SUMMARY REPORT & POSSIBLE IMPLICATIONS FOR STRATEGIC PLANNING

JOINT EVIDENCE BASE AND INFRASTRUCTURE STUDY

OCTOBER 2018

Quod & Arup

Contents

DISCLAIMER: This paper is part of the Joint Evidence Base and Infrastructure Study, prepared jointly by Arup and Quod. This work is draft. The findings and conclusions in this paper represent the views of consultants. They do not form part of the evidence base for any current or draft Local Plans. No policy conclusions can be drawn from this paper; it is necessary background work to inform joint working associated with a potential DCO application relating to the expansion of Heathrow Airport.

1 Introduction

The Joint Evidence Base and Infrastructure Study (JEBIS) was commissioned by Heathrow Airport Limited and Heathrow Strategic Planning Group to understand the implications for strategic planning in the area of the proposed third runway and expansion at Heathrow Airport. This report summarises the five-stage process (each of which has its own separate report) and identifies possible implications for strategic planning. The study is accompanied by a database of information which will allow findings to be updated as more detailed information becomes available through the planning process for Heathrow.

Purpose and Scope

1.1 The Joint Evidence Base and infrastructure Study (JEBIS) was commissioned by Heathrow Airport limited (HAL) and the Heathrow Strategic Planning Group (HSPG).

1.2 The intention of the Study was to provide an evidence base for the authorities in the study area, in the context of the wider region and sub-region, concerning the potential impacts of the expansion of Heathrow Airport in addition to planned 'background' growth in the sub-region. The evidence base looks principally at potential impacts on the local economy, labour market and associated demand for employment land and housing. It assesses associated infrastructure requirements to support this level of development.

1.3 Although this summary report provides some broad conclusions as to the types of issues and options facing the Authorities in developing planning policy – both strategic and local – it is not intended to suggest any particular conclusions. Instead the Authorities and other partners can use the evidence base to develop the approach in the context of their own priorities and wider strategic and national policy guidance.

1.4 The evidence in the five reports is, where possible, provided in electronic format in a way that can be updated by the partners from time to time as new information becomes available, and the Airport expansion proposals are developed.

Proposals for Heathrow Expansion

1.5 The Airports Commission examined the need for additional UK airport capacity and made a report to the Secretary of State for Transport on 1 July 2015. Following its analysis of the report, on 25 October 2016, the Government announced its preference for a third runway to be developed at Heathrow.

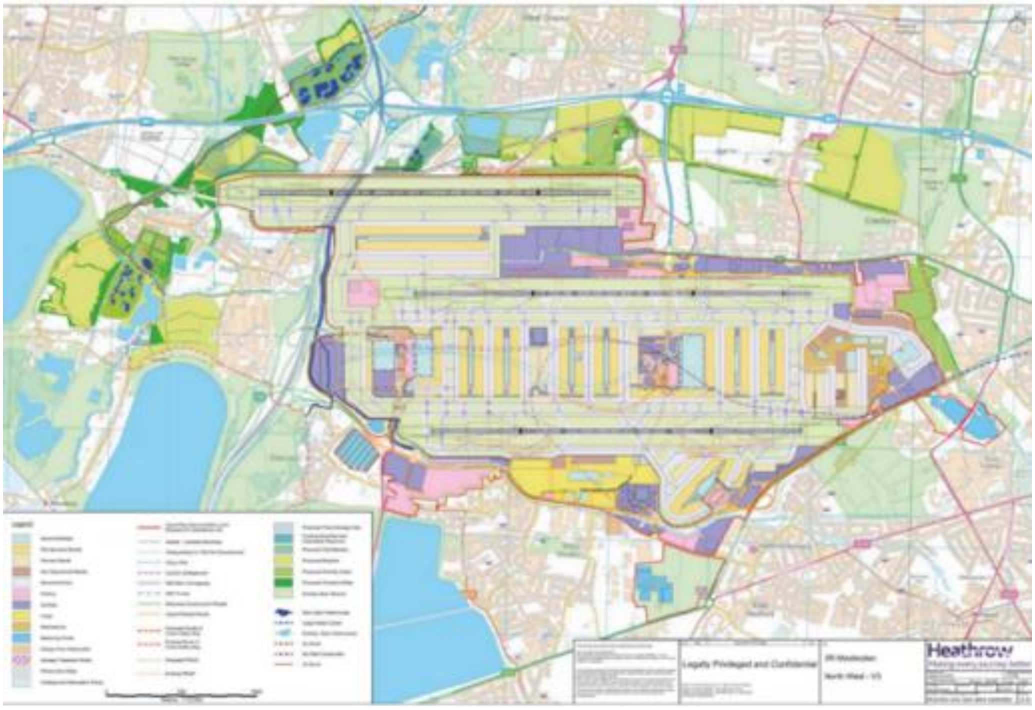
1.6 The National Policy Statement (NPS) was designated by Parliament in June 2018 following consultation. This states that:

"The policies in the Airports NPS will have effect in relation to the Government's preferred scheme, having a runway length of at least 3,500m and enabling at least 260,000 additional air transport movements per annum. It will also have effect in relation to terminal infrastructure associated with the Heathrow Northwest Runway Scheme and the reconfiguration of terminal facilities in the area between the two existing runways at Heathrow airport."

1.7 An *Illustrative Heathrow Northwest Runway scheme masterplan* is appended to the NPS which is shown overleaf. Its status is described in paragraph 4.11. This suggests an expansion of the Airport footprint to the Northwest which will displace some existing uses and will also have a range of direct social, economic and environmental impacts.

1.8 Heathrow Airports Limited are required to apply for a Development Consent Order for the project and associated development. In doing so they are required to follow a statutory process of consultation and engagement on the proposed project and its impacts before formally submitting an application.

Figure 1: Illustrative Heathrow Northwest Runway Scheme Masterplan (Airportrs NPS, 2018, Annex B)



1.9 Consultation will occur This will happen during the remainder of 2018 and through 2019 and until this is completed there will be no final Masterplan on which impacts can be assessed.

