D2N2 Local Enterprise Partnership
Construction Labour and Skills Research

Final Report (v11)

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Approved by: CITB
Date: 4May 2016

Version	Date	Details of modifications
First draft (v8)	26 Feb 16	Submitted to D2N2 for comment
Final report	4May 16	Submitted to D2N2

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1. Introduction and executive summary

This report uses the most reliable and trusted data available to present a picture of:

a) The anticipated demand for construction for the D2N2 area up to 2020 [Section 3].

b) The available supply of construction skills and training capacity as well as other factors that influence the construction workforce [Sections 4 & 5].

c) An assessment of the gap between demand and supply [Section 6].

d) A set of observations and recommendations for D2N2 to review [Section 7].

This report and associated appendices represent a significant amount of reading. For a summary understanding, the suggested priority sections are: 3, 6 and 7.

Overall the sense of this report is that it broadly endorses the existing D2N2 strategy. The evidence that is available tends to indicate that there is no major obvious gap in total skills that requires significant urgent attention.

Call to action

The call to action is for stakeholders interested in opportunities that enhance the local: economy, population's opportunities and advancement of the D2N2 area to engage with one another and the LEP and actively participate in making a contribution to the recommendations in this report and the D2N2 Sector and Skills Plan.

1.1. Background

The D2N2 Enterprise Partnership is working with CITB to create a construction strategy and action plan to help address the skills challenges the construction industry and training providers are facing across the D2N2 region.

This report is the first step in the creation of an evidence base that should help inform decision making and enable the creation and execution of that wider construction strategy. It should be used to facilitate conversations across the D2N2 area and with other agencies, employers and providers.

CITB and D2N2 agreed what this research should inform and how. This report provides the concluded research that identifies current and emerging skills needs and makes recommendations on strategies and actions to ensure the D2N2 area has a construction workforce that is fit for purpose. As far as possible, it takes into account: the issues posed by D2N2 and seeks to address those so as to provide options for realising opportunities.

Demand for construction skills

Of the 28 groups listed, those construction occupations showing the greatest demand are:

- Wood trades and interior fit-out – 5,750 people.
- Plumbing and heating, ventilation and air conditioning trades – 4,000.
- General labourers – 3,700 people.
- Electric trades and installation – 3,550 people.

These are for the known projects listed in Glenigan so demand will be further increased from non-specified projects. The peak total demand for workers is estimated at 84,150. And of these, 59,650 are attributed to known projects.

The most significant project types, in their demand for labour, will be (table 5):

- New housing 32%.
- Private commercial 27%.
- Infrastructure 22%.
- Public non-housing 10%.

Supply

There are estimated to be 79,400 construction workers in the D2N2 area employed by 8,600 enterprises.

There were just over 8,800 Construction and Building Services Engineering learning aims delivered; while 61 training organisations are involved, 60% of these learning aims are delivered by five colleges. Construction made up 6.6% of the total number of learning aims delivered in the D2N2 area in 2012/13.

Skills shortages

Peak demand in November 2016 indicates a requirement for 118% of the 2015 workforce. The indication is that potential shortages are likely for:

Construction occupations within the capability of a regional recruitment and development plan:

- Logistical operators
- Labourers not elsewhere classified
- Construction Trade Supervisors
- Roofers
- Scaffolders

Cross sector occupations within the capability of a regional recruitment and development plan:

- Logistical operators
- Non-construction operatives[1]

Proximity to centres of labour provision and demand

Considering the D2N2 area in isolation would fail to recognise the mobility of construction workers and trainees. Just over one-third of construction workers in the East Midlands qualified outside the region, one of the highest proportions in the country. 23% travel into the region from neighbouring areas for work (typical for the UK). The D2N2 has around it a number of centres of population that are likely to:

- Provide a significant part of the D2N2 workforce and
- Draw skills from D2N2 to meet construction demand.

This may include: Manchester; South Yorkshire; the West Midlands and Leicester.

[1] General occupation title that covers: Metal making and treating process operatives, Process operatives nec*, Metal working machine operatives, Water and sewerage plant operatives, Assemblers (vehicles and metal goods), Routine inspectors and testers, Assemblers and routine operatives nec, Elementary security occupations, Cleaners and domestics, Street cleaners, Gardeners and landscape gardeners, Caretakers, Security guards and related occupations, Protective service associate professionals

References are made to major initiatives that will have an impact (e.g. High Speed 2), however, due to lack of certainty and information surrounding these projects, they were not included in the research data at this stage but can be added when details are clearer.

1.2. D2N2 strategic objectives – skills for growth strategy

The D2N2 Skills for Growth Strategy lists construction as one of the priority sectors for which it wishes to inform, consult, and identify how economic impact for the sector can be maximised through driving growth, workforce development, training and employment for local people.

D2N2's skills plan represents an integral part of the drive to have in place a skilled and flexible workforce that supports: *gross value add* (GVA); enhanced productivity and balances where intervention is possible skills availability with jobs growth for the region. At the time of writing, the D2N2 skills plan is being updated.

D2N2's construction evidence to date is published at: http://www.d2n2lep.org/skills/skills-and-asks.

The findings of the 2014 skills action plan remain relevant and there appears to be good alignment between that and this report.

Local employer led skills and economic forums and networks, with D2N2 will have important roles in implementing the plan and leading or promoting action that leads to positive outcomes for learners and employers, infrastructure, and ultimately for the local economy and population.

Construction projects create jobs and contribute to economic growth and stability. They also require a skilled workforce that needs to support and training, mainly delivered locally.

The Construction skills action plan (March 2014) recognised that for the D2N2 area, construction is a similar size to the financial services sector generating 8% of GVA in D2N2; employing almost 70,000 or 1 in 12 people in the D2N2 area *[though this report suggests this may now be 79,400]*; creating around 3,200 jobs for every £100m invested; generating £2.84 for the economy for every £1 spent and is 40% more labour intensive than manufacturing. Construction therefore has the potential to make a significant positive contribution to a local economy, skills and employment.

D2N2 priorities:

1. **Priority 1** - Develop sector growth agreements to make explicit ownership and shared responsibilities for investment, ICT, labour market intelligence and impact measures.
2. **Priority 2** - Improve business leadership, management skills and training needs analysis to help increase productivity and performance.
3. **Priority 3** - Promote and develop apprenticeships and traineeships to achieve higher level skills and improve social mobility.
4. **Priority 4** - Foster enterprise and the characteristics of entrepreneurial behaviour, career adaptability and resilience.
5. **Priority 5** - Raise the visibility of and access to career insights and specialist careers support for young people and adults to raise aspirations, participation, retention and achievement in learning and work.
6. **Priority 6** - Promote graduate recruitment and facilitate graduate retention in the region.

1.3. CITB's remit

- Assisting in ensuring that the further education offer for construction employers fits their needs – improving the quality, relevance and impact of the most significant providers of initial training, re-skilling and up-skilling.
- Sharing labour market intelligence – creating a 'bespoke evidence base' where required.
- Improving employability with a focus on ensuring that young people aged 16 to 24 have the best opportunity to get a job locally and are work-ready.
- Supporting business-provider collaboration.

The wider construction strategy created by D2N2 and CITB will seek to ensure that a continuing supply of appropriately qualified local people is available to meet the desired skills and employment outcomes. This strategy will be informed by the development of an evidence base that will provide information to support decision making and help ensure that the vision and objectives of D2N2's skills plan are achieved.

1.4. High Speed 2

Being prepared for HS2 represents a significant opportunity for the D2N2 area. Skilled workers will be required for phase one (that passes close to D2N2). Initial proposals were for phase two construction to start in 2024 and be completed in 2031 with operation commencing in 2032. However, a number of proposals have been made to bring forward phase two work – in particular opening the Crewe to Birmingham link for 2027, which passes close to the D2N2 area. Proposals have also been made to bring forward work associated with HS2 in Leeds that may have an impact on other phase two work.

Large numbers of specific skills will be required that may drive up the cost of those skills when demand is high from other major projects nationally. As well as significant infrastructure passing through the D2N2 area, relevant proposals include:

- The East Midlands hub station for HS2 phase two is proposed for Toton to the West of Nottingham and is likely to involve significant infrastructure and regeneration investment.
- Establishing an Infrastructure Maintenance Depot in Staveley in the borough of Chesterfield.
- It has been suggested locating an HS2 college in Derby and is seen as a logical development of the strong rail industry relationships that local colleges already have.

2. Methodology

CITB offers a bespoke research service that builds Labour Market Intelligence (LMI) and uses the Labour Forecasting Tool (LFT). The CITB team works in close partnership with WLC Ltd (a spin out company from the University of Dundee) which specialises in labour productivity, planning and control, and building labour forecasting models. The CITB research team specialises in labour market analysis relating to the supply of labour and identifying skills 'pinch-points'. The work of the team has been tested through a series of bespoke research commissions at project, programme and regional level to create a compelling evidence base supporting decisions relating to the provision of construction skills.

2.1. Creating the evidence base

1. Using the Labour Forecasting Tool to analyse an estimate of demand for each of 28 occupational groups for a range of construction project types over a five-year period for D2N2. These estimates are generated from an analysis of planning application submissions available through the Glenigan database.
2. Identifying additional projects taking place that will draw on the skills base and create construction skills demand – utilising additional data provided by D2N2 in consultation with its stakeholders.
3. Establishing: the available supply of skilled workers; training provision available from local colleges; technical and higher level skills development and retention; how new entrants move into construction and labour mobility. This draws on data available from the Construction Skills Network.
4. Evaluating construction training provision in the area, the extent to which this is fit for purpose and the potential viability of a range of flexible training options for the future.
5. Gap analysis to determine occupational pinch-points and derive recommendations regarding training interventions.
6. A map of existing provision to support recommendations relating to capacity, capability and collaboration on future curriculum offers.
7. Evaluating the benefits of investing in construction career and training opportunities for young people.

CITB has, where possible, engaged relevant sources, contacts and colleagues (including CITB's internal research team) and has used evidence from other commissioned research (notably the Construction Skills Network, that utilises Office for National Statistics' data) to inform the construction employment and skills plan.

2.2. Other sources of information and consultation with stakeholders

Glenigan provides the primary source of data for assessing demand. However in producing this report, CITB and D2N2 have attempted to find additional sources of data to contrast or validate Glenigan. The Glenigan data should include relevant national infrastructure pipeline initiatives.

D2N2 consultation with local authorities

D2N2 wrote to local planning authorities in the process, providing the opportunity to check and: validate, contradict or add to the list of projects provided from the Glenigan database. Very few responses were received and where changes were noted these had a negligible impact on the original data.

A draft version of the report was presented to a consultation forum in April 2016 seeking input from a number of local stakeholders. That face to face consultation included:

Willmott Dixon; East Midlands Chamber; RIBA; Robert Woodhead; Advanced Roofing Ltd; Derbyshire County Council; Derby City Council; G F Tomlinson; Roofing Industry Alliance; Experian; Derby College; Hodgkinson Brickwork; D2N2; Institute of Civil Engineering; New College Nottingham; BEST Group (UK); Chesterfield College; Joint Investment Strategy.

Additionally, D2N2 published the draft report on-line inviting comments.

What is included in Glenigan data?

CITB and Whole Life Consultants have determined that Glenigan represents the most appropriate, accessible and complete source of construction demand data for the purposes of this report. A recent expert review concluded that supplementing Glenigan data through consultation with local stakeholders and interrogating other sources adds negligible value while consuming significant additional resource.

Data available from Glenigan only represents those projects for which planning consent has been sought with a value of £250,000 or more. The predictions, therefore, exclude details of:

- Repair and maintenance (R&M) work that does not require planning permission and
- Sub £250,000 projects that do not appear in Glenigan.

To address this, Whole Life Consultants with CITB have undertaken an additional piece of analysis to provide a fuller picture of potential 'demand', which incorporates, as far as possible, a balancing scenario to estimate *undefined work.*

East Midlands ONS data

The picture of supply and gap analysis uses data published by the Construction Skills Network (CSN) in January 2016 that draws on statistics provided by the Office for National Statistics (ONS).

