



JONES LANG  
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*Real value in a changing world*



# Heathrow

## *Redevelopment Scenarios*

FEBRUARY 2014



Transport  
for London

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# Executive Summary

# Executive summary

- ▶ The proposition of developing Heathrow is a world class opportunity.
- ▶ Heathrow has all of the attributes that create successful new destinations:
  - Well located with inherent value
  - Infrastructure in single control
  - Scale
- ▶ With delivery beyond 2030 the future landscape and real estate product is going to evolve
  - Heathrow is well placed to meet this and with current infrastructure provision can meet future utility and sustainability needs.
  - A true exemplar opportunity for a new city quarter.
- ▶ In comparative terms we believe by 2030 the major new London centres will be occupied and there will be little to no impacts on surrounding towns and boroughs by new large scale employment or destination and experiential retail.
- ▶ This is underpinned by Heathrow's ability to absorb future growth in London across all sectors with a strong housing demand.
- ▶ The scenarios tested are
  - A new education and technology quarter
  - A new town
  - A new residential quarter

Scenario	Existing building retained	Non-residential sq m/ sq ft (includes social infrastructure)	Jobs	Population	Dwellings	Potential Revenue
<b>Scenario 1 Education &amp; Tech Quarter</b>	Terminals 1 - 4 and T 5 retained	1,314,589/14,150,585	Circa 100,000	Circa 76,000 (excluding students)	Circa 32,000 residential units +10,000 student units	Business Rates: £158,367,580  Council Tax: £84,955,800
<b>Scenario 2 New Town</b>	Terminals 1 - 4	1,599,271 / 17,214,552	Circa 76,000	Circa 112,000	Circa 47,000	Business Rates: £139,570,740  Council Tax: £124,601,840
<b>Scenario 3 New residential Quarter</b>	Terminals 1 - 4	570,606 / 6,141,951	Circa 55,000	Circa 200,000	Circa 85,700	Business Rates: £56,829,736  Council Tax: £226,548,800

# Executive Summary

▶ The initial scenarios are diverse in their nature to test contrasts but in summary the commercial elements provide the greatest market risk in demand and therefore lower land value.

▶ Residential demand is robust but take up and absorption will take longer .

▶ All the scenarios are viable financially with the balance being between jobs and housing. As a result a compromise between the scenarios will most likely be the outcome.

▶ In our view this compromise would contain elements from the scenarios as follows – Heathrow City (90,000 jobs and 80,000 houses)

In our view the best combination of uses from the scenarios which would maximise the opportunity of creating a new Heathrow City would have the following components from our proposed scenarios:

▶ Scenario 1

- Higher education facilities of half the size as in Scenario 1.
- Technology and entertainment hub
- Retention of T5

▶ Scenario 2

- No large scale logistics as described in Scenario 2 are included in the Heathrow City scenario as the land area absorbed is used to provide for the residential and office accommodation. The peripheral areas of the site could continue to play a role in absorbing the industrial jobs as they are freed up from airport related uses.

▶ Scenario 3

- Residential density to absorb London's population growth

For simplicity we have combined these elements but there are concerns that density of land coverage of over 50% would compromise the office typology and increase the residential density beyond current London Plan Framework.

# Executive Summary - Heathrow Scenarios



- ▶ The ability to maximise the employment element and the residential provision are achievable in theoretical terms but may not translate into practice and should therefore be used as a target only.
- ▶ The viability of translation into reality needs to be reviewed through a detailed masterplanning exercise.

▶ This has not been a master planning or capacity study which would be the required next step.

▶ The best delivery model will be highly dependant on the scenario but a single control organisation, potentially using the development corporation model would be essential.



# Objectives

# Overview

The Mayor of London is developing ideas for what the site of Heathrow Airport could become, should a new hub airport in the South East be agreed by the Government, and Heathrow were to close in circa 2029 to circa 2030.

Jones Lang LaSalle and Peter Brett Associates have been instructed to develop and evaluate redevelopment scenarios for the Heathrow site. This report is predicated upon the assumption that the decision has already been taken to relocate the airport.

The site comprises 1,215 hectares (3,000 acres) and detail as to ownership is not currently known.

## The objectives of this report are as follows:

1. **Produce credible evidence** based redevelopment options for Heathrow following the airport's possible relocation in 2029/2030 and over the subsequent 25-30 years.
2. **Estimate and quantify** the economic, demographic, financial and other impacts of the scenarios including a comparative analysis of options.
3. **Produce viable redevelopment scenario(s)** that aim to provide substantial local employment opportunities together with a range of social infrastructure improvements for nearby residents including quality of life improvements.





# The Opportunity

# World Class Opportunity

The options for redeveloping Heathrow provide world class opportunities for all of London. To understand the context we have:

- ▶ assessed other international airports which have been relocated and the sites redeveloped;
- ▶ looked at new cities and towns and how these have evolved;
- ▶ considered sustainability and the future for development;

and concluded that while some lessons can be learnt, the evolution of London and the new quarters which have emerged provide a better blueprint and applicable key lessons on delivery and successful place making.



Springs, Dubai



Stapleton Airport, Denver



Masdar City, Abu Dhabi



King Abdullah Financial District, Riyadh



Kai Tak Airport, Hong Kong

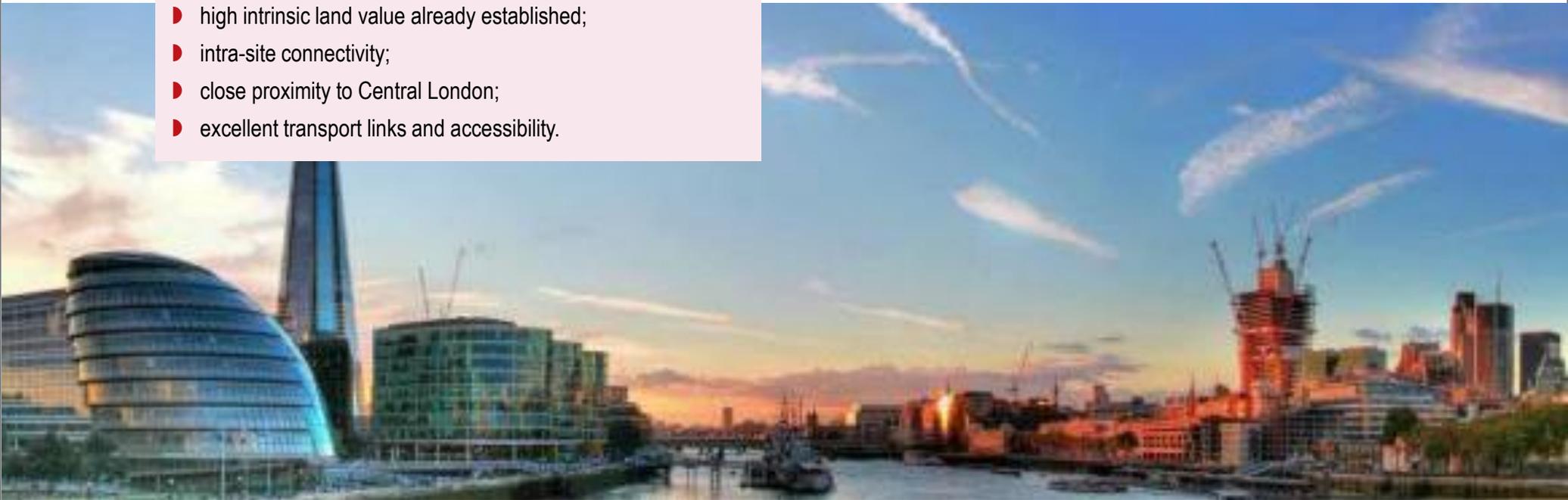
# Unique Opportunity For London To Harness Growth

Using regeneration and development to capture future business growth, population expansion and leading edge technology London will continue as a world winning city.

The Heathrow site is unique due to the following factors:

- ▶ site scale and size - 1200 hectares (3000 acres) in London;
- ▶ physical existing infrastructure in place;
- ▶ high intrinsic land value already established;
- ▶ intra-site connectivity;
- ▶ close proximity to Central London;
- ▶ excellent transport links and accessibility.

In a London context in the last 25 years there have been a number of initiatives fuelling emerging locations. The biggest cumulative effect is the London Dockland Development Corporation which was set up to redevelop the Docklands area to the east of London. This brought about a number of key opportunities for London to reposition itself. **Heathrow will become another element to London's growth and enhancement as a world city.**



# What makes a new location successful?

In order to determine the ingredients for success for a redeveloped Heathrow, we have assessed other schemes and new locations and have determined those factors which we consider play a key role in place making and their ultimate success.

We have largely considered new locations in London, as these will most closely reflect the market dynamics, policy constraints that development at Heathrow will face.



# Case Study

## Canary Wharf, London

### Key Statistics

40 hectares/ 97 acres (including parks & open spaces)

30 completed buildings

1.5m sq m (16.5m sq ft) office space

93,000sq m (1m sq ft) of retail space

c. 90,000 people employed

1.1m sq m (12m sq ft) of potential development  
(including Wood Wharf)

**Initial occupiers were attracted by generous incentives  
and government assistance as well as very low rents**

Canary Wharf was a key scheme in London's evolution. By building large floor plates it could respond to the requirement of banks' dealing floors. Canary Wharf was a needle mover and filled a gap in the market and continues to compete with the City. The proposal for Canary Wharf was visionary and few believed that it was possible. It would not have been delivered without the Enterprise Zone tax breaks, Jubilee Line and low rents.



### Key Lessons

#### INFRASTRUCTURE

The infrastructure was not in place initially and is still catching up with DLR, Jubilee Line and Crossrail being developed. Phase 2 of Canary Wharf would not have been delivered without the JLE, while at Heathrow this type of infrastructure exists.

#### PUBLIC REALM

High quality public realm and effective estate management has supported value growth and the success of the scheme. However, the scheme is not integrated with its surroundings and internal connectivity is poor.

#### CRITICAL MASS TAKES TIME

Development has taken time (circa 25 years) and provision of infrastructure has occurred slowly. Success was heavily incentivised by tax breaks. Also, Canary Wharf is not yet fully delivered. The original developer was bankrupted by this scheme.

#### DELIVERY

Early establishment of Development Corporation to manage delivery.

# Case Study

## Stratford & Olympic Site, London

### Key Statistics

10,000-12,000 homes (including the Olympic Village of c. 2,000 new homes)

450,000 sq m (4.8m sq ft) of office space (almost exclusively delivered in Phase two)

140,000 sq m (1.5m sq ft) of retail space (predominantly in the Westfield Stratford Centre, Phase one)

5 educational facilities (Phase two)

With the focus still on the East of London this was another opportunity of land with transport infrastructure but little other social amenity infrastructure on old railway lands. Stratford City was in single ownership but when this became an Olympic site further land assembly was required.

Already recognised by developers as a key opportunity for retail the site was the subject of the 2012 Olympic Bid.



### Key Lessons

#### DEVELOPER PARTNER PROCUREMENT

Procuring the right developer for the scheme is key particularly where complicated solutions are required. Re-negotiating agreements/ procuring new partner(s) is costly. StanhopeChelsfield were the original development partners replaced by Lend Lease.

#### SOCIAL INFRASTRUCTURE AS CATALYST

Key issue was not about new transport infrastructure but the provision of new social amenities and long term value creation by creating leisure themes and family housing to fill an ever growing gap in London's offer.

#### PUBLIC SECTOR LAND ASSEMBLY

CPO to create single ownership (Olympic site).

#### DELIVERY

Early establishment of Olympic Delivery Authority and London Legacy Development Company manage delivery.

# Case Study

## Greenwich Peninsula, London

### Key Statistics

120 hectares (300 acres)

Masterplan proposes:

1.2m sq m (13.25m sq ft) in total

Circa 370,000 sq m ( 4m sq ft) of office space

10,000 residential units

Retail and leisure uses

Re-use of the Dome – now the O2 venue

The Jubilee Line Extension opened up this derelict site which was remediated at public expense. A long term development opportunity for a mixed use quarter for London emerged. In terms of place making one the key outcomes from the development is the O2. Built initially to celebrate the Millennium the Dome is now AEG's best operated venue worldwide, has created a destination and become a new residential district. Still an ongoing scheme.



### Key Lessons

#### ACCESSIBILITY

A key issue for Greenwich Peninsula – while the JLE opened the site up, the scheme is reliant on only one key transport mode (although the Peninsula also is served by buses).

#### DESTINATION CREATOR AS CATALYST

The O2 acts as a destination creator – however, this has not been sufficient to stimulate a business community. Footfall restricted to the north of the site. Ravensbourne College has located here but this in the absence of other factors (e.g. good accessibility) has not been a significant success factor.

#### CRITICAL MASS TAKES TIME

Not all schemes have a fast development programme – depending on market cycle, they will have a long delivery period.

# Case Study

## King's Cross Central, London

### Key Statistics

27 hectares (67 acres)

Masterplan proposes:

315,000 sq m (3.4m sq ft) of office space (23 buildings)

45,000 sq m (0.5m sq ft) of retail space

>2,000 homes

650 student housing units

Strong leisure and cultural offer

KXC provided another opportunity for London to gain 27 hectares (67 acres) of land in single ownership.

Visionary aspirations to develop a truly mixed use development including the retention of existing listed buildings.

Major companies including Google have taken up HQ space in KCX.



### Key Lessons

#### ACCESSIBILITY

European and London wide connectivity is key demand driver.

#### SOCIAL INFRASTRUCTURE AS CATALYST

Education use (University of the Arts taking the Granary Building) acted as a catalyst for the rest of the development. Use which is not a high Land value driver was key to driving momentum and creating the place.

#### PLACE CREATION AND PUBLIC REALM

High quality public realm and innovative amenity provision (pop up stores, events etc). Retention of historic buildings.

# Success Factors for Development Schemes

## Existing heritage / iconic features

Existing features which can be creatively developed into the scheme attract interest and create a sense of place.

## Public Realm

High quality public realm and effective estate management – key place making ingredients.

## Transport Infrastructure

Existing infrastructure ensures speed and cost efficiency of delivery. Accessibility is key to a scheme's success.

## Vision

Strong Vision:  
Effective masterplan/ planning.  
Economic rationale and ability to build on strengths/clusters.  
Critical mass/ themes from part of the vision for delivery.

## Social Infrastructure

While not acting as value drivers, these elements act as destination creators, and footfall generators. Provide activity and a catalyst for other uses e.g. retail.

## Single ownership

Ability to control development and avoid time consuming sale and planning negotiations. Cohesive approach.

## Initial Value

All new locations take 20 years plus to deliver – investors, developers and occupiers will need to take a longer term view.

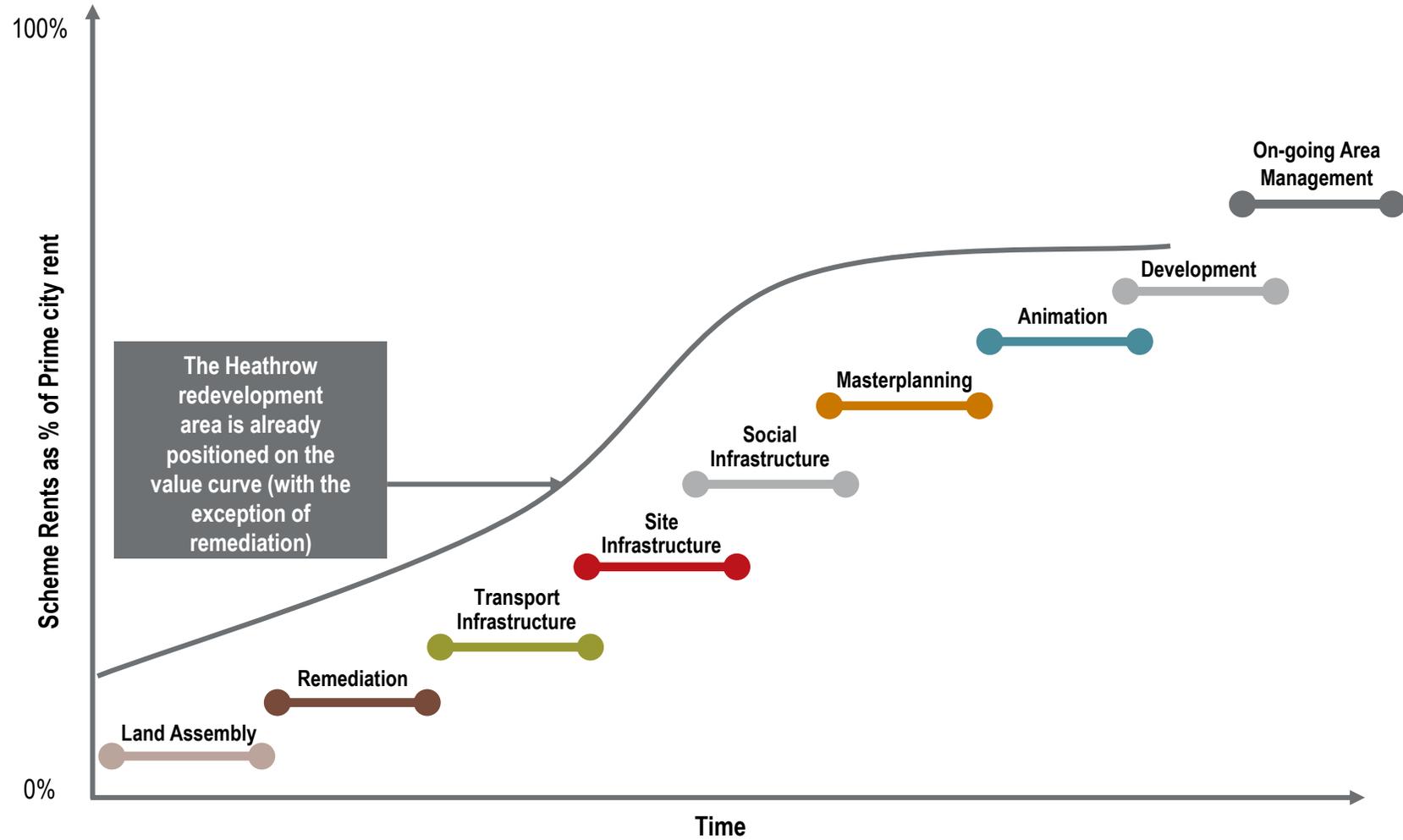
## Scale

Sufficient scale required in order to balance non value generating infrastructure / public realm / open space with value generating uses. Establishing critical mass and clusters is restricted without sufficient scope

## Government Intervention

In the majority of large scale quarters of new cities, support by Government either in the form of financial incentives or infrastructure delivery has been apparent.