1.10 At this stage therefore the JEBIS work, which is considering potential impacts on the wider area is based on assumptions from information published as part of the Airports Commission consultation and the subsequent statutory process in relation to the NPS. This is explained in further detail below and in the five 'stage' reports.

1.11 There will be an obvious interaction between the proposals, specifically for the Airport within the DCO application, and how that interacts with the wider area, particularly in the immediate authorities (Hillingdon, Hounslow, Spelthorne and Slough). This issue is the subject of ongoing engagement between the HSPG authorities and HAL and the JEBIS work will inform this discussion. This is dealt with further in Sections 5 and 6 below.

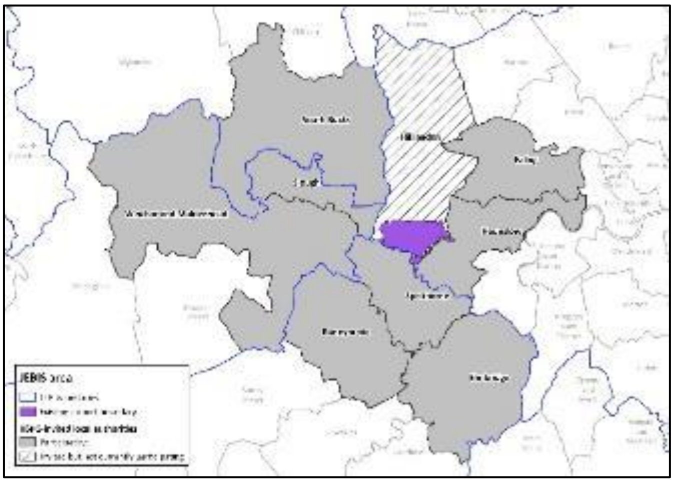
The Study Area

1.12 A Study Area was defined in partnership with the HSPG group, and following Planning Practice Guidance approach to defining commercial property markets and housing market areas. The approach to this is set out in Section 2 of the Stage 1 report.

1.13 This found that the HSPG area is very similar to the Heathrow and Slough Travel to Work area and also contains the authorities accounting for a high proportion of current Heathrow employees. All of the authorities in the Core Study Area are members of the HSPG, apart from LB Hillingdon. This is shown in Figure 2 below.

1.14 The Study also includes other spatial areas for assessment. This includes a wider sub-regional area incorporating the Elizabeth Line West sub-area in the Draft New London Plan (2018) and the Thames Valley Berkshire, Buckinghamshire Thames Valley and M3 LEP areas. It also includes current labour market catchment areas, and property market areas for logistics and offices.

Figure 2: Core Study Area



Methodology

1.15 The Methodology of the study was agreed with the HSPG group. This involved a five-stage incremental process as set out in Box 1. Each stage involved a presentation of the interim findings in a workshop with the HSPG group and their approval of key inputs for the subsequent stage.

1.16 The analysis considered the full range of top down and bottom up forecasts against background growth in 5 yearly phases to 2041, through construction until utilisation of new airport capacity is fully established.

1.17 Each stage was brought together into a Draft Report that was issued to the group for comment before the reports were finalised. This report brings together a summary of the findings of each stage and identifies some suggested approaches that HSPG may wish to consider in future strategic planning.

Box 1

The 5 Stage Process

Stage 1:

Baseline Analysis

Heathrow Growth Scenarios

Stage 2:

Combined Growth Projections to Input to Economic Model

Stage 3

Employment, Property and Labour Market Implications from 'Oxford Economics' Model

'Bottom Up' Implications from Lichfields' Floorspace Demand Study

Stage 4:

Labour Force, Population and Household projections and Implications

Stage 5:

Infrastructure Assessment and Issues

2 Growth Scenarios and Forecasts (Stages 1 and 2)

The starting point for the Study was to understand the projected growth arising from the Heathrow proposals and how they related to background growth already assumed and/or planned for in the area. This involved a detailed review of the eight assessments that have been undertaken to date – by HAL themselves, the Airports Commission, the Department for Transport and on behalf of Local Authorities. Two core 'scenarios' were agreed with HSPG to input to Oxford Economics model of the area to test wider economic and demographic impacts.

Current Position at Heathrow

2.1 Heathrow Airport Ltd undertakes a regular Employment Survey to understand the amount of people who work at the Airport. The two most recent published surveys (2008/9 and 2013/14) identify approximately 76,000 people working at the Airport.

2.2 These are people who work for an employer located within the boundary of the Airport, HAL's Compass Centre and British Airways' Waterside HQ. This is a 'headcount' figure. This forms the basis for estimates of 'Direct' employment. Details of the employer and job types are set out in Section 3 of the Stage 1 report.

2.3 Optimal Economics undertook a wider assessment for HAL in 2011 to understand how many jobs were supported in the wider area. In addition to the 76,000 on site. This identified several further categories of employment: Direct Off-Airport employment: 7,700 jobs, Indirect Employment: 11,800 'local' jobs, Induced Employment: 18,600 'local' jobs. This gave a total local employment attributed to the Airport of 114,000.[1]

2.4 This data is survey based and therefore remains the most reliable assessment of local impacts. Several of the subsequent studies have used this assessment as a basis for their own modelling of current and future relationships.

'Top-Down' Assessments of Potential Growth

2.5 The JEBIS study has then reviewed in detail the methodologies used to project current and future employment at Heathrow. These are:

- Regeneris (2013) London Heathrow Economic Impact Study
- Parsons Brinkerhoff/Berkeley Hanover (2013), Heathrow Employment Impact Study
- Frontier Economics, for HAL, (2014), Employment Impacts from Growth at Heathrow
- Airports Commission (2014/2015) Local Economic Impacts Assessment
- Department for Transport (2016/2017) Further Review and Sensitivities Report and Updated Appraisal Report

2.6 A detailed description of the methodology and findings of each study is set out in Section 3 of the Stage 1 report.

2.7 The Regeneris and Parsons Brinkerhoff studies were undertaken for local stakeholders and for the most part seek to provide a 're-scaled' version of the Optimal Economics assessment but for different geographical areas.

