Employment Land and Floorspace
Aligned with the November 2016 OAN

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May 2017

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CONTENTS

TABLES

1   INTRODUCTION

1.1   In November 2016, PBA provided an updated Objectively Assessed Housing Needs Figure for the four client Councils.

1.2   In this note, we have been asked to calculate how much employment land and floor space is needed to accommodate the jobs needed to align with the OAN population.

Why is this needed?

1.3   This work is needed because most 'off the shelf' economic forecasts include assumptions about the size of the resident workforce. So, if the wrong population is assumed, then the number of jobs shown in an economic model may be incorrect.

1.4   In the economic models the size of the population has a *demand side* impact. A larger population consumes (demands) more local goods and services and creates a greater demand for some types of job.

1.5   A larger population may also have *a supply side* impact. This is because a larger resident workforce can un-constrain job creation. This may be the case where job creation has been constrained by a lack of labour.

1.6   In this note we first look at the total number of jobs shown in the two forecasts. The Experian scenario used here differs from their 'off the shelf' version because its population has been amended to reflect the OAN.

1.7   We do this at the national and regional level before considering the local level. We do this because, at the local level, forecasts can differ between sources. But this may simply because the forecasting houses take a different macro-economic view.

1.8   We then look at the implications of the two forecasts for the Employment Land Use Classes (office, industrial and warehousing), again comparing at the national, regional and local level seeking to identify the reasons for similarities and differences in the four districts.

1.9   As part of this work we do not make any allowance for market choice, churn or friction. Nor do we analyse the forecasts in detail. It is for the Councils' employment land evidence to look in detail at the forecasts.

The two models:

EEFM

For three of the districts the OAN is taken from the East of England Forecasting model (EEFM). The EEFM is jointly commissioned by the local authorities in the region. The model is:

"Designed to facilitate the setting of consistent housing and jobs targets, the EEFM provides a set of baseline forecasts prepared by a leading independent forecasting house (*Cambridge Econometrics*) for the East of England region"

Unfortunately for Tendring, we are unable to rely on the EEFM because Cambridge are unable to run a variant population scenario which aligns with the Councils OAN. This is because part of the EEFM model has not yet been updated to allow for this correction. It is unlikely this modelling work will be complete until mid-2017. So we can only use EEFM job data for three of our Councils.

Experian

As a default, in their 'off the shelf' product Experian use the SNPP 2014 as their population assumption

To inform this work Experian have provided a variant projection (scenario) which used the OAN for all four councils.

Despite the larger population in three of the Councils, the number of jobs is very similar compared to the Experian default baseline.

Experian explain that this is because the area is not constrained by a lack of labour. So providing a larger population does not result in many more additional jobs. Instead the higher population results in increased unemployment and decreases in economic activity.

2 THE NATIONAL AND REGIONAL VIEWS

2.1 As noted in the introduction one reason that different economic forecasts can disagree at the local level, is simply that different forecasting houses have different views about the national and regional economy.

2.2 This can be because the forecasting houses disagree about the demand for jobs in the economy, how unemployment or economic activity rates may differ.

2.3 At the national level Experian forecasts more new jobs than the EEFM over the period 2014-36. Job growth in Experian is, 4.65 million jobs compared to 3.26 million in the EEFM, a significant 43% difference between the forecasting houses national view.

2.4 Looking at the East of England the difference is smaller at around 500,000 net additional Experian jobs and 400,000 in the EEFM.

Jobs by Land Use

2.5 The table below shows the difference at the East of England level split by all jobs and those in the B classes. In both models B class growth is lower in absolute terms and also lower in percentage terms.

2.6 When arriving at the split between the Use Classes we have applied the method outlined in the East of England Forecasting Model Technical Report January 2015. This is slightly different to our preferred approach; the most obvious difference is that in PBAs employment land work we include some construction as an industrial use. But in the EEFM construction is classed outside the B uses.

