Construction Skills Gap Analysis for the Lancashire Local Enterprise Partnership

Final report

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1. Executive Summary

This report is one step in maintaining an evidence base, utilised by the Lancashire LEP to inform decision making that will help determine the employment and skills opportunities emerging in the construction industry for Lancashire.

Construction is a significant part of the economy and is a major employer. But it is also an enabler of economic growth and job creation and has a significant impact on enhancing the built environment, in creating the facilities required of a modern economy and addresses significant social issues, such as a shortage of housing. It is also an enabler of other sectors' success by building the facilities required for commercial and industrial advances as well as the infrastructure that is, in turn, an enabler of growth. It is, therefore, essential for the Lancashire LEP to invest in supporting the actions proposed in this report and the wider evidence base as well as involving stakeholders in the development of the associated plans.

This report represents the concluded research, taking into account key issues posed by the Lancashire LEP seeking to identify issues so that a practical approach can be taken to realising the opportunities that activity in the construction sector can generate in developing skills, creating jobs and enhancing the local economy, built environment and opportunities.

The Lancashire LEP is seeking immediate opportunities to investigate and respond to as well as identifying actions that can lead to longer term development.

In particular the Lancashire LEP has expressed a particular interest in Higher Education and this is addressed, as far as possible, within this report.

The analysis starts to determine the priorities for interventions to address to ensure local opportunities are maximised and that Lancashire has the right future curriculum in place to deliver demand led solutions.

Much of what is covered in this report is in concert with or supports many of the priorities listed in the Lancashire LEP's Skills and Employment Strategic Framework.

The Industry

Within the Lancashire LEP area there are 6,100 construction companies employing 47,210 people. Of these companies, 93% are micro (employing less than 10 people), 6% are small (employing between 10 and 49 people), 1% are medium (employing between 50 and 249 people) and 0.1% are large (employing over 250 people).

Training and Education

95% of all construction further education training provision in the Lancashire LEP area is supplied by eight main providers. Each year around 630 people undertake apprenticeships in construction related occupations.

Two Lancashire universities provide opportunities for 320 people each year to study construction related degree level qualifications.

Future Project Pipeline

The analysis assessed 697 construction projects with a total construction value of almost £6.8 billion. Of these, the 130 project (19% of the number) that are of greater value than the average for the total pipeline are worth almost £5.5 billion (or 81% of the total value).

New housing is particularly significant, with new build expected representing 50% of the value of known new projects; private commercial developments and infrastructure are, however, also significant.

Future Skills Demands

To meet the pipeline of projects it is forecast that more than 850 people each year will need to enter the construction industry in the Lancashire LEP area. The occupations with greatest demand are bricklayers, plasterers, civil engineering operatives, plant operatives, electrical trades and wood trades and interior fit out.

Recommendations

The report offers a number of recommendations that include:

Develop and strengthen collaborative partnerships. With a view to building collaborative holistic action plans and encouraging local stakeholders to input to, and take ownership of, the construction skills actions.

Outreach. Build a more positive image of construction locally with young people. Increase recruitment through new entrance points, career changes and reskilling. Emphasise that construction offers high value rewarding careers for all.

Training appropriate for local needs and businesses. Develop LEP area construction training so that it is appropriate for the needs of the construction industry and local circumstances, addressing risks of supply shortfalls.

Use procurement as a lever to enable positive action. Develop smarter approaches to procurement to encourage those bidding for construction and infrastructure contracts or those funding developments to be mandated to include provision for recruitment, training, apprenticeships and outreach.

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2. Introduction

This report has been produced in response to a discussion held between CITB and the Lancashire LEP seeking evidence that indicates anticipated demand for construction and associated skills needs as well as the availability of workers and training across the Lancashire LEP area.

The supply of labour is complex and fluid and so where possible, consideration has been given to the wider 'travel to learn' and 'travel to work' as construction workers often travel considerable distances to work and London, in particular, tends to draw in workers from a large area as well as being attractive to migrant workers.

The CITB research team specialises in analysis in this area and will compare the demand and supply picture to create a gap analysis at occupational level, to inform supply side interventions in the short, medium and longer term.

We have assessed the construction projects for which information is available looking ahead over a five year period.

This report considers anticipated construction demand for the Lancashire Local Enterprise Partnership area, along with the provision of construction workers, training delivered and the associated skills gap analysis.

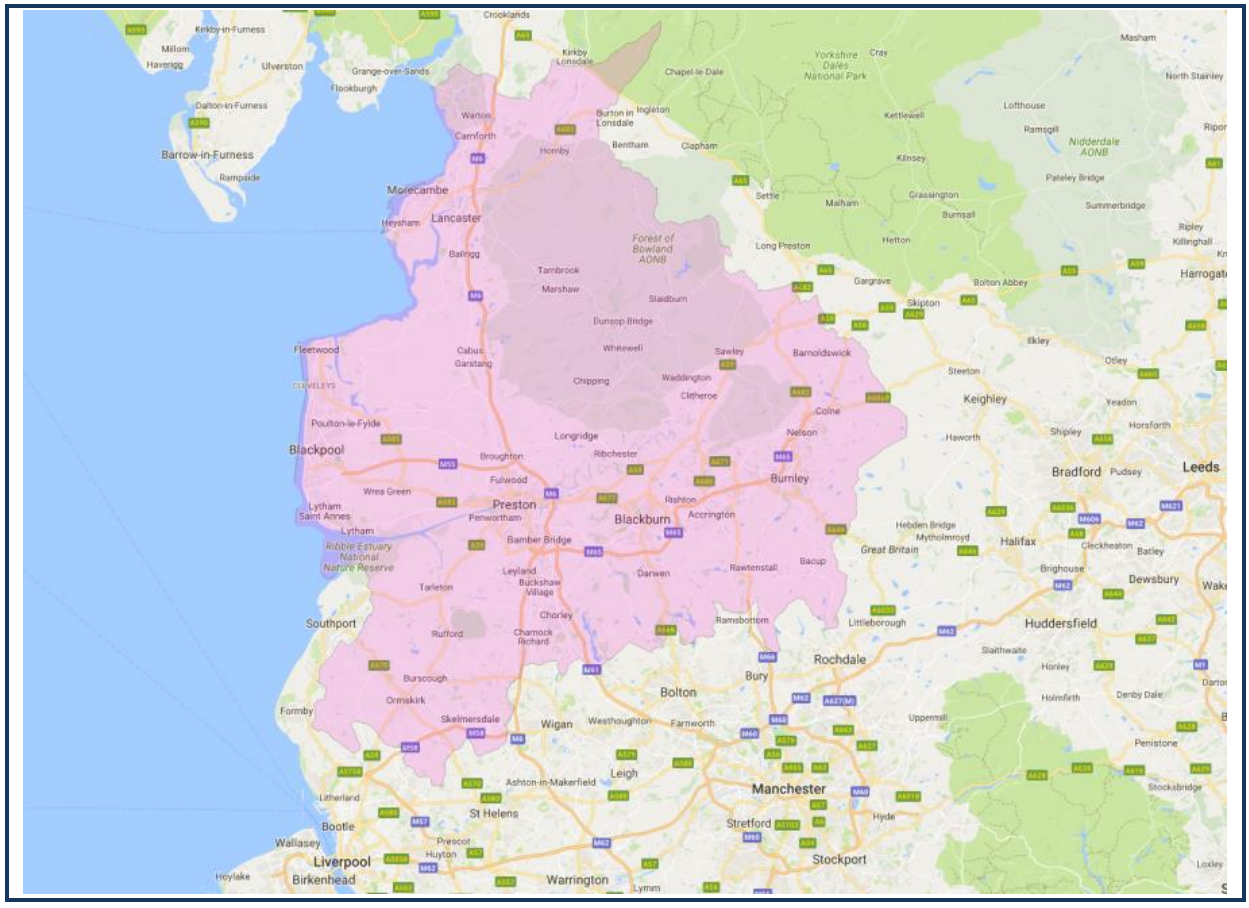

Figure 1: Lancashire LEP and surrounding areas

The research considers activity taking place within the local authorities of:

- Blackpool
- Blackburn with Darwen
- Burnley
- Chorley
- Fylde
- Hyndburn
- Lancaster
- Pendle
- Preston
- Ribble Valley
- Rossendale
- South Ribble
- West Lancashire
- Wyre
- Lancashire County Council

Lancashire LEP's priorities

The Lancashire LEP Skills and Employment Strategic Framework lists a number of priorities for which this report may have some affinity or relevance:

- **Careers Advice and Guidance:** provision of advice and guidance to young people and adults, underpinned by robust labour market intelligence, highlighting the career opportunities in the County and employability in a changing economy.
- **Apprenticeships and work-based training:** increasing the number, range and quality of apprenticeships and encourage greater levels of provision at higher and degree level, reaching more employers in sectors with high replacement demand and growth.
- **Graduate and Higher-level skills retention:** developing new and innovative mechanisms including increasing internships and graduate placements across the Lancashire business base, increasing the number of workers with higher level skills.
- **Construction:** given the need to complete major infrastructure works and increase residential development, develop new initiatives to address requirements and skills challenges in construction and increase the number of partnerships in skilled trades.
- **Skills Provision:** working with Further Education Colleges, private providers, universities and employers to target professional and technical education at areas of high replacement demand and future employment growth in-line with local labour market information and trends.
- **Employer engagement:** increase employer engagement in skills, and encourage greater commitment to workforce development, as well as encouraging employers to work with education providers to influence work-based professional and technical education.

3. Demand analysis

3.1. Introduction

3.2. About labour forecasting

Labour demand depends on the expected level and type of construction activity within a defined geographical area. This commission involves a mixture of projects with different types of work happening at different times. Our analysis derives as complete a picture as possible of the type and timings of projects within an area. To produce the demand forecast we have utilised the following.

- **Glenigan Pipeline:** Glenigan produce a pipeline of forthcoming projects within each local authority of the UK. These are collated to allow contractors to identify leads and to carry out construction market analysis.
- Additional data was provided by the LEP and by some local authorities and this was reviewed, and where possible, used to supplement the Glenigan pipeline data.

  National Infrastructure and Construction Pipeline (NICP): The Infrastructure and Projects Authority (formerly Infrastructure UK and Major Projects Authority compile a pipeline of UK infrastructure and construction projects and the associated annual public and private investment[1]). The Autumn 2016 NICP includes details of the annual spend on each of around 720 items valued at some £500bn to 2020 and beyond.

Once this picture has been determined the labour demand for each project is estimated using our Labour Forecasting Tool (LFT).

- **Labour Forecasting Tool:** CITB's Labour Forecasting Tool is an online application that can forecast labour needs for a range of construction projects using labour coefficients derived from data provided by the Office for National Statistics (ONS). The LFT forecasts monthly skills and employment needs from a project's value and start/completion dates.
- **Construction Skills Network:** The Construction Skills Network (CSN) provides market intelligence for the UK construction industry. The data it produces highlights trends and how the industry will change year-on-year, allowing businesses to understand the current climate and plan ahead for the future.

The LFT produces an estimate of the labour demand on a monthly basis. 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 and is likely to be smoothed by local contracting markets. In light of that we have presented the average workforce during the year of the peak. Labour demand figures have been rounded to the nearest 50.

An explanation of the methodology is included in Appendix A.

[1] The Autumn 2016 pipeline includes both construction and infrastructure projects but for the purposes of this analysis we have solely used projects which are clearly defined specific projects rather than regional programmes of work.. This reduces the risk of double counting with data in Glenigan.

4. Lancashire LEP area construction demand

The following sections provide an estimate of the labour demand that construction investment will create across the Lancashire LEP over the period 2017-2021. They report the outputs determined from the analysis described in Section 2 and the labour demand they generate as calculated by the Labour Forecasting Tool.

4.1. Pipeline of denominated projects

4.1.1. Glenigan pipeline analysis

The initial review of the Glenigan database identified 1,277 projects in the Lancashire LEP area. Of these, 143 projects were removed due to missing dates and 4 projects were excluded which were clearly identified as consultancy projects. 380 projects were removed at the request of CITB and a further 3 projects were removed as they were present in the NIPP. A full set of the projects which were omitted from the analysis is provided in Appendix C. The spend in projects which were removed because of missing dates is around 7% of the total pipeline. The projects omitted were typically valued at between £0.25m and £150m. It is possible that this work will take place at some undefined point in the future but as dates are unknown it is most likely that this will be later in the forecast period. Since dates are not known it is not possible to pinpoint when the labour will be required, but an assessment of the labour demand is made in the estimates of other work from the additional projects.

The Mean Value Theorem was applied to the remainder of the pipeline to identify the significant projects. The process identified 130 significant projects accounting for 81% of the total construction spend in the area. 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 1 shows the number of significant projects within the Lancashire LEP area, the percentage of spend arising from the significant projects and the total spend. The construction spend shown in this table takes account of any adjustments for engineering works and any incomplete, duplicate or consultancy projects. Values are shown in 2016 prices, the base price used in the Glenigan database.

Table 1: Key data for significant projects in Glenigan[2]

	Number of Projects	Construction Spend (£m – 2016 values)
All Glenigan projects	697	6,791
Significant Glenigan projects	130	5,484
Percentage within significant projects	19%	81%

Appendix D provides a full breakdown of the significant projects and their construction values. The peak year for the Glenigan spend profile is 2017. The location of the significant projects within the Lancashire LEP can be seen in Figure 2. The radius of the markers is proportional to the value of the work taking place.

[2] The values in this table are the values from the Glenigan pipeline to which the construction element percentage has been applied and thus reflect the adjusted values of infrastructure projects values to distinguish between construction and engineering construction.

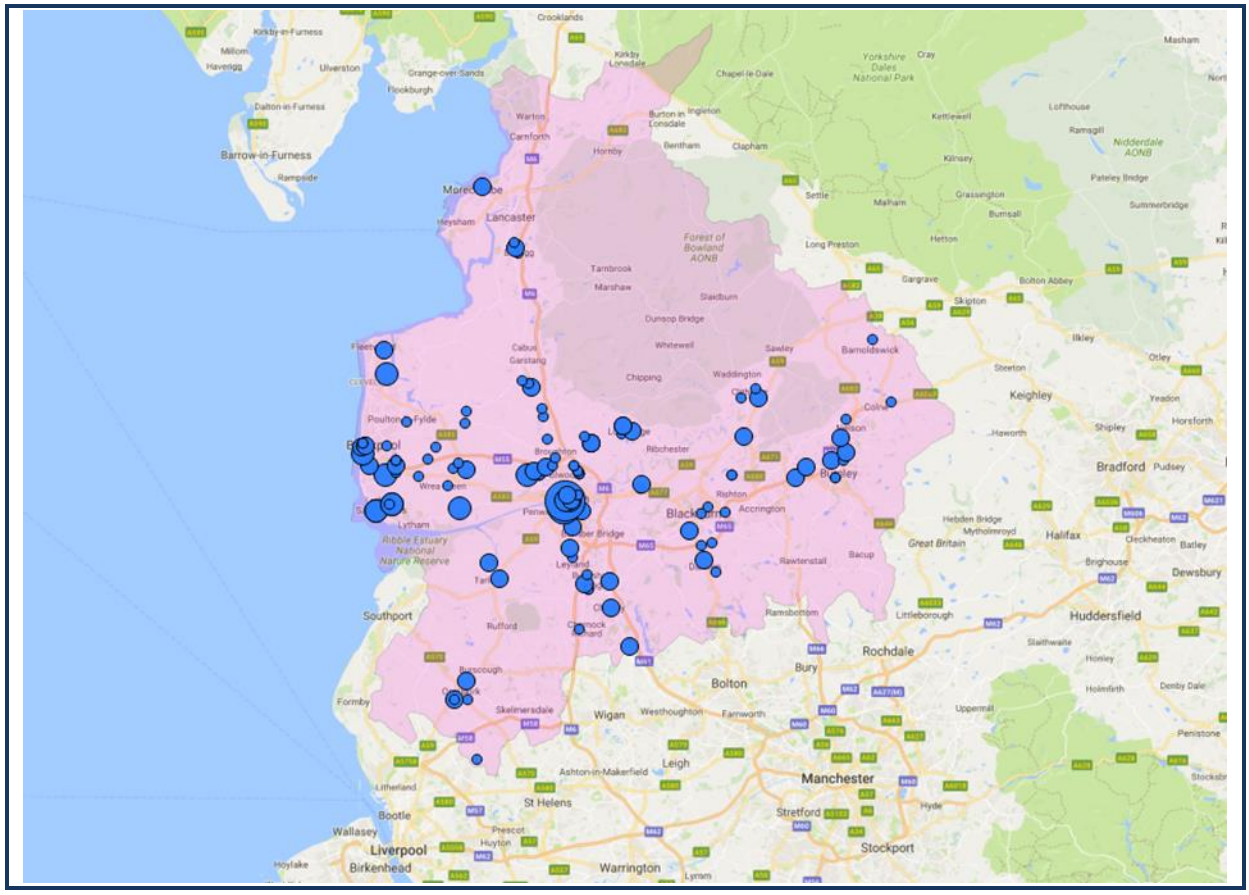

Figure 2: Location of significant projects included in the analysis

4.1.2. Glenigan & NICP spend analysis

Implementing the methodology outlined in Section 3 leads to the following findings for the peak year for denominated projects of 2017. The peak year is used because the tail off in the denominated projects is more likely to be due to a lack of future planning rather than an actual tail off in workload.

