OXFORD ECONOMICS

# THE LOCAL ECONOMIC IMPACT OF A PROPOSED DATA CENTRE CAMPUS IN LONDON

**AUGUST 2022**

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**August 2022**

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# EXECUTIVE SUMMARY

Reef Group plans to undertake a multi-billion pound investment to develop a data centre campus in the London Borough of Havering in east London, and has commissioned Oxford Economics to quantify the economic impact this investment could have on the local (Havering), regional (London), and national (UK) economies.

**THE CONSTRUCTION PHASE**

**The proposed development will provide a range of economic benefits to the Havering economy throughout the construction phase.** The proposed development represents a £5.30 billion investment (in 2019 prices) to improve London and the UK's digital infrastructure, of which £2.72 billion will be spent in the UK, including £2.0 billion in Havering, during the five-year construction phase through 2023 to 2027.[1] The construction of the proposed development will generate additional economic activity, supporting employment and spending across a range of sectors.
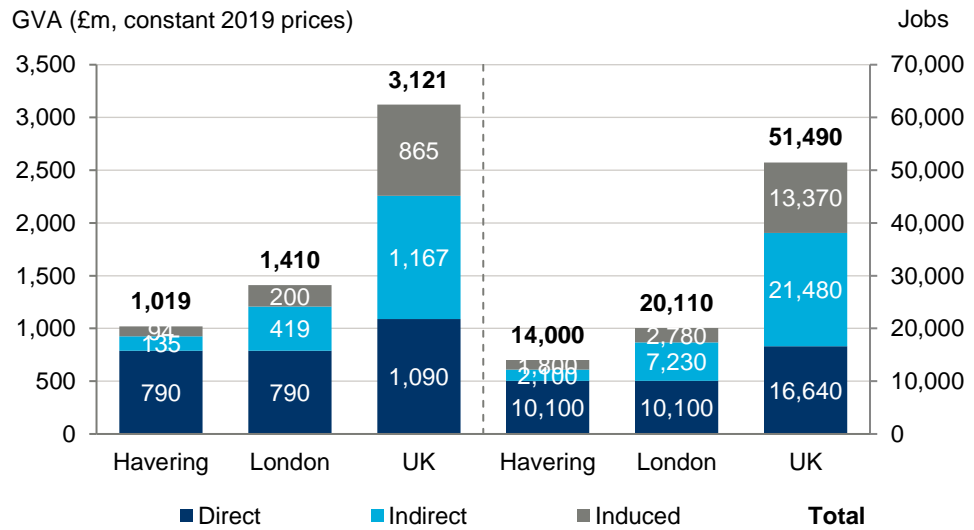
**Capital expenditure throughout the construction phase will make a positive contribution to the Havering economy.** Construction activity at the proposed development site will directly generate £790 million of GVA through the construction phase, supporting 10,100 job years of employment among the local workforce, and £307 million in wages. This equates to an average of £158 million of GVA, 2,020 jobs, and £61 million in wages per year.

Once accounting for the local supply chain (indirect) and wage consumption (induced) effects of this activity, and the spillover benefits of expenditure on mechanical & electrical hardware and professional services elsewhere in the UK, the construction phase is estimated to cumulatively support £1.02 billion of GVA, 14,000 job years of employment, and £428 million in wages, across the Havering economy. This equates to an average of £204 million of GVA, 2,800 jobs, and £86 million in wages per year, across the five-year construction phase.

The construction phase will therefore have (Type II) GVA and job multipliers of 1.29 and 1.39, respectively: each £100 of GVA directly generated by capital expenditure will stimulate £29 of additional GVA across the Havering economy, while each 100 direct construction jobs will support a further 39 jobs across the local economy.

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[1] All values quoted in this report are in constant 2019 prices unless otherwise stated.

**Fig. 1. Cumulative total economic impact, construction phase, Havering, London, and the UK, 2023 to 2027**

£695 million

GVA contribution to the Havering economy through the construction phase, or £139 million per year.

GVA (£m, constant 2019 prices)                                     Jobs



Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

**The economic benefits of the construction phase will spillover to other parts of the UK economy.** Expenditure on M&E hardware and professional services, and the leakage of supply chain (indirect) and wage consumption (induced) spending outside of Havering, will stimulate economic activity elsewhere in London and nationally.

The construction phase could cumulatively support a £3.12 billion GVA contribution to UK GDP, supporting 51,490 job years of employment across the UK workforce, and £1.56 billion in wages. This equates to an average of £624 million of GVA, 10,300 jobs, and £313 million in wages per year, across the five-year construction phase.

The construction phase would therefore have a (Type II) GVA multiplier of 2.86, or £186 of additional GVA stimulated across the UK economy for every £100 of GVA directly generated by capital expenditure, and an equivalent employment multiplier of 3.09: every direct job arising through capital expenditure will stimulate more than two further jobs elsewhere in the UK economy.

The construction phase would also generate £694 million in fiscal revenues to the Exchequer.

**Fig. 2. The economic benefits of the construction phase, 2023 to 2027**

**A £5.30 billion pound investment**
£2.77 billion in the UK, including £2.0 billion in Havering

**£3.12 billion GVA contribution to GDP**
£1.02 billion of GVA in Havering, or £204 million per year

**51,490 job years across the UK**
14,000 job years in Havering, or 2,800 jobs per year

**£1.56 billion in wages**
£428 million earned by the Havering workforce

**£694 million in tax revenues**
£227 million from direct activity

Source: Reef Group, Oxford Economics

**THE OPERATIONAL PHASE**

**The operations of the proposed development could have a substantial economic impact on the Havering economy.** Data provided by Reef Group indicates that, once fully operational, the proposed development will directly generate £390 million of GVA, support 1,200 jobs, and £65 million in wages, across the Havering economy.

Once the additional supply chain (indirect) and wage consumption (induced) effects of the operational phase are accounted for, the proposed development could support £456 million of GVA, 2,370 jobs and £100 million in wages across the Havering economy, across a diverse mix of sectors. This equates to a 6.8% and 2.3% uplift on our baseline forecast for GVA and jobs across the Havering economy, respectively.
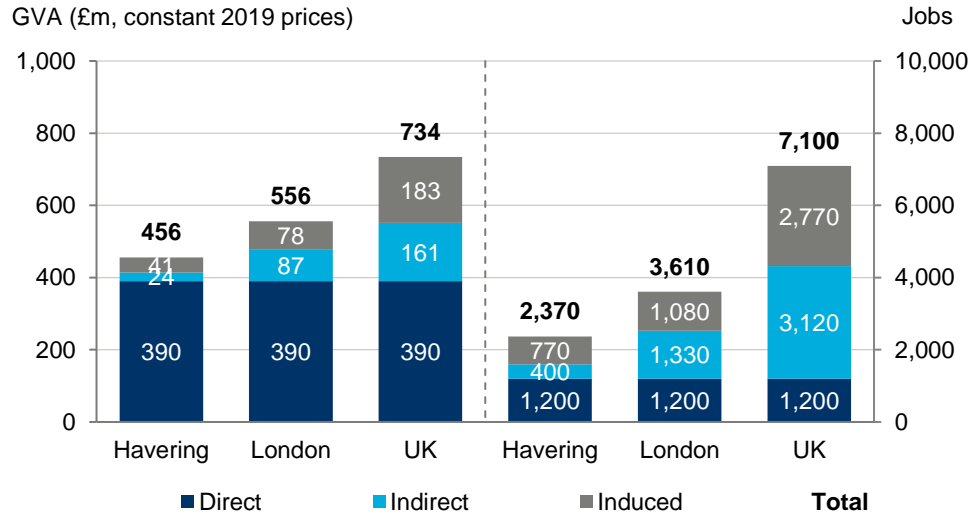
The operational phase will therefore a (Type II) GVA multiplier of 1.17, or £17 of additional GVA stimulated across the Havering economy for every £100 of GVA generated at the proposed data centre campus, and an equivalent employment multiplier almost two, or an additional job across Havering for every direct job at the proposed data centre campus.

**The operational phase would enable economic benefits to occur across the UK.** As supply chain (indirect) and wage consumption (induced) spending leaks outside of the Havering economy, the first full year of operations could generate a £734 million GVA contribution to UK GDP, supporting 7,100 jobs across the UK workforce, and £244 million in wages. This equates to a (Type II) GVA multiplier of 1.88, or £88 of additional GVA stimulated across the UK economy for every £100 of GVA generated at the proposed data centre campus, and an equivalent employment multiplier of almost: each direct job will support almost five further jobs across the UK economy.

The proposed development could also generate £165 million in fiscal revenues to the Exchequer, of which approximately £80 million will arise from direct activity at the proposed development site.

**Fig. 3. Total economic impact, operational phase, Havering, London, and the UK, 2028**

£738 million

GVA contribution to UK GDP during the first year of full operations.

GVA (£m, constant 2019 prices)                                    Jobs

| | Havering | London | UK | Havering | London | UK |
|---|---|---|---|---|---|---|
| Total | 456 | 556 | 734 | 2,370 | 3,610 | 7,100 |
| Induced | 41 | 78 | 183 | 770 | 1,080 | 2,770 |
| Indirect | 24 | 87 | 161 | 400 | 1,330 | 3,120 |
| Direct | 390 | 390 | 390 | 1,200 | 1,200 | 1,200 |

■ Direct   ■ Indirect   ■ Induced   **Total**

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

**Fig. 4. The economic benefits of the operational phase, 2028**

**600MW capacity across 15 units**
A multi-billion pound investment in digital infrastructure

**£734 million GVA contribution to GDP**
£456 million or a 6.8% uplift in Havering

**7,100 jobs across the UK workforce**
2,370 jobs or a 2.3% uplift in Havering

**£244 million in wages**
£100 million across Havering, averaging £42,300 per job

**£165 million in tax revenues**
£80 million from direct operations

Source: Reef Group, Oxford Economics

**WIDER ECONOMIC BENEFITS**

**The proposed development represents a substantial investment in London's digital infrastructure.** Through the provision of 600MW of server capacity, the proposed development will contribute towards economic growth across the wider south east, particularly in the information & communication sector. The UK is the third-largest destination for tech investment globally, the majority of which occurs in London. Through providing a data centre campus in close proximity to this cluster of activity, reducing the latency of digital operations, the proposed development will make a positive contribution to the infrastructure necessary for London's digital sector to continue to grow into the future.

**The proposed development will also benefit the Havering economy, through the creation of highly productive jobs.** Havering suffers from a 'productivity gap' when compared to the London economy, partly because it tends to support less activity in higher-value sectors such as information & communication, but also because local firms tend to be less competitive than elsewhere. The multi-billion pound investment in digital infrastructure in Havering will directly generate highly productive jobs in the information & communications sector. It will also likely encourage growth in complementary activity which tend to have above average productivity.

**The employment opportunities created by the proposed development are likely to benefit local residents.** Through stimulating additional supply chain (indirect) and wage consumption (induced) spending effects, the proposed development will benefit all sectors of Havering's economy. Drawing on known commuting patterns, and the future characteristics of the local labour market, our economic impact model estimates that an additional 600 residents will be in employment as a consequence of the proposed development, helping to reduce unemployment.

**The proposed development will also support human capital accumulation through investment in local skills.** Reef Group will invest £1.5 million (in current prices) each year in local skills and community initiatives. Skill levels influence the population's living standards and the competitiveness of the economy. Investments in skills will help to creative a private benefit to participants, through boosting the lifetime earnings, will generating a societal benefit associated with a more highly skilled population, creating better labour market outcomes which can lead to greater societal wellbeing.

# 1. INTRODUCTION

**1.1 THE PROPOSED DEVELOPMENT**

Reef Group plans to undertake a multi-billion pound investment to develop a data centre campus in the London Borough of Havering, in east London. The proposed development site lies east of the M25, in close proximity to the neighbouring local authority areas of Thurrock and Brentwood, both in Essex.

The proposed campus will consist of 10 50MW and five 20MW units, collectively supporting 600MW of capacity. The development will also include ancillary buildings, land retained for agriculture, and two ecology areas. Construction work is anticipated to commence in 2023 and will be built out on an incremental basis, with operations commencing from 2024, with completion in 2027.

To help understand the scale of the economic impact these investments would have on the local (Havering), regional (London), and national (UK) economies, Reef Group commissioned Oxford Economics to undertake an economic impact study.

**1.2 INTRODUCING ECONOMIC IMPACT ANALYSIS**

The economic footprint of the proposed development is quantified through three metrics:

- **Gross value-added (GVA)[3] contribution to GDP** quantifies the potential economic value associated with economic activity generated the proposed development.
- **Employment** is measured in job years for the construction phase, and jobs for the operational phase. A job reflects the employment of an individual over one year, whereas a job year relates to the equivalent amount of activity, that may not necessarily happen within a 12-month period. Job years are an appropriate measure of temporary construction-related activity which can vary throughout the construction phase.
- **Wages** of those employed directly by occupiers of the proposed development, indirectly in the supply chain, or through wage consumption.

This analysis also considers the **fiscal** impact of the proposed development by considering how additional economic activity may generate additional tax revenues across the UK.
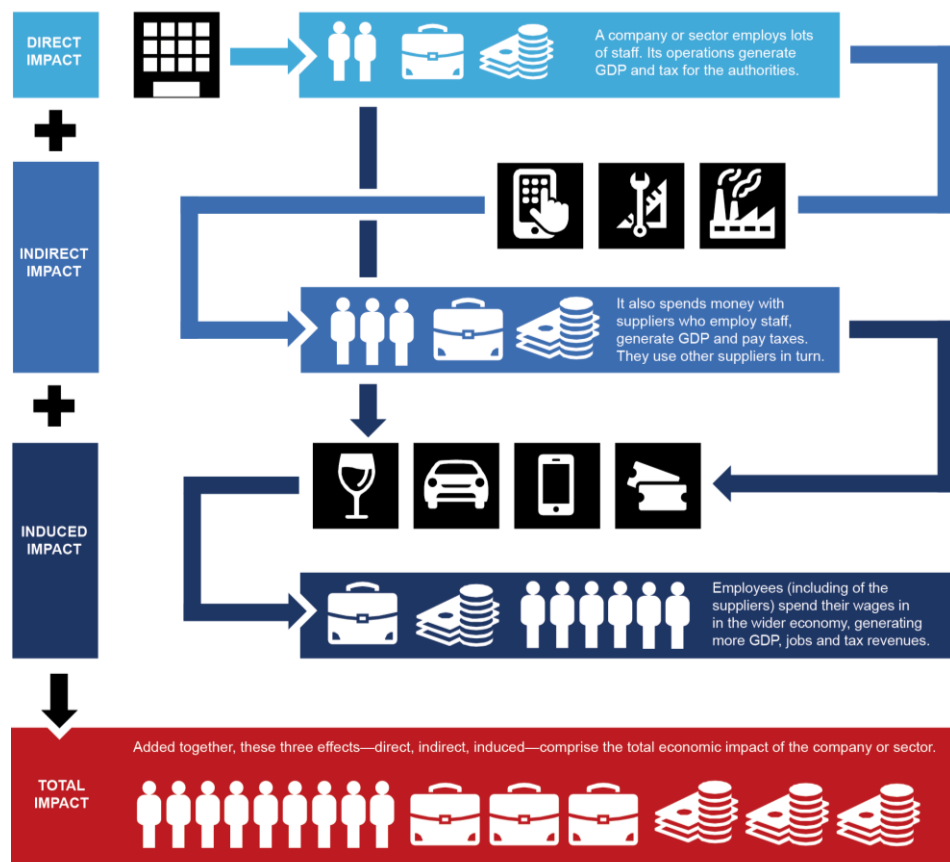
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[4] An input-output model uses a matrix representation of a nation's interconnected economy to calculate the effect of changes by consumers, by an industry, or by others, on other industries and therefore on the economy as a whole.