Table 2.1 East of England Job Change 2014 - 2036

	EEFM				EXPERIAN			
	2014	2036	change to 2036	%	2014	2036	change to 2036	%
JOBS								
Office	828,394	1,006,455	178,061	21%	788,752	965,862	177,111	22%
Industrial	303,180	234,982	-68,198	-22%	300,809	268,295	-32,514	-11%
Warehouse	200,876	210,605	9,729	5%	209,983	241,039	31,056	15%
Total B class job	**1,332,449**	**1,452,042**	**119,593**	**9%**	**1,299,544**	**1,475,196**	**175,653**	**14%**
Non B Class Jobs	**1,636,839**	**1,907,250**	**270,411**	**17%**	**1,727,807**	**2,083,484**	**355,677**	**21%**
Total All Jobs	**2,969,288**	**3,359,292**	**390,004**	**13%**	**3,027,350**	**3,558,680**	**531,330**	**18%**

2.7 For the B class uses offices grow at a similar rate in both models. However, there are sharp differences for Industrial and Warehousing uses.

2.8 For Industrial uses, Experian is much more positive about the manufacturing sectors. In both models manufacturing declines but at a much slower rate in Experian compared to EEFM.

2.9 For warehousing Experian is more positive about transport related activities than the EEFM.

Floorspace and land

2.10   To convert the jobs into floorspace we apply employment densities (i.e. sq m per employee).

2.11   For this work we have adopted the same assumptions as used in the EEFM. The EEFM assumes that each office job requires 14 square metres, 36 square metres for industrial and 67 square metres for every warehouse job.

2.12   For Industrial and warehouses uses these assumptions broadly align with today's best practice. But for offices the 1:14 may now be slightly high and 1:12 or 1:10 maybe more up to date. However, to remain consistent with the EEFM, we don't change this assumption here.

Table 2.2 East of England Floorspace Change (2014 – 2036)

	EEFM				EXPERIAN			
	2014	2036	change to 2036		2014	2036	change to 2036	
FLOORSPACE (sq m)								
Office	11,597,511	14,090,365	2,492,854	21%	11,042,521	13,522,074	2,479,553	22%
Industrial	10,914,481	8,459,370	-2,455,111	-22%	10,829,124	9,658,624	-1,170,500	-11%
Warehouse	13,458,670	14,110,546	651,875	5%	14,068,861	16,149,586	2,080,725	15%
Total B class floorspace	**35,970,662**	**36,660,281**	**689,619**	**2%**	**35,940,506**	**39,330,283**	**3,389,777**	**9%**

2.13   The table shows that Experian need much more land for Industrial uses. Assuming a 40% plot ratio around 300 ha more land is needed for industrial uses in Experian compared to EEFM.

2.14   Experian also requires more warehousing floorspace and land so more land. At a 40% plot ratio Experian needs 520 ha and EEFM only 160 ha.

Summary

2.15   The analysis above has shown that in general, for all uses, Experian is more positive about national and regional job growth than EEFM. In both models non space sectors drive job growth. But Experian is also more positive at the regional level for industrial and warehousing growth.

2.16   Because industrial and warehouse uses generally operate at lower employment densities, and a 40% plot ratio, even a modest difference in the number of jobs has a large impact on the amount of land. Exactly how much land is needed depends on whether industrial land can be re-used for warehouses.

3 DISTRICT LEVEL

Introduction

3.1 Any economic forecast is more reliable the larger the area being considered. Local authority district data informing forecasts can be very unreliable. So it must always be treated with caution.

3.2 For this reason, before looking at the districts individually, we look at all the three comparable authorities combined. They all fall within one Housing Market Area and one Functional Economic Market Area. We cannot compare Tendring because of errors in the base demography.

Braintree, Chelmsford and Colchester

3.3 Looking at total job growth in the three comparable districts, Experian is more optimistic than the EEFM. But this is to be expected because Experian is also more optimistic at the national and regional level. In Experian total jobs grow by around 50,000 and EEFM 39,000; a 27% higher forecast compared to EEFM. This is a smaller degree of divergence compared to that seen at the regional level.

Table 3.1 Braintree, Chelmsford and Colchester Job Change (2014 –36)

	EEFM				EXPERIAN			
	2014	2036	change to 2036		2014	2036	change to 2036	
Office	62,463	79,065	16,603	27%	61,632	75,304	13,672	22%
Industrial	22,848	17,383	-5,466	-24%	22,448	20,429	-2,019	-9%
Warehouse	14,454	15,203	749	5%	15,039	17,523	2,484	17%
Total B class jobs	**99,765**	**111,651**	**11,886**	**12%**	**99,119**	**113,256**	**14,137**	**14%**
Non B Class Jobs	147,841	174,531	26,690	18%	153,767	188,319	34,552	22%
Total All Jobs	**247,606**	**286,182**	**38,576**	**16%**	**252,886**	**301,574**	**48,688**	**19%**

3.4 For the B space sectors, as with the region, the two forecasts broadly agree for office based growth. Although the EEFM has slightly higher growth this not significant given the size of the sectors.

