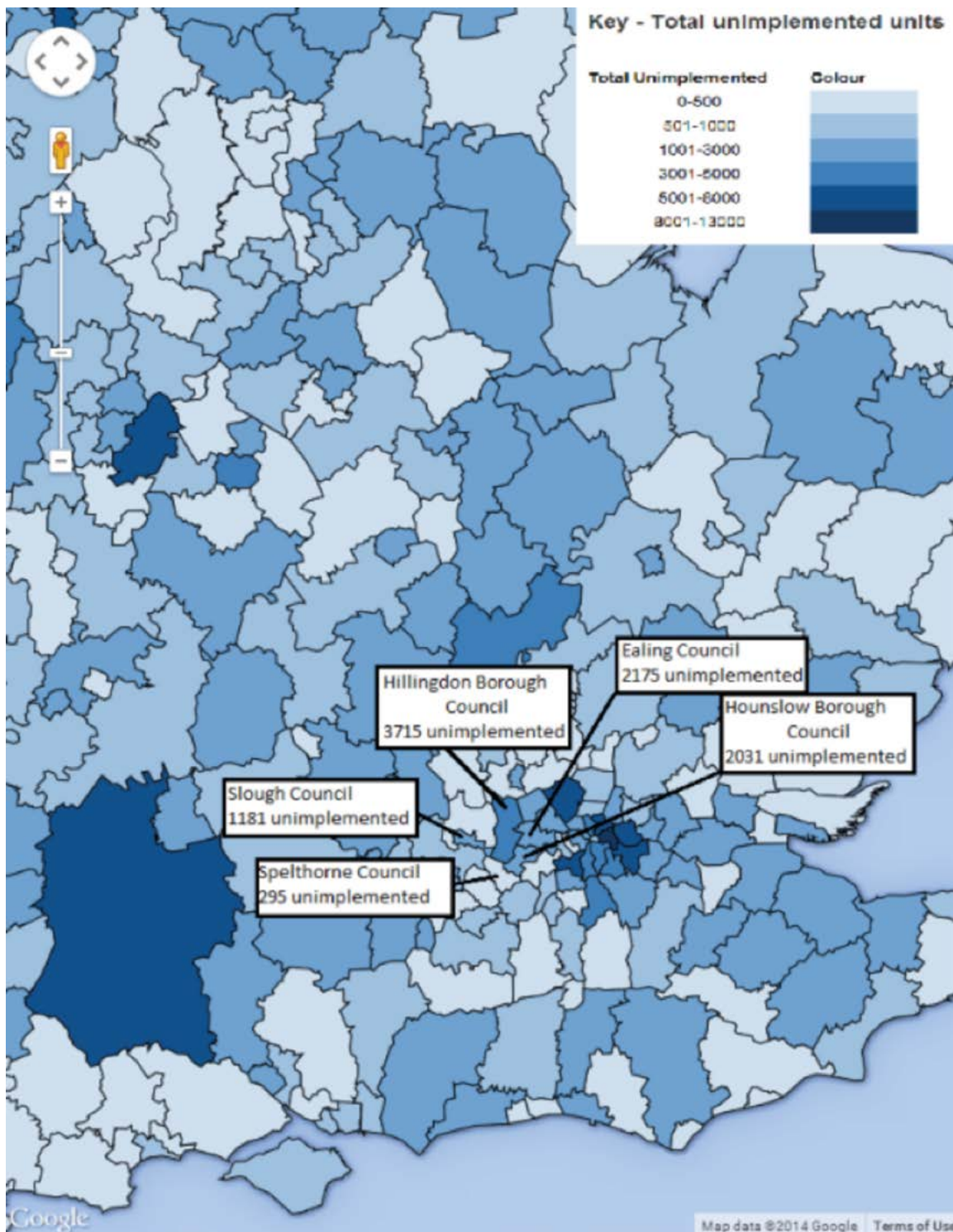
### Planning Applications

Within the planning applications data, it is evident that there is extensive business activity. Hillingdon had 511 minor development applications along with 75 major ones in 2010 and while only 64 per cent and 75 per cent were accepted respectively. Other areas such as

<sup>122</sup> Airports Commission HH/RIL Updated Scheme Design (May 2014) pg.29

Spelthorne had fewer with 21 major applications and 168 minor applications but as over 65 per cent in each case went through, the authorities are evidently considering development. But, this is below the average in England where above 85 per cent of all planning applications were accepted although within varying timescales. Therefore, the authorities around Heathrow indicate slightly less of a new development focus than the national average.