ONS statistics are only available for each English region. D2N2 (Nottinghamshire and Derbyshire) sit within the East Midlands region (that also includes Leicestershire, most of Lincolnshire, Northamptonshire and Rutland).

The D2N2 area accounts for 48% of construction employment of the East Midlands region. So predictions are based on an extrapolation of the Glenigan and Labour Forecasting prediction for the D2N2 area making up 48% of the CSN predictions of the East Midlands region.

Disparity between data presented in different D2N2 reports

There may appear an apparent miss-match between figures in recent D2N2 reports (SEP and State of Economy) compared with the Pipeline Analysis in this report.

The report includes figures available for all in employment in the industry (employees and self-employed), whereas recent D2N2 reports include employees only. An analysis of NOMIS data (Office for National Statistics) suggests there are nearly 26,000 self-employed construction workers in the D2N2 area. In addition, this report also includes professional roles in construction that are unlikely to be included in other measures and accounts for approximately 5,000 of the apparent disparity.

3. A view of demand

3.1. Introduction

This section provides an evidence base of the labour demand that construction investment will create across the D2N2 LEP over the next five years. An explanation of the methodology followed to produce the labour demand figures is provided in Appendix A. We have used Glenigan project data, our Labour Forecasting Tool[2] (LFT) and an understanding of the wider construction activity in the East Midlands to analyse the skills requirements in each of 28 occupations listed in Appendix B. The results are presented at a trade, craft and professional level that will enable the D2N2 LEP to take a comprehensive view of the demand generated by planned projects.

This study includes a detailed analysis of the projects taking place wholly within the local authority districts of Amber Valley, Bolsover, Chesterfield, Derbyshire Dales, Erewash, High Peak, North East Derbyshire, South Derbyshire, Ashfield, Bassetlaw, Broxtowe, Gedling, Mansfield, Newark and Sherwood and Rushcliffe and the unitary authorities of the cities of Derby and Nottingham. Work taking place in the National Park authority has been identified within the relevant district authority. A detailed picture of the labour demand for the LEP is presented in Figure 3.

3.2. Demand analysis

The complete demand analysis was carried out in two distinct stages.

- The first stage comprised analysis and processing of the Glenigan database pipeline to create a snapshot in time of the labour demand arising in the LEP from the currently recorded projects. This is subsequently updated with more up-to-date data provided by the stakeholders in the D2N2 LEP. This creates a whole known pipeline of work.
- Secondly, an estimate of the full volume of construction activity was produced by supplementing the analysis with the appropriate proportion of the employment projections produced by the CSN for the East Midlands region.

3.2.1. Glenigan pipeline analysis

Our first task was to analyse the pipeline of construction work taking place in the D2N2 LEP area based on the projects contained in the Glenigan database which contains details of the planning applications from local authorities and supplements this with additional project-specific data. The database does not identify every single project in an area as some small projects (typically but not exclusively those less than £250,000 in value) and predominantly those which do not require a planning application (including repair and maintenance) are not included. An initial assessment of the projects in the database ensured that only projects which had (a) a defined value and (b) defined start and end dates were considered in the analysis. This resulted in the removal of two projects due to missing values and 49 projects due to missing dates. Also excluded were three projects which were clearly identified as duplicates and four consultancy projects[3]. A full set of the projects which were omitted from the analysis are shown in Appendix C. Values given in the Glenigan database are the total value of construction and engineering works. The scope of this study is limited to the construction sector and where appropriate an estimate of the engineering value has been made and removed from the total value to provide what we have termed the construction value.

[2] A methodological note on the LFT is provided in Appendix A.
[3] The LFT calculates the demand for professional occupations from a project's construction value. To include consultancy projects separately would result in double counting

The Mean Value Theorem[4] was applied to the remainder of the pipeline for D2N2 to identify the significant projects in the LEP area. This process identified 180 significant projects, accounting for 83% of the total construction spend in the area as detailed in the Glenigan database. This includes some projects which continue to 2023. 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 area and the percentage of spend arising from the significant projects. The total spend can also be seen. 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 2015 prices as this was provided in the Glenigan database.

Table 1: Breakdown of the significant project and total values in the LEP, as captured in Glenigan[5]

	D2N2 LEP
Total number of projects	943
Construction spend (£m – 2015 values)	10,420.9
Number of significant projects	180
Construction spend in significant projects (£m – 2015 values)	8,649.3
Percentage of construction spend in significant projects	83.0%

Some of the projects within the Glenigan database have elements that cover more than one area. One framework listed in the LEP takes place throughout areas of the Midlands, Yorkshire and the Humber and East of England; it was broken down in proportion to the population of the areas covered, with the appropriate elements assigned to the LEP for the purposes of the analysis.

Table 2: Proportion of total value related to construction

Sector	Proportion of construction value compared to engineering construction
Airports	100%
Bridges	100%
Digital Infrastructure	20%
Flooding	90%
General Infrastructure	100%
Generation (Energy from Waste)	50%
Generation (Renewables - Onshore)	20%
Mining	80%
Roads	100%
Stations (Underground/Network rail)	80%
Undefined Energy	40%
WTW/WWTW	90%

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

[5] The values in this table are the values from the Glenigan database 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.

Appendix E provides a full breakdown of the significant projects and their construction values. The peak year for the spend profile is 2016. The significant projects' locations can be seen in Figure 1. The radius of the markers is in proportion to the value of the project.

The data relating to all the projects has been stored in the version of the LFT for which the D2N2 LEP can have a licence. All the assumptions regarding the input parameters – including project duration and value – can be updated by the LEP as and when more specific information becomes available.

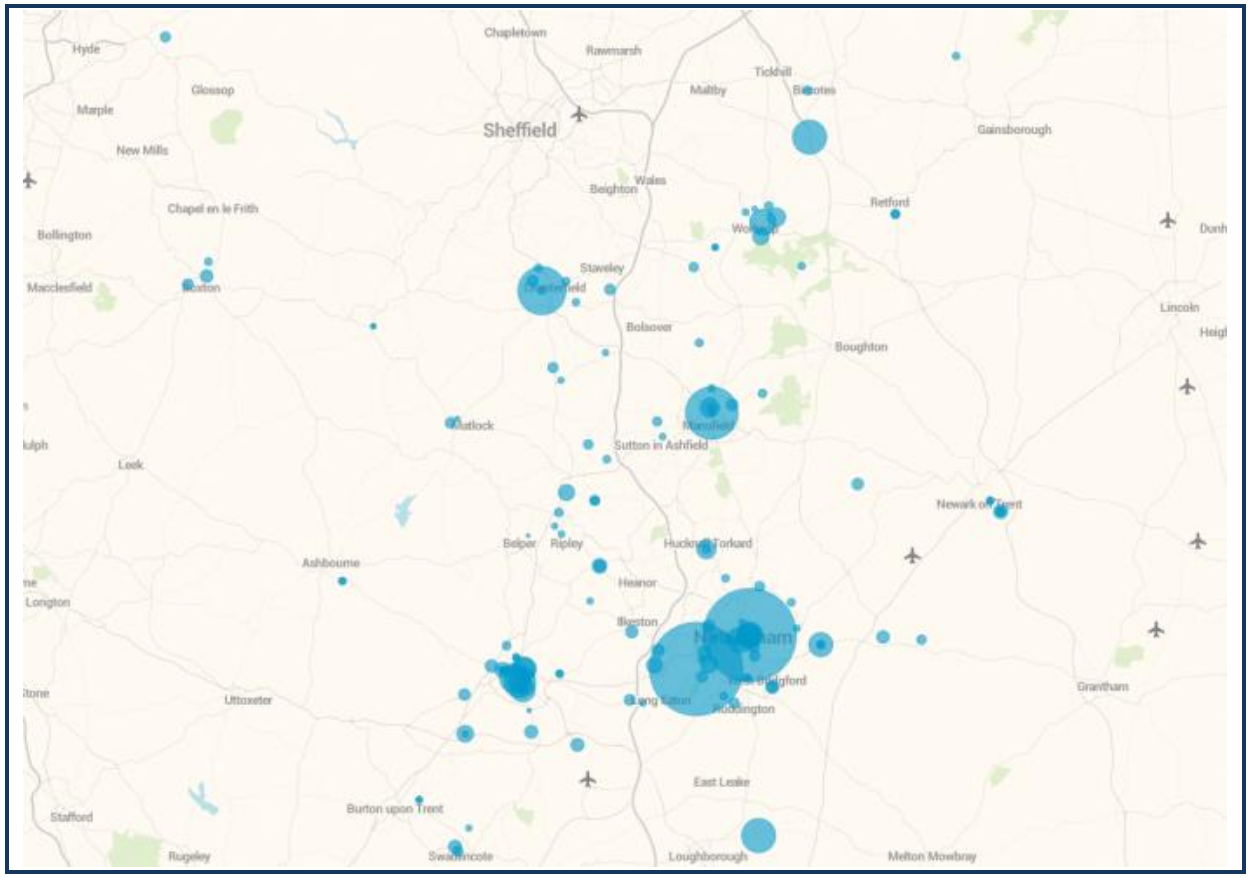

Figure 1: The significant projects in Glenigan used in this analysis

3.2.2. Breakdown of spend by project type

This section provides an overview of the construction spend (£m – 2015 values) for the peak year of 2016 in the D2N2 LEP area broken down by project type, based on the projects included in the Glenigan database..

Table 3 shows the construction spend for each sector. It is clear that housing and private commercial each account for a little over 25% of the construction spend. Infrastructure makes up 17.5% of the spend, while public non-residential accounts for 13.5%. Private industrial accounts for less than 7% of the total construction spend.

Table 3: Construction spend per sector in 2016

Sector	Construction spend in 2016 (2015 values - £m)	% of total
New Housing	813.8	27.7%
Infrastructure	513.7	17.5%
Public Non-residential	396.3	13.5%
Private Industrial	198.1	6.7%
Private Commercial	791.8	26.9%
Housing R&M	83.1	2.8%
Non-housing R&M	144.8	4.9%
Total	**2,941.7**	**100.0%**

Infrastructure is driven primarily by general infrastructure (Table 4), which comprises more than 75% of the total infrastructure spend. It should be noted that the largest part of the infrastructure spend classified as "General Infrastructure" stems from the Scape National Civil Engineering & Infrastructure Framework, which in fact includes engineering and construction works for several different types of projects, including photovoltaics, wastewater treatment, plants and several others. In the absence of detailed information regarding the cost of the various distinct elements making up the framework, it was determined that the entire body of works would be classified as "general infrastructure" to more accurately reflect its nature as a mix of works.

Table 4: Construction spend per infrastructure sub-sector in 2016

Infrastructure Sub-sector	**Construction spend in 2016 (2015 values - £m)**	**% of total**
General Infrastructure	402.8	78.8%
Flooding	20.9	4.1%
WTW/WWTW	18.9	3.7%
Generation (Renewables - Onshore)	17.7	3.5%
Generation (Energy from Waste)	15.1	3.0%
Roads	13.3	2.6%
Digital Infrastructure	6.0	1.2%
Bridges	4.1	0.8%
Undefined Energy	3.8	0.7%
Mining	2.9	0.6%
Stations (Underground/Network rail)	1.4	0.3%
Airports	1.1	0.2%
Total	**511.5**	**100.0%**

3.2.3. Total known pipeline labour demand

The labour demand for all of the new build projects in the Glenigan database was produced using the Labour Forecasting Tool. The following input data was used to produce the forecasts:

- The value of each project in the pipeline provided in the Glenigan database for all projects excluding infrastructure.
- For infrastructure projects, the value used was a percentage of the value in the Glenigan database, representing the construction portion of the value, excluding engineering construction. The percentages applied to the total value of each infrastructure project type to derive the construction value can be seen in Table 2. The construction/engineering proportions have been validated through work we have undertaken for other clients.
- Start and end dates of each project provided in the Glenigan database.
- For the significant projects, the project descriptions in the database enabled us to apply the most appropriate project type (each type is driven by a different underlying model) to each forecast that was run through the LFT. Cases where a project consisted of more than one type were broken down into multiple forecasts which were assigned specific project types to more closely predict the labour demand. This took account of the different types of work within a single project, e.g. mixed developments comprising housing, commercial and industrial.
- For the rest of the projects, the default project type allocation as defined in the Glenigan database was applied, except for the infrastructure projects which were individually allocated to the most appropriate type from the available LFT infrastructure types.
- The LEP was consulted regarding the list of significant projects and provided information to update the status and start and end dates for three of them, as well as completely removing two significant projects from the analysis.