3.5 For industrial, as with the Region the Experian outlook for manufacturing (slower decline) is more optimistic and Experian assumes faster job growth in warehousing sectors.

3.6 In terms of floorspace, because the job growth is similar for offices, the amount of floor space needed is also similar. But for Industrial Experian requires around 124,000 square metres of industrial floor space to remain in use (31 ha) which under the EEFM could be lost to other uses. Experian also needs an additional 29 ha of new warehousing land.

Table 3.2 B class floorspace – Braintree, C'ford & Colchester combined

| | EEFM | | | | EXPERIAN | | | |
	2014	2036	change to 2036		2014	2036	change to 2036	
Office	874,475	1,106,917	232,442	27%	862,848	1,054,251	191,403	22%
Industrial	822,544	625,772	-196,772	-24%	808,121	735,449	-72,672	-9%
Warehouse	968,431	1,018,622	50,191	5%	1,007,634	1,174,039	166,405	17%
Total B class floorspace	**2,665,450**	**2,751,311**	**85,861**	**3%**	**2,678,603**	**2,963,739**	**285,136**	**11%**

Source: Experian Jan 2017 and 2016 EEFM

Source for employment densities (to convert jobs to floorspace): Table 7.2, Oxford Economics East of England Forecasting Model, Technical Report: Model description and data sources, January 2016

Braintree, Chelmsford and Colchester & Tendring

3.7   As noted above we cannot compare the EEFM with Experian for Tendring. But for the Experian scenario the table below shows data for Tendring alone and then in combination with three other districts.

Table 3.3 B class jobs and floorspace – Experian data for Tendring

| | TENDRING | | | | THE FOUR DISTRICTS COMBINED | | | |
	2014	2036	change to 2036		2014	2036	change to 2036	
Office	6,174	7,521	1,347	22%	67,806	82,825	15,019	22%
Industrial	3,927	3,474	-454	-12%	26,375	23,903	-2,472	-9%
Warehouse	3,037	3,698	661	22%	18,076	21,221	3,144	17%
Total B class jobs	**13,138**	**14,692**	**1,554**	**12%**	**112,257**	**127,948**	**15,691**	**14%**
Non B Class Jobs	32,392	39,225	6,834	21%	186,158	227,544	41,385	22%
Total All Jobs	**45,529**	**53,918**	**8,388**	**18%**	**298,415**	**355,492**	**57,076**	**19%**

| | TENDRING | | | | THE FOUR DISTRICTS COMBINED | | | |
	2014	2036	change to 2036		2014	2036	change to 2036	
Office	86,436	105,298	18,862	22%	949,284	1,159,549	210,265	22%
Industrial	141,375	125,047	-16,328	-12%	949,495	860,495	-89,000	-9%
Warehouse	203,472	247,740	44,268	22%	1,211,106	1,421,779	210,674	17%
Total B class floorspace	**431,282**	**478,085**	**46,802**	**11%**	**3,109,885**	**3,441,824**	**331,939**	**11%**

Source: Experian Jan 2017

3.8   Experian's forecast shows a similar profile for Tendring as that for the Eastern region (see **Error! Reference source not found.** and **Error! Reference source not found.** above); office growth of 22%, exactly the same as the region albeit in Tendring's case from a relatively low base and 12% loss of industrial jobs/floorspace compared to the regional figure of 11%. However, Experian have a more positive

view on warehousing growth for Tendring compared to the region as a whole, with 22% growth forecast compared to 15% regionally.

3.9   Including Tendring with the three other districts as shown in Table 3.3, makes no difference to the percentage change, even though Tendring follows the regional trend of deeper loss of industrial jobs/floorspace, but has higher forecast growth in warehousing compared to the other three districts. This demonstrates how much smaller Tendring is than Chelmsford and Colchester in particular in terms of employment opportunities.