[1] For Optimal Economics 'Local' was defined as Hillingdon, Hounslow, Spelthorne, Ealing, Slough

2.8 The Parsons Brinkerhoff Study also introduced the concept of 'Catalytic Effects' essentially seeking to identify those businesses that have a wider market area and are not airport (or air passenger transport) serving but are attracted locate in the area because of the proximity of the airport. It suggests that for Hounslow, Slough and Ealing these impacts would be more significant than the direct, indirect and induced employment.

2.9 Frontier Economics Study for HAL uses the relationship between passenger numbers, air traffic movements and employment with the Heathrow Employment Survey as base. This assessment which formed part of the 'Taking Britain Further' submission to the Airports Commission in 2014, forecast 35,600 additional direct jobs at Heathrow by 2040. This assessment will be updated in due course.[2]

2.10 The Airports Commission undertook two studies to inform their reports, in 2014 and 2015. These were produced by PWC and included (for 'Local' impacts) Direct, Indirect and Induced Employment. This included ranges for the scale of impact and different reference dates. A separate assessment was undertaken of net impact on UK job creation using complex econometric modelling.

2.11 The Airports Commission studies provide the best assessment of the total Direct, Indirect and Induced impacts at the 'Local' level, which covers an area larger than the HSPG Core area but smaller than the regional assessment. It includes an 'end' (2050) position of between 28,100 and 41,400 additional direct jobs at Heathrow. It is worth noting that Heathrow's own assessment sits at the centre of this range.

Box 2

Types of Employment Impact

Direct Employment: Employment by business operating within the Airport boundary or wholly providing services or activities to the airport and its users

Indirect Employment: Firms providing goods and services to the 'direct employment' businesses

Induced Employment: Employment supported by **the expenditure of employees of the direct and indirect employers**

Catalytic Employment: Employment generated by companies locating close to the airport because of its connectivity, and/or employment generated in the wider economy because of the effects of enhanced trade links due to network effects

'Bottom-Up' Assessment of Potential Demand for Land for Employment Uses

2.12 HAL commissioned Lichfields to produce an Employment Land Forecasting Study to inform its engagement with HSPG and establish the current extent of airport related and supporting development is and might be in the future. This study contains two parts, a 'current state assessment' to identify the baseline position for employment land related to the Airport and a 'future state assessment' which makes projections based on scaling up floorspace demand in key sectors in line with projected increased Air Traffic Movements, passenger numbers and cargo.

[2] 1.1 The Frontier Economics study also included Indirect, Induced and Catalytic Employment, but these were at a UK level and have therefore not been used in the JEBIS report

Figure 3: Lichfield's Floorspace and Land Requirements by 2040 : with Expanded Runway (Carbon Traded & Carbon Capped) and Existing Runway (2R Constrained)

		Carbon Capped			Carbon Traded			HAL 2R Constrained		
		Floorspace m² / Bedrooms	Land (Ha)		Floorspace m² / Bedrooms	Land (Ha)		Floorspace m² / Bedrooms	Land (Ha)	
			Low	High		Low	High		Low	High
Hotels		8,685	24.0	57.5	9,407	25.5	60.0	1,432	4.5	10.0
Industry and Warehousing	Cargo Handling	648,296	97.6	133.8	648,296	97.6	133.8	214,295	28.2	41.3
	Freight Forwarding	112,671	18.8	28.2	112,671	18.8	28.2	77,454	12.9	19.4
	Airport Catering	62,073	13.8	15.5	67,262	14.9	16.8	10,241	2.3	2.6
	Maintenance	27,908	7.0	7.0	27,908	7.0	7.0	-19,872	-5.0	-5.0
	Other airport-related logistics	513,871	85.6	128.5	513,871	85.6	128.5	87,025	14.5	21.8
	Light industrial	25,686	6.4	6.4	25,686	6.4	6.4	25,686	1.2	1.2
	Heavy industrial	23,959	6.0	6.0	23,959	6.0	6.0	23,959	1.2	1.2
Offices	On-airport offices	53,440	2.7	2.7	53,440	2.7	2.7	660	0.0	0.0
	Offices in airport supply chain	108,966	5.4	10.8	108,966	5.4	10.8	776	0.0	0.0
	Small-scale local offices	37,935	1.9	1.9	37,935	1.9	1.9	382	0.0	0.0
	Large-scale corporate	184,639	9.2	46.2	220,112	11.0	55.0	1,962	0.1	0.5
Total			278.4	444.4		282.8	457.1		60.0	93.1

2.13 Unlike the other studies the outcomes are expressed as areas of floorspace rather than as employment numbers.[3] For the purposes of spatial planning the findings of the study will inform both Heathrow's Masterplan and the response of the Local Authorities in whether/how they seek to provide capacity for the uses that are not provided on the Airport.

2.14 Figure 3 shows the Lichfield's data, for floorspace and land requirements based on these scenarios. This includes uses displaced by the physical expansion of the Airport. These requirements have been translated into indicative jobs numbers to test them against the 'top down' assessment described above.

2.15 The identified 'additional' floor area required equates to around 50,000 jobs, although this will not all be net additional and will include parts of the direct, indirect and catalytic employment forecasts.

2.16 HAL has been peer reviewing the findings of the Study in relation to Industry and Warehousing Uses and updating the position on hotels. This information will be shared with the HSPG authorities and the implications for JEBIS will be updated in response to this.

[3] Full details of the methodology are set out in the two reports (Lichfields 2018). This includes a 'straight line' extrapolation of growth in Airport activity to growth in land uses. This assumption will need to be tested in planning for growth.

Area Baseline and Context

2.17 The expansion of the Airport will take place in the context of an area with a very large economy and population. It will also happen over a 20 to 30 year period, in which the economy will go through several economic cycles and is predicted to grow significantly.

2.18 The Core HSPG area is currently home to around 1 million jobs and 1.6 million people. Even without factoring in the third runway at Heathrow trend-based forecasts by Oxford Economics suggest that by 2041 employment could grow by around 130,000 and population by around 250,000. This would be the equivalent of a town the size of Reading or a new London Borough.