Based on the analysis of the Glenigan database supplemented with data from the D2N2 and taking into account CSN research this section presents the labour demand arising within the D2N2 LEP. Additional detail is shown in Appendix F. We consulted with the D2N2 LEP regarding the significant projects identified in Glenigan to enhance the accuracy and completeness of the set. The LEP's intimate knowledge of the body of work enabled us to update 11 of the significant projects in Glenigan, as well as remove two which were no longer going forward. The latter two have been included in the list of omitted projects in Appendix C. The final list is referred to as the known pipeline. The data from the known projects presents a picture of the forthcoming projects. As the time horizon extends there is less clarity on what is planned. For instance, in some cases a small number of projects are due to complete in the 2020s. The small workload shown by the demand profile is highly unlikely to reflect the total amount of work that will take place at that time. It is almost certain that there will be additional projects that come on stream at that time which have not yet been considered. The Construction Skills Network (CSN) forecasts, which consider the availability of labour, look forward five years. For consistency we have presented the demand forecasts for the five-year period 2015-20 used in the CSN model. Labour demand figures have been rounded to the nearest 50. 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. We have, therefore, presented the average workforce during the year of the peak.

Figure 2 displays the construction labour demand arising from the Glenigan pipeline including an allowance for the projected growth of the pipeline. As noted above, the drop off and indeed the ramp up, of projects from an analysis of a pipeline is somewhat artificial. An approach to overcome this has been applied to the analysis.. The peak has been projected forwards and back-cast[6] to create a more likely scenario of the ongoing workforce. The employment growth rate is based on the CSN employment forecast for the whole East Midlands region.

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

The labour demand arising from known projects peaks in 2016 at 59,650 people, while inclusion of projected growth brings the peak to 2017 and 60,000 people. This reflects the reduction in the regional workforce shown in the CSN.

For the peak year in Glenigan of 2016 we have shown a detailed breakdown by each of the 28 occupational groups for which the forecast has been produced. These are shown in Figure 3.

- The projections of labour demand for the trade occupations for 2016 are as follows.
    - The trade occupation for which the is highest is “wood trades and interior fit-out, peaking at 5,750 people;
    - “Plumbing and heating, ventilation and air conditioning trades” is around 4,000;
    - “General labourers” rank third with 3,700 people and
    - All other trades display a demand of around 3,550 people and less each.

All the assumptions regarding the input parameters - including project duration and value - can be updated by D2N2 more specific information becomes available.

The occupation representing the greatest demand in 2016 is “non-construction professionals (excl. managers)” with a demand of 7,500 people. The size of this group is explained in part by the wide range of skills included within the occupation group of “non-construction professionals…”, which represents 60 separate groups including: IT, finance, legal, administration, scientific, communication and many other roles.

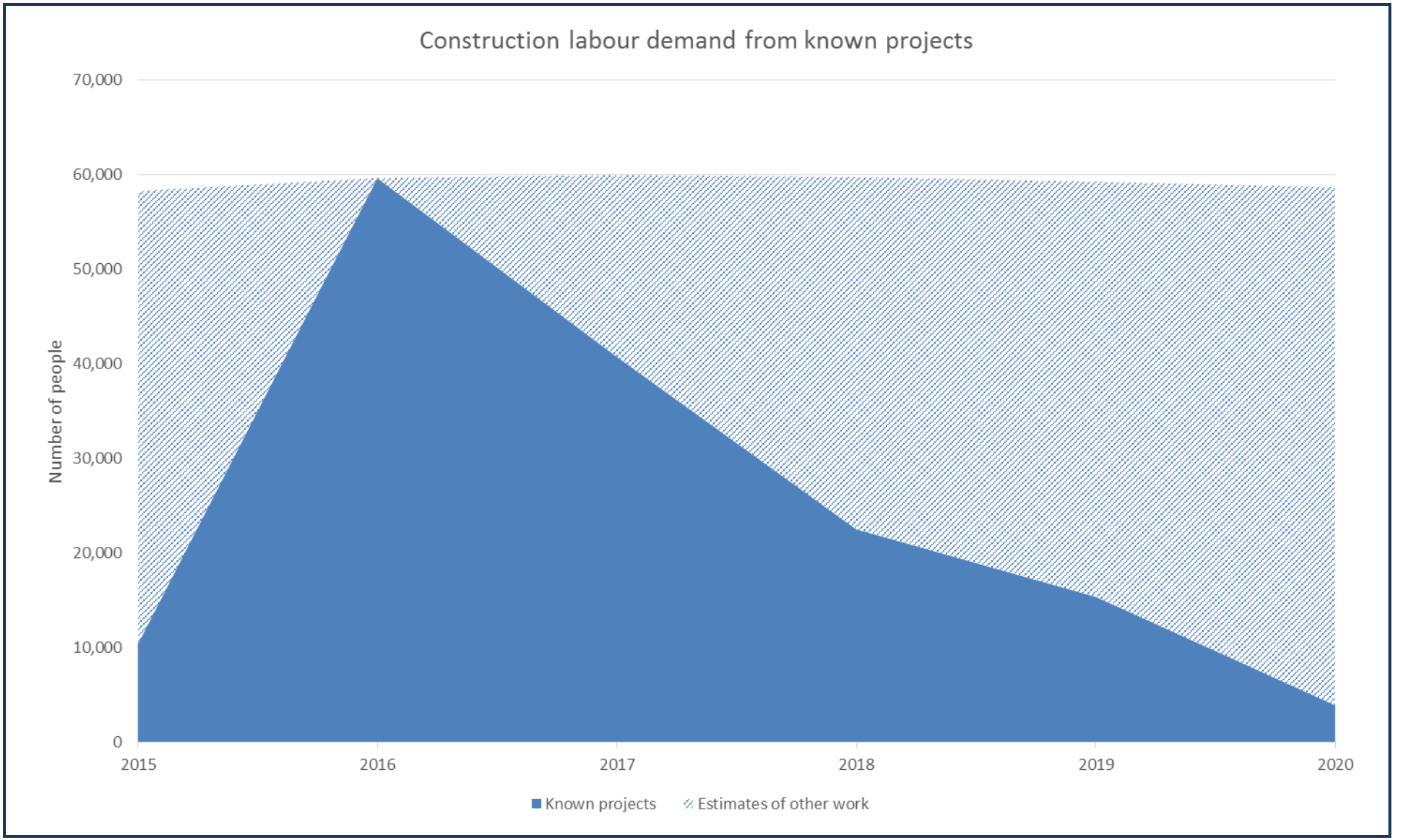

Figure 2: Construction labour demand arising from the known projects for the partnership, including projected growth

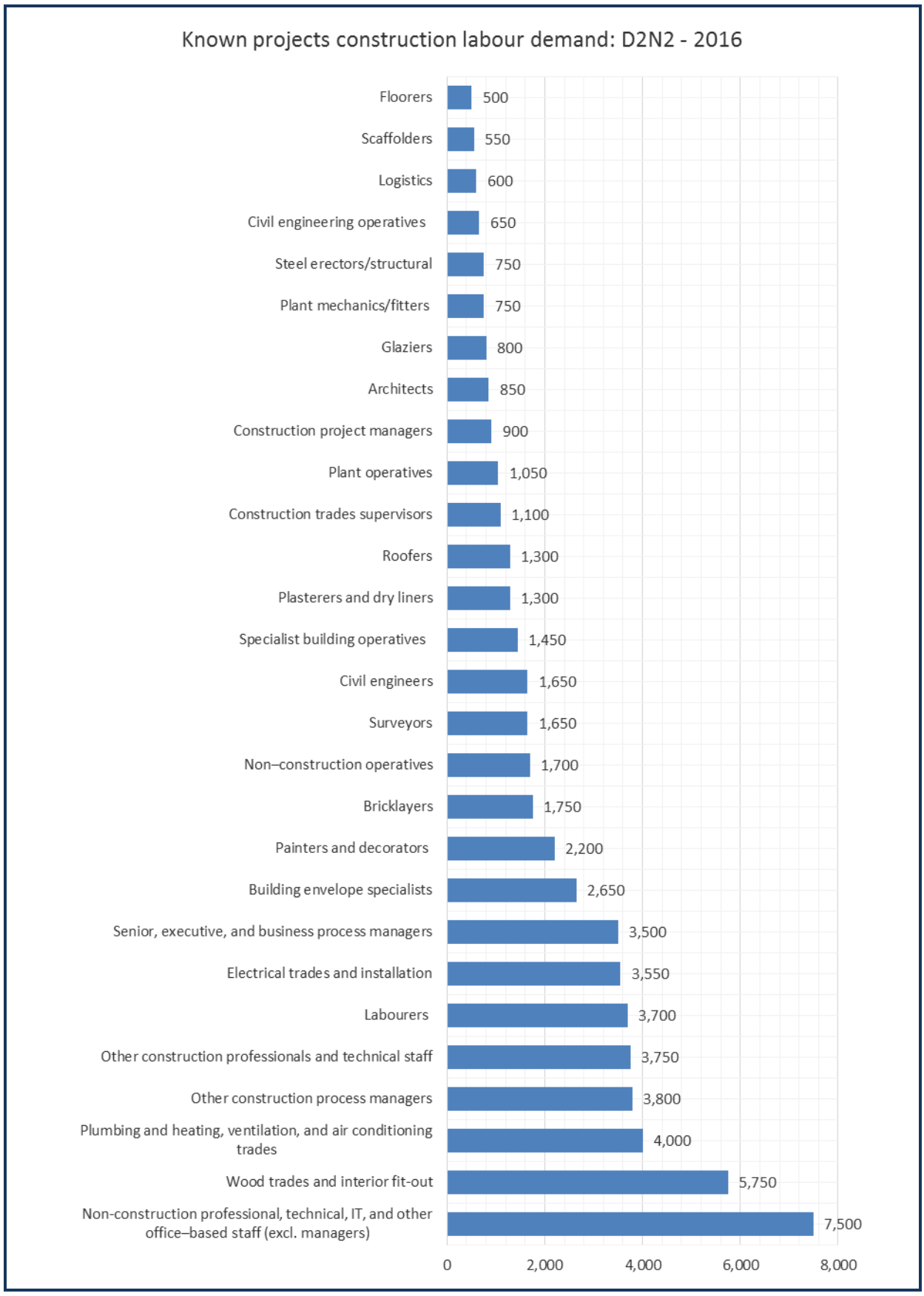

Figure 3: Construction labour demand arising from the known projects by occupation in the peak year

3.3. Estimate of wider labour demand

The known pipeline has two characteristics which prevent the results from providing the entire labour demand profile for the area:

- It does not record all smaller projects (roughly those of less than £250,000 value).
- It records mainly new build projects with only a small amount of repair and maintenance works included.

These two issues could have an effect on the estimate of labour demand and produce lower figures than expected. In response to these issues, the following steps are undertaken to provide an estimate of the total labour demand across a region.

