Mid & East Antrim Borough Council

Assessing Employment Space Requirements across the council – 2017-2030

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Contents

Context

Mid & East Antrim Borough Council has set out a range of ambitious objectives as part of their Community Plan: Putting People First[1]. The key priorities, under a general aim to grow the economy,[2] are to promote sustainable jobs and tourism as well as ensuring Mid & East Antrim is a **"leading and competitive place to start and grow business"**.[3] These priorities have assumed added significance given the challenge posed by recent (and pending) significant industrial and commercial closures.

Of particular relevance to this research is the context provided by Council's emerging Local Development Plan (LDP). Under the Strategic Planning Policy Statement (SPPS)[4] a fundamental role for the LDP is to ensure that there is an ample supply of suitable land available to meet economic development needs within the Plan area. The core purpose of this paper is to consider the need for employment space within the Plan area over the Plan period to 2030.

To determine the employment space demands for Mid & East Antrim and how these might change over the period to 2030, the UUEPC have developed a modelling system which **converts Mid & East Antrim's** employment forecasts into employment space requirements using the employment densities published by the then Home and Communities Agency[5] (now Homes England) for 2015. This is referred to in more detail later in the paper.

The UUEPC has developed a Local Government Economic Forecast Model as part of the Local Government sponsorship agreement, to which the Mid & East Antrim **Borough Council contribute. The UUEPC produce 'bi-annual' economic forecasts** for each of the 11 Northern Ireland (NI) local councils. The model is developed in **a 't**op-**down' approach from a UK m**acroeconomic model – produced and maintained by the Cambridge Judge Business School – to the UUEPC NI model and down to the local government forecast model, a full description of the UUEPC suite of models can be seen in Appendix 1.

The Local Model incorporates three scenarios to reflect the various outcomes possible, they are;

- Baseline - the most likely outcome which **illustrates the UUEPC's best** estimates of future trends based on the current economic environment and historical trends;
- Upper - considered a highly aspirational outcome, which assumes that NI achieves convergence with UK rates of employment, supported by the successful impact of the Programme for Government[6] and individual C**ouncil's community plans**; and

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[1] Mid & East Antrim, Community Plan: Putting People First, April 2017; https://www.midandeastantrim.gov.uk/downloads/Putting_People_First_-_The_Mid_and_East_Antrim_Community_Plan.pdf

[2] Economic growth is the main priority in the Council's Corporate Plan 2015-19.

[3] Mid & East Antrim Community Plan – Putting People First, April 2017, https://www.midandeastantrim.gov.uk/downloads/Putting_People_First_-_The_Mid_and_East_Antrim_Community_Plan.pdf

[4] The SPPS, published by former DOE (now DfI) in September 2015 provides overarching regional planning policy for Northern Ireland and must be taken into account by Local Development Plans

[5] Home and Communities Agency, *Employment Densities Guide 3rd Edition* (Dec 2015).

[6] Programme for Government, https://www.northernireland.gov.uk/programme-government

- Lower - the worst-case scenario, this scenario assumes **a 'hard Brexit'**, where trade is severely impacted, and also a consumer slowdown (arising partly from **a 'hard Brexit'** and more from an increasing squeeze on household income**, given NI's over**-reliance on consumer expenditure[7]).

Caveats

This report provides some projections of future employment space demands based on the current Mid & East Antrim employment growth forecasts out to 2030 (to align with the period of the Local Development Plan). Users should be aware of some caveats when using the results including:

1. A thirteen year outlook presents a challenge for forecasting, for a number of reasons. Economic forecasting models tend to assume that many of the factors which impinge upon the eco**nomy can be taken as "givens".** However, over such a long time period Black Swan[8] events could occur, events with very large impacts but the probability for those events cannot be calculated. A forecasting period of more than a decade is long enough to make major structural shifts in either the economy[9] or the use of technology[10] more likely.

2. The results presented on employment space demand do not account for changing employment trends and potential knock on effects on employment densities over time. For example, an increased trend towards teleworking **and "hot-desking"**[11] could result in more fluid office designs, thereby triggering changes in employment densities over time. It was not feasible for this research to assess how such issues may ultimately impact on employment densities, so a general sensitivity analysis has been applied to make some allowance for this type of scenario on employment space demand (see later section of the Paper).

3. This paper has not considered the current supply of employment space in the Mid & East Antrim area and whether there is any mismatch. This analysis or audit of current provision in Mid & East Antrim is being undertaken separately by the Council, with work commissioned by the **Council's LDP team** currently being undertaken by CBRE.

4. This paper does not consider the floor space implications that may arise from future increased automation usage[12]. Changes of this nature within the manufacturing sector could be particularly relevant to Mid & East Antrim, given the prominent role of manufacturing in the local economy[13].