Table 2 shows the distribution by sector of new build spend for the total pipeline of denominated projects.

Table 2: New-build construction spend by project type in 2017 (total denominated project pipeline)

Project Type	Construction spend in 2017 (2016 values - £m)	% of total
New Housing	708	50%
Private Commercial	275	20%
Infrastructure	205	15%
Public Non-housing	120	9%
Private Industrial	98	7%
Housing R&M	49	3%
Total	**1,455**	**100%**

Table 3 shows the infrastructure construction spend from both Glenigan and the NICP in 2017 by sub-sector.

Table 3: Construction spend per infrastructure sub-type in 2017 (total denominated project pipeline)

Project Type	Construction spend in 2017 (2016 values - £m)	% of total
Transport	88	43%
Water	55	27%
Energy	40	19%
Flooding	11	6%
General Infrastructure	11	5%
Mining	1	0%
Total	**205**	**100%**

4.2. Estimate of future total labour demand

As outlined in the Section 3 the denominated project pipeline may not include smaller projects or repair and maintenance work. Figure 3 shows the outcomes of the analysis of future labour demand with an employment growth rate included. The solid blue area shows the labour demand arising from the new build Glenigan and NICP projects. Any R&M included in Glenigan or the NICP is also shown. The red shaded area shows the likely total labour demand arising from estimates of other work. (For example smaller works such as repairs, maintenance and improvements to housing and commercial property. See also Appendix A.) The total construction labour demand including the volume of R&M imputed from the CSN model peaks for the area in 2021 at 50,250.

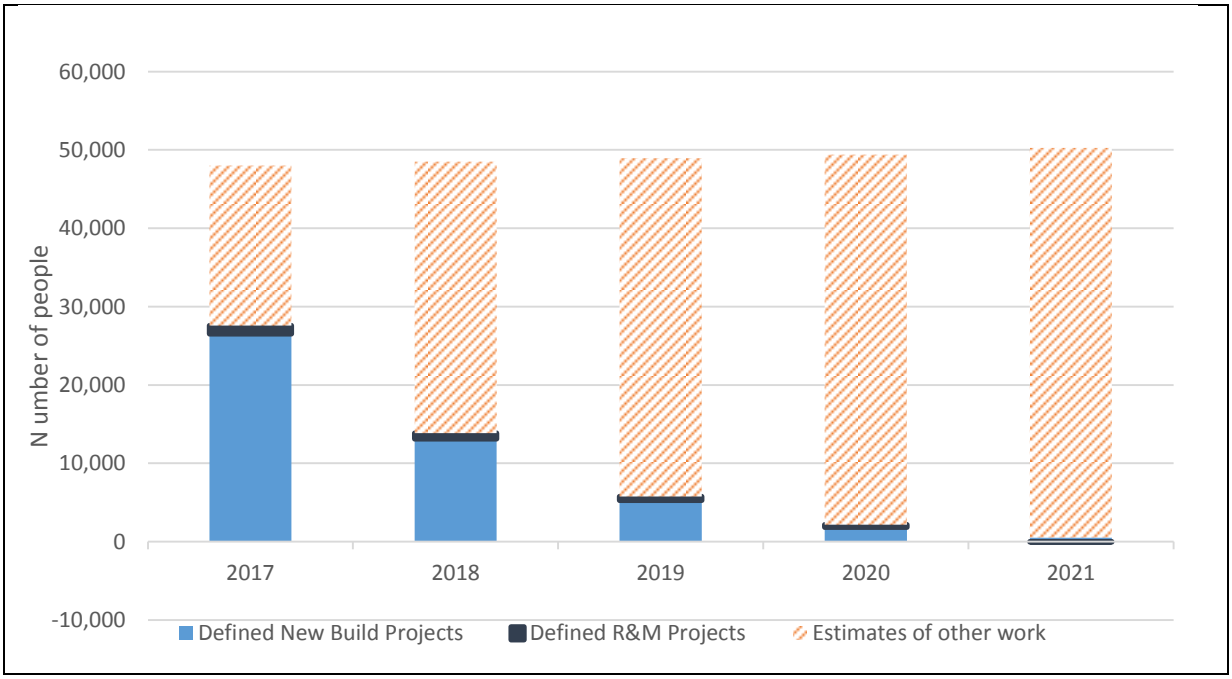

Figure 3: Total construction labour demand including estimates for both R&M and estimates of other work

4.2.1. Breakdown of labour demand by occupation

For the peak year in Glenigan of 2017 the detailed breakdown by each of the 28 occupational groups for the Glenigan and the NICP projects is shown in Figure 4. This shows the breakdown by occupation for both the pipeline of denominated projects and the estimates of other work.

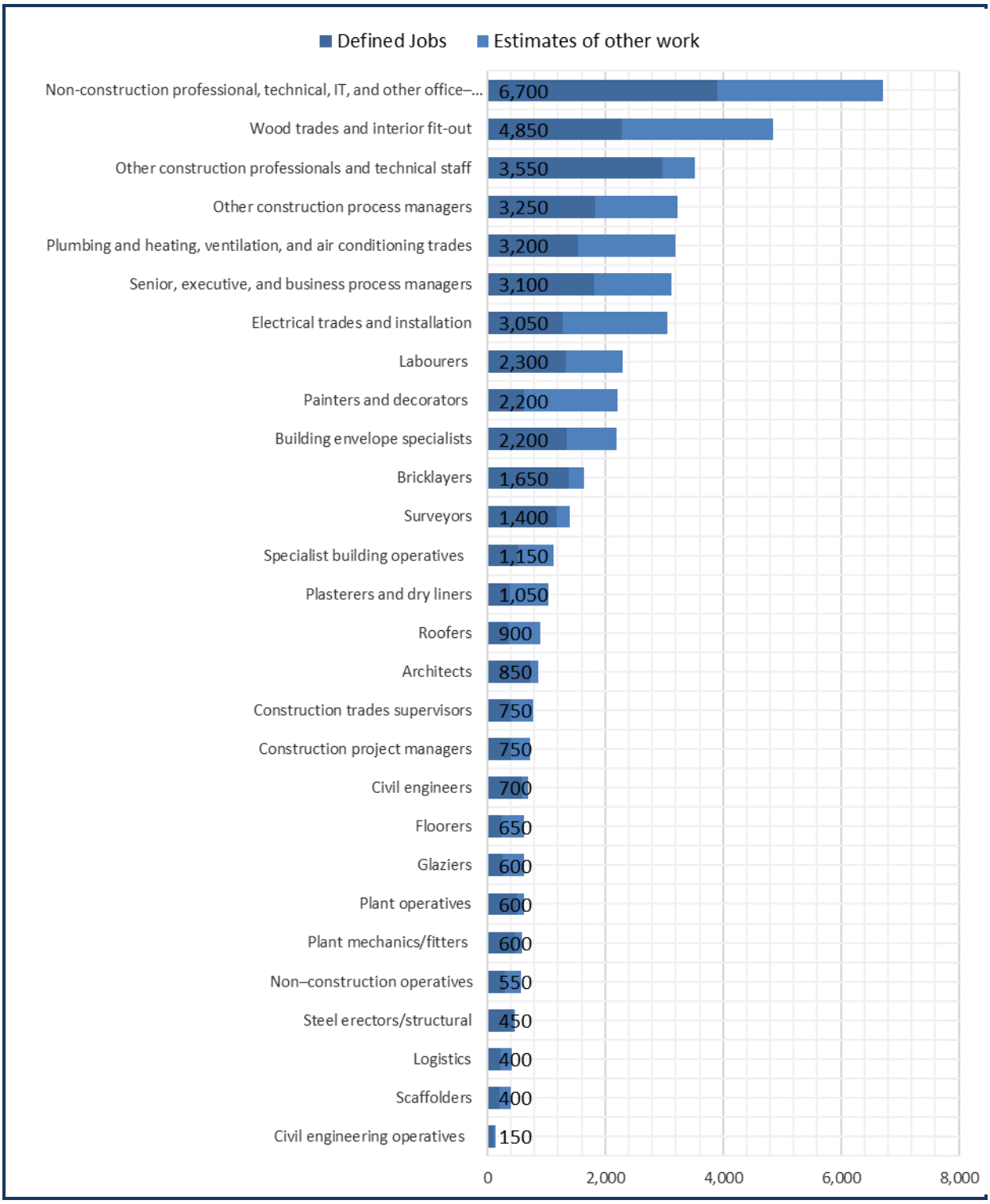

Figure 4: Construction labour demand by occupation in the peak year

4.2.2. Breakdown of labour demand by project type

Table 4 shows the labour demand generated by the denominated projects and the estimates of other work in 2017.

Table 4: Labour demand by work type in 2017

Project Type	Labour demand from denominated projects (People)	Labour demand from estimates of other work (People)	Total labour demand (People)	% of total
New Housing	13,550.00	400.00	13,950.00	28%
Housing R&M	1,050.00	8,750.00	9,800.00	20%
Non-housing R&M	-	9,450.00	9,450.00	19%
Private Commercial	6,400.00	2,900.00	9,300.00	19%
Public Non-housing	2,850.00	-	2,850.00	6%
Private Industrial	2,250.00	-	2,250.00	5%
Infrastructure	1,500.00	-	1,500.00	3%
Total	27,600	21,500	49,100	100%

4.3. Summary of demand

- The labour demand arising from the construction spend in the Lancashire LEP area peaks at around 49,100 people in 2017, taking account of estimates of other work including R&M in addition to the pipeline of denominated projects.
- During 2017, the peak year of the denominated projects pipeline demand, the most labour-intensive occupation group is “non-construction professional, technical, IT and other office–based staff” with an annual demand of 6,700 people.
- The estimate of labour demand for the trade occupations for the peak year of 2017 are as follows:
  - The trade occupation for which demand is highest is “Wood trades and interior fit-out” with 4,850 people demanded;
  - “Plumbing and heating, ventilation, and air conditioning trades” trades follow with 3,200 people.
  - “Electrical trades and installation” rank third, with a demand of 3,050 people.

5. A picture of supply

When looking at the supply of skilled workers there are two main elements to consider: the size of the current workforce and the existing amount of training.

The first part of this section takes a view on the current employment levels in the Lancashire LEP area, and how this relates to overall employment across the wider North West region and the UK as a whole. Data from CITB's Construction Skills Network is used along with official Government sources.

The second part looks at levels of education and training at both Further Education (FE) and Higher Education (HE) levels. Unlike FE, which tends to be delivered close to the home and workplace, people are typically prepared to travel further for HE courses, although this does not mean that LEPs should not have ambitions to move students and workers through to higher level training and education.

Finally, the demand forecasts are then compared against employment, training and workforce mobility to give an indication of possible gaps and/or occupational pinch points.

5.1. Main points

- The Lancashire LEP area accounts for 20% of the North West's working age population, and 17% of its current construction workforce. Twenty-two percent of all construction firms in the North West region are based within the Lancashire LEP.
- Current construction workforce within the LEP is estimated at just over 47,200 workers.
- Recent employment trends show strengthening growth in construction workforce numbers within the Lancashire LEP area over the last four years, although this is erratic with a large fall in employment noted in 2015 being reversed by a strong increase in 2016. While further fluctuations are possible, it is unwise to review in detail annual changes at such a local level which may, to some extent, reflect margins of error in the surveys that produce the data.
- The long term trend of growth is more important, and most likely to continue.
- Around 76 training providers have delivered construction-relevant FE courses within the Lancashire LEP over the last four years, with eight main providers delivering 95% of all training provision in 2015/16.

5.2. Existing workforce

Recent trends: Workforce & Businesses:

- The Lancashire LEP construction workforce experienced positive growth of over 15% in 2016, although this followed a fall of 8.5% in 2015.
- There has been an increase of almost 12% in the number of SME construction firms from 2012 to 2016 within the Lancashire LEP.
- At 18,600 people, self-employment within construction in Lancashire LEP, is 6% below 2012 levels, although it did see positive growth of 27% on 2015 levels.

An analysis of the Annual Population Survey and the Construction Skills Network data for the North West shows that, at 47,210, construction employment in the LEP is around 17% of the regional total.[3] Table 5 applies this percentage share across the CSN occupational breakdown for the North West area as a whole to give an estimate of total employment at occupational and industry level in the Lancashire LEP. For comparison, the wider North West region has been included.

In the years leading up to the recession in 2008 the construction workforce in the North West saw annual growth of around 3 to 4 percent. Following five years of falling construction employment, the industry's workforce in the region returned to modest growth in 2014. The LEP's construction workforce has seen larger and more erratic swings in employment in recent years, rising by 3.5% in 2014, before falling by 8.5% the following year, and rising sharply by 15% in 2016.

Overall the construction sector has high levels of self-employment with around 40% of the GB construction workforce being self-employed, levels similar to Lancashire LEP and the wider North West at 39% and 38% respectively. Levels of self-employment across the North West and in Lancashire LEP vary considerably from year to year, demonstrating high levels of movement between employment and self-employment as people move between projects and respond to changes in the local economy. In the wider North West around 74,700 people were self-employed in 2015 before rising to 84,500 in 2016. In Lancashire LEP almost half the workforce, 19,800 people, were self-employed in 2012 falling to 18,600 in 2016 – this was against a backdrop of a workforce that rose by over 4,000 over the same period.

There are just under 6,100 construction firms in the Lancashire LEP area, an increase of almost 12% since 2012, and around 22% of the North West total. See Figure 5. In the cases of both the LEP and the region this increase is the result of rising numbers of SMEs.

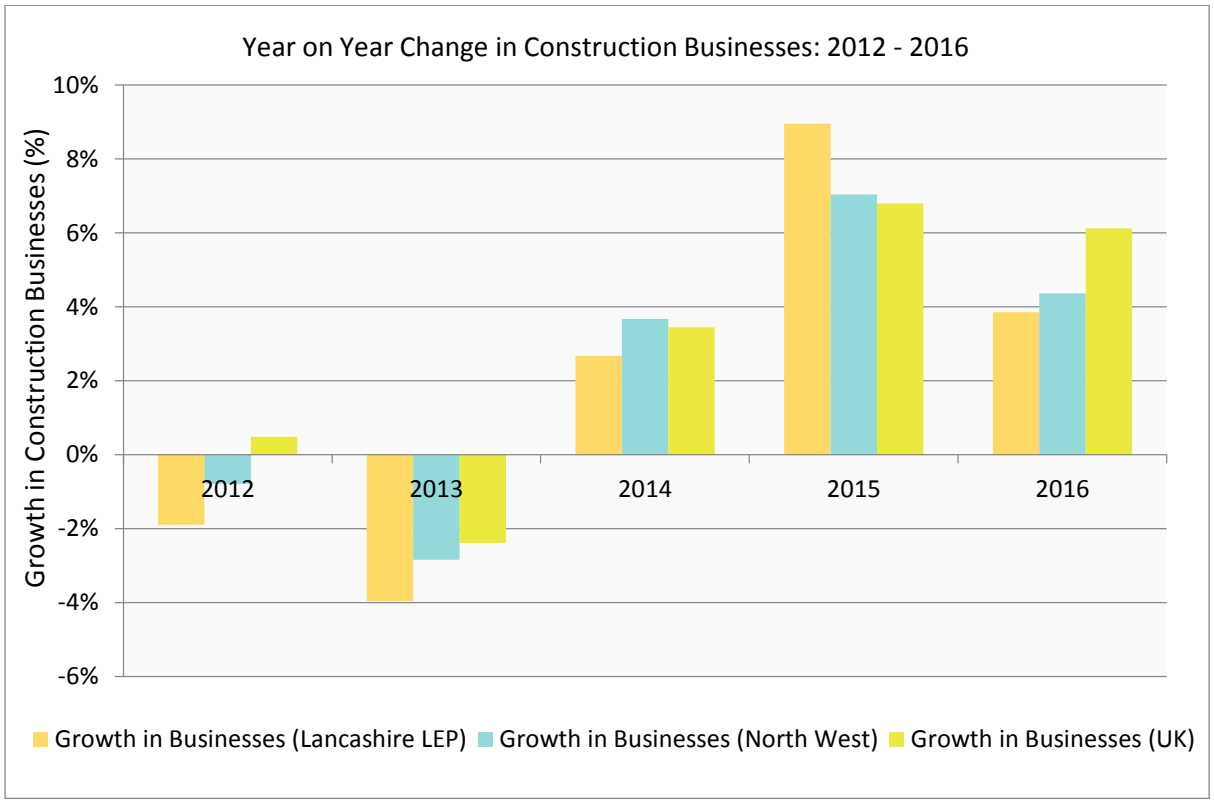

Figure 5: Year on year change in Construction Businesses (UK Business Count, NOMIS 2016)

[3] ONS/NOMIS (2016) Annual Population Survey workplace analysis by industry Jan 2016 to – Dec 2016

When it comes to business size, the distribution of companies across Lancashire LEP region is very close to the pattern seen across the North West as a whole, and indeed the United Kingdom, with the majority of construction companies being micro sized, i.e. less than 10 employees, ref.Figure 6: Size of Construction Businesses (UK Business Count, NOMIS 2016).

