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Grimsby Institute: Labour & Skills Study

Final Report Version 2

European Union
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Investing in jobs and skills

GRIMSBY INSTITUTE GROUP

Client: Grimsby Institute
Author: Sandra Lilley, Doug Forbes and Kirsty Woolsey
Approved by: CITB
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CITB
Bircham Newton
Kings Lynn
Norfolk
PE31 6RH
t: +44 (0)344 994 4400
www.citb.co.uk

CITB is registered in England and Wales Charity No 264289 and in Scotland Charity No SC044875

Whole Life Consultants Limited
Dundee University Incubator
James Lindsay Place
Dundee
DD1 5JJ
t/f: +44 (0)1382 224 304
enquiries@wlcuk.com

Whole Life Consultants Ltd is registered in Scotland as SC259987, VAT number 852809506
Registered office c/o 14 City Quay, Dundee DD1 3JA

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1. Aims and objectives

As a business led partnership the York, North Yorkshire and East Riding Local Enterprise Partnership (LEP) recognises the importance of a skilled, flexible and effective workforce. Robust informative labour market intelligence is critical to understanding the challenges of balancing supply and demand and identifying construction employment and training opportunities for the existing workforce and for potential new entrants.

The first step in developing this analysis is to undertake research into the labour market in the LEP area (and beyond). This will provide an evidence base which will allow the LEP to ensure that the appropriate interventions are put in place to meet the requirements of the industry and the opportunities for employment – primarily over the next three years.

The construction industry is changing as we exit a prolonged period of recession and face technical challenges and innovation; however as well as absorbing the impact of change and rising to new challenges it is critical that the industry has the right skills in place to deliver the construction sectors requirement now; particularly given a wealth of anecdotal evidence recently on skills shortages.

This includes ensuring people can be upskilled and reskilled in an effective and responsive manner to meet the immediate labour needs of the sector. Before those short to medium term training interventions can be put into place it is essential to understand what the demand for skills looks like, particularly in relation to key housing, commercial and infrastructure projects that are coming on-stream in the LEP area.

We will therefore seek to assess the likely skills demands in the coming years in the LEP area to produce a labour market assessment for the construction industry. This assessment will take into account the current provision of skills and qualifications through detailed local and national analysis, together with proposals for new or revised curricula to address future needs. Ultimately this assessment will allow the LEP to deliver their strategic priority of helping people to find and retain employment by increasing mobility between sectors and providing skills that will allow them to deliver the future needs of the construction industry.

2. Background

This research report was commissioned by the Grimsby Institute to evaluate the construction skills requirement relevant to the York, North Yorkshire and East Riding Local Enterprise Partnership (LEP) area. This commission is a direct and detailed response to the need to understand the labour market conditions relating to the construction sector within the local area and specifically the skills required to meet the demands of the industry over the next 3 to 5 years.

The construction industry is a challenging and often fragmented sector; dominated by large numbers of Small to Medium Enterprises (SMEs) and micro companies (1 to 5 employees) that suffered significantly during the recession and as a consequence have experienced a number of skills related challenges that need to be unpacked, high-lighted and addressed.

There is significant opportunity emerging across the construction sector in the LEP area which will feed into job creation and subsequent economic growth. As a business led partnership the LEP need to ensure that this pipeline of demand is visible to the industry and in addition that the right supply of labour is in place to meet demand which includes the right numbers, skills, competency and behaviours within the labour force.

This study will explore in detail the demand requirement for the LEP area throughout the next 5 years at occupational level, drawing on technological change where appropriate. It will also examine the demand for labour of key construction projects that sit outside the immediate LEP area but may still have the ability to draw on the supply of labour in this specific area, thus competing for skilled workers.

Significantly this study will also conduct a detailed assessment of the supply of labour, including the existing workforce, new entrants and the impact of regional mobility. Critically it will assess the educational offer as a key output will be to determine what skills are required in what occupations and when. An exploration of the potential gap between demand and supply will assess where the most effective training interventions need to take place in the short and medium to long term and vitally enable the development of a flexible curriculum offer by education providers that will be evidence based and demand led.

3. Methodology

The research commission issued by the Grimsby Institute contained a detailed scope which acts as an excellent guide to the approach and methodology utilised in producing this study. The methodology covers a range of research approaches and significantly does not rely on a singular method, therefore enhancing the ability to produce a richer evidence base through a range of approaches that are both quantitative and qualitative.

CITB offers a bespoke research service that builds on the detailed Labour Market Intelligence it produces utilising its unique forecasting models such as the Construction Skills Network (CSN) and the award winning Labour Forecasting Tool (LFT). The team works in close partnership with WLC Ltd (a spin out company from the University of Dundee) who specialise in labour productivity, planning and control, and building labour forecasting models.

This commission has also been supported by the CITB research team who specialise in labour market analysis relating to the supply of labour and identifying skills 'pinch-points'. To date our work has been significantly tested and extends to a portfolio of bespoke research skills commissions at project, programme and regional level to create a compelling evidence base to support decision making.

The research study has therefore been conducted across a range of methods to create an evidence base that is robust and relevant. This includes:

- A detailed literature review of construction industry and built environment related reports, documents and evidence, primarily focused on skills issues,
- A number of focus groups to draw down evidence directly from people who work in the industry,
- A detailed questionnaire targeting construction related organisations in the LEP area,
- An analysis of a range of Training Needs Assessments conducted across 80 SMEs to understand in detail their training requirements and barriers to success,
- Demand analysis of construction projects projected over a 5 year period in the LEP area at a detailed occupational level,
- Analysis of labour supply; including the existing workforce, new entrants (including apprentices) and labour mobility,
- Gap analysis to determine occupational pinch-points and decipher recommendations regarding training interventions,
- A map of existing provision to support recommendations relating to capacity, capability and collaboration on future curriculum offers.

This methodology has enabled a comprehensive research report to be produced that will identify current and emerging skills needs and make recommendations on strategies and actions to ensure the LEP has a construction workforce that is fit for purpose.

This will underpin the skills support of the workforce in the LEP and allowing the LEP to meet its strategic priorities in the production of detailed, specific labour market intelligence for construction. The information it will generate will enable stakeholders to hold effective conversations and work across the LEP and with other agencies, employers and providers to ensure maximum employment and training opportunities for local residents.

The LMI and its recommendations will provide the evidence base to enable the LEP to ensure that there are adequate and effective programmes of skills development and employment interventions that meet demand both during the construction phase of projects and subsequently. The principal focus of our LMI will be the construction sector, although our links with other skills councils and our understanding from previous commissions, will allow us to make comment and provide a wider context of the intelligence in conjunction with the engineering construction sector in both the local and national contexts.

4. Literature review

4.1. Introduction

The literature review addresses the construction output and skills demand and gaps in the UK and in particular on the York, North Yorkshire and East Riding area. It covers the traditional construction skills demands, emerging skills, construction innovation and environmental issues, low carbon and innovation. The aim of the literature review is to identify the pertinent issues relevant to the labour market intelligence. This includes government policies which would have an impact on skills demand and supply, construction activities and employment for the UK and York, North Yorkshire and East Riding LEP area and skills challenges and gaps. In this part of the report the findings of literature review are presented.

4.2. Sources of information and data

A literature review has been undertaken utilising the reports listed in the ITT document and supplemented with findings of desk top research gathering relevant reports and publications in this area. Relevant reports, documents and datasets included in the review are:

- Government reports
- LEP area reports not limited to the reports which were recommended by Grimsby Institute
- CITB reports
- UKCES reports
- Other relevant reports

In cases where information and data is not available for the LEP area we have reviewed sources from Yorkshire and Humber area.

References are provided in footnotes to the text. A bibliography providing a list of the additional sources consulted in the research is shown in Appendix B.

4.3. Key findings

4.3.1. The construction industry economic overview

- Construction is one of the largest sectors of the UK economy. In 2014 it contributed £92 billion to the UK economy output (or 6.4%)[1] of the total.
- The UK construction industry is projected to grow by just under 3% a year on average during the 2015 to 2019 period, with all sectors expected to show some rise in activity[2].
- In the construction sector, 2014 has seen both public and private housing output showing very strong growth. Out of the estimated £5.7bn (2010 prices) increase in total construction output between 2013 and 2014, the two new build housing sectors accounted for 63% of the rise while making up only 22% of total output[3].

[1] ONS, output in the construction sector
[2] CITB & Experian (2015) Construction Skills Network: Blueprint for Construction 2015-2019
[3] ibid

- In 2013, the Yorkshire and the Humber total construction output declined for the third successive year by 4% to £7.85bn, however growth is estimated to have returned in 2014 with a rise of 7%[4].
- Yorkshire and the Humber's very strong growth rate in the short term is expected to subside over the full five-year forecast period to an annual average rate of 2.3% in the construction output, lower than the UK rate of 2.9%[5].
- Detailed information on the contribution of construction activity in the LEP area is not available. To give an indication of the share of Yorkshire and the Humber's construction work taking place in the LEP, the latest Annual Population Survey was utilised which enables sub-regional analysis. The latest data shows that the LEP area accounts for 23% of regional construction employment. Assuming that employment is proportional to output across the LEP and that the mix of project types is the same this would equate to just under £2bn work of work in 2014 in the LEP.
- The private housing market is projected to experience an annual average rise of 3.8%. Growth in 2015 is likely to be at double digit rates before much slower expansion for the remainder of the forecast period (2015-2019)[6].

4.3.2. The construction employment overview

- In 2014 the construction sector employ some 2.5 million jobs, which is equivalent to about 10% of total UK employment[7].
- In 2013, the Yorkshire and the Humber area accounted for 7.5% of UK construction employment[8].
- In 2013, the Yorkshire and the Humber area, construction employment is estimated to have risen by around 2.6% in 2014[9], the first increase since 2008. Employment is forecast to continue to grow throughout the five years to 2019, at an annual average rate of 1.5%, with all 28 of the Construction occupational categories. The projected increase is identical to the UK construction employment rate.
- Detailed information on the contribution of construction activity in the LEP area is not available To give an indication of the share of Yorkshire and the Humber's construction workforce located in the LEP, the latest Annual Population Survey was utilised which enables sub-regional analysis. The latest data shows that the LEP area accounts for 23% of regional construction employment. This equates to around 44,000 people in 2014.

4.3.3. Drivers of new skills demand

- It has been reported that the drivers of demand for construction skills over the next five years include economic recovery, changing environmental legislation, regulation, new and emerging technologies and the impact of these factors have on the shape of the construction industry, its workforce and consumer demand.[10]

[4] CITB & Experian (2015) Construction Skills Network, Yorkshire and the Humber 2015-2019
[5] ibid
[6] ibid
[7] CITB & Experian (2015) Construction Skills Network: Blueprint for Construction 2015-2019
[8] CITB & Experian (2015) Construction Skills Network, Yorkshire and the Humber 2015-2019
[9] ibid
[10] CITB (2010), Understanding Future Change in Construction

- In the York, North Yorkshire and East Riding, skills for low carbon demand was identified as one of the future occupation and skills needs [11]

4.3.4. Impact on demand for skills

The changing nature of the industry will have an impact on the demand for skills for the following reasons.

- The increased demand for low energy requirements of future buildings and infrastructure, the increased growth in offsite manufacturing and technology, and deployment of Building Information Modelling (BIM) means that a skilled and flexible workforce will be vital the UK construction sector's future performance and competitiveness[12]. The UKCES Skills assessment for construction has identified additional factors which will drive future skills demand within the UK. These include the growth in construction output over the next five years, environmental and legislative issues and emerging technology[13].
- It has been reported that modern method of construction will have an implication on different skill demands on-site, with the new skills being less traditionally trade-oriented but more multi-skilled[14]. It has been recognised that new ways of working will not always require new skills or create new jobs, but will often be in addition to or an amalgam of existing workers' skill sets[15].
- It has been stated that delivering a low carbon buildings sector would require a general up-skilling of all construction supply chain[16]. It also has been reported that by 2020 "low carbon skills" will have to be fully embedded into the mainstream UK economy to meet the demand in low carbon sectors of the economy such renewable technologies [17].

4.3.5. Skills shortages and training

There remain the potential for skills shortages and a need for training in the construction industry. A review of the literature highlights the following key messages.

- Although there are indications of high redundancy, low vacancy rates and high mobility of construction workers the UK Employer Skills Survey[18] concludes that there continue to be reports of some skills shortages in the UK construction sector. It is reported that in 2013 one fifth of all vacancies in the wider construction sector are persistent and hard to fill. Some of the reasons offered for this are the inability of employers to recruit people with the right skills, qualifications and experience[19].
- It has been recommended[20] that the Government should allow SMEs to develop their own training provision or work with providers and others to design apprenticeships that address skills shortages quickly and effectively. It is not expected that this would have an impact on quality.

[11] Ekosgen, Skills Research in York, North Yorkshire and East Riding, August 2012
[12] UKCES (2012) Construction, Building Services Engineering and Planning: Sector Skills Assessment 2012: Evidence Report 65
[13] ibid
[14] CITB, SAMI Consulting & Experian (2008) 2020 Vision – The Future of UK Construction report
[15] UKCES (2012) Construction, Building Services Engineering and Planning: Sector Skills Assessment 2012: Evidence Report 65
[16] HM Government (2010), Low Carbon Construction, Innovation & Growth Team: Final Report
[17] Aldersgate Group (2009), Mind The Gap: Skills for the Transition to a Low Carbon Economy
[18] UKCES (2014) The UK Commission's Employer Skills Survey (2013): UK Results, Evidence Report 81
[19] ibid
[20] Department for Business, Innovation and Skills (2013) UK Construction: An economic analysis of the sector

- It has been reported [21]that the Government could stimulate training provision in sectors where there is high demand and low supply by funding the development of employer-focused training provider models and networks.
- Research by BIS in 2010[22] highlighted that the levy schemes in the construction and engineering construction sectors have had a positive effect on skills investment.
- Guidance on how to incorporate skills requirement into public procurement has recommend to have an engagement with supply chain and local skills bodies to understand current and predicted capability and capacity to identify potential gaps or pinch points[23].

4.3.6. Summary

In summary the findings of the literature review show that there is and will be a demand for new skills that are driven by environmental legislation, regulation, new and emerging technologies, and modern method of construction. Delivering these new activities will not necessarily require new skills or create new jobs, but will require upskilling or changing of an existing skillset.

[21] The Holt Review: Making Apprenticeships more accessible to small and medium sized enterprises
[22] Department of Business Innovation & Skills (2010) Skills for Sustainable Growth
[23] Crown Commercial Service (March 2015), Procurement policy note- supporting sustainable skills development through major construction and infrastructure project , Action Note 06/15

5. A view of demand

5.1. Introduction

This section provides a bespoke view of the labour demand that construction investment will create across the LEP over the next five years (please refer to Appendix A for an explanation of the methodology followed to produce the labour demand figures). We have used Glenigan project data and our Labour Forecasting Tool[24] (LFT) to analyse the skills requirements in each of 28 occupations (detailed in Appendix C). The results are also presented at a trade, craft and professional level that will enable the LEP to take a comprehensive view of the demand generated by planned projects.