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[7] UUEPC, Consumption led growth in an era of squeezed incomes, 2017;
https://www.ulster.ac.uk/__data/assets/pdf_file/0014/215123/Scoping-report_Final-report.pdf
[8] The 2008 banking crisis has been regarded as a Black Swan event. Other possibilities include wars, revolutions and pandemics; see Nassim Nicholas Taleb, *Black Swan: The impact of the highly improbable* (2007).
[9] The UK's decision to leave the EU is an example of a major structural shift in the economy.
[10] The likely shift from petrol/diesel cars to electric cars is one example.
[11] Current research suggests that while working patterns are changing this has not (as yet) had the significant impact expected on workspace; see CIPD, *Working Lives UK* (April 2018).
[12] Research by UUEPC on potential impacts of automation on job functions, if not jobs, can be found at http://connect.catalyst-inc.org/assets/general/KE-Report-Final.pdf
[13] Research by McKinsey suggests that these changes may not have a significant impact on the size of floorspace needed – indeed densities might rise in some sectors; see McKinsey Global Institute, *Where machines could replace humans and where they can't (yet)* (July 2016).

Labour Market in Context

This section of the report outlines the current employment profile in the Mid & East Antrim area and a forecasted future profile using the UUEPC January 2018 Outlook baseline, upper and lower scenarios.

In 2017, 52,103 people were employed in the Mid & East Antrim Borough Council area, which represents 6% of the total workforce in NI. Since 2001 the Mid & East Antrim area has gained a total of 630 net new jobs, with a total of 8,738 jobs being created and 8,108 jobs lost. Many of the losses came between 2008 and 2010 as result of the financial crisis.

The recovery since 2012 has been a volatile one with a net addition of jobs and, at the same time, significant announcements of industrial/commercial redundancies and closures. Although there have been prospective losses of around 2,100 jobs announced since 2015, it should be noted that not all of these job losses have fully taken effect and are not reflected in the latest data releases.[14] For example, the closure of Michelin occurred in April 2018 and Kilroot Power Station is expected to close in the near future. Figure 1 below highlights this relatively volatile path of total employment for the Mid & East Antrim area since 2001.

Figure 1: Total Employment Level, Mid & East Antrim, 2001-2017
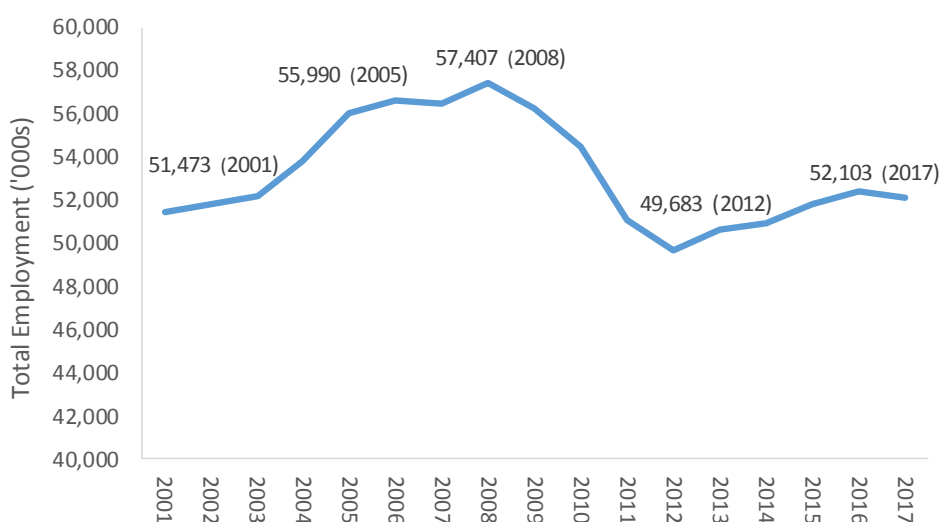
Source: UUEPC Local Model Winter 2018 Outlook

Using the UUEPC baseline scenario (the most likely outcome) Mid & **East Antrim's** future employment path is expected to follow a negative direction as far as 2022 before a slow recovery to 2017 levels by 2029. The initial downward trajectory is attributed to the medium-term legacy of factory closures coupled with potential adverse impacts arising from Brexit.

This negative direction until 2022 in total employment is anticipated across all three (upper, baseline and lower) scenarios for the Mid & East Antrim area. There is a range from 5,780 job losses in the lower scenario to 2,246 losses in the upper scenario. A significant part of this will be a result of the announced closures in JTI, Michelin and others. UUEPC analysis estimates that the 2,100 direct job losses

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[14] Note: Latest employee jobs figures by Local Government District relates to the 2015 BRES, while latest NI employment data refers to Q1 2018. A further BRES release (for 2017) is expected later in 2018.

from the planned plant closures could have an additional job loss effect of 917 jobs in companies supply chains as a result of significant falls in demand for products and services.[15]

A moderate recovery is anticipated after 2022, based upon the continued strength of manufacturing in NI and the specialisation in this sector in the Mid & East Antrim area.[16] In the baseline scenario there is a small increase of 768 jobs by 2030, resulting in a total employment level of 52,871 by 2030. In the aspirational upper scenario there is a modest positive employment change between 2017 and 2030 with an expected additional 4,120 net new jobs added, raising the total employment level in the Mid & East Antrim area to 56,223 by 2030. In the lower or "worst case" scenario, there is a negative employment change trend between 2017 and 2030 with 1,877 net job losses. Figure 2 illustrates the employment trend for all three scenarios from 2001 to 2030.