**Figure 49: London Heathrow Unimplemented planning permissions by local authority area**



Source: <http://www.local.gov.uk/mapping-unimplemented-planning-permissions-by-local-authority-area>

# Sources

Adur Borough Council (2012) *Draft Adur Local Plan*

Airports Commission (May 2014) HH/RIL Updated Scheme Design Pg.26

Bracknell Forest Borough Council (Feb 2008) *Core Strategy Development Plan Document*

Brighton and Hove Borough Council (2005) *Brighton & Hove Local Plan*

Crawley Borough Council (Oct 2008) *Core Strategy: Chapter 8 Economy*

Croydon Borough Council (Apr 2013) *Croydon Local Plan: Strategic Policies*

DCLG (24 Mar 2011) *The English Indices of Deprivation*

Epsom & Ewell Borough Council (Feb 2013) *East Street Office Demand Study – Final Report*

Gatwick Airport Limited (9 May 2014) *A Second Runway for Gatwick Appendix A6 Surface Access*

Gatwick Airport Limited (May 2012) *Gatwick Airport Employment and Travel Survey*

Greater London Authority (Oct 2009) *The London Plan*

Harrow Borough Council (2005) *Harrow Core Strategy Final*

Heathrow Airport Limited (2008-2009) *Heathrow Airport Employment Survey*

Heathrow Airport Limited (May 2014) *Technical Submission Volume 1*

Horsham Borough Council (2007) *Horsham District Local Development Framework: The Core Strategy*

London Borough of Ealing (3 April 2012) *Development (or Core) Strategy (DPD)*

London Borough of Hounslow (Mar 2014) *Local Plan Proposed Submission 2015-2030*

London City Airport submission to the Airports Commission, “Consideration of an Inner Thames Estuary Airport as a credible option”, May 2014

Mid Sussex Borough Council (May 2013) *Mid Sussex Submission District Plan*

Mole Valley Borough Council (Oct 2009) *Mole Valley Local Development Framework*

NEF (2014) “Royal Docks revival: Replacing London City Airport”

Optimal Economics (13 May 2014) *Gatwick Related Employment*

Optimal Economics (Sep 2011) *Heathrow Related Employment*

PwC (Oct 2014) *Airports Commission Local Economic Impacts Literature Review*

Regeneris Consulting, (2013) *London Heathrow Economic Impact Study*



Robin Thompson Associates and Urban Studio (2007) *Approaches to Growth—Study of Sub Regional Growth Proposals and Coordination around London*

Runnymede Borough Council (Dec 2013) *Runnymede Local Plan Core Strategy*

Slough Borough Council (Mar 2004) *The Local Plan for Slough*

Spelthorne Borough Council (Feb 2009) *Spelthorne Core Strategy and Policies DPD*

Tandridge Borough Council (2009) *Tandridge Core Strategy*

The Heathrow Phenomenon: Impact Analysis, Deloitte, 2006

The South East Plan (Jul 2008) *Section B Core Regional Policies*

“The tale of two regions”, LSE cities, 2011

Wealden District Council (Feb 2013) *Core Strategy Local Plan*

Windsor & Maidenhead Local Plan (2004) *Chapter 5: Housing*

# Glossary

AC	Airports Commission
ACI	Airports Council International
Agglomeration	Refers to the concentration of economic activity over an area
AMS	Amsterdam Schiphol Airport (IATA code)
AONB	Area of Natural Beauty
AoN	Assessment of Need scenario
ATMs	Air Transport Movements. Landings or take offs of aircraft engaged in the transport of passengers or freight on commercial terms
BML	Brighton Main line
Capacity constrained forecast	Future passenger and ATM demand is limited to airport capacity where no significant additional runway or terminal capacity added
Capacity unconstrained forecast	Passenger and ATM demand is not limited by runway or terminal capacity
Carbon capped forecast	Modelling scenarios where CO <sub>2</sub> emissions in 2050 are limited to 2005 levels through higher carbon prices
Carbon traded forecast	Modelling scenario where CO <sub>2</sub> emissions are part of an ETS, but not limited to any target
Catalytic	Effects generated by the attraction, retention or expansion of economic activity resulting from the increased connectivity
CDG	Paris Roissy-Charles de Gaulle Airport (IATA code)
CGE	Computable General Equilibrium modelling
Clustering	A geographic concentration of related businesses, suppliers, and associated institutions
Direct	Effects which are connected explicitly to the airport itself e.g. its staff
EU	European Union
European airports	Classified as the airports located in the European Economic Area (EEA), including for this purpose Croatia, Switzerland and the dependent territories of EEA States
FALP	Further Alterations to the London Plan