2.19 The Local Authorities are already working to consider how to Plan to meet this growth. This includes joint working across Housing Market Areas. This is summarised in the Stage 1 and Stage 2 reports, including current forecasts

Scenarios for Testing Additionality

2.20 In order to understand the potential 'additionality' of the top down and bottom up assessments described above it was agreed that some scenarios would be run through Oxford Economics' macro-economic model.

2.21 The inputs to the model are the direct employment forecasts broken down by sector and location. The model then calculates indirect and induced employment by Local Authority and identifies where those taking the jobs would live and the impact on (among other things) commuting and household numbers.

2.22 In order to provide these inputs modelling of the likely sectoral breakdown of jobs based on the Heathrow Employment Survey and official data (See Stage 2 report) was undertaken. The direct jobs were then split between Hillingdon and Hounslow boroughs on the basis of the current split in air transport related jobs, again based on ONS data.

2.23 It was agreed that two scenarios would be run, one based on the HAL forecast of direct employment and one based on the Airport Commission. This was on the basis that the identification of direct employment is clear in each model, including assumptions about dates. Effectively the Heathrow figure provides a 'central case' and the Airports Commission a 'high end' scenario.

Figure 4. Direct Employment Scenarios for Testing

	HAL	AC/DFT
2017 to 2021	0	0
2021 to 2026	10%	50%
2027 to 2031	40%	50%
2031 to 2042	50%	0 (possible fall)
Total Direct	35,600	41,000

3 Implications for the Labour Market, Property Market, Housing and Economic Growth (Stages 3 and 4)

The Oxford Economic Model

3.1 As described above the Oxford Economics model is an integrated model, based on the observed interrelationship between demographic and economic indicators. The model is 'trend based' and therefore extrapolates forward existing relationships.

3.2 For the purposes of this study it should therefore be seen as a 'do as now' model in terms of sectoral and demographic trends. It does not make assumptions on the basis of policy decisions eg. the decision on the third runway or housing targets, but its datasets are based on existing sectoral strengths and rates of demographic growth and therefore housing delivery.

3.3 It does not assume that any pro-active actions are taken by HAL, or by local partners to capture growth in the area including catalytic growth.

Employment Growth

3.4 Full details of the economic and employment outcomes are set out in the Stage 3 and 4 reports, and the detailed data is in the associated spreadsheets provided to the HSPG members supporting the JEBIS work. The table below shows the baseline projected employment growth for the Core Study Area authorities, and the additional Heathrow growth. This is workplace-based employment, from a trend based 'top down' model.

3.5 This shows the vast majority of employment growth, without additional actions to capture it, will take place in Hillingdon and Hounslow. However, this is to some extent an arbitrary extrapolation of how employment is currently recorded.

Figure 6, Workspace Based Employment, Direct, Indirect & Induced

Employment growth 2018-2041	Baseline	Additional in Heathrow central case
Ealing	17,985	603
Hillingdon	21,216	29,370
Hounslow	36,196	17,255
Elmbridge	12,124	95
Runnymede	9,979	277
Slough	10,860	171
South Bucks	7,894	83
Spelthorne	1,917	180
Windsor & Maidenhead	12,520	139

3.6 As noted above direct employment can be both on and off airport and with an expanded airport there is the potential for direct employment to be captured in other authorities which abut the Airport, particularly Slough.

3.7 In addition, the Optimal Economic research described in the previous section finds higher levels of off-site direct, indirect and induced employment in its defined 'local area' based on survey data.

Labour Market Impacts

3.8 Labour market impacts are more widely dispersed. Jobs at Heathrow are taken by people living in a wide area, and the biggest economic impact on most authorities will be in their residents taking jobs at the Airport. The 2013 Employment Survey found that over half the jobs at Heathrow were taken by residents of the five closest local authority areas.

3.9 If current patterns were replicated by the new direct jobs at Heathrow that would mean an additional 5,000 to 6,000 residents of Hillingdon and Hounslow, and 2,800 to 3,300 of Ealing and Slough and 1,750 to 2,000 from Spelthorne would work at the Airport.

3.10 The Oxford Economics model suggests that this increases the employment rate compared to the baseline, particularly in Hillingdon and Hounslow where is prevents a projected fall in employment rates.

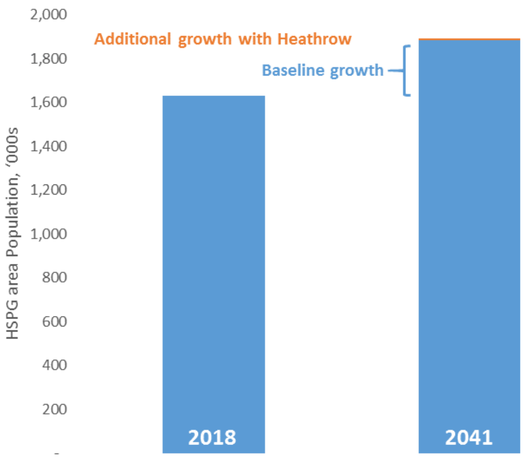
3.11 Current employment patterns in part relate to accessibility by public transport to the airport, which is particularly important for local residents and those in lower paid and entry level jobs. The surface access strategy for the airport is required to achieve a significant increase in the proportion of employees accessing the airport by sustainable means.

Impact on Population and Households

3.12 As we have already noted in the previous section the area already has a large and rapidly growing population. This is projected to continue during the period of Airport expansion.

3.13 The Oxford Economics model 'central case' suggests that Heathrow's expansion and impacts on labour demand will have a negligible impact on population growth, and consequently on the number of households.