Figure 2: Total Employment Level by scenario, Mid & East Antrim, 2001-2030
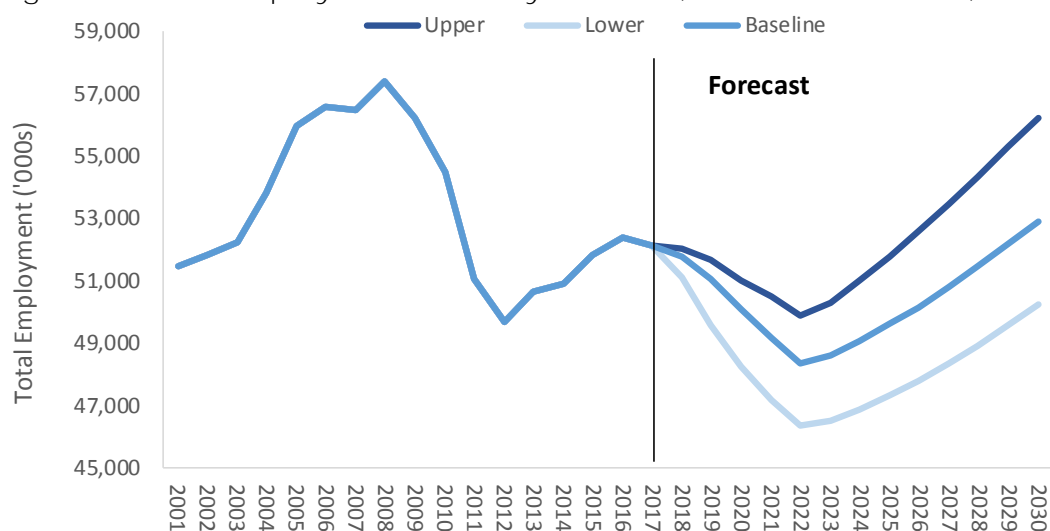
Source: UUEPC Local Model Winter 2018 Outlook

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[15] Using the NISRA produced Manufacturing GVA multiplier of 1.446

[16] Tughans and Manufacturing NI 2018 Survey, June 2018; https://www.tughans.com/latest-news/manufacturing-ni-and-tughans-ni-manufacturing-survey-2018/

Labour market: sectoral analysis

The sectoral mix within Mid & East Antrim is more heavily weighted and reliant on private sector economic activities (76% of total employment), compared to the NI average of 70%. The two largest employing sectors in the private sector are the Manufacturing and Retail sectors, with each currently employing 18% of total workers in the Mid & East Antrim area. Only 24% of the workforce are employed in the public sector compared to the NI average of 30%, with health and social work employing the highest proportion (11%) of workers in the public sector.

Figure 3: % of Total Employment by Private/Public sectors, Mid & East Antrim, 2017
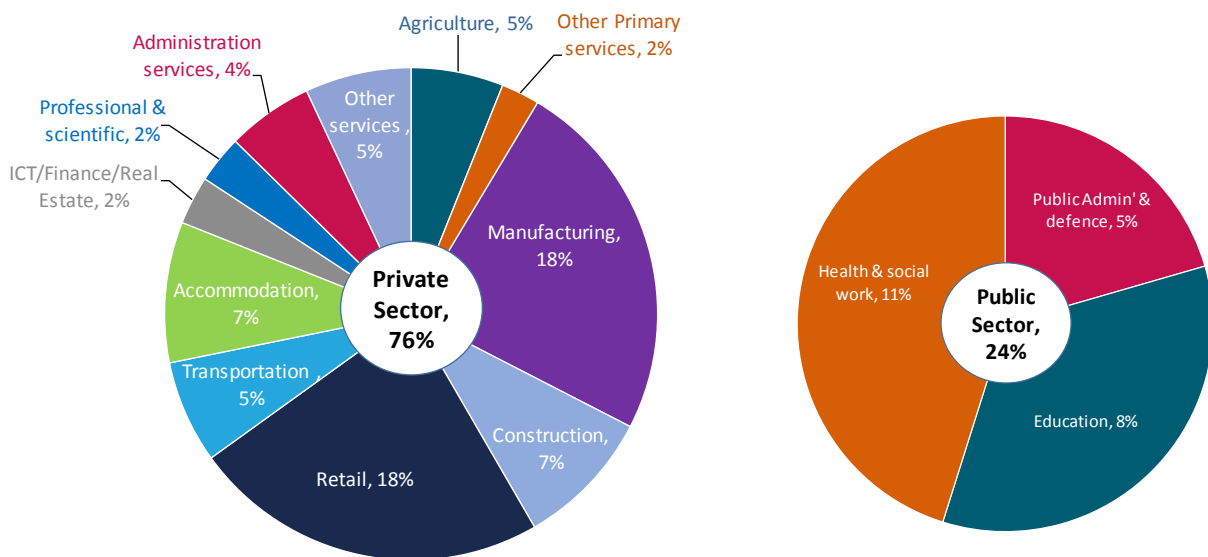
Source: Department for the Economy (DfE) & UUEPC Local Model Winter 2018 Outlook

Table 1 outlines the employment change by industry sector from 2001 to 2017. In the 2001-2007 period the Mid & East Antrim area gained 5,028 net new jobs with the Administration Services and Health and Social Work sectors creating 2,688 jobs. The financial crisis had a significant impact on the Mid & East Antrim council area with a net total of 7,722 jobs lost over a five year period (2007-2012). The Construction and the Administration Services sectors lost the majority (62%) of these jobs, with 1,613 and 3,178 job losses respectively. During the recovery period (2013-2017) 1,458 net new jobs were created in the Mid & East Antrim area, with 703 new jobs being created in the Construction industry as activity in this sector began to pick up again.