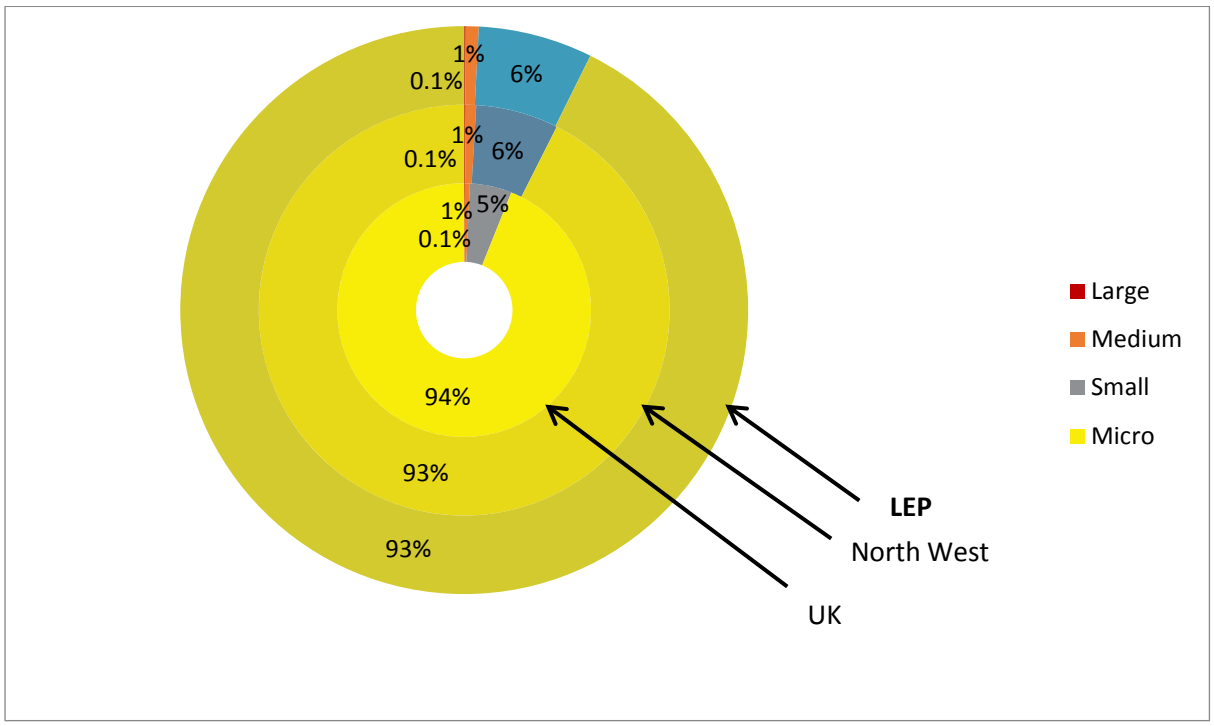

Figure 6: Size of Construction Businesses (UK Business Count, NOMIS 2016)

In Lancashire LEP, 93% of all construction businesses are Micro sized. This is in line with both the wider North West region (93%) and also the UK as a whole (94%). All of the growth in construction businesses within Lancashire LEP between 2012 to 2016 is due to increasing numbers of Small and Medium Size Enterprises (SMEs), which have grown by an annual average of 2.9% per year over this time.

5.2.1. Increasing businesses; declining employees

The figures available give the impression that that there has been an increase in the number of businesses at the same time there has been a decrease in the number of people employed in construction.

The drop in employment is almost entirely down to a fall in self-employment – a decline of around 4,000 in overall employment is matched by a decline of around 4,000 in self-employment between 2014 and 2015. There was a small increase in the levels of direct employment between 2014 and 2015 although nowhere near enough to offset declines in self-employment. Self-employment in the LEP area has been declining since 2012, with a small increase 2016.

Although business numbers in the data are based on VAT and PAYE returns; it is unlikely that many self-employed enterprises would have been registered as businesses. A fall in employment (driven by falls in self-employment), therefore, is entirely consistent with an increase in the number of businesses – mainly micro businesses employing fewer than nine people.

Given that these numbers are based on surveys and the construction workforce is highly mobile, it is possible that some people were working on projects outside the LEP area during this time as the 2016 self-employment numbers have returned to similar figures recorded for 2014.

Table 5: Construction occupational breakdown, 2016 (Source Experian & CITB)

Occupation	Lancashire LEP	North West
Other construction professionals and technical staff	3,625	20,930
Other construction process managers	3,690	21,290
Senior, executive, and business process managers	2,910	16,790
Construction Trades Supervisors	765	4,420
Civil engineers	770	4,450
Construction Project Managers	775	4,480
Surveyors	1,020	5,900
Architects	640	3,690
Electrical trades and installation	3,665	21,150
Wood trades and interior fit-out	4,535	26,180
Labourers nec*	2,520	14,540
Plumbing and HVAC Trades	3,275	18,900
Specialist building operatives nec*	1,010	5,830
Bricklayers	1,260	7,260
Plant operatives	820	4,740
Plant mechanics/fitters	890	5,140
Plasterers	915	5,290
Painters and decorators	1,940	11,190
Floorers	560	3,230
Building envelope specialists	1,480	8,550
Roofers	1,025	5,910
Steel erectors/structural fabrication	450	2,590
Scaffolders	545	3,140
Civil engineering operatives nec*	225	1,300
Glaziers	510	2940
Logistics	430	2480
Non-construction professional, technical, IT, and other office-based staff	6,230	35,960
Non–construction operatives	730	4220
Total	**47,210**	**272,490**

Key

Manager/Professional occupations
Skilled Trades
Office-based Staff

As noted above The Lancashire LEP area occupational breakdown is based on an extrapolation of 17% of construction employment of the North West Region.

5.3. Further Education training provision

- 95% of all construction FE provision (by learner aim) in the LEP area is supplied by eight main providers
- Courses are available for all the main construction occupations in the LEP area, and nearly all specialist occupations
- Despite a fall in construction training overall in the LEP area over the last four years, the number of apprenticeships has increased by almost a third in that time.

Training provision in the Lancashire LEP area has fallen over the three years from 2012/13 to 2014/15, with the number of new starters down by 17% in that time. CITB analysis of Skills Funding Agency Individualised Leaner Records from 2012/13 through to 2015/16 academic years for construction learners shows that:

- FE providers in Lancashire LEP account for 25% of identified construction related training across the North West region.
- Despite falls in the numbers of learners starting construction courses across Lancashire LEP and the wider North West region since 2012, the number of apprentices has increased by about a third in both the North West region and the LEP area over this time. The LEP accounts for 22% of construction Apprenticeships in the North West.
- The amount of college based training in the LEP and the wider North West has decreased by about 25% in the four years since 2012.

Looking at the "Competence" based qualifications (which are in the main NVQs) a link can be made between the qualification title and the likely occupation that an individual will have. For example someone starting or achieving a Bricklaying qualification is highly likely to be working as a Bricklayer as competence based qualifications are based on an assessment of work based skills.

The information shown in Table 6: Competence qualification achievements in Lancashire LEP as a % of total achievements in North West as a whole (all qualification levels) looks at qualification achievements over the last four years for the identified competence based qualifications, comparing achievement volumes against the overall pattern with the North West as a whole.

Table 6: Competence qualification achievement in Lancashire LEP as a % of total achievements in North West as a whole (all qualification levels)

Construction Occupations	2012-13	2013-14	2014-15	2015-16	Total Achievements 2012-2016	Total
Grand Total	**20%**	**21%**	**23%**	**25%**	**5,230**	**22%**
Main Occupations						
Plant operatives	25%	25%	38%	18%	**1,180**	27%
Electrical trades and installation	24%	34%	41%	41%	**850**	36%
Wood trades and interior fit-out	17%	21%	24%	26%	**730**	22%
Plumbing and HVAC Trades	23%	18%	26%	23%	**660**	22%
Bricklayers	20%	22%	28%	23%	**350**	23%
Occupations with below average provision						
Specialist building operatives nec*	12%	17%	10%	24%	**210**	14%
Civil engineering operatives nec*	16%	12%	19%	25%	**150**	18%
Plasterers and dry liners	20%	16%	16%	21%	**130**	19%
Building envelope specialists	17%	8%	2%	-	**100**	8%
Glaziers	14%	5%	18%	16%	**90**	14%
Floorers	20%	33%	11%	6%	**90**	18%
Occupations with average or above average provision						
Painters and decorators	21%	23%	24%	23%	**240**	22%
Scaffolders	16%	20%	30%	28%	**190**	23%
Low Overall Learner Volumes						
Plant mechanics/fitters	12%	24%	8%	27%	**60**	18%
Construction Trades Supervisors	13%	6%	58%	21%	**60**	15%
Construction managers	24%	13%	65%	100%	**50**	29%
Roofers	9%	11%	10%	5%	**50**	9%
Steel erectors/structural	17%	34%	11%	62%	**40**	32%
Other construction profs. and technical staff	4%	14%	-	3%	**<25**	4%
Logistics	-	12%	-	-	**<25**	2%

*nec – not elsewhere classified
Note: Total achievements are across the period 2012-2013 to 2015-16 have been rounded to the nearest 10

The percentage comparison with the North West as a whole is used as a device to demonstrate whether the provision of training in the Lancashire LEP area is relatively high or low in comparison with the region.

For the year 2015/16:

Relatively high provision is highlighted in green and Relatively low provision is highlighted in red

In Table 6 the 'Main Occupations' are those with the largest training volumes, which are generally consistent with the overall training pattern seen in the North West. For occupations such as Wood Trades ,Electrical, and Plumbing the volume of training will be related to their share of employment,

while for others, such as Plant Operatives, training will be more related to the need to demonstrate competence for these roles through card scheme monitoring, for example the CPCS Card scheme.

The second group, 'Occupations with below average provision' identifies a small number where we would expect higher levels of training, again linked to either the occupational size and/or demonstrating competence. For this cluster, which covers Specialist Building Operatives nec, Civil Engineers nec, Plasterers and Dryliners, and Building Envelope Specialists, the share of training happening within the LEP is slightly lower than would be expected. It is possible that individuals within Lancashire LEP may be travelling outside the area for this type of training.

For 'Occupations with good provision' the reverse is the case and there appears to be average or above average provision for Painters and Decorators and Scaffolders within the LEP. It could be that there are providers with particular specialisms in these areas operating with the LEP, or a particular need for this type of training.

Lastly there is a group of 'occupations with low overall learner volumes' where it is difficult to judge patterns across the years. Whilst the training provider network can adjust to cover changes in demand, there will be a requirement for a certain volume of training to make it viable for a provider to deliver it. These occupations could suffer from this intermittent demand or learners could be travelling further afield to more specialist training providers.

In terms of training providers, from 2012/13 through to 2015/16 76 different providers have delivered training for the Lancashire LEP region. However, there is a consistent pattern with 95% of training being delivered by a core network of eight providers. Ref: Table 7.

Table 7: Main FE providers within the Lancashire LEP (Source: CITB/SFA)

Provider	2012-13	2013-14	2014-15	2015-16	% Share of 2015/16 Quals
Blackpool and the Fylde College	1,878	1,699	2,852	2,169	26%
Blackburn College	2,574	2,241	2,002	1,898	23%
Manchester College	2,685	2,898	2,007	1,223	15%
Preston College	1,825	1,517	1,329	1,025	12%
Burnley College	583	599	854	781	9%
Accrington & Rossendale College	716	479	924	429	5%
Lancaster and Morecambe College	668	691	447	193	2%
Newcastle College Group	346	329	272	137	2%

NOTES:

- Manchester College is the parent group for Novus that is a significant provider of offender education, training and employability services in HM Prisons across England. It is likely that this accounts for some of the Manchester College qualifications achievements for the Lancashire LEP area.
- Newcastle College Group includes West Lancashire College.

This profile is typical of many geographic areas in that there is a relatively small group of FE colleges delivering the majority of construction training. A smaller proportion of additional training is then delivered by a larger number of other providers. Sometimes these smaller specialist providers can operate far from the normal base of those for whom they provide training. In total this training covers the majority of the main occupations involved in the construction workforce.

As a whole, the Lancashire LEP area experienced a significant fall in the number of construction learner starts in 2015-16 of over 12%, on the back of smaller falls of around 2-3% over the preceding two years. These falls are comparable to that in the wider North West region over the same period.

This drop has been steepest in the number of college based construction education and training courses, and reflects a fall in the number of training providers operating in the LEP area, falling from 46 providers in 2012/13 to just 24 in 2015/16.

Whilst the college based courses are an important stepping stone or progression route for learners to acquire knowledge, construction employers tend to have a preference for practical or competence based skills gained through an apprenticeship, so it is positive that against the backdrop of falling learner numbers in the Lancashire LEP area, the number of apprenticeships has increased by almost a third (32%) since 2012.

5.4. Apprenticeships

Apprenticeships in most construction trades are available from training providers within the Lancashire LEP area. In comparison to the 17% of the North West's construction workforce that is based in the LEP, the proportion of NW apprentice training delivered in the LEP is a robust 23%, up from 21% in 2014-15 and 20% in 2013-14.

Only a few of the more specialist trade occupations are under-represented, or lacking in apprentice training completely, notably Building Envelope Specialists, Supervisors, Floorers, Plant Operatives, and Roofers. Primarily this will be because demand for these occupations will be low meaning that training can only be delivered cost effectively at a handful of sites in a region, or in the case of plant operatives the expense of the training itself means that few providers offer it.

Table 8: Apprentice achievements in Lancashire LEP by occupation 2015-15 and 2015-16

Occupation	2014-15	% of NW Apprentice achievements	2015-16	% of NW Apprentice achievements
Bricklayers	64	27%	71	22%
Building envelope specialists	-	-	-	-
Civil engineering operatives nec*	-	-	21	36%
Construction Trades Supervisors	3	60%	-	-
Electrical trades and installation	44	16%	88	23%
Floorers	10	42%	2	7%
Glaziers	23	21%	19	33%
Other construction professionals & technical	-	-	1	4%
Painters and decorators	29	20%	34	23%
Plant mechanics/fitters	9	9%	14	17%
Plant operatives	-	-	1	11%
Plasterers and dry liners	6	17%	28	26%
Plumbing and HVAC Trades	160	25%	143	25%
Roofers	5	14%	3	6%
Scaffolders	11	16%	11	19%
Specialist building operatives nec*	7	13%	12	21%
Wood trades and interior fit-out	123	26%	187	27%
Grand Total	**494**	**21%**	**635**	**23%**

Source: SFA and CITB

Showing the proportion of achievements in comparison with the North West offers a mechanism for gauging relative performance (i.e. good levels of achievements provision versus poor levels) and so it intended to help determine where there may be opportunities to achieve positive change.

There were 39 training providers who recorded apprentice starts in 2015-16 in the Lancashire LEP area, although the top ten providers (listed in Table 9 below) accounted for 90% of all apprenticeship starts. Many of these are the same providers who also account for the majority of full-time FE training, although there are one or two additional names on the list: CITB does not provide full-time FE training, but is one of the largest providers and managing agents for construction apprenticeships in the country, likewise for JTL another prominent provider in the area.

JTL Training is a significant provider of apprenticeship training. In consultation, JTL reports that much of its work is in collaboration with the colleges of FE, through which knowledge delivery is sub-contracted. At the time of writing it was noted that JTL has some interaction with the following number of apprentices in the Lancashire area. Electrical = 349; Plumbing = 15; Heating and Ventilation = 30. It is not possible to compare these numbers with the SFA provided data for a number of reasons. Individuals may be listed with a primary registration with one of the colleges. It is possible that some of these will not complete their apprenticeships so the numbers do not correlate with 'achievements'. As an apprenticeship is rarely complete in a single academic year, 'starts' of those on apprenticeships may be from several years' cohorts. Some electrical apprenticeships will be listed under engineering frameworks rather than construction.

Table 9: Apprentice starts in Lancashire LEP by provider 2012-13 to 2015-16

Provider	12-13	13-14	14-15	15-16	% Share of 2015-16 starts
CITB	190	224	273	314	22%
Burnley College	128	130	144	172	12%
Preston College	72	91	121	158	11%
Accrington And Rossendale College	105	127	154	139	10%
JTL	110	88	123	123	9%
Blackpool and the Fylde College	100	94	101	110	8%
Blackburn College	69	71	78	88	6%
Lancaster and Morecambe College	43	44	49	66	5%
Training 2000 Limited	86	81	109	59	4%
North Lancashire Training Group Limited	51	68	71	62	4%

Source: SFA

5.5. Higher Education provision

Lancashire LEP region has:

- Four universities are based in the LEP area but one, UCLan accounts for 10% of first year undergraduates on construction courses in the North West.
- Provision of most major construction courses.
- Annual starts on university degree courses that equates to about 10% of professional and managerial employment in the area.

There are five broad HE qualifications that relate to construction: Architecture, Building, Landscape & garden design, Planning, Civil Engineering, and a small number of other courses linked to architecture, building & planning.

All these courses are offered in the North West region at the ten HE institutions that are either based or operate there, of which two are in the Lancashire LEP area: the University of Lancaster and the University of Central Lancashire.

Of these construction related courses, the three that are most relevant to delivering the projects discussed in this report are Civil Engineering, Architecture, and Building. Table 10 compares the number of first year undergraduate students on these courses at HE institutions in the North West and Lancashire LEP.

