



## Appendix A Detailed economic forecasts

SIC Division	Job forecasts (000s)		Change 2021-38
	2021	2038	
Accommodation & Food Services	11.3	14.2	2.9
Administrative & Supportive Services	16.5	19.8	3.3
Agriculture, Forestry & Fishing			
Air & Water Transport			
Chemicals (manufacture of)			
Civil Engineering	0.9	1.1	0.2
Computer & Electronic Products (manufacture of)			
Computing & Information Services	2.9	3.3	0.4
Construction of Buildings	6.1	7.5	1.4
Education	15.6	18.6	3.0
Extraction & Mining			
Finance	1.4	1.4	
Food, Drink & Tobacco (manufacture of)	2.8	2.7	-0.1
Fuel Refining			
Health	9.5	12.8	3.3
Insurance & Pensions			
Land Transport, Storage & Post	9.9	11.8	1.9
Machinery & Equipment (manufacture of)	0.7	0.4	-0.3
Media Activities	0.9	1.0	0.1
Metal Products (manufacture of)	0.3	0.2	-0.1
Non-Metallic Products (manufacture of)	0.2	0.1	-0.1
Other Manufacturing	0.8	0.9	0.1
Other Private Services	4.3	5.0	0.7
Pharmaceuticals (manufacture of)			
Printing and Recorded Media (manufacture of)	0.3	0.2	-0.1
Professional Services	6.2	7.4	1.2
Public Administration & Defence	8.0	8.7	0.7
Real Estate	3.3	4.0	0.7
Recreation	3.5	4.6	1.1
Residential Care & Social Work	5.2	6.4	1.2
Retail	19.7	22.2	2.5
Specialised Construction Activities	4.7	6.6	1.9
Telecoms			
Textiles & Clothing (manufacture of)	0.1	0.1	
Transport Equipment (manufacture of)			
Utilities	2.0	2.4	0.4
Wholesale	4.1	4.4	0.3
Wood & Paper (manufacture of)			
<b>TOTAL</b>	<b>141.2</b>	<b>167.8</b>	<b>26.6</b>

Source: Experian Economics, December 2021

## Appendix B Economic sector to B class land use method

- 1 Economic statistics and forecasts tell us nothing directly about employment space, because they do not classify jobs according to the type of space they occupy. Rather, the statistics split jobs into economic sectors (industries and services), according to the Standard Industrial Classification (SIC). To estimate how many jobs will be based in offices and industrial space, and how many in 'non-B' spaces such as retail premises, schools and hospitals, we need to translate sectors into land uses.
- 2 For this, we have used a method developed by the PBA team (formerly Roger Tym & Partners) over a series of employment land reviews, and tested in a large-scale study of the Yorkshire and Humber region in 2010<sup>77</sup>. To our knowledge there is no other published empirical research on the relationship between activity sectors and land uses.
- 3 The tables below show the sectors that are classified to industrial (subdivided into manufacturing and warehousing) and offices respectively. The names and numbers that identify each activity sector are from the UK Standard Classification of Economic Activities 2007 (SIC 2007)<sup>78</sup>. These tables aggregate the data from the finest grain 5 digit SIC level which is the base for the mapping. The reason we use the 5-digit level is that within each sector there may be activities that are industrial based and others that are office or manufacturing. Further on in this note we cite construction activity as an example of a sector containing different land use activities.

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<sup>77</sup> Roger Tym & Partners with King Sturge for Yorkshire Forward, Planning for Employment Land: Translating Jobs into Land, March 2010

<sup>78</sup> <http://www.businessballs.com/freespecialresources/SIC-2007-explanation.pdf>

**Table A6.1 Industrial sectors**

<b>Manufacturing</b>		
Manufacturing and repairs	10-33	All manufacturing
	95.00	Repair of computers and personal and household goods
<b>Other industrial</b>		
Construction	43.2	Electrical, plumbing and other construction installation activities
	43.3	Building completion and finishing
	43.9	Other specialised construction activities not elsewhere specified (nec)
Motor vehicle activities	45.2	Maintenance and repair of motor vehicles
	45.4	Sale, maintenance and repair of motor cycles and related parts and accessories
Sewage and refuse disposal	37	Sewage
	38	Waste collection, treatment and disposal activities
Employment activities (part)	78	
<b>Warehousing</b>		
Wholesale trade except of motor vehicles and motorcycles	46	
Freight transport by road	49.41	
Removal services	49.42	
Storage and warehousing	52.10	
Other supporting land transport activities	52.21	
Cargo handling	52.24	
Post and courier activities	53.00	
Packaging activities	82.92	
Employment activities (part)	78	

**Note**

SIC 78, Employment Activities, covers workers employed through agencies in all activity sectors. They should be redistributed across the whole economy, both to B-class sectors and other sectors, in proportion to each sector's share of total employment.