Table 1 shows sustained job losses in the Manufacturing sector, with 887 jobs being lost during the downturn period (2008-2012) and a further 459[17] lost during the recovery (2013-2017). This trend is set to continue beyond 2017 following the most recent industrial and commercial closures and those which are in the pipeline.

Table 1: Employment Change by sector, Mid & East Antrim, 2001-2017

	Employment Change		
	2001-2007 # of jobs	2008-2012 # of jobs	2013-2017 # of jobs[18]
Agriculture	-358	0	-402
Mining and quarrying	64	21	-20
Manufacturing	77	-887	-459
Utilities	-165	75	-139
Water supply & waste	79	-104	68
Construction	862	-1,613	703
Retail	897	-840	60
Transportation	-78	-593	525
Accommodation	-126	257	466
Information & Comm's	29	-12	-35
Financial activities	100	-155	-82
Real estate	205	-146	186
Professional & scientific	302	68	62
Administration services	1,695	-3,178	169
Public Admin' & defence	-86	-572	43
Education	39	159	24
Health & social work	993	-23	-230
Arts and entertainment	220	-30	105
Other services	279	-149	414
Total	**5,028**	**7,722**	**1,458**

Source: UUEPC Local Model Winter 2018 Outlook

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[17] Note that not all of the 2,100 job losses have yet occurred, as factory closures announcements since 2015 have yet to fully take effect, i.e. the Michelin factory closed in April 2018.
[18] The jobs number are workplace based and will combine both full-time and part-time jobs in line with the Business Register and Employment Survey (BRES) numbers.

Table 2 outlines the forecast sectoral employment change in the Mid & East Antrim area from 2017 to 2030 across the three UUEPC scenarios. In the baseline scenario, the UUEPC expect a small net gain of 768 jobs between 2017 and 2030, with 1,016 losses forecast in the Manufacturing sector. The baseline scenario does not take account of any potential efforts to turn the tide of job losses in the sector which may result from the work of the Council-led Manufacturing Task Force. The UUEPC also expects a further 277 job losses to occur in the Retail sector, partly due to structural change in the sector and partly because of the impact on disposable income losses through losses elsewhere.

Table 2: Anticipated Employment Change by sector, Mid & East Antrim, 2017-2030

	2017-2030		
	Baseline **# of jobs**	Upper **# of jobs**	Lower **# of jobs**
Agriculture	-82	27	-353
Mining and quarrying	4	4	4
Manufacturing	-1,016	-723	-1,976
Utilities	38	76	38
Water supply & waste	55	78	55
Construction	242	534	139
Retail	-277	-170	-379
Transportation	272	407	140
Accommodation	296	666	91
Information & Comm's	38	173	-6
Financial activities	13	208	-34
Real estate	30	66	-34
Professional & scientific	235	768	9
Administration services	341	501	68
Public Admin' & defence	-24	194	-26
Education	112	232	112
Health & social work	373	728	342
Arts and entertainment	40	171	-44
Other services	78	182	-23
Total	**768**	**4122**	**-1,877**

Source: UUEPC Local Model Winter 2018 Outlook

Table 2 also shows that, in the lower scenario, there is an anticipated net loss of 1,877 jobs for the 2017-2030 period in Mid & East Antrim. Under this scenario there are greater job losses in Manufacturing (-1,976), in part due to adverse impacts from Brexit, and there is a knock-on impact on Retail (-379).

In the upper scenario the UUEPC estimates that the Mid & East Antrim area will gain an additional 4,122 jobs by 2030. This is based upon less severe job losses in Manufacturing (-723), coupled with gains in other sectors, such as Professional & Scientific Services (+768).

Employment Space Demand

This section applies the anticipated change in the employment in Mid & East Antrim to the demand for workspace that it gives rise to. The approach taken by the UUEPC in converting employment by sector into sq metre requirements for employment space is the following:

- The UUEPC uses the Employment Density Guidance, published and updated by the Home and Communities Agency for England. The guidance includes an estimate of the average number of Square Metres per FTE employee for different business sectors and sub sectors (see Table 3 below).

- The UUEPC have estimated a mid-point density figure for each sub-sector under the use classes (eg: A1-Retail-High Street). In the original guidance different measures (GIA[19], GEA[20] and NIA[21]) were used as the 'First Measure' for the sub-sectors (shown in Table 3). To ensure consistency and for ease of comparison across all sub sectors, each measure has been converted into GIA. It was chosen due to having the conversion ability from both NIA and GEA.

- The conversion assumptions are taken from the Employment Density Guidance. To convert NIA to GIA, "15-20% acts as a suitable assumption for converting gross to net areas in non-industrial properties", while, for GEA to GIA, "the general benchmark is a reduction of 5%."