Data by district

3.10   The tables below compare the EEFM and Experian for the districts using the same approach as above.   We also show data for Tendring although we are not able to compare it with the EEFM. These tables include forecasts for 2033 in addition to base year and 2036.

3.11   It is not for this note to look in detail at how and why the job growth differs by district. That is detailed work for the local Employment Land Reviews. But we note that the districts each broadly show the same pattern of jobs/floor space change as the Eastern Region – with some exceptions which may warrant a more detailed look as part of local evidence.

3.12   For offices both forecasters predict that Colchester will achieve the strongest office (growing faster than the Eastern region). But there is some disagreement for Chelmsford. In the Experian Chelmsford follows the regional trend – but performs in much better applying the EEFM.

3.13   Also compared to the region Chelmsford and Colchester do better regarding industrial sectors under the Experian scenario. Applying Experian their job losses are much more modest at around half the rate of the Experian regional decline and very different to the EEFM forecast.

Table 3.4 B class workforce jobs and floorspace

BRAINTREE	EEFM					EXPERIAN				
	2014	2033	2036	change to 2036		2014	2033	2036	change to 2036	
JOBS										
Office	14,836	17,222	17,463	2,627	18%	13,185	15,408	15,734	2,549	19%
Industrial	8,953	6,965	6,608	-2,345	-26%	8,348	7,362	7,201	-1,147	-14%
Warehouse	4,196	4,489	4,507	311	7%	4,374	4,913	4,966	593	14%
Total B class jobs	**27,984**	**28,676**	**28,577**	**593**	**2%**	**25,907**	**27,684**	**27,901**	**1,994**	**8%**
Non B Class Jobs	33,403	39,843	40,418	7,015	21%	34,456	39,981	40,666	6,210	18%
Total All Jobs	**61,387**	**68,519**	**68,995**	**7,608**	**12%**	**60,363**	**67,665**	**68,568**	**8,204**	**14%**
FLOORSPACE (sq m)										
Office	207,703	241,105	244,478	36,775	18%	184,596	215,718	220,277	35,682	19%
Industrial	322,293	250,722	237,884	-84,409	-26%	300,540	265,042	259,236	-41,304	-14%
Warehouse	281,121	300,789	301,939	20,818	7%	293,031	329,184	332,744	39,712	14%
Total B class floorspace	**811,117**	**792,615**	**784,301**	**-26,816**	**-3%**	**778,167**	**809,945**	**812,257**	**34,090**	**4%**

CHELMSFORD	EEFM					EXPERIAN				
	2014	2033	2036	change to 2036		2014	2033	2036	change to 2036	
JOBS										
Office	26,378	77,007	33,517	7,139	27%	27,358	31,805	32,587	5,230	19%
Industrial	5,918	18,223	4,650	-1,268	-21%	6,185	5,848	5,814	-372	-6%
Warehouse	5,014	15,209	5,233	219	4%	5,202	6,002	6,119	917	18%
Total B class jobs	**37,310**	**110,439**	**43,400**	**6,090**	**16%**	**38,745**	**43,655**	**44,520**	**5,775**	**15%**
Non B Class Jobs	54,784	-4,426	64,296	9,512	17%	61,084	72,054	73,807	12,723	21%
Total All Jobs	**92,094**	**106,013**	**107,696**	**15,602**	**17%**	**99,830**	**115,709**	**118,327**	**18,497**	**19%**
FLOORSPACE (sq m)										
Office	369,296	1,078,097	469,240	99,944	27%	383,010	445,267	456,223	73,213	19%
Industrial	213,042	656,032	167,388	-45,654	-21%	222,676	210,543	209,296	-13,380	-6%
Warehouse	335,939	1,019,008	350,603	14,664	4%	348,543	402,142	409,973	61,429	18%
Total B class floorspace	**918,277**	**2,753,137**	**987,232**	**68,955**	**8%**	**954,230**	**1,057,951**	**1,075,492**	**121,263**	**13%**