# Creating Value



# Success Factors Analysis

	Transport Infrastructure	Social Infrastructure	Existing heritage/ iconic features	Single ownership	Public Realm Delivered	Scale	Vision	Initial Value	Government Intervention
Canary Wharf	Red	Red	Orange	Green	Green	Green	Green	Red	Red
Stratford	Green	Orange	Red	Orange	Green	Green	Green	Orange	Red
King's Cross	Green	Orange	Green	Green	Green	Orange	Green	Green	Green
Greenwich Peninsula	Red	Red	Green	Green	Red	Green	Orange	Red	Red
Heathrow	Green	Orange	Orange	Orange	Green	Green	Green	Green	Orange

● weak     
 ● average     
 ● strong

Heathrow has the potential to deliver social infrastructure to the wider area. Existing Terminal buildings are retained as iconic features to build on. The scale is sufficient to create high quality public realm, with a sustainable basis for future development. The accessibility and transport infrastructure makes Heathrow a fantastic location.

Heathrow starts from a strong value base and also does not have any significant impediments to its development. Heathrow is a unique scale site for the foreseeable future in London.

# Heathrow SWOT

**Demographics:** very highly skilled local workforce. Local workforce also appropriately skilled for distribution / manual jobs.  
**Transport Infrastructure:** existing transport infrastructure speeds delivery and reduces cost.  
**Proximity to established centres:** located in proximity both to London and the Thames Valley markets.  
**Established land values:** high value area compared with East London developments  
**Existing utility network:** reduction in cost.  
**Scale:** circa 1,215 hectares (3,000 acres).

## Strengths

**Planning:** no agreed masterplan.  
**Contamination:** uncertainty as to remediation requirements.  
**Location:** lack of close proximity to an airport may have an adverse impact on certain sectors. Good connection to a new airport would be required.

## Weaknesses

**Create new area of London** – support housing growth and job creation.  
**Sustainability:** opportunity to make this an exemplar development across all sectors.  
**Public sector support and investment:** potential for CPO to create single ownership and delivery structure.  
**Policy:** lack of any designation is an opportunity to create the appropriate scheme.  
**Size:** enables potential for world class design and place making principles.

## Opportunities

## Threats

**Global economic conditions:** strength of occupational and investor demand may be impacted.  
**Linked with Growth:** London does not grow at the rate it is predicted to do so.  
**Contamination:** potential threat, but other airports have been redeveloped and therefore the risk is not considered to be high  
**Ownership:** albeit largely in single control, exact details currently unknown – cost and timing implication if in multiple ownership.



# The Shape of the Future

# The future: issues for consideration

Redevelopment at Heathrow will take place in a long term horizon. We have therefore considered those factors which may impact upon the way in which the world operates in the future.

We are of the view that key issues facing the future are:

- ▶ Obsolescence;
- ▶ Sustainability;
- ▶ Technology;
- ▶ Urbanisation; and
- ▶ Multi-channel retail.

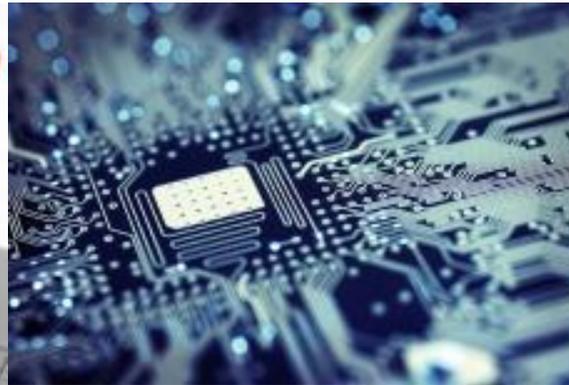
The commercial property market is on the verge of fundamental structural changes.

Retail is at the forefront of this with the rise of multi-channel shopping, however technology will affect all sectors – with office layout affected by cloud & mobile computing and the need for collaborative space.

Employee densities in offices will continue to rise, at least in Central London.

Sustainability requirements will tighten, with corporates moving ahead of legislation to enhance brand, recruitment and retention.

Concentration of jobs and skilled young people in cities – importance of accessible and amenity-rich location.



# Looking forward...

In future years, we anticipate the following to impact the property market.

- ▶ Declining aggregate volumes of office and retail space
- ▶ Greater competition for remaining prime assets
- ▶ All points to greater interest in 'alternative' sectors
- ▶ Longer lease lengths and inflation-linked income more appropriate for pension fund requirements
- ▶ Private Rented Sector (PRS) as a huge opportunity for corporate investors
  - Demand and growth is apparent
  - Ability to build out at speed as demand is not constrained by mortgage availability or applicant equity
  - Effective demand for PRS stock may be higher
- ▶ Retail under duress – but convenience and destination will thrive and the experience will change. Difficult to predict how retailing will function in the future.
- ▶ Leisure will take up an increased share of retail schemes, click and collect will be of increasing importance.
- ▶ Manufacturing revival – concern over supply chains & rise of 3D printing and other custom technologies.
- ▶ Declining gross office space but increased demand for the 'right' locations.
- ▶ Emphasis upon work-life balance and location and sustainability as marketing and recruitment tools.
- ▶ The retreat of the state from infrastructure, health and housing spending opens up new opportunities for investment...but there are significant risks and uncertainties.



# Competitive Position

# Heathrow's Competitive Position

We detail below our view of how anticipated future trends impact the property market sectors and what this means for Heathrow scenario development.

**Retail:** We are of the view that in the future, retailing will become more of an experience, with a far higher proportion of leisure and food and beverage. The retail and amenity offer in the scenarios includes convenience shopping and ancillary retail (strip units, corner shops etc) and in Scenario 1, Terminal 5 is retained and a conference / entertainment and experiential retail destination is created. (Experiential retail includes leisure, food and beverage, concept retail etc).

**Offices:** We consider that in terms of Heathrow's competitive position relative to commercial accommodation the majority of emerging centres in London will have been delivered and taken up by the time that Heathrow is redeveloped. Notwithstanding this, we consider that the product typology of commercial accommodation at Heathrow is likely to differ from that of the majority of schemes in that it will be medium rise and more campus style as opposed to high rise. This is in exception to taller buildings which can be delivered around the transport nodes at Heathrow. Therefore in comparison to other development products, for example at Old Oak Common, Heathrow's commercial product offer is likely to be differentiated.

**Residential:** London is facing a housing shortage and with land supply becoming restricted we expect there will be strong demand for residential use at Heathrow. We have included a summary of West London's current key residential schemes, but note that we consider that demand for the appropriate residential product at Heathrow will be strong, regardless of

surrounding schemes. In terms of density, the way in which Londoners live is likely to evolve and it is important to maintain flexibility to increase density. We anticipate a mix of apartments, mansion style housing and family housing, with higher density development around the transport nodes.

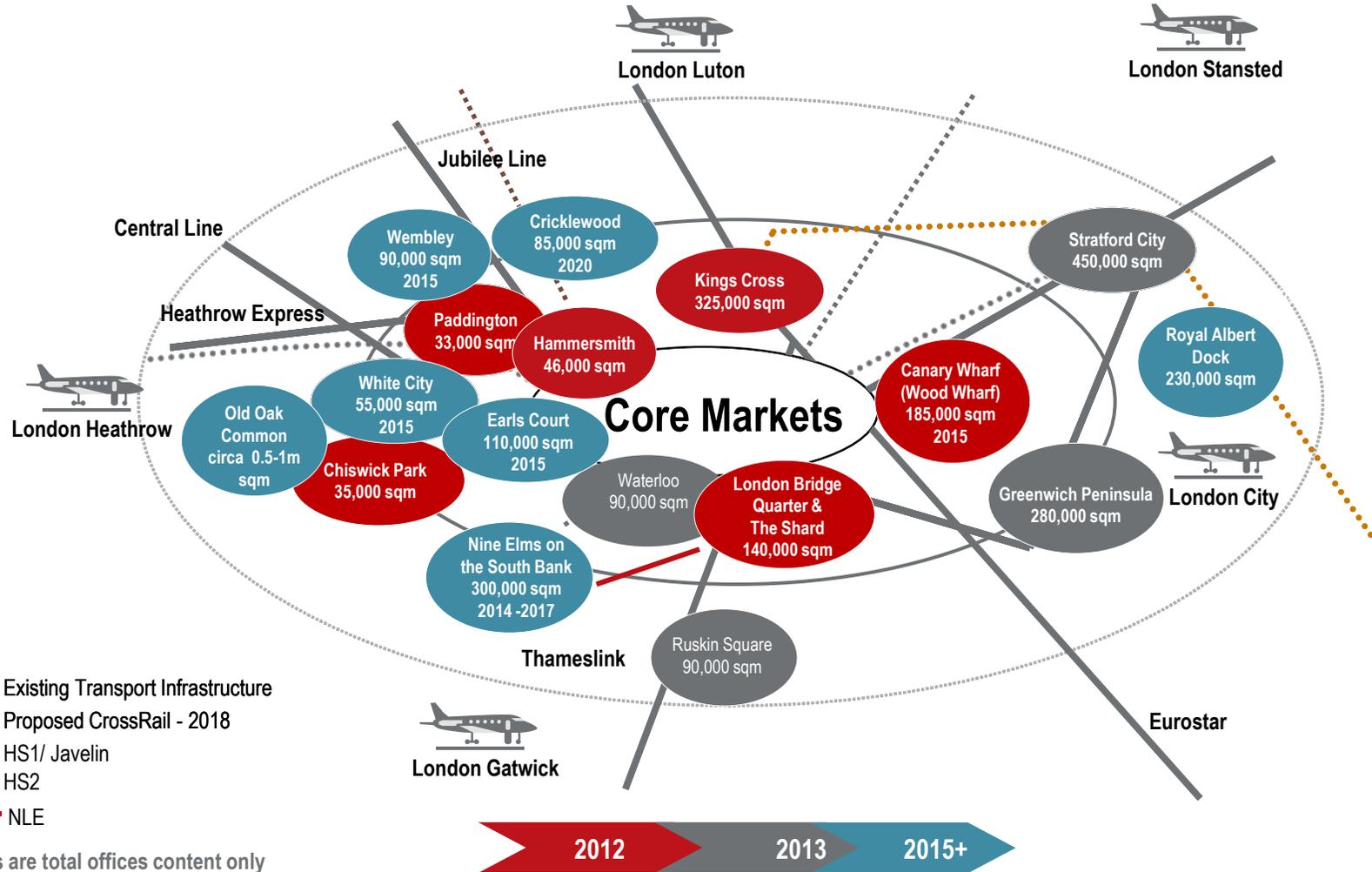
**Hotels:** The relocation of Heathrow airport will have a significant impact on the hotel market. We are of the view that there will still remain a demand for hotels due to its location. Currently there are circa 9 – 10,000 beds at Heathrow which is in line with the capacity for a large city, and therefore without the airport Heathrow will have an oversupply of hotel beds. This will also provide hotels with the opportunity to re-focus their offer. Retaining the Sofitel hotel at Terminal 5 (in scenario 1) is appropriate, particularly due to its proximity to the M25.

**Industrial:** The relocation of the airport will significantly impact the industrial market, particularly in relation to cargo function. However, in view of the site's proximity to M4/M3/M25 and its size we anticipate there is potential to develop a large distribution shed market.

While new areas of redevelopment are likely to emerge over the next 15 years, it is difficult to predict where the next large scale site with potential for single ownership would be delivered. **We therefore consider that Heathrow is likely to be the last large site to be available to deliver wholesale change and facilitate maintaining London as a world class city.**

# London's Emerging Office Centres

Dates for potential 'start on site'



Areas are total offices content only

Source: Jones Lang LaSalle



# Projections

# Projections

We have looked at employment projections for London consistent with those prepared by the GLA for TfL and to inform Further Alterations to the London Plan (FALP).

We have projected forward to 2061 using the forecast growth for the period 2031-41. Growth rates are applied at the sector level but then re-constrained to the London total based on the London employment growth rate of 0.6% p.a. for 2031-41.

This would suggest an additional 1.2m jobs to be accommodated in London over the period 2031-61.

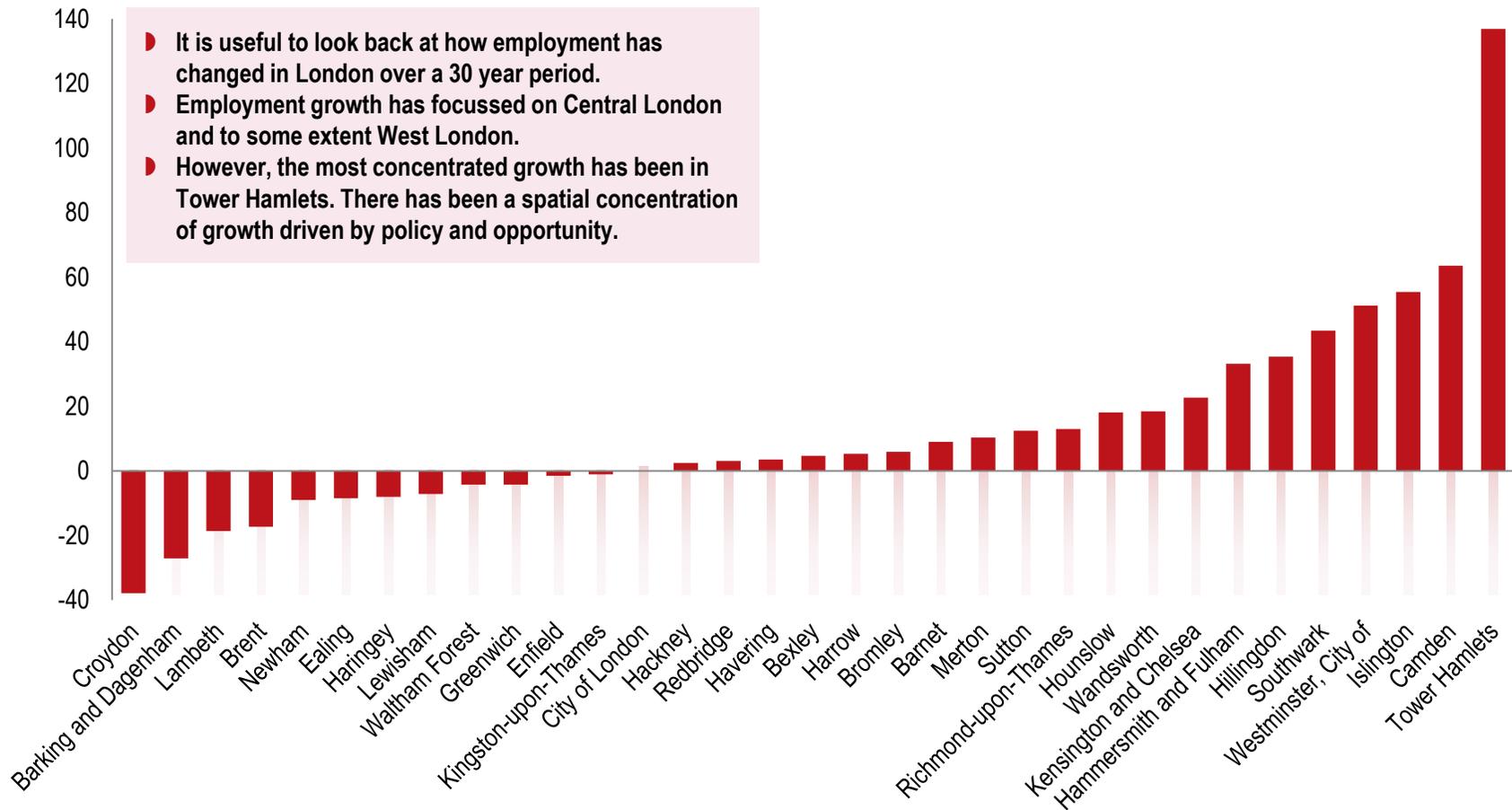
Given the uncertainty of projecting the same trend growth rate so far in the future we have produced a variant projection that halves the projected growth rate for 2031-41 when applied to 2041-61. i.e. a London growth rate of 0.3% p.a. for that period.

This still produces an additional 770,000 jobs to be accommodated in the London economy.

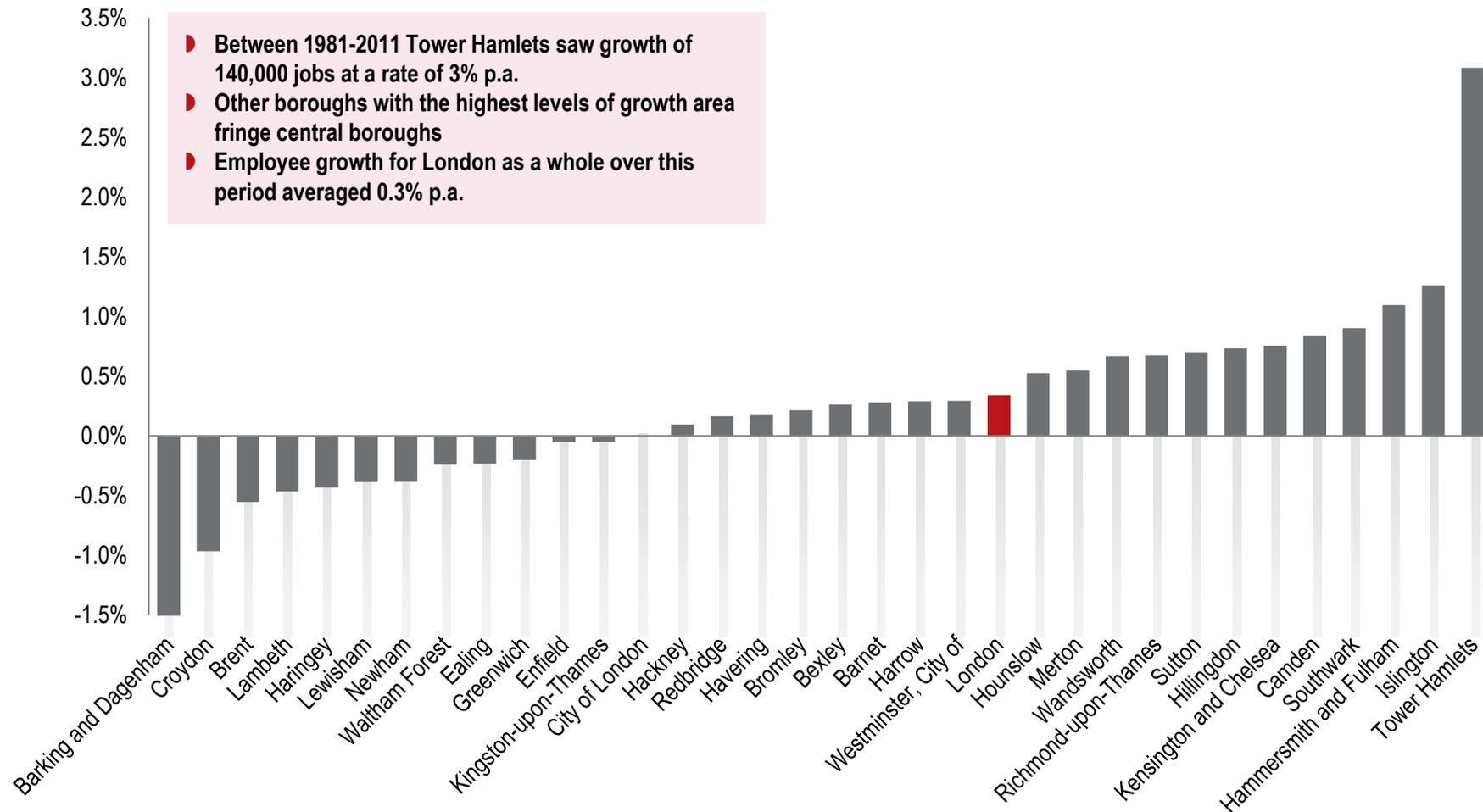
We have applied the same method to the six West London Boroughs. This generates growth of 140,000 jobs over the period 2031-61.