1. Only the new build projects arising from the known pipeline are run through the LFT, excluding any repair and maintenance work.
2. To estimate the full amount of new build work not captured in the known pipeline we compare the total known pipeline new build spend in the region where the area analysed is located with the output estimates for the CSN for the peak year. In the case where the value of work in the known pipeline is higher than the CSN output forecast we assume that the known pipeline has captured the full extent of new build activity occurring within the area analysed during the peak year.
3. The new build spend not included in the known pipeline (calculated in the previous step) is assigned to the project types which reflect the mix of works recorded in the known pipeline for the area. A separate item is created for each project type (e.g. general infrastructure, housing) and assigned a value proportional to the contribution of each type within the known pipeline.
4. To calculate the R&M elements of work taking place within the LEP, the CSN output data is used to calculate the ratio of R&M to new build work in the entire region. We assumed this ratio to be constant throughout the region.
5. The LFT is used to calculate the labour demand profile based on the values of different types of work estimated above.
6. Labour demand for the peak year is then projected forward and back-cast throughout the period of analysis. For this process we use the construction employment growth factors applied previously to the known projects.

The total construction labour demand with an employment growth rate included is shown in Figure 4, in which the demand peaks for the area in 2017 at 84,150, after which point it declines slightly every year. The solid blue area shows the labour demand arising from the known projects and peaks at 59,650 people in 2016, dropping to 40,750 people in the overall peak year of 2017. The red shaded area shows the likely total labour demand arising from estimates of other work, which produce a labour demand of around 43,450 in 2017 and peaks at 78,400 people in 2020. Within this it is estimated that R&M accounts for approximately 32% of the total labour demand with 47% in housing, and 53% in non-housing.

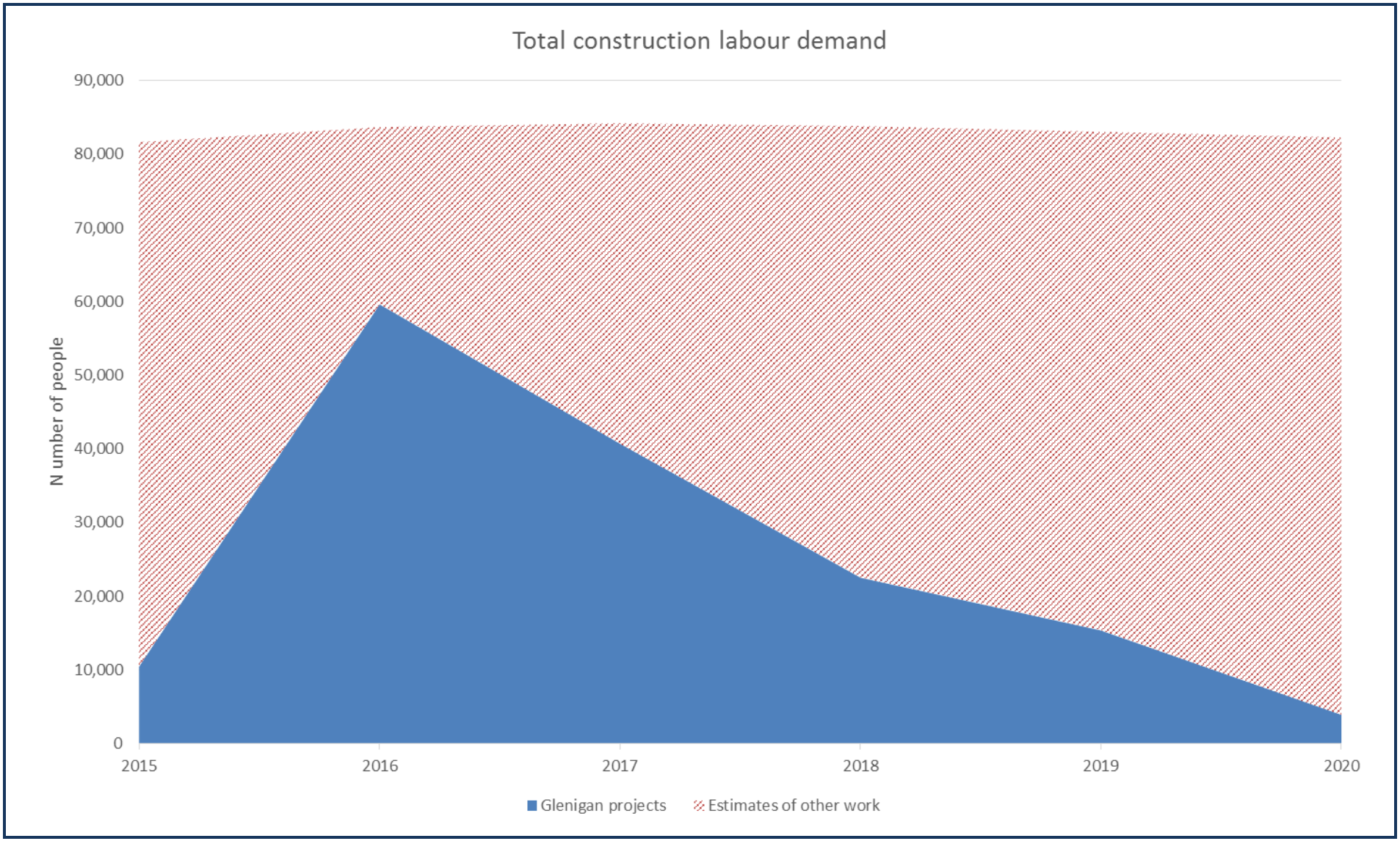

Figure 4: Total construction labour demand including estimates for both R&M and projects not in the Glenigan pipeline

3.4. Breakdown of labour demand by project type

The labour demand has been calculated from the spend in each project type for the known pipeline over the next five years. In this section we have considered the total labour demand for the D2N2 LEP, shown in **Error! Not a valid bookmark self-reference.** and Figure 5. Almost a third (32%) of the labour demand arises from the new build housing sector, while private commercial makes up around 27% of the total demand. Public non housing is around 10% while infrastructure is 22% and private industrial just 1.5%. Repair and maintenance works make up 8% of the labour demand, with the non-housing R&M element being slightly higher than the housing one.

Table 5: Known projects construction labour demand

	New Housing	Infrastructure	Public Non-housing	Private Industrial	Private Commercial	Housing R&M	Non-housing R&M	Total
2015	5,007	862	2,753	328	800	170	546	10,466
2016	25,619	4,005	7,625	1,202	16,521	1,000	3,666	59,638
2017	13,385	9,113	4,161	382	10,168	2,079	1,458	40,745
2018	2,955	8,956	406	68	8,339	1,754	47	22,524
2019	1,100	8,644	0	0	4,961	657	0	15,362
2020	455	2,690	0	0	690	102	0	3,936
%	**32%**	**22%**	**10%**	**1%**	**27%**	**4%**	**4%**	**100%**

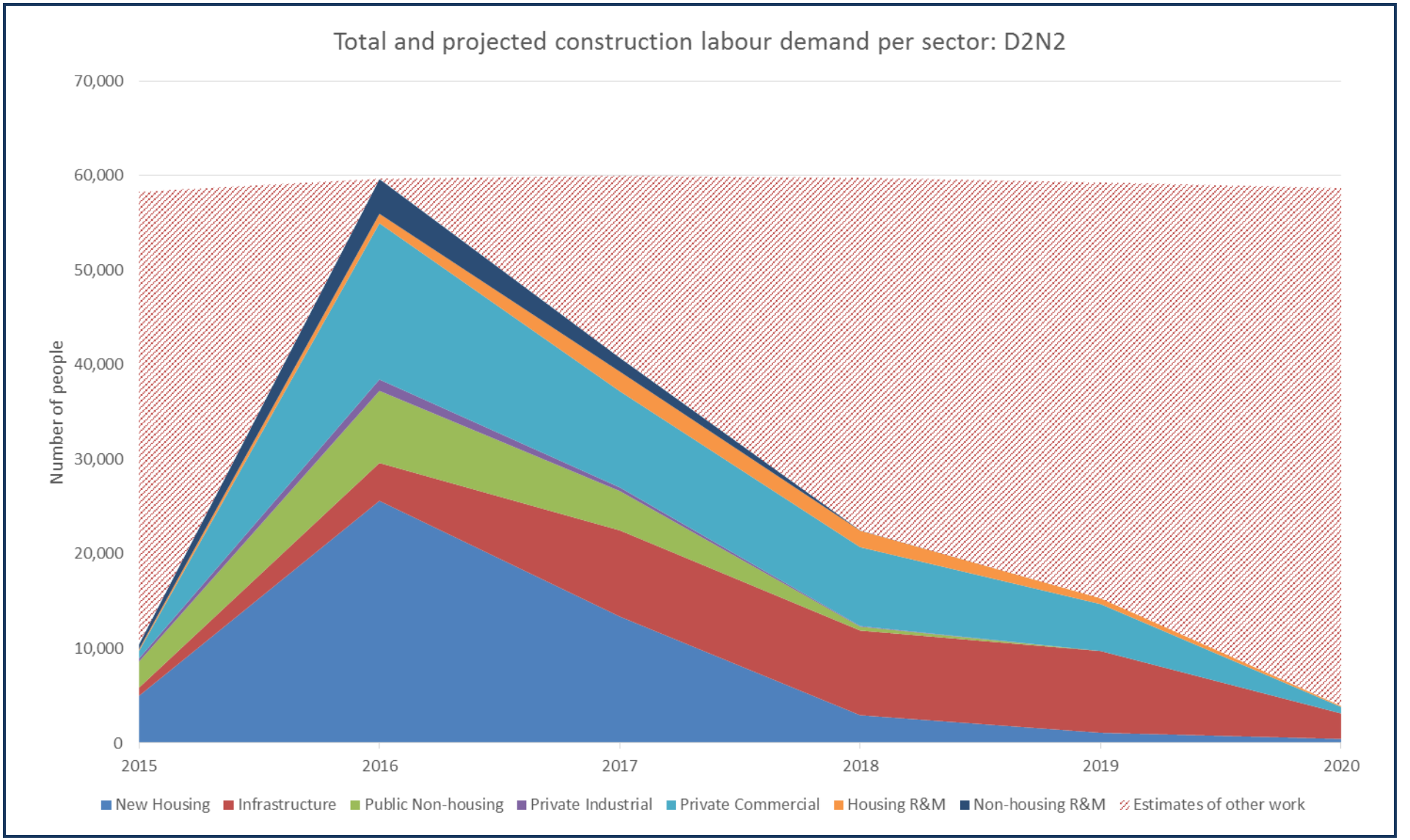

Figure 5: Projected construction labour demand arising by sector

3.5. Neighbouring areas

This section provides an overview of the large projects and related developments and frameworks that are current or are scheduled to begin within the next five years in the local authorities in close proximity to the D2N2 LEP, namely Barnsley, Charnwood, Cheshire East, Doncaster, East Staffordshire, Kirklees, Lichfield, Melton, North Kesteven, North Lincolnshire, North West Leicestershire, Oldham, Rotherham, Sheffield, South Kesteven, Staffordshire Moorlands, Stockport, Tameside and West Lindsey. The Mean Value Theorem was applied twice to the total set of projects taking place within the areas listed above to identify the significant projects measured by their average annual spend in Glenigan. These projects were outside the scope of the current research and have thus not been included in the Analysis. Table 6 presents the spend profiles of these projects. Values are shown in 2015 prices as provided in the Glenigan database.