Figure 7: Projected Population Growth to 2041 (with and without 3rd runway, Central Case)



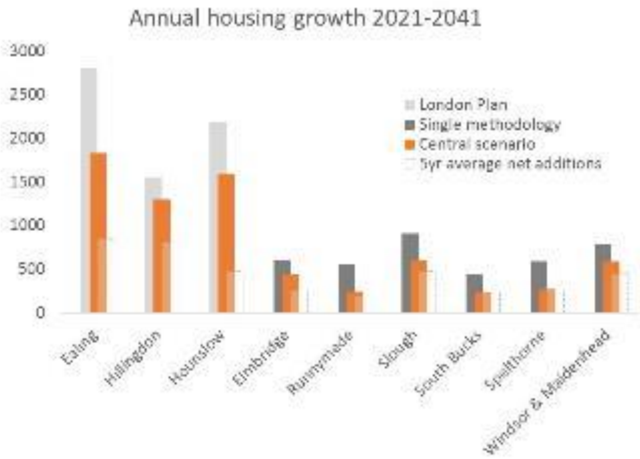
3.14 As Figure 7 shows the population of the area is projected to grow by around 15% or 250,000 by 2041. Growth at Heathrow could increase this by c. 10,000. The reason for the relatively small impacts is that the model assumes higher levels of economic activity, reduced out-commuting and increased in-commuting.

3.15 This is mirrored in projected household growth. This is projected to be c. 26% by 2041 an increase of 162,000 to 795,000. Heathrow growth could add an extra 3,000 households to this total. Almost all of this growth would be in the three London boroughs – Ealing, Hillingdon and Hounslow. The impact on the non-London authorities would be negligible. The detailed figures are set out in the Stage 4 report and accompanying dataset.

3.16 Recent population and household projections from both the Office for National Statistics and the Mayor of London have been volatile. This has been due to changes in fertility, migration, mortality and average household sizes. It will therefore be important to continue to monitor our findings as broader projections are updated.

3.17 It should however be noted that both the Mayor of London and the Government (through the draft standard methodology for assessing housing need are currently proposing targets that exceed the household projections described above, in some cases significantly.

Figure 8: Housing Targets, Delivery and Household Growth



3.18 Figure 8, above, identifies the targets set out in the Draft new London Plan (2018) for the London Authorities, the draft standard methodology for the non-London authorities, the Oxford Economics projections (including Heathrow Growth, and recent delivery. These targets are still in draft and in the Mayor's case will be subject to examination. Also the Government methodology is expected to be finalised informed by updated household projections.

3.19 Nevertheless, to the extent that authorities plan to meet these targets there is no obvious need for any additional homes to be planned as a result of the Heathrow proposals.

Commercial Property Market Impacts

3.20 The Lichfield's Study and ongoing engagement between HAL and the HSPG authorities set the context for the consideration of property market requirements and impacts.

3.21 Figure 10 (overleaf) seeks to reconcile the 'top down' employment forecasts (Direct, Indirect, Induced and Catalytic) against the types and amounts of employment floorspace identified by the Lichfields study.

3.22 This identifies the series of Lichfields categories that are identified as 'on' or 'adjacent' to the airport that equate to the 'Direct' (on and off site) employment. It then identifies those that are likely to meet the 'Indirect' category which potentially have a wider catchment, and finally the 'catalytic' type uses (HQ offices and strategic Logistics) that could be attracted to the area but equally could locate elsewhere in the sub-region/region. Further exploration and testing of these requirements and locational flexibility will be required as part of masterplanning design stages prior to DCO submission. (see **Finding 5.3.1**)

3.23 Clearly these categories are not mutually exclusive and there will be significant overlaps but it does provide a useful way of thinking about the spatial options for meeting these requirements. Figure 9, below, identifies four tentative spatial levels which the HSPG authorities may wish to consider in their spatial planning thinking.

3.24 A pro-active approach potentially offers the opportunity to enhance the 'do as now' employment effects described above by providing strategic capacity for direct and indirect employment on and adjacent to the Airport and by seeking to secure 'catalytic' employment which has previously been identified by several of the authorities as a significant opportunity for them.

Figure 9: Illustrative Spatial Approaches for Uses

Spatial Level	Actions
Airport Masterplan and Integration (Heathrow & HSPG)	• Understand disposition and capacity • Understand displacement and additional requirements • Review capacity to meet requirement within and adjacent to airport
Strategic Logistics and Industrial (HSPG)	• Review broader demand • Ability/capacity to meet additional requirement (and extent of additionality) • Specific assessments of strategic locations including capacity for intensification & related infrastructure investment
Large Scale Office Occupiers (HSPG)	• Understand capacity and pipeline • Understand market positioning – catchment potentially from Canary Wharf to Reading with Elizabeth Line, and Southern and Western Rail • New sub-regional locations eg. Old Oak • Wider 'place making' and infrastructure requirements
Town Centres and Growth Points (HSPG)	• Potential Town Centre capacity • Ability to capture Indirect, Induced and Catalytic Employment • Ability to support housing growth with improved connectivity and infrastructure

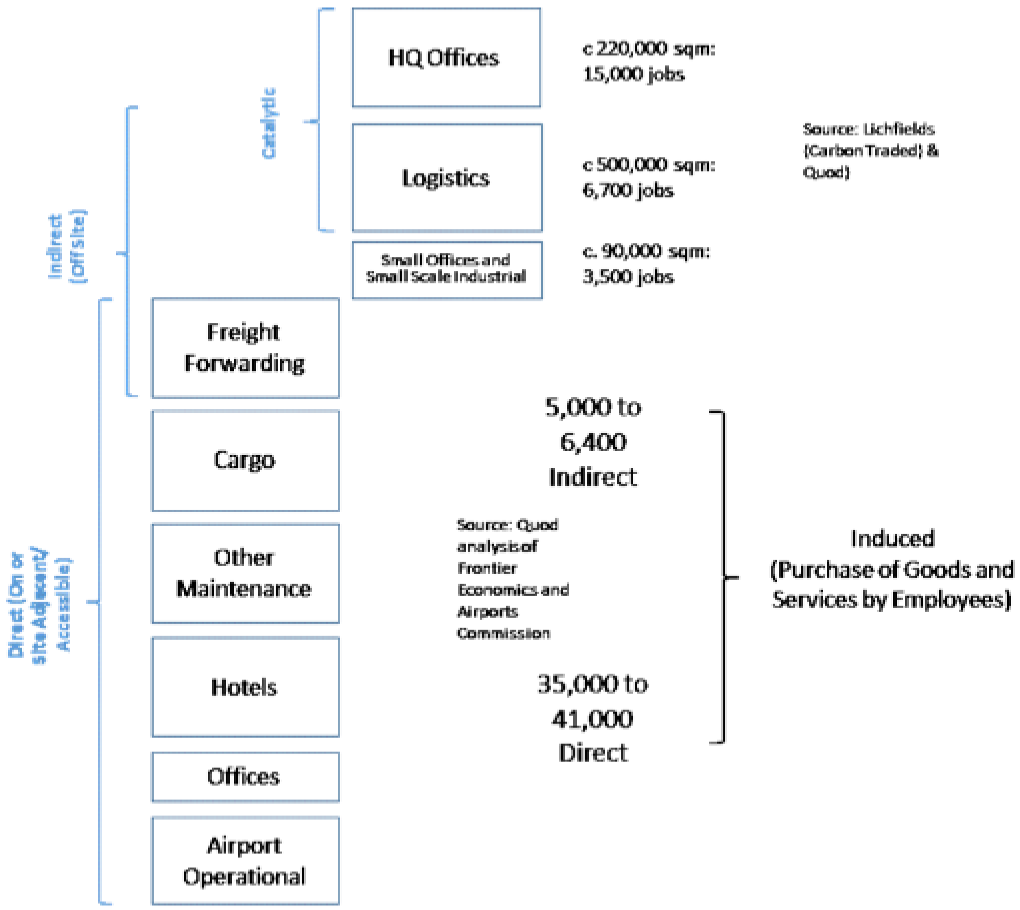
3.25 The Stage 4 report gives more detail on the industrial and commercial property markets in the relevant authorities and where relevant beyond the Core Study Area.