FDI	Foreign Direct Investment
FRA	Frankfurt Airport (IATA code)
FTE's	Full time equivalent (employees)
GAL	Gatwick Airport Limited
GDP	Gross Domestic Product (National Income)
GEX	Gatwick Express
GF	Global fragmentation scenario
GG	Global growth scenario
GVA	Gross Value Added
HA	Highways Agency
ha	Hectares
HAL	Heathrow Airport Limited
HEX	Heathrow Express
HH	Heathrow Hub Limited
HS2	High Speed 2
Hub-and-spoke network	In hub-and-spoke networks, airlines and alliances route their traffic through one or more key airports ('hubs'), with feeder traffic from other airports in the network (the 'spokes') supplementing local origin and destination traffic at the hubs
IATA	International Air Transport Association
I-I	International to International interliners i.e. passengers who are transferring via a UK airport with their origin and destination outside the UK
IMF	International Monetary Fund
Indirect	Effects generated by the activities of the airport's supply chain
Induced	Effects generated by activities related to those directly or indirectly associated with the airport
JFK	John F Kennedy Airport – New York (IATA code)
LA's	Local Authorities
LCK	Low-Cost is King (Scenario name)
LEP	Local Economic Partnership
LGW	Gatwick Airport (IATA code)

LHR	Heathrow Airport (IATA code)
London airport system	For the purposes of this report, the London airport system refers to the following airports: Heathrow, Gatwick, Stansted, Luton and London City
Long-haul	For the purposes of this report, 'long- haul' depicts a destination (or route) to or from a country that is not listed in the group of countries as part of the group of countries defined as 'Western Europe' (or 'short haul')
LSOA	Lower Layer Super Output Areas
Low-cost carrier	Low-cost carriers apply a business model that relies on reducing operating costs to provide passengers with relatively cheap tickets. The model has so far been very successful on short-haul routes
Mppa	Million passengers per annum
Multiplier	A multiplier is a factor of proportionality that assess how much a variable changes as a reaction to another variable
Net additional capacity	Additional runway capacity over and above the level of runway capacity available today
NVQ Level 1	Qualifications equivalent to GCSE below grade C
NVQ Level 2	Qualifications equivalent GCSEs grades A*-C or equivalent
NVQ Level 4+	Qualifications equivalent to post-A level
OBR	Office for Budgetary Responsibility
OECD	Organisation for Economic Co-operation and Development
ONS	Office of National Statistics
PAX	Passengers
Point-to-point connection	A point-to-point connection means a direct connection between two destinations
PwC	PricewaterhouseCoopers
RDE	Relative decline of Europe scenario

Regional airports	For the purposes of this report, ‘regional airports’ refers to the following airports: Southampton, Norwich, Southend, Bristol, Cardiff, Bournemouth, Birmingham, East Midlands, Coventry, Manchester, Newcastle, Liverpool, Leeds, Bradford, Durham Tees Valley, Doncaster – Sheffield, Humberside, Blackpool, Glasgow, Edinburgh, Aberdeen, Prestwick, Inverness, Belfast International and Belfast City. This is consistent with the approach taken by the DfT aviation forecasts
Short-Haul	For the purposes of this report, ‘short-haul’ has been defined in the same way as ‘Western Europe’ and comprises the following group of countries: Andorra; Austria; Belgium; Bosnia Herzegovina; Cape Verde; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Faroe Islands; Finland; France; Germany; Gibraltar; Greece; Greenland; Hungary; Iceland; Ireland; Italy; Latvia; Lithuania; Luxembourg; Macedonia; Malta; Republic of Moldova; Monaco; Montenegro; Netherlands; Norway; Poland; Portugal; San Marino; Serbia; Slovakia; Slovenia; Spain; Sweden; Switzerland; Turkey; United Kingdom. This is consistent with the DfT’s definition of ‘Western Europe’ as used in their aviation demand modelling
TfL	Transport for London
Transfer traffic	Passengers connecting between their origin airport and destination airport through an intermediate airport
TSGN	Thameslink, Southern and Great Northern
UK	United Kingdom
US	United States
WebTAG	Department for Transport Appraisal Guidance

## **Contact Information**

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