Table 10: First year students on Construction related degree courses at universities in the North West and Lancashire LEP. 2014/15 academic year.

Course	North West	University of Central Lancashire	% regional starts delivered in LEP area
Civil engineering	1,025	* 10	1%
Architecture	915	70	8%
Building	1,075	240	22%
Total	3,015	320	11%

Source: HESA

In relation to Table 10 – The vast majority of construction related university starts in the area were with the University of Central Lancashire. The University of Lancaster appears to account for just five starts, which were in in Civil Engineering. [These five starts are included in Civil Engineering * above in addition to the five achievements at the University of Central Lancashire.]

As a proportion of the relevant degree courses taking place within the North West region, The LEP area's two universities account for a relatively small proportion: first year Civil Engineering students account for about 1% of civil engineers; first year architecture students account for 11% of architects; and first year Building degree students account for about 13% of surveyors and construction project managers.

The number of Civil Engineering students has been low at both universities for at least the last three years. It is possible that Civil Engineering is a subset of a wider Engineering degree with only a small proportion of engineering students choosing to specialise in Civil Engineering.

There may be opportunities to work with UCLan to develop opportunities for "Building" graduates to move into construction related placement and careers within the Lancashire LEP. There may also be opportunities to explore with Lancaster University to encourage a greater proportion of Engineering students to move into specialising in Civil Engineering and then to find placements within the LEP area.

5.5.1. The Central Lancashire Construction Skills Hub

Preston College and UCLan have formed a Central Lancashire Construction Skills Hub (CLCSH), in response to a recognised need to invest in infrastructure, employment sites, education institutions and housing in Central Lancashire combined forecasted increase in demand for construction jobs.

It draws upon specialist training providers in a non-competitive environment. It is intended to provide a suite of provision pathways in construction from Level 1 to 8 that employers can access to provide training and education to the sector and address skills demand challenges, support business and employment growth.

5.5.2. Higher Education in context

There are a number of significant challenges to address in understanding Higher Education's place in UK construction. Most significantly, those starting and completing HE level qualifications tend to be willing to travel significant distances to study and then find employment.

For many students the opportunity to leave home and move to a new town or city is one motivation for entering HE. In the UK, this has become normalised. University students are more likely to move into a region to study and then once graduated, out of a region to find employment.

A 2014 study undertaken by Education Phase on behalf of TV Licensing indicated that the average distance from home to place of HE study was around 90 miles. This also indicated that of the sample, only around 5% of HE students were studying within 20 miles of home but that 78% moved 60 or more miles or were from overseas.

However, when questioned, different institutions respond differently – with some universities indicating that they believe they attract students from closer to home while others have a more national and often international focus. This is, in part, down to the course type and its availability elsewhere. But there appears to be a rough correlation between the UCAS points required for entry to some universities and the distance students travel. Typically the most demanding universities draw student a from a greater average distance.

Once a student has finished their course there is limited centrally available data on their destination – both in terms of career type and location. In a significant proportion of cases those completing higher education move into careers unrelated to their course.

Data available from: HESA 2014-15 Industry of full-time first degree graduates, indicated that

The employment destinations of students graduating in Architecture, Building and Planning graduates were subsequently employed in:

- 51% Professional, scientific and technical activities
- 23% Other sectors
- 20% Construction
- 6% Real estate activities

For graduates working in the construction industry, the subject in which they graduated was recorded as being:

- 24% Architecture, Building; Planning
- 30% Engineering
- 46% Other subject areas

5.6. Other training provision

In addition to the training provision considered above, there is likely to be additional ad-hoc training that doesn't lead to a formal qualification. There is no way of recording and measuring this at a local level that will help inform the Lancashire LEP or its stakeholders.

Research commissioned by CITB *Career Progression in the Construction Industry*, published in December 2016 drew broad conclusions about the scale of formal and informal training received by construction workers. This training does not add to the number of workers in the industry but potentially raises the skills levels of those already in employment. While much of this training will be of a high quality, as this is not recorded it cannot be assumed to consistent.

The survey indicated that: 10% of respondents took part in one or more episodes of training.

Most commonly this was on-the-job training, or short term formal training, but a small number of respondents were studying for University delivered qualifications.

The main determinant for whether a person was receiving any training was their current qualification level. For those who already held a qualification at:

- Level 3 or above 10% were undergoing training;
- Level 2 6%
- Level 1 8%
- Entry level 2% were undergoing training

This suggests a tendency for training to be directed towards those who are already qualified and who are, therefore, more likely to be in senior positions.

85% of employees had received at least one episode of training at some stage in their careers. Around two-thirds of employees had received on-the job training, and just over half had received formal off-the-job short course training. 36% of employees had undertaken an FE course at some stage in the their working life, 17% an apprenticeship (not including those who had entered the industry as an apprentice) and 9% had a University qualification.

93%, of this training was related to the construction industry. Seven per cent was described as generic training valuable across a range of sectors, and only 2% was non-vocational education.

- 95% of managers had received some form of training during their careers with half having undertaken a university qualification and more than half having undertaken FE training.
- 76% of craft workers had received training.

The reason for this disparity is that unskilled respondents were much more likely than average to say their employer had instigated the training (76% compared with an average of 35%) and much less likely to say that they themselves had instigated it (12% compared with an average of 27%), suggesting that more senior or highly qualified people were actively seeking training opportunities.

In addition to that gained from in-service training, certification or qualification can be obtained by accreditation of experience and skills. Thirty-one per cent of respondents had obtained such accreditation, this proportion not varying greatly between different occupational groups. In around half of the cases, the qualification achieved in this way was an NVQ or SVQ.

The remaining cases were very varied but included CSCS cards, Health and Safety and First Aid certification, membership of professional organisations and award of chartered status.

6. Mobility of the workforce

Construction workforces are fluid by nature and this section of the report will look at findings from the 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 the North West will be analysed in order to understand how this might impact on future training interventions and the supply of job opportunities for local people.4

- Two fifths of North West construction workers have worked in the construction industry for over 20 years (40%). Two-thirds have worked in the industry for at least 10 years (66%).
- The majority of construction workers in the North West (91%) started their construction career there. Workers in the North West are among the most likely to have remained in the same region/nation in which they were based for their first construction job.
- Within the North West, the average (mean) distance from workers' current residence (taking into account temporary residences) to their current site was 20.5 miles (22 miles is the UK average).
- More than three quarters of all construction workers in the North West are confident that when they finish their current job they will get a job that allows them to travel from their permanent home to work on a daily basis (79%).
- Overall around two fifths of all construction workers have only worked on one type of project (43%)
- Around half of construction workers in the region aged under 60 say they definitely will be working in the industry in 5 years' time (52%) and a further third think it is very or quite likely (33%).

6.1. Work history

Two-thirds of construction workers in the North West have worked in the construction industry for at least 10 years (66%), and two-fifths (40%) have worked in it for over 20 years. The fact that they grew up in the region, or have always lived there, is the most likely reasons why construction workers are based within the North West (69%) which is higher than the UK average (55%). Over nine in ten (91%) construction workers in the region have remained in the North West for all or most of their career, compared to the UK average of 80%.

Further evidence of the stability of the construction workforce in the North West comes from the finding that in most cases (89%) workers reported their last site was also in the North West.

In terms of the regions/nations in which workers' current employer operates in, the majority (93%) of workers in the North West reported that their employer operated within the region they were currently working in, while 6% operated in the West Midlands and 4% operated in both Yorkshire and the Humber and London, as shown in Appendix Table 17 Region/nation employer operates in compared with region/nation working in currently.

[4] CITB (2015) Workforce Mobility and Skills in the UK Construction Sector – North West

6.2. 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 9 in 10 construction workers in the North West were living in the region when they started their construction career (91%). Workers currently based in the North West are amongst those most likely to have remained in the same region/nation in which they were based for their first construction job. Furthermore construction workers in the North West are among the most likely to have stayed in the region where they studied for their first qualification (90%), with Scotland, Northern Ireland, and the North East being the only three regions/nations with a higher percentage. At the lower end of the range, only around half of construction workers in the East of England (50%), South East (55%) and London (58%) are based in the same region/nation as where their first qualification was achieved.

6.3. Travel to site

The majority of construction workers (88%) in the North West also had their permanent home in the region, meaning that 12% travelled into the region for work from another region or country in which their current residence is based. The main region/country from which people travelled to work in the North West were the West Midlands (8% of all workers in the NW at the time of the survey) and Wales (3%). This means that after the North East, construction workers in the North West are the most likely within England to currently be living in the same region as the site they work on.

Workers in the North West were asked to indicate the furthest distance they have worked from their permanent or current home in the last 12 months. Figure 7: Furthest distance worked in past 12 months (CITB, 2015) shows that 1 in 8 construction workers have worked no more than 20 miles away (12%) and a further third have worked between 21 and 50 miles away (35%). This leaves half that have worked more than 50 miles away from their permanent home (51%), with a quarter that have worked between 51 and 100 miles away (23%) and more than a quarter that have worked more than 100 miles away (28%). In the UK workers based in the North West were the most likely to have travelled more than 100 miles from their permanent home to work in the last 12 months (UK average – 21%).

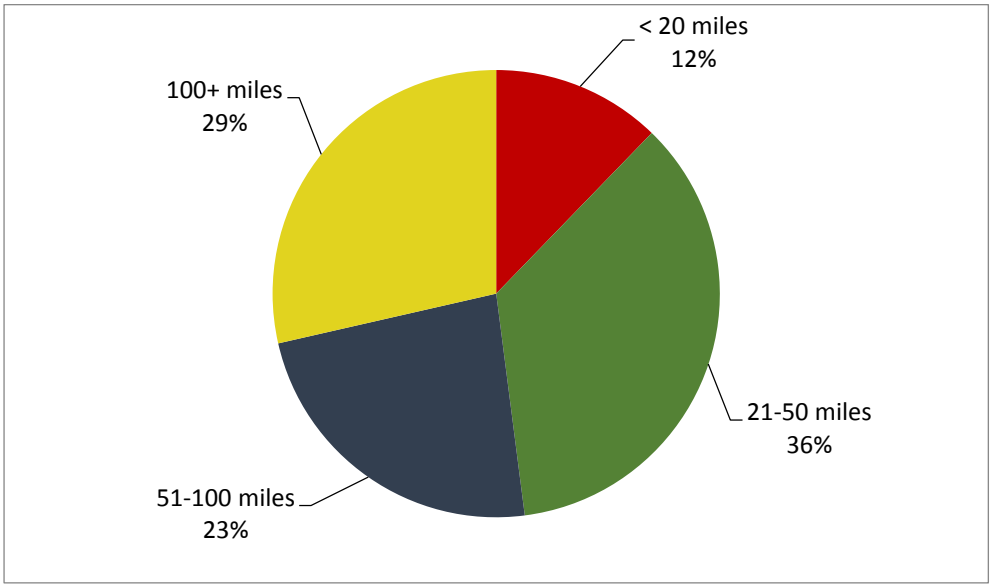

Figure 7: Furthest distance worked in past 12 months (CITB, 2015)

However, the average (mean) distance from workers' current residence (taking into account temporary residences) to their current site was 20.5 miles for the North West, slightly less than the UK average of 22 miles. This indicates that although workers can travel some distance to work, it is likely to be intermittent.

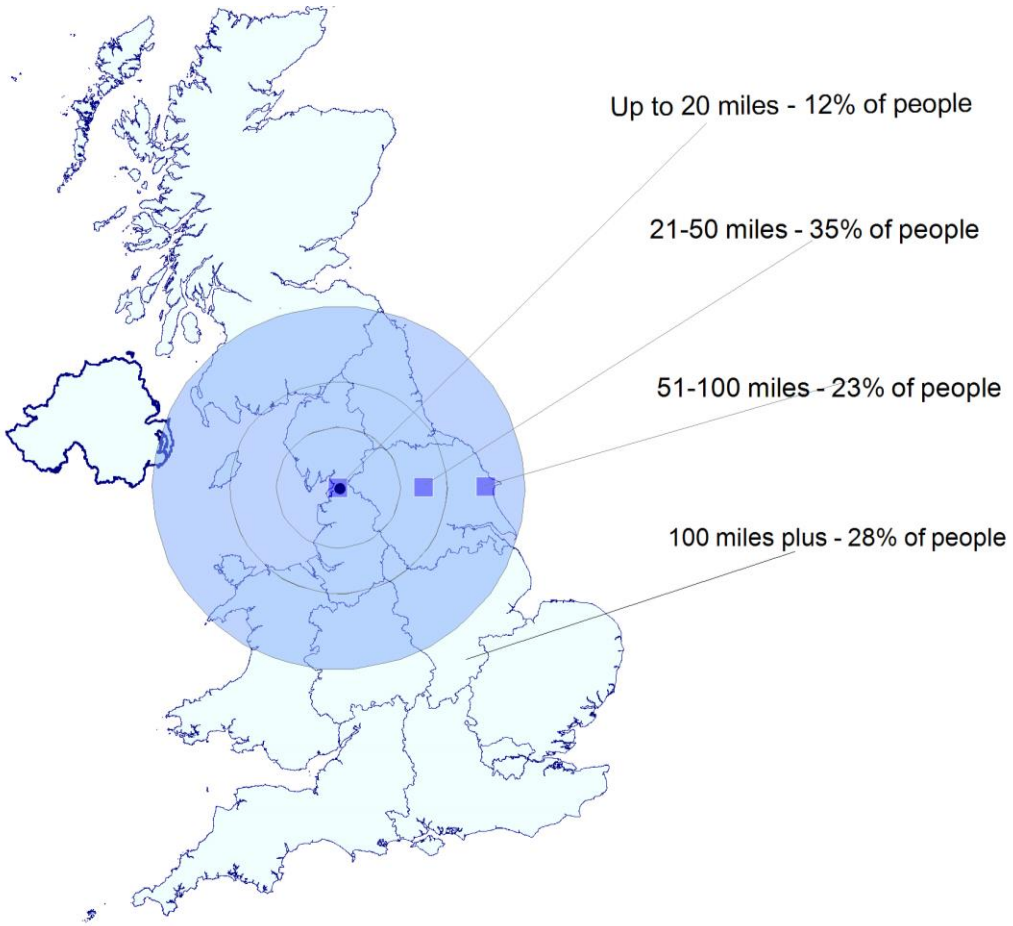

Figure 8: Furthest distance worked in past 12 months (CITB, 2015)

6.4. 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 their current site. Around a fifth of all construction workers in the North West (21% cf. 33% in 2012) do not expect to work on that site for more than a month, including 5% that only expect to be there for about a week or less. Almost a quarter (23%) expect to stay on that site for a year or longer, a notable increase compared with 2012 (6%), suggesting more stable employment in the North West than in 2012. However a comparable proportion (27%) of workers did not know how much longer they could expect to be on site, indicating that a significant minority of temporary workers are living with some uncertainty and insecurity.

More than three quarters of all construction workers in the North West 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 (79%). Compared with workers in other regions/nations, those in the North West are amongst the most confident in this respect; second only to those in Scotland (81%).

6.5. Sub-sector and sector mobility

All workers were asked which of types of construction work they have spent periods of at least three 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 the North West; up from 72% to 93%. For all other types of projects the proportion of construction workers that have worked on them has fallen since 2012.

Overall around two fifths of all construction workers have only worked on one project type (43%), compared with a fifth in 2012 (21%), which again suggests a pattern of increased stability in the sector.

6.6. Leaving the sector and replacement demand

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 the North West, half the construction workers say they definitely will be (51%) and a further third think it is very or quite likely (33%). Just 2% say they definitely won't be and a further 5% hope to be retired by then, while 5% don't know.

Excluding those aged 60 and over (as those over 60 may be assumed to be considering retirement in the next 5 years) 52% believe they will definitely want to be working in the construction sector and a further 33% believe it is very likely or quite likely they will want to be working in the construction sector. Only 7% 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 (15%).

Overall the findings from the Mobility survey indicate a stable, well established workforce across the North West. There is some evidence of movement between neighbouring regions, especially the West Midlands and Wales, 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.

Setting the Mobility survey research against the overall workforce and business patterns noted earlier indicates that whilst the North West region as a whole has a stable workforce, workers within the Lancashire LEP area will not be limited to working only within the LEP – they may travel to work in other areas of the North West outside of the LEP. Likewise, workers in other areas of the North West will also be travelling to work within Lancashire LEP.

6.6.1. Replacement demand

The mobility study reports that 7% think they will not want to be working in the construction sector in five years. That suggests about 1.4% of workers could be expected to leave the industry every year.

Another way to assess the potential for replacement demand is to consider that a typically working career spans 40 years. Typically those in professional roles are though to work until later in life but tend also tend to start later after achieving higher level qualifications. So a guide of around 40 years is valid. This suggests that around 2% of any occupations workforce would retire and need to be replaced each year.

6.6.2. The impact of Brexit

Lancashire LEP stakeholders have asked about the potential impact of the UK's leaving the European Union. While it is impossible to offer with any certainty predictions of what may happen or how it will effect Lancashire's economy and construction, CITB has published a review, available on the CITB website, that considers some potential implications for UK construction.

MIGRATION AND CONSTRUCTION: The view from employers, recruiters and non-UK workers

7. Demand against supply

7.1. Main points

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 for work that requires shorter planning times. Research carried out by CITB on behalf of UKCG 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.