The potential economic impacts detailed in this report draw on a standard assessment framework that quantifies the potential economic footprint of the proposed development across three channels (see Fig. 5):

- **Direct impact**: relates to the activities directly generated to support the construction and/or operations of the proposed development;
- **Indirect impact**: captures the economic activity and employment within the supply chains that support these activities, through the procurement of goods and services from third-party suppliers; and
- **Induced impact**: comprises the wider economic benefits that arise when workers employed at the proposed development, and also by companies in their supply chain, spend their earnings.

The economic impact model utilises an input-output framework to quantify the economic benefits at a national (UK), regional (London), and local (Havering) level.[4] This framework allows us to estimate the indirect and induced impacts that are likely to flow from a given level of investment/activity.

**Fig. 5. Illustration of the channels of economic impact**



Source: Oxford Economics

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[4] An input-output model uses a matrix representation of a nation's interconnected economy to calculate the effect of changes by consumers, by an industry, or by others, on other industries and therefore on the economy as a whole.

In additional, a fourth channel, the **wider economic benefits** that the proposed development can support, is also considered. This reflects the benefits that other industries and the local population may derive from operations of the developments. While these wider economic benefits are often intangible in nature, and hence unlike the other three channels may be difficult to quantify, they remain an important consideration for understanding the overall economic impact of the proposed development.

This includes, for instance, the clustering and agglomeration effects that may be realised through this investment, the contribution it can make to the digital infrastructure that supports growth across the regional economy, the broader socio-economic benefits of such an investment to the Havering economy, and human capital accumulation arising through investment into local skills initiatives. Through exploring the above factors, this assessment considers how the proposed development contributes to meeting local, regional, and national policy aims.

All figures presented in this report are in constant 2019 prices, unless otherwise stated.[5] They are undertaken on a gross basis, which means they do not take account of any economic activity the industry may displace from other sectors, nor do they attempt to quantify how much more productive the resources are, relative to other uses. This is a standard approach for undertaking economic impact appraisal. Further detail on our methodological approach is set out in Appendix 1.

### 1.3 STRUCTURE OF THIS REPORT

This report takes the following structure:

- **Chapter 2** presents our analysis of the potential economic impact of the construction phase;
- **Chapter 3** presents our analysis of the potential economic impact of each year of operations;
- **Chapter 4** discusses the wider economic benefits that could potentially arise as a consequence of the proposed development; and
- **Appendix 1** provides a summary of our modelling approach.

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[5] We consider a constant price base to compare economic variables over time, adjusting for changes in prices (inflation) over time. This ensures that we can compare variables on a like-for-like basis.

# 2. THE CONSTRUCTION PHASE

### 2.1 DIRECT ECONOMIC IMPACT OF THE CONSTRUCTION PHASE

Data provided by Reef Group indicate that the proposed development is expected to require £5.30 billion of capital expenditure.[6]

Capital expenditure includes expenditure on building works, site development and infrastructure, and the tenant's fit-out, which will all be invested in the Havering economy. Further investments will be made in mechanical & electrical (M&E) hardware and on a renewable energy battery system, partly domestically and partly through imports. Capital expenditure also includes professional services, assumed to be provided by firms located elsewhere in the UK, and land acquisition costs.[9] This represents a £2.72 billion investment in the UK economy, of which £2.0 billion will be invested in Havering.

Planning work is expected to begin once planning approval is received, which we assume to be in the second quarter of 2023. Reef Group anticipate that the construction phase will last 51 months, through 2023 to 2027. Each unit will be built out on an incremental basis, taking nine months to complete, with a new unit commencing each quarter. The first 18 months will also include site development and infrastructure works. We assume that professional services will be required in the same period. The bulk of expenditure is therefore expected to occur in 2023 and 2024.

**Fig. 6. Capital expenditure, construction phase, Havering and the UK, 2023 to 2027**

£m, constant 2019 prices

## £2.0 billion

Investment in the Havering economy through the construction phase.
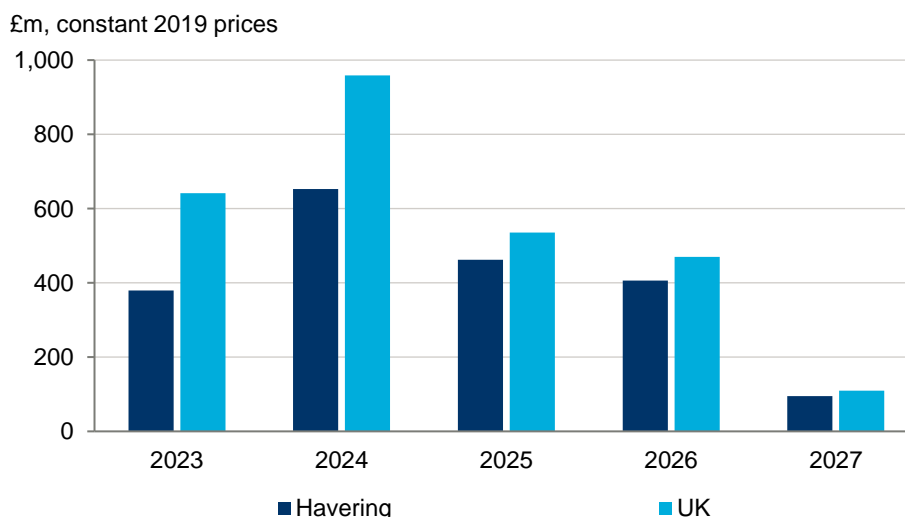


Source: Reef Group, Oxford Economics

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[6] £5.62 billion in 2021 prices, including land acquisition costs. We exclude this component from our economic impact assessment as this transfer of ownership does not generate additional economic activity.

[9] Construction-related activity including tenant fit-out is assumed to occur in the construction of buildings sector, M&E hardware and the renewable energy battery system in the manufacturing of electrical equipment, and professional services-related spending in architecture & engineering. We do not consider land acquisition within our calculations as this transfer does not generate additional economic activity.

**A COMPARISON WITH OTHER MAJOR CONSTRUCTION PROJECTS IN LONDON**

Capital expenditure required to construct the proposed development represents a substantial investment into the London economy. To place an investment of this scale into context, we may compare it to other notable investments made across London in recent years.[11]

At £5.30 billion, the total capital expenditure across the construction phase equates to around 40% of the construction cost of the London 2012 Olympic and Paralympic Games,[12] and more than the Thames Tideway Tunnel (£3.90 billion).[13] Total capital expenditure is also more than three-times the speculated cost of The Shard (£1.64 billion),[14] four-times the recently opened Northern Line Extension (£1.16 billion),[15] and more than five-times the cost of the redevelopment of Wembley Stadium (£910 million).[16] [17]

Even deducting expenditure expected to occur outside of the UK, the proposed development will invest £2.72 billion in the UK economy. This level of capital expenditure is around 67% higher than the development of The Shard, more than twice the cost of the Northern Line Extension, and around three-times cost of Wembley Stadium.[18]

**Fig. 7. Capital expenditure, the proposed development and other major construction projects in London**

£bn, constant 2019 prices
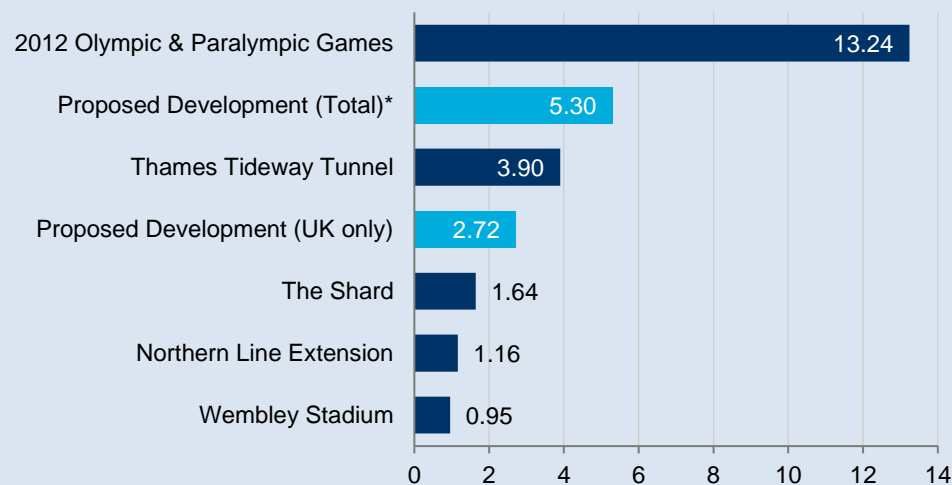


Source: Various, Oxford Economics          * including land acquisition costs

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[11] We have rebased other estimates into constant 2019 prices to enable a like-for-like comparison.

[12] £11.9 billion in 2012 prices. https://www.oxfordeconomics.com/media/default/economic-impact/economic-impact-the-impact-of-london-2012.pdf

[13] £4.13 billion, assumed to be in 2020 prices. https://www.theconstructionindex.co.uk/news/view/tideway-sewer-hits-nine-month-delay

[14] £1.50 billion, assumed to be in 2013 prices. https://ig.ft.com/sites/shard-skyscraper-secret-life/

[15] £1.10 billion, assumed to be in 2016 prices. https://tfl.gov.uk/info-for/media/press-releases/2021/september/new-tube-map-unveiled-featuring-new-northern-line-stations-to-open-next-week-as-tube-extends-to-battersea-power-station

[16] £798 million, assumed to be in 2007 prices. https://www.flowcrete.eu/en-gb/case-studies/wembley-the-worlds-greatest-stadium/

[17] Total capital expenditure exceeds these comparable developments when deducting land acquisition costs.

The estimated economic impacts associated with the construction phase of the development are derived through assigning the values of investment (output) to relevant sectors of the economy, allowing an estimate of the direct GVA, employment and wages associated during the construction phase. Estimates of GVA per job (productivity) are derived from Oxford Economics' baseline forecasts for the Havering, London, and UK economies (where relevant). Wages are derived from the share of GVA captured by labour across each sector of the economy.[19]

In total, the direct construction-related activity could cumulatively generate £790 million of GVA across the Havering economy over the five-year construction phase, supporting 10,100 job years of employment, and £307 million in wages. This equates to an average of £158 million of GVA, 2,020 jobs, and £61 million in wages per year, across the five-year construction phase.

With the inclusion of hardware purchases and professional services-related activity, the construction phase could directly generate £1.09 billion of GVA contributions to UK GDP, supporting 16,640 job years of employment across the UK workforce, and £510 million in wages. This equates to an average of £218 million of GVA, 3,330 jobs, and £102 million in wages per year, across the five-year construction phase.

**Fig. 8. Cumulative direct economic impact, construction phase, Havering and the UK, 2023 to 2027**

## £1.09 billion

Direct GVA contribution to UK GDP during the five-year construction phase, or £218 million per year.

*Supporting 16,640 job years of employment, or 3,330 per year.*
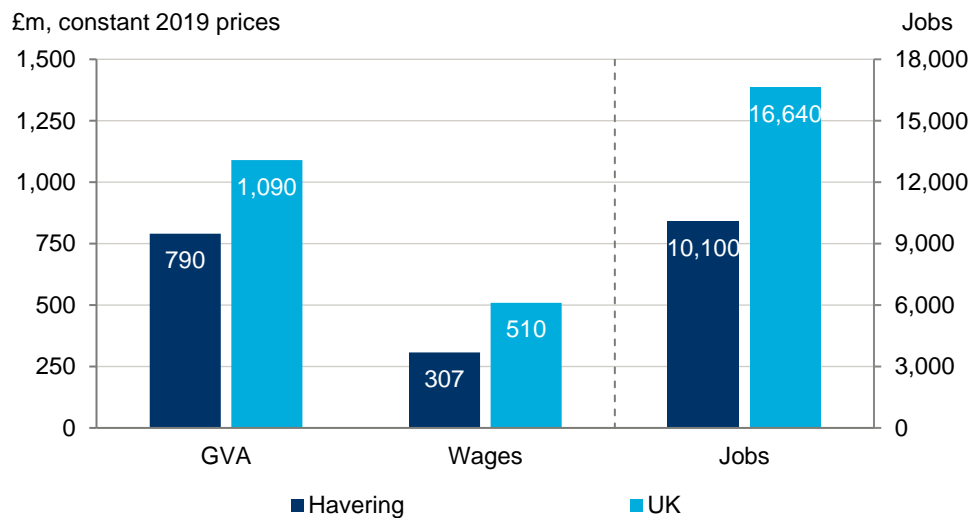


Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

[18] This does not necessarily allow for a like-for-like comparison with the other major construction projects, as some of the expenditure supporting these schemes will have been made abroad.

[19] Estimates of GVA per job (productivity) are derived from Oxford Economics' baseline forecast. Given the propensity for construction jobs to draw on the wider London labour market, we assume the productivity of construction workers at the proposed development site reflect the levels of productivity in this sector across London. Similarly, the hardware and professional services-related jobs are assumed to be as productive as the sector across the UK. Wages are derived from the share of GVA captured by labour across each sector of the economy. Further detail on our forecasting method is presented in Appendix 1.

**CONSIDERING DISPLACEMENT IN THE CONSTRUCTION SECTOR**

In modelling the economic impact of the construction phase, we consider displacement, the degree to which the effects which produce additional economic activity may lead to consequent reductions in activity elsewhere in the economy that would not have occurred if the intervention had not been made.

Our assessment is informed by recent activity across the UK construction sector. The sector was impacted significantly by the challenges presented by the coronavirus pandemic: lockdown measures aimed at reducing the spread of the virus halted much construction activity, with the sector operating at just 61% of its 2019-level of output in the second quarter of 2020.[20]

However, subsequent restrictions have been less stringent, allowing the sector to recover. Indeed, the most recent data for the third quarter of 2021 indicates that the overall sector has nearly returned to 2019 levels of output, driven largely by recent increases in repair & maintenance activity.

**Fig. 9. Construction output by sector, Great Britain, Q1 2015 to Q3 2021**

Index, seasonally-adjusted (2019=100)
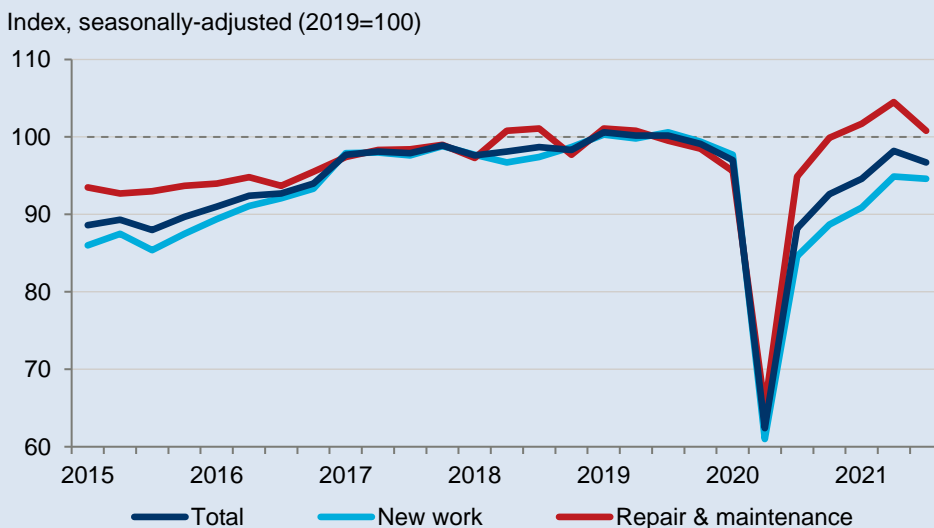


Source: ONS

The proposed development will draw on workers across the wider London labour market.[21] At the peak of the construction phase, in 2024, the proposed development will stimulate an estimated 4,200 construction jobs across London (including indirect and induced spending effects). This amounts to just 1.3% of the London workforce. We therefore conclude that the local labour market has capacity to absorb additional demand, and that the construction of the proposed development is unlikely to displace significant construction activity in the local area.