This implies that large scale job growth at Heathrow would not come from within the existing West London economy but would be part of the spatial re-balancing of the London economy in the same way the Docklands employment growth re-balanced the economy to the east in past decades.

# Change in Employees ('000) 1981-2011



# Change in Employees 1981-2011 % p.a.



# London Employment Growth 2013- 2061

Based on forecasts

	2011	2031	2061	2031-61
Primary & utilities	32,000	16,606	5,997	-10,609
Manufacturing	129,000	44,578	9,036	-35,542
Construction	255,000	251,540	227,474	-24,066
Wholesale	183,512	129,308	72,243	-57,066
Retail	417,488	435,470	426,645	-8,824
Transportation and Storage	265,000	212,408	142,680	-69,728
Accommodation and food service activities	357,000	482,163	684,754	202,592
Information and Communication	360,000	492,788	713,499	220,711
Financial and insurance activities	368,000	353,078	306,850	-46,228
Professional, Real Estate, Scientific and technical activities	670,000	997,386	1,629,440	632,054
Administrative and support service activities	463,000	629,103	901,211	272,108
Public Admin and defence	226,000	187,794	132,822	-54,972
Education	353,000	397,271	434,077	36,806
Health	513,000	565,541	599,886	34,346
Arts, entertainment and recreation	164,000	197,808	238,752	40,944
Other services	139,000	180,519	242,318	61,799
All sectors	4,896,000	5,573,362	6,767,686	1,194,324

- GLA have prepared projections of overall employment growth for London by sector to 2041. We have used the forecast growth rate for the period 2031-41 of 0.6% p.a. to extrapolate forward to 2061.
- This shows forecast growth for London 1.2m jobs over the period 2031-61 during which Heathrow would be redeveloped.
- The largest projected growth is in sectors such as professional scientific and technical services which are largely office based.
- Using the fine grained definition of office jobs developed for the London Office Policy Review (not quantified in the left hand side table) the estimated growth of office jobs only from 1.65m in 2011 to 2.94m by 2061 using a growth rate of 1.1% p.a.
- At 10 sq m per worker this would give growth in office floorspace for London (net addition to stock) of 8.34m sq m over the period 2031-61

Source: PBA Extrapolation of GLA Projections

# London Employment Growth 2031- 2061

Based on slower forecasts

	2011	2031	2061	2031-61
Primary & utilities	32,000	16,606	8,519	-8,087
Manufacturing	129,000	44,578	15,625	-28,953
Construction	255,000	251,540	237,313	-14,227
Wholesale	183,512	129,308	88,566	-40,743
Retail	417,488	435,470	433,367	-2,103
Transportation and Storage	265,000	212,408	164,420	-47,988
Accommodation and food service activities	357,000	482,163	614,827	132,665
Information and Communication	360,000	492,788	636,550	143,762
Financial and insurance activities	368,000	353,078	324,400	-28,678
Professional, Real Estate, Scientific and technical activities	670,000	997,386	1,396,788	399,402
Administrative and support service activities	463,000	629,103	806,860	177,757
Public Admin and defence	226,000	187,794	150,437	-37,357
Education	353,000	397,271	425,189	27,917
Health	513,000	565,541	593,428	27,887
Arts, entertainment and recreation	164,000	197,808	226,253	28,445
Other services	139,000	180,519	221,675	41,156
All sectors	4,896,000	5,573,362	6,344,217	770,855

- We have produced an alternative scenario where the growth rate of London slows in the latter period 2041-61 back to 0.3% p.a.
- This still generates 770,000 additional jobs in the London economy over the period 2031-61 that need to be accommodated
- The majority of growth would be in office based sectors with an increase of 525,000 over the period 2031-61 or a net addition to stock of 5.25m sq m

Source: PBA Extrapolation of GLA Projections

# West London Employment Growth 2031- 2061

West London	2011	2031	2061	2031-61
Primary and Utilities	6,122	3,230	1,112	-2,118
Manufacturing	41,727	14,327	2,743	-11,584
Construction	44,650	44,555	38,639	-5,915
Wholesale	51,583	37,109	20,246	-16,863
Retail	70,807	76,234	73,041	-3,193
Transport & Storage	108,553	89,012	57,749	-31,264
Accommodation and food service activities	55,086	79,004	114,501	35,498
Information and Communication	64,180	91,338	133,424	42,086
Financial and Insurance activities	9,869	9,672	8,436	-1,236
Professional Scientific Technical and Real Estate	77,219	122,974	207,426	84,453
Administrative and support service activities	73,526	103,191	146,315	43,124
Public Admin & Defence	31,164	26,950	18,747	-8,203
Education	53,232	60,488	63,006	2,519
Health	80,194	89,677	91,085	1,408
Arts Entertainment and recreation	25,300	31,394	37,003	5,609
Other Services	14,446	19,764	26,672	6,908
All Sectors	807,656	898,918	1,040,146	141,228

- Looking at the projections for the six West London boroughs of Brent, Ealing, Harrow, Hammersmith & Fulham, Hillingdon, Hounslow projected growth over the period is just 141,000 .
- This suggests that if high levels of jobs are to be created on site it will be from accommodating growth in the London economy generally rather than from just within the west London sub-region.

Source: PBA based on GLA projections to 2041

# London Population Projections 2031- 2061

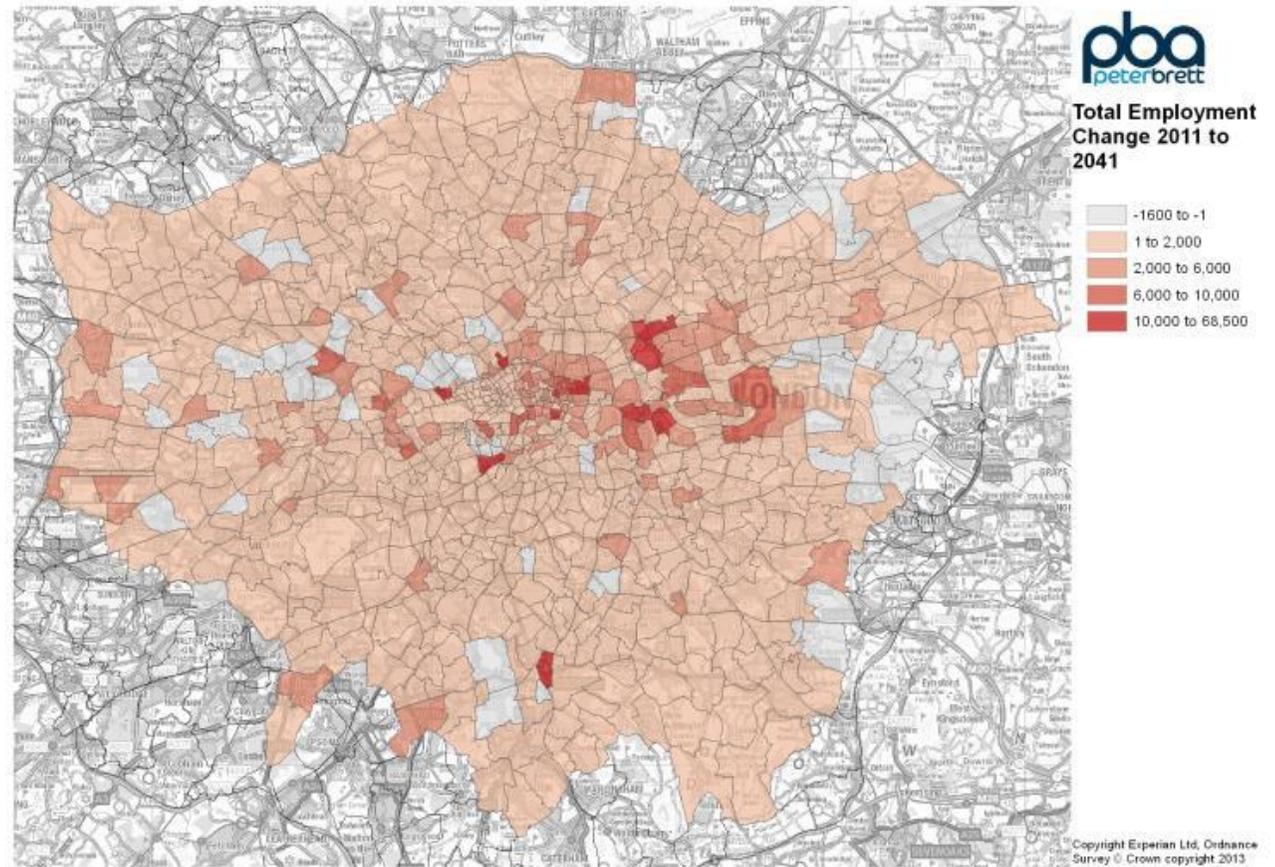
Continue Trend	2011	2031	2061	2031 - 2061
Population	8,217,000	10,017,000	11,912,000	1,895,000
Households	3,284,000	4,055,000	4,775,000	720,000
Population 16-74	6,140,000	7,455,000	8,698,000	1,243,000
<b>West London Population</b>	<b>1,605,000</b>	<b>1,859,000</b>	<b>2,142,000</b>	<b>283,000</b>
Reduce Trend	2011	2031	2061	2031-61
Population	8,217,000	10,017,000	11,245,000	1,227,000
Households	3,284,000	4,055,000	4,522,000	467,000
Population 16-74	6,140,000	7,455,000	8,263,000	808,000

- London's population is forecasted to continuously grow. If the GLA's projected growth rate of 0.6% p.a. is extrapolated forward over a thirty year period 2031-61 London will need to accommodate an additional population of 1.9m, or roughly 720,000 additional households.
- For the West London Boroughs alone the projected population growth over the period 2031-61 is 280,000, roughly equivalent to the size of a new London Borough.
- Even if the trend rate of growth is slowed to 0.3% p.a. for the period 2041-61, then London would still need to accommodate an additional population of 1.2m or 470,00 additional households. These are dwellings figures which will need to be found over and above that needed to accommodate growth to 2031.

Source: PBA based on GLA projections to 2041

# Spatial Distribution of Employment Growth 2031- 2041

*For the next phase of the London Plan growth is projected to occur predominantly to the East. Heathrow will provide the a key opportunity to harness growth in the West.*





Planning

# Planning Context

## National Planning Policy Framework

- ▶ The overriding objective is to promote sustainable development – incorporating economic growth and achieving social and environmental growth.

## The London Plan

- ▶ Promote a strong sustainable and increasingly diverse economy
- ▶ “Desperate” need for housing
- ▶ Developing attractive housing and living environments
- ▶ Large sites should provide a full range of social infrastructure
- ▶ A wide range of measures to both mitigate and minimise adverse effects on climate change- 60% CO2 reduction and zero carbon buildings

## Key Conclusions

1. The overriding policy imperative for the redevelopment of Heathrow is to promote sustainable development which maximises the achievement of economic, social and environmental objectives. Of course this is important for all development, but is especially apposite for a large scale site such as Heathrow. The London Plan emphasises the potential for large scale developments to create “particularly attractive neighbourhoods with distinctive identities and the critical mass to support social, physical and environmental infrastructure and to provide employment opportunities” Whilst planning policy does not at present provide for the redevelopment of Heathrow, the current policies set out in the National Planning Policy Framework and London Plan do contain a comprehensive raft of policies to guide the re-planning and development of Heathrow should Government decide at a national level to go down that route. However, given the long term development timescales, new policies are clearly likely to be incorporated in the future, particularly in relation to the promotion and implementation of enhanced measures to achieve climate change initiatives and possibly changing working practices..
2. What the quantitative comparison of development visions does highlight is the implications of a switch from a location generating semi-skilled and unskilled jobs, to a place with fewer jobs but with a higher skills content. And furthermore, this new place will incorporate a quantum of housing which would generate a population almost equivalent in size to some existing London Boroughs, where many employed residents look to central London for their job opportunities.

**In short, the redevelopment of Heathrow would represent an opportunity to achieve an exemplar new town.**

Please see Appendix 1

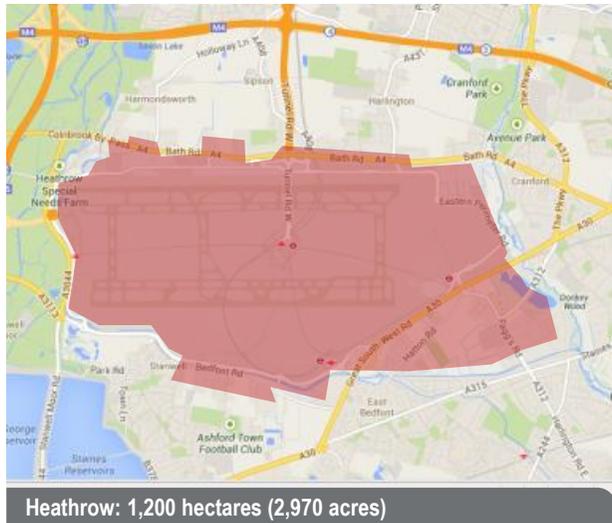


# Scenario Development

# Scenario Development

In developing the scenarios for Heathrow, we have considered other examples of airports which have relocated and what was delivered on the old airport site. This has largely been dependant on the location of the airport (inner city driving commercial or on outskirts driving residential) but all sites have been mixed use. Please see Appendix 2 for further detail.

We have also considered the size of the Heathrow site in relation to other areas to enable a judgement against the scale of development.



In order to ascertain whether the proposed quantum and scale for each use in the scenarios was appropriate, we have considered the size of comparator centres. We have analysed surrounding Western Corridor centres in relation to office stock, considered the size of retail centres, assessed the size of a sample of cities and towns in relation to number of hotel beds, and considered Heathrow's current industrial stock and other key schemes. Please see Appendix 3 for further detail.

**We have purposely developed scenarios which are different and contrasting**, in order to ensure we can evaluate them. The appropriate solution is likely to be a combination of the scenarios as demonstrated later.



# Scenario Development

We note that without undertaking a masterplanning exercise, it is difficult to assess whether the capacity of the site is achieved in terms of development density.

Social infrastructure in the scenarios includes healthcare, education, open space / parks etc.

We have assumed that development will begin at the edges of the site, and around existing transport nodes. This will ensure that new social infrastructure can be utilised by surrounding neighbourhoods and will lower cost by re-using existing infrastructure.

We are of the view that in the future water management approaches and the energy network will operate in such a way that capacity is not likely to be an issue at Heathrow.

**The future potential for creating a world class sustainable development is significant.**

The following details the assumptions we have worked to in developing the scenarios for Heathrow:

- ▶ We have assumed continued growth for London.
- ▶ The redevelopment of Old Oak Common begins prior to the relocation of Heathrow airport .
- ▶ The airport is relocated in 2029.
- ▶ No residual airport functions remain after Heathrow is relocated.
- ▶ Aspiration for high quality urban and amenity environments.
- ▶ Crossrail is on schedule to open its tunnelled section (Paddington-Liverpool St) in late 2018, although services to/from Heathrow will not commence until late 2019.
- ▶ Land remediation issues are not significant enough to impede redevelopment.
- ▶ Ground conditions and physical site constraints are not abnormal.
- ▶ The existing utility provision is sufficient to support development (Please see Appendix 4 for further detail on utilities and sustainability).
- ▶ Land assembly / CPO costs are excluded.
- ▶ Existing transport infrastructure will be sufficient. Car parking requirements will be minimised to suit vision for sustainable development.

# Product typology

The anticipated product typologies for the redevelopment scenarios for Heathrow

## Offices

We anticipate that the typology for offices will be differentiated from that which will be delivered at Old Oak Common, for example. A significant proportion of the office component will be lower density, campus style product. However, we consider that higher density offices would be appropriate around the transport nodes.



*City centre offices around transport nodes (e.g. Paddington Central)*



*Campus style offices (e.g. Chiswick Park)*

## Industrial

We consider that should a rail head be introduced at Heathrow, the availability of land and its prime location will lend itself to a logistics park / distribution area. Small scale units may be in demand once the surplus stock from the airport relocation has been absorbed.



*Large distribution sheds (e.g. DIRFT)*

# Product typology

The anticipated product typologies for the redevelopment scenarios for Heathrow

## Experiential retail / Convention / Destination

It is very difficult to predict the way in which retailing will develop in the future as it is the sector where change is most taking place. However, we consider that there will be a shift towards a far greater proportion of leisure based elements, food and beverage and experiential retail. This includes retailing concepts such as “Try before you Buy”

We also believe there is a lack of large scale entertainment centres in West London coupled with a large scale convention/ exhibition offer. Heathrow is a fantastic location for these products which also may allow for the re-use of T5.