3.26 This concludes that in relation to office provision there is significant capacity and planned capacity in the area and in the context of uptake the quantum identified by Lichfields is manageable. The more critical issue therefore is about quality (including the setting/image as well as buildings) and securing occupiers.

3.27 The logistics sector is more challenging. There is very limited capacity in the current local market, and pressure on existing stock from competing land uses. It will therefore be important for HSPG to consider what is essential to be provided, in the context of the emerging HAL masterplan and the extent to which it would be preferable/acceptable for some growth to be provided beyond the core area. Aylesbury Vale appears to be the only authority which is planning to provide significant additional capacity in the wider study area. **(see Findings 5.3.1 and 5.3.5)**

3.28 Town Centres and other growth points form an additional potential focus. Several of the authorities have programmes of, or ambitions for, Town Centre regeneration, and interest in providing capacity for offices, hotels and other Town centre uses. Market demand for these uses will depend on operator models, the attractiveness of locations and the accessibility to the Airport and wider sub-region/region. Some town centres have plans/capacity for residential development which could contribute to labour supply at the Airport. **(see Finding 5.3.4)**

Figure 10: Reconciliation of Top-Down and Bottom -Up Assessments



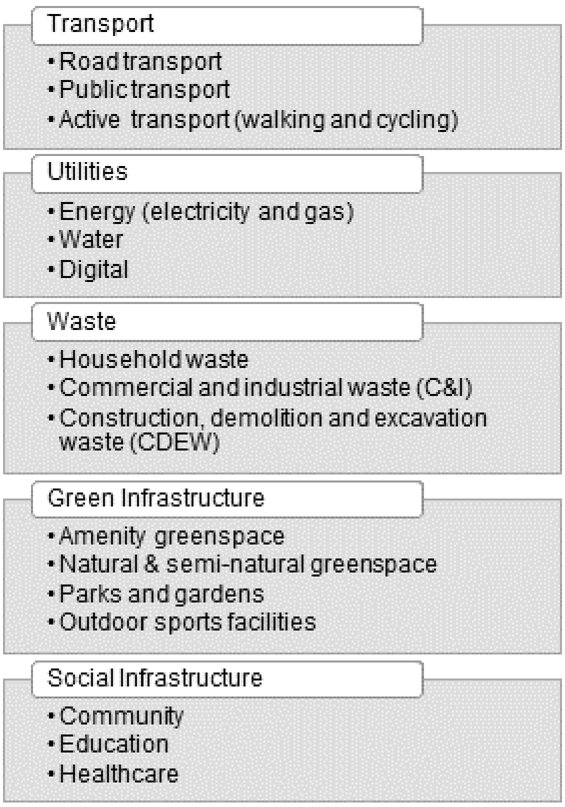
4 Implications for Infrastructure (Stage 5)

Stage 5 of the Study provides a comprehensive assessment of the infrastructure that is currently being planned for and delivered in the Study area to the year 2041. It covers Transport, Utilities, Waste, Green Infrastructure and Social Infrastructure. The report is accompanied by a database that provides HSPG Members with a dynamic model that can be refreshed and updated based on new policy priorities and projects in the future.

Needs Assessment

4.1 The table below shows the infrastructure sectors covered by the needs assessment. A database of planned projects has been compiled using publicly available documents and information provided by HSPG stakeholders through consultation. From this database, infrastructure portfolios containing projects over £1m in value planned in the period has been developed for each of the five sectors.

Figure 11 Infrastructure Needs Assessment (Source: Arup)



4.2 The database identifies over 300 infrastructure projects of which over half are transport projects followed by social infrastructure, and utilities. As is typical of most infrastructure planning there is a significant funding gap (around 25% of total value) and projects are 'front-loaded' in the development period.

4.3 These projects are those in current plans and therefore do not incorporate any plans for the 3rd runway at Heathrow. However some, particularly the transport projects, would form essential context for planning for the Airport proposals, which in turn will influence the detail of those projects which are not yet 'confirmed' or 'fixed'.

4.4 HALs DCO application will be required to undertake comprehensive assessments of infrastructure requirements and direct impacts on existing infrastructure and the provision of infrastructure to avoid or mitigate these impacts. It is not the intention of the JEBIS study to pre-judge any of these outcomes but instead flag up those potential for investments to support complementary strategies to deliver all growth requirements.

4.5 In the same way as HAL and HSPG are working together to consider the direct impacts of land use decisions for the Airport in the context of wider planning a parallel (but linked) process will need to take place on infrastructure.

Transport Infrastructure

4.6 Transport projects are easily the largest single category identified in the assessment. There are 149 projects of which 59 are road projects, 61 public transport and 29 active transport.