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[20] ONS, *Output in the construction sector: Reference tables*, July 2021.
https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/outputintheconstructionindustry
[21] ONS, *Travel to work area analysis in Great Britain: 2016*, September 2016.
https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/traveltoworkareaanalysisingreatbritain/2016

**2.2 TOTAL ECONOMIC IMPACT OF THE CONSTRUCTION PHASE**

A development of this size could provide significant economic benefits for the local economy. The direct activity supported by capital expenditure will also produce indirect (supply chain) or induced (wage consumption) impacts.

In total, **the proposed development could cumulatively support £1.02 billion of GVA, 14,000 job years of employment, and £428 million in wages across the Havering economy through the construction phase**. This equates to an average of £204 million of GVA, 2,800 jobs, and £86 million in wages per year, across the five-year construction phase.

This would arise through indirect (supply chain) impacts, which would add £135 million of GVA and 2,100 job years of employment, and induced (wage consumption) impacts, which would add a further £94 million of GVA and 1,800 job years of employment.

This equates to a (Type II) GVA multiplier of 1.29, or £17 of indirect (supply chain) and £12 of induced (wage consumption) GVA stimulated across the Havering economy for every £100 of GVA directly generated by the proposed development.[22] The employment multiplier is 1.39: every 100 construction job years employed at the proposed development site will create a further 21 indirect (supply chain) and 18 induced (wage consumption) job years across the Havering economy.

**Fig. 10. Cumulative total economic impact, construction phase, Havering, 2023 to 2027**
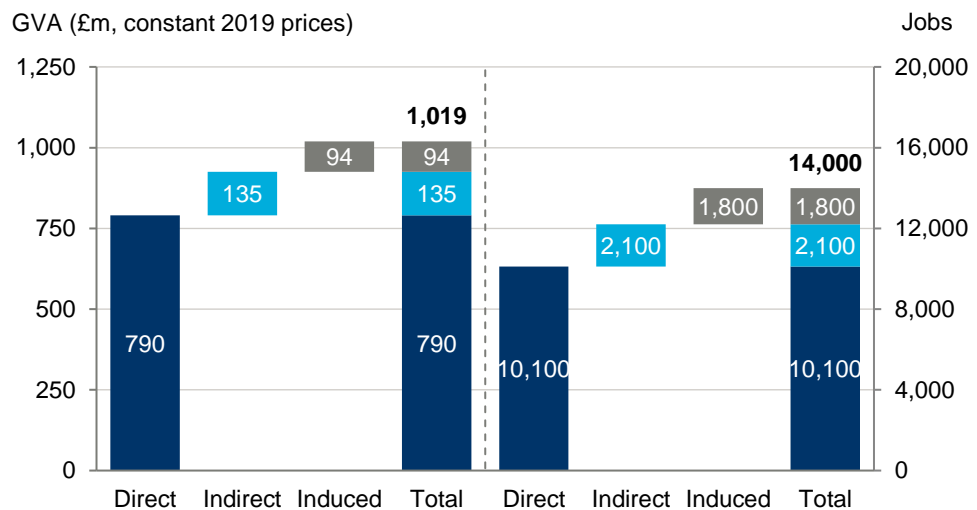
£1.02 billion

Total cumulative contribution to Havering's GVA during the five-year construction phase, or £204 million per year.

*Supporting 14,000 job years of employment, or 2,800 per year.*



Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

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[22] A Type I multiplier reflects the direct and indirect (supply chain) activity associated with a direct effect, whereas a Type II multiplier also includes the induced (wage consumption) activity as a consequence of increased employment across both the direct and indirect effects.

**The construction phase of the proposed development will benefit all sectors of the Havering economy.** Construction will see the largest overall impact, owing to the direct activity in this sector, but also the propensity for construction activity to draw on suppliers in the same sector. However, supply chain and wage consumption impacts are apparent among the other most-impacted sectors, most notably across the wholesale & retail trade, manufacturing, and real estate sectors.

**Fig. 11. Cumulative total economic impact by sector, construction phase, Havering, 2023 to 2027**

| | GVA (£m) | Job years | Wages (£m) |
|---|---|---|---|
| Agriculture | <1 | 20 | <1 |
| Mining & quarrying | 2 | 110 | 1 |
| Manufacturing | 40 | 490 | 26 |
| Utilities | 1 | <10 | <1 |
| Water supply | 2 | 20 | 1 |
| Construction | 839 | 10,770 | 327 |
| Wholesale & retail trade | 34 | 770 | 22 |
| Transportation & storage | 7 | 150 | 5 |
| Accommodation & food services | 11 | 280 | 8 |
| Information & communication | 7 | 70 | 4 |
| Financial & insurance activities | 8 | 70 | 4 |
| Real estate | 23 | 50 | 1 |
| Professional, scientific & technical | 9 | 230 | 6 |
| Administrative & support services | 13 | 240 | 8 |
| Public administration & defence | 2 | 20 | 1 |
| Education | 4 | 110 | 3 |
| Human health & social work | 4 | 110 | 3 |
| Arts, entertainment & recreation | 7 | 380 | 4 |
| Other service activities | 6 | 110 | 2 |
| **Total** | **1,019** | **14,000** | **428** |

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

Due to the leakage of this activity outside of the Havering economy, as supply chain and wage consumption spending occurs elsewhere, and the professional services-related activity directly supported elsewhere in the UK, the overall economic impacts are greater both regionally and nationally than estimated across Havering.

In total, we estimate that the Proposed Development could cumulatively generate a £3.12 billion GVA contribution to UK GDP across the five-year construction phase, supporting 51,490 job years of employment across the UK workforce, and £1.56 billion in wages. This equates to an average of £624 million of GVA, 10,300 jobs, and £313 million in wages per year, across the five-year construction phase.

> All sectors of the Havering economy are due to benefit from construction-related activity at the proposed development.

The construction phase would therefore have a (Type II) GVA multiplier of 2.86, or £186 of additional GVA stimulated across the UK economy for every £100 of GVA generated by direct capital expenditure, and an equivalent employment multiplier of 3.09: every direct job years of employment arising through capital expenditure will stimulate an additional two job years of employment elsewhere in the UK economy.

We estimate that London will capture a relatively large share of the supply chain (indirect) and wage consumption (induced) spending effects arising from the construction phase. The wider London economy will benefit from just over two-fifths of the total GVA impact across the UK, of £1.41 billion. It will also support 20,110 job years of employment, and £617 million in wages. This equates to an average of £282 million of GVA, 4,020 jobs, and £123 million in wages per year, across the five-year construction phase.

**Fig. 12. Cumulative total economic impact, construction phase, Havering, London, and the UK, 2023 to 2027**



GVA (£m, constant 2019 prices) / Jobs

| | Havering | London | UK | Havering | London | UK |
|---|---|---|---|---|---|---|
| Induced | 94 | 200 | 865 | 1,800 | 2,780 | 13,370 |
| Indirect | 135 | 419 | 1,167 | 2,100 | 7,230 | 21,480 |
| Direct | 790 | 790 | 1,090 | 10,100 | 10,100 | 16,640 |
| **Total** | **1,019** | **1,410** | **3,121** | **14,000** | **20,110** | **51,490** |

■ Direct  ■ Indirect  ■ Induced  **Total**

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

**£3.12 billion**

Total cumulative GVA contribution to UK GDP during the five-year construction phase, or £624 million per year.

*Supporting 51,490 job years of employment, or 10,300 per year.*
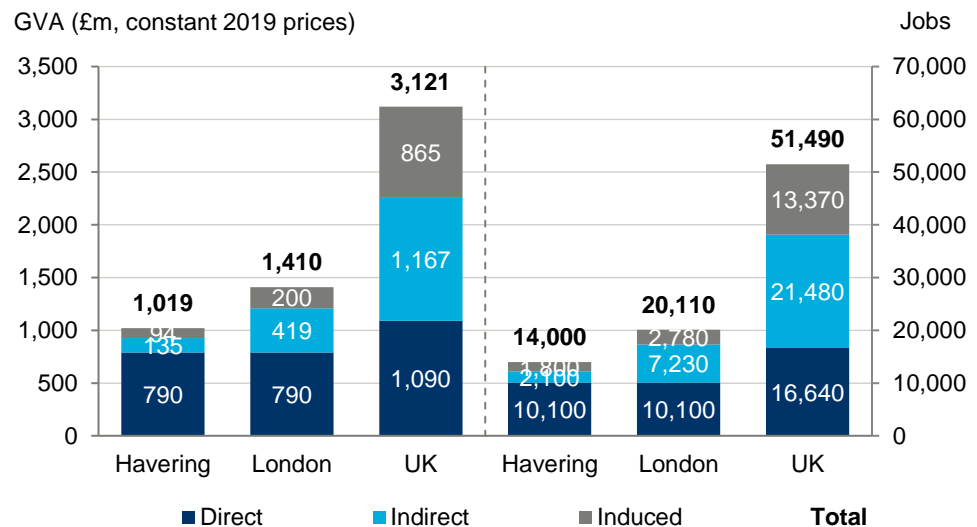
### 2.3 FISCAL IMPACT OF THE CONSTRUCTION PHASE

Additional economic activity arising from the construction of the proposed development will also result in a range of fiscal benefits.

Wages generated directly from the activities during the construction phase are subject to income tax and national insurance contributions (NICs). In modelling the tax revenues that could be collected by the Treasury, we use the latest income tax and NIC rates, thresholds, and personal allowance information, and apply these to average (mean) earnings.[23] Tax benefits will arise as a consequence of direct activity, and employment supported through the supply chain (indirect) and wage consumption (induced) effects.

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[23] This ensures a conservative estimate of the fiscal benefits of the proposed development, as incomes tend to be positively skewed (with more people earning lower salaries and fewer people earning higher salaries). See Appendix 1 for further detail.

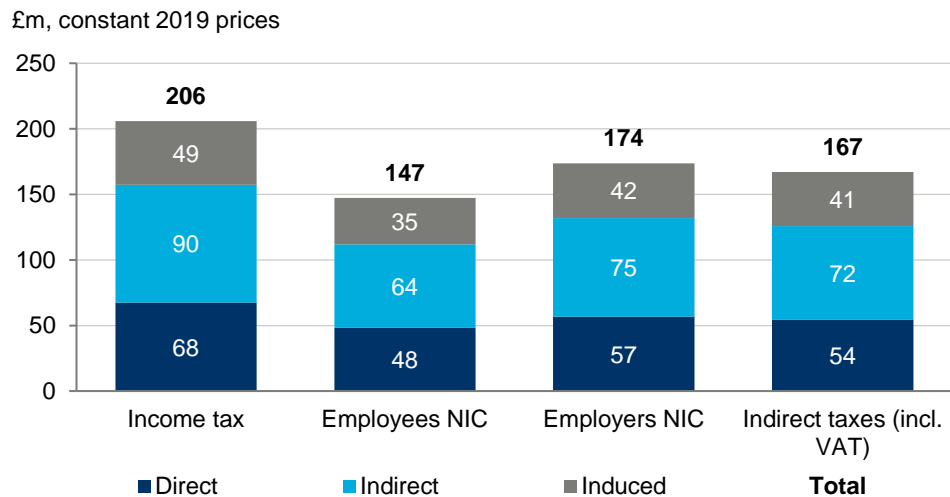**The proposed development would cumulatively generate £694 million in fiscal revenues through the five-year construction phase**. This equates to an average of £139 million per year. We estimate that the proposed development would cumulatively generate £206 million in income tax revenues, including £68 million directly supported by the proposed development. A further £321 million will be supported in combined employer and employee NICs, of which £105 million is associated with direct activity. The proposed development would also generate a further £167 million of additional tax revenues indirectly, via the purchases of goods and services (including VAT).

**Fig. 13. Cumulative total fiscal impact, construction phase, UK, 2023 to 2027**

£m, constant 2019 prices



Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

## £694 million

Cumulative fiscal impact of the construction phase, or £139 million per year.

### 2.4 SUMMARY

Capital expenditure arising from the construction of the proposed development would create additional economic activity, benefitting both the local (Havering) and UK economies. The proposed development will require £5.30 billion of capital expenditure across the five-year construction phase, of which £2.72 billion will be spent in the UK, including £2.0 billion invested in Havering.

The construction of the proposed development will cumulatively generate a direct GVA contribution of £1.09 billion to UK GDP, supporting 16,640 job years of employment, and £510 million in wages. The majority of this will be construction-related activity in Havering itself, which will generate £790 million of GVA across the local economy, supporting 10,100 job years of employment, and £307 million in wages. This equates to an average of £158 million of GVA, 2,020 jobs, and £61 million in wages per year, across the five-year construction phase.

Activity directly supported by the proposed development will create additional activity, through indirect (supply chain) spending through the Havering economy, and induced (wage consumption) spending of those employed, both directly and indirectly. In total, the construction phase would cumulatively generate £1.02 billion of GVA across the Havering economy, supporting 14,000 job years of employment across a diverse mix of sectors, and

£428 million in wages. On average, the proposed development will support £204 million of GVA, 2,800 jobs, and £86 million in wages per year in Havering, across the five-year construction phase.

This equates to (Type II) GVA and job multipliers of 1.29 and 1.39, respectively: each £100 of GVA directly generated by capital expenditure will stimulate £29 of additional GVA across the Havering economy, while each 100 direct construction job years will support a further 39 job years of employment across the local economy.

Due to the spillover of spending to other parts of the UK, the economic impacts at the national level will be greater: the construction phase could cumulatively generate a £3.12 billion GVA contribution to UK GDP, supporting 51,490 job years of employment across the UK workforce, and £1.56 billion in wages. This equates to (Type II) GVA and employment multipliers of 2.86 and 3.09, respectively. On average, the proposed development will support £624 million of GVA, 10,300 jobs, and £313 million in wages per year, across the five-year construction phase.

The proposed development will also generate additional fiscal revenues. Through the combination of income tax, employee and employer NICs, and indirect taxes (including VAT), the construction phase will cumulatively generate £694 million in tax revenues, or an average of £139 million per year.