- The UUEPC calculated a matrix for class use by sector. The matrix is presented in Appendix 2. This matrix is used in order to convert employment data (by UK Standard Industrial Classification) into Use Class categories (as outlined below). For example, for those employees who work in the Manufacturing sector, 30% of those are classified as R&D space, 20% as Industrial & Manufacturing and 50% as Light Industrial.

- Finally, the projected employment by sector under each of the three UUEPC scenarios between 2017 and 2030 is applied to the use class by sector matrix to calculate a sq metre demand by year.

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[19] " This refers to the entire area inside the external walls of a building and includes corridors, lifts, plant rooms, service accommodation (e.g. toilets). It is a widely used metric used in calculating building costs, marketing, valuation, property management and rating (in England and Wales) of industrial buildings (including ancillary offices), warehouses and leisure units and also the valuation of new residential developments."

[20] "this measurement includes walls, plant rooms and outbuildings, but excludes external space such as balconies and terraces. It has a narrow field of use mostly limited to calculating building costs for large industrial and warehouse buildings, planning applications and approvals, council tax banding, and rating in Scotland for industrial buildings."

[21] "this is commonly referred to as the net lettable or 'usable' area of offices and retail units. It includes entrance halls, kitchens and cleaners' cupboards, but excludes corridors, internal walls, stairwells, lifts, WCs and other communal areas. It is a widely used metric and is the recognised method for marketing, valuation, property management and rating for offices, shops and supermarkets."

Table 3: Employment Densities, England 2015[22]

Use class	Sub category	Sub sector	Density (Sq. metres)	First Measure	Adjusted Mid-Point (Sq. metres)
A1	Retail	High street	15-20	NIA	20.6
		Foodstore	15-20	NIA	20.6
		Retail warehouse	90	NIA	105.8
A2	Finance and professional services		16	NIA	18.8
A3	Restaurant and Cafes		15-20	NIA	20.6
B1A	General offices	Corporate	13	NIA	15.3
		Prof Services	12	NIA	14.1
		Public sector	12	NIA	14.1
		TMT (Tech, media & Telecoms	11	NIA	12.9
		Finance and insurance	10	NIA	11.8
	Call centres		8		9.4
B1B	R&D Space		40-60	NIA	58.8
B1C	Light industrial		47	NIA	55.2
B2	Industrial and Manufacturing		36	GIA	36.0
B8	Storage and Distribution	National distribution centre	95	GEA	90.3
		Regional distribution centre	77	GEA	73.2
		Final mile distribution centre	70	GEA	66.5
B Mixed Classes	Small business Workspace	Incubator	30-60	B1a, B1b	52.9
		Maker spaces	15-40	B1c, B2, B8	27.6
		STUDIO	20-40	B1c, B8	28.9
		Co-working	10-15	B1a	14.7
		Managed workspace	12-47	B1a, b, c	34.7
B8 / SUI Generis	Data centres	Wholesale	200-950	NIA	675.6
		Wholesale dark site	440-1400	NIA	1081.0
		Co-location facility	180-540	NIA	423.0
C1	Hotels	Limited service/budget	1 per 5 beds	GIA	50.0
		Mid-scale	1 per 5 beds	GIA	50.0
		Upscale	1 per 5 beds	GIA	50.0
		Luxury	1 per 5 beds	GIA	50.0
D2	Fitness centres	Budget	100	GIA	100.0
		Mid-market	65	GIA	65.0
		Family	65	GIA	65.0
	Cinema		200	GIA	200.0
	Visitor and cultural attractions		30-300	GIA	165.0
	Amusement and entertainment centres		70	GIA	70.0

Source: Home and Communities Agency, *Employment Densities Guide 3rd Edition* (Dec 2015).
Note: The adjusted Mid-Point represents the sq. metres employment density in GIA terms

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[22] The English Use Classes are slightly different to those in Northern Ireland (as per the 2015 Statutory Order); for the different schedule see http://www.legislation.gov.uk/nisr/2015/40/pdfs/nisr_20150040_en.pdf

Table 4 outlines the projected employment space demand to 2030 for the various economic sectors under the alternative UUEPC scenarios. In the baseline scenario total demand for employment space is expected to fall by 47,246 sq. metres. In regard to the Manufacturing classes (taken as R&D, Light Industrial, and Industrial & Manufacturing), the demand for employment space is anticipated to fall by 74,976 sq. metres in total under the Baseline scenario (25,111 sq. metres under the Upper and 203,863 under the Lower).

The demand for retail floorspace in Mid and East Antrim is expected to fall under all three scenarios, perhaps reflecting ongoing restructuring in this sector and the continuing adverse impact upon spending as a result of recent factory closures. In the upper scenario, **Mid & East Antrim's** employment space demand is expected to increase by 107,933 sq. metres, despite the significant decline in demand within the Manufacturing and Retail classes. In the lower scenario, there is expected to be a significant overall reduction of more than 298,116 sq. metres by 2030.

On the positive side, the demand for additional floorspace in the General Offices and Hotels categories are expected to increase under all three scenarios. This is in line with the additional jobs anticipated to be added in the tourism-related and services sectors over the next decade. Demand for additional Small Business Workspace is also expected to rise, in part because of the growing rise of self-employment, and in part to accommodate new start-ups and smaller inward investment propositions within the Council area.