4.7 The major public transport projects are of particular significance in the context of Airport expansion although there are already significant capacity constraints. Crossrail 1/Elizabeth Line is already underway and will significantly improve east west links and frequency. A range of other investments are being promoted including Southern and Western Rail links to Heathrow which could contribute to 'leading' how growth is directed and securing some of the Town Centre and catalytic benefits described in the previous section.

4.8 The Heathrow Masterplan will potentially require major road realignments and changes to the local network, including the M25. It will be important that this planning considers the wider spatial planning of the core zone around the Airport, particularly if the authorities are seeking to retain and/or accommodate more logistics uses in the surrounding area.

4.9 Local access to the Airport and airport related development will be very important in maximising local employment and community benefits from expansion as well as meeting DCO surface access and air quality objectives. This needs to ensure effective bus routes and corridors to the airport from local population centres and also the promotion of sustainable and active travel modes to the airport including walking and cycling.

4.10 Given the range of projects identified and competition for funding it will be important for HSPG partners to prioritise investments and work with providers and regional and national Government to secure funding packages.

Green Infrastructure

4.11 Although it accounts for a relatively small proportion of the identified projects in the study area Green Infrastructure, including Open Space, will play a critical role in improving quality of life and the local environment. Not only would this play an important role in its own right, but would also increase the attractiveness of the area to business and potentially help secure the 'catalytic' investment described above.

4.12 Across the HSPG Area, there are a number of key Green Infrastructure and Open Space assets including:

- Colne Valley Regional Park
- The River Crane and Crane Valley Partnership area
- Rivers Brent, Duke of Northumberland and others
- The ten miles of canals in Ealing
- St Ann's, Manor and Fleet Lakes
- Bedfont Lakes and Country Park
- Reservoirs
- Windsor Great Park
- The Jubilee River
- The River Thames

4.13 The Colne Valley Regional Park is the most significant Green Infrastructure asset in the HSPG area. The 43 square mile park includes 200 miles of river and canal network as well as over 60 lakes. It is managed by the Colne Valley Park Community Interest Company (CIC), of which Slough, South Bucks, RBWM and both Surrey and Buckinghamshire County Council are part.

4.14 The Colne Valley: A Landscape on the Edge project represents the most significant green infrastructure project within the JEBIS study area. At present, 21 projects have been identified including improved access routes to the area, conservation of wildlife habitats, various river related projects and water saving projects. The HSPG has provided funding to extend this project to include the River Crane Catchment and other adjacent areas from its Planning Delivery Fund allocation.

4.15 Provision of new and enhanced open space will be required as a result of the growth that will take place in the area in the baseline assessment and the Heathrow proposals will have limited additional impact. However, the DCO proposals will have direct impacts on local Green and Blue infrastructure as identified in the January 2018 airport expansion consultation document.

4.16 Joint planning between the authorities offers the potential to extend the Colne Valley Regional Park vision across the River Crane Catchment, and create wider linkages between and through the area, potentially linked with public and active transport corridors and town centre improvements.

Social Infrastructure

4.17 Requirements for social infrastructure in the area arise from the projected growth in households and residential population in the area.

4.18 The baseline assessment identifies a significant pipeline of education projects reflecting the rapid increase in the numbers of children and young people in recent years. It does however note that recent evidence suggests that birth rates may have peaked, at least for the time being, although previous growth is still working its way through the system. Health and leisure projects form the majority of the remaining projects.

4.19 The report identifies 'ready reckoners' for future demand arising from population growth although it notes that the contribution of Heathrow to this growth is likely to again be minimal.

4.20 The DCO application will have impacts on some community facilities to the north west of the Airport, including displacement, and HAL will need to engage with the relevant stakeholders to plan to mitigate these impacts.

Utilities

4.21 The utilities assessment covers water, energy and digital. Energy forms majority of the projects (60 of 100) followed by water. Utilities providers haven't identified significant current capacity constraints however, the Environment Agency has identified the South East as a whole as an area of serious water stress.

4.22 The assessment uses growth assumptions from the JEBIS to identify indicative requirements for different utilities. The growth is small in the context current requirements and wider growth. However, given the lack of specific identified provision strategic planning will need to consider how these requirements can be met, alongside any direct growth and implications on current provision of the DCO application for Heathrow expansion.

Waste

4.23 The waste assessment covers household waste, commercial and industrial waste and construction, demolition and excavation waste. It then considers the various types of waste facilities – landfill, metal recycling, transfer, treatment and incineration. The study reviews the relevant waste plans and identifies seven projects across the study area.

4.24 The assessment applies growth factors to the projected household and economic growth across the area which shows a steady growth in demand with that attributed to Heathrow having a relatively small impact. The critical challenge for authorities is to meet this growth with non-landfill solutions, and its relationship to wider growth in London and the South East from where the area's facilities 'import' waste. The potential displacement of existing provision by Heathrow expansion will also need to be considered.

Summary

4.25 In thinking about joint spatial planning, it will be important for the HSPG authorities to monitor and prioritise infrastructure investment.

4.26 In the case of utilities, social infrastructure and waste, except for any direct impacts of the Heathrow Masterplan, the remaining investment will be driven by background demographic and housing growth rather than the Heathrow expansion itself.

4.27 Transport and Green Infrastructure investments are likely to have a more strategic function in the area, influence spatial growth options, and underpin the ability to capture and sustain growth in preferred locations.

5 Implications for Strategic Planning

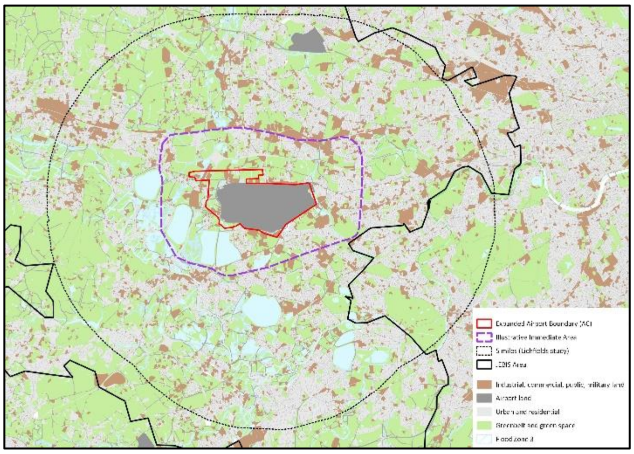
5.1 The previous sections of this report have summarised the process and some key findings of the JEBIS. Full details are contained in the five background reports and in the evidence and infrastructure databases. They provide a snapshot at a point in time and will need to be updated alongside the HAL's DCO process and the authorities' policy development.