Table 6: Significant projects in neighbouring areas in order of size

Number	Description	Local Authority	Value (£m 2015 values))	Start Date	End Date	Project Type
1	Gas Fired Power Station	Doncaster	984.0	11/04/2016	08/04/2019	Infrastructure
2	Inland Port Development	Doncaster	400.0	09/03/2015	05/03/2018	Private Industrial
3	YORbuild2 South Area Contractors Framework	Rotherham	352.0	02/11/2015	02/11/2021	Public Non-housing
4	Retail & Residential Units	Sheffield	300.0	04/01/2016	04/01/2019	Private Commercial
5	4506 Residential/Commercial/Retail Units	Charnwood	240.2	13/10/2016	13/10/2020	Private Commercial
6	Social Housing Repairs & Maintenance Contract	Sheffield	238.0	01/04/2014	01/04/2021	New Housing
7	Mixed Use Development	Melton	186.8	22/06/2015	22/06/2018	Private Commercial
8	Pipeline	Doncaster	180.0	20/07/2015	18/07/2016	Infrastructure
9	YORbuild South Contractor Framework	Rotherham	156.0	04/01/2010	04/11/2015	Public Non-housing
10	Motorway (Improvements)	Sheffield	150.0	24/03/2014	07/04/2016	Infrastructure
11	3,000 Homes & Commercial Units	North Lincolnshire	108.5	15/04/2016	15/07/2019	New Housing
12	500 Residential/Office/Industrial/Warehouse Units	Oldham	100.0	10/03/2016	10/06/2019	Private Commercial
13	High Pressure Pipeline	Doncaster	100.0	02/06/2015	02/06/2017	Infrastructure
14	Maintenance Facility/Offices	Doncaster	82.0	22/05/2014	19/11/2015	Infrastructure
15	University (Extension/Alterations)	Sheffield	81.0	18/11/2013	18/10/2016	Public Non-housing
16	Waste Water Treatment Works	Oldham	80.0	12/01/2015	09/01/2017	Infrastructure
17	Warehouse	Doncaster	75.6	03/08/2015	13/02/2016	Private Industrial
18	Construction & Highway Projects/Works Framework	North Lincolnshire	74.0	05/05/2014	30/04/2018	Public Non-housing
19	Distribution Unit	Doncaster	73.1	09/03/2015	09/03/2016	Private Industrial
20	432 Student Flats/14 Flats & 15 Commercial Units	Sheffield	65.0	10/10/2015	06/11/2017	New Housing
21	Office & Distribution Hub	Doncaster	62.7	31/07/2015	10/02/2016	Private Industrial
22	Non Food Retail Unit	Sheffield	60.0	16/01/2016	16/08/2017	Private Industrial
23	Town Centre Masterplan	Oldham	60.0	23/11/2015	20/11/2017	Private Commercial

Table 6: Significant projects in neighbouring areas in order of size

Number	Description	Local Authority	Value (£m 2015 values))	Start Date	End Date	Project Type
24	Distribution & Office Centre	Doncaster	57.3	31/07/2015	10/02/2016	Private Industrial
25	24 Poultry Buildings	North Lincolnshire	48.3	17/07/2015	17/06/2017	Private Commercial
26	Office Development & Car Park	Stockport	46.2	06/04/2015	06/04/2016	Private Commercial
27	7 Commercial Units and Supermarket	Sheffield	46.0	03/03/2014	18/03/2016	Private Industrial
28	Sewage Treatment Works (Upgrade)	Charnwood	45.0	07/01/2013	07/07/2015	Public Non-housing
29	755 Residential/Care Village/School/Commercial Units	Lichfield	43.1	02/04/2015	29/04/2016	New Housing
30	Advanced Manufacturing & Research Centre	Rotherham	43.0	27/10/2014	03/11/2015	Private Industrial
31	Travel Interchange	Stockport	41.8	01/04/2016	30/06/2017	Public Non-housing
32	Motorway Service Station	Sheffield	40.0	16/04/2015	16/01/2016	Infrastructure
33	Shopping Centre (Extension)	Kirklees	40.0	05/01/2015	05/01/2017	Private Commercial
34	Sport, Technology & Education Facility	Sheffield	40.0	06/10/2014	03/10/2016	Public Non-housing
35	Regeneration Route Scheme	Doncaster	40.0	23/09/2013	23/09/2015	Infrastructure
36	Championship Golf Course	East Staffordshire	30.0	23/01/2017	23/07/2018	Private Commercial
37	375 Houses & 1 Public House	Doncaster	28.2	20/04/2015	16/05/2016	New Housing
38	374 Residential Units	Lichfield	28.1	23/09/2015	20/10/2016	New Housing
39	Mixed Use Business Park	Charnwood	25.6	03/02/2015	04/10/2016	Private Commercial
40	Distribution Centre	Doncaster	25.0	04/05/2015	04/05/2016	Private Industrial
41	Commercial Units	Barnsley	25.0	10/02/2015	10/02/2016	Private Commercial
42	Cinema & Shopping Complex	Sheffield	25.0	12/01/2015	13/06/2016	Private Commercial

3.6. Summary of demand

- The analysis of the labour demand arising from the construction spend in the D2N2 LEP area peaks at around 84,150 people in 2017, when taking account of the potential undefined work in addition to the Glenigan pipeline of projects.
- The most noteworthy fact about the analysis is the drop projected to occur in the construction activity and resultant labour demand from 2018 and on. This is based on CSN's projections of construction employment in the East Midlands region.
- A third (32%) of the new build projects' demand arises from housing developments. 27% is classified as private commercial developments and 10% as public non-residential. Infrastructure accounts for 22% while private industrial accounts for just over 1% of the new build construction labour demand.
- The R&M labour demand accounts for 32% of the total and is evenly divided between housing and non-housing R&M (47% and 53% respectively).
- During 2016, the peak year of Glenigan-derived labour demand, the most labour-intensive occupation group is "non-construction professional, technical, IT and other office–based staff" with an average demand of 7,500 people (that includes 60 separate job roles).
- The projections of labour demand for the trades occupations for the peak year of 2016 are as follows:
    - The trade occupation for which demand is highest is "wood trades and interior fit-out, peaking at 5,750 people;
    - "Plumbing and heating, ventilation and air conditioning trades" then follow with around 4,000 people demanded;
    - "General labourers" rank third, with a demand of 3,700 people;
    - "Electrical trades and installation" rank fourth with 3,550 people and
    - All other trades display a demand of less than 3,500 people each.

4. A picture of supply

There are two factors to consider when measuring the scale of the demand for workers in a region: the size of the current workforce in that region, and the existing amount of training there.

The first element of this section takes a view on the current employment levels for D2N2 LEP, how this is made up from the city and county councils, and how it relates to overall employment across the East Midlands Region. Data from CITB's Construction Skills Network is used along with official Government sources.

For the second section, the focus will be on Further Education (FE) that takes place in the D2N2 LEP and wider East Midlands Region, and which tends to be delivered in close proximity to home and workplace. The lengthy study time and specialisms for Higher Education can give greater degrees of mobility, which makes it less relevant for the present study.

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

4.1. Main points

- Current construction workforce estimates for the East of Midlands are just under 164,000 workers.
- The D2N2 LEP accounts for 48% of the East Midland's current construction employment (approx. 79,400 workers).
- Just over one-third (34%) of the construction workforce within the LEP is based in Nottinghamshire with 30% based in Derbyshire. Nottingham and Derby account for, respectively, 22% and 14% of the LEP area's construction employment.
- There are just over 8,600 construction enterprises in the LEP area. As in the rest of the country the majority of these are micro firms (92.9%) employing fewer than 10 people. Seven per cent of construction firms in the LEP are SMEs (employing between 10 and 249 people) while just 0.1% of construction firms employ more than 250 people.
- Derbyshire and Nottinghamshire are home to 42% and 41% of construction firms in the LEP area (3,615 and 3,525). The cities of Derby and Nottingham account for 9% and 8% respectively (785 and 710). Construction firms are generally larger in Nottingham than in Derby, on average Nottingham construction firms employ 20 people to Derby's 12. There is no such disparity between the wider counties with firms in both Derbyshire and Nottinghamshire employing on average 6 employees.
- There were just over 11,200 Construction and Building Services Engineering learning aims delivered in the LEP area, accounting for 7% of the total number of learning aims in 2014/15[7].
- One hundred and twelve training providers delivered over 10 construction relevant learning aims within the LEP area, with the four main providers delivering over 60% of these .

4.2. Existing workforce

Construction employment across the UK suffered significant declines during the recent recession, and the East Midlands was no exception as shown in Figure 6 below. Employment in the region increased steadily from just over 135,000 in 2002 to 180,000 in 2008. The recession saw a steep fall in this figure to a low of just over 160,000 workers four years later in 2012 before beginning to

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

recover. By 2015 the number of construction workers in the region had climbed to 164,000, and the current CSN forecast is for continued employment growth to over 168,000 in both 2017 and 2018, before falling back to just over 165,000 by 2020.

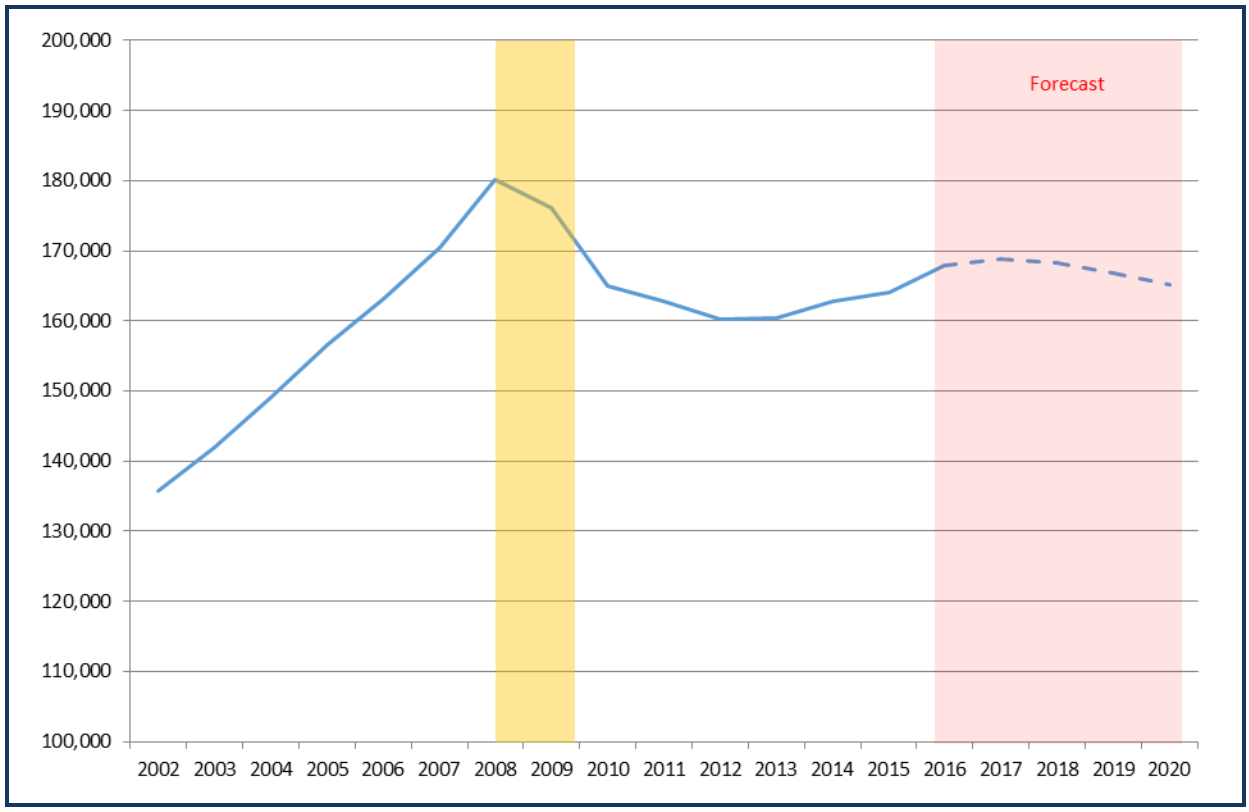

Figure 6: Construction employment in the East Midlands: 2002-2019 (Source: Experian & CITB)

An analysis of the Annual Population Survey[8] gives an indication of the share of the East Midlands' construction workforce located within the D2N2 LEP. The latest data shows that the LEP area accounts for 48% of regional construction employment, Table 7 below shows what this means for total employment at occupational and industry level in the LEP area.