This study includes a detailed analysis of the projects taking place within the nine local authorities in the York, North Yorkshire and East Riding area, namely the City of York, the East Riding of Yorkshire and the seven districts within North Yorkshire (Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby). A detailed picture of the demand is presented in the appendices to this main report, and for the purposes of this report we show the analysis for the whole LEP, followed by the three council areas of North Yorkshire, City of York and East Riding of Yorkshire.

5.2. Pipeline analysis

We have analysed the pipeline of construction work taking place in the LEP. The analysis is based on the projects contained in the Glenigan database. The Glenigan database contains details of the planning applications from the local authorities supplemented with additional project-specific data. The Glenigan database will not identify every single project in an area as some small projects (typically but not exclusively those less than £250,000 in value) and those which do not require a planning application are not included. An initial assessment of the projects in the database ensured that only projects which had a) a defined value and b) defined start and end dates were considered in the analysis. Also excluded were one consultancy project and a number of projects which were clearly identified as duplicates. A full set of the projects which were omitted from the analysis are shown in Appendix E.

Included in the pipeline are offshore wind developments at Hornsea Zone 4 and the Dogger Bank Creyke Beck A and B, a potash mine in Scarborough and a biomass conversion plant in Selby. These are large projects which may need special consideration in understanding the construction labour market in the LEP area. All of these projects are assigned to a local authority area, but in the case of off shore wind (all assigned to the East Riding of Yorkshire) it is possible that all of the work is not taking place in that area. Details of these projects can be seen in Table 1. The value and the start and end date for the potash mine development was revised from those included in Glenigan. This was in response to feedback from Yorkshire Potash Ltd following the National Parks Planning Committee decision at the end of June 2015.

[24] A methodological note on the LFT is provided in Appendix A

Table 1: Details of large projects

Project	Area	Construction Value (£m)[25]	Proportion of total Glenigan value
Offshore Wind Farm - Zone 4 - Hornsea	East Riding of Yorkshire	1,200	13.1%
Offshore Wind Farm - Project Two - Hornsea	East Riding of Yorkshire	300	3.3%
Offshore Wind Farm - Dogger Bank Creyke Beck B	East Riding of Yorkshire	180	2.0%
Offshore Wind Farm - Dogger Bank Creyke Beck A	East Riding of Yorkshire	180	2.0%
Potash Mine Development	Scarborough, North Yorkshire	1,700	18.5%
Biomass Conversion Plant	Selby, North Yorkshire	175	1.9%

The Mean Value Theorem[26] was applied to the remainder of the pipeline (excluding the six projects above) to identify the significant projects in the LEP. This process identified 82 significant projects within the four local authorities of the LEP accounting for over 80% of the total spend. This allowed a detailed analysis of a large proportion of all the projects and a comprehensive consideration of the project types to which they were assigned.

Table 2 shows the number of significant projects within each local authority and the percentage of spend per area arising from the significant projects. The total spend per area can also be seen.

Table 2: Breakdown of the significant project and total values in the LEP, as captured in Glenigan[27]

Area	Areas			Total
	North Yorkshire	City of York	East Riding of Yorkshire	
Total number of projects	280	90	192	**562**
Total spend (£m)	2,337	665	3,016	**6,017**
Number of significant projects	30	18	34	**82**
Spend in significant projects (£m)	1,761	502	2,615	**4,877**
Percentage of spend in significant projects	75.4%	75.4%	86.7%	**81.0%**

[25] The values in the table have been adjusted to reflect the construction spend and exclude works which are engineering construction.

[26] The Mean Value Theorem states that most information is obtained for least effort simply by considering only those data whose value is higher than the mean. This approach is used to identify the few significant values that account for the largest amount of expenditure.

[27] The values in this table are derived from the Glenigan database and do not reflect the re-adjustment of the infrastructure projects values to distinguish between construction and engineering construction.

Four of the projects in the Glenigan database were part of the larger series of YORbuild development frameworks which take place in areas both within and out with the LEP. These projects were broken down into constituent sub-projects covering the entire area of activity, proportionally to each area's population. Only the portions falling within the LEP were included in the analysis. Similarly, a housing framework taking place in areas of North and West Yorkshire was broken down into all areas where activity was taking taken place, and only the activity taking place within the LEP was included in the analysis.

The labour demand for all of the projects in the Glenigan database was produced using the Labour Forecasting Tool, for the period 2006-2029. The following input data was used to produce the forecasts:

- The value of each project in the pipeline provided in the Glenigan database, for all projects excluding infrastructure.
- For infrastructure projects, the value used was a percentage of the value in the Glenigan database, representing the construction portion of the value, as opposed to engineering construction. The percentages applied can be seen in Table 3. The construction proportions have been validated in work we have undertaken for other clients.
- Start and end dates of each project provided in the Glenigan database.
- For the significant projects, project descriptions in the database enabled us to apply the most appropriate model to each forecast that was run through the LFT. Cases where a project consisted of more than one type were broken down into multiple forecasts which were assigned different models to more closely predict the labour demand. This took account of the different elements within a single development, e.g. mixed developments comprising housing, commercial and industrial.
- For the rest of the projects, the default project type allocation as defined in the Glenigan database was applied, except for the infrastructure projects which were individually allocated to the most appropriate model from the available LFT infrastructure models.

Table 3: Proportion of total value related to construction

Sector	Proportion of construction activity
Infrastructure - Flooding	90%
Infrastructure - Roads	100%
Infrastructure - Rail Stations	80%
Infrastructure - Energy from Waste	50%
Infrastructure - Energy from Fossil Fuel	25%
Infrastructure - Photovoltaics	80%
Infrastructure - Onshore Wind	10%
Infrastructure - Offshore Wind	20%
Infrastructure - Oil & Gas	10%
Infrastructure - Gas transmission	30%

Appendix D provides a full breakdown of the significant projects and their construction values. No projects have been considered from out with the LEP area including frameworks which might be administered from a central location outside the LEP. Figure 1 shows the geographical position of each of the projects. The size of the marker is proportional to the construction value of the project.

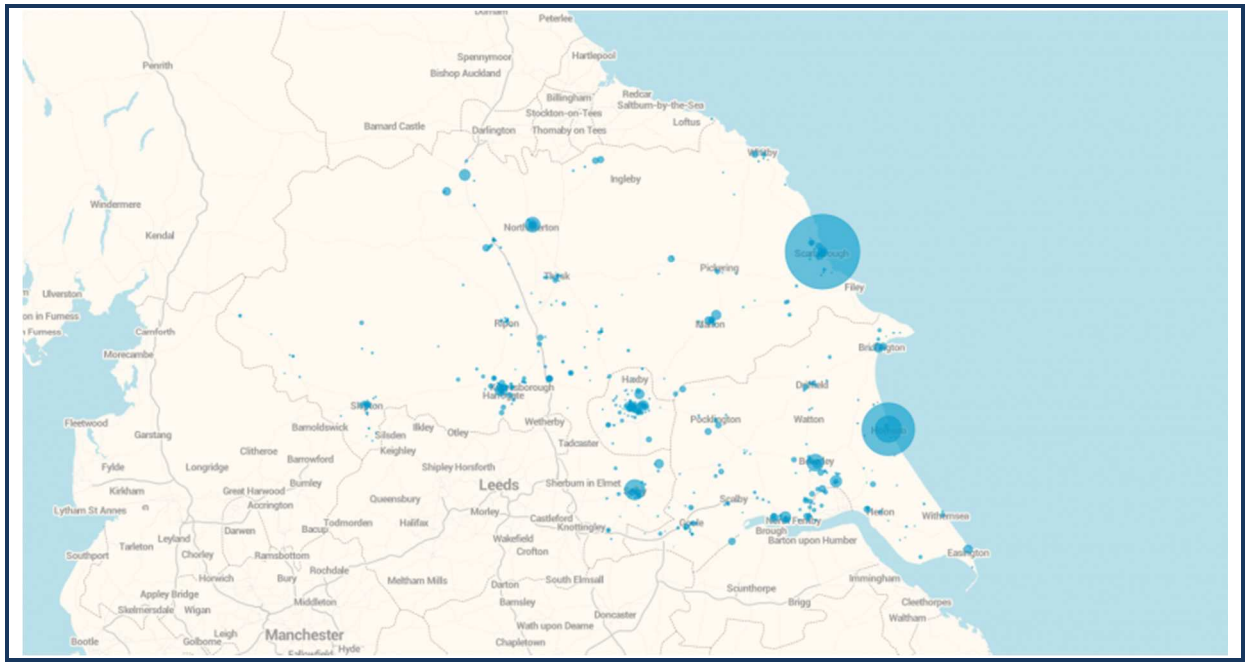

Figure 1: Projects in the Glenigan for future work in North Yorkshire, City of York and East Riding of Yorkshire – circles are proportional to value

The data relating to all of the projects has been stored within the version of the LFT for which the LEP will have a licence. All the assumptions regarding the input parameters - including project duration and values - can be updated by the LEP as and when more specific information becomes available. The forecasts have been saved within the LFT for access by the LEP and any changes to scope (including updates to the construction value) can readily be made.

5.3. Producing estimates of labour demand

Based on the analysis detailed above this section presents the labour demand arising within the LEP. A summary of that analysis is presented in this section for the LEP and City of York, East Riding of Yorkshire and North Yorkshire. More detail is shown in Appendix F. Construction labour demand profiles were also produced for each of the nine local authorities within the LEP, and these are presented in Appendix G.

The data in the Glenigan database presents a picture of the forthcoming projects. As the time horizon extends there is less clarity on what is planned. For instance, in some cases a small number of projects are due to complete in the latter part of the 2020s. However, the small workload shown by the demand profile is highly unlikely to reflect the total amount of work that will take place at that time. It is almost certain that there will be additional projects that come on stream at that time which have not yet been considered. The CSN forecasts which consider the availability of labour look forward five years. For consistency we have presented the demand forecasts for both the total time horizon for planned projects, and secondly for the five year period 2015-19 used in the CSN model. Labour demand figures have been rounded to the nearest 50.

The data presented in this section excludes the Potash Mine and the Offshore Wind work from the analysis. Later sections in this report show the impact of adding this into the analysis. Figure 3 shows the construction labour demand arising from the Glenigan data for the period 2015-2019 in the LEP.

It should be noted that the workforce will only peak for a relatively short period of time. The ramp up and ramp down to that peak may be quite large (Figure 3). As such we have presented the average workforce during the year of the peak. For the peak year we have shown a detailed breakdown by each of the 28 occupational groups for which the forecast has been produced. These are shown in Figure 3.

Table 4 shows the labour demand arising from the entire pipeline, as well as the portion of this demand within the 2015-2019 period. It also shows the peak workforce requirement of around 23,750 people occurring in 2016. As noted above the drop off, and indeed the ramp up, of projects from an analysis of a pipeline is somewhat artificial. An approach to overcome this has been applied to the analysis. The approach uses the assumption that the future workforce is approximately equal to the peak. The peak has therefore been projected forwards and backcast[28] to create a more likely scenario of the ongoing workforce. The growth rate is based on the CSN employment forecast for the whole Yorkshire and Humber region. The demand with a growth rate included is shown in Figure 2. The shaded area shows the likely total labour demand arising from as yet undefined projects.

Table 4: Total labour demand in the LEP (excluding mine and offshore)

Area	Total Person-Years 2006-2029	Person-Years 2015-2019	% of total demand in 2015-2019	Average workforce during year of peak
North Yorkshire	36,000	25,800	71.7%	11,300
City of York	12,400	9,100	73.4%	4,300
East Riding of Yorkshire	35,300	22,750	64.4%	9,150
LEP area	**83,700**	**57,650**	**68.8%**	**24,750**

The charts in the following sections show the labour demand in each authority for each of the 28 occupational groups (Details of the occupations are provided in Appendix C).

Figure 4 shows the longer term historic trend back casted to 2008. This shows the impact of the recession on employment and the recovery from 2012 to the end of the decade. This does not include all of the work taking place in the LEP but provides an indication of the historic trend of employment.

[28] This takes account of the fact that the 2015 Glenigan figures which are tailing off and are past their peak than those in 2016.

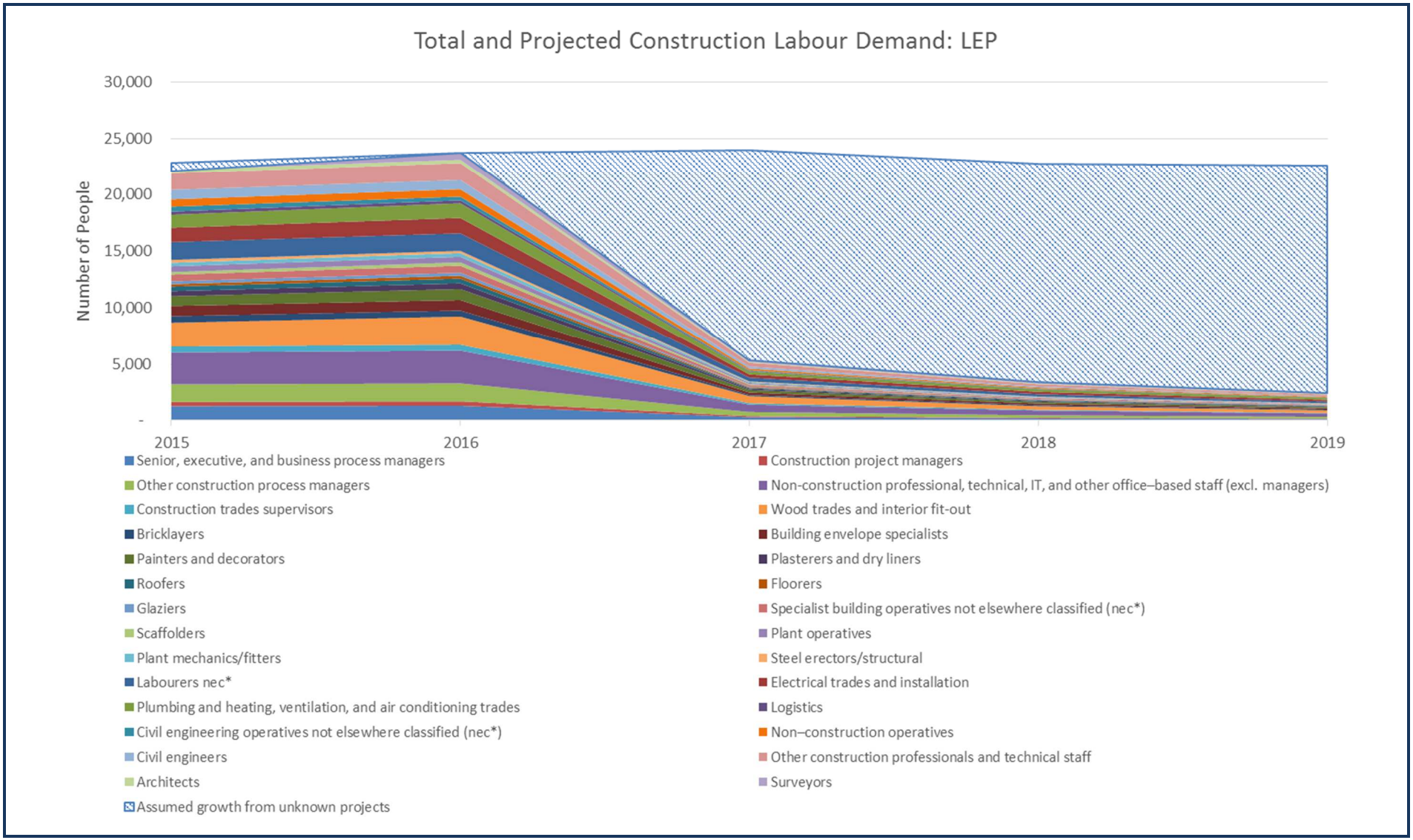

Figure 2: Total Construction labour demand arising from the Glenigan data for the LEP including projected growth (excluding mine & offshore)