**Fig. 14. Cumulative total economic and fiscal impacts, construction phase, Havering, London and the UK, 2023 to 2027[24]**

| | GVA (£m) | Job years | Wages (£m) | Fiscal (£m) |
|---|---|---|---|---|
| **Havering** | | | | |
| Direct | 790 | 10,100 | 307 | - |
| Indirect | 135 | 2,100 | 74 | - |
| Induced | 94 | 1,800 | 47 | - |
| **Total** | **1,019** | **14,000** | **428** | **-** |
| **London** | | | | |
| Direct | 790 | 10,100 | 307 | - |
| Indirect | 419 | 7,230 | 226 | - |
| Induced | 200 | 2,780 | 84 | - |
| **Total** | **1,410** | **20,110** | **617** | - |
| **UK** | | | | |
| Direct | 1,090 | 16,640 | 510 | 227 |
| Indirect | 1,167 | 21,480 | 669 | 300 |
| Induced | 865 | 13,370 | 384 | 167 |
| **Total** | **3,121** | **51,490** | **1,563** | **694** |

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

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[24] Direct activity in both London and the UK includes professional services-related activity assumed to occur outside of Havering, some of which will be captured by other London boroughs.
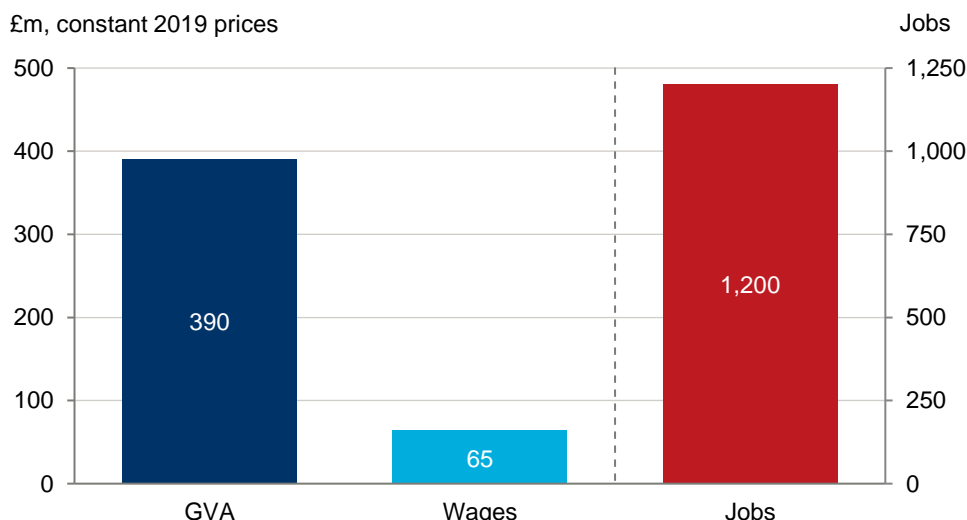
# 3. THE OPERATIONAL PHASE

### 3.1 DIRECT ECONOMIC IMPACT OF THE OPERATIONAL PHASE

The proposed development will be fully operational in 2028. Reef Group estimate that, once fully operational, it will generate £520 million in revenue (economic output).[26]

Reef Group expects approximately 25% of gross revenue will be spent on operating costs, such as utilities required to run the facility. When combined with the direct operations of the occupier, the proposed development will therefore generate £393 million of GVA once operational in 2028.[27]

Reef Group also expect the proposed development to support 1,200 direct jobs once fully operational. Drawing on estimates of the typical mean wages earned by workers across the UK in the information services sector,[28] which captures the activity of data centres, we estimate that this workforce could earn approximately £65 million in wages.

**Fig. 15. Direct economic impact, operational phase, Havering, 2028**



Source: Reef Group, Oxford Economics

**£390 million**

Direct GVA contribution to the Havering economy once fully operational in 2028.

*Supporting 1,200 jobs.*

---

[26] £554 million in 2021 prices.

[27] This assessment considers the operations of the proposed development, but as estimates of the economic activity associated with IT and application service delivery are not known at this stage, our assessment does not include this aspect within the economic impact. This would represent an additional economic benefit over and above those set out in this report. Much of the additional expenditure is likely to be through imports, the value associated with which will occur abroad, although installation and associated spending effects are likely to benefit the Havering and UK economies.

[28] A subsector of information & communication that captures the activity of data centres, among other related services.

**Employment created at the proposed development will be highly productive.** Comparing direct GVA with employment implies an average direct productivity of £325,100, five-times higher than the Havering average implied by our baseline forecast (£64,700 per job).[29] This reflects the highly capital-intensive nature of data centre operations. The proposed development will similarly be more productive than our forecast for the London (£87,600 per job) and UK (£61,500 per job) economies in 2028.

**The workforce will also be relatively well paid.** We estimate that each job at the proposed development will therefore earn an average salary of approximately £54,100. Our implied gross annual workplace earnings indicate that the median worker in Havering would expect to earn approximately £38,400 per year. The employment directly supported by the proposed development would therefore around 40% higher than the average local wage. The earnings of the direct workforce are also higher than the expected median wage across the UK workforce in 2028 (£39,000 per year), and in-line with London as a whole (£54,000 per year).

**Fig. 16. Productivity and annual earnings, Havering, London, and the UK, 2028**
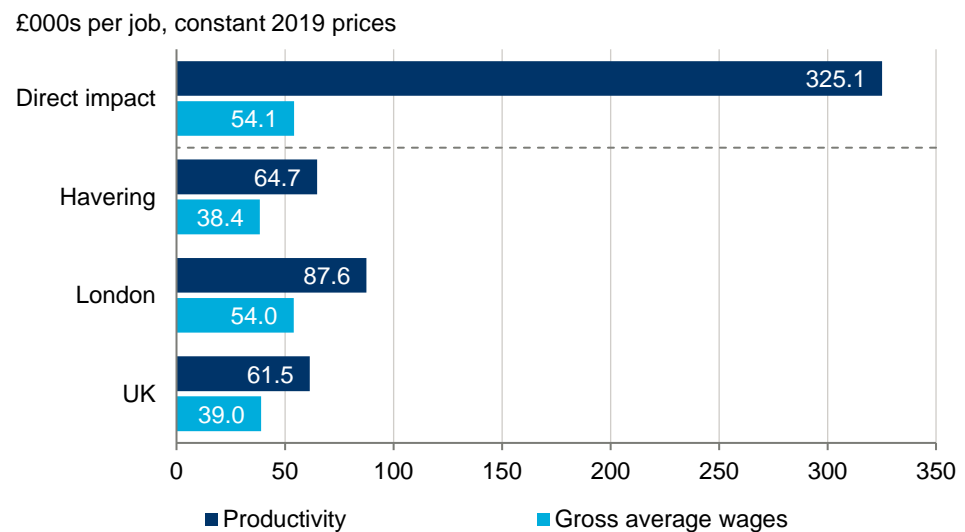
> The proposed development will create 1,200 highly-productive and well-paid direct operational jobs at the proposed data centre campus in Havering.

£000s per job, constant 2019 prices



| | Productivity | Gross average wages |
|---|---|---|
| Direct impact | 325.1 | 54.1 |
| Havering | 64.7 | 38.4 |
| London | 87.6 | 54.0 |
| UK | 61.5 | 39.0 |

Source: Reef Group, Oxford Economics

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[29] This high productivity estimate does not consider the employment supported by occupiers in other locations, which would add to direct employment and therefore reduce direct productivity. Similarly, we have assumed the lower-bound of the likely range of on-site employment: in practice, the level of direct employment at the data centre campus could be higher, reducing the average productivity.

### 3.2 TOTAL ECONOMIC IMPACT OF THE OPERATIONAL PHASE

As in the construction phase, direct activity at the proposed development will create further indirect and induced economic activity across the local, regional, and national economies.

Once fully operational in 2028, **the proposed development could contribute £456 million of GVA, 2,370 jobs, and £100 million in wages across the Havering economy in 2028**. This equates to a 6.8% uplift on Havering's total GVA, and 2.3% uplift on levels of employment, relative to Oxford Economics' baseline forecast. Indirect (supply chain) spending with local suppliers would add £24 million of GVA and 400 jobs, while the induced (wage consumption) impacts would add a further £41 million of GVA and 770 jobs.

This equates to a (Type II) GVA multiplier of 1.17, or £6 of indirect (supply chain) and £11 of induced (wage consumption) GVA stimulated across the Havering economy for every £100 of GVA directly generated by the proposed development. The equivalent employment multiplier is somewhat higher at 1.98, or almost one further job supported across the wider Havering economy for every direct job at the proposed development.

**Fig. 17. Total economic impact, operational phase, Havering, 2028**



Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

**£456 million**

Total GVA contribution to the Havering economy once fully operational in 2028.

*Supporting 2,370 jobs.*
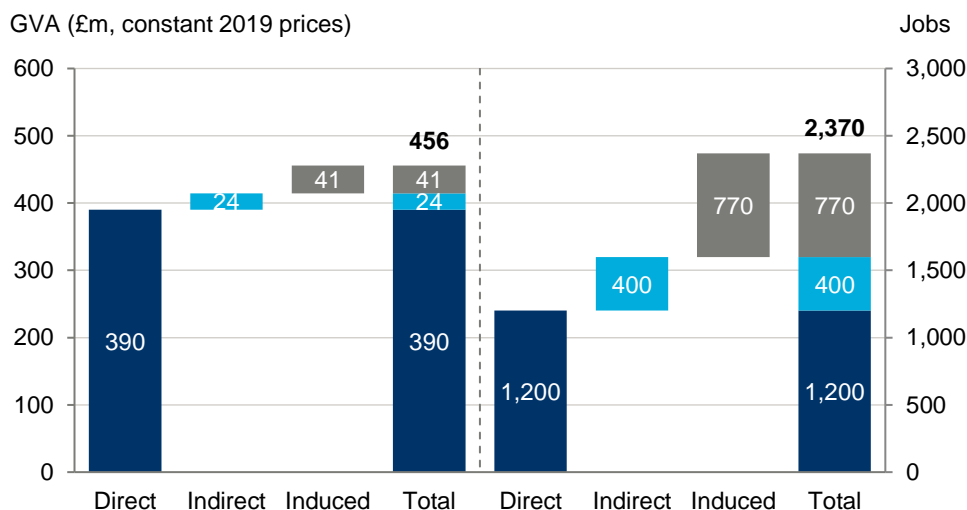
**Employment created or sustained from the operations of the proposed development will boost diverse mix of sectors in the economy.** All sectors of the Havering economy will benefit from the operational phase of the proposed development. Fig. 18 below shows the total sectoral employment impacts associated with the proposed development.

The largest impacts will be in the information & communications sector, which includes the information services sector in which the proposed development will operate. This primarily reflects direct activities at the proposed development, alongside further spending effects, largely along the supply chain as firms draw on inputs from other firms also operating in this sector. Through generating an additional £396 million, the proposed development will more than double the size of Havering's information & communication sector in 2028,

relative to our baseline forecast. Workers in the information & communication sector are typically highly skilled and well remunerated: the 1,260 jobs generated in this sector will support £68 million in wages, averaging £54,300 per worker.

Wholesale & retail trade will be the second most-impacted sector, generating an estimated £11 million of GVA, and supporting 240 jobs. While some activity will be stimulated along the supply chain, the additional activity in this sector will largely arise through wage consumption (induced) effects. Real estate and professional, scientific & technical will be the next most-impacted sectors, both generating £10 million and £9 million of GVA, respectively.

**Fig. 18. Total economic impact by sector, operational phase, Havering, 2028**

"All sectors of the Havering economy will benefit from the operational phase of the proposed development.

| | GVA (£m) | Jobs | Wages (£m) |
|---|---|---|---|
| Agriculture | <1 | <10 | <1 |
| Mining & quarrying | <1 | <10 | <1 |
| Manufacturing | 4 | 40 | 3 |
| Utilities | 1 | <10 | <1 |
| Water supply | <1 | <10 | <1 |
| Construction | <1 | <10 | <1 |
| Wholesale & retail trade | 11 | 240 | 7 |
| Transportation & storage | 3 | 70 | 3 |
| Accommodation & food services | 5 | 120 | 4 |
| Information & communication | 396 | 1,260 | 68 |
| Financial & insurance activities | 2 | 20 | 1 |
| Real estate | 10 | 20 | 1 |
| Professional, scientific & technical | 9 | 180 | 5 |
| Administrative & support services | 4 | 90 | 2 |
| Public administration & defence | <1 | <10 | <1 |
| Education | 2 | 50 | 1 |
| Human health & social work | 2 | 50 | 1 |
| Arts, entertainment & recreation | 3 | 170 | 2 |
| Other service activities | 2 | 50 | 1 |
| **Total** | **456** | **2,370** | **100** |

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

We may also consider the likely occupational and skills profile of jobs supported by the operational phase of the proposed development across Havering.[31] The proposed development will create employment among generally more highly-skilled occupations. Approximately 740 jobs, or just under a third of all employment created in Havering, will be in professional occupations, with associate professional & technical (560 jobs) and managers, directors & senior officials (370 jobs) also well-represented. These three occupational groups account for more than two-thirds of jobs created through
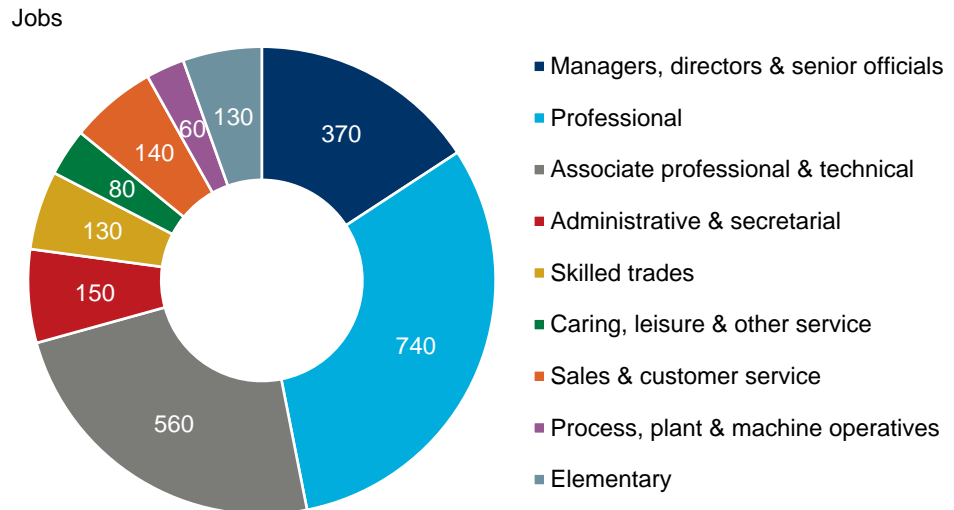
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[31] Our baseline forecast takes account of the changing occupational requirements of employment within sectors of the economy, reflecting factors such as the adoption of technology and automation. We also reflect the evolving qualifications profile required by each occupational group over time.

the operational phase. However, direct jobs created at the proposed development itself represents only half of all employment stimulated across Havering, supporting activity across a variety of occupations: the operational phase will create employment across all occupational groups.

**Fig. 19. Total employment by occupation, operational phase, Havering, 2028**

Jobs



- Managers, directors & senior officials
- Professional
- Associate professional & technical
- Administrative & secretarial
- Skilled trades
- Caring, leisure & other service
- Sales & customer service
- Process, plant & machine operatives
- Elementary

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

The occupational mix is also reflected in the types of skills required by the workforce. Drawing on the changing patterns of skill requirements within each occupational group, we expect that the proposed development will create highly-skilled jobs in Havering: 1,600 jobs, or two-thirds of those created through the operational phase, are likely to require NQF Level 4+ qualifications. However, as reflected in the occupational mix, the proposed development will create a variety of employment opportunities through the operational phase, requiring employment across all qualification levels.

**Fig. 20. Total employment by qualification level, operational phase, Havering, 2028**

Jobs



- NQF Level 4
- NQF Level 3
- Trade apprenticeships
- NVQ Level 2
- Below NQF Level 2
- Other qualifications
- No qualifications

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

**1,670 jobs**

Managerial, professional and associate occupations in Havering through the operational phase.