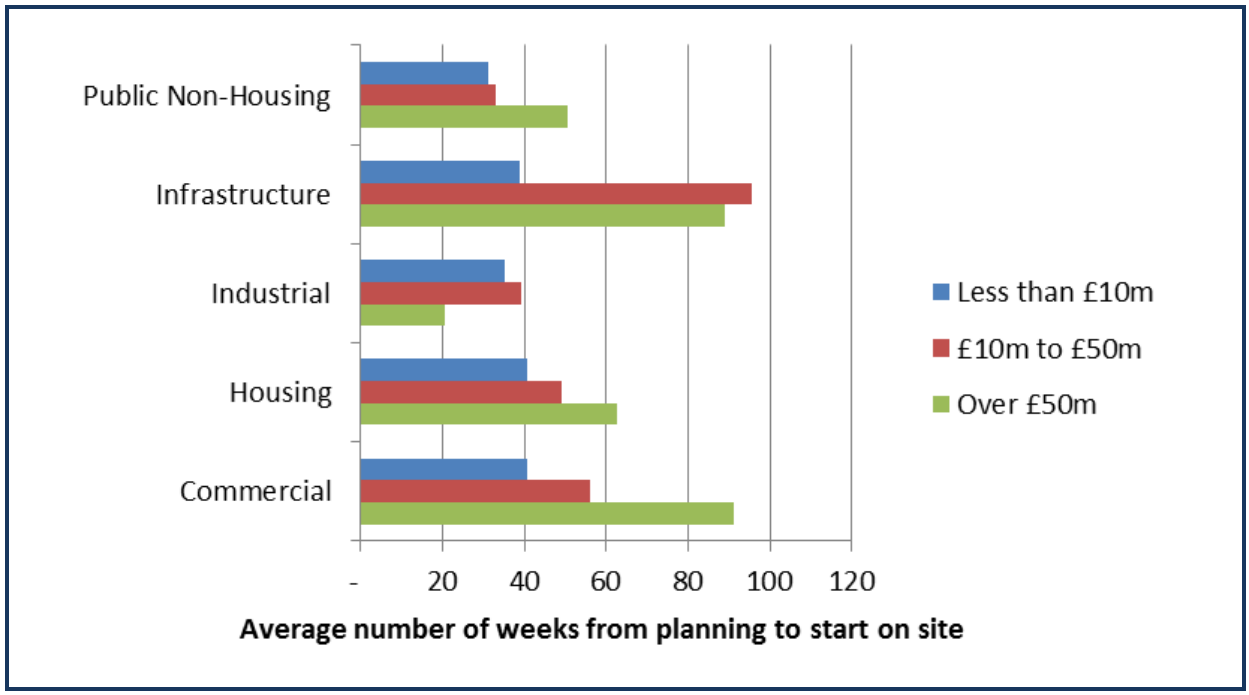

Figure 9: Average number of weeks from planning to work on site, UK 2010-2013 (Source: UKCG/Glenigan)

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 the North West indicate that it accounts for 34% of yearly construction output.5

Also, whilst different types of projects can be categorised by their type of build, such as housing, commercial or 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 sectors. For example, evidence from the 2015 Mobility research shows that occupations such as labourer/General Operatives, banksmen/ bankspersons, roofers and bricklayers are most likely to have only worked on one project type, while painters and decorators, carpenters and joiners, and site managers are more likely to have worked on a wide range of projects.6

[5] CITB(2016) Construction Skills Network – North West
[6] CITB(2015) Workforce Mobility and Skills in the UK Construction Sector – North West

7.2. Gap Analysis

With current construction employment in the Lancashire LEP region estimated at just over 47,200, the identified demand forecast from projects in Glenigan accounts for 58% of current employment in 2017 before reducing, as the identified projects visibility decreases. Ref: Table 11.

Table 11: Occupational breakdown of demand for Lancashire LEP against current employment

Occupation	Lancashire LEP	Risk of shortfall 2017 demand against 2016 employment
Other construction professionals and technical staff	3,625	0.82
Other construction process managers	3,690	0.50
Senior, executive, and business process managers	2,910	0.62
Construction trades supervisors	765	0.52
Civil engineers	770	0.76
Construction project managers	775	0.53
Surveyors	1,020	1.15
Architects	640	1.14
Electrical trades and installation	3,665	0.35
Wood trades and interior fit-out	4,535	0.50
Labourers nec*	2,520	0.53
Plumbing and HVAC Trades	3,275	0.47
Specialist building operatives nec*	1,010	0.51
Bricklayers	1,260	1.09
Plant operatives	820	0.61
Plant mechanics/fitters	890	0.52
Plasterers	915	0.42
Painters and decorators	1,940	0.32
Floorers	560	0.43
Building envelope specialists	1,480	0.91
Roofers	1,025	0.36
Steel erectors/structural fabrication	450	0.95
Scaffolders	545	0.38
Civil engineering operatives nec*	225	0.48
Glaziers	510	0.52
Logistics	430	0.52
Non-construction professional, technical, IT, and other office-based	6,230	0.63
Non–construction operatives	730	0.42
Total	**47,210**	**0.58**

Key

Manager/Professional occupations
Skilled Trades
Office-based Staff

(Source CITB/WLC). Note: nec: not elsewhere classified; HVAC: Heating, ventilation and air-conditioning.*

Table 11 shows that there are some possible disparities where demand is likely to be close to, or exceed, current employment estimates by at least three-quarters of 2016 employment levels for a number of occupations. Those occupations highlighted:

- **RED** – are at high risk of an immediate shortfall of workers and are worthy of urgent consideration for action to increase numbers of skilled workers.
- **AMBER** – are at some risk of a shortfall and should be reviewed to determine where opportunities for further training and development exist
- **GREEN** – appear to be at relatively low risk. This does not mean changes in construction demand, training provision or the movement of workers will not change this status and so monitoring is recommended.

It should also be noted that there will be demand on Lancashire's construction workforce from major nearby centres such as Manchester and Liverpool. And there is always a replacement demand, meaning that all occupations need to recruit and train new workers.

The gap analysis compares the number of workers calculated as being required to meet the peak construction demand (as described in the demand section of this report) with the number of workers estimated as being available in the Lancashire LEP area (as described in the supply section of the report). This gives an indication as to the comparative risk of a shortfall between construction occupations. Those risks appear most likely to be:

Among professional roles:

- Architects
- Surveyors
- Other construction professionals and technical staff
- Civil Engineers

Among skilled trades:

- Building envelope specialists
- Bricklayers
- Steel erectors / structural fabrication

Demand for **Civil engineers**, **Architects, Surveyors** and **Other construction professionals and technical staff** is a reflection of the wider UK shortage.[7] Additionally as professionally qualified occupations, which tend to require degree qualifications, there will be at least three years of education and training before becoming qualified plus years more to gain experience. And if new candidates are to be encouraged to join these professions, it is likely that encouragement is required some years before they start training.

It is therefore highly likely that the short-term demand increase identified would require workers to be drawn into the Lancashire LEP area from the wider region and possibly beyond.

It should also be noted that for some professions workers often have an office location away from the site location and travel between them. And for some, there is some anecdotal evidence to suggest that demand is met by provision based in other centres of population.

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

Bricklayers are in demand regionally and nationally as a result of the increase in house building since the end of the recession, as mentioned in the preceding section with a significant increase in the proportion of construction workers that have been working on new housing within the North West; up from 72% to 93%. Bricklaying and trowel occupation qualifications are widely offered at most FE colleges that run construction courses, and almost 100 people annually have qualified in each of the past two years in the Lancashire LEP area so much of the demand for bricklayers should be met from current training in the LEP area and the wider North West region.

Building Envelope Specialists install the elements of the outer shell of a building. Demand for people skilled in this role will be high based on planned projects, at over 90% of Building Envelope Specialists based in the LEP area, and it is worth noting that in 2015-2016, for the first time, nobody qualified from an FE provider in Lancashire LEP with a Building Envelope qualification.

Similarly, **Steel Erectors and Structural Fabricators** will be much in demand with nearly every skilled worker projected to be required on jobs in the LEP area. Achievements in FE training have tended to fluctuate over recent years from as low as two qualifiers a year to as high as 18. Given the timescales involved it is likely that in the short term some of this demand will be met by migration from outside the LEP area and possibly from outside the North West region.

In addition to the major projects identified in the Glenigan Pipeline, there will also be other work carried out in the Lancashire LEP region that is captured within the demand analysis where additional workers will be required. This additional work includes projects that are less than £250,000, as well as repair and maintenance work that does not require planning consent.

This is quite a static level of future work that would account for around 58% of current employment, which indicates that future employment demand in most cases will be focused on replacing the current workforce levels and equipping them with appropriate skills, rather than an overall increase in demand.

7.3. Gap Analysis – Long Term

When looking at the longer term past 2017, the amount of known work in the LEP area decreases. To give a view on the gap analysis across the wider range of work and over the longer term, the annual Average Recruitment Requirement (ARR) details within the wider North West CSN 2017-2021 report can be used if it is weighted to reflect the fact that Lancashire LEP accounts for about 17% of the construction workforce in the North West.

Table 12: Occupational breakdown of ARR for Lancashire LEP (Source CITB)

Occupation	Lancashire LEP 2016 Employment Forecast	LEP ARR	ARR as a % of 2016 employment forecast
Other construction professionals and technical staff	3,625	10	0.3%
Other construction process managers	3,690	35	1.0%
Senior, executive, and business process managers	2,910	10	0.3%
Construction Trades Supervisors	765	20	2.7%
Civil engineers	770	<10	-
Construction Project Managers	775	-	-
Surveyors	1,020	-	-
Architects	640	20	3.1%
Electrical trades and installation	3,665	110	3.0%
Wood trades and interior fit-out	4,535	115	2.5%
Labourers nec*	2,520	70	2.8%
Plumbing and HVAC Trades	3,275	95	2.9%
Specialist building operatives nec*	1,010	-	-
Bricklayers	1,260	65	5.1%
Plant operatives	820	30	3.7%
Plant mechanics/fitters	890	20	2.2%
Plasterers	915	45	4.9%
Painters and decorators	1,940	30	1.5%
Floorers	560	<10	-
Building envelope specialists	1,480	20	1.4%
Roofers	1,025	15	1.5%
Steel erectors/structural fabrication	450	10	2.3%
Scaffolders	545	-	-
Civil engineering operatives nec*	225	10	4.4%
Glaziers	510	15	2.9%
Logistics	430	25	5.8%
Non-construction professional, technical, IT, and other office-based staff	6,230	95	1.5%
Total	**47,210**	**865**	**1.8%**

KEY

Manager/Professional occupations
Skilled Trades
Office-based Staff

The CSN 2017-2021 ARR is consistent with the earlier analysis in identifying a requirement for bricklayers, but also identifies some other occupations with a high occupational requirement, either as actual volumes or as a percentage of current employment. These occupations are:

- Electrical trades and installation (volume and % of employment)
- Wood trades and interior fit-out (volume)
- Bricklayers (% employment)
- Plant Operatives (% employment)
- Plasterers (% of employment)
- Civil Engineering Operatives nec (% of employment)
- Logistics (% of employment)

Electrical trades and installation have been identified due to a combination of comparatively high ARR by volume and an ARR as a percentage of current employment notably above the regional average.

Wood trades and interior fit-out have been identified solely in volume terms because of their comparatively high ARR by volume and high overall employment levels, accounting for almost 10% of all regional construction employment.

For **Plant Operatives**, **Plasterers**, **Civil Engineering Operative nec**, and **Logistics** trades, the ARR as a percentage of current employment is notably above the regional average at 3.7%, 4.9%, 4.4%, and 5.8% respectively, which indicates pressure to recruit more into these roles to meet forecasted demand.

7.4. Gap Analysis – Training needs

Looking at the future demand against current competence training, there are two considerations:

1. **Is there training in the areas of potential demand?**

   Collectively FE providers in the Lancashire LEP area provide training in most of the skilled construction trades for which there is demand. The exceptions are

   - **Building Envelope Specialists** where we have seen high short-term demand but a steadily declining number of qualification achievements over recent years –in 2015-16 there were no achievements in this qualification locally.
   - **Logistics** where there is relatively high long term demand but limited training available locally. [Logistics refers to the planning, execution, and control of the procurement, movement, and stationing of materials and other resources to achieve the delivery of a construction project. The skills are in demand across a number of other industries.]

2. **Is there the volume of training required across the spread of occupations?**

   There appears to be:

   - Provision for training across the range of occupations
   - A core of providers who deliver the majority of training
   - Good provision of competence qualifications for certain occupations, most notably Electrical trades; plumbing trades and wood trades and interior fit-out.

However, there are occupations where the levels of competence based training in the LEP area are lower than the long term ARR in the area. These are:

- **Plant Mechanics** / Fitters (ARR=20, annual qualifications=15)
- **Plasterers** (ARR=45, annual qualifications=30)
- **Roofers** (ARR=15, annual qualifications=10)

For these occupations, training levels have fluctuated, suggesting that it is a lack of demand amongst potential entrants rather than a lack of facilities and teachers that is limiting training.

Professional and managerial qualifications

In terms of professional and managerial occupations, provision within the LEP appears to be adequate. And it appears likely that a large proportion of graduates completing construction related courses will need to leave the LEP area to find employment.

- For Civil Engineers an ARR of less than ten is matched by the ten people starting Civil Engineering degrees in the area.
- For architecture the ARR of 20 is more than matched by the 70 starts on Architecture courses, so supply is likely to exceed demand.
- Neither Surveyors not Construction Project Managers have a significant ARR in the LEP area, so the 240 starts on Building degrees will most likely have to leave the area if they wish to find employment in these careers after graduation.

8. Conclusions and recommendations

The aim of the Lancashire LEP should be to achieve progress in addressing the long term and immediate challenges that the construction industry faces in the LEP area. However, balancing the supply of construction workers and skills against future demand and ensuring that a well-qualified workforce is in place is likely to be assisted by the LEP encouraging collaboration between influential local stakeholders. Positive progress is likely to be the result of a succession of incremental and interlinked actions undertaken by organisations working towards common goals.

The recommendations here are drawn on the evidence presented in this report but also take into consideration experience gained by CITB in addressing the wider challenges construction faces.

8.1.1. Collaborative partnerships

Conclusion

It will be essential to ensure that those interested in construction and with an influence over outputs and construction skills in the Lancashire LEP area work together. It is clear that training provision does not always align with demand and does not appear to address the requirements of construction employers. (E.g. much training delivered by FE institutions is at levels 1 and 2, much is knowledge rather than competency based. Employers tend to value competency training more highly.

Recommendation

The LEP should ensure that those stakeholders and influencers are engaged. Share available evidence with them with a view to building collaborative holistic action plans.

Points of common interest should be established to encourage these stakeholders to input to, and take ownership of, the construction skills actions. This will maintain a sense of shared ownership of the challenges, priorities and solutions.

Those stakeholders include: local construction businesses; major employers; local authorities; developers; those responsible for managing infrastructure (transport and utilities); construction training providers, local stakeholders and influencers and universities.

This may in particular include establishing immediately, closer working relationships with the largest projects taking place across the region (that will have disproportionate significance) in developing and supporting the skills and employment strategic framework.

8.1.2. Outreach: build a more positive image of construction with young people. Increase recruitment through new entrance points, career changes and reskilling.

Conclusion

Construction is sometimes associated with negative and inaccurate stereotypes that deter potential recruits, with education choices and career decisions often influenced in school and sometimes at a very early age.

It is increasingly clear that influences and preferences are established early in childhood and so it may be appropriate to build a positive profile of construction with children before the age of 11 as well as during secondary education.

Recommendation

With an anticipated long term demand for some skills, the potential exists for an outreach programme that goes out to schools to build a positive perception of construction for the future as offering high value rewarding careers for all. And subsequently encourages applications for construction skills courses and apprenticeships from a broader spectrum of young people – in particular ethnic minorities and women.

There are further opportunities for outreach with those aged 16 and above, in particular those studying relevant *STE(A)M* subjects but who have not considered that they lead into interesting and rewarding carers in construction or supporting construction.

CITB has supported employers across the construction and built environment to come together working with a number of stakeholders to develop an industry led initiative called Go Construct (www.goconstruct.org). This initiative inspires individuals to find out more about the sector, to access an experience with employers from school engagement via the Construction Ambassador scheme and find work experience placements.

The LEP will also have its own local initiatives, including the Lancashire Enterprise Advisor Network and STEMfirst Ambassadors.

There is an opportunity to maximise Go Construct and other employer led initiatives to raise engagement between the local employers, educators and individuals from all backgrounds.

However there may be other opportunities locally to provide clear, accessible and proactively communication information about the entry points into construction. This should be addressed in any developing action plans for Lancashire.

8.1.3. Develop LEP area construction training so that it is appropriate for the needs of the construction industry and local circumstances

Conclusions and additional comments

- An ambition of the developing construction skills curriculum should be to match training and development with the needs of employers and the local economy. In the LEP area 95% of FE training is provided by eight providers; 76% by just the biggest four so the greatest potential impact is through mediated collaboration, between the FE colleges.

[There are two key recommended structural changes in regards to changes in collaboration between Lancashire education institutions. Accrington and Rossendale College and Burnley College to merge and Preston's College to merge with the University of Central Lancashire.]