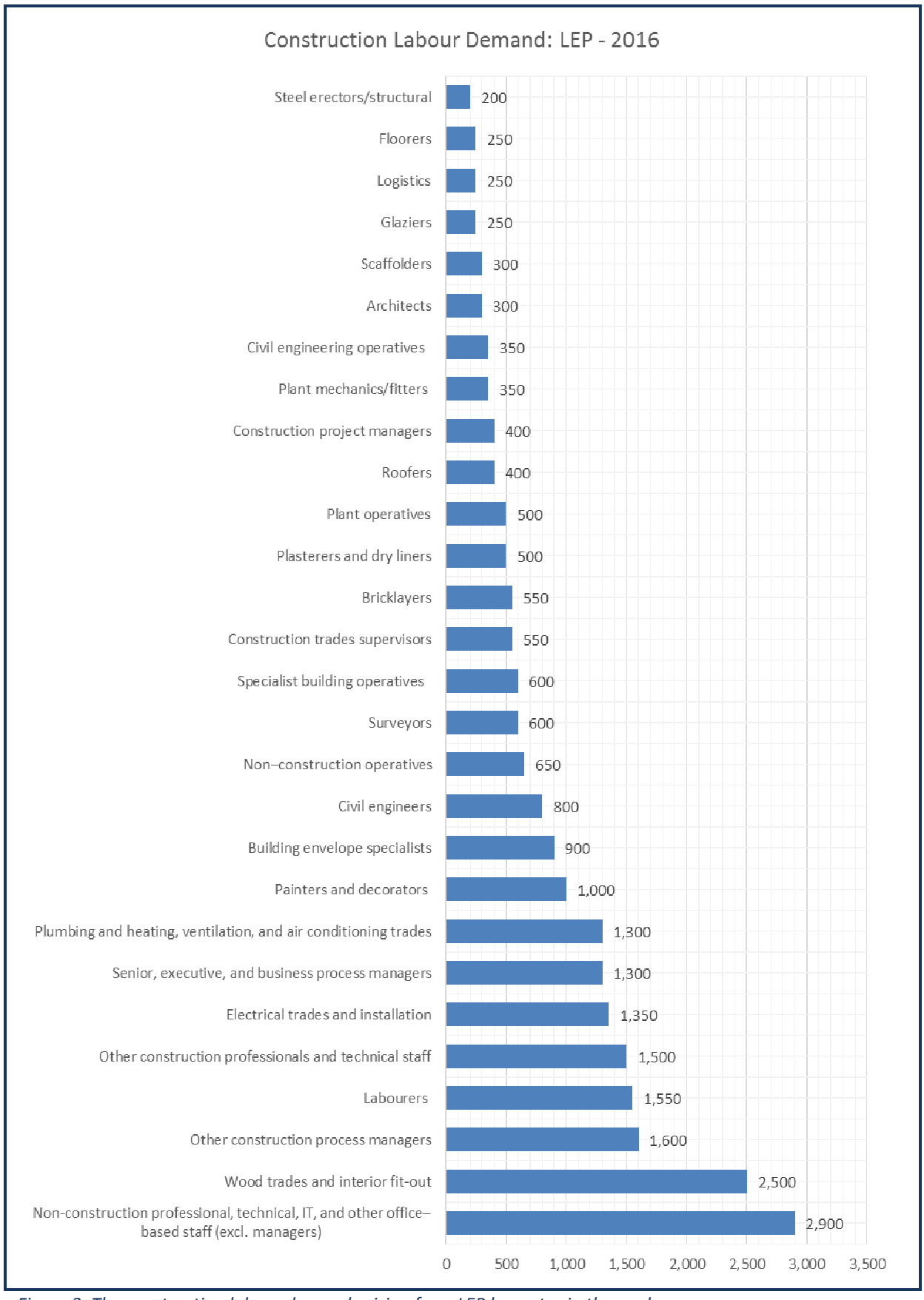

Figure 3: The construction labour demand arising from LEP by sector in the peak year

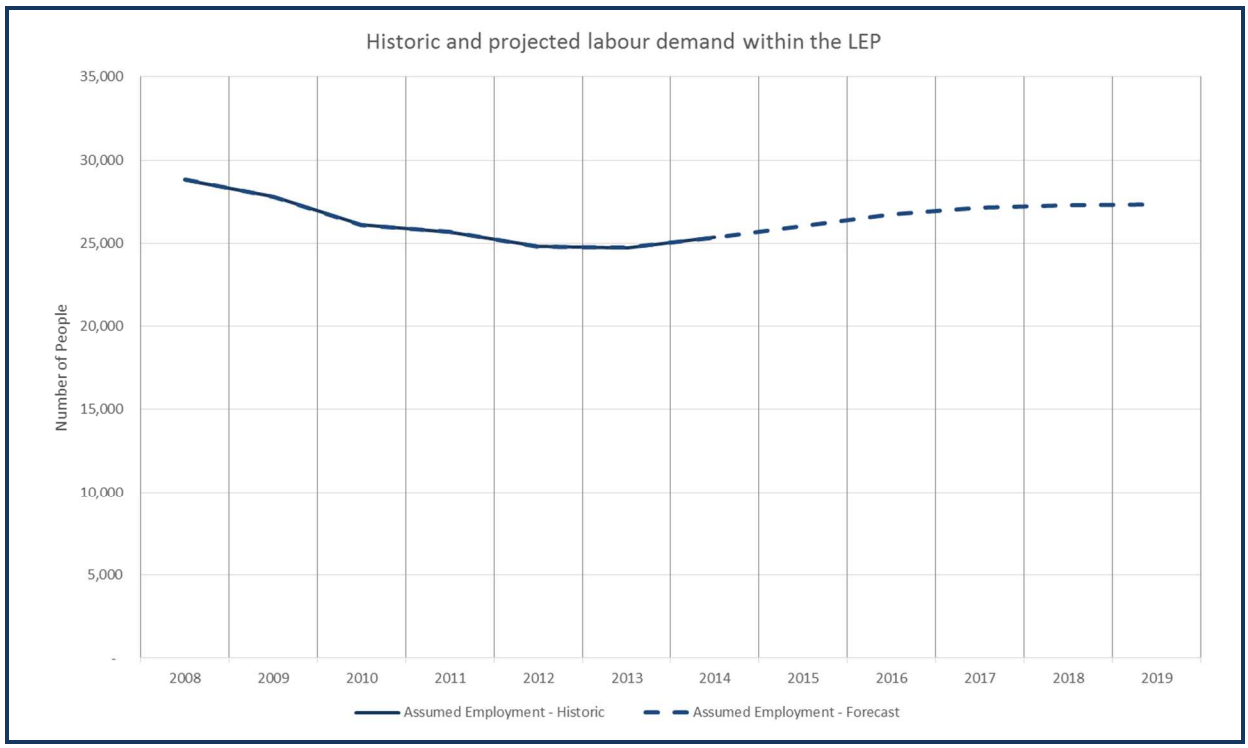

Figure 4: Estimated historic labour demand in the LEP from Glenigan projects

5.4. Breakdown of spend by sector

This section provides an overview of the development spend (£m) in the LEP broken down by sector based on the projects included in the Glenigan database.

Table 5 shows the construction spend for each sector. It is clear that infrastructure is the largest sector, driven primarily by the mining project and offshore wind. However as will be seen in later sections these projects are primarily happening at the latter parts of the decade.

Apart from the mine and offshore wind projects the largest volume of activity is in the housing sector, followed by public non-residential and private commercial. There is a smaller volume of work taking place in the housing and non-housing R&M sectors. However, this is likely to be an underestimation as the Glenigan database will not capture all of the repair and maintenance work.

Table 5: Breakdown, by sector, of the development spend in the LEP

Sector		Construction spend in the period 2015-2019 (2015 values - £m)	% of total
Infrastructure	Mining	1,700	26.7%
	Offshore Wind	1,250	19.6%
	Energy from Waste	327	5.1%
	Roads	313	4.9%
	Oil & Gas	58	0.9%
	Rail Stations	48	0.8%
	Photovoltaics	32	0.5%
	Energy from Fossil Fuel	18	0.3%
	Gas transmission	14	0.2%
	Flooding	13	0.2%
	Onshore Wind	8	0.1%
Housing		1,151	16.3%
Public Non-residential		638	9.0%
Private Commercial		531	7.5%
Private Industrial		177	2.5%
Non-housing R&M		74	1.0%
Housing R&M		22	0.3%
Total		**3,974**	**100.0%**

5.5. Breakdown of demand by sector

The labour demand has been calculated from the spend in each project type. In this section we have considered the total labour demand which includes the potash mine and the offshore wind. For that reason the peak workforce in 2016 is around 20% higher at just over 30,000. Figure 5 shows the breakdown of labour demand by sector. For the peak year (2016) it can be seen that between a third and half of the labour is generated by housing. This is due to the nature of housing work which tends to be more labour intensive than other sectors. Towards the end of the five year period there is a ramp up in infrastructure. This is driven almost entirely by offshore wind projects which are considered separately in the next section.

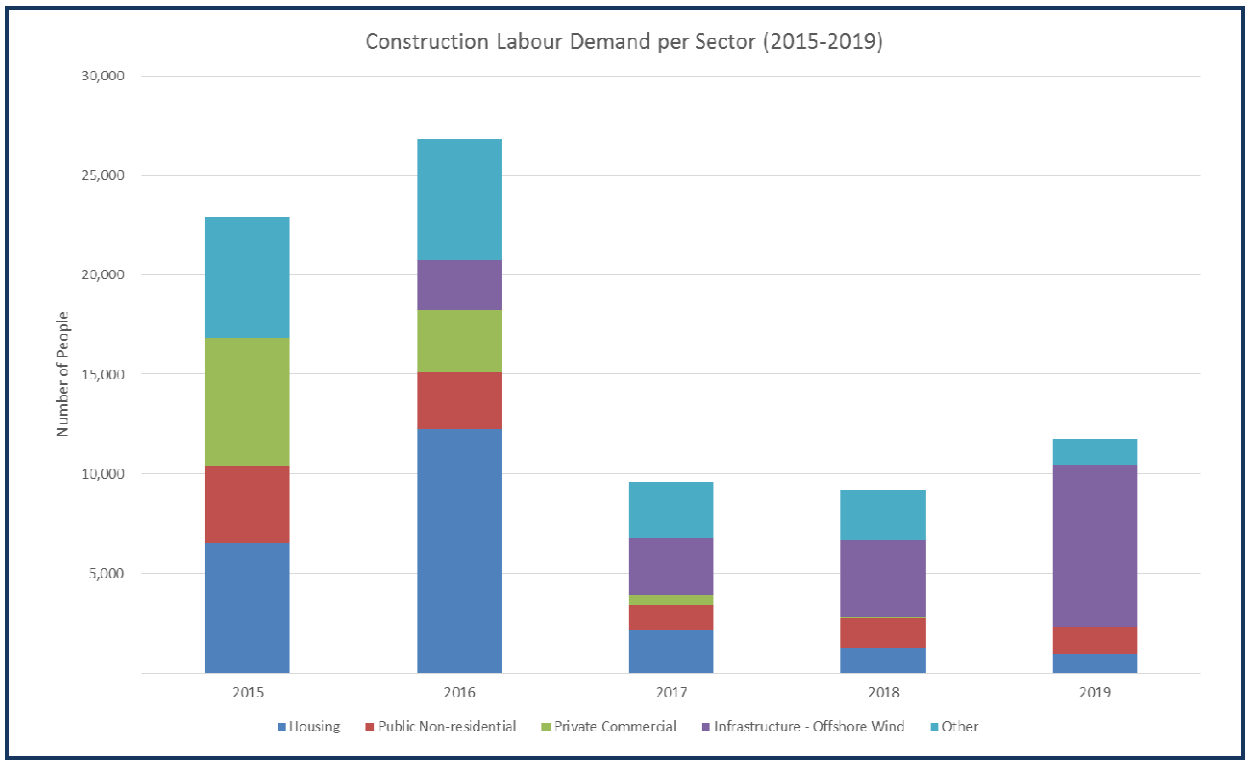

Figure 5: The construction labour demand arising from LEP by sector

5.5.1. Housing

In the short term the housing sector is by far the largest sector, employing more than a third of the construction workforce in 2016. This is in line with the LEP's ambitions to double housebuilding and build 13,000 new homes by 2021[29]. The apparent reduction in housing towards the end of the decade in Figure 5 is likely to be artificial and reflect that major schemes have not yet entered the pipeline.

5.6. Scarborough potash mine

The potash mine in Scarborough comprises a large proportion of the development spend in the LEP and the skills required for the project are detailed in this section. The Labour Forecasting Tool does not have a bespoke model for mining and the most closely aligned model is the drill and blast tunnelling model. We have therefore employed that model in the analysis, but this section can be updated as and when more appropriate data becomes available. As noted in the introduction the values and dates used in Glenigan were superseded by data provided by Yorkshire Potash Ltd.