*Experiential retail (e.g. Ferrari World, Abu Dhabi)*



*Entertainment and conferencing venues*



*High proportion of Food & Beverage and Leisure components*

# Product typology

The anticipated product typologies for the redevelopment scenarios for Heathrow

## Residential

We consider that there will be a range of densities which will be delivered at Heathrow. Higher density development will take place around the transport nodes and in the town centres, with more lower density family housing appropriate further away from these nodes.

High quality design and sustainable residential development will form a key part of the re-development of Heathrow and a significant contribution towards London as a world class city



*Family housing – lower density, suburban*



*Medium density – apartment blocks , urban*



*Apartments – higher density, urban*

# Sustainability Considerations

## The Opportunity

- ▶ Heathrow already has infrastructure in place that could be adapted.
- ▶ Energy from Waste Plant on Lakeside site:- The plant is located near Heathrow airport just outside the Greater London boundary and it is managed by Grundon Waste Management Ltd.
- ▶ The facility processes approximately 410,000 tpa of residual waste producing 37 MW of electricity, of which at least 34 MW exported to the National Grid, enough to meet the domestic needs of approximately 50,000 homes. It was always anticipated that the scheme could have the potential to export heat as and when the local infrastructure becomes available to support this process.
- If installed, the estimated capital cost of a district heating scheme to serve potential customers in the area is within the range of £1-2m per kilometre, with a thermal output of up to 40 MW, therefore would work well within any development scheme. Heathrow also has existing heat networks that should also be utilised.
- ▶ The real potential is ensuring that dominance electricity networks, electricity infrastructure, smart networks (both energy and water), energy efficient buildings are a key foundation of the architecture of the area.
- ▶ As a newly developed area we should also take the once in a lifetime opportunity to plan good quality green space network, located and designed to deliver both economic and environmental benefits.

# Utility Infrastructure at Heathrow 2030 and beyond

## Background

- ▶ Existing National policy has set the UK in a transition towards a low carbon economy as part of its commitments under the Kyoto Protocol with the aim of reducing global impact on and from climate change.
- ▶ UK's carbon dioxide (CO<sub>2</sub>) emission reduction target: 34% by 2020, 80% by 2050 against 1990 base line. Investment in infrastructure to facilitate decarbonisation of utilities.
- ▶ Majority of carbon emissions are linked to electrics and heating of buildings. Change to renewable energy sources instead of fossil fuels to power and heat buildings supplemented by alternative heat led approaches such as biomass and waste heat capture.
- ▶ Water Resources Act & Water Management Acts regulate impact of climate change on water scarcity and flood risks and ensure management plans are in place.

## Heathrow current situation

- ▶ Secure utility network connected to National Electricity Grid, intermediate and medium pressure gas mains surrounding the site and potable water supply and foul water treatment through Thames Water.
- ▶ Heathrow Airport Ltd have developed local combined heat and power plants and biomass energy facilities that service terminal buildings. GLA are exploring potential to capture waste heat from Colnbrook Energy plant west of Heathrow.

## Future outlook

- ▶ It is assumed that maintenance and upgrade will ensure continuous availability of current utility supplies. However, national capacities to supply growth are important for forming strategies for deliverance of utilities and target setting.
- ▶ The carbon intensity of the grid is likely to have dropped by 2030 in line with Climate Change Acts and Energy Acts. It is likely that by 2030 electricity will be rated below 0.20kgCO<sub>2</sub>/kWh and by 2050 below 0.02kgCO<sub>2</sub>/kWh. This is important when considering the use of gas for heating and power generation which has a carbon intensity of 0.198kgCO<sub>2</sub>/kWh hence the move away from fossil based fuel sources.

# Utility Infrastructure at Heathrow 2030 and beyond

There is a level of uncertainty as to whether this National strategy can be achieved without significant local action on issues such as a reduction in resource use, the delivery of new efficient infrastructure and the delivery of renewable energy. This uncertainty therefore requires a platform to be created that galvanises a local response to these international needs especially when planning future regeneration of key UK infrastructure assets.

Due to climate change increase stress on water resources is expected to impact everyone especially in the South East. The growth of the Heathrow area will enable the development of a local water cycle strategy to deliver true water neutrality through the use of both systems such as grey and green water recycling. This will reduce reliance on potable water supply in the wider West London area therefore accommodating the required population growth. Through such systems, water neutrality in the wider West London area could be established.

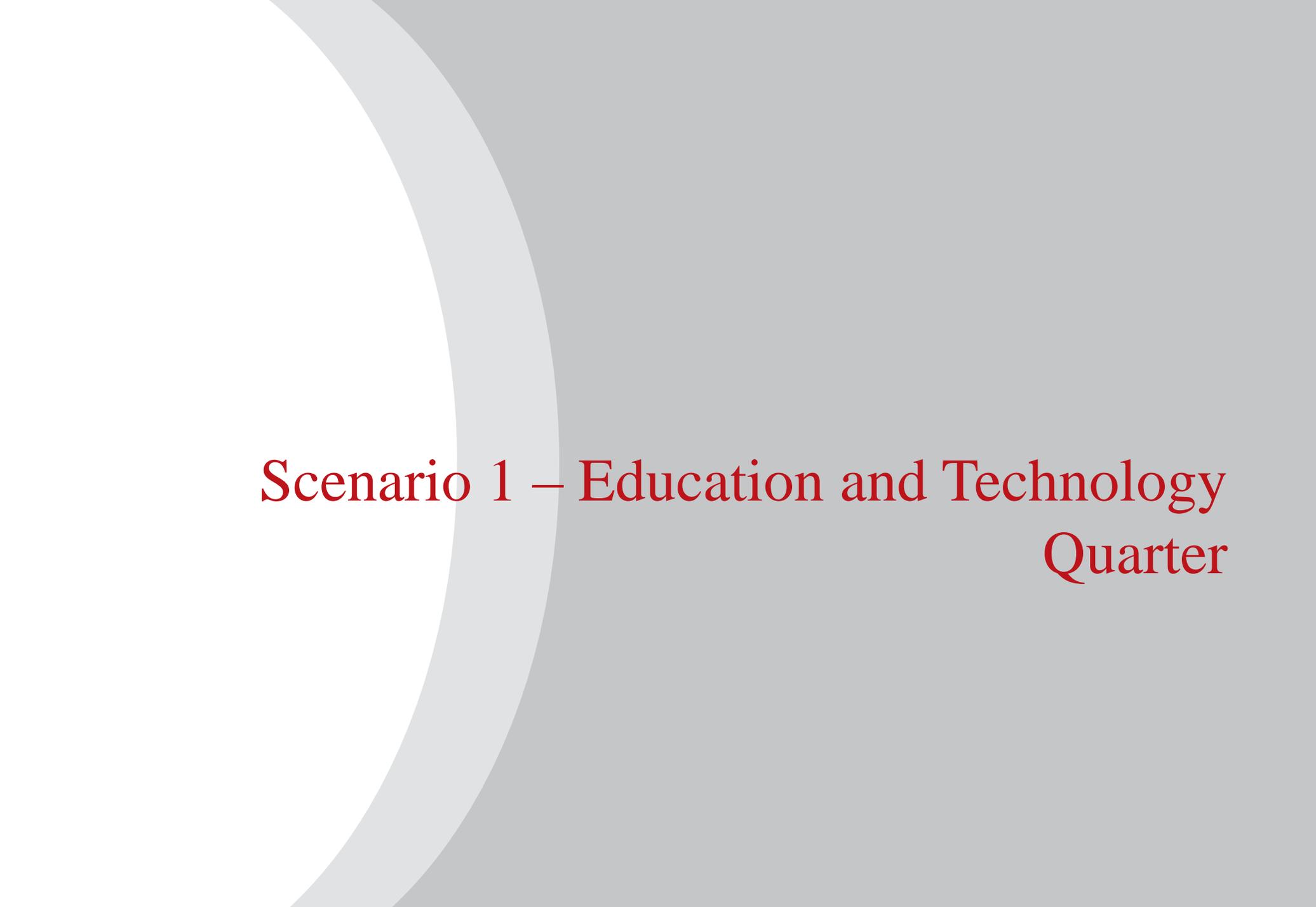
## Vision

- ▶ By 2030 zero carbon building standards will have been implemented and emerging approaches to building design means removing the need for connection to a heat utility reducing the overall infrastructure costs.
- ▶ The use of waste heat from the Colnbrook Energy from Waste plant could continue to offer bulk supply of low cost, low carbon heat.
- ▶ Electrical grid infrastructure can be implemented to supply more cost and carbon efficient flat electrical demand/.

# Utility Infrastructure at Heathrow 2030 and beyond

## So What?

- ▶ The vision for the utility infrastructure is one that is predicated in reducing capital costs in the first instance and maximising environmental and social benefits therefore creating true sustainability.
- ▶ Heathrow would create an economy that profits and benefits out of resource efficiency through a zero carbon energy network, water neutrality and zero waste to landfill all underpinned by superfast communication networks.
- ▶ The vision for the utility infrastructure is one that is predicated in reducing capital costs in the first instance and maximising environmental and social benefits therefore creating true sustainability. This infrastructure platform can deliver growth set out in the National Carbon Plan, attracting investment benefiting from resource efficiency. Through this investment Heathrow would become outward looking in terms of utilities where by National infrastructure relies on the area to create establish system efficiencies that currently don't exist.



# Scenario 1 – Education and Technology Quarter

# Scenario 1: “Education and technology quarter”

Scenario	Description	Retained Buildings	Risks	Benefits
1: Education and Technology Quarter	<ul style="list-style-type: none"> <li>• Development at Heathrow is focussed around education, R&amp;D, commercial (including advanced high value manufacturing for example)</li> <li>• Cluster of HEI's, research facilities, spin-off companies, knowledge parks and office development. This can include infrastructure such as teaching hospitals</li> <li>• Leverage of existing business base in the area, and the “E&amp;T Quarter” will drive further demand and bolster the wider commercial property market</li> <li>• The catchment labour market is highly skilled</li> <li>• The scenario will be supported by residential and amenity provision development</li> <li>• Exciting new entertainment venue to create new destination for West London</li> </ul>	<ul style="list-style-type: none"> <li>• Some central terminal area buildings are retained and become retail / town centre hub</li> <li>• Terminal 5 is retained and converted into an exhibition / conference / entertainment / experiential retail venue</li> <li>• Retain the Sofitel Hotel (at T5)</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on Tech City in East London</li> <li>• Requires internationally renowned HEI</li> <li>• Risk that loss of airport has adverse impact on area as commercial location.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on existing cluster, mitigate against loss of employment provision</li> <li>• Enhance London's world city status with provision of venues, HEI cluster etc</li> <li>• Leverage the existing highly skilled population.</li> <li>• Economic generator / job creation</li> <li>• Place creation: social infrastructure and activity.</li> <li>• Provision of T5 as convention / experiential retail venue addressed London's issue of providing conferencing facilities due to land take and viability. Existing structure which can be used and provide a facility in the West, as all are currently located in the East</li> </ul>

# Scenario 1: Education & Technology as drivers for growth

Higher Education is a key growth sector for the London economy. Over the past decade the number of HE students in London has grown at 2% p.a. fuelled primarily by growth in international students.

The London Plan recognises the important role that the higher education sector and its research capabilities have in supporting and developing the growth of the London economy.

Research and knowledge exchange are fundamental strengths of the UK's higher education sector and provide the essential underpinnings of a thriving innovation and business environment.

It is also a major export sector. Overall, it is estimated that UK HEIs generated £7.9bn worth of exports for the country in 2008/09.

This scenario seeks to consciously develop a new educational quarter based around two new campuses. The Universities would have particular strengths in new emerging technologies which may include life sciences, information technologies or other infant technologies that will be emerging by 2030.

There will be a large student population but also a large commercial presence themed around technologies related to the Universities research strengths

Large provision will be made for student accommodation. There will also be a large number of residential units that are likely to prove attractive to a highly skilled and highly qualified workforce of the kind that might be found around Cambridge for example.

Examples of similar types of quarters can be found internationally at Paris Saclay and at Boston.

The larger universities in London tend to have between 20,000-25,000 students.

In developing their Masterplan for their new campus Royal Holloway found the benchmark figure was 8.6 sq m per student.

2 new large campus universities of 20,000 students each would therefore equate to around 350,000 sq m.

By way of a comparator example Paris Saclay 20km South West of Central Paris is seeking to build on its existing technopole and 20,000 student base by developing around 500,000 sq m for Scientific Scenarios and a further 500,000 sq m for business space.

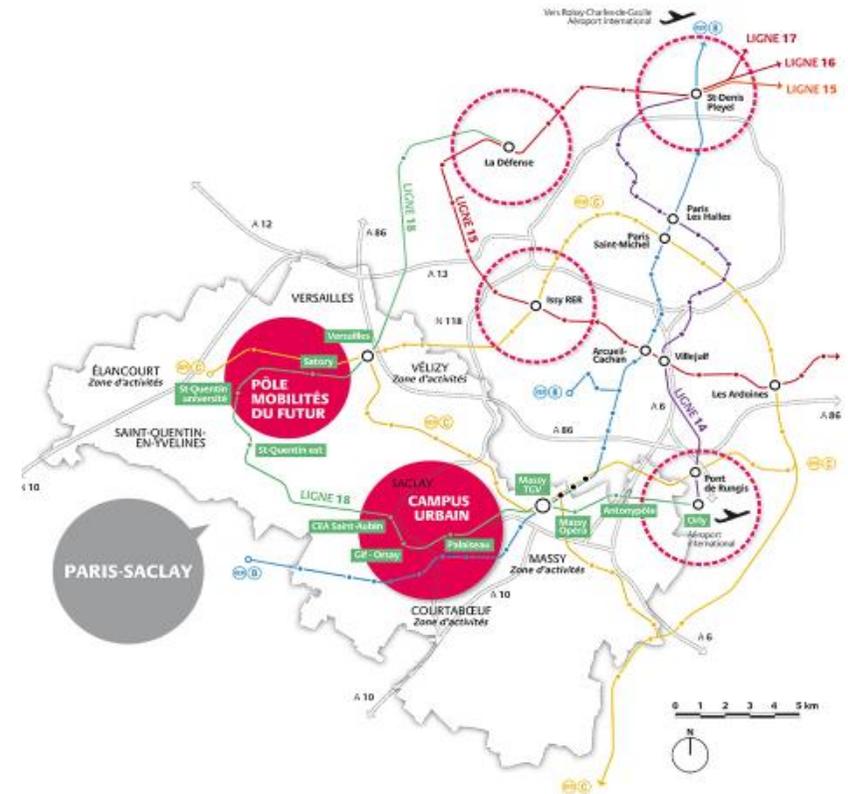
A further example is the Boston Innovation district, a 100 acre site where the aim is to "Forge a culture of Work, Live and Play: Acknowledging that the clustering of talent produces innovation at a quicker rate, as well enabling the sharing of technologies and knowledge, the district seeks to place small firms in close proximity to large firms who have access to capital and the ability to scale and grow ideas".

# Scenario 1: Edge City Technopole – Paris Saclay

We have considered Paris Saclay as a comparator for Scenario 1 although we note that there are clearly other factors which impact this as a comparator (e.g government funding). However, as a means for assessing the scale and mix of uses, we have based Scenario 1 on examples such as this:

- ▶ 530 hectares
- ▶ 510,000 sq m (5.5m sq ft) of Scientific Programmes
- ▶ 490,000 sq m (5.3m sq ft) Business Space
- ▶ 4,500 family units
- ▶ 5,200 student housing units
- ▶ 80,000 sq m (860,000 sq ft) shops, services, local facilities

Paris-Saclay, France's "Silicon Valley": €1.9 billion in government "National Investment Program" funding will be dedicated to the Saclay Plateau (in the south of the Greater Paris region) to build Europe's biggest science and technology campus by 2020. The Saclay site already accounts for 10% of France's scientific research workforce; the target is to increase this to nearly 20% in the future. The Saclay campus will be served by the Greater Paris Express from 2018 onwards



# Scenario 1: Employment profile

Employment profile is likely to be similar to that of somewhere like Cambridge, with a high proportion of education employment but also a high proportion in skilled knowledge based service sectors.

Table illustrates forecast employment profile of Cambridge at 2031 based on the East Of England Forecasting Model (EEFM).

We would expect fewer jobs in Health and Education and less in Distribution than such an established centre. There is likely to be some manufacturing but of the B1 type activity.

Based on standard employment density ratios the sectoral profile of jobs is translated into quantum of commercial floorspace

	Cambridge 2031	Heathrow	Floor space (Sq m) per job	Sq m
Primary and Utilities	543			
Manufacturing	1,848	1,848	30	55,440
Construction	2,807	2,807		
Wholesale	3,488	1,000		
Retail	10,945	10,945	19	207,955
Transport & Storage	2,536	2,536		
Accommodation and food service activities	7,617	7,617	12	91,404
Information and Communication	9,047	9,047	12	108,564
Financial and Insurance activities	678	678	12	8,136
Professional Scientific Technical and Real Estate	19,466	19,466	12	233,592
Administrative and support service activities	8,851	8,851	12	106,212
Public Admin & Defence	2,353	2,353	12	28,236
Education	25,554	20,000		
Health	15,330	5,000	20	100,000
Arts Entertainment and recreation	2,535	2,535	20	50,700
Other Services	2,665	2,665	20	53,300
	116,263	97,848		1,043,539

# Scenario 1: Development schedule

Total scenario 1	Sq m	Sq ft	Units
<b>B2/B8</b>		-	
<b>B1</b>	549,968	5,920,000	
<b>HEI</b>	349,991	3,767,400	
<b>Retail / Amenity</b>	314,632	3,386,785	
<b>Social Infrastructure</b>	99,998	1,076,400	
<b>Student Housing</b>	185,800	2,000,000	10,000
<b>Residential Units</b>	2,508,300	27,000,000	32,143
<b>Total Non-Residential Floorspace</b>	1,314,589	14,150,585	
<b>Total Floorspace</b>	4,008,689	43,150,585	
<b>Employment</b>			97,848
<b>Annual GVA</b>			£7.8 bn

- The sectoral projections have been grouped into broad land use types and reality checked by JLL.
- This scenario would contain just under 100,000 jobs
- There would be 550,000 sq m of B1 space and around 350,00 sq of HEI accommodation
- There would be over 30,000 residential units in addition to 10,000 student housing units.
- When fully developed this scenario would generate around £7.8bn annually in terms of GVA

The estimate for GVA will represent the annual GVA when scenario is fully developed. It is expressed as the estimated output at 2031 expressed in 2011. It has been calculated by taking the ONS GVA data by sector for Outer West London at 2011 and dividing by the GLAs employment data by sector for the relevant boroughs. Output per job is then applied to the structural employment profile to calculate GVA. 2% p.a. productivity growth is assumed between 2011-31.