- By working together the major colleges may be able to avoid duplication of effort or share resources, enhance specialisations and explore innovative ways of delivering the curriculum that meets employers and students' needs.
- A common complaint of construction employers is that new starters are not often enough 'site ready' so a curriculum might including working with employers to enhance new starters' site readiness and behaviours. It also appears that the majority of training provision is at levels 1 and 2 that insufficiently often meets the needs of employers.
- Feedback received by CITB suggests that in many cases, construction FE courses are completed but do not lead to a career in the occupation for which they are trained. This is supported by an apparent mismatch between training achievements and occupational supply. This suggests a need to work with colleges, employers and graduating students to help ensure that a greater proportion move into the career for which they have a qualification.

Recommendations

a) Priority should be given to addressing any potential supply issues, qualified by local stakeholders, for trades and professions highlighted in this report as being:

   1. In high demand AND at high risk of a shortfall.
   2. In high demand
   3. At high risk of a shortfall

b) Action to address future skills needs should be incremental and take into consideration the delivery of training that supports construction industry needs – i.e. establish site ready proficient workers. Emphasis should be on ensuring that training shifts towards the provision of more competency based training and high quality sustainable apprenticeships. One opportunity may be to identify and facilitate how FE colleges and employers can engage with specialist training providers as well as with major projects, to address any anticipated specific local needs and ensure that training delivers what employers need as part of a complete package of training initiatives.

c) Longer term projections and the development of scenarios may enable an assessment of the potential impacts of major initiatives that may skew demand. For example, Lancashire appears to have a high level of investment demand for housing. An action for the LEP is to establish whether this trend is likely to continue and if so ensure that training provision addresses future demand for occupations of relevance to house builders. *[The LEP has referred to City Deal, Lancaster and Cuerden village.]*

HIGHER EDUCATION The Lancashire LEP has expressed a particular interest in higher level skills.

d) There is little apparent mismatch between university level courses and immediate demand in the Lancashire LEP area. However it is recognised that across the UK, there is a need to attract, train and retain higher level, advanced and 'future' skills for which there is demand and inadequate provision. There will also be replacement demand and so there are still opportunities to work with Higher Education providers to consider how they can introduce higher level and degree apprenticeships as well as support more professional and managerial training.

The LEP should maintain and develop its existing good relationship with UCLan, with a view to finding greater opportunities for *Building* graduates to find placements and career opportunities within the LEP area. Discussion could also start with Lancaster University to establish opportunities to encourage more engineering graduates to specialise in Civil Engineering and to be supported into careers in construction.

8.1.4. Use procurement as a lever to enable skills development

Conclusion

Construction is delivered through construction suppliers, often funded by private developers as well as by local authorities and regulated by local planning authorities. These organisations are better placed to prepare for the future if they have certainty on which to base their plans.

Recommendations

The potential exists through smarter approaches to procurement (including co-ordinated approaches to Section 106 agreements) to encourage those bidding for construction and infrastructure contracts or those funding developments to be mandated to include provision for recruitment, training, apprenticeships and outreach that is co-ordinated across the LEP area.

Provision could be required to hold contractors to account for commitments made. Such an approach could be co-ordinated through the Lancashire LEP and local authorities and be a requirement of planning applications and local authority and public sector contracts.

Early engagement with employers to discuss any such approach is recommended to find ways of ensuring that such requirements take into consideration the industry's needs and circumstances.

Procurement of major contracts, or conditions of planning consent could mandate the sharing of supply and sub-contracting through a locally managed portal available to businesses based within the region.

8.2. Maintaining & enhancing the evidence base

Utilise the licence to use the CITB Labour Forecasting Tool to regularly update the evidence base that supports decision making as circumstances change and to demonstrate construction pipeline opportunities. Ensuring that pipeline visibility assists the local industry in reducing risks such as economic instability or maintaining sustainable employment.

Appendices

Appendix A. Demand analysis methodology

A.1.1. Introduction

The Construction Skills Network (CSN) provides labour market intelligence for the construction industry. Developed by Experian on behalf of CITB it forecasts labour demand in each of 12 UK regions and provides details on how the industry will change year on year. It is not designed however to predict labour demand at a sub-regional level. For this purpose, we use our prize-winning Labour Forecasting Tool (LFT) developed on behalf of CITB. Labour demand is calculated by converting the volume of construction activity forecast to take place in any geographical region into forecast labour demand using labour coefficients (the number of person years required to produce £1m of output). For the sake of consistency with ONS terminology the 'volume of activity' is referred to as 'output' throughout this report. The following sections describe:

- the sources of data we use;
- how the output is calculated;
- how we deal with the absence of comprehensive data that is the typical situation beyond the first year or two of our analysis;
- how we reconcile any differences between the results produced by the LFT and those produced by the CSN;
- the steps we take to take account of any shortcomings in the sources of data; and how the LFT converts output into labour demand.

A.1.2. Calculating construction output

A.1.2.1. Data sources

There are two principal sources of data: the Glenigan database and the National Infrastructure and Construction Pipeline (NICP). Once we have elicited the appropriate date, the results are sent to the NE LEP to supplement and/or confirm.

A.1.2.2. Glenigan

The original purpose of the Glenigan database is to allow contractors to identify leads and to carry out construction market analysis. It is updated every quarter to provide details of planning applications from local authorities supplemented with additional project-specific data. Of particular relevance to this report, it provides a description of each project, its name, location, value, and in most cases, projected start and end dates. It contains many tens of thousands of projects. The Glenigan pipeline does not identify every single project in an area: projects which are small (typically but not exclusively those less than £250,000 in value), and most that involve repair and maintenance are not included.

We have used the latest available cut of Glenigan data (2016Q4) including all the relevant projects which started before 2017 but excluding those which are already complete. We have included in our analysis only those projects shown to be at the following planning stages because there is a reasonable probability that these projects will be realised in practice:

- Planning Not Required

- Detail Plans Granted
- Reserved Matters Granted
- Application for Reserved Matters
- Plans Approved on Appeal
- Listed Building Consent

The values of some infrastructure projects given in the Glenigan database are the total value of construction and engineering works. In these cases, since the scope of this study is limited to the construction sector, an estimate of the engineering value has been calculated and subtracted from the total value. This provides what we have termed the construction value. The percentages applied to the total value of each infrastructure project type to derive the construction value are shown in Table 13. The construction/engineering proportions have been validated through work we have undertaken for other clients and have been used in the production of Infrastructure UK's National Infrastructure Plan for Skills and the Construction Skills Network forecasts.

An initial review of the projects in the pipeline is carried out to ensure that only projects which have (a) a defined value and (b) defined start and end dates, are considered in the analysis, and that no projects are duplicated. For example "major leads" and "frameworks" may include smaller projects that are separately identified in the database.

Because of the size of the database, it is impossible to review the details of every project. Instead, we identify the small number of projects that represent the greatest value, the so-called significant projects. To do this, we use the Mean Value Theorem developed at the University of Dundee which states that maximum information from any set of data is obtained simply by considering the data whose value is greater than the average. This is a version of the Pareto rule which suggests that 80% of the value in a data set is contained within the 20% of items whose value is the greatest. The significant projects are then thoroughly inspected to make sure that the information reported in the Glenigan database is consistent and accurate as far as can be ascertained. Any anomalies are resolved, if necessary by returning to the source of the data. Since this process typically picks up the projects whose value represents 80% of the total, the scope for any errors in the remaining data to have a significant impact is severely limited.

Table 13: Proportion of total value related to construction

Infrastructure type	Sub-type	Construction value as a proportion of total value
Flooding	Flooding	90%
Transport	Bridges	100%
	Road Tunnel	100%
	Roads	100%
	Air Traffic Control	100%
	Airports	100%
	Ports	90%
	Stations (Underground/Network rail)	80%
	Mixed Rail	55%
	Electrification	35%
	Underground/DLR (not incl. Stations)	35%
	Rail maintenance	10%
	Trams	55%
	Contactless Ticketing	20%
Water	Water/Wastewater Treatment Works	90%
Communications	Broadband/Digital infrastructure	20%
Energy	Photovoltaics	80%
	Generation (Biomass)	50%
	Generation (Energy from Waste)	50%
	Generation (Nuclear)	50%
	Undefined Electricity Generation	40%
	Generation (Fossil fuel)	25%
	Generation (Renewables - Offshore)	20%
	Generation (Renewables - Onshore)	10%
	Gas Transmission/distribution	30%
	Electricity transmission/distribution	25%
	Interconnectors	20%
	Nuclear Decommissioning	60%
	Smart Meters	0%
	Oil and Gas	10%
Mining	Mining	80%
General infrastructure	General infrastructure	100%

For the significant projects, the project descriptions in the database are thoroughly inspected and assigned the most appropriate project type to be used when the data is input to the LFT (each type is driven by a different underlying model). Cases where a project consists of more than one type are broken down into multiple forecasts which are assigned specific project types to more closely predict the labour demand. This takes account of the different types of work which may exist within a single project, e.g. mixed developments comprising housing, commercial and industrial.

For the non-significant projects, the default project type defined in the Glenigan pipeline is applied.

In order to maintain consistency with the CSN, whose forecasts extend only as far as 2020/21, we have limited our analysis of the Glenigan data to the annual spends up to and including 2020/21.

A.1.2.3. NICP data

The Infrastructure and Projects Authority (formerly Infrastructure UK and Major Projects Authority) compile a pipeline of UK infrastructure and construction projects and the associated annual public and private investment. For this report we have used the Autumn 2016 NICP which includes details of around 720 projects valued at some £500bn.

The NICP data is examined to identify infrastructure projects or programmes of work taking place in the NE LEP that are not included in the Glenigan database. The construction cost is calculated from the total cost reported in the NICP using the percentages in Table 13. Projects in the Glenigan dataset and the NICP are combined (ensuring that there is no double counting) to create a pipeline of 'denominated' projects for the area. We have only considered those projects which are specifically allocated to the NE LEP in the NICP (i.e. projects at a National level have not been considered).

The Autumn 2016 pipeline includes both construction and infrastructure projects but for the purposes of this analysis we have included only projects which are clearly defined specific projects rather than regional programmes of work. This reduces the risk of double counting with data in Glenigan.

A.1.2.4. CSN data

The CSN model produced by Experian also uses Glenigan as a major source of data relating to the volume of construction activity in the UK. Experian supplement the Glenigan data with market intelligence collected by a variety of means including a series of 'Observatories' held every six months in each region, at which representatives of the industry are invited to comment on the validity of Experian's data and findings. In Experian's annual CSN report, their estimate of the output in each of the following sectors is published:

- Public housing
- Private housing
- Infrastructure
- Public non-housing
- Industrial
- Commercial
- Housing repair and maintenance
- Non-housing repair and maintenance

A.1.2.5. Validation by Lancashire LEP

Finally, the resulting pipeline of work was shared with the Lancashire LEP to check its validity and identify any omissions or other issues.

A.1.3. Aligning the Glenigan pipeline with CSN output

The following process is undertaken to ensure that the value of work in the Glenigan pipeline is aligned with output as measured by the CSN.

1. Considering the government region within which the NE LEP lies (in this case, the North East), identify only the new build in the denominated projects by removing all repair and maintenance projects.
2. Compare the output identified in the denominated projects as new build at the regional level with the CSN new build at the regional level sector by sector e.g. residential, non-residential, infrastructure etc.
3. If in any sector the denominated new-build regional output for the peak year is more or less than that forecast by the CSN for the same year then the value of ***each new build denominated*** **project** is factored by the following ratio:

$$\frac{Value\ of\ CSN\ new\ build\ at\ regional\ level\ for\ given\ sector}{Value\ of\ denominated\ new\ build\ projects\ at\ regional\ level\ for\ given\ sector}$$

The outputs calculated in this way are referred to as 'factored new build outputs'

This process takes account of both projects (typically less than £250k in value) not included in the denominated projects and those whose value or probability of realisation is over-optimistic.

4. To take account of housing repair and maintenance (R&M) in the denominated projects at the LEP level, it is assumed that the proportion of the total output represented by housing R&M is the same at the LEP level as it is at the regional level in the CSN. The Glenigan new build factored output is therefore multiplied by the following ratio:

$$\frac{Value\ of\ CSN\ housing\ R\&M\ at\ regional\ level}{Value\ of\ CSN\ new\ build\ housing\ at\ regional\ level}$$

to derive the output in housing R&M to be added to the factored new build output

6. The non-housing R&M to be added to the factored new build output is calculated in a similar way.

A.1.4. Dealing with the 'cliff edge'

As the time horizon extends there is less clarity on what is planned. As a result, the number of denominated projects declines the further into the future we look. This apparently declining workload is highly unlikely to reflect the total amount of work that will take place in the future. It is almost certain that there will be additional projects that come on stream which are yet to be identified. To overcome this 'cliff edge' effect we assume, based on an analysis of historical data, that the future workforce is approximately equal to the peak. It should be noted that the peak labour demand refers to the current "snapshot" of the scheduled construction spend. It is prudent to expect that, should the investment in future years follow the same pattern, the peak labour demand figures are likely to be roughly similar assuming the mix of projects remains consistent. The peak has, therefore, been projected forwards and backcast to create a more likely scenario of the ongoing workforce. The employment growth rate is based on the CSN employment forecast for the whole region under consideration.

A consequence of this approach is the implicit assumption that the proportion of people in each occupation in the additional projects remain unchanged year on year.

A.1.5. Calculating total labour demand

Our Labour Forecasting Tool is used to determine the labour demand generated by the construction outputs in the peak year calculated as described in Sections 2.2, and 2.4. The LFT can determine the labour demand generated by a pipeline of construction projects given only the project types, their start and end dates and their locations. It quantifies the month-by-month demand in each of the 28 occupational groups shown in Appendix A. To do this, it uses labour coefficients (person years to produce £1m of output) derived from historical ONS data. The labour coefficients are updated annually as new data becomes available, and indexed to take account of changes in prices.

There are different labour coefficients for each occupation and for each of the following project types:

- residential
- non-residential
- infrastructure
- residential R&M
- non-residential R&M

Infrastructure projects can be broken down into the types shown in Table 13.

Appendix B. Occupational definitions

Reference is made in this report to a range of occupational aggregates for construction occupations. This appendix contains details of the 166 individual occupations which are aggregated into 28 occupational aggregates.

Appendix Table 14: Occupational definitions

Occupations included within construction occupational aggregates (Four-digit codes refer to Office for National Statistics Standard Occupational Classification Codes).	
1 Senior, executive, and business process managers	
	(1115) Chief executives and senior officials
	(1131) Financial managers and directors
	(1132) Marketing and sales directors
	(1133) Purchasing managers and directors
	(1135) Human resource managers and directors
	(1251) Property, housing and estate managers
	(1136) Information technology and telecommunications directors
	(2150) Research and development managers
	(1162) Managers and directors in storage and warehousing
	(1259) Managers and proprietors in other services nec
	(1139) Functional managers and directors nec
	(2133) IT specialist managers
	(2134) IT project and programme managers
	(3538) Financial accounts managers
	(3545) Sales accounts and business development managers
2 Construction project managers	
	(2436) Construction project managers and related professionals
3 Other construction process managers	
	(1121) Production managers and directors in manufacturing
	(1122) Production managers and directors in construction
	(1161) Managers and directors in transport and distribution
	(1255) Waste disposal and environmental services managers
	(3567) Health and safety officers
	(3550) Conservation and environmental associate professionals
4 Non-construction professional, technical, IT, and other office–based staff (excl. managers)	
	(3131) IT operations technicians
	(3132) IT user support technicians
	(3534) Finance and investment analysts and advisers
	(3535) Taxation experts
	(3537) Financial and accounting technicians
	(3563) Vocational and industrial trainers and instructors
	(3539) Business and related associate professionals nec
	(3520) Legal associate professionals
	(3565) Inspectors of standards and regulations
	(2136) Programmers and software development professionals
	(2139) Information technology and telecommunications professionals nec
	(3544) Estate agents and auctioneers
	(2413) Solicitors
	(2419) Legal professionals nec
	(2421) Chartered and certified accountants
	(2424) Business and financial project management professionals
	(2423) Management consultants and business analysts
	(4216) Receptionists

	(4217) Typists and related keyboard occupations
	(3542) Business sales executives
	(4122) Book-keepers, payroll managers and wages clerks
	(4131) Records clerks and assistants
	(4133) Stock control clerks and assistants
	(7213) Telephonists
	(7214) Communication operators
	(4215) Personal assistants and other secretaries
	(7111) Sales and retail assistants
	(7113) Telephone salespersons
	(3541) Buyers and procurement officers
	(3562) Human resources and industrial relations officers
	(4121) Credit controllers
	(4214) Company secretaries
	(7129) Sales related occupations nec
	(7211) Call and contact centre occupations
	(7219) Customer service occupations nec
	(9219) Elementary administration occupations nec
	(2111) Chemical scientists
	(2112) Biological scientists and biochemists
	(2113) Physical scientists
	(3111) Laboratory technicians
	(3421) Graphic designers
	(2463) Environmental health professionals
	(2135) IT business analysts, architects and systems designers
	(2141) Conservation professionals
	(2142) Environment professionals
	(2425) Actuaries, economists and statisticians
	(2426) Business and related research professionals
	(4124) Finance officers
	(4129) Financial administrative occupations nec
	(4138) Human resources administrative occupations
	(4151) Sales administrators
	(4159) Other administrative occupations nec
	(4162) Office supervisors
	(7130) Sales supervisors
	(7220) Customer service managers and supervisors
	(4161) Office managers
5 Construction trades supervisors	
	(5250) Skilled metal, electrical and electronic trades supervisors
	(5330) Construction and building trades supervisors
6 Wood trades and interior fit-out	
	(5315) Carpenters and joiners
	(8121) Paper and wood machine operatives
	(5442) Furniture makers and other craft woodworkers
	(5319) Construction and building trades nec (25%)
7 Bricklayers	