> The £1.7 billion potash proposal is the largest private sector investment in the north of England. We will be working with the local councils, LEPs, training providers and our supply chain to ensure that opportunities are in place to develop the construction workforce of the future and ensuring that people can access employment opportunities from construction through to operations and maintenance.
>
> **Matt Parsons, General Manager External Affairs, Yorkshire Potash Ltd**

[29] http://www.businessinspiredgrowth.com/media/167751/local-growth-deal-implementation-plan.pdf

Figure 6 shows the impact of the potash mine as a proportion of the labour demand in the LEP. It can be seen that at peak the labour demand accounts for around 15% of the projected work force in the LEP area (excluding offshore wind)

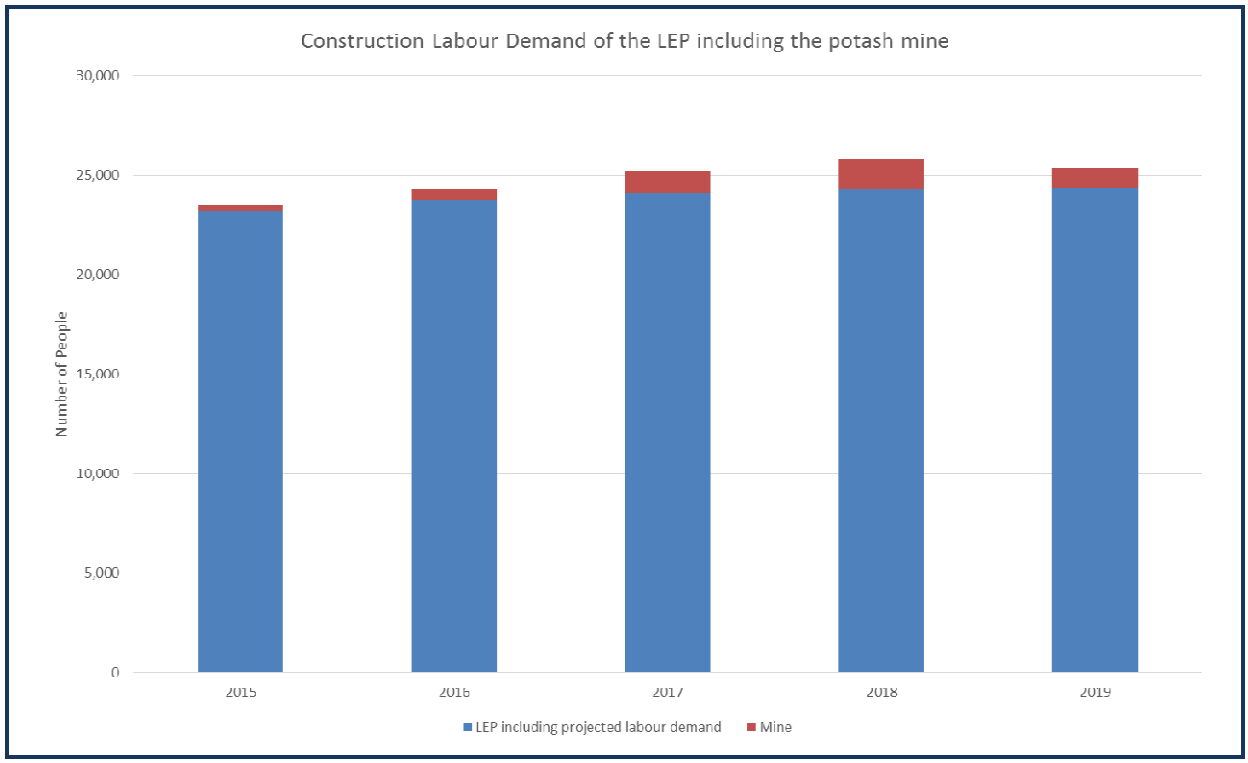

Figure 6: Construction labour demand of the potash mine compared to the rest of the demand in the LEP

5.7. Offshore wind

The offshore wind platform developments taking place in Hornsea and Dogger Bank were examined separately. The Labour Forecasting Tool's offshore wind construction models were used for this analysis. Engagement with stakeholders in the LEP area has suggested that all of the offshore wind work may not take place within the LEP area, despite being allocated to the East Riding in the Glenigan database. Care should therefore be taken in interpreting the figures of offshore wind labour demand in the context of the LEP area as either all the work may not be taking place within the area or additionally not all of the workforce may come from the area. However, based on the assumption that the work is taking place in the East Riding, Figure 7 shows the impact of offshore wind on the labour demand in the region (excluding the potash mine). It can be seen that the projected rise in offshore wind could account for around a third of all of the construction labour in the LEP area by 2019.

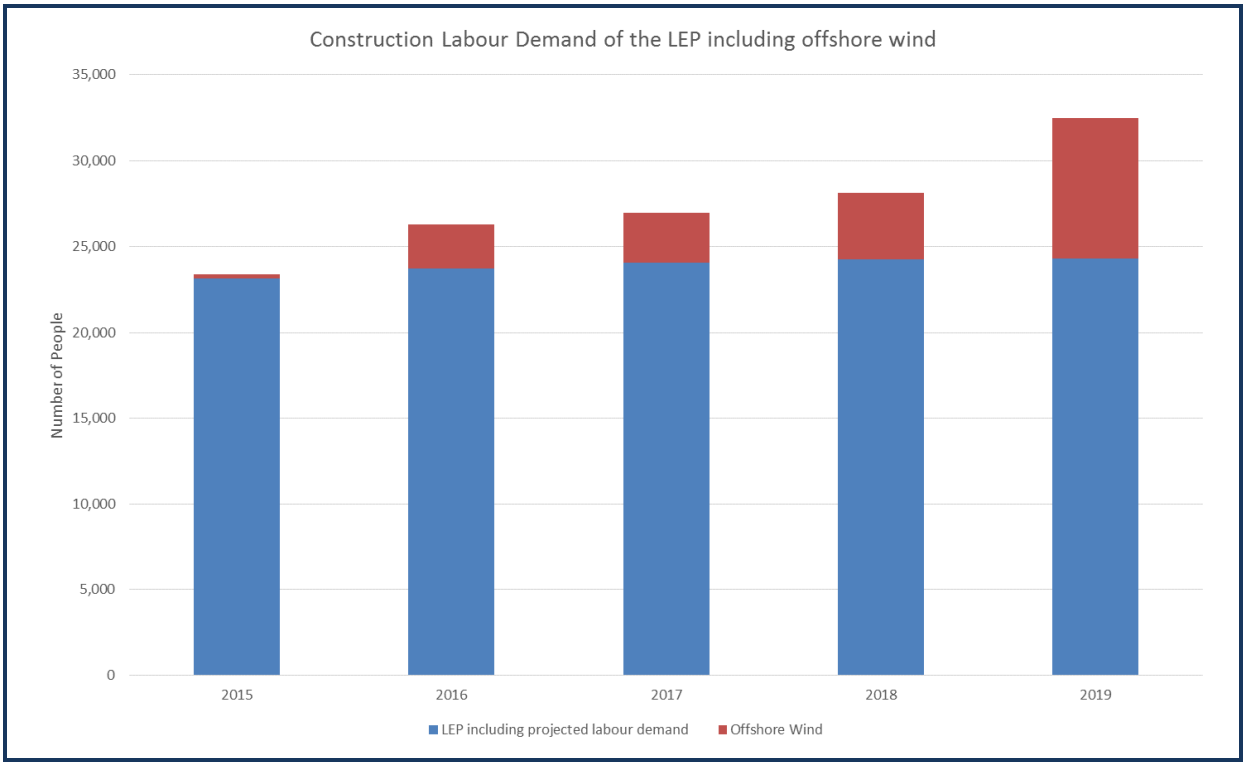

Figure 7: Construction labour demand of the offshore wind development compared to the rest of the demand in the LEP

5.8. Analysis including large projects

The analysis to date has highlighted the importance of the six large projects. This section presents the labour demand in its entirety – including the impact of the large projects. The first section considers the entire LEP, followed by each of the three authorities which constitute the LEP area. A more detailed analysis by district authority is provided in Appendix G for the seven districts in North Yorkshire.

Table 6: Total labour demand in the LEP (including mine and offshore)

Area	Total Person-Years 2006-2029	Person-Years 2015-2019	% of total demand in 2015-2019	Average workforce during year of peak
North Yorkshire	40,700	30,000	73.7%	11,800
City of York	12,400	9,100	73.4%	4,300
East Riding of Yorkshire	59,100	40,200	68.0%	11,300
LEP area[30]	**112,200**	**79,300**	**70.7%**	**26,750**

[30] Note that the entire LEP area is not necessarily the sum of the three parts due to different timing of peak labour demand

This section contains a forecast of labour demand for all of the projects in the Glenigan database for the full LEP area. Figure 8 shows the demand from known projects with a projection superimposed for as yet undefined projects. Figure 9 details the split of the labour demand by 28 occupational groups at the year of the peak (2016).

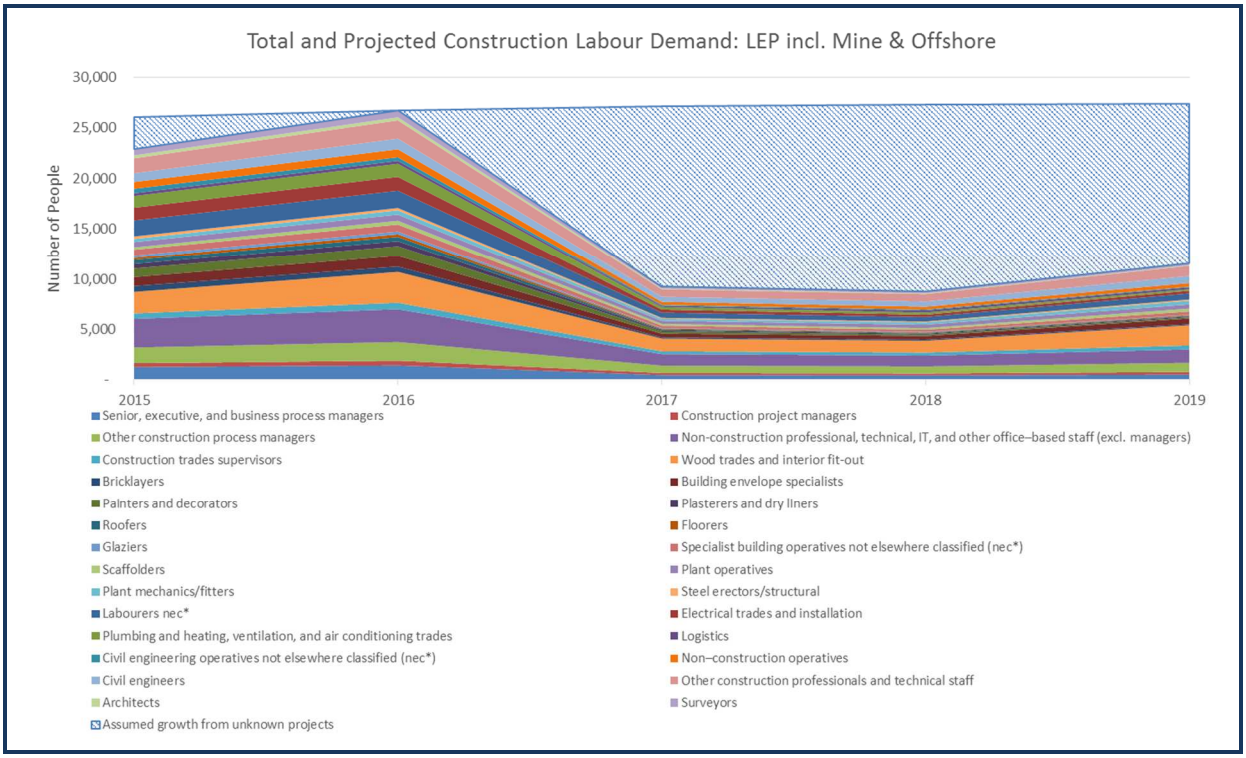

Figure 8: Total and projected labour demand for the LEP

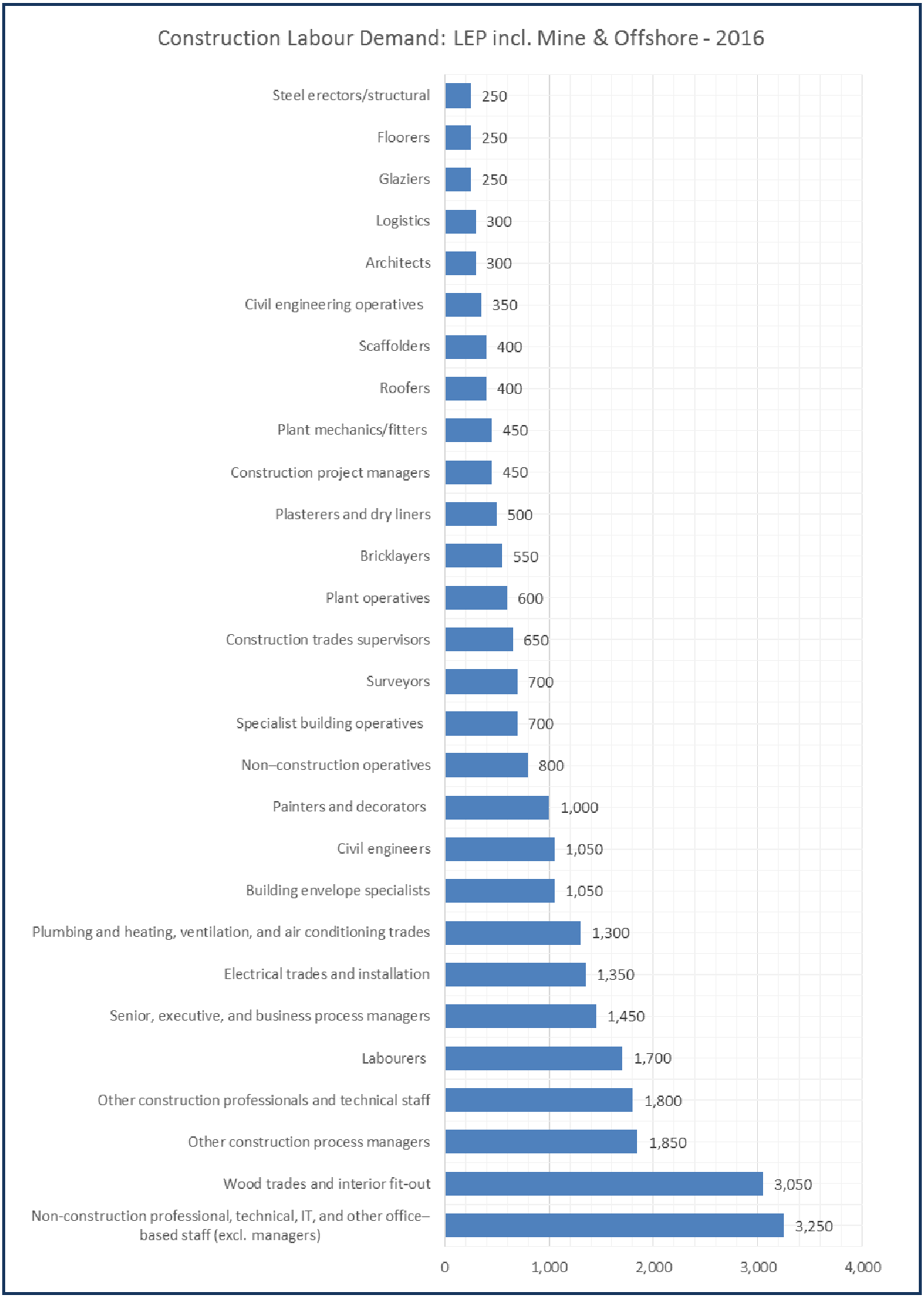

Figure 9: Labour demand for the LEP by occupation

5.9. Summary of demand

The analysis of the labour demand arising from the development spend in the LEP indicates a peak workforce of just under 27,000 people in 2016. The tail off beyond this point is not likely to represent an actual drop off in construction activity, but reflects projects which have not yet been identified. It should also be noted that these figures only represent the developments which are included in Glenigan which will not necessarily capture all of the construction activity. To project forward this cliff edge in construction activity we have produced an indication of how construction activity in the region (Yorkshire and Humber) as a whole is forecast to change over the next five years. This shows a peak of activity in 2016 and 2017 followed by a flattening towards the end of the decade.