## Scenario 2 – New Town

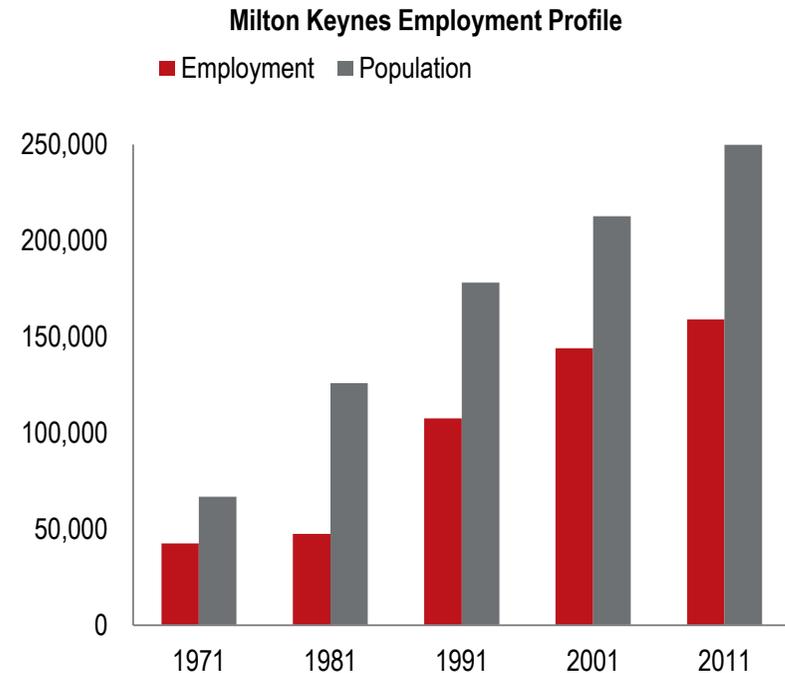
# Scenario 2: “New town”

Scenario	Description	Retained buildings	Risks	Benefits
2. New Town	<ul style="list-style-type: none"> <li>Development at Heathrow takes the shape of a new town such as Milton Keynes</li> <li>Proximity to the M4, M40 and M25 key for distribution development – the rest of the country can be accessed fairly easily from Heathrow. The requisite skilled workforce which currently services Heathrow and associated activities will fit with this scenario. Potential for multi-modal operation</li> <li>We anticipate strong demand for residential development, serviced by amenity offer such as retail (shopping centres, convenience provision etc), leisure, and social infrastructure</li> <li>Commercial development around the transport nodes</li> <li>More dense development than Milton Keynes</li> <li>Aligned with LB Hillingdon’s “Heathrow Park” vision, Option A (45,000 homes and 67,000 jobs, no residual airport function)</li> </ul>	<ul style="list-style-type: none"> <li>Some central terminal area buildings are retained and become retail / town centre hub</li> </ul>	<ul style="list-style-type: none"> <li>Establishing large distribution shed market at Heathrow (currently not a large scale distribution location due to lack of land / sites)</li> <li>No dominant office demand driver to assist with commercial retention and development (other than attracting local demand and London overspill)</li> <li>Risk that loss of airport has adverse impact on area as commercial location</li> </ul>	<ul style="list-style-type: none"> <li>Diversity of employment to absorb loss of airport jobs</li> <li>Leverage the existing highly skilled population</li> <li>Economic generator / job creation (but to a lesser extent than in Scenario 1)</li> <li>Place creation: social infrastructure and activity</li> </ul>

# Scenario 2: Population and jobs profile

- ▶ The new Town Scenario is looking to achieve a broad balance of jobs and workers
- ▶ 68% of the London population are economically active
- ▶ This is also the 2001 proportion of jobs to population at Milton Keynes
- ▶ So in Scenario 2 there is one job for every worker though we would anticipate two way commuting in and out of the town will continue
- ▶ For the sectoral profile of employment we assume this will also be balanced across sectors and activities which will provide a range of employment opportunities for local residents

Looking at the way successful New Towns have grown in the past , population growth often comes first to establish the location, but once the labour force is in place the jobs will follow provided the appropriate locational attributes and infrastructure are in place.



# Scenario 2: Population and jobs profile

<b>Population</b>	112,000
<b>Households</b>	47,863
<b>Econ active in employment</b>	51,520
<b>Pop related jobs</b>	25,760
<b>Pop working age (London %)</b>	76,160
<b>Borough jobs (MK 2001 Emp=68% Pop)</b>	76,160

- ▶ The new Town Scenario is looking to achieve a broad balance of jobs and workers
- ▶ 68% of the London population are economically active. This is also the 2001 proportion of jobs to population at Milton Keynes
- ▶ Therefore in Scenario 2 there is one job for every worker though we would anticipate some two way commuting in and out of the town
- ▶ The sectoral profile of employment we assume will be balanced across sectors and activities which will provide a range of employment opportunities for local residents
- ▶ Based on a GLA research figure of 230 jobs per 1,000 population, there would be 25,000 jobs in activities directly supporting the new population.

# Scenario 2: Job profile

	<b>Jobs</b>	<b>sq m</b>
Primary and Utilities	254	0
Manufacturing	3,396	135,842
Construction	2,451	98,021
Wholesale	7,180	287,200
Retail	7,040	133,755
Transport & Storage	5,744	229,760
Accommodation and food service activities	3,678	44,136
Information and Communication	4,951	59,406
Financial and Insurance activities	3,316	39,796
Professional Scientific Technical and Real Estate	11,103	133,241
Administrative and support service activities	7,333	87,993
Public Admin & Defence	1,651	19,814
Education	5,440	217,611
Health	6,823	272,940
Arts Entertainment and recreation	2,586	51,712
Other Services	3,214	64,290
<b>All Sectors</b>	<b>76,160</b>	<b>1,875,518</b>

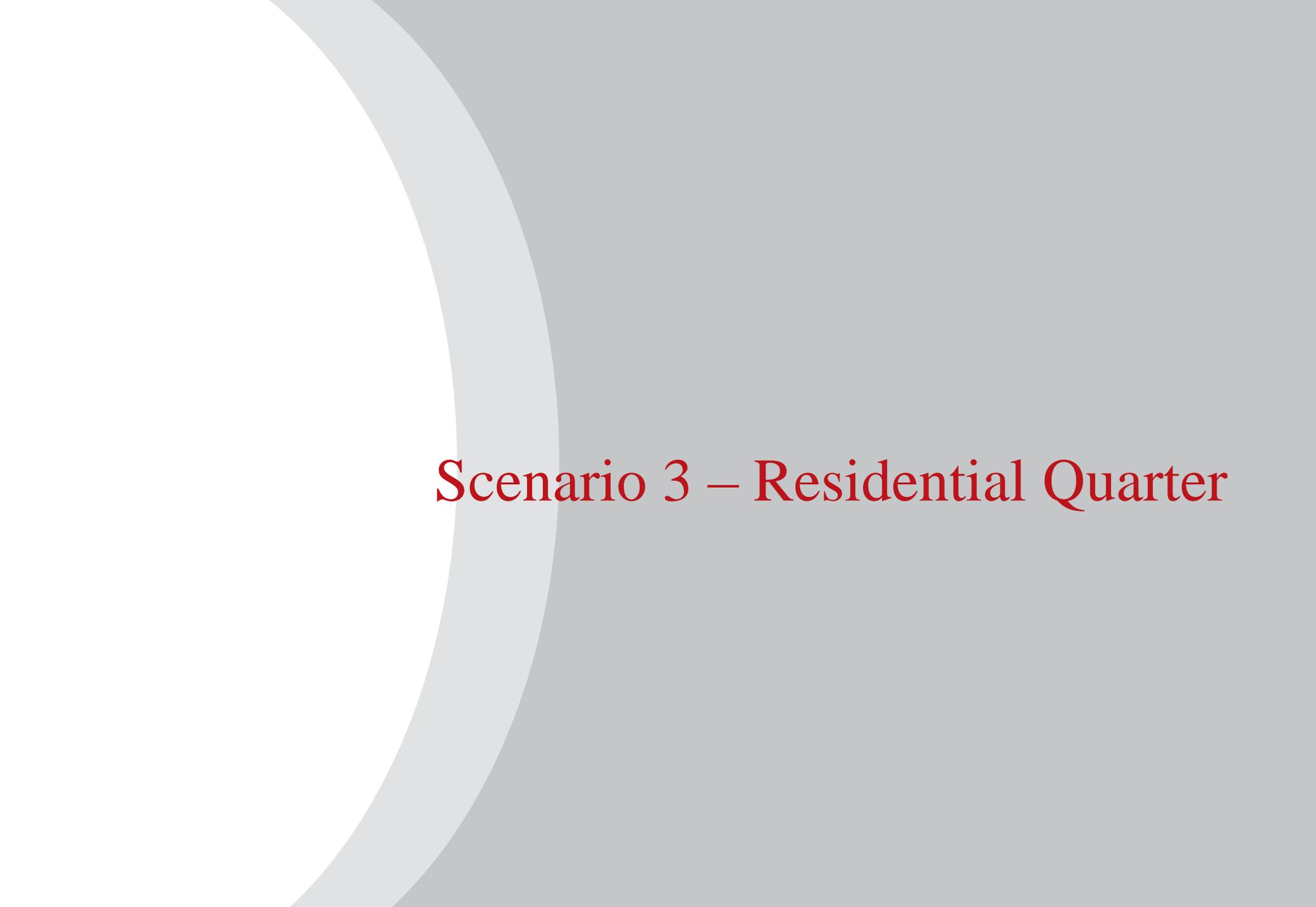
- In order to look at the sectoral balance of jobs for Scenario 2 we have taken the forecast employment profile of Milton Keynes at 2031 from the East of England Forecasting Model (EEFM). Whilst not expecting the jobs to be an exact match this provides a good illustration of a balance of jobs across a range of sectors.
- The sectoral profile of jobs is then constrained to the 76,000 jobs total calculated as per the previous slide
- For each of the sectors we have applied typical employment density ratios to calculate quantum of employment related floorspace.

# Scenario 2: Development schedule

Scenario 2	Sq m	Sq ft	Units
<b>B2/B8</b>	743,224.32	8,000,000	
<b>B1</b>	426,625.25	4,592,156	
<b>HEI</b>		-	
<b>Retail / Amenity</b>	201,027.31	2,163,840	
<b>Social infrastructure</b>	536,088.54	5,770,409	
<b>Student housing</b>		-	0
<b>Residential units</b>	3,678,959	39,600,000	47,143
<b>Total Commercial floorspace</b>	1,599,271	17,214,552	
<b>Total floorspace</b>	5,278,230	56,814,553	
<b>Employment</b>			76,160
<b>Annual GVA</b>			£6.0 bn

- This scenario would contain 76,000 jobs
- There would be 430,000 sq m of B1 space and around 750,000 sq of B2/B8 space.
- This would be supported by retail and social infrastructure
- There would be 47,000 residential units.
- When fully developed this scenario would generate around £6.0bn annually in terms of GVA

The estimate for GVA will represent the annual GVA when scenario is fully developed. It is expressed as the estimated output at 2031 expressed in 2011. It has been calculated by taking the ONS GVA data by sector for Outer West London at 2011 and dividing by the GLAs employment data by sector for the relevant boroughs. Output per job is then applied to the structural employment profile to calculate GVA. 2% p.a. productivity growth is assumed between 2011-31.



# Scenario 3 – Residential Quarter

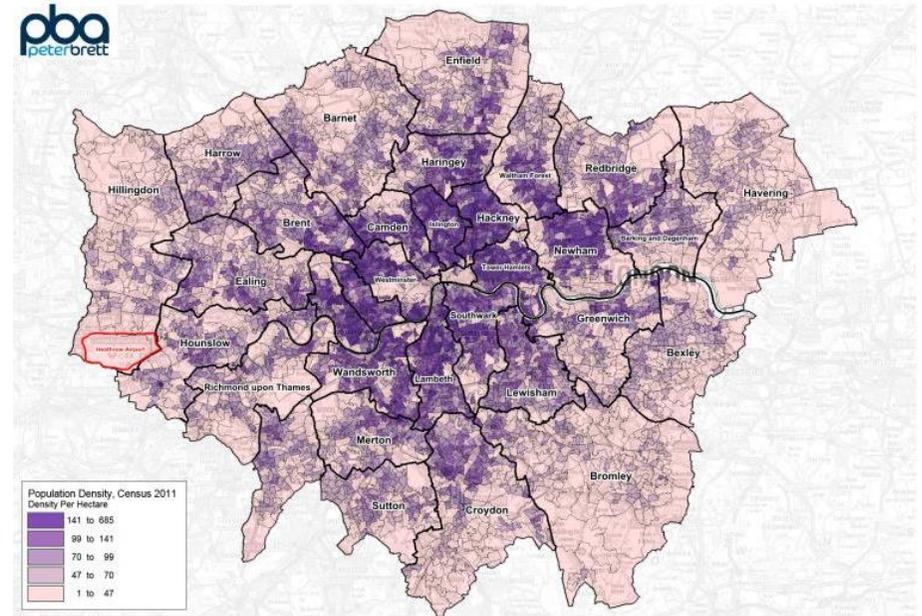
# Scenario 3: “New London Residential Quarter”

Scenario	Description	Retained buildings	Risks	Benefits
3. New Residential Quarter	<ul style="list-style-type: none"> <li>The development of a new London residential quarter of a scale such as Hammersmith and Fulham or Kensington and Chelsea.</li> <li>Large commuting component – to central London, surrounding boroughs and to the Thames Valley</li> <li>Range of densities: various typologies, but higher density around transport nodes</li> <li>Supporting amenity provision and social infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Some central terminal area buildings are retained and become retail / town centre hub</li> </ul>	<ul style="list-style-type: none"> <li>The new quarter becomes a dormitory location for workers in Central London.</li> <li>Lack of re-provision of all jobs lost through Heathrow relocation</li> </ul>	<ul style="list-style-type: none"> <li>Diversity of employment to address London’s housing shortage</li> <li>Place creation: social infrastructure and activity</li> <li>Ability to increase density must be accounted for – London’s population is growing and land supply is short, the way people live will change. Transport Orientated Development allows for higher density development around the transport nodes, while providing family housing further away. Over time, some places become more dense, for example Millharbour and the development on the Isle of Dogs – once low rise, now high density development</li> <li>Provision of local jobs as well housing for Central London commuters</li> </ul>

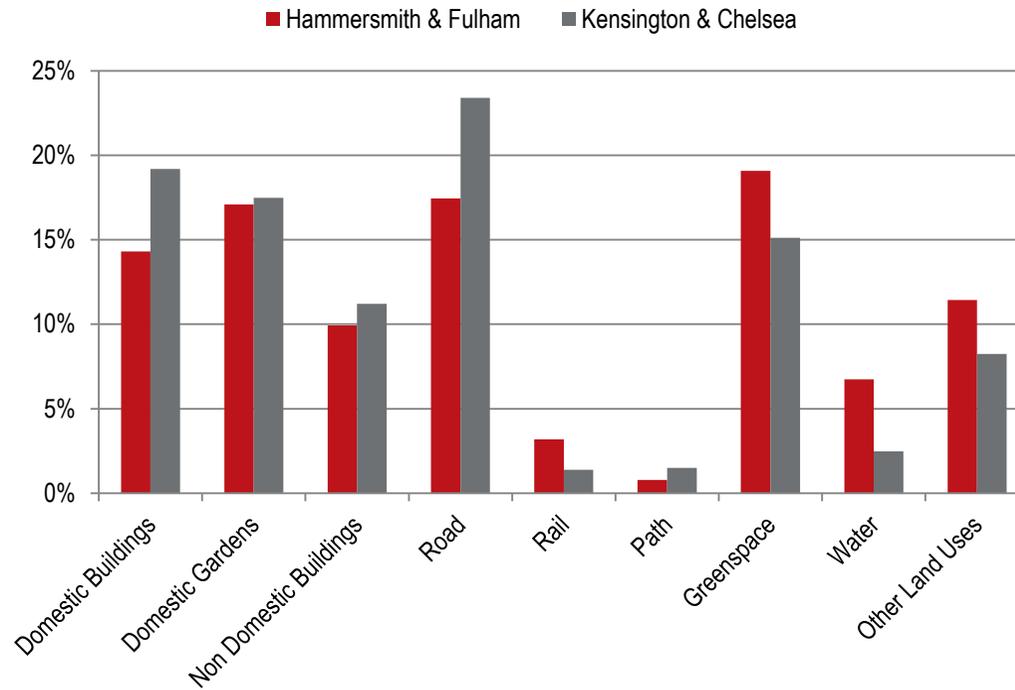
# Scenario 3: Population density

- ▶ To test the population density we have looked at existing population densities in across London
- ▶ By way of examining population densities achieved we have overlain Heathrow footprint over existing areas
- ▶ Even without re-shaping the boundary population levels of between 100,000 – 150,000 currently exist in non-Central London locations within this footprint.

## London population density



# Scenario 3: Land use



- The figure illustrates the percentage of total land that is allocated to buildings, infrastructure, open space and other uses in two fairly densely developed inner west London boroughs.
- We use the average of these two boroughs to provide an indication of land use available by type for Heathrow.

# Scenario 3: Land use

	Ha	Avg
Area of domestic buildings	201	16.7%
Area of domestic gardens	207	17.3%
Area of non domestic buildings	127	10.6%
Area of road	245	20.4%
Area of rail	27	2.3%
Area of path	14	1.1%
Area of greenspace	205	17.1%
Area of water	55	4.6%
Area of other land uses	118	9.8%
Total	1,200	

- ▶ We have examined existing land use in London for the boroughs of Kensington & Chelsea and Hammersmith & Fulham as indicative boroughs of London. Both boroughs have a broadly similar profile and have been used to derive a land use for Heathrow.
- ▶ If the area of domestic gardens and Greenspace are combined they account for about 35% of total land use.
- ▶ This might be a useful guideline for indicating how much should be given over to open space.