**Table A6.2 Office sectors**

<b>Office sectors</b>		
Publishing	58	Motion picture production activities
Motion picture, video and TV programme activities	59.11	Motion picture, video and TV programme production activities
	59.12	Motion picture, video and TV programme post-production activities
	59.13	Motion picture, video and TV programme distribution activities
	59.20	Sound recording and music publishing activities
Programming and broadcasting activities	60	
Computer programming, consultancy and related activities	62	
Information service activities	63	
Financial service activities except insurance and pension funding	64	
Insurance, reinsurance and pension funding except compulsory social security	65	
Activities auxiliary to financial services and insurance activities	66	
Real estate activities	68	
Legal and accounting activities	69	
Activities of head offices, management consultancy activities	70.	
Architectural and engineering activities, technical testing and analysis	71	
Scientific research and development	72	
Advertising and market research	73	
Other professional, scientific and technical activities	74	
Renting and leasing activities	77.40	Leasing of intellectual property and similar products
Employment activities (part)	78	
Security and investigation activities	80	
Office admin, office support and other business support activities	82	
Public administration and defence; compulsory social security	84.1	Administration of the State and the economic and social policy of the community
	84.3	Compulsory social security activities

**Note**

SIC 78, Employment Activities, covers workers employed through agencies in all activity sectors. They should be redistributed across the whole economy, both to B-class sectors and other sectors, in proportion to each sector's share of total employment

- 4 On a technical note, most economic forecasts show around 20-30 broad activity sectors, a much coarser-grained classification than the SIC sectors in the table above, and the 5 digit SIC level we use that is set out in the Annex below. For example, the table counts as a B-space activity only part of the Construction industry (SIC 43.2, 43.3 and 43.9), whereas forecasts typically show only Construction as a whole (SIC 43). To estimate future employment in sub-sectors such as SIC 43.2, we assume that the share of each sub-sector's employment in its 'parent' sector stays constant.
- 5 There are two further technical difficulties with the relationship of sectors to land uses. The first is that the line between production space (factories and workshops) and warehousing is blurred. This is not surprising, because manufacturing and warehousing largely occupy the same kinds of buildings, many units combine both functions in proportions that vary over time, and smaller buildings are allowed to shift between the two without planning permission.
- 6 In setting total land provision targets, therefore, factories, workshops and warehouses, should be merged into a single 'industrial' category. This should not cause any problems, because these uses operate in similar buildings and at similar employment densities, except for very large units including strategic warehousing. In areas where they form a significant part of the stock, these large units should be allowed for separately.
- 7 The other problem with the tables is that some of the jobs which the table allocates to industrial space are in fact in offices. These jobs are probably in administration, sales and marketing functions of industrial and related businesses. A construction or plumbing business, for example, will often have an office that deals with orders, appointments, record-keeping and the like. In some cases this will be ancillary to an industrial unit and therefore not count as office space, but in other cases it will be free-standing. If the business is small, the office may be its only premises.
- 8 In total, the Yorkshire and Humber survey found that around one tenth of the jobs which our method allocates to industrial space (factories, workshops and warehouses) are in fact in offices. For a large area such as the region, this is too small a proportion to distort land provision targets. But in some local authority areas, especially the more highly urbanised, it is likely that the distortion is significant. Employment land reviews should aim to correct these distortions, using local knowledge to adjust the relationships shown in the tables above.
- 9 There are many other, place-specific factors why the sector-to-land-use relationships in the tables above may be invalid. For example, in some places large business units are assigned to the wrong sector or the wrong side of the local authority boundary. In other places, particular sectors are untypical and do not occupy the kinds of space that one would normally expect. In one local authority area in England, for example, there are many jobs classified to Other Supporting Land Transport Activities, SIC 52.21, which normally would occupy warehousing in the local authority area. But in this case most of the SIC 52.21 jobs relate to railway maintenance and the people concerned work all over the country, mostly outdoors.
- 10 Where such anomalies arise, close inspection of the numbers, combined with local knowledge, should help correct the statistics and customise the sector-to-land-use assumptions.
- 11 However, it is inevitable that sector-to-land-use relationships are less reliable for small than larger areas. As the Yorkshire and Humber survey illustrated, the relationships shown in our tables work very well for whole regions. But they are not reliable for

individual buildings or employment areas, and may not be reliable at local authority level. This is one of the reasons why demand forecasts are more robust for regions that individual local authority areas.