The labour demand in the LEP is dominated in the short term by the work on the Potash Mine in North Yorkshire and in the medium term by offshore wind. Engagement with stakeholders has suggested that although the offshore wind projects are currently assigned to the East Riding of Yorkshire it is possible that the construction element will take place in Hull or elsewhere on the east coast. It is proposed that further clarity is sought on the positioning of this work as the labour demand by 2019 from offshore wind could account for more than 30% of the workforce. To place the magnitude of the offshore wind sector in context, the construction value is comparable to the total housing output across the LEP during 2015-19.

If one considers the demand excluding the potash mine and the offshore wind projects the largest single sector in the region is housing. Housing is also one of the most labour intensive so that between a third and a half of the workforce demand in the LEP is generated by housing in 2016. The combination of public non-residential and commercial (which require similar skills profiles) has a similar value of output to housing over the period 2015-19.

The LEP is made up of three areas: North Yorkshire, East Riding of Yorkshire and City of York. Excluding the large projects over the period 2015-19 around 16% of the work force will be required for projects within the City of York. The remaining workforce is split in roughly equal parts across North Yorkshire and the East Riding of Yorkshire.

6. A picture of supply

This section presents an analysis of both the current workforce and also the existing levels of training being carried out to provide a picture of supply across the LEP.

Firstly the current employment levels for the LEP area will be examined, with consideration given to how this relates to overall employment across Yorkshire and the Humber. Data from CITB's Construction Skills Network is used along with official Government sources.

Secondly existing levels of training will concentrate on Further Education (FE) which has occurred across the LEP area. FE tends to be sourced and delivered in a closer proximity to home and workplaces whereas for Higher Education (HE) the length of study time and specialisms for Universities can give greater degrees of mobility.

6.1. Main points

- Current construction workforce estimates for Yorkshire and the Humber are around 196,000 workers.
- The York, North Yorkshire & East Riding LEP accounts for 23% of Yorkshire and the Humber's current construction employment (approx. 45,000 workers).
- Within the LEP construction employment is mainly located within North Yorkshire (54%).
- North Yorkshire also has the largest share of construction businesses (56%) however it has less micro sized companies (0-9 employees) and more smaller sized (10-49 employees), hence the larger employment share.
- There were 3,060 Construction and Building Services Engineering learning aims delivered in the LEP area, accounting for 9% of the total number of learning aims in 2012/13[31].
- Construction learning aims account for 82% of delivery. Building Services Engineering account for the remaining 18%.
- 20 training providers delivered construction relevant FE courses within the LEP area, with the five main providers delivered approximately two-thirds (64%) of all FE Construction and Building Services Engineering learning.

[31] Note: a leaner can have multiple learning aims depending upon the nature of the course learning.

6.2. Existing workforce

In line with the rest of the UK, construction employment in Yorkshire and the Humber suffered during the recession, as illustrated in Figure 10 below. Employment in the region increased steadily from 2002 through to 2008 before dropping down to a low point in 2013 of just over 186,000 workers. Employment began to rise again in 2014 and the current CSN forecast is for continued employment growth, although it is not predicted to reach the highs of its 2008 peak during the forecast period (2015-2019).

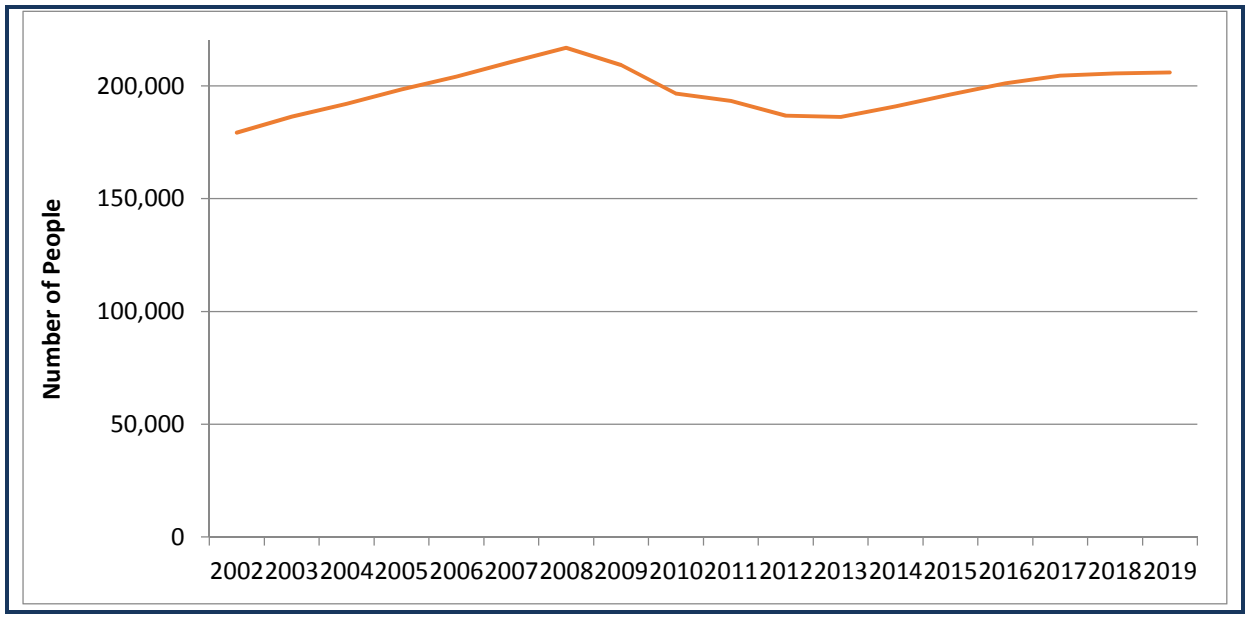

Figure 10: Construction employment in Yorkshire and the Humber: 2002-2019 (Source: CITB)

To give an indication of the share of Yorkshire and the Humber's construction workforce located in the LEP, the latest Annual Population Survey[32] was utilised which enables sub-regional analysis.

The latest data shows that the LEP area accounts for 23% of regional construction employment. Sub-regional analysis shows that just over half (54%) of construction employment is within North Yorkshire with approximately a quarter each in York (25%) and East Riding (21%), as shown in Figure 11.

[32] ONS/NOMIS (2015) Annual Population Survey workplace analysis by industry Jan-14 to Dec-14.

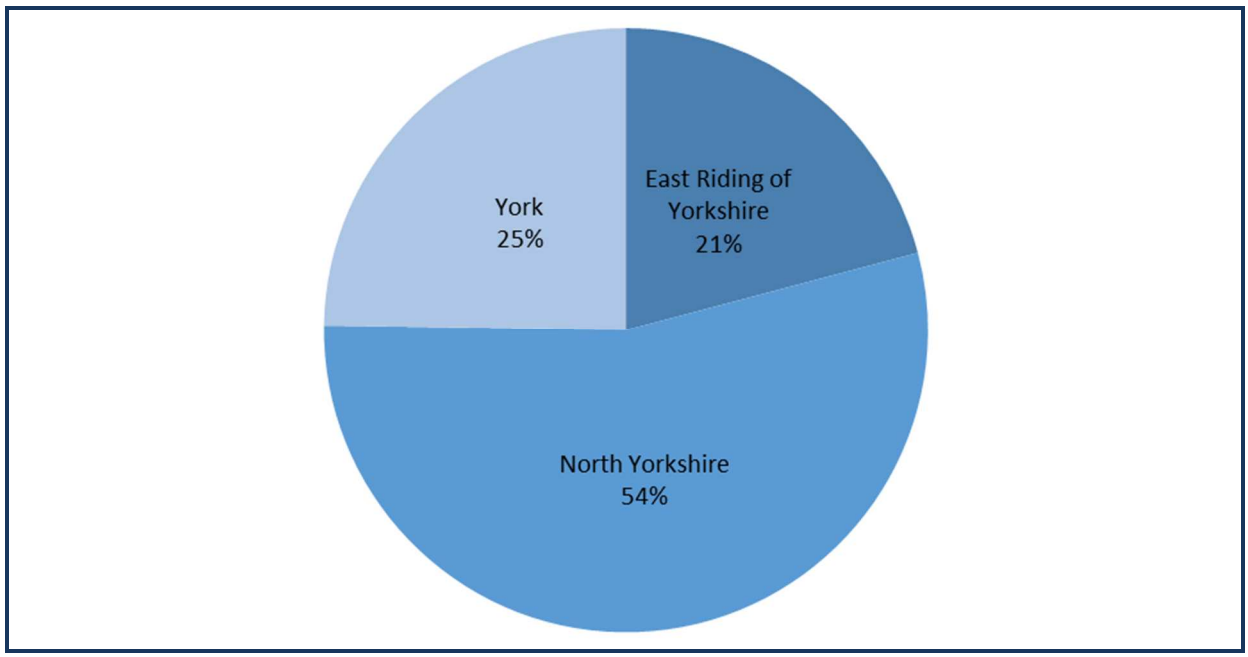

Figure 11: York, North Yorkshire and East Riding LEP % share of construction employment, 2014 (Source: ONS/NOMIS)

Further analysis of the North Yorkshire unitary authority finds the highest share of employment in Harrogate (23%) compared to only 7% in Craven, as seen in Figure 12.

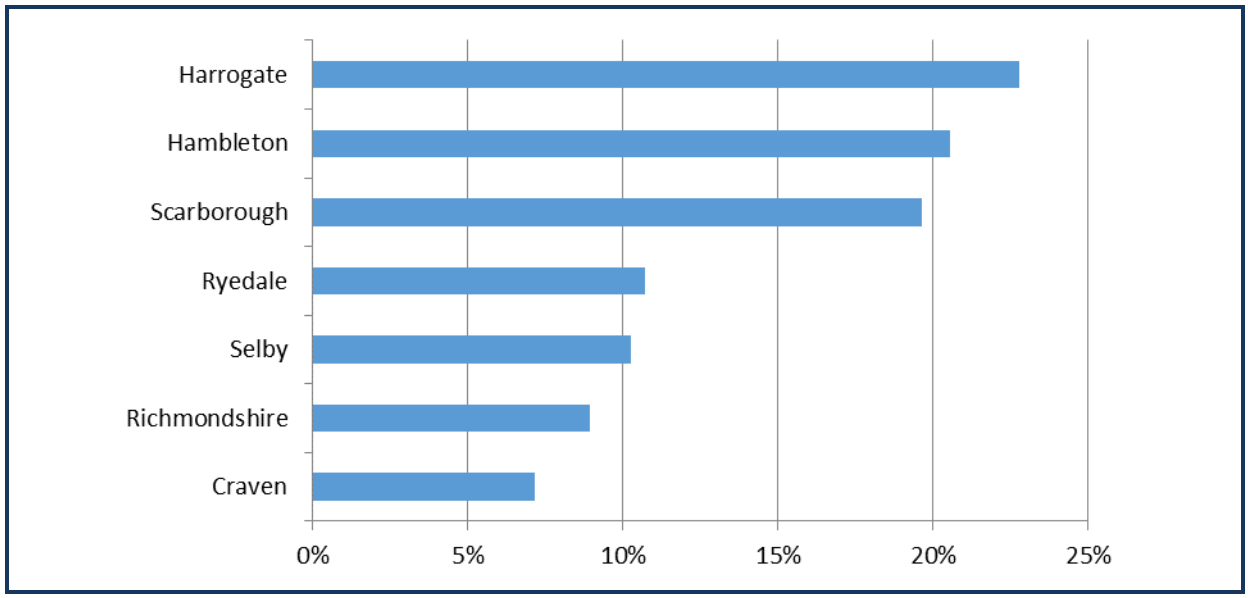

Figure 12: North Yorkshire % share of construction employment, 2014 (Source: ONS/NOMIS)

Self-employment is above the regional average (39%) within the LEP area (45%) with considerable variations between the LEP's 3 main unitary authorities ranging from 36% in York to 42% in North Yorkshire to a substantial 65% in East Riding; in other words two-thirds of the construction workforce within East Riding is self-employed.

An estimation of the occupational breakdown across the LEP can be achieved by applying the share of employment (23%) to the CSN employment details as shown in Table 7 below.

Table 7: Construction occupational breakdown, 2015 (Source CITB)

Occupation	York, North Yorkshire & East Riding LEP	Yorkshire and the Humber
Senior, executive, and business process managers	3,029	13,170
Construction project managers	738	3,210
Other construction process managers	3,234	14,060
Non-construction professional, technical, IT, and other office-based staff	5,934	25,800
Construction trades supervisors	906	3,940
Wood trades and interior fit-out	4,342	18,880
Bricklayers	1,254	5,450
Building envelope specialists	1,651	7,180
Painters and decorators	1,502	6,530
Plasterers	1,277	5,550
Roofers	1,095	4,760
Floorers	552	2,400
Glaziers	589	2,560
Specialist building operatives nec[33]	775	3,370
Scaffolders	612	2,660
Plant operatives	331	1,440
Plant mechanics/fitters	789	3,430
Steel erectors/structural fabrication	596	2,590
Labourers nec	1,881	8,180
Electrical trades and installation	3,519	15,300
Plumbing and HVAC Trades	2,873	12,490
Logistics	242	1,050
Civil engineering operatives nec	934	4,060
Non–construction operatives	1,033	4,490
Civil engineers	805	3,500
Other construction professionals and technical staff	2,999	13,040
Architects	127	550
Surveyors	1,513	6,580
Total	**45,131**	**196,220**

[33] nec = not elsewhere classified

Analysis of construction firms reveals some comparability to the share of employment. Just over a quarter (28%) of all construction firms within Yorkshire and the Humber are located in the LEP area and a similar pattern emerges of their breakdown across the 3 areas. The largest share are located within North Yorkshire (56%) although York has a much smaller proportion than their share of employment whereas the reverse is true of East Riding as highlighted in Figure 13.