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

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

Occupation	D2N2 LEP	East Midlands
Senior, executive, and business process managers	5,530	11,420
Construction project managers	1,100	2,270
Other construction process managers	6,910	14,270
Non-construction professional, technical, IT, and other office-based staff	10,040	20,740
Construction trades supervisors	830	1,710
Wood trades and interior fit-out	7,410	15,300
Bricklayers	1,910	3,940
Building envelope specialists	3,890	8,030
Painters and decorators	3,070	6,340
Plasterers	2,170	4,480
Roofers	880	1,810
Floorers	770	1,580
Glaziers	1,330	2,750
Specialist building operatives nec*	3,010	6,220
Scaffolders	220	460
Plant operatives	1,570	3,240
Plant mechanics/fitters	1,730	3,580
Steel erectors/structural fabrication	790	1,640
Labourers nec*	3,420	7,070
Electrical trades and installation	6,390	13,200
Plumbing and HVAC Trades	4,650	9,610
Logistics	580	1,190
Civil engineering operatives nec*	990	2,050
Non–construction operatives	1,250	2,580
Civil engineers	1,910	3,950
Other construction professionals and technical staff	4,500	9,290
Architects	300	620
Surveyors	2,250	4,650
Total	**79,400**	**163,990**

**nec – not elsewhere classified*

Sub-regional analysis shows that 34% of the LEPs construction workforce is based in Nottingham and 22% in Nottinghamshire (56% in total) while 30% is based in Derby and 14% in Derbyshire (44% in total).

Nearly 40% of construction workers in the LEP are self-employed. The proportion is highest in Derbyshire with 49% self-employment, and lowest in Derby with 29% self-employment (figures for Nottingham and Nottinghamshire are 37% and 35% respectively).

4.3. Employer structure

Analysis of construction enterprises reveals that 44% of all construction firms within the East Midlands are located in the LEP area. In general firms in Nottingham and Nottinghamshire tend to be larger than those in Derby and Derbyshire employing on average 8.8 people compared to 6.6 in the latter.

Figure 7 shows the number of enterprises by size in each part of the D2N2 LEP. The vast majority (93%) of firms in the LEP are micro (employing fewer than 10 people). There are approximately 10 large employers (more than 250 employees) in the LEP area, about five in Nottingham and five in Nottinghamshire. As will be discussed later in the report, training providers claim to have reasonable links with local SMEs, but would like to develop stronger links with larger companies in order to better deliver training and apprenticeships in the area.

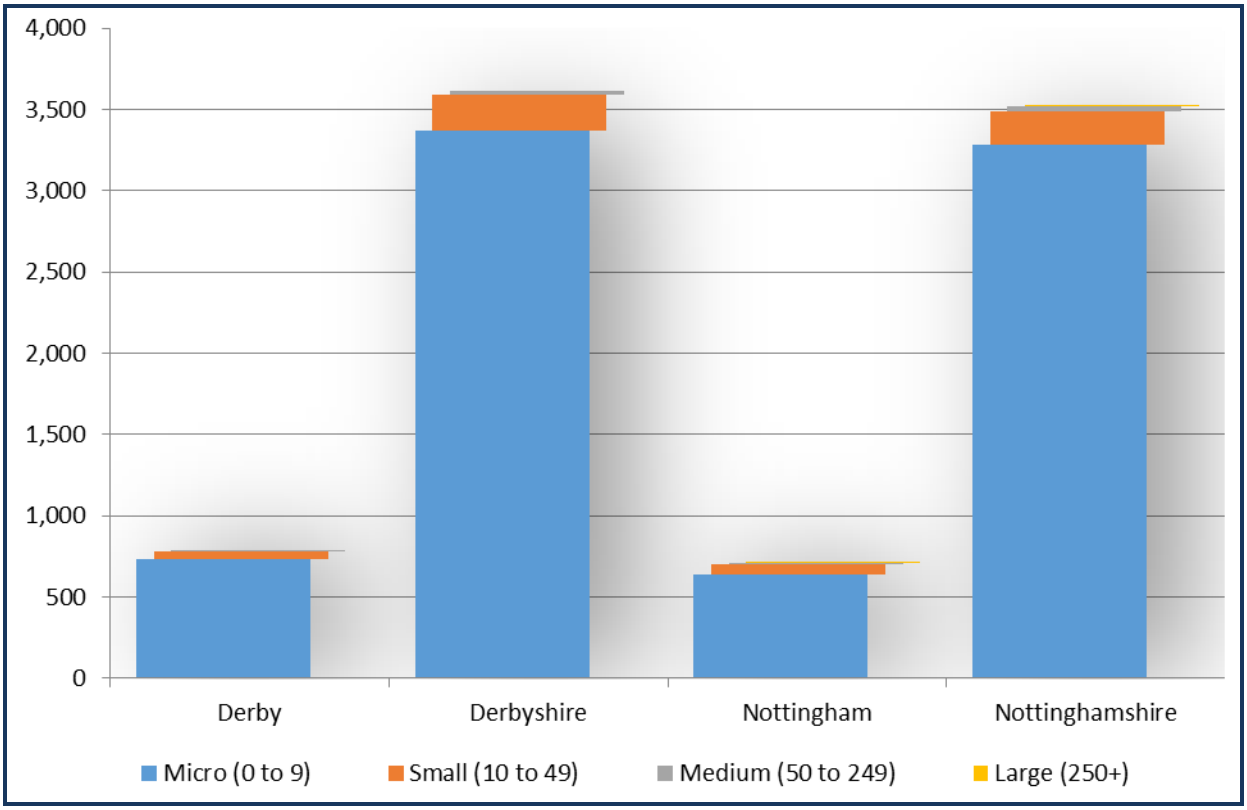

Figure 7: Construction firms by size, 2015 (Source: ONS/NOMIS)

4.4. Training provision

In terms of delivering skills to the construction workforce, further education providers play a significant role in equipping people with vocational skills for all sectors of UK Business, and for construction in particular.

Although the number of learners can be identified, it is more difficult to identify training as this is reported by learning aims, and not the number of learners; 'learners' generally refers to the number of individuals who are funded in each year, while the term 'learning aims' refers to the number of discreet pieces of learning that are funded. It is possible for an individual to complete multiple learning aims in each year, with each aim attracting some level of funding.

There are two main categories of learning aims relevant to the Construction Sector, Construction and Building Services Engineering; together they accounted for just over 11,200 learning aims delivered in the LEP area which equates to around 7% of all known learning aims across all sectors, the same share that construction has for total employment in the D2N2 LEP area[9].

There are 112 providers delivering above 10 learning aims and 39 delivering above 10 learning aims. The top 10 providers deliver 9,718 (86%) of the construction programmes. Four providers deliver 6,981 (62%) of all the construction programmes, these are:

1. Chesterfield College
2. West Nottinghamshire College
3. New College Nottingham
4. Derby College

Data available from the Skills Funding Agency do not allow identification of course level detail, however the websites of the main training providers (links in Appendix G) indicate that there is a range of courses on offer that would relate to the main occupations, while also covering some of the technical and higher level skills that would be relevant to work currently underway in the LEP and future planned projects.

4.5. Training capacity

Section 3 of this report will demonstrate a need to increase construction training in order to meet demand for skilled workers. The scope to increase the amount of construction training in a region is limited by two factors: the capacity of training establishments to increase training (which is itself dependent upon both space and staffing), and the availability of people who are able and willing to commence construction training.

CITB's Training in the Built Environment Survey (2015) asks large training providers, both public and private, about numbers of applicants and starters by course. The difference between the two gives an estimate of the potential increase in training that might be achieved if all applicants were to become starters.

In the East Midlands, amongst training providers who responded to the survey, there were 1,170 applicants and 1,060 starters, a ratio of 11:10. This suggests a maximum increase of no more than 10% in current training, although in reality it would be much lower than this. When applied to the wide training number from the Skills Funding Agency, this suggests an upper limit of an extra 890 learning aims.

Further analysis by course reveals that much of this potential capacity is in the four main construction trades (Carpentry and Joinery, Bricklaying, Plastering, and Painting and Decorating) where there is potential to increase training by as much as 20%.

There is less scope for increasing training in the Specialist and Civil Engineering trades. Training providers report that the number of starters on each course is more or less equal to the number of applicants suggesting that even if capacity was increased there isn't the demand for courses.

Separate research undertaken by Maria Willis on behalf of D2N2 LEP examines the actions that training providers can take to increase capacity. It is interesting to note that several respondents to this research supported the finding of having 10% - 20% possible spare capacity, and several providers who were close to, but not at, full capacity expressed a willingness to rent extra space and recruit extra staff if this should be needed.

[9] NOMIS - 2012/13, recognised sectors, all levels, all ages

Many providers discuss numbers of applicants with their competitors to better understand the wider training picture and avoid oversupply, but this falls short of full cooperation and supply management. At its best, some providers spoke of encouraging applicants to apply to different colleges where they had more chance of running smaller and more expensive courses. Perhaps harder, but of more benefit in the long term, would be for training providers to cooperate in offering specialist courses that are more expensive to host, or even to move provision away from courses at Level 1 or below in favour of courses at Level 2 or above. Although lower level courses can offer an appropriate entry route into the industry for individuals who are committed but lack basic qualifications, they suffer from a very high dropout rate which in some instances can mean up to 70 to 80 per cent of starters failing to progress into employment or further training.

While most training providers work with SME's and sole traders to offer Apprenticeships, there was a desire from some to work more closely with larger construction contractors and local authorities. This has the potential to help meet the demand for apprentices resulting from the long term demand for skilled workers outlined in Section 3 of this report. In particular local authorities have the ability to specify that contractors bidding for construction work operate as National Skills Academies offering training opportunities in addition to delivering the contract.

5. Mobility of the workforce

The construction workforce is highly mobile, with workers tending to move from project to project which may mean working in other counties or regions (or even countries) from where they usually live. To measure the extent of this movement of workers, CITB commissioned research (Workforce Mobility and Skills in the UK Construction Sector 2015) to provide a reliable evidence base of the nature of the construction workforce in the UK concerning its qualification levels and the extent of occupational and geographic mobility to offer insight into where skills gaps might emerge as a result of occupational/geographic movement. The research provides data at a regional level so that future training interventions and the supply of job opportunities for local people can be understood.

5.1. Main points

- Nearly two-fifths of construction workers in the East Midlands have worked in the construction industry for over 20 years (38%) and almost two-thirds have worked in the industry for at least 10 years (64%).
- At the time of the research just over one-third of construction workers in the East Midlands had qualified outside the region, one of the highest proportions in the country.
- Construction workers in the East Midlands travel on average 23 miles to their site, similar to the UK average of 22 miles.
- Just over 70% of all East Midlands construction workers are confident that when they finish their current job their next job will allow them to travel to work from their permanent home on a daily basis.
- Overall around two-fifths (45%) of all construction workers in the East Midlands have only worked on one type of project.
- Amongst construction workers of all ages in the East Midlands a third say they definitely will still be working on construction in five years' time (36%); a further two fifths think it is very or quite likely (44%). Overall, therefore, four-fifths of construction workers in the region expect to still be working on construction in five years' time.

5.2. Work history

Nearly two-fifths (38%) of construction workers in the East Midlands have worked in the construction industry for over 20 years, which is higher than the UK average of 31%. Nearly two-thirds (64%) have worked in the industry for at least 10 years.

The fact that they grew up there or have always lived there and other family reasons are the most likely reasons why construction workers are based within the East Midlands (51%), which is lower than the UK average (61%). The second main reason for their location is due to their employer sending them there (40% vs. 36% for UK). Reasons differ particularly by age with the youngest workers more likely to say their employer sent them, while older workers are more likely to cite family reasons.

5.3. Worker origins

Almost two-thirds of construction workers based in the East Midlands achieved their construction qualification in the region. More than most other regions the East Midlands benefits from qualified workers moving to the area with 35% of workers having qualified outside the region, with Yorkshire and Humber accounting for about 9% of this inflow. Only London, the South East, and East have a higher inflow of construction workers from other regions.

5.4. Travel to site

Almost three-quarters (74%) of construction workers in the East Midlands live in the region. Nearly all of the remainder (23%) travel into work from a neighbouring region, with just 3% traveling from further afield. At the time of the survey 8% of the East Midlands construction workforce had travelled to work from Yorkshire and the Humber, and 7% from the West Midlands.