Table 4: Anticipated Employment Space Demand for Employment Space, Mid & East Antrim, 2017-2030

		2017-2030		
		Baseline (sq. metres)	**Upper (sq. metres)**	**Lower (sq. metres)**
A1	Retail	-5,661	-3,488	-7,764
A2	Finance & Professional Services	-41	3,673	-1,354
A3	Restaurants & Cafes	-1,261	-216	-2,111
B1A	General Offices	19,531	46,282	7,331
B1B	R&D Space	-14,953	-8,000	-31,042
B1C	Light Industrial	-49,367	-9,532	-152,102
B2	Industrial & Manufacturing	-10,656	-7,579	-20,719
B8	Storage & Distribution	-7,448	31,411	-92,159
B Mixed Class	Small Business Workspace	5,871	16,316	-1,668
C1	Hotels	14,778	33,285	4,557
D2	Fitness Centres/Leisure/Cultural	1,962	5,779	-1,084
	Total	**-47,246**	**107,933**	**-298,116**

Source: Home and Communities Agency & UUEPC Local Model Winter 2018 Outlook

Sensitivity Analysis

In considering the outputs from Table 4, it should be noted that not all future demand for employment space will require new land or buildings, as many businesses are likely to expand within their current footprint. In addition, it is likely that some vacant property will also be absorbed, if deemed fit for purpose. As previously indicated, it is beyond the scope of this study to perform an audit of current employment space supply and the extent to which any potential employment growth in the Mid & East Antrim could be absorbed by current provision. Rather, the sensitivity analysis has been applied to the results from the previous section based on the working assumptions that 10% or 20% of employment growth is absorbed by current provision. These assumptions can be revised once data and more knowledge on the impact of relevant variables such as changing working practices and automation within manufacturing on employment space demand becomes available.

Table 5 outlines the anticipated employment space demand under the baseline, upper and lower scenario's once the sensitivity analysis has been applied. In summary:

- Under the Baseline Scenario the employment space demand ranges from minus 37,796 sq. metres with the assumption that 20% of the demand is met from current provision, to minus 47,246 sq. metres when no sensitivity assumptions are applied.

- Under the Lower Scenario the employment space demand ranges from minus 238,492 sq. metres to minus 298,116 sq. metres.

- Under the Upper Scenario the employment space demand ranges from plus 86,346 sq. metres to plus 107,933 sq. metres.

Table 5: Anticipated Land Demand for Employment Space by Sensitivity Analysis, Mid & East Antrim, 2017-2030

		No Sensitivity			Capacity of 10%			Capacity of 20%		
		Baseline (sq. metres)	Upper (sq. metres)	Lower (sq. metres)	Baseline (sq. metres)	Upper (sq. metres)	Lower (sq. metres)	Baseline (sq. metres)	Upper (sq. metres)	Lower (sq. metres)
A1	Retail	-5,661	-3,488	-7,764	-5,095	-3,139	-6,988	-4,529	-2,790	-6,212
A2	Finance & Professional Services	-41	3,673	-1,354	-37	3,306	-1,219	-33	2,939	-1,083
A3	Restaurants & Cafes	-1,261	-216	-2,111	-1,135	-195	-1,900	-1,009	-173	-1,689
B1A	General Offices	19,531	46,282	7,331	17,578	41,654	6,598	15,625	37,026	5,865
B1B	R&D Space	-14,953	-8,000	-31,042	-13,458	-7,200	-27,937	-11,962	-6,400	-24,833
B1C	Light Industrial	-49,367	-9,532	-152,102	-44,431	-8,578	-136,892	-39,494	-7,625	-121,682
B2	Industrial & Manufacturing	-10,656	-7,579	-20,719	-9,590	-6,821	-18,647	-8,525	-6,063	-16,576
B8	Storage & Distribution	-7,448	31,411	-92,159	-6,704	28,270	-82,943	-5,959	25,129	-73,727
B Mixed Class	Small Business Workspace	5,871	16,316	-1,668	5,284	14,685	-1,501	4,697	13,053	-1,335
C1	Hotels	14,778	33,285	4,557	13,300	29,957	4,101	11,822	26,628	3,646
D2	Fitness Centres/Leisure/Cultural	1,962	5,779	-1,084	1,766	5,201	-975	1,570	4,623	-867
	Total	-47,246	107,933	-298,116	-42,521	97,140	-268,304	-37,796	86,346	-238,492

Source: Home and Communities Agency & UUEPC Local Model Winter 2018 Outlook

Conclusion

The Spring 2018 Outlook employment forecasts for Mid & East Antrim suggest that the Council area may gain between an additional 768 and 4,122 jobs by 2030 taking account of both the Baseline and Upper scenarios, respectively. However, the Lower scenario suggests that there is potential for a loss of some 1,877 jobs by 2030.

When these employment forecasts are converted into estimated demand for employment space the UUEPC anticipate that a maximum of 107,933 sq metres of additional employment space could be required by 2030. However, this is under the aspirational Upper scenario with an assumption that there is no existing spare capacity within the current supply.