# Scenario 3: Dwellings

<b>Dwellings area (inc Gardens)</b>	<b>400</b>
<b>Units per ha</b>	<b>212</b>
<b>Dwellings</b>	<b>85,000</b>

- ▶ This scenario would have largely residential character
- ▶ It will have a mixed profile of population many of whom will commute to work in Central London or even reverse commute to the Thames Valley
- ▶ The London Boroughs with the lowest jobs density have a ratio of around 0.4 jobs per working age population
- ▶ We have used this as the guideline figure for the number of jobs in the New Residential Quarter which will be predominantly around supporting resident population in sectors such as health, education and consumer services.
- ▶ This gives a total of 54,000 jobs. Based on a figure of 230 jobs per thousand population 46,000 of these jobs will be in activities supporting the local population
- ▶ We have used the forecast employment profile of predominantly residential London Borough at 2031 to represent the likely type of sectoral profile of this New Residential Quarter

		<b>per ha</b>
Population	200,000	167
Households	81,633	68
Econ Active in Employment	92,000	
Pop related jobs	46,000	
Pop Working Age	136,000	
Borough Jobs	54,400	

# Scenario 3: Job profile

	Residential Borough 2031	sq m
Primary and utilities	106	0
Manufacturing	370	14,809
Construction	3,941	157,659
Wholesale	1,064	42,541
Retail	5,703	108,361
Transport & storage	1,629	65,180
Accommodation and food service activities	3,539	42,471
Information and communication	1,970	23,639
Financial and insurance activities	637	7,641
Professional scientific technical and Real Estate	4,420	53,039
Administrative and support service activities	7,159	85,903
Public Admin & Defence	2,735	32,816
Education	7,608	152,162
Health	10,066	201,321
Arts entertainment and recreation	2,106	42,122
Other services	1,346	26,926
All sectors	54,400	1,056,590

- The sectoral profile of jobs is based on the forecast profile at 2031 from GLA Economics for a predominantly residential borough.
- A large proportion of jobs will be in sectors serving the local population such as health and education and supported by local consumer expenditure such as retail and leisure.
- The jobs by sector have been translated into quantum of floor space by application of typical employment density ratios.

# Scenario 3: Development schedule

Total Scenario 3	Sq m	Sq ft	Units
B2/B8	335,879	3,615,368	
B1	139,355	1,500,000	
HEI	-	-	
Retail/Amenity	122,740	1,321,160	
Social Infrastructure	308,512	3,320,791	
Student Housing	-	-	
Residential Units	6,689,019	72,000,000	85,714
Total Commercial Floorspace	906,485	9,757,319	
Total Floorspace	7,595,503	81,757,319	
Employment			54,400
Annual GVA			£3.9 bn

- This scenario would contain 54,000 jobs
- There would be 140,000 sq m of B1 space and around 330,000 sq of B2/B8 space.
- This would be supported by retail and social infrastructure
- There would be 86,000 residential units.
- When fully developed this scenario would generate around £3.9bn annually in terms of GVA

# Scenario summary

Scenario	Existing building retained	Non-residential sq m/ sq ft (includes social infrastructure)	Jobs	Population	Dwellings	Potential Revenue	Concept
<b>Scenario 1</b>	Terminals 1 - 4 and T 5 retained	1,314,589/14,150,585	Circa 100,000	Circa 76,000 (excluding students)	Circa 32,000 residential units +10,000 student units	Business Rates: £158m Council Tax: £84m	Commercially led scenario, focussing on education and technology uses. Retention of T 1-4 to serve as town centre, with T5 retained as exhibition / conference / entertainment and edutainment centre – solves London's problem of delivering convention centre due to large land take and viability issues. Will act as destination creator.
<b>Scenario 2</b>	Terminals 1 – 4	1,599,271 / 17,214,552	Circa 76,000	Circa 112,000	Circa 47,000	Business Rates: £139m Council Tax: £124m	New Town – T 1-4 retained as main town centre, appropriate retail provision, distribution uses, commercial and residential.
<b>Scenario 3</b>	Terminals 1 - 4	570,606 /6,141,951	Circa 55,000	Circa 200,000	Circa 85,700	Business Rates: £56m Council Tax: £226m	London Residential Quarter– predominantly residential led, with supporting retail and social infrastructure. Ability to increase density must be accounted for – London's population is growing and land supply is short, the way people live will change. Transport Orientate Development allows for higher density development around the transport nodes, while providing family housing further away. Over time, places become more dense, for example Millharbour and the development on the Isle of Dogs – once low rise, now high density development.



# Viability Assessment

# Financial Appraisal Assumptions

This assumptions paper details the financial appraisal assumptions relating to the three development scenarios for Heathrow.

Please note, residual appraisals are highly sensitive to variations in the inputs and therefore to the range of assumptions.

## General Assumptions

- ▶ We have used our in house Excel Model which incorporates the master developer approach.
- ▶ We have adopted a finance rate of 6.5% in the residual appraisals.
- ▶ Developer's profit is included at 20% on cost for private residential and commercial uses.
- ▶ Developer's profit is included at 6% on cost for affordable residential.
- ▶ The professional fees are included at 12.5%.
- ▶ A contingency of 5% on construction cost has been included.
- ▶ The appraisals do not include cost inflation or value growth.
- ▶ We have not discounted our cash flows as we have assumed that our discount rate is equivalent to our inflation rate.

## Cost Assumptions

We have determined the appropriate base build costs for the uses are as follows for the following sites:

	Build Cost
<b>Scenario 1</b>	
Residential	£140 psf
HEI	£150 psf
Offices	£150 psf
Student Housing	£45,000 per room
Retail	£80 psf
<b>Scenario 2</b>	
Residential	£140 psf
Offices	£150 psf
Industrial	£70 psf
Retail	£80 psf
<b>Scenario 3</b>	
Residential	£140 psf
Offices	£150 psf
Industrial	£70 psf
Retail	£80 psf

The base build costs exclude any car parking, demolition, utilities and landscaping costs.

A varying cost allowance has been made for the provision of incoming statutory utilities based on the quantum of development on the site.

A cost of £3,000 per residential unit has been included for utilities connection fees.

## Demolition

For the purposes of all three scenarios we have assumed that the appraisals exclude demolition costs where required.

## Infrastructure

A cost of £3,000 per residential unit has been included for utilities connection fees.

We have assumed a cost of £8,750 per person for the social infrastructure costs

## CIL & Section 106 costs

Residential S106 tariff – the model excludes any S106 on residential units.

Commercial S106 tariff – the model excludes any S106 costs on commercial units.

MCIL is included at £35 psm

# Financial Appraisal Assumptions

## Value inputs

We have derived land values from residual development appraisals based upon the following inputs:

### Scenario 1 – Education and Technology Quarter

Use	Rent / CV	Yield
Residential Private Phase 1	£400 psf	
Affordable Housing Phase 1 (Intermediate)	£260 psf	
Affordable Housing Phase 1 (Social Rented)	£180 psf	
Residential Private Phase 2	£450 psf	
Affordable Housing Phase 2 (Intermediate)	£293 psf	
Affordable Housing Phase 2 (Social Rented)	£203 psf	
Office Phase 1	£30.00 psf	6.25%
Office Phase 2	£36.00 psf	6.25%
Student Housing	£200 per week (40 week term)	
Industrial	£12.00 psf	6.25%
HEI	£18.00 psf	5.25%
Retail	£20.00 psf	6.25%

### Scenario 2 – New Town

Use	Rent / CV	Yield
Residential Private Phase 1	£400 psf	
Affordable Housing Phase 1 (Intermediate)	£260 psf	
Affordable Housing Phase 1 (Social Rented)	£180 psf	
Residential Private Phase 2	£450 psf	
Affordable Housing Phase 2 (Intermediate)	£293 psf	
Affordable Housing Phase 2 (Social Rented)	£203 psf	
Office Phase 1	£30.00 psf	6.25%
Office Phase 2	£36.00 psf	6.25%
Industrial	£12.00 psf	6.25%
Retail	£20.00 psf	6.25%

# Financial Appraisal Assumptions

## Scenario 3 – Residential Quarter

Use	Rent / CV	Yield
Residential Private Phase 1	£400 psf	
Affordable Housing Phase 1 (Intermediate)	£260 psf	
Affordable Housing Phase 1 (Social Rented)	£180 psf	
Residential Private Phase 2	£450 psf	
Affordable Housing Phase 2 (Intermediate)	£293 psf	
Affordable Housing Phase 2 (Social Rented)	£203 psf	
Office Phase 1	£30.00 psf	6.25%
Office Phase 2	£36.00 psf	6.25%
Industrial	£12.00 psf	6.25%
Retail	£20.00 psf	6.25%

## Residential

- ▶ We have assumed 78sqm (840 sq ft) as the average unit size for the residential units in line with standard residential unit sizes in new developments across London.
- ▶ We have analysed the local market and have applied market pricing to the private residential accommodation.
- ▶ The values reflect advice received on the method most likely to be adopted by the council at the time of this report.
- ▶ We assumed an affordable housing provision of 30%.
- ▶ We have assumed that no grant is available and have calculated the values based on new proposals for affordable housing rents.
- ▶ We have assumed an initial take up rate of 500 units per annum for the site. This take up rate would accelerate once the development gains momentum. Especially as a number of providers could be active across the site new products would emerge and the place become established.

# Financial Appraisal Assumptions

## Phasing

- ▶ We assumed that the inflation rate is at the same as the discount rate and therefore in viability terms the impact of phasing is not taken into account.
- ▶ However, we have assumed that early phases will begin around the existing transport nodes and retained assets.
- ▶ In relation to the delivery of residential, we have assumed that there could be 10 development sites at a time. Therefore it would be possible to begin the residential development around the edges of site, where the delivery of social infrastructure and supporting amenity will benefit surrounding neighbourhoods.
- ▶ Heathrow can succeed as a major new business location but the process of creating a well-balanced community that operates sustainably throughout all stages of development has to work at several levels simultaneously. Attracting the HEI's and residential and associated activity will be the primary means of establishing Heathrow during the early phases; the build up of a well-balanced residential community is an essential component in attracting office occupiers.

## Tax revenue assumptions

- ▶ Business Rates are calculated as per the 2013 rateable value multiplier of 47.1 without exemptions
- ▶ We have assumed all housing units to be in council tax band H as per the 2013 charges of the London Borough of Hillingdon. This is assuming high values of the new developments.

# Financial Appraisal Assumptions

## Car Parking

### Scenario 1

Residential - 1 space per unit for 30% of the total residential units

Office – Parking ratio of 1:100 sq m for only two thirds of the phase 2 office space

Retail – Parking ratio of 1:75 sq m for only phase two retail space

### Scenario 2

Residential - 1 space per unit for 30% of the total residential units

Office – Parking ratio of 1:100 sq m for 50% of the total office space

Industrial – Parking ratio of 1:100 sq m for 50% of the total office space

Retail – Parking ratio of 1:75 sq m for 50% of the total retail space

### Scenario 3

Residential - 1 space per unit for 30% of the total residential units

Office – Parking ratio of 1:100 sq m for 50% of the total office space

Industrial – Parking ratio of 1:100 sq m for 50% of the total office space

Retail – Parking ratio of 1:75 sq m for 50% of the total retail space

For all the scenarios we assumed a 50:50 split between Surface Parking and Multi Storey Car Parks.

We have assumed the following:

**Surface Parking - £4,500 per space**

**MSCP - £7,000 per space**

# Viability assessment

Value / Cost	Scenario 1	Scenario 2	Scenario 3
Land receipts	£ 2.8 bn	£ 3.0 bn	£ 4.8 bn
Infrastructure (including social infrastructure)	-£ 0.8 bn	-£ 1.1 bn	-£ 1.9 bn
Mayoral Community Infrastructure Levy (MCIL)	-£ 0.13 bn	-£ 0.17 bn	-£ 0.25 bn
<b>Total</b>	£ 1.9 bn	£ 1.7 bn	£ 2.6 bn
Land value per acre	£ 1,440,000	£ 1,392,000	£ 1,997,000

- The highest land value is driven by student housing in scenario 1 and private residential which is pre-dominant in scenario 3.
- The lowest land value is created by industrial use and it is this differentiating factor in the different scenarios which has caused the largest impact on value resulting in scenario 2 showing the lowest land value.
- While the industrial uses may help to absorb the lower order value jobs, the contribution beyond this is limited.
- The viability of Scenario 1 and 2 is similar. The higher proportion of B2/B8 in Scenario 2 is balanced higher value residential space.
- Scenario 3 – could drive a higher land value if were to replace some of the B2/ B8 with student housing - more residential or more offices.
- While more residential units will create more value, it will take longer to deliver until absorption rates increase beyond the current assumption of 500 units per annum. Currently the highest delivery rates in London are seen in Tower Hamlets with up to 2000 units per annum.
- We have assumed that the rate of inflation equates to the discount rate and therefore have neither inflated nor discounted the cashflows. Given that this is a high level exercise and the scenarios have not been masterplanned, and our objective is to assess viability, determining the exact figure is not as important as establishing whether a redevelopment scenario for Heathrow is viable or not.
- All scenarios are financially viable based on our assumptions.
- Further criteria are evaluated throughout this report.



# Methods of Delivery

# Method of delivery

Governance	Option	Description	Impact/Targets	Issues
Local Authority/ Private Sector developer/ investor	LABV (Local Asset Backed Vehicle)	<ul style="list-style-type: none"> <li>• Council and private sector pool selected multiple Council assets/sites (and potentially other revenue) with private partner capital &amp; expertise in a JV structure</li> <li>• JV works assets to an agreed agenda to meet public and private sector financial and non-financial objectives</li> <li>• Parties share risk and reward (potentially at a portfolio level) according to respective appetites</li> </ul>	<ul style="list-style-type: none"> <li>• Financial returns</li> <li>• Regeneration and other objectives</li> <li>• Coordination of public &amp; private investment &amp; expertise to maximise impact on assets</li> <li>• Potentially range of assets across Regeneration area offering diversity and mix of risk and reward</li> <li>• Option for retained Terminal buildings</li> <li>• Depends on which assets are retained – could include some hotels and individual sites</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate range of assets</li> <li>• Consensus on objectives</li> <li>• Resource and timing</li> <li>• Economies of scale Vs individual site JVs</li> <li>• Loss of control</li> <li>• Complicated</li> <li>• Size of asset to warrant JV approach</li> <li>• Collective costs of individual JVs</li> <li>• JVs straightforward disposal subject to Planning policy controls – ‘horses for courses’</li> <li>• Reduced control over outcome</li> <li>• Efficient in timing and cost</li> </ul>
	Site Specific Joint Venture	<ul style="list-style-type: none"> <li>• JV between Council and private sector to deliver individual site/ asset objectives</li> <li>• Otherwise as above subject to risk/ return structure being single asset</li> </ul>		
	Individual asset disposals	<ul style="list-style-type: none"> <li>• Council disposes of assets to meet financial and regeneration objectives and relies on planning controls to effect appropriate development</li> </ul>		
<ul style="list-style-type: none"> <li>• Central Government</li> <li>• Mayor</li> </ul>	Development Corporation	<ul style="list-style-type: none"> <li>• Model with different nuances e.g. relative to autonomy – Planning, funding, land/asset ownership</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive coverage of the Heathrow scheme</li> </ul>	<ul style="list-style-type: none"> <li>• Timing</li> <li>• Cost</li> <li>• Appropriate autonomy to be effective</li> </ul>

The appropriate delivery mechanism for a scheme the size of Heathrow will largely depend upon the scenario / content of the scheme. We therefore have not concluded as to the optimal method of delivery, but rather have detailed options which are available.

# Revenue raising approaches

- ▶ Large scale development in Heathrow would raise large sums in council tax and business rates for new commercial spaces. The London Borough of Hillingdon currently raise between £943 and £2832pa / unit and Business Rates remain high whilst rateable values have not been re-evaluated.
- ▶ Tax Incremental Financing could be appropriate: Financing available from the government for development with a forecast increase in tax revenue with particular focus on business rates.
- ▶ However, at present Business Rates Capture is used.
- ▶ This assumes that the rating assessment at a given date is taken, and to the extent that the Borough increases rates, then it can share in uplift. Business Rate Capture only captures business rates and Heathrow will have a large rating assessment. Therefore the business rates on the new scheme may be reduced. However, if Treasury accept that this rating assessment moves with the new airport and is not a loss, and therefore Heathrow rating position is zero, any additional business rates generated from the new scheme will be incremental and therefore the Borough can receive 50% of the uplift (100% if the area is in an Enterprise Zone).
- ▶ Under the current rating regime the current scenarios would raise between £56m - £158mp.a. in business rates and £84m– £226m in council tax on a gross basis.
- ▶ Community Infrastructure Levy: For developments of a size in excess of 100 sq m in the London Borough of Hillingdon a CIL payment of £35 per sq m is payable to fund infrastructure or facilities improvement in the local area.
- ▶ The London Borough of Hillingdon or a Mayoral Development Corporation (which will need planning powers) could have its own CIL and as and when buildings are delivered can recover CIL payments.
- ▶ Land Value Capture: If the Borough/ Government owns Heathrow and increases the value by delivering public realm, infrastructure etc., the increased land value will benefit the Borough / Government.
- ▶ A key point is that we do not consider that there are large scale infrastructure requirements which are necessary to deliver development, and therefore land parcels can be sold to finance decontamination or social infrastructure.



# Scenario Impacts

# Managing the change in occupational profiles

	Sc 1	Sc 2	Sc 3	West London
Managers and Administrators	11.5%	13.2%	11.0%	11.5%
Professional Occupations	29.5%	22.8%	25.6%	22.7%
Associate Professional and Technical Occupations	17.2%	18.1%	15.8%	17.8%
Clerical and Secretarial Occupations	8.7%	9.7%	9.3%	9.9%
Craft and Related Occupations	5.6%	6.7%	7.2%	7.7%
Personal and Protective Service Occupations + Sales Occupations	14.0%	13.4%	16.0%	14.9%
Plant And Machine Operatives + Other Occupations	13.5%	16.1%	15.1%	15.5%

The occupational profile of jobs under each of the scenarios is a fairly close match to the existing occupational profile of jobs in West London. Under Scenario 1 there would be a higher proportion of professional occupations than in the current profile. Each of the scenarios is a long term development project. They will require something of the order of 30 years to reach end state. Some activities and some jobs would automatically relocate to the new airport.

There would be a critical role in managing the transition to find alternative jobs for those directly employed at Heathrow and those directly dependent on Heathrow. There would also need to be a substantial package of retraining schemes. This will be a challenge but the relevant authorities will have plenty of time to plan how to address the issue.