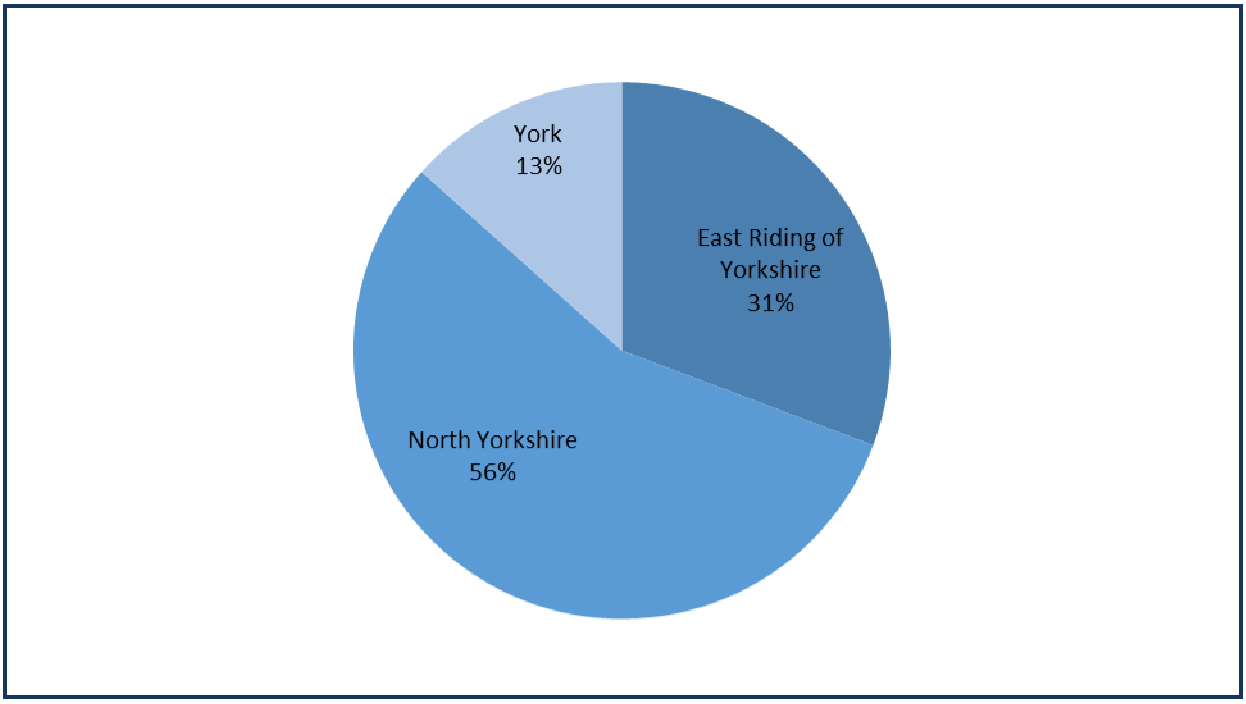

Figure 13: York, North Yorkshire and East Riding LEP % share of Construction Firms, 2014 (Source: ONS/NOMIS)

This difference between employment and firms would appear to be due to the relative size of firms. York has a smaller share of micro sized businesses (0-9 employees) and a larger share of small businesses (10-49 employees), compared to both East Riding and North Yorkshire. Although overall the pattern of firm size is similar across each of the geographical areas shown in Figure 14.

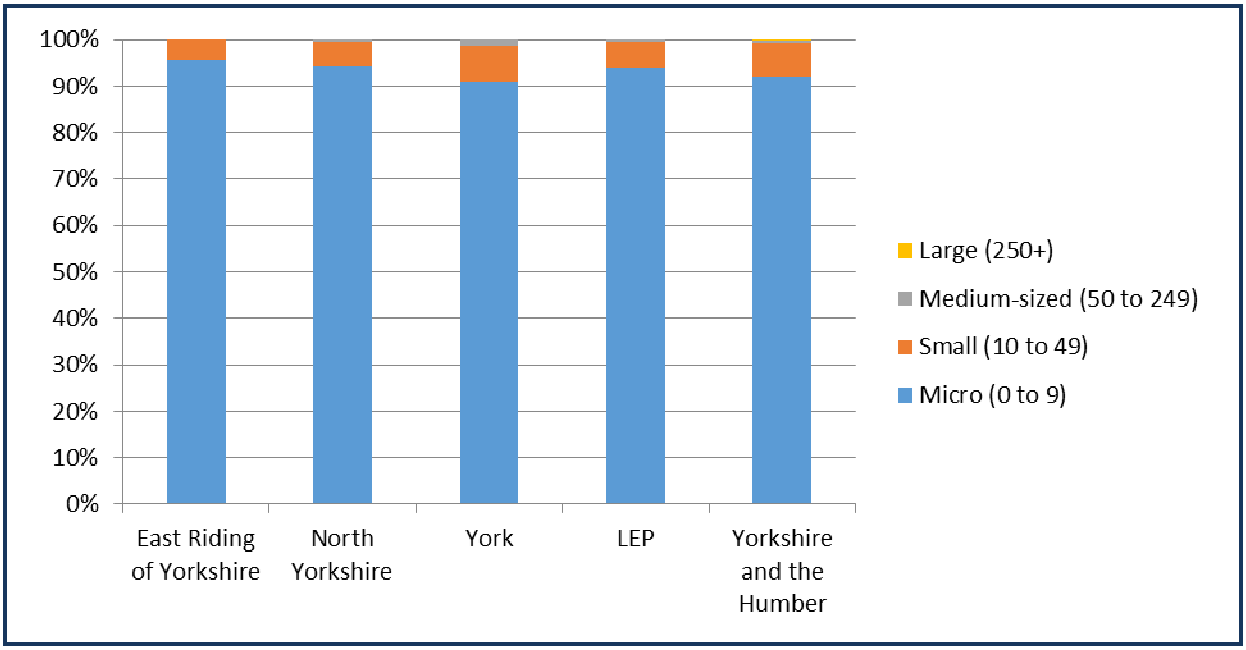

Figure 14: Construction firms by size, 2014 (Source: ONS/NOMIS)

6.3. Training provision

Further education providers play a significant role in equipping people with vocational skills for all sectors across the UK, and for construction in particular.

The most recent data available at local authority level is produced by the Skills Funding Agency[34] who report learning aims, not number of learners, therefore it is difficult to identify training as this is reported by learning aims, and not the number of learners. Clarification of terms used is available from the Skills Funding Agency, however learners generally refers to the number of individuals who are funded in each year, while the term learning aims refers to the number of discreet pieces of learning that are funded. It is possible for an individual to complete multiple learning aims in each year, with each aim having some level of funding against it. Training will cover full and part time further education, apprenticeships and on-site assessment for qualifications such as National Vocational Qualifications (NVQs) and QCF Diplomas and Certificates.

Across the LEP the combined sectors of Construction and Building Services Engineering accounted for 3,060 learning aims (split between 82% Construction and 18% Building Services Engineering) delivered in 2012/2013; 9% of the total number of learning aims across all sectors. Almost identical to the 8% share of employment that construction has within the LEP workforce[35].

[34] Skills Funding Agency (2014) Overall FE and Skills Participation by Level and Age and by Region, Local Education Authority and Local Authority (2005/06 to 2013/14) – Learner Volumes.
[35] NOMIS

Data from the Skills Funding Agency[36] identified 20 training providers delivering FE Construction and Building Services Engineering learning within the LEP, with the following six main providers responsible for approximately two-thirds (68%) of training:

- York College
- East Riding College
- Craven College
- Grimsby Institute of Further & Higher Education
- Hull College
- Selby College

Additional providers also identified include CITB, JTL, other FE colleges and private providers.

Although CITB has its own direct delivery through the National Construction College, delivery within the LEP will be carried out in conjunction with the main colleges, and we believe a similar position will occur with JTL who look after Building Services Engineering qualifications.

The Skills Funding Agency data does not allow identification of course level, however full details on the main providers is available in Appendix H, which indicates that these providers are delivering a wide range of qualifications which would be relevant to work currently underway in the LEP and future planned projects.

[36] Skills Funding Agency (2014): 2012/13 FE and Skills learning aims by delivery in each Local Authority by Provider and level.

7. Mobility of the workforce

Construction workforces are fluid by nature and this section of the report will discuss findings from the recent CITB survey into Workforce Mobility and Skills in the UK Construction Sector 2015 to give a picture of mobility within the workforce. Data specific to Yorkshire and the Humber[37] will be analysed in order to understand how this might impact on future training interventions and the supply of job opportunities for local people.

7.1. Main points

- More than a third of all Yorkshire & Humber construction workers have worked in the industry for at least 20 years (36%). A total of nearly two thirds have done so for 10+ years (63%).
- Seven in ten of all construction workers in Yorkshire and the Humber (71%) were interviewed in the same region in which they were living in when they started their construction career.
- Within Yorkshire and the Humber, the average (mean) distance from workers' current residence (taking into account temporary residences) to their current site was 19 miles.
- Three quarters of all construction workers in Yorkshire and the Humber are confident that when they finish this job they will get a job that allows them to travel from their permanent home to work on a daily basis (78%).
- Overall more than half of all construction workers have only worked on one project type (55%).
- Just under half of construction workers say they definitely will be working in the industry (45%) and a further four in ten think it is very or quite likely (40%).

7.2. Work history

Just over a third of construction workers in Yorkshire and the Humber have worked in the construction industry for over 20 years (36%) and almost two thirds have worked in the industry for at least 10 years (63%). With the most likely reason for working in the region because they grew up there/have always lived there (58%). Eight in ten (80%) construction workers in the region have remained in Yorkshire and the Humber for all or most of their career.

Further proof of the stability of the construction workforce in Yorkshire and the Humber is emphasised by the finding that in the majority of cases (82%) workers reported their last site was also in Yorkshire and the Humber

In terms of the regions/nations in which workers' current employer operates in, the majority (88%) of workers in Yorkshire and the Humber reported that their employer operated within the region they were currently working in, while 15% operated in the North East, 11% in the East Midlands and 10% in the North West, as shown in Appendix L.

[37] CITB (2015) Workforce Mobility and Skills in the UK Construction Sector – Yorkshire and the Humber

7.3. Worker origins

Workers were asked which region/nation they were living in just before they got their first job in construction in the UK. Overall seven in ten of all construction workers in Yorkshire and the Humber (71%) were interviewed in the same region in which they were living in when they started their construction career.

Furthermore construction workers in Yorkshire and the Humber are again most likely to have stayed in the region where they studied for their first qualification (82%), with a small share achieving their qualification in the North East (8%). Additionally there is a higher than average mention by workers in the East of Midlands (9%), table available in Appendix L.

7.4. Travel to site

The majority of construction workers were interviewed on a site that was located within the same region/nation as their permanent home with 1 in 7 construction workers in Yorkshire and the Humber travelling into the region for work from another region in which their current residence is based (which includes those travelling to/from work from a neighbouring region).

Additionally two thirds (66%) construction workers in Yorkshire and the Humber were interviewed on a site that was located within the same region as their current residence.

Workers in Yorkshire and the Humber were asked to indicate the furthest distance they have worked from their permanent or current home in the last 12 months. Figure 15 shows that more than half have worked more than 50 miles away from their permanent home (53%), with more than a quarter that have worked between 51 and 100 miles away (27%). Workers based in Yorkshire and the Humber were amongst those most likely to have travelled more than 100 miles from their permanent home to work in the last 12 months.

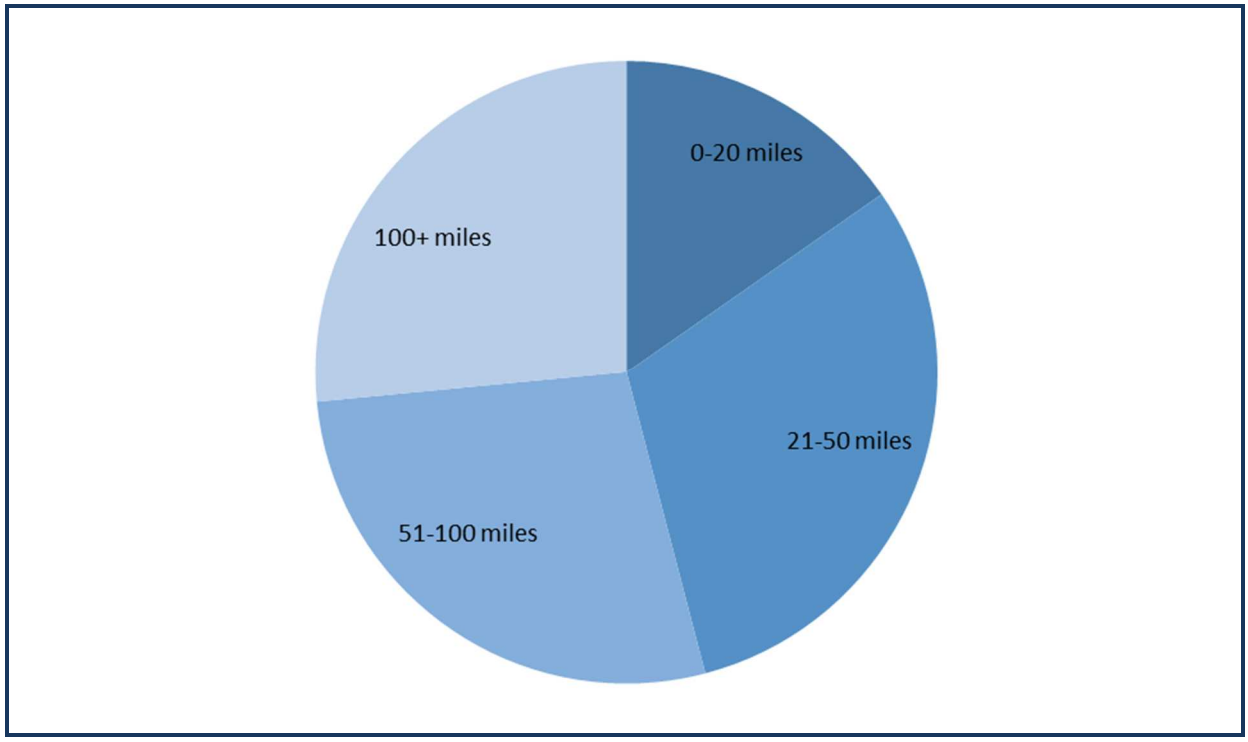

Figure 15: Furthest distance worked in past 12 months (CITB, 2015)

Within Yorkshire and the Humber, the average (mean) distance from workers' current residence (taking into account temporary residences) to their current site was 19 miles.

7.5. Site duration and change

In order to get a measure of workplace stability, workers were asked to indicate how long in total they expect to work at that specific site during this phase.

A fifth of all construction workers in Yorkshire and the Humber (20%) do not expect to work on that site for more than a month, including 9% that only expect to be there for about a week or less compared to three in ten who expect to stay on that site for a year or longer (29%). However a comparable proportion (30%) of workers did not know how much longer they could expect to be on site!

Three quarters of all construction workers in Yorkshire and the Humber are confident that when they finish this job they will get a job that allows them to travel from their permanent home to work on a daily basis (78%).

7.6. Sub-sector and sector mobility

All workers were asked which (if any) of six types of construction work they have spent periods of at least 3 months at a time working in.

Compared with 2012 there has been a significant increase in the proportion of construction workers that have been working on new housing within Yorkshire and the Humber; up from 61% to 85%. For all other types of projects the proportion of construction workers that have worked on them has fallen since 2012.

Overall more than half of all construction workers have only worked on one project type (55%), compared with a fifth in 2012 (19%), which again suggests a pattern of increased stability in the sector.