The Baseline scenario is considered to be the most likely outcome. Under this scenario there is expected to be a decline in the need for employment space by 2030, ranging between minus 37,796 and minus 47,246 sq metres.

The anticipated outworking of these changes between the various economic sectors is illustrated in Figure 4. This shows that the most positive outlook in regard to the need for additional employment space is for the categories of General Offices and Hotels, as the shift towards services employment continues and a growth appears in tourist visitors numbers (from a low base in the Council area). The General Offices use class is a broad one and, given the employment creation projections, the demand is most likely to be felt in the Professional Services and the Technical, Media and Telecoms (TMT) sub-sector.

There is also a moderately positive outlook for demand for additional Small Business Workspace, which may be incubators and co-working spaces.

Figure 4: Total Anticipated Employment Space Demand Change, Mid & East Antrim, 2017-2030
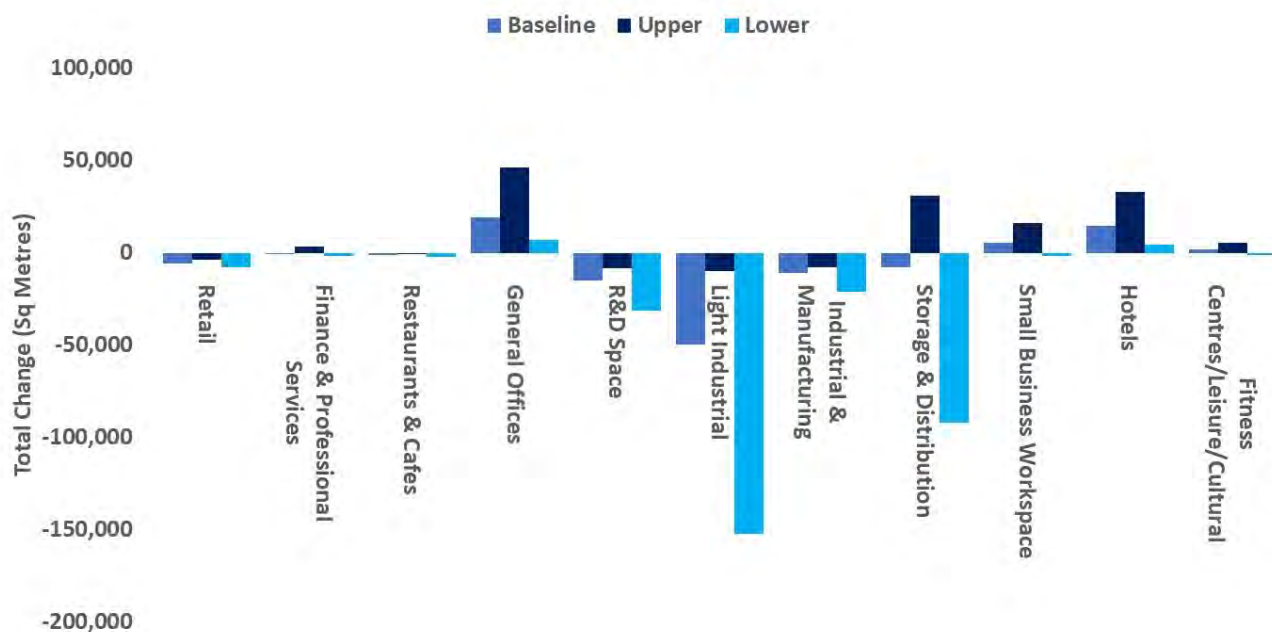
Source: UUEPC Local Model Winter 2018 Outlook

Conversely, given the outlook for the Manufacturing sector, the categories of Industrial & Manufacturing, Light Industrial and Research & Development are all anticipated to need less employment space. While there are plans to support the shift towards Advanced Manufacturing within the Council area, this is unlikely to create additional demand for employment space for the Industrial & Manufacturing use class and the impact is more likely to be felt in the Light Industrial and R&D Space use classes.

Appendix 1: The Cambridge Business School, UUEPC UK forecast model

The Cambridge Business School UK forecast model (UKMOD) is an econometric (or structural) model. It describes how sets of exogenous variables (i.e. determined outside the model, such as world trade or the oil price), policy instruments and economic shocks, determine a set of endogenous variables (e.g. GDP or price inflation).

The model is Keynesian in that it is largely concerned with determining demand. The structure of the model is conventional within the Keynesian tradition with aggregate demand determined as the sum of household consumption, investment, government consumption, exports and imports. Supply side variables such as capital stock and labour supply are determined endogenously (or semi-endogenously in the case of labour).

It is thus substantially different from the **Government's OBR model, and similar models, which are based on forecasting the trend in the UK economy's potential output and the economy's path back to that trend** from any given starting point.

The model is based on relationships and interrelationships econometrically estimated on past annual data. The model consists of 250 variables with data from 1950 to the present, 80 econometric equations and 145 identities. It is based on the post-Keynesian approach of Wynne Godley[23] described as follows:
- 4 sector approach: households, companies, government and foreign;
- Stock-flow consistent with tendency for ratios of assets to incomes not to diverge too far from long-term averages;
- Consumer spending depends on borrowing as well as income, assets and liabilities;
- Mark-up pricing (i.e. consumer prices rise with wage and other costs of production); and
- Wages determined as attempts to gain a traditional share of value-added but constrained by changes in the employment rate.