# Scenario Impacts: Western Corridor Property Markets

## Red - Amber - Green Analysis

Scenario	Impact on Industrial Market	Impact on Office Market	Impact on Hotel Market	Impact on Retail Market	Impact on Residential Market	Impact on Place Creation
<b>1: Education and Technology Quarter</b>	<ul style="list-style-type: none"> <li>Largest impact on the Heathrow industrial market.</li> <li>Loss of airport will lead to loss of cargo function / 3PL market.</li> <li>No large scale re-provision of distribution / industrial offer.</li> <li>Lower order jobs less likely to be replaced.</li> </ul>	<ul style="list-style-type: none"> <li>Western Corridor office market is largely predicated upon proximity to the airport : high proportion of international companies and company HQs.</li> <li>Provision of HEI cluster, harnessing existing highly skilled workforce and building upon existing well established clusters, intended to retain businesses at Heathrow and attract new occupiers.</li> </ul>	<ul style="list-style-type: none"> <li>The hotel market will be significantly impacted by the loss of the airport.</li> <li>T5 will be retained, and with it, the Sofitel hotel .</li> <li>The convention / entertainment centre will provide demand for hotel use.</li> </ul>	<ul style="list-style-type: none"> <li>The provision of a regional centre – convention / entertainment and experiential retail provision will act a destination creator.</li> <li>Potential impact on surrounding centres such as Reading, but with anticipated population growth and creation of new economic hub, regional entertainment centre which is not 100% predicated on traditional retail is likely to be appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>Surrounding residential areas are likely to be improved, with the provision of social infrastructure, green areas, and high quality residential offer.</li> </ul>	<ul style="list-style-type: none"> <li>A place to live , work and play.</li> <li>Sustainable.</li> <li>Enhance London's world city status.</li> </ul>
<b>RAG Analysis</b>						
<b>2: New Town</b>	<ul style="list-style-type: none"> <li>Provision of large scale distribution and industrial use.</li> <li>Lower order jobs re-provided.</li> <li>Heathrow is not a major location for big sheds currently but without an airport rents could reduce – although rents in west London beyond the immediate airport catchment still tend to be high relative to other parts of London .</li> <li>Goodman is promoting the rail scheme at Colnbrook (former LIFE site now known as Slough International Freight Terminal). This would be c 2million sq ft of logistics.</li> </ul>	<ul style="list-style-type: none"> <li>Town centre business provision.</li> <li>Western Corridor market impacted by loss of airport and lack of occupational demand drivers..</li> <li>However, high skill base is a strong demand driver.</li> </ul>	<ul style="list-style-type: none"> <li>The hotel market will be significantly impacted by the loss of the airport.</li> <li>The economy of the Western Corridor would still require hotel beds, not at the current scale.</li> </ul>	<ul style="list-style-type: none"> <li>Provision of retail and amenity to support town centre and business districts.</li> <li>No significant impact on surrounding centres.</li> </ul>	<ul style="list-style-type: none"> <li>Surrounding residential areas are likely to be improved, with the provision of social infrastructure, green areas, and high quality residential offer.</li> </ul>	<ul style="list-style-type: none"> <li>A place to live , work and play.</li> <li>Sustainable.</li> </ul>
<b>RAG Analysis</b>						

# Scenario Impacts : Western Corridor Property Markets

## Red - Amber - Green Analysis

Scenario	Impact on Industrial Market	Impact on Office Market	Impact on Hotel Market	Impact on Retail Market	Impact on Residential Market	Impact on Place Creation
<b>3: Residential Quarter</b>	<ul style="list-style-type: none"> <li>Significant impact on the Heathrow industrial market.</li> <li>Loss of airport will lead to loss of cargo function / 3PL market.</li> <li>No large scale re-provision of distribution / industrial offer.</li> </ul>	<ul style="list-style-type: none"> <li>Western Corridor office market is largely predicated upon proximity to the airport : high proportion of international companies and company HQs.</li> <li>Town centre business provision, but Western Corridor market likely to be impacted by loss of airport and lack of occupational demand drivers..</li> <li>However, high skill base is a strong demand driver.</li> </ul>	<ul style="list-style-type: none"> <li>The hotel market will be significantly impacted by the loss of the airport.</li> <li>The economy of the Western Corridor would still require hotel beds, not at the current scale.</li> </ul>	<ul style="list-style-type: none"> <li>Provision of retail and amenity to support town centre and business districts.</li> <li>No significant impact on surrounding centres.</li> </ul>	<ul style="list-style-type: none"> <li>Surrounding residential areas are likely to be improved, with the provision of social infrastructure, green areas, and high quality residential offer.</li> <li>Large scale provision of residential may absorb demand from surrounding centres, but we consider that this impact will be minimal.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of commercial and destination creators.</li> <li>Area to live, less sustainable in terms of large proportion of commuters.</li> </ul>
<b>RAG Analysis</b>						

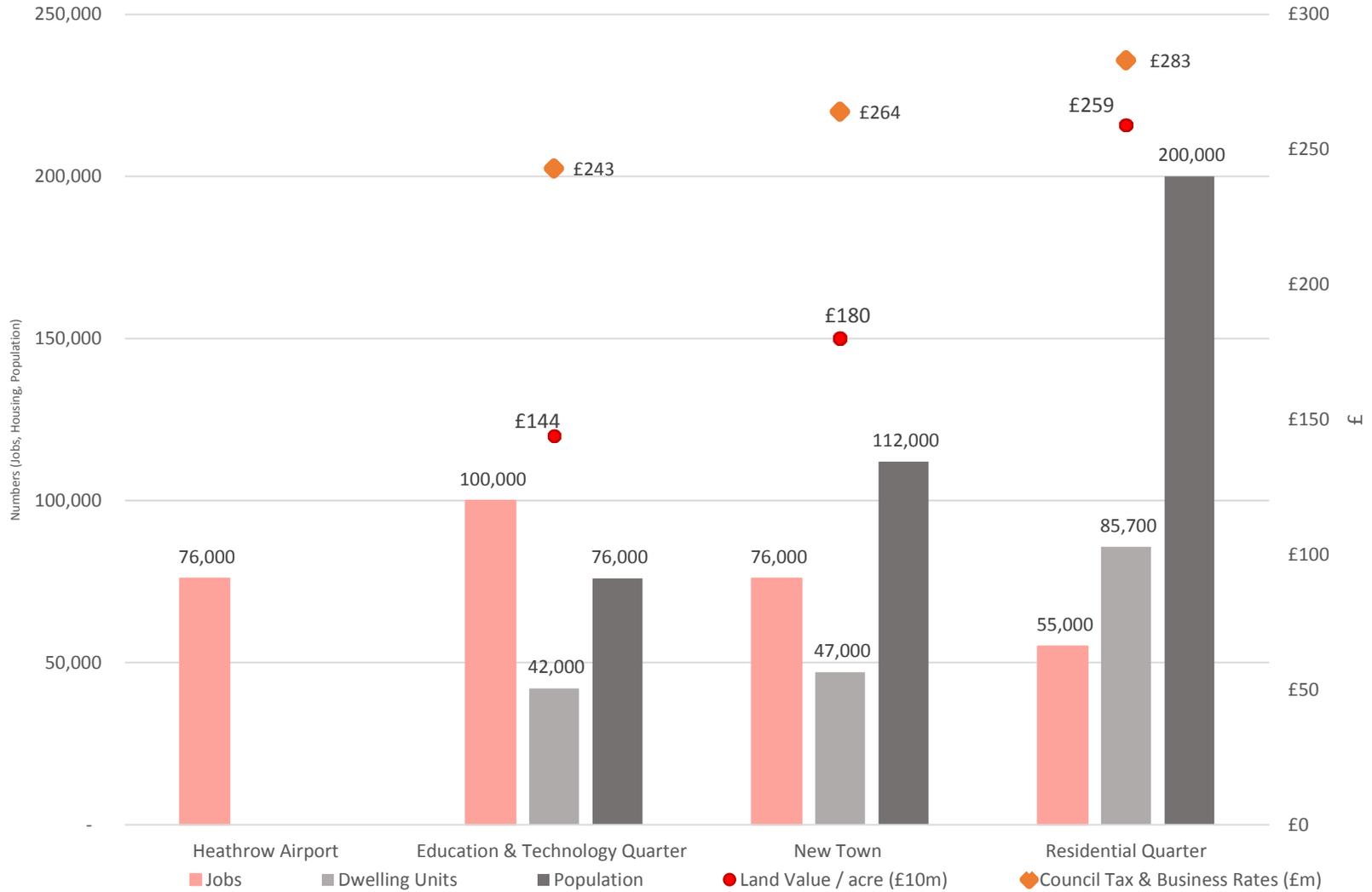
# Scenario Evaluation by Key Criteria

## Red - Amber - Green Analysis

Scenario	Value Generation / Viability	Transport / Infrastructure Requirements	Place Creation	Delivery of Housing	Economic Generator / Job Creation	Enhance London's World City Status	Social Infrastructure and Amenity
<b>1: Education and Technology Quarter</b>	£1.8 bn	<ul style="list-style-type: none"> <li>Adequate transport infrastructure is a pre-requisite for attracting occupier demand for commercial use.</li> <li>LBH currently do not favour car parking – and therefore campus style office provision will need an adequate transport offer.</li> </ul>	<ul style="list-style-type: none"> <li>Destination creation through the retention of T5 and delivery of convention / entertainment/ experiential retail offer.</li> <li>Provision of HEI cluster and business areas, creating activity / footfall and sustainable proposition of working where you live.</li> </ul>	<ul style="list-style-type: none"> <li>Weakest scenario in terms of delivery of housing, but does provide residential development of scale.</li> </ul>	<ul style="list-style-type: none"> <li>Strongest scenario in terms of job creation and generating a n economic hub.</li> <li>100,000 jobs</li> </ul>	<ul style="list-style-type: none"> <li>Strongest scenario in terms of enhancing London's status – delivery of education/ business cluster, conferencing and entertainment facilities.</li> </ul>	<ul style="list-style-type: none"> <li>A place to live , work and play.</li> <li>Sustainable.</li> <li>Fewer social infrastructure requirements due to lower local population.</li> </ul>
<b>RAG Analysis</b>	++	++	+++	+	+++	+++	++
<b>2: New Town</b>	£1.8 bn	<ul style="list-style-type: none"> <li>Transport and infrastructure is anticipated to be adequate.</li> </ul>	<ul style="list-style-type: none"> <li>Diversity of uses contribute towards place creation.</li> </ul>	<ul style="list-style-type: none"> <li>Delivery of housing , but does not maximise the opportunity.</li> </ul>	<ul style="list-style-type: none"> <li>Diversity of uses, inclusion of large scale distribution uses – but these are lower density employment generators.</li> <li>76,000 jobs</li> </ul>	<ul style="list-style-type: none"> <li>Contributes towards London's status by adding to the offer and creating new opportunities for work and places to live.</li> </ul>	<ul style="list-style-type: none"> <li>Larger proportion of social infrastructure due to shift towards more housing.</li> </ul>
<b>RAG Analysis</b>	++	+++	+++	++	++	++	++
<b>3: Residential Quarter</b>	£2.6 bn	<ul style="list-style-type: none"> <li>Transport and infrastructure is anticipated to be adequate.</li> </ul>	<ul style="list-style-type: none"> <li>Weakest scenario in terms of place creation – fewer destination creators, largely residential.</li> </ul>	<ul style="list-style-type: none"> <li>Strongest scenario in terms of addressing London's housing shortage and delivery of housing.</li> </ul>	<ul style="list-style-type: none"> <li>Weakest scenario in terms of job creation.</li> <li>55,000 jobs</li> </ul>	<ul style="list-style-type: none"> <li>Contributes towards London's status by creating places to live.</li> <li>Weakest scenario.</li> </ul>	<ul style="list-style-type: none"> <li>Greatest provision of social infrastructure to support the residential population.</li> </ul>
<b>RAG Analysis</b>	+++	+++	+	+++	++	+	+++

⊕ Indicates strength of positive benefit, ⊖ indicates negative benefit, ○ indicates a neutral position

# Scenario High Level Comparison





Key Findings –Leading to Heathrow City?

# Key Findings – Heathrow City

- ▶ **Rare and unique** opportunity to enhance the London offer and address its growth potential.
- ▶ The **scale** of this opportunity – 1,200 hectares (3,000 acres) of a fully serviced site - provides inbuilt capacity to develop without the need for significant upfront infrastructure costs.
- ▶ **All the scenarios are financially viable** with a range of land values of between £1.8 - £2.6bn.
- ▶ **The most robust scenario for redeveloping Heathrow will ultimately be a combination of all 3 scenarios - providing opportunity for both job creation and housing growth.**

In our view the best combination of uses from the scenarios which would maximise the opportunity would have the following components from our proposed scenarios:

- ▶ Scenario 1
  - Higher education facilities of half the size as in Scenario 1.
  - Technology and entertainment hub
  - Retention of T5
- ▶ Scenario 2
  - No large scale logistics as described in Scenario 2 are included in the Heathrow City scenario as the land area absorbed is used to provide for the residential and office accommodation. The peripheral areas of the site could continue to play a role in absorbing the industrial jobs as they are freed up from airport related uses.
- ▶ Scenario 3
  - Residential density to absorb London's population growth

For simplicity we have combined these elements but there are concerns that density of land coverage of over 50% would compromise the office typology and increase the residential density beyond current London Plan Framework.

# “Heathrow City”

Scenario	Description	Retained Buildings	Risks	Benefits
Heathrow City	<ul style="list-style-type: none"> <li>• Development at Heathrow City is intended to balanced job creation and housing provision.</li> <li>• Focussed around education, R&amp;D, commercial (including advanced high value manufacturing for example)</li> <li>• The development of a new London residential quarter with a range of densities: various typologies, but higher density around transport nodes</li> <li>• Cluster of HEI's, research facilities, spin-off companies, knowledge parks and office development. This can include infrastructure such as teaching hospitals</li> <li>• Leverage of existing business base in the area, and the “E&amp;T Quarter” will drive further demand and bolster the wider commercial property market</li> <li>• Exciting new entertainment venue to create new destination for West London</li> </ul>	<ul style="list-style-type: none"> <li>• Some central terminal area buildings are retained and become retail / town centre hub</li> <li>• Terminal 5 is retained and converted into an exhibition / conference / entertainment / experiential retail venue</li> <li>• Retention of the Sofitel Hotel to support the new exhibition centre (at T5)</li> </ul>	<ul style="list-style-type: none"> <li>• Demand</li> <li>• Take up for both commercial and residential space</li> <li>• Office product typology may have to change to more dense product which may not meet current occupier expectations</li> <li>• No re-provision of industrial space means potential risk of airport related jobs not being directly replaced</li> <li>• Risk that loss of airport has adverse impact on area as commercial location</li> <li>• The time at would take to develop</li> <li>• Design may be too dense</li> </ul>	<ul style="list-style-type: none"> <li>• Build on existing cluster, mitigate against loss of employment provision</li> <li>• Enhance London's world city status</li> <li>• Leverage the existing highly skilled population.</li> <li>• Economic generator / job creation</li> <li>• Place creation: social infrastructure and activity.</li> <li>• Provision of T5 as convention / experiential retail venue addressed London's issue of providing conferencing facilities due to land take and viability. Existing structure which can be used and provide a facility in the West, as all are currently located in the East</li> <li>• Absorbs London's population by providing dense urban dwellings</li> <li>• Provides true balanced community and live / work &amp; play environment</li> </ul>

# Heathrow City: Employment profile

Employment profile is similar to that set out for Scenario 1 but with a reduced total for the Education sector to reflect the lower HEI component compared with Scenario 1.