Table 8: Type of construction projects workers have spent significant periods working on (CITB, 2015)

	Y&H 2015 %	Y&H 2012 %	Y&H 2007 %	UK 2015 %
New housing	85	61	69	83
Housing repair and maintenance including extensions/loft conversions	29	49	32	36
Commercial work such as shops, office, pubs etc.	27	72	34	35
Private industrial work such as factories, warehousing, mechanical engineering, land reclamation	26	67	26	30
Public non-housing work such as schools, sports facilities, landscaping	33	63	29	33
Infrastructure building projects, such as road/rail/airport, sewerage/water treatment, power stations	20	26	9	21
ONE TYPE ONLY	55	19	49	48
TWO TYPES	13	19	17	14
THREE TYPES	10	14	14	11
FOUR TYPES	6	15	8	8
FIVE TYPES	8	18	8	9
SIX TYPES	8	15	1	9
Unweighted bases	*369*	*399*	*235*	*4771*

7.7. Leaving the sector

In order to assess the potential outflow from the sector in the next five years (led by worker preference), all workers were asked how likely it is that in 5 years' time they will still want to be working in construction. Within Yorkshire and the Humber, just under half the construction workers say they definitely will be (45%); a further four in ten think it is very or quite likely (40%).

Excluding those aged 60 and over (as those over 60 may be assumed to be considering retirement in the next 5 years): 47% believe they will definitely want to be working in the construction sector, 28% believe it is very likely they will want to be working in the construction sector and 12% believe it is quite likely they will want to be working in the construction sector. Only 6% think on any level that they will not want to be working in the construction sector in 5 years' time which is less than in 2012 (7%).

Overall the findings from the Mobility survey indicate a stable, well established workforce across Yorkshire and the Humber. There is some evidence of movement between neighbouring regions, specifically the East Midlands and North East but on the whole the workforce have grown up in the region, undertaken their initial construction training in the region and have stayed there for the majority of their working life. Additionally optimism across the workforce is high with a majority expecting to still be in the construction industry in 5 years' time.

8. Demand against supply

8.1. Main points

- Demand based on the work identified would account for just over half of the current workforce employed within the LEP
- In 2015 and 2016 average yearly demands of 23,000 workers and 27,000 workers respectively are estimated
- Civil engineers, Logistics & Plant operatives will all be in high demand.

8.2. Demand against Supply

Before looking at demand against supply, it should be noted that the Glenigan dataset used to produce the demand view is based on projects that are picked up at various stages of the planning process. As such there will be projects in the pipeline that may not go ahead or be subject to delay; additionally there will be newer projects that will be added to the list. In this respect the view is essentially a snapshot of what potential work could look like.

When looking forward, there will be less visibility on future projects, especially for work that requires shorter planning times. Research carried out by CITB on behalf of UKCG (Figure 16, unpublished) showed that the lead time from planning to work starting on site varied by the type of work and value. Large scale infrastructure and commercial projects took the longest time whereas lower value work in general along with work in the industrial sector was able to get on site quickest.

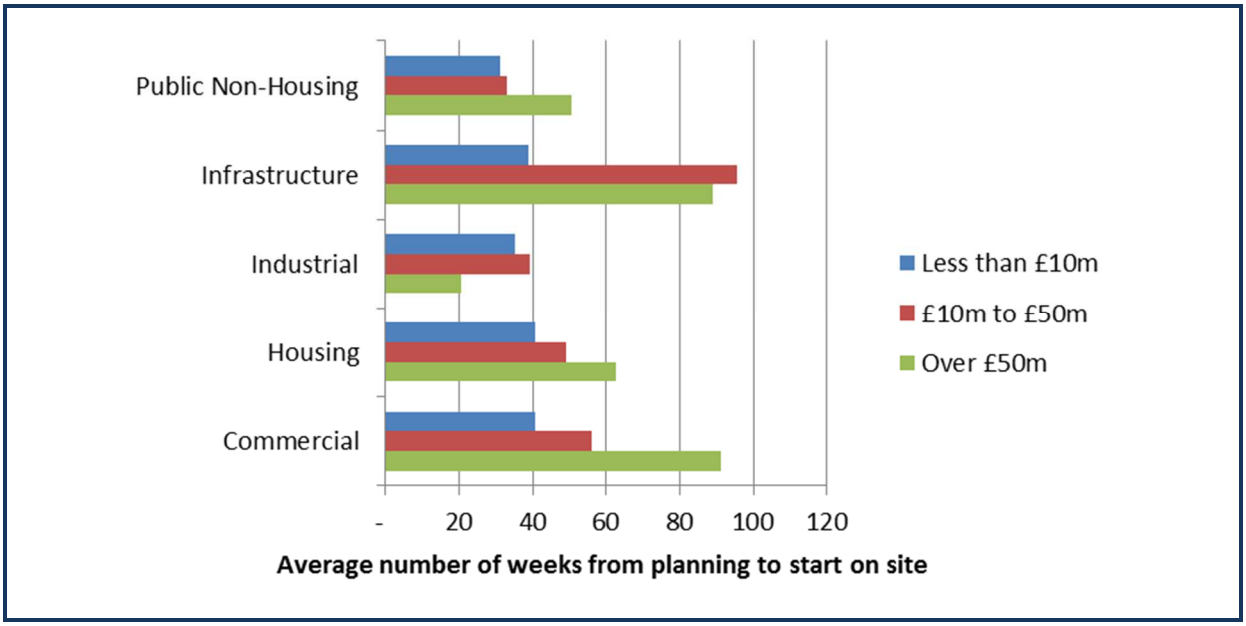

Figure 16: Average number of weeks from planning to work on site, UK 2010-2013 (Source: UKCG/Glenigan)

There will also be work carried out that does not require planning permission, for example household repair and maintenance (R&M) work, and this can account for a significant share of work in the construction sector. Current estimates for R&M work in Yorkshire and the Humber indicate that it accounts for 38% of yearly construction output[38].

[38] CITB(2015) Construction Skills Network – Yorkshire and the Humber

Also in looking at demand against supply, while different types of projects can be categorised by their type of build, such as housing, commercial and industrial, the workforce skills required are less easy to categorise in the same way as some occupations will be able to apply their skills across a number of different sectors. For example, evidence from the 2015 Mobility research[39] shows that occupations such as dryliners, banksmen/bankspersons and scaffolders are most likely to have only worked on one project type, while plumbers, painter/decorators, plasters and roofers have experience on all types of build.

In general, as discussed in the Mobility section, construction workers in Yorkshire and the Humber largely live and work within the region which suggests that the supply of workers for future projects will, in the main, come from workers in the area.

The demand figures based on the work identified would account for just over half of the current workforce employed within the LEP as Table 9 shows. In 2015 and 2016 average yearly demands of 23,000 workers and 27,000 workers respectively are estimated.

Table 9: Demand as a % of 2015 employment (Source: CITB/WLC)

Area	2015 Average Demand (% of 2015 employment)	2016 Average Demand (% of 2015 employment)
York, North Yorkshire & East Riding LEP	51%	59%

The demand details covered in Section 5 show that work across the LEP will require involvement from the full range of construction occupations throughout the timeline. Analysis of the occupational groups used in the CSN, which can be compared to estimates of current employment allows examination of both 2015 and 2016 demand (as highlighted in Table 10).

[39] CITB(2015) Workforce Mobility and Skills in the UK Construction Sector – Yorkshire and the Humber

Table 10: Occupational breakdown of demand for York, North Yorkshire & East Riding LEP (Source CITB/WLC)

	DEMAND	
Occupations	Average 2015	Average 2016
Senior, executive, and business process managers	42%	47%
Construction Project Managers	52%	64%
Other construction process managers	48%	57%
Non-construction professional, technical, IT, and other office–based staff (excl. managers)	48%	55%
Construction Trades Supervisors	59%	71%
Wood trades and interior fit-out	49%	71%
Bricklayers	46%	43%
Building envelope specialists	55%	65%
Painters and decorators	57%	65%
Plasterers and dry Liners	35%	40%
Roofers	37%	38%
Floorers	38%	49%
Glaziers	44%	46%
Specialist building operatives not elsewhere classified (nec)	75%	89%
Scaffolders	37%	62%
Plant operatives	**158%**	**182%**
Plant mechanics/fitters	40%	54%
Steel erectors/structural	42%	39%
Labourers nec	84%	91%
Electrical trades and installation	36%	39%
Plumbing and heating, ventilation, and air conditioning trades	40%	45%
Logistics	**113%**	**121%**
Civil engineering operatives not elsewhere classified (nec)	47%	38%
Non–construction operatives	65%	76%
Civil engineers	**107%**	**130%**
Other construction professionals and technical staff	49%	60%
Surveyors	40%	45%
Total	**51%**	**59%**

This analysis shows that there are some possible disparities where demand either outstrips or very closely matches the current employment estimates for a number of occupations. These are:

- Civil engineers
- Logistics
- Labourers nec
- Plant operatives
- Specialist building operatives

For each of these occupations, demand in 2016 is either surpassed or around 10% of matching current employment. Of these occupations the main risks look to be around the future supply of:

- Civil engineers
- Logistics
- Plant operatives

All of these will all be in high demand, based on both their share of forecasted employment, and the absolute numbers required.

It is interesting to note that the analysis provides a wide cross-section of occupations based on their skillsets, qualification levels and those traditionally working across other sectors. The following discussion categorises the occupations between those which are construction specific and those which also work in other sectors.

8.2.1. Construction specific occupations

The high demand for **Civil engineers** is undoubtedly a reflection of the wider UK shortage[40]. Additionally as a professionally qualified occupation which tends to require degree qualifications, there will be at least 3 years of education and training before becoming qualified. It is therefore highly likely that the short-term demand increase identified would require workers to be drawn into the LEP.

While the skill requirement for **Labourers** may not be as high as trades such as carpentry, roofing and the like, some may see it as a way of gaining construction experience. The risk here is the number required and the training that would be needed to get them working safely on construction sites, however this is likely to be focused on the number of candidates from within the LEP area that are willing to take up labouring roles.

Specialist building operatives covers a range of occupations which have specialised and niche skills predominately used for repair and refurbishment, this type of work tends to be more labour intensive and consequently they are in high demand during 2016. Dependent upon the type of specialism required the current training provision within the LEP may be able to train some of the demand, but there may be a necessity to export from other regions.

[40] Migration Advisory Committee (MAC) Shortage Occupation List 2015

8.2.2. Cross-sector occupations

As skills in these occupations can be used in other sectors, the degree to which demand can be met will be influenced by factors other than construction demand.

Logistics skills have an element of cross over, particularly with retail and transport sectors which would mitigate potential demand. When compared to other occupational groups it is also lower in actual numbers which magnifies percentage changes.

Plant Operatives move between construction and other sectors such as manufacturing and wholesale/distribution. Appendix H suggests training within the LEP is limited, therefore experienced workers will be required from outside the area and other sectors.

In regards to how demand fits with existing training provision, Appendix H highlights that the six main colleges across the LEP cover a wide range of construction training and qualifications. However it should be noted that although construction work will generate a training demand, other factors such as the requirement to have a qualification in relation to a competence card (Construction Skills Certification Scheme (CSCS) http://www.cscs.uk.com/ and Construction Plant Competence Scheme (CPCS) http://www.citb.co.uk/cards-testing/construction-plant-competence-scheme-cpcs/about-the-cpcs/) and delivering training to people leaving school, will also have a bearing on what training is required.

As noted earlier, there will be other work carried out in the LEP area that does not require planning permission, which will not have been captured in the demand analysis. With the level of demand identified taking up most of the workforce, and given the mobility factors outlined above, it is very likely that workers will need to be drawn into the LEP to meet demand.

9. Training needs assessments

As part of a wider piece of research, the Grimsby Institute Group, Groundwork and Yorkshire Coast College have been undertaking training needs assessments (TNAs) with local construction companies in the LEP area.

We have analysed the outputs from this exercise and synthesised the results. Our full analysis is provided in Appendix K and a summary is presented in this section. In total there were 85 TNAs provided by Yorkshire Coast College. These TNAs were completed in an interview situation by employers. The assessment sought to assess the employers' skills needs and workforce training and development. Of the 85 we received, 71 were provided in time to undertake the analysis.

The training needs assessments which have been undertaken have added another layer to the research in this report. The labour demand, supply and gap analysis has focussed at the occupational level. The TNAs have allowed additional insights to be gained into the specific skills that might be required for the industry and what training might be delivered. They have also explored the methods by which training might be delivered and the barriers to training.

The sample of respondents has not been tested for their representation of the entire construction industry. Indeed, it is unlikely, given the large number and range of employers within the LEP that such a small sample would prove to be statistically representative. Notwithstanding that caveat the following key messages can be drawn from the responses which have been received.

There are three major skills issues which appear to be causing businesses problems, namely:

- Health and safety
- Emergency first aid
- CSCS cards

The need for traditional skills training is also an issue, as is asbestos awareness. These same issues are the ones for which employers have funded or arranged training in the last 12 months and also those for which employers could see benefit to them in receiving training. This would suggest that some training has been carried out in these areas, but that further opportunities exist. In terms of new skills for the employers included in the analysis, there is a large number who foresee a new trade skill as a requirement and for them over the next 3 years. The sustainable construction agenda is also important as are CSCS/CPCS cards and site engineering/management/supervision. Most of the training is required at the skilled trades and operatives levels although the assessments have identified that there is a need with managers, directors and senior officials.

The assessments identified, that although there is a broad range of opinion, the preferred method of training was for onsite delivery. This is possibly connected with the main barrier to training which is the inability to spare staff time away from site.

10. Validation and verification

Stakeholder engagement is crucial to the success of our research. It helps enrich the results that we have produced through our detailed employment modelling. The process of stakeholder engagement has been a constant feature of this study and this chapter contains detail of the focus groups.

10.1. Focus groups

Two focus groups were held in Scarborough: the first on 3rd June 2015 and the second on 24th June 2015. These focus groups have been held jointly with Groundwork who is undertaking a related piece of research for the Grimsby Institute. The purposes of the focus groups were to present our approach and understand what the key challenges were for employers in the area. Both focus groups had the same list of invitees. A summary of the type of attendees is shown in Table 11; a detailed breakdown of attendees is in Appendix I.

Table 11: Attendees at focus groups

Type of organisation	Number of attendees at focus group 1	Number of attendees at focus group 2
Skills agency/organisation	7	4
Contractor	3	3
Housing Association	2	1
Local Authority	1	1
Training provider	1	0
Other	1	1

During the first focus group, attendees were split into two groups. They were asked to rank the volume of activity by nine sectors as shown in Table 12 for the local area over the coming years first by the volume of activity (£m) and subsequently by the labour demand. A rank of 1 is the highest value and the highest labour demand. There was broad agreement between the two groups about the rank order of the both value and labour. Unsurprisingly for two different groups the rank orders did not match up exactly.

It is interesting to note that both groups placed a high emphasis on industrial construction as having a high labour demand. This is not verified by the analysis that has been undertaken because of the relatively low labour content per million pounds spend compared to other sectors. The discrepancy between the groups in the top rank by value of industrial and infrastructure was due to different allocations for the Potash Mine.