- 12 The Yorkshire and Humber report provides further information and advice on sector- to-land-use relationships.

The schedule that follows drills down to the lowest level SIC (5-digit) categories, showing the type of space assigned to each activity. The schedule excludes categories that are not associated with the B Use Class

## Appendix C Newham: Land use proportions for job sectors

SIC Division	% BRES job estimate by type of space					
	SIC	Office	Mfr	Oth Indl	Whse	Other
Agriculture, Forestry & Fishing	A	0%	0%	0%	0%	100%
Extraction & Mining	B	0%	0%	0%	0%	0%
Food, Drink & Tobacco (manufacture of)	C	0%	100%	0%	0%	0%
Textiles & Clothing (manufacture of)	C	0%	100%	0%	0%	0%
Wood & Paper (manufacture of)	C	0%	100%	0%	0%	0%
Printing and Recorded Media (manufacture of)	C	0%	100%	0%	0%	0%
Fuel Refining	C	0%	0%	0%	0%	0%
Chemicals (manufacture of)	C	0%	100%	0%	0%	0%
Pharmaceuticals (manufacture of)	C	0%	0%	0%	0%	0%
Non-Metallic Products (manufacture of)	C	0%	100%	0%	0%	0%
Metal Products (manufacture of)	C	0%	100%	0%	0%	0%
Computer & Electronic Products (manufacture of)	C	0%	100%	0%	0%	0%
Machinery & Equipment (manufacture of)	C	0%	100%	0%	0%	0%
Transport Equipment (manufacture of)	C	0%	100%	0%	0%	0%
Other Manufacturing	C	0%	100%	0%	0%	0%
Utilities	D/E	0%	0%	64%	0%	37%
Construction of Buildings	F	0%	0%	0%	0%	100%
Civil Engineering	F	0%	0%	0%	0%	100%
Specialised Construction Activities	F	0%	0%	93%	0%	7%
Wholesale	G	0%	0%	14%	78%	9%
Retail	G	0%	0%	0%	0%	100%
Land Transport, Storage & Post	H	0%	0%	0%	38%	62%
Air & Water Transport	H	0%	0%	0%	0%	100%
Accommodation & Food Services	I	0%	0%	0%	0%	100%
Recreation	R	0%	0%	0%	0%	100%
Media Activities	J	65%	0%	0%	0%	35%
Telecoms	J	0%	0%	0%	0%	100%
Computing & Information Services	J	100%	0%	0%	0%	0%
Finance	K	100%	0%	0%	0%	0%
Insurance & Pensions	K	100%	0%	0%	0%	0%
Real Estate	L	100%	0%	0%	0%	0%
Professional services	M	97%	0%	0%	0%	3%
Administrative & Supportive Services	N	45%	0%	0%	0%	54%
Other Private Services	S	55%	0%	12%	0%	33%
Public Administration & Defence	O	87%	0%	0%	0%	13%
Education	P	0%	0%	0%	0%	100%
Health	Q	0%	0%	0%	0%	100%
Residential Care & Social Work	Q	0%	0%	0%	0%	100%
<b>TOTALS</b>		<b>25%</b>	<b>4%</b>	<b>4%</b>	<b>5%</b>	<b>63%</b>