	(5312) Bricklayers and masons
8 Building envelope specialists	
	(5319) Construction and building trades nec (50%)
9 Painters and decorators	
	(5323) Painters and decorators (5319) Construction and building trades nec (5%)
10 Plasterers	
	(5321) Plasterers
11 Roofers	
	(5313) Roofers, roof tilers and slaters
12 Floorers	
	(5322) Floorers and wall tillers
13 Glaziers	
	(5316) Glaziers, window fabricators and fitters (5319) Construction and building trades nec (5%)
14 Specialist building operatives not elsewhere classified (nec)	
	(8149) Construction operatives nec (100%) (5319) Construction and building trades nec (5%) (9132) Industrial cleaning process occupations (5449) Other skilled trades nec
15 Scaffolders	
	(8141) Scaffolders, stagers and riggers
16 Plant operatives	
	(8221) Crane drivers (8129) Plant and machine operatives nec (8222) Fork-lift truck drivers (8229) Mobile machine drivers and operatives nec
17 Plant mechanics/fitters	
	(5223) Metal working production and maintenance fitters (5224) Precision instrument makers and repairers (5231) Vehicle technicians, mechanics and electricians (9139) Elementary process plant occupations nec (5222) Tool makers, tool fitters and markers-out (5232) Vehicle body builders and repairers
18 Steel erectors/structural fabrication	
	(5311) Steel erectors (5215) Welding trades (5214) Metal plate workers, and riveters (5319) Construction and building trades nec (5%) (5211) Smiths and forge workers (5221) Metal machining setters and setter-operators
19 Labourers nec	
	(9120) Elementary construction occupations (100%)
20 Electrical trades and installation	

	(5241) Electricians and electrical fitters (5249) Electrical and electronic trades nec (5242) Telecommunications engineers
21 Plumbing and heating, ventilation, and air conditioning trades	
	(5314) Plumbers and heating and ventilating engineers (5216) Pipe fitters (5319) Construction and building trades nec (5%) (5225) Air-conditioning and refrigeration engineers
22 Logistics	
	(8211) Large goods vehicle drivers (8212) Van drivers (9260) Elementary storage occupations (3541) Buyers and purchasing officers (50%) (4134) Transport and distribution clerks and assistants
23 Civil engineering operatives not elsewhere classified (nec)	
	(8142) Road construction operatives (8143) Rail construction and maintenance operatives (8123) Quarry workers and related operatives
24 Non–construction operatives	
	(8117) Metal making and treating process operatives (8119) Process operatives nec (8125) Metal working machine operatives (8126) Water and sewerage plant operatives (8132) Assemblers (vehicles and metal goods) (8133) Routine inspectors and testers (8139) Assemblers and routine operatives nec (9249) Elementary security occupations nec (9233) Cleaners and domestics (9232) Street cleaners (5113) Gardeners and landscape gardeners (6232) Caretakers (9241) Security guards and related occupations (3319) Protective service associate professionals nec
25 Civil engineers	
	(2121) Civil engineers
26 Other construction professionals and technical staff	
	(2122) Mechanical engineers (2123) Electrical engineers (2126) Design and development engineers (2127) Production and process engineers (2461) Quality control and planning engineers (2129) Engineering professionals nec (3112) Electrical and electronics technicians (3113) Engineering technicians (3114) Building and civil engineering technicians (3119) Science, engineering and production technicians nec

	(3121) Architectural and town planning technicians (3122) Draughtspersons (3115) Quality assurance technicians (2432) Town planning officers (2124) Electronics engineers (2435) Chartered architectural technologists (3531) Estimators, valuers and assessors (3116) Planning, process and production technicians
27 Architects	
	(2431) Architects
28 Surveyors	
	(2433) Quantity surveyors (2434) Chartered surveyors

Appendix C. Glenigan projects removed from the Lancashire LEP

This section contains a list of all the Glenigan projects removed from the analysis, stating the reason for their exclusion.

Appendix Table 15: Glenigan projects removed from the Lancashire LEP

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
1	Care Home (Extension)	Wyre	0.35	-	-	Missing Dates
2	Factory (Extensions)	Blackburn	0.554	-	-	Missing Dates
3	15 Flats	Blackpool	0.73	-	-	Missing Dates
4	19 Houses& 9 Flats	South Ribble	2.1	-	-	Missing Dates
5	Hotel	Blackburn	3.349	-	-	Missing Dates
6	Community Centre (Conversion/Extension)	Chorley	0.498	-	-	Missing Dates
7	2 Office Units	West Lancashire	0.46	-	-	Missing Dates
8	Road Improvements Works	Chorley	0.75	-	-	Missing Dates
9	38 Residential Units	Blackburn	2.6	-	-	Missing Dates
10	Temporary Industrial Building	Chorley	0.93	-	-	Missing Dates
11	12 Flats	Blackpool	0.6	-	-	Missing Dates
12	14 Houses& 3 Bungalows	Ribble Valley	1.2	-	-	Missing Dates
13	350 Houses, 1 School & 1 Local Centre	Preston	21.2	-	-	Missing Dates
14	6 Flats & 1 Office Building	West Lancashire	0.52	-	-	Missing Dates
15	48 Residential Units/Commercial Development	Blackburn	3.2	-	-	Missing Dates
16	6 Houses& 4 Bungalows	West Lancashire	0.75	-	-	Missing Dates
17	20 Flats	Blackpool	1	-	-	Missing Dates
18	Industrial Unit (Extension)	South Ribble	0.366	-	-	Missing Dates
19	Industrial Unit	Ribble Valley	0.33	-	-	Missing Dates
20	Vehicle Workshop/Office/Storage Building	Chorley	2	-	-	Missing Dates
21	Temporary Storage Building	Fylde	0.34	-	-	Missing Dates
22	190 Residential Units	Preston	14.25	-	-	Missing Dates
23	7 Houses/4 Flats & 1 Convenience Store	South Ribble	0.73	-	-	Missing Dates
24	84 Houses& 26 Flats	Fylde	6.7	-	-	Missing Dates
25	1100 Residential & 3 Commercial Units	Preston	42.5	-	-	Missing Dates

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
26	32 Houses	Hyndburn	2.2	-	-	Missing Dates
27	51 Residential Units	Wyre	3.4	-	-	Missing Dates
28	25 Houses	Blackburn	2.4	-	-	Missing Dates
29	4 Light Industrial Buildings	Fylde	1.784	-	-	Missing Dates
30	Offices (Extension)	Lancaster	0.45	-	-	Missing Dates
31	68 Houses& 18 Luxury Houses	West Lancashire	0.25	-	-	Missing Dates
32	Demolition	Pendle	0.946	-	-	Missing Dates
33	Road (Completions)	Lancaster	0.7	-	-	Missing Dates
34	25 Houses	Lancaster	1.875	-	-	Missing Dates
35	24 Houses/1 Bungalow	Wyre	1.875	-	-	Missing Dates
36	22 Houses(New/Conversion)	Pendle	1.5	-	-	Missing Dates
37	77 Houses	Wyre	5	-	-	Missing Dates
38	11 Houses	Blackpool	0.8	-	-	Missing Dates
39	10 Residential Units	Ribble Valley	0.75	-	-	Missing Dates
40	385 Residential Units	South Ribble	50	-	-	Missing Dates
41	55 Holiday Lodges & Reception	Pendle	6	-	-	Missing Dates
42	Retail Unit	Preston	0.5	-	-	Missing Dates
43	Community Hall (New/Extension)	Chorley	1.417	-	-	Missing Dates
44	18 Houses	Blackburn	1.35	-	-	Missing Dates
45	60 Houses	Wyre	4	-	-	Missing Dates
46	12 Flats	Burnley	0.59	-	-	Missing Dates
47	11 Flats (Conversion/Extension)	Blackpool	0.5	-	-	Missing Dates
48	34 Houses	Lancaster	2.3	-	-	Missing Dates
49	22 Flats	Pendle	1	-	-	Missing Dates
50	18 Sheltered Flats	Fylde	0.86	-	-	Missing Dates

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
51	Golf Driving Range Building (New/Conversion)	Lancaster	1	-	-	Missing Dates
52	Car Showroom	Pendle	0.444	-	-	Missing Dates
53	11 Town Houses	Preston	0.825	-	-	Missing Dates
54	190 Houses	Ribble Valley	11.8	-	-	Missing Dates
55	Care Home (Extension/Alterations)	Preston	0.32	-	-	Missing Dates
56	13 Houses& 2 Retail Units	West Lancashire	0.94	-	-	Missing Dates
57	4 Commercial Units	Burnley	1.4	-	-	Missing Dates
58	11 Flats	Rossendale	0.55	-	-	Missing Dates
59	51 Houses	West Lancashire	3.4	-	-	Missing Dates
60	Transport Depot (Refurb)	Blackpool	0.5	-	-	Missing Dates
61	16 Houses	Fylde	1.2	-	-	Missing Dates
62	10 Houses	Preston	1.4	-	-	Missing Dates
63	Village Hall	South Ribble	1.014	-	-	Missing Dates
64	Residential Developments	Fylde	4	-	-	Missing Dates
65	7 Town Houses& 6 Flats	Wyre	0.82	-	-	Missing Dates
66	Care Home	Fylde	1	-	-	Missing Dates
67	11 Flats	Hyndburn	0.54	-	-	Missing Dates
68	Office Development	West Lancashire	2.255	-	-	Missing Dates
69	14 Flats	Fylde	0.7	-	-	Missing Dates
70	10 Houses	Blackpool	0.73	-	-	Missing Dates
71	14 Houses	Pendle	1.05	-	-	Missing Dates
72	504 Residential Units	Ribble Valley	29.7	-	-	Missing Dates
73	Student Accommodation	Preston	0.5	-	-	Missing Dates
74	Supermarket & Petrol Filling Station	Wyre	4.2	-	-	Missing Dates
75	Bypass	West Lancashire	20	-	-	Missing Dates

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
76	11 Flats (Conversion)	Burnley	0.55	-	-	Missing Dates
77	Hospital	Preston	40	-	-	Missing Dates
78	22 Flats & 10 Houses	Fylde	1.8	-	-	Missing Dates
79	328 Residential/Commercial Units	Preston	13.5	-	-	Missing Dates
80	Residential Units	Lancaster	1	-	-	Missing Dates
81	Mental Health Unit	Blackburn	22.682	-	-	Missing Dates
82	Military Living Accommodation	Preston	10	-	-	Missing Dates
83	7 Retail/Cinema (Conversion/Alterations)	West Lancashire	4	-	-	Missing Dates
84	4 Supermarket/Leisure Centre & Retail Units	Preston	7.566	-	-	Missing Dates
85	Place of Worship	Fylde	1.1	-	-	Missing Dates
86	360 Houses	Fylde	21.6	-	-	Missing Dates
87	20 Residential Units	Fylde	1.4	-	-	Missing Dates
88	Restaurant (Extension/Alterations)	Burnley	2.6	-	-	Missing Dates
89	11 Houses	Ribble Valley	0.8	-	-	Missing Dates
90	8 Houses/Woodland School	Pendle	0.59	-	-	Missing Dates
91	Industrial Workshops & Warehouses	Blackpool	0.51	-	-	Missing Dates
92	134 Houses	Blackburn	10.05	-	-	Missing Dates
93	18 Houses	Ribble Valley	1.35	-	-	Missing Dates
94	18 Houses	Lancaster	1.3	-	-	Missing Dates
95	150 Homes, 70 Sheltered Housing & Commercial Units	Wyre	9.4	-	-	Missing Dates
96	7 Offices (New/Refurbishment)	Preston	1.7	-	-	Missing Dates
97	School Teaching Block (Extension)	South Ribble	0.584	-	-	Missing Dates
98	10 Flats & 6 Houses/ 2 Luxury Houses	Burnley	0.9	-	-	Missing Dates
99	89 Student Flats (New/Extension)	Lancaster	3.412	-	-	Missing Dates
100	86 Houses	Burnley	6.45	-	-	Missing Dates

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
101	200 Residential/Commercial Units	Lancaster	12.4	-	-	Missing Dates
102	Commercial Development	Burnley	17	-	-	Missing Dates
103	9 Houses & 2 Flats	Ribble Valley	0.825	-	-	Missing Dates
104	26 Flats (Conversion)	Preston	1.3	-	-	Missing Dates
105	5 Retail Units	South Ribble	0.34	-	-	Missing Dates
106	Care Home	Hyndburn	1.9	-	-	Missing Dates
107	17 Houses & 4 Flats	Ribble Valley	1.575	-	-	Missing Dates
108	11 Industrial Units	Blackpool	0.44	-	-	Missing Dates
109	School Classroom (Extension)	Chorley	0.53	-	-	Missing Dates
110	Hotel & Restaurant/Bar	Blackpool	2.8	-	-	Missing Dates
111	11 Student Flats	Wyre	1	-	-	Missing Dates
112	Gas Fired Power Station	Lancaster	25	-	-	Missing Dates
113	100 Houses	South Ribble	6.4	-	-	Missing Dates
114	Student Accommodation/Restaurant	Burnley	6	-	-	Missing Dates
115	18 Houses	Chorley	1.3	-	-	Missing Dates
116	12 Flats	Fylde	0.86	-	-	Missing Dates
117	72 Sheltered Extra Care Flats	Wyre	8	-	-	Missing Dates
118	6 Retail/Restaurant Units (Extension/Alterations)	Preston	1.136	-	-	Missing Dates
119	275 Residential Units	Ribble Valley	20.625	-	-	Missing Dates
120	Industrial Unit (Extension)	Lancaster	0.298	-	-	Missing Dates
121	1 Business Park	Ribble Valley	18.1	-	-	Missing Dates
122	7 Houses & 3 Luxury Houses	Ribble Valley	0.86	-	-	Missing Dates
123	Nursing Home (Extension/Alterations)	Fylde	1.051	-	-	Missing Dates
124	27 Residential/Holiday Flats & 1 Cafe	Blackpool	1.2	-	-	Missing Dates
125	Residential & Commercial	Lancaster	150	-	-	Missing Dates

Number	Heading	Local Authority	Value (£m)	Start Date	End Date	Reason
126	20 Houses	Lancaster	1.5	-	-	Missing Dates
127	12 Houses	Pendle	0.9	-	-	Missing Dates
128	3 Commercial Units	Ribble Valley	1	-	-	Missing Dates
129	10 Houses	West Lancashire	0.75	-	-	Missing Dates
130	3 Commercial Units	Ribble Valley	6.7	-	-	Missing Dates
131	Hotel (Extension)	South Ribble	7.2	-	-	Missing Dates
132	Vehicle Workshop/Service Unit	Burnley	0.557	-	-	Missing Dates
133	40 Houses	Wyre	3	-	-	Missing Dates
134	2 Workshop/Storage Units & 1 Office	Hyndburn	0.359	-	-	Missing Dates
135	35 Flats	Blackpool	1.6	-	-	Missing Dates
136	Garden Centre Building	Pendle	4.5	-	-	Missing Dates
137	14 Flats & 1 Retail Unit	Lancaster	0.73	-	-	Missing Dates
138	Flats & Commercial Units	Preston	0.5	-	-	Missing Dates
139	Industrial Building	Burnley	0.55	-	-	Missing Dates
140	Residential/Commercial Units	West Lancashire	1	-	-	Missing Dates
141	630 Residential Units	West Lancashire	36.7	-	-	Missing Dates
142	25 Town Houses	Hyndburn	1.875	-	-	Missing Dates
143	138 Residential Units & 5 Commercial Units	Burnley	6.1	-	-	Missing Dates
144	Consultancy Framework	Preston	12	16/12/2013	16/12/2017	Consultancies
145	Consultancy Framework	Preston	50	01/09/2014	01/09/2018	Consultancies
146	Mechanical and Electrical Consultancy Services Framework.	Lancaster	5	06/03/2017	08/03/2021	Consultancies
147	Architectural Services Framework.	Lancaster	9	08/11/2016	08/11/2020	Consultancies
148	Wastewater Treatment Works	Blackburn with Darwen	165	10/04/2017	11/04/2022	Included in NICP
149	Water Treatment Works	Preston	7.851	28/07/2016	28/07/2017	Included in NICP
150	Sewage Treatment Works	Fylde	50	13/02/2017	13/08/2018	Included in NICP

Appendix D. Significant Glenigan projects in the Lancashire LEP

This appendix provides a list of all the significant projects analysed. The projects appear in the following as they were put into the LFT.