**67% of jobs**

Jobs requiring NQF Level 4+ qualifications in Havering during the operational phase.
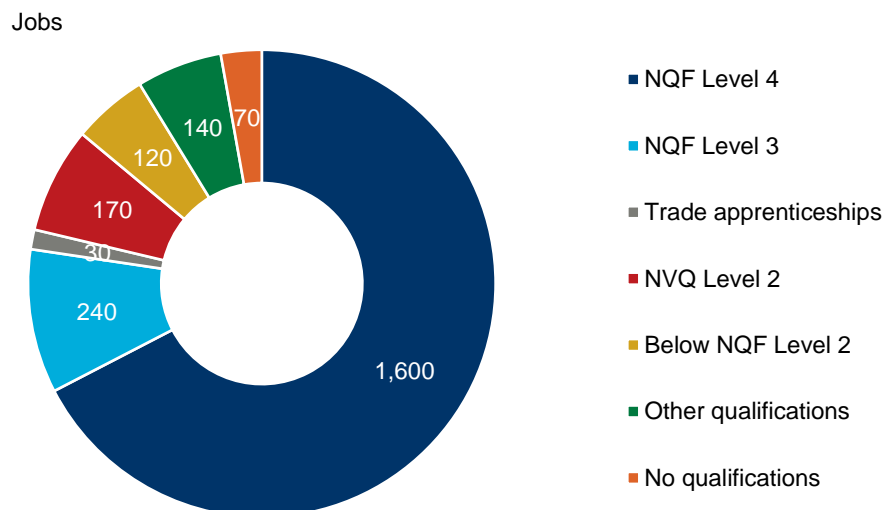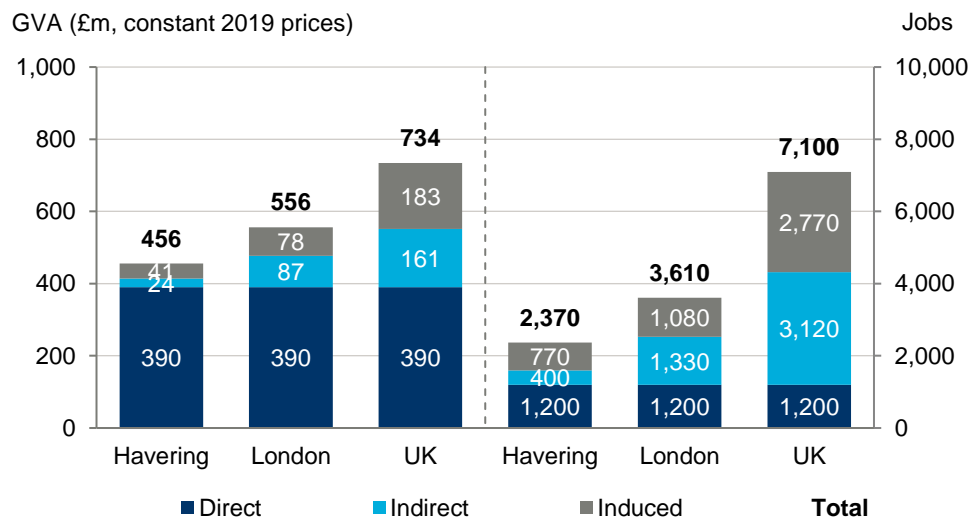
In addition, further economic benefits would be realised elsewhere in the UK economy, as a consequence of the leakage of supply chain and wage consumption spending to other parts of the economy.

We estimate that the operational phase of the proposed development could generate a £734 million GVA contribution to UK GDP in 2028, supporting 7,100 jobs across the UK workforce, and £244 million in wages.

This equates to a (Type II) multiplier of 1.88, or £41 of indirect (supply chain) and £47 of induced (wage consumption) GVA stimulated across the UK economy for every £100 of GVA directly generated by the proposed development. Largely due to the high average productivity at the proposed development, the employment multiplier is almost six, equivalent to more than 260 indirect (supply chain) and 230 induced (wage consumption) jobs for every 100 direct jobs at the proposed development.

A high share of activity generated by the proposed development will be retained in London. Overall, the proposed development will add £556 million to London's GVA once fully operational, supporting 3,610 jobs, and £152 million in wages. This amounts to over three-quarters of all GVA stimulated across the UK economy, and more than half of all employment.

**Fig. 21. Total economic impact, operational phase, Havering, London, and the UK, 2028**

## £734 million

Total GVA contribution to UK GDP during the first year of full operations.

*Supporting 7,100 jobs.*



Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

### 3.3 FISCAL IMPACT OF THE OPERATIONAL PHASE

Wages generated directly from the operations of the proposed development would also generate additional tax revenues for HM Treasury.

**The proposed development would generate £165 million in fiscal revenues through its first full year of operations in 2028**. The proposed development could generate £38 million in income tax revenues, including £12 million directly supported by the proposed development. A further £56 million will be supported in combined employer and employee NICs, of which £16 million is associated with direct activity. The proposed development

would also generate a further £26 million of additional tax revenues indirectly, via the purchases of goods and services (including VAT), while Reef Group estimate that it will directly generate £45 million in Business Rates.[32]

**Fig. 22. Total fiscal impact, operational phase, UK, 2028**

£m, constant 2019 prices



£165 million

Fiscal impact of the first year of full operations in 2028.
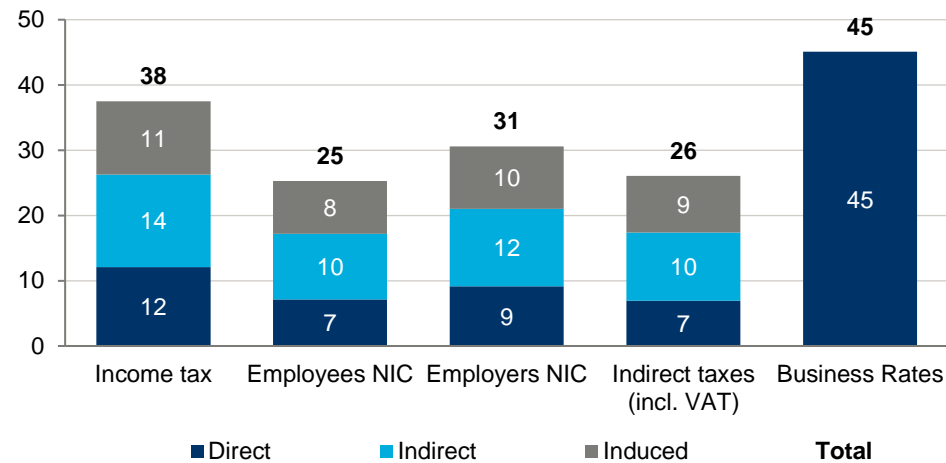
Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

### 3.4 SUMMARY

Once operational, the proposed development will continue to benefit the Havering, London, and UK economies. According to data provided by Reef Group, the proposed development will directly generate £390 million of GVA, supporting 1,200 jobs and £65 million in wages across the Havering economy.

The economic benefits will not be confined to the proposed development itself, as it will generate further indirect (supply chain) and induced (wage consumption) effects across the local and national economies. In total, we estimate that the proposed development will generate £456 million of GVA across Havering, equivalent to a 6.8% increase in the size of the local economy relative to our baseline forecast. The proposed development would also support 2,370 jobs, a 2.3% increase on our baseline forecast, and £100 million in wages.

This equates to (Type II) GVA and job multipliers of 1.17 and almost two, respectively: each £100 of GVA directly generated by the proposed data centre campus will stimulate £17 of additional GVA across the Havering economy, while each direct job will support a further job across the local economy.

Owing to the spillover benefits of supply chain spending and wage consumption outside of Havering, the operational phase of the proposed development will have an even greater impact on the UK economy. Once fully operational, in 2028, the proposed development could add £734 million in GVA contributions to UK GDP, supporting 7,100 jobs across the UK workforce, and £244 million in wages.

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[32] £48 million in 2021 prices.

This equates to a (Type II) GVA multiplier of 1.88, or £88 of additional GVA stimulated across the UK economy for every £100 of GVA generated at the proposed data centre campus, and an equivalent employment multiplier of just under six: each direct job will support almost five further jobs across the UK economy. London will retain three-quarters of all GVA generated across the UK economy, and just over half of all employment.

**Fig. 23. Total economic and fiscal impacts, operational phase, Havering, London, and the UK, 2028**

| | GVA (£m) | Jobs | Wages (£m) | Fiscal (£m) |
|---|---|---|---|---|
| **Havering** | | | | |
| Direct | 390 | 1,200 | 65 | - |
| Indirect | 24 | 400 | 15 | - |
| Induced | 41 | 770 | 21 | - |
| **Total** | **456** | **2,370** | **100** | **-** |
| **London** | | | | |
| Direct | 390 | 1,200 | 65 | - |
| Indirect | 87 | 1,330 | 54 | - |
| Induced | 78 | 1,080 | 33 | - |
| **Total** | **556** | **3,610** | **152** | **-** |
| **UK** | | | | |
| Direct | 390 | 1,200 | 65 | 80 |
| Indirect | 161 | 3,120 | 98 | 47 |
| Induced | 183 | 2,770 | 81 | 38 |
| **Total** | **734** | **7,100** | **244** | **165** |

Source: Reef Group, Oxford Economics. Note: may not sum due to rounding.

# 4. WIDER ECONOMIC BENEFITS
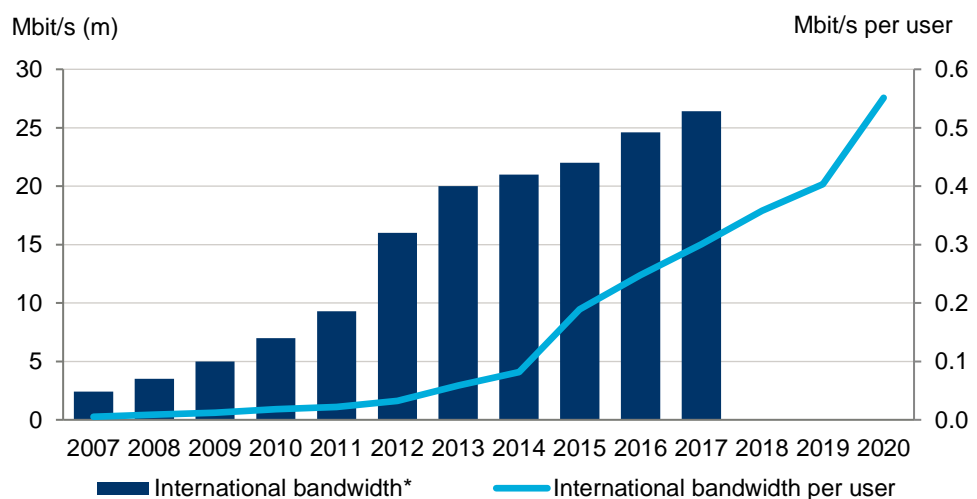
### 4.1 INTRODUCTION

In this section, we discuss how the proposed development may act as a catalyst in unlocking a range of wider economic benefits across the Havering, London, and UK economies.

We consider how the proposed development will contribute to the UK's digital infrastructure, how this can support clustering and agglomeration effects in London's growing information & communication sector, the benefits to the local Havering economy of the creation of high-value jobs, and how investing in local skills initiatives can boost human capital accumulation. In doing so, we consider the national, regional, and local policy context.

### 4.2 THE PROVISION OF DIGITAL INFRASTRUCTURE

**The Covid-19 pandemic has demonstrated the increasingly important role that digital services play**, across the economy and in society more broadly. These services are being relied upon now more than ever for remote working, streaming, entertainment and much more. Data from Openreach indicates that the pandemic led to UK broadband usage more than double, increasing from 22,000 petabytes of data consumed in 2019 to 50,000 petabytes in 2020.[33] Although the volume of information transmitted over the UK's internet connections has substantially increased over the preceding decade, as demonstrated in Fig. 25 below., demonstrating the growing importance of digital infrastructure in underpinning services throughout the economy.

**Fig. 25. International bandwidth, UK, 2007 to 2020[34]**

> The Covid-19 pandemic has demonstrated the increasingly important role that digital services play across the economy and society more broadly.



Source: ITU, Oxford Economics                                            * Data only available to 2017

[33] https://www.openreach.com/news/uk-broadband-usage-more-than-doubled-in-2020---driven-by-live-sport-online-gaming-and-home-working/ A petabyte is equivalent to 1,000 terabytes (TB), or 1,000,000 gigabytes (GB).
[34] Telecommunication Development Sector (ITU-D), *International bandwidth*, Geneva, 2021.
https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

**WHAT IS A DATA CENTRE?**

**Data centres are stand-alone facilities that house computing equipment to facilitate external IT functions.** Data centres such as the proposed development are being increasingly used by enterprises to house information as they transition from centralised on-premises facilities to cloud services. IT organisations therefore use data centres to store and manage their most critical resources which are vital to their continuous operation.

**These centres contain specialised warehouse-scale computers which power an array of critical services.** Designing and operating such complex systems require expert knowledge, and few companies have the capacity to develop and operate their own data centres. This has led to the rise of cloud computing, where businesses rent network resources from specialised providers, to power their services, instead of developing and maintaining their own infrastructure.[35]

**The location of data centres is also a crucial component of digital operations.** The location where the data centre holding server hardware is physically stored and maintained can affect website speed and latency—the delay between a user's action and the resulting application's response to that action. Hosting data on a server far away from a user can lead to a lengthy delay in obtaining data, with clear implications for reducing the speed at which tasks can be performed.[36]

**Distance from a server can also affect firms' competitiveness.** For example, search engines take site speed and page loading times into account when ranking sites for search engine optimisation. Therefore, choosing a distant data centre could damage search engine ranking, potentially costing firms across the wider region to lose out on business that might otherwise go to firms who benefit from higher transmission speeds through closer proximity to their servers.

**Digital infrastructure is an increasingly important factor that underpins activity throughout the economy.** According to TechUK, data centres *"underpin an internet economy that contributes over 16% of domestic output, 10% of employment and 24% of total UK exports and is growing faster than any other in the G-20."*[37] Through the provision of 600MW of capacity, the proposed development would make a substantial contribution to boosting the UK's data centre capacity.

**4.3 INFORMATION & COMMUNICATION SECTOR AND AGGLOMERATION EFFECTS**

**The proposed development therefore contributes to the digital infrastructure that will support growth across London and the wider south east.** The proposed development is located in or proximate to the UK's three fastest-growing regions: London, the South East, and East of England.

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[35] Diana Popescu, *Latency driven performance in data centres*, University of Cambridge, 2019.

[36] https://www.reliablesite.net/hosting-news/does-data-center-location-really-matter/#.YbIQFr3P1PZ

[37] TechUK, *Data Centre Market Overview UK 2020*, London, 2021.