Source: Business Register and Employment Survey (BRES), 2020 data



## Appendix D Newham: Economic sector to B class land use

SIC Division	SIC	% BRES job estimate by type of space					Jobs			Jobs change by type of space			
		Office	Mfr	Oth Indl	Whse	Other	2021	2038	Change	Office	Industrial	Whsing	Other
Agriculture, Forestry & Fishing	A	0%	0%	0%	0%	100%	0	0	0	0	0	0	0
Extraction & Mining	B	0%	0%	0%	0%	0%	0	0	0	0	0	0	0
Food, Drink & Tobacco (retail)	C	0%	100%	0%	0%	0%	2,800	2,700	-100	0	-100	0	0
Textiles & Clothing (manufacturing)	C	0%	100%	0%	0%	0%	100	100	0	0	0	0	0
Wood & Paper (manufacturing)	C	0%	100%	0%	0%	0%	0	0	0	0	0	0	0
Printing and Recorded Media	C	0%	100%	0%	0%	0%	300	200	-100	0	-100	0	0
Fuel Refining	C	0%	0%	0%	0%	0%	0	0	0	0	0	0	0
Chemicals (manufacturing)	C	0%	100%	0%	0%	0%	0	0	0	0	0	0	0
Pharmaceuticals (manufacturing)	C	0%	0%	0%	0%	0%	0	0	0	0	0	0	0
Non-Metallic Products (manufacturing)	C	0%	100%	0%	0%	0%	200	100	-100	0	-100	0	0
Metal Products (manufacturing)	C	0%	100%	0%	0%	0%	300	200	-100	0	-100	0	0
Computer & Electronic Products	C	0%	100%	0%	0%	0%	0	0	0	0	0	0	0
Machinery & Equipment (manufacturing)	C	0%	100%	0%	0%	0%	700	400	-300	0	-300	0	0
Transport Equipment (manufacturing)	C	0%	100%	0%	0%	0%	0	0	0	0	0	0	0
Other Manufacturing	C	0%	100%	0%	0%	0%	800	900	100	0	100	0	0
Utilities	D/E	0%	0%	64%	0%	37%	2,000	2,400	400	0	254	0	146
Construction of Buildings	F	0%	0%	0%	0%	100%	6,100	7,500	1,400	0	0	0	1,400
Civil Engineering	F	0%	0%	0%	0%	100%	900	1,100	200	0	0	0	200
Specialised Construction	F	0%	0%	93%	0%	7%	4,700	6,600	1,900	0	1,760	0	140
Wholesale	G	0%	0%	14%	78%	9%	4,100	4,400	300	0	41	233	27
Retail	G	0%	0%	0%	0%	100%	19,700	22,200	2,500	0	0	0	2,500
Land Transport, Storage & Information	H	0%	0%	0%	38%	62%	9,900	11,800	1,900	0	0	718	1,182
Air & Water Transport	H	0%	0%	0%	0%	100%	0	0	0	0	0	0	0
Accommodation & Food Services	I	0%	0%	0%	0%	100%	11,300	14,200	2,900	0	0	0	2,900
Recreation	R	0%	0%	0%	0%	100%	3,500	4,600	1,100	0	0	0	1,100
Media Activities	J	65%	0%	0%	0%	35%	900	1,000	100	65	0	0	35
Telecoms	J	0%	0%	0%	0%	100%	0	0	0	0	0	0	0
Computing & Information Services	J	100%	0%	0%	0%	0%	2,900	3,300	400	400	0	0	0
Finance	K	100%	0%	0%	0%	0%	1,400	1,400	0	0	0	0	0
Insurance & Pensions	K	100%	0%	0%	0%	0%	0	0	0	0	0	0	0
Real Estate	L	100%	0%	0%	0%	0%	3,300	4,000	700	700	0	0	0
Professional services	M	97%	0%	0%	0%	3%	6,200	7,400	1,200	1,166	0	0	34
Administrative & Support Activities	N	45%	0%	0%	0%	54%	16,500	19,800	3,300	1,487	21	14	1,779
Other Private Services	S	55%	0%	12%	0%	33%	4,300	5,000	700	382	86	0	232
Public Administration & Defence	O	87%	0%	0%	0%	13%	8,000	8,700	700	611	0	0	89
Education	P	0%	0%	0%	0%	100%	15,600	18,600	3,000	0	0	0	3,000
Health	Q	0%	0%	0%	0%	100%	9,500	12,800	3,300	0	0	0	3,300
Residential Care & Social Work	Q	0%	0%	0%	0%	100%	5,200	6,400	1,200	0	0	0	1,200
<b>TOTALS</b>		<b>25%</b>	<b>4%</b>	<b>4%</b>	<b>5%</b>	<b>63%</b>	<b>141,200</b>	<b>167,800</b>	<b>26,600</b>	<b>4,811</b>	<b>1,562</b>	<b>964</b>	<b>19,263</b>

Source: Experian Economics, December 2021 and BRES 2020 plus Stantec analysis

Note: Blue mainly industrial, green mainly logistics/distribution and pink mainly office based.