Appendix Table 16: Significant Glenigan projects in the Lancashire LEP

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc315	Places for People New Build Contractor Framework	Preston	185.4	18/03/2016	18/03/2020	Public Non-housing, Private Commercial, Private Industrial, New housing
Lanc202	Strategic Property Partnering Agreement	Preston	102.8	02/01/2013	02/04/2021	Public Non-housing
Lanc220	Housing Improvement Framework	Burnley	88.0	21/09/2012	21/12/2020	Housing R&M
Lanc131	LCPG Framework	Preston	80.0	27/01/2015	29/01/2019	New housing
Lanc1178	University	Preston	73.4	09/01/2017	11/01/2027	Public Non-housing
Lanc535	927 Residential Units	Fylde	69.5	21/11/2016	18/12/2017	New housing
Lanc685	Offshore Wind Farm (Extension)	Lancaster	65.8	10/04/2017	08/04/2019	Infrastructure
Lanc1051	250 Residential & Amenities	Fylde	55.0	01/07/2017	01/07/2019	New housing, Private Commercial
Lanc009	Cinema & Restaurants	Preston	50.0	23/01/2017	23/01/2018	Private Commercial
Lanc168	400 Homes	Blackpool	50.0	18/11/2013	06/02/2022	New housing
Lanc1193	Business Park	Fylde	50.0	16/07/2018	16/07/2020	Private Commercial
Lanc191	1150 Residential/1 Commercial Development	Fylde	44.4	27/11/2017	23/11/2020	New housing, Public Non-housing
Lanc251	Partnering Framework for Construction	Preston	44.1	01/09/2014	27/08/2018	Public Non-housing
Lanc475	Construction R&M Framework	Preston	38.4	04/04/2016	06/04/2020	Housing R&M
Lanc1028	650 Residential/Office/Industrial/Community/Sports Units	Preston	36.2	17/08/2015	14/08/2017	New housing, Private Industrial, Public Non-housing, Private Commercial
Lanc270	504 Houses& 80 Flats/1 Retail Unit	Blackpool	34.2	13/03/2017	13/05/2019	New housing
Lanc978	558 Residential Units	Wyre	29.0	02/01/2015	02/03/2018	New housing
Lanc1174	375 Houses	Fylde	28.1	04/01/2017	04/02/2018	New housing
Lanc989	Major Works Contractors Framework	Preston	27.7	15/09/2014	10/09/2018	New housing
Lanc1008	340 Houses& 10 Flats	Preston	26.3	20/02/2017	19/03/2018	New housing

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc1111	105 Residential Units	Chorley	25.0	04/11/2013	04/11/2017	New housing
Lanc357	Refurbishment & Fit Out Framework	Preston	25.0	06/04/2015	06/04/2018	Private Commercial
Lanc358	316 Residential Units	West Lancashire	23.7	06/02/2017	30/03/2018	New housing
Lanc593	302 Houses/Commercial Units	Preston	23.7	05/09/2016	02/09/2019	New housing, Private Commercial, Public Non-housing
Lanc284	380 Houses	Wyre	22.8	15/06/2016	15/09/2018	New housing
Lanc443	Line Electrification	Preston	22.6	01/01/2018	30/12/2019	Infrastructure
Lanc368	284 Houses	South Ribble	21.3	16/02/2017	15/03/2018	New housing
Lanc1220	350 Residential Units	South Ribble	21.0	01/07/2017	01/07/2019	New housing
Lanc204	275 Residential Units & Employment Facility	West Lancashire	20.7	01/02/2017	30/01/2019	New housing
Lanc107	Office/Training/Education Facility/Micro Brewery/Retail	Pendle	20.0	20/06/2016	22/06/2018	Private Commercial
Lanc334	Hotel (Conversion/Extension)	Blackpool	20.0	12/09/2018	11/09/2019	Private Commercial
Lanc1025	168 Homes, Leisure & Commercial (New/Refurb)	Burnley	20.0	29/05/2017	03/06/2019	New housing, Private Commercial
Lanc041	363 Residential Homes & 1 School/1 Cricket Club/1 Pavilion	Ribble Valley	18.6	01/05/2017	28/05/2018	New housing, Public Non-housing
Lanc1069	230 Houses	Preston	17.3	16/01/2017	16/02/2018	New housing
Lanc412	199 Houses/18 Bungalows & 12 Flats	Ribble Valley	17.2	04/01/2017	04/02/2018	New housing
Lanc401	283 Houses/Commercial Units & Community Centre	Preston	15.8	11/01/2016	06/02/2017	New housing, Private Commercial, Public Non-housing
Lanc781	202 Houses	Burnley	15.2	06/02/2017	05/03/2018	New housing

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc924	188 Houses& 12 Flats	Wyre	15.0	10/02/2018	10/03/2019	New housing
Lanc1056	200 Houses& Employment Development	Fylde	15.0	01/07/2017	01/08/2018	New housing, Private Commercial
Lanc1225	Bypass	Preston	15.0	11/01/2016	04/08/2017	Infrastructure
Lanc525	185 Houses& 10 Bungalows	Ribble Valley	14.6	07/03/2016	02/03/2018	New housing
Lanc526	Industrial Building	Chorley	14.4	03/04/2017	09/10/2017	Private Industrial
Lanc998	189 Houses	Preston	14.2	03/10/2016	30/10/2017	New housing
Lanc1057	Hotel	Blackpool	13.7	09/01/2017	09/08/2017	Private Commercial
Lanc1127	Tidal Barrage	Wyre	13.7	01/04/2019	01/04/2021	Infrastructure
Lanc854	3 Food & Drink Units/1 Non Food Retail	South Ribble	13.6	03/07/2017	30/03/2018	Private Commercial
Lanc380	250 Houses/Bungalows & 1 Changing Facility	Hyndburn	12.9	10/07/2017	06/08/2018	New housing, Public Non-housing
Lanc628	119 Sheltered Extra Care Flats/Bungalows	Blackburn	12.5	01/08/2016	02/03/2018	New housing
Lanc550	166 Residential Units	Chorley	12.5	07/03/2016	09/03/2018	New housing
Lanc048	160 Houses	Ribble Valley	12.0	05/04/2017	09/05/2018	New housing
Lanc821	50 Apartments	Lancaster	12.0	27/03/2017	27/10/2017	New housing
Lanc1201	Retail/Leisure Development	Chorley	12.0	20/03/2017	18/03/2019	Private Commercial
Lanc541	151 Houses& 8 Flats	Fylde	11.9	12/06/2017	09/07/2018	New housing
Lanc023	158 Houses/Flats	Chorley	11.9	03/07/2017	30/07/2018	New housing
Lanc1160	150 Residential Units/1 Training Centre	West Lancashire	11.1	17/07/2017	15/01/2018	New housing, Public Non-housing
Lanc174	Engineering Innovation Centre	Preston	11.0	09/01/2017	29/06/2018	Public Non-housing
Lanc611	91 Extra Care Retirement Flats	Blackburn	11.0	20/02/2017	19/03/2018	New housing
Lanc986	Hotel & Function Facility	Burnley	10.5	05/06/2017	15/01/2018	Private Commercial

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc773	118 Houses& 34 Light Industrial/5 Office Buildings	Blackpool	10.2	16/02/2017	15/03/2018	New housing, Private Industrial, Private Commercial
Lanc022	160 Houses	South Ribble	10.0	31/07/2017	03/09/2018	New housing
Lanc1186	Apart Hotel & Leisure/Casino (Conversion/Alterations)	Preston	10.0	08/05/2017	18/12/2017	Private Commercial
Lanc003	2 Offices & 1 Hotel/Pub/Restaurant/Crèche	Pendle	9.8	04/12/2017	03/09/2018	Private Commercial
Lanc1012	130 Residential Units	Wyre	9.8	03/05/2018	30/05/2019	New housing
Lanc1112	130 Houses	Ribble Valley	9.8	04/01/2017	04/02/2018	New housing
Lanc1080	129 Houses/Flats/Care Home/Commercial Units	Chorley	9.7	01/07/2017	01/08/2018	New housing, Private Commercial
Lanc1054	Housing Refurbishment Framework	Preston	9.6	03/02/2014	29/01/2018	Housing R&M
Lanc215	Hotel Building	Blackpool	9.2	12/09/2016	05/02/2018	Private Commercial
Lanc879	Hotel/Shop/Leisure Centre & Office	Blackpool	9.2	05/06/2017	23/02/2018	Private Commercial
Lanc963	Police Headquarters	Blackpool	8.8	28/11/2016	23/04/2018	Public Non-housing
Lanc482	140 Houses	Preston	8.8	17/06/2017	14/07/2018	New housing
Lanc1182	117 Houses	Wyre	8.8	05/07/2018	01/08/2019	New housing
Lanc623	Hotel & Retail (Extension/Alterations)	Blackpool	8.6	11/09/2017	23/04/2018	Private Commercial
Lanc852	113 Houses	Preston	8.5	19/08/2017	16/09/2018	New housing
Lanc616	110 Residential Units	Blackburn	8.3	12/12/2017	08/01/2019	New housing
Lanc736	Hotel & Restaurant/Bar	Blackpool	8.0	06/02/2017	05/02/2018	Private Commercial
Lanc201	64 Cluster Flats & 1 Retail Unit	Preston	7.9	30/09/2016	28/07/2017	New housing, Private Commercial
Lanc223	Research & Development Building	Lancaster	7.8	27/10/2017	01/08/2018	Public Non-housing
Lanc1009	100 Houses	Fylde	7.5	25/05/2017	22/06/2018	New housing
Lanc335	Substation	Lancaster	7.3	01/08/2015	30/06/2017	Public Non-housing

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc1124	97 Houses	Preston	7.3	21/10/2017	18/11/2018	New housing
Lanc1023	95 Houses/Bungalows	Preston	7.1	24/11/2017	05/01/2019	New housing
Lanc764	90 Residential Units	Wyre	6.8	05/06/2017	02/07/2018	New housing
Lanc1014	90 Houses	Pendle	6.8	28/09/2017	28/03/2018	New housing
Lanc697	Manufacturing Unit (Extension)	South Ribble	6.5	23/11/2015	13/01/2017	Private Industrial
Lanc589	86 Residential Units	Fylde	6.5	16/01/2017	12/02/2018	New housing
Lanc386	Hospital (Extension)	Burnley	6.2	15/08/2016	15/07/2019	Public Non-housing
Lanc449	Football Pitches/Indoor Training Facility	Burnley	6.0	18/01/2016	18/01/2017	Private Industrial
Lanc1066	Leisure/Restaurants/Cafe/Shop Building	Wyre	5.9	03/04/2017	02/04/2018	Private Commercial
Lanc735	Warehouse Unit	Blackburn	5.6	04/04/2016	31/03/2017	Private Industrial
Lanc808	Underground Gas Storage	Blackpool	5.5	07/06/2017	06/06/2018	Infrastructure
Lanc236	Railway Sidings (Improvements)	Blackburn with Darwen	5.4	05/09/2016	31/07/2017	Infrastructure
Lanc868	72 Houses	Preston	5.4	01/05/2017	30/03/2018	New housing
Lanc1147	Leisure Centre (Conversion)	Preston	5.2	11/09/2017	11/12/2017	Private Commercial
Lanc626	21 Industrial Units	Ribble Valley	5.1	06/03/2017	11/09/2017	Private Industrial
Lanc696	Football Training Facility (New/Conversion)	Chorley	5.1	01/05/2017	29/12/2017	Private Industrial
Lanc390	Ice Cream Parlour	Wyre	5.0	15/05/2017	25/12/2017	Private Commercial
Lanc867	Coastal Defence	Lancaster	4.9	09/11/2015	15/05/2017	Infrastructure
Lanc017	School	Blackpool	4.9	14/03/2016	04/02/2018	Public Non-housing
Lanc444	Industrial Unit	West Lancashire	4.8	05/07/2017	15/01/2018	Private Industrial

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc909	Youth Facility	Lancaster	4.8	06/03/2017	20/08/2018	Public Non-housing
Lanc419	Walkway (Remodelling & Refurbishment)	Lancaster	4.8	22/08/2016	29/01/2018	Infrastructure
Lanc649	University	Preston	4.6	06/02/2017	30/10/2017	Public Non-housing
Lanc128	School Building	Burnley	4.4	12/10/2015	28/04/2017	Public Non-housing
Lanc1004	Commercial Development	Burnley	4.3	04/01/2017	04/01/2018	Private Industrial
Lanc549	Industrial/Car Showroom/Office & Storage Units	Blackburn	4.3	05/06/2017	11/12/2017	Private Industrial
Lanc152	2 Animal Buildings	Fylde	4.3	04/01/2017	04/03/2017	Private Industrial
Lanc631	2 Poultry Buildings (Extension)	Fylde	4.3	15/08/2016	20/02/2017	Private Industrial
Lanc930	Cinema Building (Extension/Alterations)	South Ribble	3.9	27/03/2017	03/11/2017	Private Commercial
Lanc529	Petrol Filling Station/Restaurant/Cafe	Hyndburn	3.2	14/01/2018	10/08/2018	Infrastructure
Lanc953	Manufacturing Unit (Extension)	South Ribble	3.0	04/09/2017	12/03/2018	Private Industrial
Lanc834	School	Blackpool	2.8	06/04/2015	29/09/2017	Public Non-housing
Lanc956	University & Student Accommodation	West Lancashire	2.8	13/01/2017	06/10/2017	Public Non-housing
Lanc1000	School	Preston	2.6	04/09/2017	04/09/2018	Public Non-housing
Lanc1136	Distribution Centre	Burnley	2.6	19/09/2016	26/05/2017	Private Industrial
Lanc1162	5 Retail Warehouses & 1 Health Club	Preston	2.5	05/09/2016	03/04/2017	Private Industrial, Public Non-housing
Lanc046	Education Academy Building	Preston	2.4	04/01/2017	04/09/2017	Public Non-housing
Lanc563	School	Blackburn	2.2	25/04/2016	24/04/2017	Public Non-housing
Lanc1001	Care Home	Blackburn	2.1	08/12/2016	08/09/2017	Public Non-housing
Lanc194	Elephant House Building	Blackpool	1.9	22/08/2016	03/04/2017	Public Non-housing
Lanc007	Nursing Home (Extension/Alterations)	Lancaster	1.8	15/02/2017	20/11/2017	Public Non-housing

WLC ID	Heading	Local Authority	Forecast Value (£m)	Start Date	End Date	Project Type
Lanc175	Care Home	Fylde	1.7	06/02/2017	06/11/2017	Public Non-housing
Lanc184	Petrol Filling Station/Shop & Cafe	South Ribble	1.5	17/04/2017	04/09/2017	Infrastructure
Lanc219	Places for People Development Contractor Framework (DPS)	Preston	1.5	08/08/2016	07/08/2020	New housing, Private Commercial, Public Non-housing, Private Industrial
Lanc126	Industrial Building (Extension)	Pendle	1.4	03/10/2016	10/02/2017	Private Industrial
Lanc294	4 Petrol Filling Station & 1 Restaurant	Fylde	1.4	22/08/2016	27/01/2017	Infrastructure
Lanc1176	Wind Energy	Preston	1.1	06/04/2017	03/08/2017	Infrastructure
Lanc807	Petrol Filling Station	Wyre	0.8	13/03/2017	26/06/2017	Infrastructure
Lanc410	Shale Gas Extraction	Fylde	0.5	10/07/2017	09/07/2018	Infrastructure
Lanc1068	Earth Bunded Lagoon	Fylde	0.4	10/07/2017	07/08/2017	Infrastructure

Appendix E. **Region employer operates in, compared with working in**

Appendix Table 17: Region/nation employer operates in, compared with region/nation working in currently

Region/nation employer operates in	Region/nation currently working in											
	EM %	EE %	GL %	NE %	NW %	NI %	SC %	SE %	SW %	WA %	WM %	YH %
East Midlands	**83**	16	8	13	**3**	2	4	12	8	7	24	11
East of England	12	**67**	15	11	**2**	1	4	19	8	7	9	6
London	10	27	**84**	13	**4**	1	5	27	12	7	9	6
North East	9	9	8	**93**	**3**	1	4	6	7	7	8	15
North West	**11**	**9**	**8**	**14**	**93**	**1**	**4**	**6**	**7**	**11**	**11**	**10**
Northern Ireland	3	3	3	2	**1**	**99**	3	2	1	3	2	1
Scotland	6	4	6	9	**1**	2	**97**	2	4	4	5	4
South East	13	23	27	12	**3**	*	4	**65**	21	7	11	6
South West	9	5	7	10	**3**	*	4	18	**83**	10	15	5
Wales	6	5	5	8	**3**	*	4	3	10	**96**	14	4
West Midlands	21	9	8	12	**6**	*	4	7	12	9	**92**	8
Yorkshire and the Humber	15	10	7	19	**4**	1	5	6	8	8	8	**88**
Republic of Ireland	1	2	3	*	*	2	1	1	1	2	2	*
Other parts of Europe	*	*	*	1	**0**	0	0	0	*	0	1	0
Outside Europe	*	1	0	*	**0**	0	0	0	*	0	*	0
Other / Unsure	1	3	2	3	**2**	*	1	3	1	*	1	3
Unweighted bases	410	366	452	427	**435**	274	463	439	494	290	352	369

Source: Workforce Mobility and Skills in the UK Construction Sector 2015, BMG Research on behalf of CITB. Base: All respondents. *denotes less than 0.5%