Collectively, these three regions will account for almost half (48%) of economic growth across the UK economy by 2030, according to our baseline forecast.[38]

**Fig. 26. GVA and job growth, UK regions, 2019 to 2030**

> The proposed development will contribute to the digital infrastructure to support the UK's fastest-growing regions.
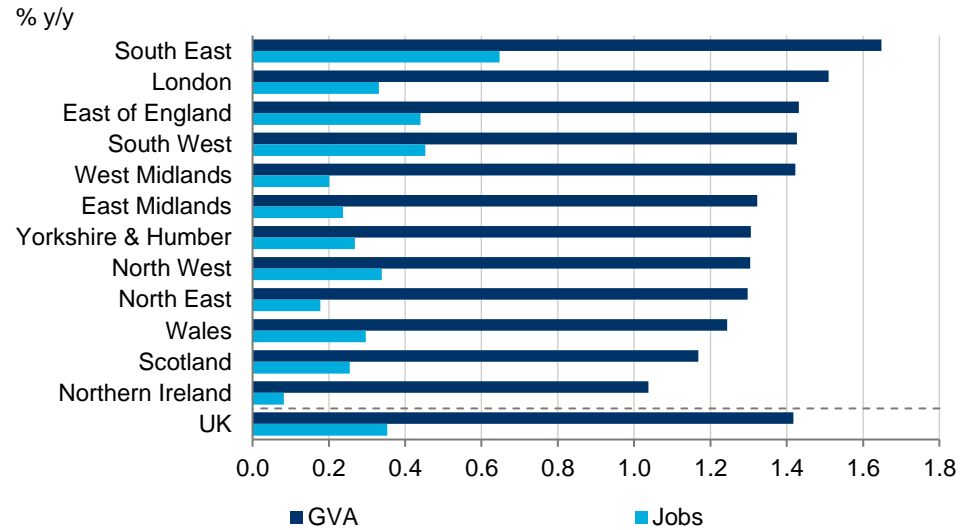


Source: Oxford Economics

While many sectors of the economy are becoming increasingly digitised, the benefits of the proposed development are most apparent within the information & communication sector. This sector alone has more than doubled in size over the preceding decade, and is forecast to be the UK's fastest-growing sector to 2030. According to data gathered by TechUK, the UK is the third-largest destination for venture capital in the world, behind only the USA and China, with investment hitting a record high of $15 billion in 2020, despite the disruption caused by the Covid-19 pandemic.[39]

London supports the UK's largest information & communication sector, contributing £52 billion to UK GDP in 2019—more than two-fifths of the national total—and supporting almost 500,000 jobs. According to TechUK, London was the fourth-largest destination for capital investment in the tech sector, totalling $10.6 billion, or more than two-thirds of investment across the UK.[39] By comparison, investment the next-largest European destination, Paris, equated to less than a third of the London total ($3.3 billion).[39] Provision of infrastructure such as the proposed data centre key to enabling this investment to occur. Owing to the globally-competitive nature of investment in this sector, and failure to provide adequate infrastructure may see London lose out to other major global digital clusters, meaning that this investment would be lost to the UK economy altogether.

London is expected to continue to be the dominant region in this sector: information & communication is forecast to be London's fastest-growing sector over this period, and London will outperform all other regions bar the South East. Indeed, London alone is forecast to contribute 43% of the increase in GVA forecast across this sector nationally. The wider London, East of England

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[38] As of Q4 2021. For further detail on our forecasting method, see Appendix 1.

[39] TechUK, *Tech Nation 2021*, London, 2021. https://technation.io/report2021/#uk-tech-performance

and South East regions are expected to collectively support three-quarters of additional GVA across the UK in the information & communication sector.

**Fig. 27. GVA and job growth, information & communication sector, UK regions, 2019 to 2030**

**2.8%**

Forecast GVA growth of London's information & communications sector, 2019 to 2030

*Both London and the UK's fastest-growing sector*

% y/y
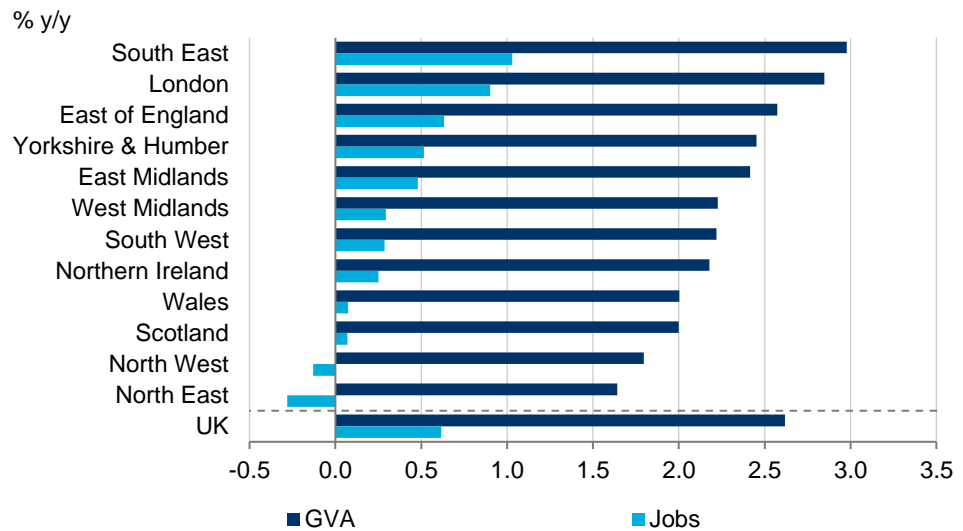
Source: Oxford Economics

**The proposed development therefore contributes to reinforcing the agglomeration effects across London's digital sector.** Agglomeration effects refer to the benefits that firms can realise through locating near one another, leading to a cluster of activity in a particular market or sector. These benefits arise from factors such as a highly skilled and/or specialised workforce, or reduced transaction costs in interacting with firms in the same sector. The clustering of activity in London's digital sector indicates the presence of these effects.

Of particular relevance to the proposed development are the agglomeration benefits that arise from proximity to shared suppliers. It is no coincidence that London's leading digital sector is supported by a cluster of data centres. According to Tech UK, London is Europe's leading market for data centres: it houses over 700MW of take-up, almost twice as many as the next-largest clusters, Frankfurt (398MW) and Amsterdam (363MW).[37] Indeed, 70% of the UK's commercial data centre market is clustered in and around the M25.[37]

The provision of additional digital infrastructure through the proposed development can further the wider agglomeration effects across the users of data centres across London. Through adding to London's data centre capacity, the proposed development is contributing to attracting firms to start-up or locate in London to avail of this infrastructure, who may otherwise locate elsewhere without the same provision of data centre services.

Indeed, we may draw on other examples to demonstrate the benefits of data centres to the wider economy. Oxford Economics recently explored the spillover effects arising from the opening of six new data centres for Google in the US, demonstrating that spillover effects in the area the data centre was placed that were even more significant than the traditional economic impact

calculations.[40] The six campuses examined in this study were all located in counties near but not in a major city. The research illustrates that opening the data centre indicated to out-of-county residents that there are new opportunities in the county which possessed the data centre. Within two years of opening the data centre, the counties that had one experienced job gains that exceeded those in the control group. Of those, the job gains were greatest in the counties whose economies were closely integrated with the urban setting close to it. Furthermore, these counties also experienced a growth in residents holding a four-year college degree that was 1.1% higher than that of the control group. We expect that both the employment and educational benefit compound over time.

**THE LONDON PLAN 2021**

The economic benefits of the proposed development are conducive to the ambitions of the *London Plan 2021*, London's spatial development strategy.[41] The London Plan sets out several ambitions relating to economic, social and technological development, which the proposed development can make a positive contribution towards achieving.

**The London Plan illustrates the importance of improving digital infrastructure within the city.** Policy SI 6 'Digital connectivity infrastructure' states: *"The provision of digital infrastructure is as important for the proper functioning of development as energy, water and waste management services and should be treated with the same importance. London should be a world-leading tech hub with world-class digital connectivity that can anticipate growing capacity needs and serve hard to reach areas. Fast, reliable digital connectivity is essential in today's economy and especially for digital technology and creative companies. It supports every aspect of how people work and take part in modern society, helps smart innovation and facilitates regeneration".*

**The London Plan also seeks to improve the skill level and opportunities of those within the city by numerous different avenues.** One of the main objectives of Policy E11 'Skills and opportunities for all' is to *"ensure the greatest possible level of take-up by Londoners of the training, apprenticeship and employment opportunities created."* The London Plan states that more than 270,000 Londoners are unemployed, with particularly high rates of youth unemployment. London also has a growing problem of in-work poverty, associated with low-skilled low-paid work. The proposed development would make a positive contribution to reducing unemployment, both locally in Havering and across the city, through job creation.

**The proposed development can help to support growth of London's digital and tech sectors.** Policy E8 'Sector growth opportunities and clusters' identifies the digital and tech sector as a growth opportunity for the city. The London Plan aims to *"support the growth and evolution of all sectors in the economy. Planning should ensure that new developments have the digital connectivity required to support London's global competitiveness"* The proposed development will make a positive contribution to the infrastructure required to facilitate growth in these sectors.

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[40] https://www.oxfordeconomics.com/recent-releases/d8d830e4-6327-460e-95a5-c695a32916d9

[41] Greater London Authority, *The London Plan: The Spatial Development Strategy for Greater London*, London, 2021. https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021

## 4.4 CREATING HIGH-VALUE JOBS IN HAVERING

Productivity is an important measure of economic performance, allowing businesses to grow more profitable and boost investment, while increasing the pay and living standards of workers. We measure labour productivity as the average contribution to GVA per job.

**Havering suffers a productivity gap to the rest of London.** In 2019, the Havering economy generated £59,300 of GVA per job.[42] While slightly higher than neighbouring Essex, and above the UK average, Havering's productivity lags London. This productivity gap equated to £21,200 per job—the average Havering worker therefore produces less than three-quarters of GVA than the London average.

Havering's weak productivity performance is not a recent phenomenon. Average productivity has never recovered from the 2007 to 2008 financial crisis, in real terms. While the other comparator areas similarly struggled from sluggish productivity growth through the 2010s, in each case productivity has improved, making a positive contribution to growth. Our baseline forecast indicates that the productivity gap to London is expected to continue into the future.

**Fig. 28. Productivity, Havering and comparator areas, 2000 to 2030**

£000s per job, constant 2019 prices



Source: ONS, Oxford Economics
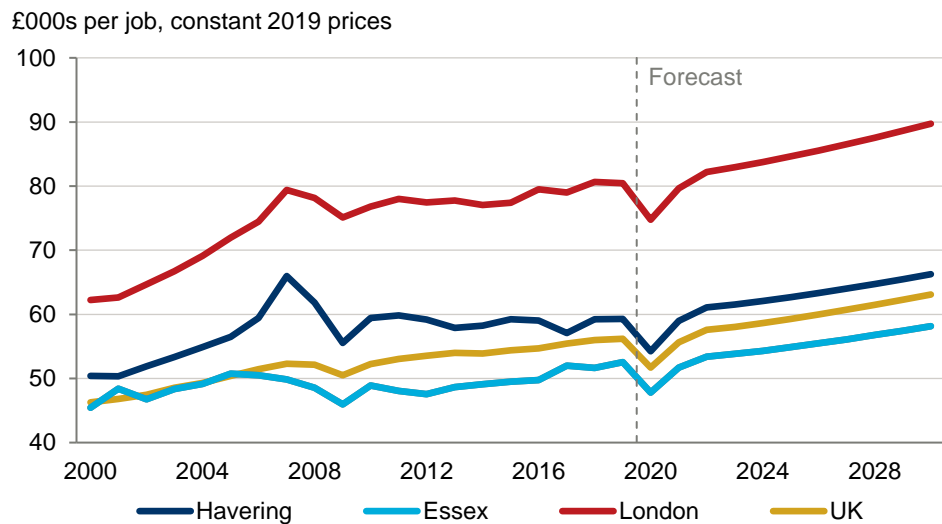
£59,300

GVA per job (productivity) across Havering in 2019.

*A £21,200 productivity gap to the London economy (£80,500 per job).*

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[42] 2019 provides a suitable basis on which to compare Havering's economy as it reflects the most recent GVA data published by the ONS at a sub-national level, and also avoids the distortionary effects of the Covid-19 pandemic that are implicit within our 2020 estimates.

**Havering's productivity gap to the London economy is partly a reflection of its sectoral structure.** Havering tends to lack the types of business service sectors, such as information & communication, that are forecast to drive growth across London and the UK. Instead, Havering's sectoral structure is more comparable to that of Essex, and is comparatively reliant on real estate,[43] while construction and transportation & storage are also comparatively well-represented across the local economy. We estimate that Havering's sectoral structure alone accounts for around three-quarters of the productivity gap to London, or £16,300 per job. Through the creation of high-value jobs in the information & communication sector, the proposed development contributes to narrowing the productivity gap.

**Fig. 29. GVA by broad sector, Havering and comparator areas, 2019**

> Havering tends to lack the types of business service sectors, such as information & communication, that are forecast to drive growth across London and the UK.
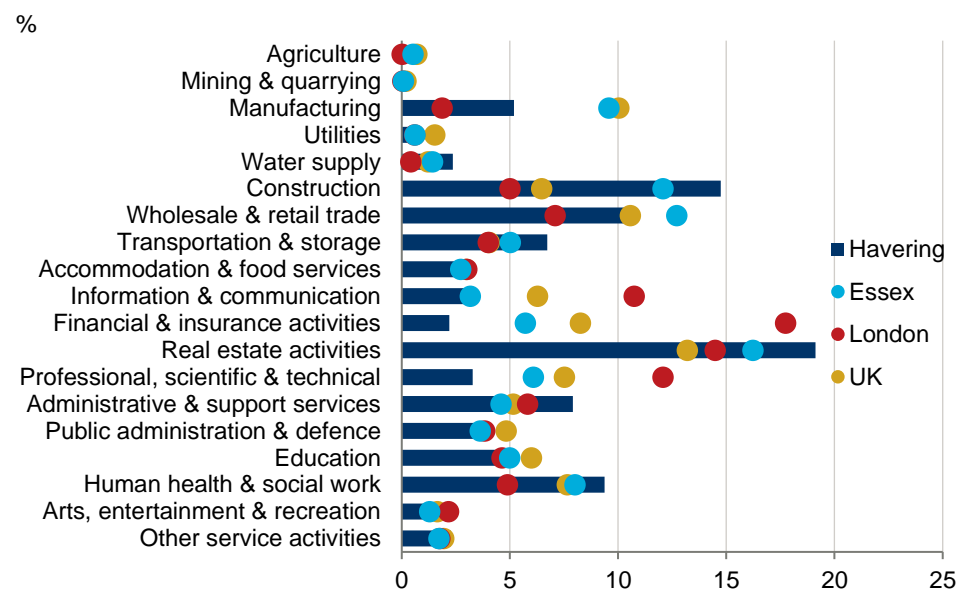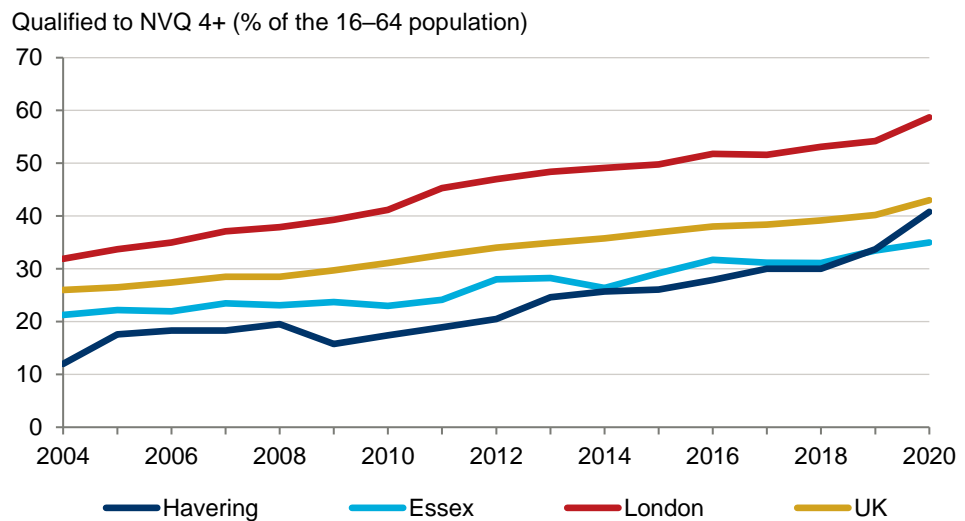


Source: ONS, Oxford Economics

**Part of the productivity gap can also be explained by an underperformance within sectors.** The Havering workforce tends to produce less than firms within the same sectors elsewhere in London. Even were Havering to match London's sectoral structure, the productivity gap would remain at around £4,900 per job. There are a variety of factors which contribute to this underperformance, including the extent of business or infrastructure investment. Indeed, the Havering Local plan cites enhancing *"digital connections between places, communities and opportunities"* as one of its four 'strategic objectives'.[44] Through its multi-billion pound investment, the proposed

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[43] Real estate GVA includes rental income and the imputed rents of owner-occupiers, and the dominance of this sector is largely a reflection of the comparatively high housing costs across Havering. The relative concentration of GVA in real estate may also indicate an absence of other dominant sectors in the local economy, reflected in Havering's comparatively low levels of GVA per capita (£23,200 in 2019) relative to the national average (£29,900).