	Heathrow	Floor space (Sq m) per job	Sq m
Primary and Utilities	500		0
Manufacturing	1,848	30	55,440
Construction	2,807		0
Wholesale	1,000		0
Retail	10,945	19	207,955
Transport & Storage	2,536		0
Accommodation and food service activities	7,617	12	91,404
Information and Communication	9,047	12	108,564
Financial and Insurance activities	678	12	8,136
Professional Scientific Technical and Real Estate	19,466	12	233,592
Administrative and support service activities	8,851	12	106,212
Public Admin & Defence	2,353	12	28,236
Education	15,000		0
Health	5,000	20	100,000
Arts Entertainment and recreation	2,535	20	50,700
Other Services	2,665	20	53,300
	92,848		1,043,539

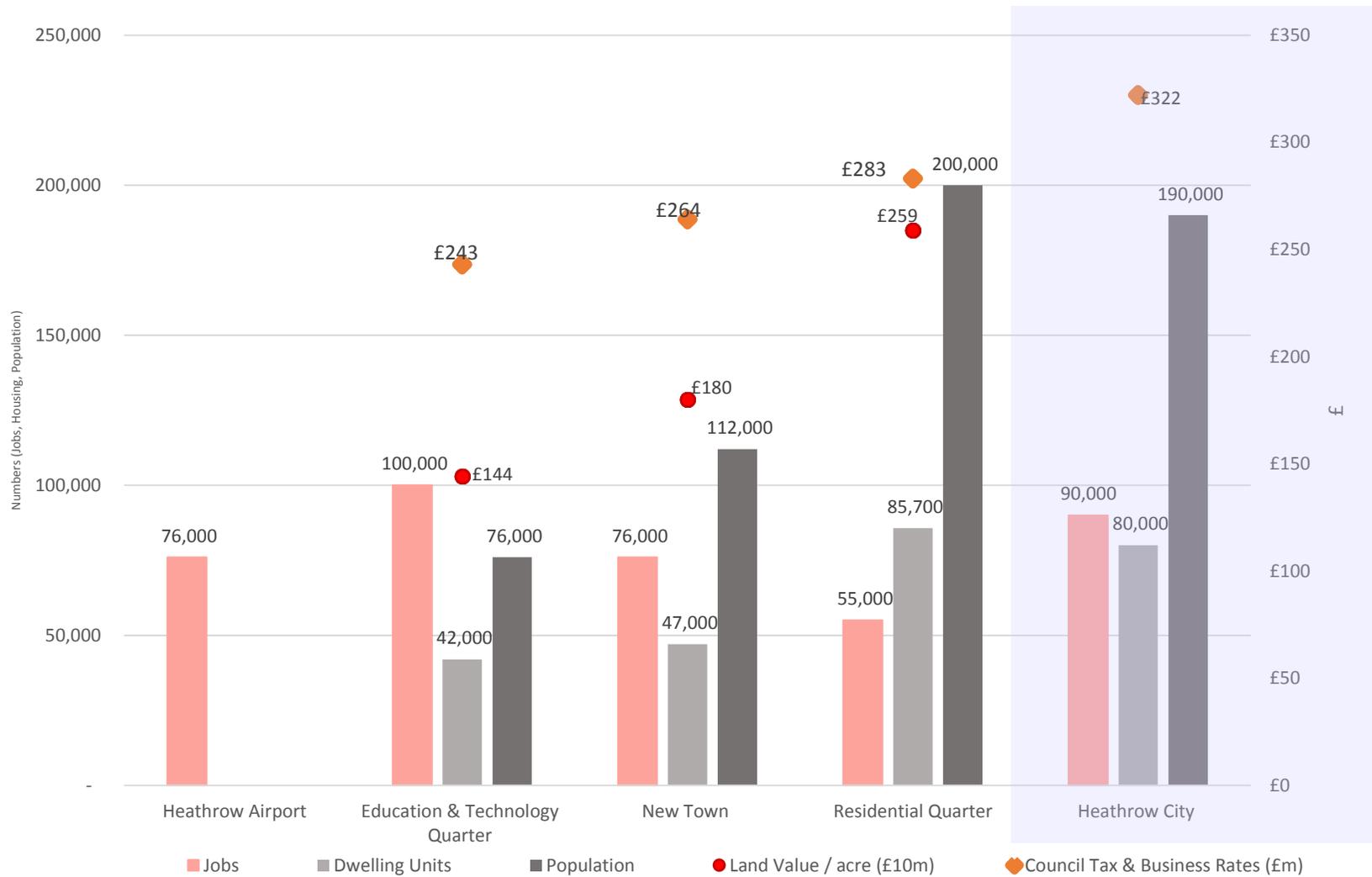
# Heathrow City: Development schedule

Total Heathrow City	Sq m	Sq ft	Units
B2/B8		-	
B1	549,986	5,920,000	
HEI	175,000	1,883,700	
Retail / Amenity	314,643	3,386,785	
Social Infrastructure	100,001	1,076,400	
Student Housing	325,161	3,500,000	5,000
Residential Units	6,689,019	72,000,000	80,000
<b>Total Non-Residential Floorspace</b>	<b>1,139,631</b>	<b>12,266,885</b>	
<b>Total Floorspace</b>	<b>8,153,810</b>	<b>87,766,885</b>	
<b>Employment</b>			<b>92,848</b>
<b>Annual GVA</b>			<b>£7.5 bn</b>

Value / Cost	Heathrow City
Land receipts	£ 5.4 bn
Infrastructure (including social infrastructure)	-£ 1.9 bn
Mayoral Community Infrastructure Levy (MCIL)	-£ 0.26 bn
<b>Total</b>	<b>£ 3.2 bn</b>
Land value per acre	£ 2,500,000

- This scenario essentially adds Scenario 1 and Scenario 3. It is attainable in development capacity terms needs to be rigorously tested with a masterplanning exercise to ensure it can delivered.
- This scenario would contain just over 90,000 jobs
- There would be 550,000 sq m of B1 space and 175,000 sq of HEI accommodation
- There would be 80,000 residential units in addition to 5,000 student housing units.
- When fully developed this scenario would generate around £7.5bn annually in terms of GVA

# Heathrow Redevelopment Scenario Impacts



# Heathrow Redevelopment Scenarios Land-take

	Education & Technology Quarter	New Town	Residential Quarter	Heathrow City
<b>Floorspace sq m</b>				
B2/B8		743,224	335,879	
B1	549,986	426,622	139,355	549,986
HEI	350,003		0	175,001
Retail / Amenity	314,643	201,026	122,740	314,643
Social Infrastructure	100,001	536,084	308,512	100,001
Student Housing	10,000	0	0	5,000
Residential Units	30,000	44,000	80,000	80,000
<b>Plot Ratio/dph</b>				
B2/B8	0.4	0.4	0.4	1
B1	0.4	0.4	0.4	0.4
HEI	0.4	0.4	0.4	0.4
Retail / Amenity	0.4	0.4	0.4	0.4
Social Infrastructure	0.4	0.4	0.4	0.4
Student Housing	100	100	100	200
Residential Units	150	200	200	200
<b>Hectares</b>				
B2/B8		186	84	
B1	137	43	35	55
HEI	88	0	0	44
Retail / Amenity	79	50	31	79
Social Infrastructure	25	134	77	25
Student Housing	100	0	0	25
Residential Units	200	220	400	400
Total Land	629	633	627	627

# Heathrow City Challenges

- ▶ The comparison of Heathrow City against the other scenarios must be cautiously observed.
- ▶ The ability to maximise the employment element and the residential provision are achievable in theoretical terms but may not translate into practice and should therefore be used as a target only.
- ▶ Any compromise in the ability to provide the campus typology for the HEI and the office element could severely affect demand.
- ▶ The timing of delivery could be considerable to achieve a fully functioning new city that this would entail.
- ▶ The opportunity for Heathrow is of such quality that its potential is unlikely to be matched by another site in the foreseeable future. The rarity of an opportunity of this scale to achieve a new quarter for London needs to be explored further.



# Key Findings & Next Steps

# Key Findings

- ▶ Unique opportunity for London to harness future growth in both employment and housing provision.
- ▶ Fulfils criteria for successful developments and destination creation.
- ▶ Opportunity for exemplar world class development in sustainability.
- ▶ The scenarios 1, 2 & 3 tested were deliberately contrasting to test viability and compare the different uses classes.
- ▶ The final scenario Heathrow City is purely a theoretical amalgamation of the scenarios which we believe the site has capacity for. In reality the site could be too dense and compromise delivery in demand terms.
- ▶ The site is able to deliver value both financially and across employment, social and place making criteria.
- ▶ Key opportunity to develop convention centre, new ways of retailing, entertainment in West London which we feel will enhance London and the South East's offer without competing with existing centres.
- ▶ For other uses our impact analysis shows that by the time Heathrow City is developed much of the future development pipeline will have been absorbed.
- ▶ In addition we believe that a large proportion of the business base along the Thames Corridor is strong enough to resist Heathrow's Closure because of existing settled clusters and skilled workforce that live locally.
- ▶ Heathrow City an urban new quarter for London and could capture 90,000 jobs and 80,000 new homes and provide a fantastic new destination around the retained T5.

# Next steps

- ▶ The next step is to test the capacities within the scenarios in terms of physical masterplanning and delivery.
- ▶ We suggest that Heathrow City is used as the base case for further testing of massing and capacity as it provides a realistic mixed use development scenario that provides a dense but comprehensive and balanced use of the site.
- ▶ This work is best undertaken under a formal appointment of a masterplanning team following a competitive process in their selection. We would caution against any public competition at this stage.



- ▶ In our view credibility of the Heathrow City potential will only best be demonstrated through a thoroughly considered appointment.
- ▶ To manage the appointment and costs associated we suggest a stepped process to look at overall massing and capacity first, followed by more detailed design of Heathrow City.



- ▶ It is important to ensure that the appointed masterplanners continue to adhere to the demand profile identified in this piece of work in terms of occupier preferences for commercial and the mix and type of residential. More density does not necessarily create more demand.
- ▶ Only after this step will the method of delivery, phasing and financing be more clearly defined.



# Appendix 1

# Planning Policy Context

At present there is no specific policy to guide any redevelopment of Heathrow but it is implicit in the Mayor's proposals for a major hub airport in the Thames estuary that the existing Heathrow site could become redundant and in that event the current site would be available for redevelopment. This is a unique development opportunity which will take a good number of years to be completed once central government has made a decision on future airport capacity in London and the South East after the 2015 election. Furthermore, we understand that redevelopment of Heathrow could not begin until after 2031 which is the end date of the current London Plan.

Given the absence of current policy relating to the redevelopment of Heathrow and the fact that development would not proceed until after the end date of the current version of the London Plan, we take the view that current strategic planning policy can only provide guidance as to the possible direction of future national and regional policy assuming no major shift in priorities. Additional evidence as to the Mayor's view of future trends in policy development are available in the Further Alterations to the London Plan consultation draft.

However, any decision to redevelop Heathrow in the next years would be followed by a period of major strategic and local plan preparation. These planning proposals would most probably be informed by current strategic planning policies extant in the late 2010s, unless there is clear evidence to inform the extent of significant change. Working practices and commuting patterns may differ in the 2030s. Climate change policies are likely to be well progressed. The clear need for more housing in London is likely to remain. However, at this stage it is difficult to speculate as to the magnitude of change in relation to these issues.

However, future uncertainty has not prevented the Town and County Planning Association preparing a report prepared by Graeme Bell in May 2012 entitled Heathrow Garden City. The report promotes a low density garden city approach of development based on residential neighbourhoods clustered around local town centre and district/neighbourhood nodes.

Whatever spatial development vision is promoted it will need to take into account planning policy guidance. Consequently, in order to highlight the most relevant policies which might inform planning proposals for Heathrow over the next 5 years or so we summarise what seem to be the key current policies.

# Planning Policy

## National Policy

The overriding theme of the National Planning Policy Framework (NPPF) is that the planning system should contribute to the achievement of sustainable development defined broadly as:

- ▶ Economic role - assisting in building a strong, responsive and competitive economy
- ▶ Social role – supporting strong vibrant, and healthy communities (housing, quality built environment and social facilities)
- ▶ Environmental role – contributing to protecting and enhancing the natural, built and historic environment (biodiversity, prudent use of natural resources and minimising adverse climate change).

Paragraph 17 sets out a number of Core Planning Principles. In brief, those most relevant to the reuse of Heathrow can be summarised as to:

- ▶ Proactively drive sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs
- ▶ Seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings
- ▶ Support the transition to a low carbon future in a changing climate.....encourage the reuse of existing resources.....encourage the use of renewable resources

## Regional Policy

The London Plan provides a comprehensive strategy for London and is echoed in many of the principles and themes of the NPPF. We consider the key relevant London Plan policies under three main headings: *promoting sustainable economic growth, developing attractive housing and living environments, and appropriate responses to climate change.*

### Promoting Sustainable Economic Growth

Policy 4.1 seeks to “promote and enable the continued development of a strong, sustainable and increasingly diverse economy”. The principal sector of business growth is projected to be in offices and Policy 4.2 sets out the approach to both mixed use office development and redevelopment. Some 3.9 million m<sup>2</sup> of additional office floorspace is postulated by 2031 with 20% being located in outer London – some 1 million m<sup>2</sup>.

The London Plan recognises that the high value office sector needs manufacturing and distribution service support. Policy 4.4 highlights the strategic requirement to ensure the continued availability of industrial land for both manufacturing and warehouse/distribution activities.

# Planning Policy

## Developing Attractive Housing and Living Environments

The London Plan indicates that London “desperately” needs more homes. Table 3.1 sets out a minimum 10 year level of provision of 322,100 additional dwellings across London, of which 17,900 are to be delivered in the three Boroughs of Ealing, Hounslow and Hillingdon. Paragraph 3.19 emphasises that these are to be minimum targets and that whatever estimates are undertaken London’s housing need is “substantial”. Policy 3.3 states. These targets have been increased even further in the Further Alterations to the London Plan (FALP) update.

The Mayor recognises the pressing need in London for more homes in London in order to promote opportunity and provide a real choice for all Londoners in ways that meet their needs at a price they can afford.

## Housing Typologies

Paragraph 3.29 indicates that the form of housing should be determined by an assessment of housing requirements. There is usually scope to provide a mix of dwelling types in different locations with higher density housing for small households in areas with good public transport accessibility. Table 3.2 sets out a Sustainable Residential Quality Matrix which relates three urban typology “settings” to public transport accessibility levels ( PTAL).

Relevant to Heathrow’s suburban setting, appropriate densities are given as 150-250 hr/ha in for PTALs 2-3 and 200-350 hr/ha in PTALs 4-6. In a more “urban” setting the density ranges increase to 200-450 hr/ha in PTAL areas 2-3 and 200-700 hr/ha, rising to 1,100 hr/ha in highly accessible central areas.

Table 3.1 sets out minimum space standards for new housing related to three categories of housing- flats, 2 storey houses and 3 storey houses – eg a typical 3 bed/4 person flat should be of a minimum of 74 m<sup>2</sup> (GIA) and similar accommodation in a 2 storey house would require 83 m<sup>2</sup>.

# Planning Policy

## Quality and Choice

Policy 3.5 highlights the requirement for housing development to be of the highest quality internally and externally and well related to the wider environment. Paragraph 3.32 indicates that securing housing of “the highest quality and enhancing residential neighbourhoods is a key Mayoral priority. Paragraph 3.42 emphasises how large new housing developments, in addition to making an important contribution to meeting housing need, also provide the opportunity to create “particularly attractive neighbourhoods with distinctive identities and the critical mass to support social, physical and environmental infrastructure, and to provide employment opportunities”.

Policy 3.8 dealing with housing choice for Londoners indicates that local assessments should be made of the range of local needs and that an appropriate mix of house types and sizes should be planned for.

## Social Infrastructure and Open Space

Policy 3.16 covers the protection and enhancement of social infrastructure and there is an emphasis on reusing appropriate redundant premises. The range of social facilities to be provided is wide, especially for large scale development and includes schools, colleges/universities, health facilities, community halls and sports hall, libraries, places of worship, fire and police stations, sports grounds, public open space and local play spaces. Paragraph 3.86 concludes

It is therefore essential to plan for high quality social infrastructure alongside development particularly in major new development and regeneration areas. A key component of the environment of a redeveloped Heathrow will be its structure of open spaces. Policy 7.18 of the London Plan supports the creation of new open space in order to ensure satisfactory levels of local provision. This is considered key to healthy living and the fostering of biodiversity. Table 7.2 establishes a hierarchy of open space categorisation ranging from a regional park of 400 ha down to small local open spaces and pocket parks.

## Climate Change

The London Plan contains a package of policies to both mitigate and minimise adverse effects on climate change. The key policy themes to be addressed are summarised below.

# Planning Policy

## Air quality

The overriding mitigation policy is P5.1 which seeks to attain a 60% reduction in CO<sub>2</sub> emissions in London between 1991- 2025. Policy 5.2 seeks to minimise CO<sub>2</sub> emissions through the development of zero carbon new homes in the period 2016- 2031 and zero carbon non-domestic buildings in the period 2019-2031. – 60% reduction in CO<sub>2</sub> emissions 1991- 2025. Transport measures such as the implementation of smart travel modes, maximising the potential use of public transport and promotion of electric cars will all assist in reducing CO<sub>2</sub> emissions.

## Sustainable Drainage and Water Use

In the context of most London's waterbodies failing to achieve "good" ecological status/potential, the London Plan seeks to improve water quality. The construction by 2020 of the Thames Tideway Sever Tunnels will address the long term problem of combined sewer overflows. Policy 5.15 supports the construction of these two tunnels (Lea Valley to Beckton and West London to Beckton) together with proposals to generate energy from sewage sludge..

Policy 5.15 promotes more efficient and reduced use of water by adopting measure such as reduced mains leakage, rain water harvesting, grey water recycling and installation of water meters. Residential development is to be designed so that mains water consumption would meet a target of 105 litres or less per head per day.

## Production of Energy

Policy 5.5 seeks to achieve more decentralised energy network with 25% of energy being produced locally by 2025. Policy 5.7 seeks to increase the proportion of energy being generated from renewable sources.

## Local Policy

The London Borough of Hillingdon's (LBH) Local Plan: Strategic Policies (Adopted November 2012) sets out a strategy for the Heathrow Opportunity Area which seeks to optimise the employment and educational benefits of Heathrow for local residents and maintains support for operational uses within the airport boundary. The closure of Heathrow clearly makes this policy redundant in the long term, although the aim of promoting employment and educational benefits for the local population would likely remain.

Whilst there is no local policy in place based on the relocation of Heathrow airport both LBH and the GLA have considered the future spatial implications of a redeveloped Heathrow site, as has the Town and Country Planning Association. The LBH and GLA visions will have limited material weight at this stage, although they are informative.



# Appendix 2

# Kai Tak Airport, Hong Kong, China



**Area** 385 hectares / 950 acres

**Year** 1998

- ▶ Planned mixed-use development in currently in progress
- ▶ Comprising commercial, residential, open spaces and infrastructure
- ▶ Largely governmental, institutional and community occupiers
- ▶ Delays in residential development
- ▶ New Cruise Liner Terminal
- ▶ Lifted height restrictions enhance development activity
- ▶ Chep La Kok Island as new residential neighbourhood including conventional center

# Stapleton Airport Denver, USA



**Area** 1,900 hectares/4,700 acres

**Year** 1995

- ▶ Pedestrian Orientated Design opened in 2004
- ▶ 80 acres public park
- ▶ 12,000 residential units
- ▶ 140,000 sqm (1,500,000 sq ft) office space
- ▶ Organically growing community
- ▶ Sustainable Design
- ▶ Business improvement through Tax Credits & Incentives
- ▶ Largest neighbourhood in Denver
- ▶ Cost estimate doubled during development

# Edmonton City Centre Airport, Canada



**Area** 140 hectares/350 acres

**Year** 2013

- Existing museum and non-aviation institutions to remain
- Annual Grand Prix Champ Car Race to remain
- Part of the land to be transferred to NAIT
- Large scale residential development in planning

# Munich-Riem Airport, Germany



**Area** 570 hectares/1,400 acres

**Year** 1992

- Remaining facilities used as events venue for concerts
- Later conversion to convention and exhibition centre
- The airport has now been largely demolished and still hosts outdoor events such as the Federal Horticultural Show

# Guangzhou Baiyun (former airport), China



**Area** 1500 hectares/3,700 acres

**Year** 2004

- Redevelopment of the site is still at a planning stage
- Plans include a shopping mall in the terminal building, conference centres and a provincial and city-level functional area
- Southern terminals to be developed to retail, commercial and cultural centre

# Taichung (former airport), Taiwan



**Area** 240 hectares/600 acres

**Year** 2005

Four different districts on the development site:

- Taichung Gateway (Business & Commercial Complex)
- Eco Community
- Cultural District
- Academic Corridor

# Oslo Fornebu Airport, Norway



**Area** 340 hectares/840 acres

**Year** 1998

- 'Green' mixed use development
- 6000 residences
- 137,000sqm office accommodation
- 20,000 jobs created