Table 12: Rank order of value and labour demand

	Group 1		Group 2	
	Value	Labour	Value	Labour
Non-housing R&M	7	6	9	3
Housing R&M	6	1	7	2
Commercial	5	8	6	7
Private Housing	2	3	2	4
Infrastructure	3	5	1	6
Schools/Hospitals	8	7	5	9
Other Public Non-Residential	9	9	8	8
Industrial	1	2	4	1
Public Housing	4	4	3	5

Following this exercise both groups were asked to identify potential causes of skills gaps. These causes were written down by each group with no detailed discussion or debate as to whether they were serious or minor issues. A complete list of all of the potential causes is shown in the right-hand column of Table 13. As each group wrote down a cause the facilitator took each of the causes and collated them into similar themes. These themes are also shown in the table.

Each individual was then given 14 sticky dots and allowed to give those dots to each of the themes in order of importance. If they considered them all to be equally important they could give one dot to each; equally they could give all their dots to one theme.

Table 13: Themes of causes of skills gaps emerging form focus groups

Theme	Causes of skills gaps proposed
Economic uncertainty	Interest rates
	Sustainability - lack of constant work
	Universal credits/benefits
	Lack of work historically
	Public Spending
Recruitment	Funding gap for adults wanting to be a trades person
	Bad perception of the construction industry
	Lack of careers awareness within schools
	Poor career information given to students
	Lack of awareness of breadth of construction career opportunities
	Lack of funding awareness
Procurement	Companies from “away” not using local staff - use own
Support	Lack of business awareness
	Lack of business support to be able to "grow"
Structure of the industry	Self-employment vs training commitment (high risk)
	Costs for small businesses (H&S etc.)
	Business too small to hire and train
	Too many one man band businesses - not ready to take more staff
Existing qualifications	Shorter apprenticeships
	Middle skills trade - pipe layers, kerb layers - Lack of interest
	Machine drivers - site experience
Ageing workforce	Ageing workforce
Pull of other sectors[41]	
Qualifications	Renewable qualifications
Pay	Poor Pay
Impact of the recession	People not coming back into the industry post-recession
Old fashioned industry	Technology

Table 14 and Figure 17 show the distribution of dots (votes) for each of the themes. A cumulative distribution line has been added to show the spread of the votes. There was very little difference between the top four most important causes which together accounted for almost 60% of the votes cast. These were economic uncertainty, recruitment, procurement, and support to the industry.

[41] It should be noted that the “pull of other sectors” was not identified by either of the groups and was added to the discussion by the facilitator immediately before the prioritisation.

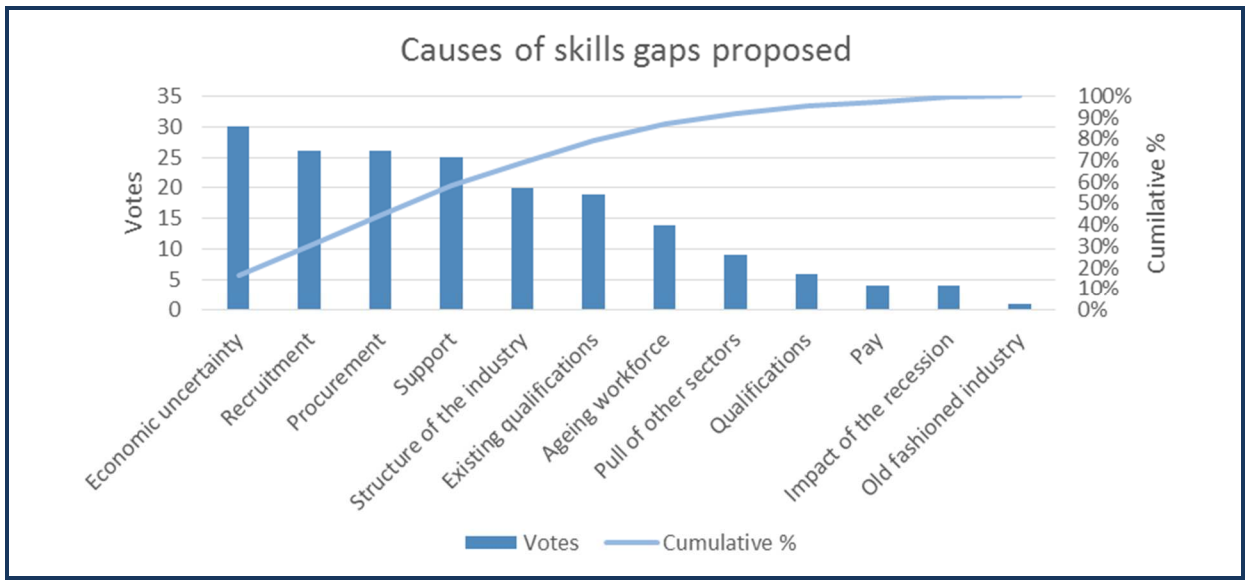

Figure 17: Prioritisation of skills gaps

Table 14: Prioritisation of skills gaps

Theme	Votes	% Votes
Economic uncertainty	30	16%
Recruitment	26	14%
Procurement	26	14%
Support	25	14%
Structure of the industry	20	11%
Existing qualifications	19	10%
Ageing workforce	14	8%
Pull of other sectors	9	5%
Qualifications	6	3%
Pay	4	2%
Impact of the recession	4	2%
Old fashioned industry	1	1%

The focus group attendees were invited to rate the value of each meeting. This was particularly important after the first focus group to ensure that stakeholder felt that they were obtaining value from attending and would therefore be likely to contribute to the second one. In general the feedback was rated “very good” or “excellent” and an overview is provided in Appendix J.

The second focus group was designed to validate the findings of the research. The meeting took a less structured approach to the first one. The results as outlined in this report were presented and there was discussion around whether the results corresponded with the views of those around the table. There was general agreement that the results were consistent with the experiences of those present.

The first focus group had identified a number of causes of skills gaps for the construction industry. The group were then invited to discuss potential solutions to overcome the gaps. The following themes emerged from the discussion:

- There is a need to find a sustainable level for the industry that can provide long term work.

- There is a need for more support from skills agencies such as CITB in ensuring the qualifications match industry requirement (for instance, plastering and dry lining) and bespoke skills such as groundworkers.
- There is a challenge in recruiting to the industry because of the current pay models for apprentices which may make employment in other sectors more attractive in the short term.
- There is an urgent need to ensure that schools are appropriately equipped with the knowledge to make children aware of the career options available in construction.

11. Conclusions and recommendations

11.1. Summary of Concluding Remarks

- The LEP area is made up of three areas: North Yorkshire, East Riding of Yorkshire and City of York. Over the period 2015-19 around 16% of the work force will be required for projects within the City of York. The remaining workforce is split in roughly equal parts across North Yorkshire and the East Riding of Yorkshire.
- Current construction workforce estimates for Yorkshire and the Humber are around 196,000 workers.
- The York, North Yorkshire & East Riding LEP accounts for 23% of Yorkshire and the Humber's current construction employment (approx. 45,000 workers).
- Within the LEP construction employment is mainly located within North Yorkshire (54%).
- North Yorkshire also has the largest share of construction businesses (56%) however it has less micro sized companies (0-9 employees) and more smaller sized (10-49 employees), hence the larger employment share.
- The analysis of the labour demand arising from the development spend in the LEP area indicates a peak workforce of just under 27,000 people in 2016. Significantly the tail off beyond this point is not likely to represent an actual drop off in construction activity, but reflects projects which have not yet been identified.
- These figures only represent the developments which are included in the Glenigan database which will not necessarily capture all of the construction activity, particularly in the repair and maintenance area.
- To project forward this cliff edge in construction activity we have produced an indication of how construction activity in the region (Yorkshire and Humber) as a whole is forecast to change over the next five years. This shows a peak of activity in 2016 and 2017 followed by a slight reduction towards the end of the decade.
- The labour demand in the LEP area is dominated in the short term by the work on the Potash Mine in North Yorkshire and in the medium term by offshore wind. Engagement with stakeholders has suggested that although the offshore wind projects are currently assigned to the East Riding of Yorkshire it is possible that the construction element will take place in Hull or elsewhere on the east coast.
- It is proposed that further clarity is sought on the positioning of this work as the labour demand by 2019 from offshore wind could account for more than 30% of the workforce. To place the magnitude of the offshore wind sector in context, the construction value is comparable to the total housing output across the LEP area during 2015-19.

- The demand excluding the potash mine and the offshore wind projects the largest single sector in the region is housing. Housing is also one of the most labour intensive so that between a third and a half of the workforce demand in the LEP area is generated by housing in 2016.
- The combination of public non-residential and commercial, requiring a similar skills profile has a similar value of output to housing over the period 2015-19.
- There were 3,060 Construction and Building Services Engineering learning aims delivered in the LEP area, accounting for 9% of the total number of learning aims in 2012/13[42].
- Construction learning aims account for 82% of delivery with Building Services Engineering the remaining 18%.
- 20 training providers delivered construction relevant FE courses within the LEP area, with the five main providers delivered approximately two-thirds (64%) of all FE Construction and Building Services Engineering learning.
- More than a third of all Yorkshire & Humber construction workers have worked in the industry for at least 20 years (36%). A total of nearly two thirds have done so for 10+ years (63%).
- Seven in ten of all construction workers in Yorkshire and the Humber (71%) were interviewed in the same region in which they were living in when they started their construction career.
- Within Yorkshire and the Humber, the average (mean) distance from workers' current residence (taking into account temporary residences) to their current site was 19 miles.
- Three quarters of all construction workers in Yorkshire and the Humber are confident that when they finish this job they will get a job that allows them to travel from their permanent home to work on a daily basis (78%).
- Overall more than half of all construction workers have only worked on one project type (55%).and Just under half of construction workers say they definitely will be working in the industry (45%) and a further four in ten think it is very or quite likely (40%).
- Looking at demand against supply, while different types of projects can be categorised by their type of build, such as housing, commercial and industrial, the workforce skills required are less easy to categorise in the same way as some occupations will be able to apply their skills across a number of different sectors. For example, evidence from the 2015 Mobility research[43] shows that occupations such as dryliners, banksmen/banksperson and scaffolders are most likely to have only worked on one project type, while plumbers, painter/decorators, plasters and roofers have experience on all types of build.
- In general, as discussed in the Mobility section, construction workers in Yorkshire and the Humber largely live and work within the region which suggests that the supply of workers for future projects will, in the main, come from workers in the area.
- Demand based on the work identified would account for just over half of the current workforce employed within the LEP in both 2015 and 2016 with estimated average yearly demands of around 24,000 workers and 27,000 workers respectively.
- This analysis shows that there are some possible disparities where demand either outstrips or matches the current employment estimates for a number of occupations. These are Civil engineers, Logistics, Labourers nec, Construction trades supervisors, Plant operatives and Specialist building operatives.

[42] Note: a leaner can have multiple learning aims depending upon the nature of the course learning.
[43] CITB(2015) Workforce Mobility and Skills in the UK Construction Sector – Yorkshire and the Humber

- For each of these occupations, demand in 2016 is either surpassed or around 10% of matching current employment. With the main risks the future supply of Civil engineers, Logistics and Plant operatives.
- Honing down into the analysis of training needs for local SME's, there are three major skills issues which appear to be causing businesses problems, namely Health and Safety, Emergency First Aid and CSCS cards.
- The need for traditional skills training is also causing an issue, as is asbestos awareness. These same issues are the ones for which employers have funded or arranged training in the last 12 months and also those for which employers could see benefit to them in receiving training.
- This would suggest that some training has been carried out in these areas, but that further opportunities are required. In terms of new skills for the employers included in the analysis there are a large number who are interested in trades and foresee that being a requirement for them over the next 3 years.
- The sustainable construction agenda is also important as are CSCS/CPCS cards and site engineering/management/supervision. Most of the training is required at the skilled trades and operatives levels although the assessments have identified that there is a need with managers, directors and senior officials.

11.2. Recommendations

a. Given the demand profile of projects within the pipeline in the York, North Yorkshire and East Riding area and the impact that major projects such as potash mining and offshore wind developments will have on the pool of available suitability qualified labour there is a clear need **for a dedicated Construction Skills Plan**. This will enable the skills challenges to be identified and acted on utilising an updated evidence base that will inform decision making.

b. Feedback from stakeholders indicates that a partnership between the wider business community, client side and education providers would be beneficial in addressing key concerns which are largely focussed around recruitment, economic uncertainty, support for the industry and procurement.

c. Whilst the major projects of potash mining and offshore wind developments have significant impact there is considerable opportunity that sits outside of these projects; particularly in the housing sector where a 'stand-alone' strategy has been created to address the significant housing needs of the LEP area. Direct LEP engagement with the sub-sector is recommended as this will present particular opportunities for SME and micro businesses in the area.

d. Direct engagement with Tier One contractors on the areas major projects should be strengthened across the business community, led by the LEP to ensure regular engagement is taking place with education providers and through the supply chain to ensure the skills challenges are planned for and met. This communication will also be beneficial if short term interventions need to be instigated to meet a particular skills need that could benefit local HE and FE providers, local employment and SME's.

e. A number of risks have become apparent that need to be managed and mitigated, particularly regarding the peak demand levels next year (2016) This include ensuring the local labour force can benefit from the opportunities materialising, ensuring skills gaps are addressed through training interventions in both the short and longer term and that the curriculum offer across the area is well planned and 'demand led'.

f. Strong links need to be in place between employers and educational providers at both HE and FE level to co-develop and co-design modules to support specialist learning relating directly to delivery of key projects.

g. The consideration of skills brokerage teams on major projects; to work with supply chains, education providers and local agencies and provide a skills matching service.

h. Occupations high-lighted as having potential pinch-points' should form part of an early Action Plan to assess what short-term interventions can be activated to address these concerns and identify funding that can be utilised to pump-prime short term training interventions.

i. Image and recruitment into the industry remains a constant issue. Given the demand profile for the LEP area it is vital that stakeholders work together to create a campaign to promote the construction industry and clear career pathways for all members of society to be enabled into a construction based career. This includes apprentices, graduates, the long term unemployed, adult returners and new entrants, regardless of ethnicity or gender.

j. Commission regularly updated Labour Market Intelligence (LMI) which will provide an evidence base to support decision making; plus demonstrates the opportunities in construction that are in the pipeline.

k. Ensuring 'pipeline visibility' should assist the industry in reducing risk linked to economic instability and lack of sustainable employment.

l. The LEP, with its stakeholders should explore the opportunity to create a Shared Apprenticeship Scheme across the area which can benefit from employer collaboration and the range of projects on the horizon.

m. Promote innovation through initiatives developed between employers and universities to understand the impact of technological change in the sector, particularly in relation to major projects.

n. Explore with commissioning clients (particularly local authorities) how procurement good practice can drive employment and skills opportunities and influence the behaviour of suppliers to achieve greater social value. There is also a need to ensure local SMEs and micro business are not excluded from accessing tendering opportunities and can be enabled to act 'collaboratively' through the procurement process. This can include utilising contracts (including Frameworks) to stipulate targets linked to job creation, apprentices, graduates and career engagement through schools. (Guidance can be provided through the CITB National Skills Academy Client Based Approach and the Cabinet Office).