[44] London Borough of Havering, *Havering Local Plan 2016–2031*, London, 2016. https://www.havering.gov.uk/download/downloads/id/1909/lbhlp1_-_proposed_submission_local_plan_2016-2031.pdf

development actively contributes towards business investment and infrastructure across the Havering economy.

The underperformance may also relate to skills. The Havering Local Plan identifies skills and training as an opportunity for the borough, noting a substantial gap in the proportion of highly-qualified residents compared to the London or national average, which in turn leads to lower incomes than elsewhere.[44] Recent ONS data indicates that while this 'skills gap' of working-age residents qualified to NVQ level 4+ (degree level or above) has narrowed in recent years, the proportion of residents qualified to this level remains below the London and UK averages. Through creating high-value jobs in the Havering economy, the proposed development may contribute to attracting highly-skilled workers to the local area.

**Fig. 30. Resident qualifications, Havering and comparator areas, 2000 to 2020**

Qualified to NVQ 4+ (% of the 16–64 population)



Source: ONS, Oxford Economics

> The Havering Local Plan identifies skills and training as an opportunity for the borough, noting a substantial gap in the proportion of highly-qualified residents compared to the London or national average, which in turn leads to lower incomes.

**The proposed development is also expected to benefit local residents.** Through the creation of high-value jobs directly at the proposed development, and through wider multiplier effects as a consequence of supply chain and wage consumption spending, the data centre campus will support an additional 2,370 jobs across the Havering economy once fully operational.

This expansion in the workforce will benefit residents: drawing on established commuting patterns and the labour market characteristics of local economies, we would expect that a further 900 residents of Havering will be employment once the proposed development is fully operational in 2028. This equates to a 0.6% uplift on the number of residents employed according to our baseline forecast. (See Appendix 1 for further detail on our economic modelling framework.) This will in turn reduce unemployment: we estimate that Havering would see 300 fewer unemployed residents as a consequence of the proposed development.

### 4.5 INVESTMENT IN LOCAL SKILLS AND COMMUNITY INITIATIVES

As part of the proposed development, Reef Group will invest £1.5 million (in current prices) each year on local skills and community initiatives.

The skills and knowledge held by the population, referred to in economic literature as human capital, is a vital determinant of a nation's productivity. Skill levels influence the population's living standards and the competitiveness of the economy.

Improving the skills of the local population will generate a private benefit, through boosting the lifetime earnings of participants. There is a close link between the qualification level of an individual and the earnings they receive. Indeed, a bespoke analysis produced by the ONS from data for 2016 to 2017, set out in Fig. 31 below, demonstrates higher average earnings among more highly educated workers in the UK.

**Fig. 31. Earnings by highest qualification level, 2016/17[45]**

Gross weekly pay (£, 2017 prices)
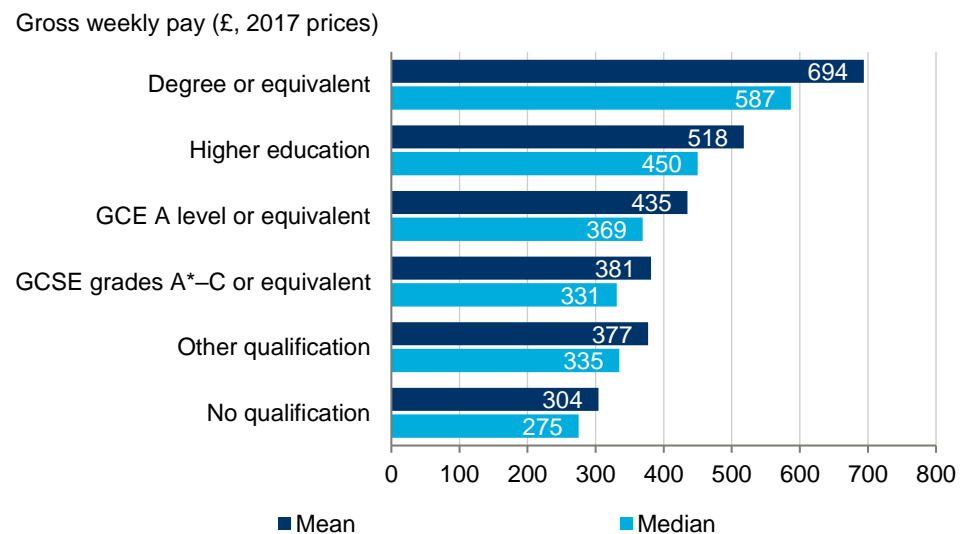


Source: ONS

There are also a range of wider societal benefits associated with a more highly skilled population. The *English Indices of Deprivation* measures relative deprivation across neighbourhoods in England.[46] It demonstrates that the education and skills of a local population are closely related to labour market outcomes, such as income and employment, which in turn influence wider measures of societal wellbeing, including health, crime, and the living environment.

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[45] ONS, *The mean and median gross weekly and gross hourly earnings measured by highest education qualification (bespoke request: 008042)*, Newport, 2018.
[46] Department for Levelling Up, Housing and Communities (DLUHC, formerly the Ministry of Housing, Communities and Local Government), *The English Indices of Deprivation 2019*, London, 2019. https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

Indeed, as Fig. 32 demonstrates, those local authority areas that suffer from more acute relative deprivation (ranking lowest) tend to also perform worse among measures of education, skills and training. Through investing in the skills of local residents, the proposed development will contribute to boosting the wellbeing of the local population.

**Fig. 32. Education, skills & training and relative deprivation, local authority areas in England, 2019[47]**

Rank: Index of Multiple Deprivation                                  R² = 0.5954



Rank: Education, Skills & Training domain
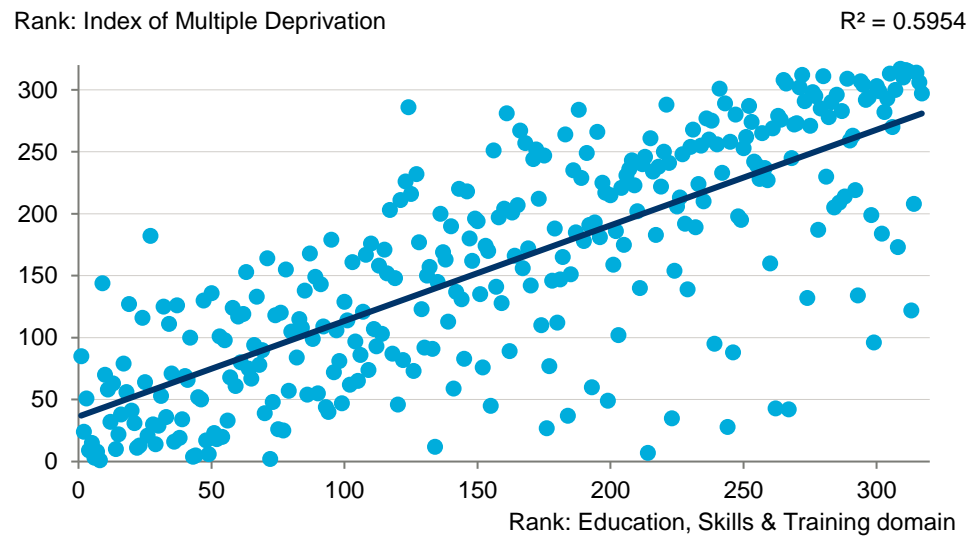
Source: DLUHC, Oxford Economics

The impact of community funding depends on a number of factors such as the type of initiative being funded. Given the community funding will react to the needs of residents, it is impossible to quantify its potential impact. However, we can draw on the findings of other community-based funding models, such as the National Lottery, to provide insight into the potential for local societal benefits.

*The National Lottery Community Fund Impact Research Report* shows that nearly all grantholders (92%) reported that activities that were supported by National Lottery community funding had community benefits.[48] Over half reported that the grant had helped to:

- provide opportunities for people to mix with others who were different to them (66%);
- provide opportunities for people to engage in their community and help meet local needs (60%); and
- provide more events and activities in the community (56%).

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[47] Fig. 32 presents the rank of all 317 local authority areas in England, by both the overall Index of Multiple Deprivation (Y-axis) and the Education, Skills & Training domain (X-axis), which forms 13.5% of the overall deprivation index, alongside six other domains relating to income, employment, health deprivation & disability, crime, barriers to housing & services, and living environment. Local authority areas that suffer from greater relative deprivation achieve a higher rank, with those tending to suffer from both education, skills & training and overall relative deprivation represented in the bottom-left of the chart.

[48] https://www.tnlcommunityfund.org.uk/media/insights/documents/Exploring-the-impact-of-grant-funding.pdf

In addition, 42% reported that residents exhibited more local pride and belonging. Furthermore, 28% felt local services were not more connected, available, and easier to access.

When surveying grantholders, the researchers presented them with eight potential community benefits and the option to add additional ones. On average grantholders reported the National Lotter funding provided on average 3.2 different types of community benefit. This changed depending on the size of grant awarded. For those receiving £5,000 or less the number of benefits reported averaged 2.7. For those receiving grants from £5,000 to £10,000 the number of benefits reported averaged 3.2.

In addition, grantholders were asked about the benefits to individuals. Nearly all (97%) reported benefits for individuals as a result of the activities supported by the grant. For example:

- 78% reported improved mental health and wellbeing;
- 77% reported more social contact;
- 72% reported improved confidence and self-esteem; and
- 66% reported feeling less lonely
- Nearly half (48%) reported better access to information and support to improve their knowledge
- 45% reported improved physical health
- 43% improved education and development.

# APPENDIX 1: TECHNICAL ANNEX

**UNDERSTANDING ECONOMIC IMPACT ASSESSMENTS**

**Introduction**

Economic impact modelling is a standard tool used to quantify the economic contribution of an investment or series of investments in a local economy. As set out in the Introduction, our economic impact analysis estimates the contribution of the proposed development through three channels:

- **Direct impact** refers to activity conducted directly during the construction and operation of the proposed development.
- **Indirect impact** consists of activity that is supported because of the procurement of goods and services during construction and operations, throughout the economy. It includes not just purchases by occupiers of the proposed development, but subsequent rounds of spending throughout the supply chain.
- **Induced impact** reflects activity supported by the spending of wage income by direct and indirect employees.

These three channels form our 'static' estimate of the quantifiable economic benefits of the proposed development, comparing the potential economic contribution of the proposed development to our baseline forecast for the local economy. However, in practice there may be a range of wider economic benefits that occur as other economic agents respond 'dynamically' to the investment and operations of the development. While not typically quantifiable, these benefits nevertheless form an important part of the economic benefits of the proposed development. These effects can include for instance the proposed development acting as a catalyst for further clustering and agglomeration effects, providing employment opportunities for local residents, attracting further cultural and tourism-related spending, and improving overall confidence in the local economy.

**Direct impacts**

Reef Group has provided Oxford Economics with the expected capital expenditure throughout the five-year construction phase. This includes the expected build cost for each unit, expenditure on hardware, the renewable energy battery storage system, tenant expenditure on fit-out, and professional services. We translate the economic output produced in these sectors to GVA, jobs (using local, regional, or national productivity, where appropriate), and wages, derived from the share of GVA captured by labour across each sector of the economy.[49]

Reef Group also provided Oxford Economics with estimates of the gross revenues and operating costs during the proposed development, once fully operational, which allow us to estimate the direct GVA contribution, and expected direct employment.

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[49] This 'top-down' approach to estimating aggregate wages ensures that we capture the long-tail of less frequent, but higher earners that is not reflected in median earnings data. It also ensures that wages capture the types of activity occurring through the construction and operational phases, which is not necessarily reflective of existing wage structure of the local economy, which is affected by factors such as the existing sectoral mix of activity, and hence provides a more suitable basis for this calculation than a 'bottom-up' estimate based on existing local wages.

**Displacement**

Displacement can be defined as the proportion of impacts generated by the proposed development which are offset by reductions in economic activity elsewhere.

In order to consider the potential for displacement in the construction sector, we reviewed the current level and capacity of the sector, and its outlook for growth. Our analysis indicates that the sector will have capacity to absorb the additional activity arising from the proposed development, which is unlikely to result in a significant degree of displacement, when placed into context of the sizeable London construction sector. We therefore assume that no displacement occurs within the construction phase.

Similarly, our analysis of recent trends across the Havering economy indicate that the operational phase is not likely to result in significant displacement effects. The proposed development is due to stimulate activity in a sector which has traditionally been less well-represented within the local economy. Displacement is unlikely to occur when considering the scale of the proposed development within the sizeable Havering economy, where it alone will form only a modest contribution to economic activity within the local authority area. We therefore assume no displacement occurs within the operational phase.