All workers were asked to indicate the furthest distance they have worked from their permanent or current home in the last 12 months. Within the East Midlands, around 1 in 5 construction workers have worked no more than 20 miles away (19%) and a further third have worked between 21 and 50 miles away (32%). This leaves nearly half that have worked more than 50 miles away from their permanent home (47%), with just over a quarter that have worked between 51 and 100 miles away (27%) and a fifth that have worked more than 100 miles away (20%).

This is important as Section 3 will show that construction projects forecast for the D2N2 area will be reliant on workers travelling from the wider East Midlands and further afield.

5.5. Site duration and change

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

Just under a quarter of all construction workers in the East Midlands (23%) 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. A quarter anticipate being on site for more than a month, but less than a year (24%), while more than a quarter expect to stay on that site for a year or longer (29%). However in a further one quarter of cases (23%) workers did not know how much longer they could expect to be on site, indicating that a significant minority of construction workers are living with a certain amount of uncertainty and insecurity.

Nearly three quarters of all construction workers in the East Midlands 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 (71%).

5.6. Sub-sector and sector mobility

All workers were asked which of six types of construction work (New Housing, Housing Repair and Maintenance, Commercial, Private Industrial, Public Non-Housing, or Infrastructure) they have spent periods of at least 3 months at a time working in.

Overall more than two fifths of all construction workers have only worked on one project type (45%), compared with just 2% in 2012, which suggests a pattern of increased stability in the sector.

Table 8: Type of projects spent significant periods on (CITB, 2015)

	East Midlands 2015	East Midlands 2012	UK 2015
	%	%	%
New housing	88	72	83
Housing repair and maintenance including extensions/loft conversions	39	68	36
Commercial work such as shops, office, pubs, etc	38	63	35
Private industrial work such as factories, warehousing, mechanical engineering, land reclamation	35	63	30
Public non-housing work such as schools, sports facilities, landscaping	32	53	33
Infrastructure building projects, such as road/rail/airport, sewerage/water treatment, power stations	23	34	21
ONE TYPE ONLY	45	2	48
TWO TYPES	14	16	14
THREE TYPES	9	14	11
FOUR TYPES	9	15	8
FIVE TYPES	9	16	9
SIX TYPES	12	22	9

5.7. Leaving the sector

In order to assess the potential outflow from the sector in the next five years (based on workers' preference), all workers were asked how likely it is that in 5 years' time they will still want to be working in construction. Amongst construction workers of all ages in the East Midlands a third say they definitely will be (36%); a further two fifths think it is very or quite likely (44%); 5% consider it unlikely; just 2% say they definitely won't be and a further 6% hope to be retired by then, while 6% don't know.

6. Demand against supply

6.1. Main points

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

When looking forward, there will be less visibility on future projects, especially for work that requires shorter planning times. Research carried out by CITB on behalf of UKCG (Figure 8, unpublished) showed that the lead time from planning to work starting on site varied by the type of work and value. Large scale infrastructure and commercial projects took the longest time whereas lower value work in general along with work in the industrial sector was able to get on site quickest.

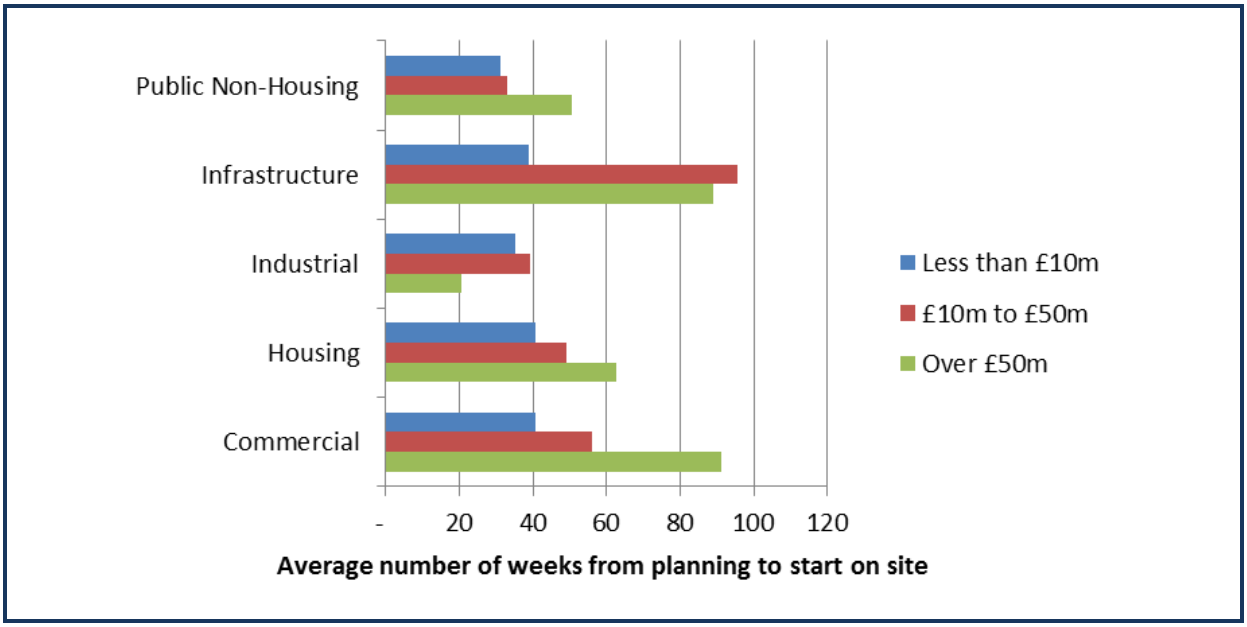

Figure 8: Average number of weeks from planning to work on site, UK 2010-2013 (Source: UKCG/Glenigan)

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 East Midlands indicate that it accounts for 36% of yearly construction output in the region[10], a significant amount even if it is slightly below the UK average of 39%.

Also in looking at demand against supply, while different types of projects can be categorised by their type of build, such as housing, commercial and industrial, the workforce skills required are less easy to categorise in the same way as some occupations will be able to apply their skills across a number of different sectors. For example, evidence from the 2015 Mobility research11 shows that occupations such as banksman/banksperson, scaffolders, plant/machine operatives, carpenters/joiners and plumbers are most likely to have only worked on one project type, while site managers, plasterers, electricians, dryliners and roofers are least likely are more likely to have worked on a wide range of building projects.

[10] CITB(2016) Construction Skills Network – East Midlands
[11] CITB(2015) Workforce Mobility and Skills in the UK Construction Sector – East Midlands

In general, as discussed in the Mobility section, construction workers in the East Midlands tend to be more mobile than in other regions, which suggests that the supply of workers for future projects will be supplemented by workers outside the area.

6.2. Gap analysis

November 2016 is forecast to be peak activity for the programme of projects that is currently listed by Glenigan; during this month demand for workers would reach an estimated 93,600 workers. For the whole of 2016 and 2017 there would be average monthly demands of 59,640 workers and 40,760 workers respectively. As Table 9 shows, peak demand based on the work identified would exceed the workforce based in the LEP area, and the average yearly demand figures would account for a significant share of the current workforce employed there.

At peak activity which is forecast to occur in September 2016, there would be an estimated monthly demand of over 49,000 workers; for the whole of 2016 and 2017 there would be average monthly demands of 40,600 workers and 17,700 workers respectively. As Table 9 shows, peak demand and then the average yearly demand figures based on the work identified would account for a significant share of the current workforce employed within the D2N2 area.

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

Area	Peak Demand (November 2016) (% of 2015 employment)	2016 Average Demand (% of 2015 employment)
D2N2 LEP	118%	75%

This forecast is based solely on current Glenigan projects, so that the fact that these alone will demand more workers than are currently employed in the D2N2 region shows the sheer scale of work that is to be undertaken. Next year when most of these projects will be nearing their conclusion they will still draw on over half the workforce in the region.

The demand details covered in section 3 show that work across the LEP will require involvement from the full range of construction occupations across the timeline. Analysis of the occupational groups used in the CSN, which can be compared to estimates of current employment allows examination of both yearly demand and peak demand (as highlighted in Table 10).

Table 10: Occupational breakdown of demand for D2N2 LEP (Source CITB/WLC)

Occupations	Average 2016 DEMAND
Senior, executive, and business process managers	63%
Construction Project Managers	82%
Other construction process managers	55%
Non-construction professional, technical, IT, and other office–based staff (excl. managers)	75%
Construction Trades Supervisors	135%
Wood trades and interior fit-out	78%
Bricklayers	92%
Building envelope specialists	68%
Painters and decorators	72%
Plasterers and dry Liners	59%
Roofers	145%
Floorers	62%
Glaziers	61%
Specialist building operatives not elsewhere classified (nec*)	49%
Scaffolders	259%
Plant operatives	67%
Plant mechanics/fitters	43%
Steel erectors/structural	94%
Labourers nec*	109%
Electrical trades and installation	55%
Plumbing and heating, ventilation, and air conditioning trades	86%
Logistics	103%
Civil engineering operatives not elsewhere classified	67%
Non–construction operatives	137%
Civil engineers	85%
Other construction professionals and technical staff	83%
Architects	290%
Surveyors	74%
Total	**75%**

Figures highlighted in red indicate occupations where peak demand exceeds current employment and average employment in 2016 and 2017 is more than 20 percentage points higher than the average for all occupations for either or both years.

This analysis shows that overall demand for workers within the D2N2 LEP area is higher than the number of construction workers in that area, and so projects will be dependent upon training new workers and on workers from outside the area.

The mismatch between supply of and demand for construction workers within the LEP area are not uniform across all occupations, with the potential shortfall amongst some being very high indeed, these are:

- Logistical operators
- Labourers not elsewhere classified
- Construction Trade Supervisors
- Non-construction operatives[12]
- Roofers
- Scaffolders
- Architects

For each of these occupations, peak demand exceeds current employment and average employment in 2016 and 2017 is more than 20 percentage points higher than the average for all occupations for either or both years.

There are two occupations that deserve mention as potential bottlenecks even though they do not appear as such on the above table. The peak demand for both Bricklayers and Steel Erectors occurs one or two months earlier than that for most trades (September and October respectively), shortage and consequent delays here may have knock on effects for the remainder of the projects.

Of the remaining occupations the main risks look to be around the future supply of:

- Non–construction operatives
- Labourers nec
- Roofers

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

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

Construction specific occupations

Due to the nature of the construction projects scheduled for the D2N2 LEP area, **Scaffolders** are forecast to be in high demand. This is not the case nationwide, so it is highly likely that the concentration of demand within the D2N2 LEP area will be met from neighbouring regions.

Construction Trades Supervisors require considerable skill and experience. Demand here is certainly linked to an increasing demand for higher level skills that sits across construction more generally,

[12] General occupation title that covers: Metal making and treating process operatives, Process operatives nec*, Metal working machine operatives, Water and sewerage plant operatives, Assemblers (vehicles and metal goods), Routine inspectors and testers, Assemblers and routine operatives nec, Elementary security occupations, Cleaners and domestics, Street cleaners, Gardeners and landscape gardeners, Caretakers, Security guards and related occupations, Protective service associate professionals

meaning that demand is higher across the whole of the UK. Some training providers offer courses leading to an NVQ Diploma in Construction Site Supervision, although they are few in number.

While the skill requirement for **Labourers nec** (which are all elementary construction occupations) may not be as high as trades such as carpentry, roofing and the like, some may see it as a way of gaining construction experience. The risk here is the number required and the amount and availability of training that would be needed for them to work safely on construction sites.

Roofers account for relatively few workers. While the overall demand in these occupations is relatively small in comparison to base employment it represents a significant recruitment risk. In addition, owing to their niche nature, training opportunities for these occupations tend to be lower than other trades.

Cross-sector occupations

Skills in these occupations can be used in other sectors, allowing workers a greater degree of mobility between industries; the degree to which demand can be met, therefore, will be influenced by factors other than construction demand.