The forecasts generated by the model are conditional on a number of exogenous variables chiefly reflecting government fiscal policy and economic conditions outside the UK. The key exogenous variables include world trade (weighted by UK markets), government fiscal policy plans (tax rates and nominal spending plans), the short-term interest rate (used as a policy variable to target consumer price inflation), interest rates in the USA, and the global price of oil and other raw materials.

Of particular relevance to future employment space requirements is how the forecast model addresses the labour market and sectoral employment. Unlike the OBR (which uses assumptions) UKMOD uses an econometric equation to forecast the number of people employed in the market sector. The equation has a long-term relationship between employment in the market sector and GDP, the capital-labour ratio, real average wages in the market sector, the level of house building and interest rates. There is also a term for the real value of company shares. This equation has some unconventional features, including a strong long-term

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[23] **Wynne** Godley and Marc Lavoie, *Monetary Economics* (Houndmills, 2007).

influence from interest rates. Market sector employment has a substantial impact on the overall macro-economic forecast and is sensitive to precise specification. The equation includes terms for labour demand (GDP) and supply (real wage).

Other long-term influences in the equation are the capital-labour ratio and the interest rate. The capital-labour ratio has a negative coefficient indicating that, when capital replaces labour, employment will be lower for any given level of GDP. The inclusion of an interest rate term reflects the repayment cost of existing debt. When this is high, post-interest profits are reduced and pressure to cut costs, including labour, is increased. This is an important factor in the unexpectedly high level of job creation during the period of unprecedentedly low interest rates since 2008.

The LFS measure of the number of people unemployed and available for work is also forecast using an equation. In this equation the long-term influences on the number of unemployed people are GDP, the number of people employed, the size of the working-age population and the number of people aged over 64 in employment. The latter are likely to displace more people of working age into unemployment for any given level of jobs. The number of new firms formed each year also appears to have a direct impact on unemployment, over and above its impact on jobs. The number of over-64s in employment is forecast as a trend. This is predicted to increase from around 1 million to 2 million over ten years. International migration of working-age people into the UK has short-term influences on unemployment through its impact on the working-age population. In the long term the rise in unemployment is offset by higher employment induced via lower wages caused by the higher migration.

A detailed exposition of the UK Forecast Model can be found online.[24]

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[24] http://www.cbr.cam.ac.uk/fileadmin/user_upload/centre-for-business-research/downloads/working-papers/wp472.pdf

Appendix 2: Use Class by Sector

Class				Agriculture	Mining and quarrying	Manufacturing	Utilities	Water supply & waste	Construction	Retail	Transportation	Accommodation	Information & Comm's	Financial activities	Real estate	Professional & scientific	Administration services	Public Admin' &	Education	Health & social work	Arts and entertainment	Other services	Total
	A1	Retail	High Street	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**45%**
	A1		Foodstore	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**18%**
	A1		Retail Warehouse	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**9%**
	A2		Finance and professional services	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	70%	0%	8%	0%	0%	0%	0%	0%	0%	**87%**
	A3		Restaurants & Cafes	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	**25%**
	B1A	General Offices	Corporate	0%	0%	0%	0%	0%	0%	0%	14%	0%	7%	0%	30%	0%	16%	0%	30%	30%	14%	15%	**157%**
	B1A		Prof services	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	70%	38%	16%	0%	0%	0%	0%	0%	**158%**
	B1A		Public sector	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	8%	100%	70%	70%	0%	0%	**263%**
	B1A		TMT (Tech, media & telecoms)	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	8%	0%	0%	0%	0%	0%	**28%**
	B1A		Finance and insurance	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	30%	0%	0%	32%	0%	0%	0%	0%	0%	**69%**
	B1A		Call centres	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	B1B		R&D Space	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	**45%**
	B1C		Light Industrial	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	**108%**
	B2		Industrial and manufacturing	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**20%**
	B8	Storage and distribution	National distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
	B8		Regional distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
Class	B8		Final mile distribution centre	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**29%**
	B Mixed Class	Small Business Workspace	Incubator	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	8%	4%	0%	0%	0%	7%	8%	**33%**
	B Mixed Class		Maker spaces	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	8%	4%	0%	0%	0%	7%	8%	**33%**
	B Mixed Class		Studio	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	14%	15%	**40%**
	B Mixed Class		Co-working	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	14%	15%	**40%**
	B Mixed Class		Managed workspace	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	4%	0%	0%	0%	7%	8%	**26%**
	B8	Data centres	Wholesale	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	B8		Wholesale dark site	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**50%**
	B8		Co-location facility	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	C1	Hotels	Limited service/budget	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Mid-scale	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Upscale	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	C1		Luxury	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**25%**
	D2	Fitness centres	Budget	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	D2		Mid Market	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
	D2		Family	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Cinema	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Visitor and cultural attractions	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
	D2		Amusement and entertainment centres	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	8%	**15%**
			Total	**100%**	**0%**	**100%**	**0%**	**0%**	**0%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	