**Indirect and induced impacts**

Indirect and induced impacts were estimated using an input-output model. An input-output model gives a snapshot of an economy at any point in time. The model shows the major spending flows from: final demand (i.e. consumer spending, government spending, investment, and exports to the rest of the world); intermediate spending patterns (i.e. what each sector buys from every other sector—the supply chain in other words); how much of that spending stays within the economy; and the distribution of income between employment and other forms such as corporate profits. Fig. 33 provides an illustrative guide to a stylised input-output model.
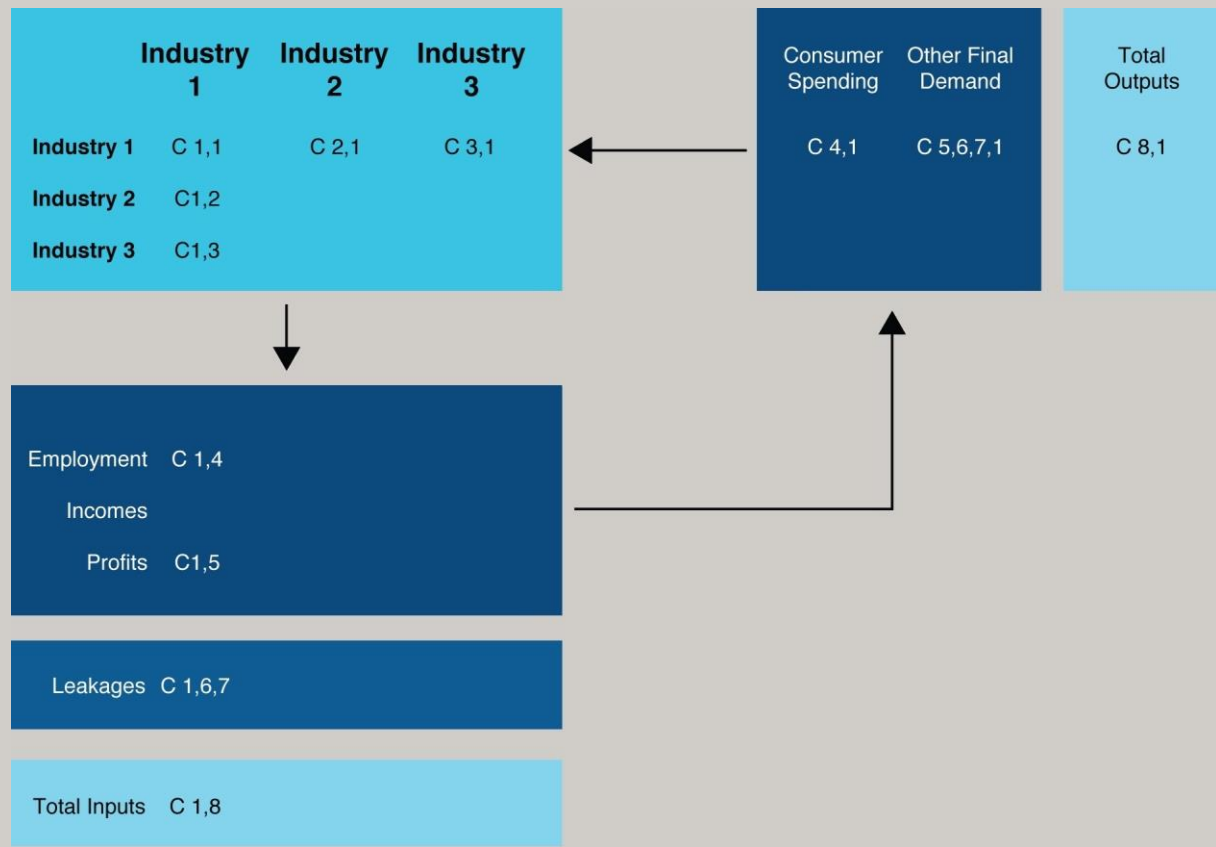
In building our impact model we have adopted the latest UK input-output tables published by the Office for National Statistics (ONS).[51] To calculate local and regional economic impacts, we adjust the national input-output tables to account for the characteristics of each economy—namely the overall size and degree of specialism within each sector. This reflects academic guidelines set out in papers such as Flegg & Tohmo (2013).[52] It also considers the geographical location and proximity between different local areas and regions, reflecting a greater likelihood that firms will prefer to source inputs locally, while accounting for the leakage of economic impacts outside of the local area.

[51] ONS, *UK input-output analytical tables—industry by industry*, Newport, 2021.
https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesindustrybyindustry
[52] Flegg, A. T. and Tohmo, T., *Regional input-output tables and the FLQ formula: A case study of Finland*, Regional Studies (47 (5). pp. 703–721), 2013.

**Fig. 33. A stylised input-output model**



|  | Industry 1 | Industry 2 | Industry 3 | | Consumer Spending | Other Final Demand | | Total Outputs |
|---|---|---|---|---|---|---|---|---|
| Industry 1 | C 1,1 | C 2,1 | C 3,1 | | C 4,1 | C 5,6,7,1 | | C 8,1 |
| Industry 2 | C1,2 | | | | | | | |
| Industry 3 | C1,3 | | | | | | | |

Employment  C 1,4

Incomes

Profits  C1,5

Leakages  C 1,6,7

Total Inputs  C 1,8

Source: Oxford Economics

**Taxes**

Wages generated directly from the proposed development are subject to income tax and national insurance contributions (NICs). In modelling the tax revenues that could be collected by the Treasury, we use the latest income tax and NIC rates, thresholds and personal allowance information, and apply these to average (mean) earnings. However, in the absence of estimates of income distribution either at the proposed development or along firms supporting the wider multiplier effect, we instead approximate this by use of mean earnings. As highlighted above, our approach for estimating aggregate wages captures the 'long-tail' of high earners, and so provides a more accurate estimate of mean earnings than a 'bottom up' estimate, drawing on existing local economy or sector averages.

Tax benefits will arise as a consequence of direct activity, and employment supported through the supply chain (indirect) and wage consumption (induced) effects. The Proposed Development will also generate additional indirect tax revenues, via the purchases of goods and services (including VAT). The indirect fiscal benefit estimates are derived using tax and benefits statistics on household income, published by the ONS. According to the publication, approximately 10.7% of household income is

spent on indirect taxes on final goods and services (Table 17). This rate is then applied to the total wage impact arising from the proposed development nationally.[53]

**Labour market and demographic effects**

Alongside the workplace variables detailed above, our economic impact model also considers the implications of changing workplace impacts on **resident-based** variables, including labour market measures such as resident employment and unemployment, and demographic factors such as population, both total and working age, and migration.

In order to calculate resident-based impacts, the model first adjusts employment impacts from a job-based to people-based measure. It then considers the likely resident employment impacts by applying the **commuting patterns** derived from the 2011 Census. This provides an indication of the extent to which workplace employment in a particular area will be taken up by residents of the same area, or will draw in commuters from other local authority areas. Resident employment therefore reflects the workplace employment taken up by residents of the same local area, but also the aggregation of out-commuters to take up employment across other areas.
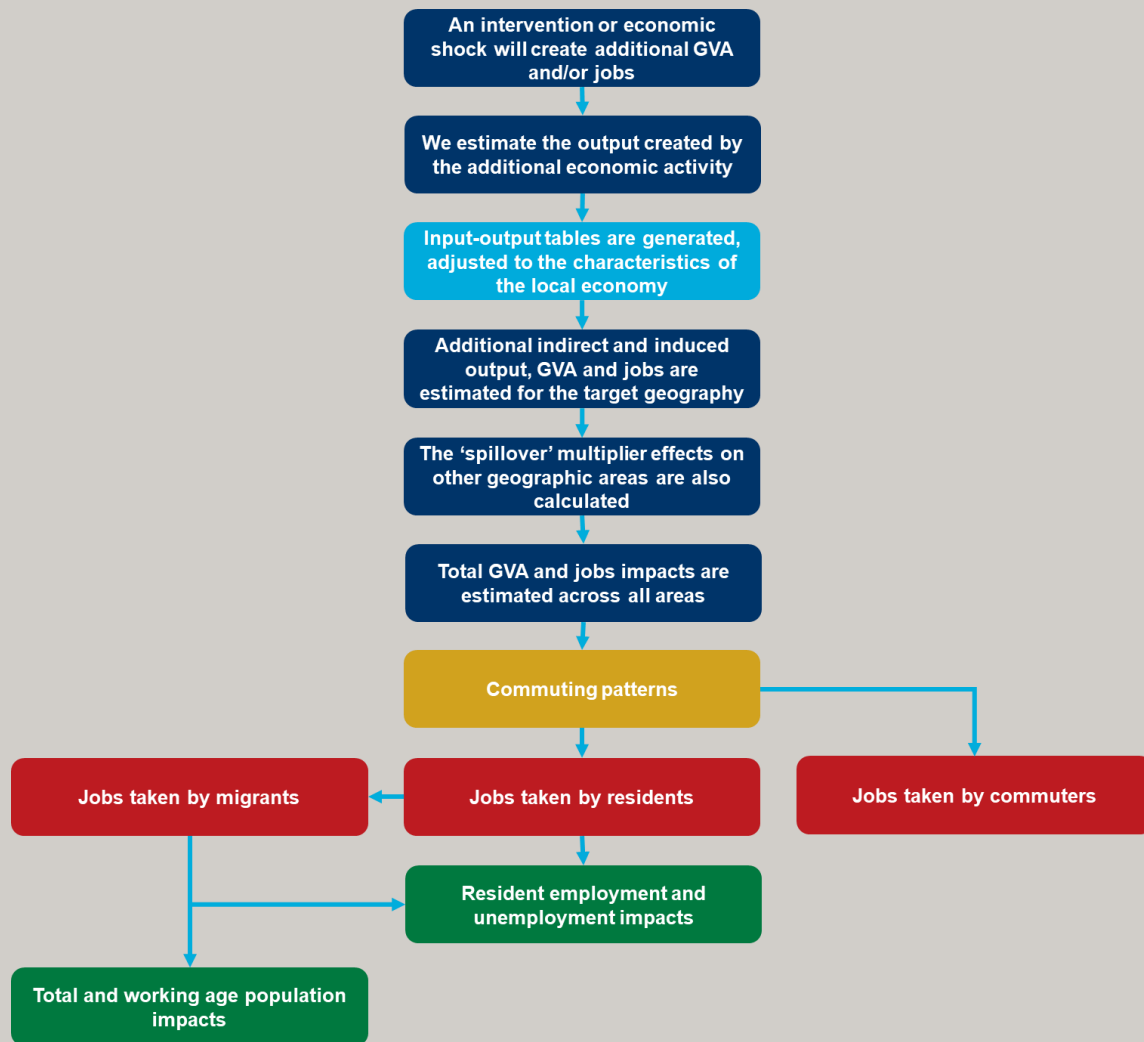
Once the number of jobs to be taken up by residents is established, the model considers the implications for **migration**: in a competitive labour market, not all jobs created in a local economy will be taken up by local residents, as new people will be attracted to the area to live and work. The more highly paid we expect these jobs to be, the more attractive they will be to migrants from other areas to move locally, and as such the model assumes that migration will form a larger share of resident employment.

The remaining resident-based employment must therefore be accommodated within the existing population: either those who would otherwise be **unemployed**, or by attracting otherwise **economically inactive** residents to the labour market. The proportion of employment taken up by the unemployed is partly reflective of the sectoral mix of job creation: given the potential for skills mismatches, a lesser proportion of unemployed workers are assumed to find employment where employment is weighted towards sectors that typically support a more highly-skilled workforce, and vice versa.

---

[53] The indirect fiscal benefit estimates are derived using tax and benefits statistics on household income, published by the ONS. According to the publication, approximately 10.7% of household income is spent on indirect taxes on final goods and services (Table 17). This rate is then applied to the total wage impact arising from the proposed development nationally.
https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/theeffectsoftaxesandbenefitsonhouseholdincome/financialyearending2020

**Fig. 34. An overview of the economic impact model flows**



Source: Oxford Economics

**OXFORD ECONOMICS' BASELINE FORECASTS**

Our analysis and modelling assumptions draw on our baseline forecast for the local (Havering), regional (London) and national economies.

Our baseline forecasts are drawn from Oxford Economics' Local Authority District Forecasting Model, which sits within Oxford Economics' suite of global and national macroeconomic and industry forecasting models.[54] This structure ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate impact on the forecasts at a local authority level. This empirical framework (or set of 'controls') is critical in ensuring that the forecasts are much more than just an extrapolation of historical trends. Rather, the trends in our global, national and sectoral forecasts have an impact on the local area forecasts. In the current economic climate this means most, if not all, local areas will face challenges in the short-term, irrespective of how they have performed over the past 15 years.

The Local Authority District Forecasting Model produces baseline forecasts, which can be compared with other published forecasts (though care should be taken over data definition issues), and as a guide to aid commentary or analysis of local authority economies. These forecasts can in one sense be considered to provide baseline 'policy-off' projections with which the actual outturn under policy initiatives could be compared. However, there are inherent difficulties in using the forecasts as a 'policy-off' baseline. In particular the base projections are 'unconstrained' in the sense that they make no allowance for constraints on development which may be greater than in the past.

Our local forecasting model depends essentially upon three factors:

- **National/regional outlooks**: all the forecasting models we operate are fully consistent with the broader global and national forecasts which are updated on a monthly basis.
- **Historical trends** in an area which implicitly factor in supply side factors impinging on demand), augmented where appropriate by local knowledge and understanding of patterns of economic development built up over decades of expertise, and
- **Fundamental economic relationships** which interlink the various elements of the outlook.

The main internal relationships between variables are summarised in Fig. 35. Each variable is related to others within the models. Key variables are also related to variables in the other Oxford Economics models.

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[54] The model should be viewed as one piece of evidence in making policy decisions and tracking economic and demographic change. It is not intended to be used on its own to set employment targets for local authority areas. Such targets will need to take account of local opportunities, constraints, and community aspirations. As with all models it is subject to margins of error which increase as the level of geographical detail becomes more granular and relies heavily upon published data. Models, though predominantly quantitative, also require a degree of local knowledge and past experience, or more generally forecasting art, to make plausible long-term projections. To this end the Oxford Economics model has been developed by a team of senior staff who have a long history in model building and forecasting at both local and regional levels.

**Fig. 35. Main relationships between variables in the LAD Forecasting Model**
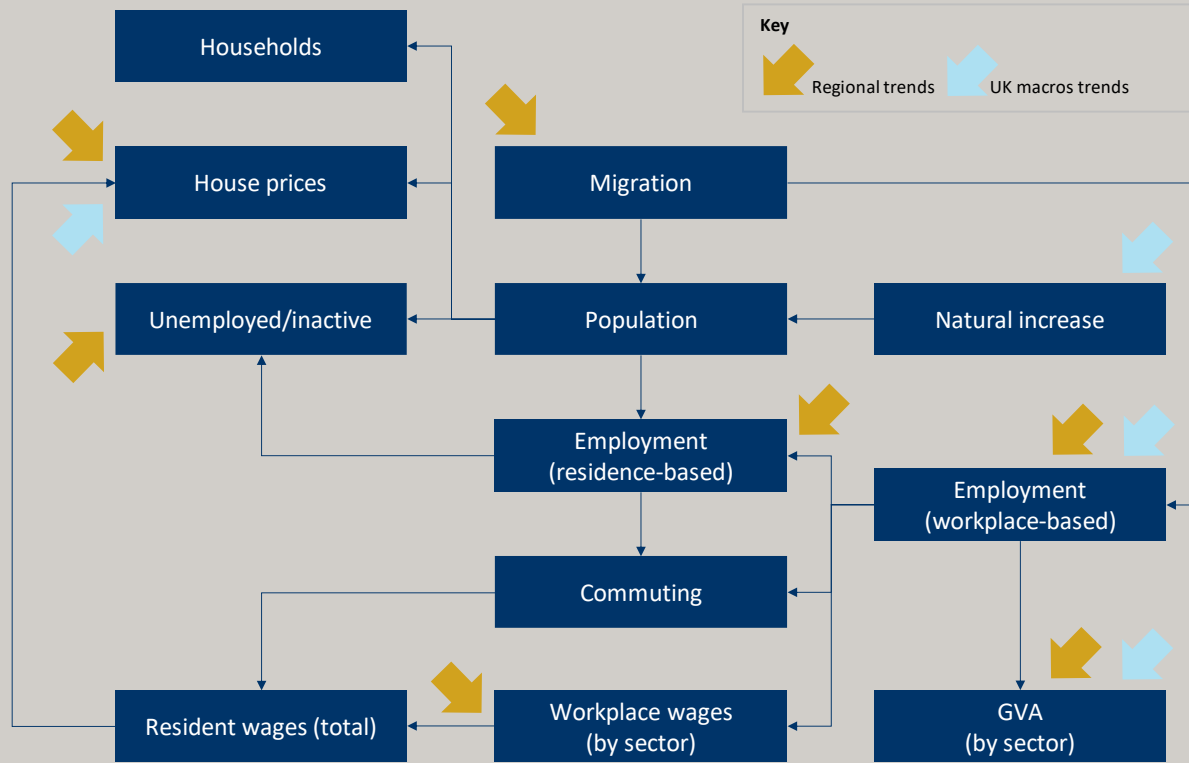


Source: Oxford Economics

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