COLCHESTER	EEFM					EXPERIAN				
	2014	2033	2036	change to 2036		2014	2033	2036	change to 2036	
JOBS										
Office	21,248	27,198	28,086	6,837	32%	21,089	26,210	26,982	5,893	28%
Industrial	7,978	6,411	6,125	-1,853	-23%	7,914	7,499	7,414	-500	-6%
Warehouse	5,244	5,475	5,464	220	4%	5,464	6,336	6,438	974	18%
Total B class jobs	**34,471**	**39,084**	**39,675**	**5,204**	**15%**	**34,466**	**40,045**	**40,834**	**6,368**	**18%**
Non B Class Jobs	59,654	68,715	69,817	10,163	17%	58,226	72,076	73,845	15,619	27%
Total All Jobs	**94,125**	**107,799**	**109,492**	**15,366**	**16%**	**92,693**	**112,121**	**114,679**	**21,987**	**24%**
FLOORSPACE (sq m)										
Office	297,476	380,773	393,199	95,723	32%	295,242	366,934	377,750	82,508	28%
Industrial	287,209	230,781	220,499	-66,709	-23%	284,904	269,960	266,916	-17,988	-6%
Warehouse	351,371	366,835	366,081	14,709	4%	366,059	424,520	431,323	65,263	18%
Total B class floorspace	**936,056**	**978,389**	**979,779**	**43,723**	**5%**	**946,205**	**1,061,413**	**1,075,989**	**129,784**	**14%**

TENDRING	EEFM					EXPERIAN				
	2014	2033	2036	change to 2036		2014	2033	2036	change to 2036	
JOBS										
Office	-	-	-	-		6,174	7,342	7,521	1,347	22%
Industrial	-	-	-	-		3,927	3,544	3,474	-454	-12%
Warehouse	-	-	-	-		3,037	3,623	3,698	661	22%
Total B class jobs	**-**	**-**	**-**	**-**		**13,138**	**14,509**	**14,692**	**1,554**	**12%**
Non B Class Jobs	-	-	-	-		32,392	38,458	39,225	6,834	21%
Total All Jobs	**-**	**-**	**-**	**-**		**45,529**	**52,967**	**53,918**	**8,388**	**18%**
FLOORSPACE (sq m)										
Office	-	-	-	-		86,436	102,784	105,298	18,862	22%
Industrial	-	-	-	-		141,375	127,570	125,047	-16,328	-12%
Warehouse	-	-	-	-		203,472	242,761	247,740	44,268	22%
Total B class floorspace	**-**	**-**	**-**	**-**		**431,282**	**473,115**	**478,085**	**46,802**	**11%**

Source: Experian Sept 2016 and 2016 EEFM

4 SUMMARY

4.1 In this note we have looked at two employment forecasts for the area.

4.2 The first is the East of England Forecasting Model (EEFM 2016). The second is an Experian scenario. The Experian scenario is based on their September 2016 model run but with an amended population assumption. The population has been amended so that it aligns with the population shown in the November 2016 SHMA.

4.3 For three of the districts we can compare the EEFM with Experian. But this is not possible for Tendring because the default EEFM has an incorrect population assumption. The EEFM consultant team are unable to run a variant projection, correcting for this error.

4.4 Using the method shown in the EEFM January 2015 Technical report we have translated the job forecasts into B space jobs and floor space.

4.5 The analysis shows that the forecasters do not always agree. In general Experian has more jobs and more floorspace.

4.6 But before reaching conclusions it is important to note that some of this disagreement is simply that the two forecasting houses have differing macro-economic outlooks. Experian is more optimistic about national and regional job growth than assumed in the EFFM.

4.7 For the Councils, detailed local work is needed before concluding which outlook is preferable. For the SHMA, and emerging housing targets, both models have the same population. So the main local choice concerns which of the two economic forecasting houses local and national outlook is preferable given local circumstances. For example, whether local evidence suggests that manufacturing will decline as sharply as the EEFM shows, or at a more modest rate as per Experian.

4.8 We would suggest the local Employment Land Evidence explore the merit of excluding construction from the classification of employment land. This is excluded in the EEFM, so construction jobs are not provided with any employment space. But in our Employment Land Reviews we include a share of construction employment as an industrial use. So the estimates above may under-estimate the true demand for industrial land.

4.9 We have also suggested that the use of 1:14 sq m for office uses may be too high; slightly exaggerating the need for office floorspace. 1:12 sq m (or 1:10) may better align with recent national evidence. Local Employment Land Reviews will need to form a locally evidence judgement.