5.2 It is not the intention of the study to provide any definitive conclusions as to the approach to or shape of whatever Joint Spatial Planning approach the authorities wish to take. However the findings do suggest some emerging broad themes that the authorities may wish to consider.

5.3 These are summarised below and are as follows:

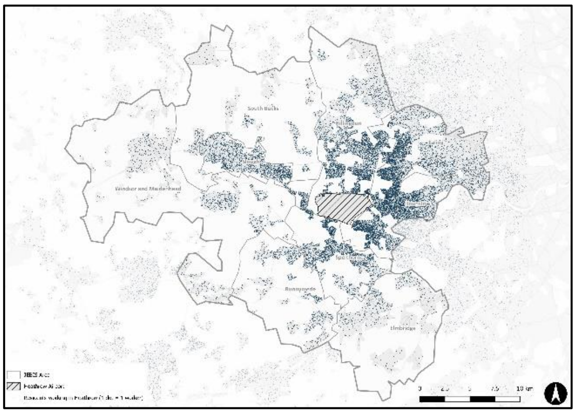
5.3.1 Airport Masterplan and Integration

The interaction between direct on and off airport employment is critical, and requires an iterative process of Masterplan and wider policy development.



5.3.2 Economic Development Strategy

Labour market impacts (jobs for residents) and business opportunities will be the main direct benefit of the expansion for most authorities. Maximising such benefits will require a combination of accessibility improvements and 'soft' investments in jobs, training and brokerage.

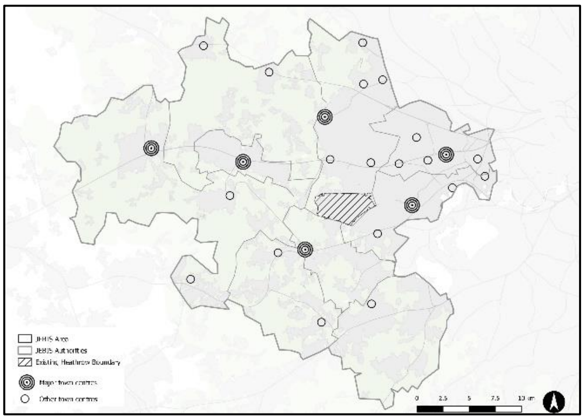


5.3.3 Housing Demand

The impact of the expansion on population and housing demand is likely to be small. However demographic and economic trends, as well as housing targets, change and it will be important to keep a watching brief

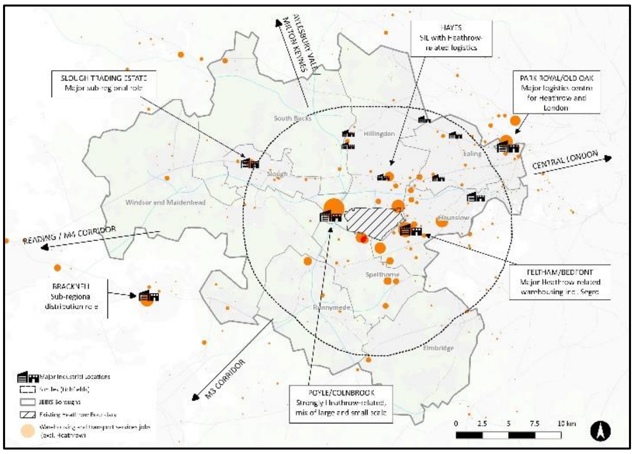
5.3.4 Town Centres and Growth Points

Given the constraints, including Green Belt, and limited availability of land it will be important that Town Centres and, if appropriate, planned growth points are able to maximise investment which is likely to require investment in infrastructure and urban quality.



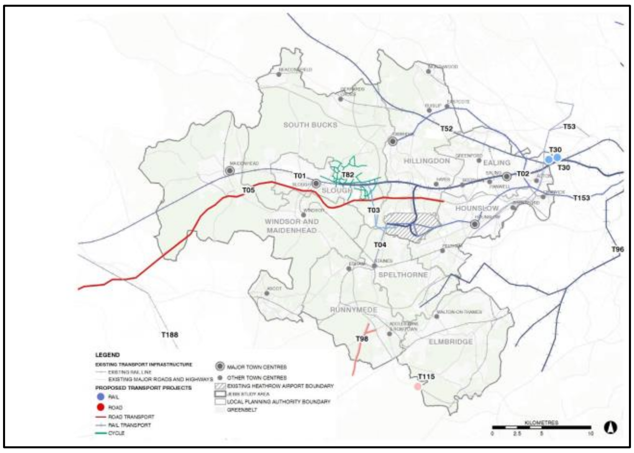
5.3.5 Capturing Catalytic Benefits

The desire and ability to capture 'catalytic' benefits from commercial office and strategic logistics growth will determine the scale of impacts in the wider core area. This will need a commercially driven strategy and understanding of the requirements of occupiers and operators and an appropriate 'quality of place' and infrastructure. In the case of logistics, it will be important to consider wider market and technological trends, working with providers and operators in the sector.



5.3.6 Transport Infrastructure

Transport Infrastructure investment will be the key growth driver in the area, and accessibility will strongly influence the spatial options. It will be essential in determining options for growth if it is to be different to 'do as now' and drawn extensively from the HSPG area and in an easterly direction. It should be noted though that more localised public and active transport investments could have strong positive impacts.



5.37 Green Infrastructure

Green infrastructure, and particularly improving current spaces, connectivity and urban quality can have a strong positive impact on both health and wellbeing and also perceptions of the area, supporting the ability to maximise inward investment.