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

Non-construction operatives tend to provide support roles and do not rely on construction specific skills, therefore employment in this group can be subject to general market conditions. Although there is a significant increase in percentage terms, the impact would need to be examined in more detail against wider workforce/job projections.

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

6.3. Long term construction employment forecast

The Construction Skills Network provides a forecast for construction employment by region and occupation for the next five years. In numbers terms the East Midlands' total employment is predicted to increase by approximately 1,200 in the five years to 2020, from just below 164,000 in 2015 to just over 165,200 in 2020. However, this disguises a peak of around 168,900 in 2017 with employment subsiding thereafter. By 2020 total employment is predicted to be about 8% below its 2008 peak level.

Given that a significant proportion (48%) of construction workers in the East Midlands are based in the D2N2 LEP area, it is possible to use the CSN forecast for East Midlands to estimate the changes the D2N2 workforce over the next five years. The LEP construction workforce would be expected to increase by around 550 – 600 workers between 2015 and 2020, although it will peak in 2017 at over 81,000 (2015=79,400) after which it will fall slightly.

The Annual Recruitment Requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction**,** due to factors such as movements between industries, migration, sickness, and retirement. It provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

The East Midlands' projected ARR for 2016–2020 is 3,110. This is higher than the overall increase in the construction workforce due to the negative effect of people leaving the industry. It represents

1.9% of base 2016 employment, which is higher than the UK average of 1.7% despite its relatively lower employment growth.

The ARR for the D2N2 area would be expected to be in the region of 1,500 additional recruits per year (in addition to the workforce flows and movement in and out of the industry outlined above). The occupations most in demand over the 2016-2020 forecast period will be:

- Non-construction professional, technical, IT, and other office-based staff – 860 ARR
- Labourers nec – 270 ARR
- Specialist Building Operatives nec[13] – 130 ARR
- Plasterers – 110 ARR
- Glaziers – 70 ARR

There is some cross over between the short term requirements outlined by the Glenigan data and these longer term forecasts. In addition recruitment into the following occupations will be needed:

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

While demand for **Plasterers** is high, they represent one of the four main building trades within the construction industry, so training opportunities should be readily available.

On the other hand, the significant demand for **Glaziers** present additional difficulties owing to niche nature of the skills required meaning that training opportunities for these occupations tend to be lower than other trades.

[13] General occupation title that covers: Construction operatives nec, Construction and building trades nec Industrial cleaning process occupations, Other skilled trades nec

7. Conclusions and recommendations

7.1. Conclusions

The Glenigan data indicates that construction labour demand in the D2N2 area peaks during 2016. However, the tail-off beyond this point is unlikely to represent an actual drop off in construction activity but will probably be filled by projects that have not yet been identified.

To address what appears to be a cliff-edge in construction, we have produced an indication of how construction in the region (East Midlands) as a whole is forecast to change over the next five years and then extrapolated this information to provide indications for the D2N2 area..

- In 2016, labour demand will be driven by construction spend on known projects: new housing (27.7%); private commercial development (26.9%); infrastructure (17.5%); public non-residential development (13.5%). (Table 3.)
- Over the five years of Glenigan data available (table 5 and figure 5) the largest proportions of construction spend are expected to be: new housing (32%); private commercial development (27%); infrastructure (22%); public non-residential development (10%).
- Construction occupations making up the greatest peak demand for known projects are: Wood trades and interior fit out (5,750).Plumbing, heating, ventilation, air conditioning trades (4,000).Other construction process managers; professional & technical; Labourers; electrical trades; executives & process managers (represent between 3,500 and 3,800.)
- The estimate of peak demand for workers is 84,150 in 2017 with about 32% of these working in repair and maintenance.
- The most recent estimate is for the East Midlands to have just under 164,000 construction workers. With D2N2 accounting for 48% or about 79,000 of those.
- There are just over 8,600 construction enterprises in the D2N2 area – 44% of the firms of the East Midlands. 92.9% are micro firms employing fewer than ten people. Seven per cent are SMEs (employing 10 to 249 people) while just 0.1% employ more than 250 people. Nottingham construction firms are slightly larger than Derby's, on average employing 20 people versus 12, outside of the two cities, the average firm size is six employees.
- There were just over 11,200 Construction and Building Services Engineering learning aims delivered in the LEP area, accounting for around 7% of the total of learning aims in 2014/15[14]. While these were delivered by 112 training providers the four largest colleges delivered over 60% of all FE learning and these are weighted towards Nottingham.
- Although there may be potential to increase training capacity in Carpentry and Joinery, Bricklaying, Plastering, and Painting and Decorating by up to 20%,. Training providers report that starters on these courses are more or less equal to the number of applicants suggesting that there isn't significant additional demand for courses.
- Gap analysis suggests the greatest potential shortfall in trades will be for: Logistical operators; Labourers not elsewhere classified; Construction Trade Supervisors; Non-construction operatives[15]; Roofers; Scaffolders. There may also be demand for bricklayers and steel erectors.

[14] Note: a leaner can have multiple learning aims depending upon the nature of the course learning.
[15] General occupation title that covers: Metal making and treating process operatives, Process operatives nec*, Metal working machine operatives, Water and sewerage plant operatives, Assemblers (vehicles and metal goods), Routine inspectors and testers, Assemblers and routine operatives nec, Elementary security occupations, Cleaners and domestics,

7.2. Recommendations

Recommendation 1a – Review and develop, as appropriate, the D2N2 skills plan to ensure that the gap between demand and skills provision for high demand or priority professions and trades does not become a problem.

Recommendation 1b – Pipeline identification, planning and exploitation

Develop, as far as possible, a more detailed long term picture of construction and infrastructure investments for the D2N2 area; assess their implications and potential skills demands and use this information to inform skills recruitment (1a).

Given the lead times for development of skills, a forward look should seek to identify where major initiatives will skew demand. In particular, the arrival of High Speed Two represents a major opportunity that will create significant employment and have positive economic implications. Any construction skills plan should undertake a detailed analysis of both:

- The implications for employment and establishing a skills-ready workforce.
- The opportunity to become a centre of excellence to export skills to neighbouring areas.

Recommendation 1c – reskilling and upskilling construction workers and those from other sectors

A holistic skills plan may benefit from identifying cross-sectoral impacts on labour requirements and opportunities. For example, predicted trends for a decline in manufacturing employment may create opportunities for reskilling and upskilling to fill gaps in construction occupations.

This may also include recognising the potential demand for "non-construction professionals…" and the opportunity to support the development of career progression opportunities that upskill construction workers to take on more senior and managerial and affiliated roles. Such an approach would need to be matched with the recruitment and development of construction skills – so as not to create a shortage of trades by encouraging them to move into other roles.

Recommendation 2

Identify potential partners within the D2N2 area; share analysis with them and engage them in contributing to building collaborative holistic plans.

This should ensure that: local construction businesses; major employers; local authorities; those responsible for managing infrastructure (transport and utilities); local stakeholders and influencers and chambers of commerce, all input and that the identified local colleges promote construction courses and provide the required training in sufficient quantity. Particular emphasis should be on those five colleges that are delivering around 60% of construction relevant learning plus strategically relevant colleges are included.

There may also be an opportunity to develop future skills through collaborative working – such as building skills in and awareness of the need now and potential for Building Information Modelling (BIM), levels 1, 2 and 3.

Recommendation 3 – Develop the future curriculum. Increase provision of construction skills training (following on from recommendation 2).

a. Through mediated collaboration, it is considered likely that FE colleges could: reduce the provision of under-subscribed courses; add provision for over-subscribed courses; add additional or enhance specialist courses to reflect the potential need for new construction skills and balance the provision of training with anticipated demand from the construction contractors locally. That should, where possible, be through apprenticeships (see below). By

Street cleaners, Gardeners and landscape gardeners, Caretakers, Security guards and related occupations, Protective service associate professionals

working together the major colleges can avoid duplication of effort and enhance specialisations.

b. Occupations highlighted as having high demand and a potential gap should form part of an early action plan to assess what short-term interventions can be activated to address any concerns and identify funding that can be utilised to pump-prime short term training interventions.

c. 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.

d. However, the Skills Funding Agency Data Cube makes it clear that construction starts and completions in FE are mostly level 1 and 2 – while demand is mostly at level 3 and 4. The D2N2 LEP should commission research to establish insights and conclusions to help direct the alignment of further education completion to pipeline labour demand.

   CITB advisors may be able to contribute to a discussion about why providers to tend deliver at level 1 and 2 and options for increasing provision at level 3 and 4.

Recommendation 4 – Outreach. Build a more positive image of construction with young people and increase recruitment through schools.

Construction is sometimes associated with negative and inaccurate stereotypes that deter potential recruits. Education choices and career decisions are often influenced in school. With an anticipated long term demand for some skills, the potential exists for an outreach programme that goes out to schools to correct negative perceptions, build a positive image and encourage applications for construction skills courses and apprenticeships from a broader spectrum of young people – in particular ethnic minorities and young women.

The consultation with D2N2 stakeholders on 5 April asserted the long-term importance of changing perceptions among young people about construction careers; about making them attractive to those who have traditionally been under presented in construction: e.g. women; ethnic and other minorities; and those disadvantaged and requiring additional support.

Active creative engagement with schools and careers officers is essential in achieving a positive sustainable cultural change. CITB and colleges have been active in this area but there is potentially great value in doing more.

Building awareness of the opportunities may include use of support and guidance from CITB and utilising approaches like GO *Construct* (www.goconstruct.org).

There is also a necessity to engage with construction employers to change behaviours to make construction welcoming to those who have traditionally been excluded. This might in part be achieved through recommendation 5.

Recommendation 5 – Introduce *Smart Procurement* as a lever to enable skills development

The potential exists through smarter approaches to procurement management to encourage those bidding for construction and infrastructure contracts to be mandated to include provision for co-ordinated recruitment, training, apprenticeships and outreach within their responses to tender. Provision would also be required to hold contractors to account for commitments made.

Such an approach could be co-ordinated through local authorities and be a requirement of planning applications and local authority and public sector contracts. It may also be possible to encourage major contracting businesses to follow such an approach in support of the Region's skills and economic development.

Recommendation 6 – Apprenticeships

Government has set a commitment to create three million apprenticeships by 2020. The D2N2 area can contribute to this by enabling apprenticeships and the opportunity to create a shared apprenticeship scheme. CITB can provide guidance and support but this would see local authorities working with, and through, main contractors to provide apprenticeships that allow apprentices to move between contractors and projects as requirements allowed. Main contractors have the scale and resource to collaborate in comparison with SMEs. It may be appropriate to direct this towards level 3 and 4 apprenticeships (see recommendation 3b).

The Apprenticeship Levy becomes effective from April 2017.

D2N2 LEP Skills Plan

The recommendations align with priorities already identified in D2N2's 2014 Skills Plan – notably:

- **Priority 1** - Develop sector growth agreements to make explicit ownership and shared responsibilities for investment, ICT, labour market intelligence and impact measures.
- **Priority 2** - Improve business leadership, management skills and training needs analysis to help increase productivity and performance.
- **Priority 3** - Promote and develop apprenticeships and traineeships to achieve higher level skills and improve social mobility.
- **Priority 5** - Raise the visibility of and access to career insights and specialist careers support for young people and adults to raise aspirations, participation, retention and achievement in learning and work.

Maintaining & enhancing the evidence base

Commission regularly updated Labour Market Intelligence (LMI) to provide an 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. There may also be a need to understand the future repair and maintenance market – that is typically not recorded and undertaken by SME and micro businesses.

The demand forecasts produced using data from Glenigan are the result of a snapshot at a moment in time and so it is wise to update demand forecasts on a regular basis – six monthly is suggested.

The Apprenticeship levy

The Government's Apprenticeship Levy comes into effect from April 2017. It will be payable by employers with an annual payroll (PAYE) greater than £3million, where the levy of 0.5% on all sums above this amount. In England the levy will be used to pay for Apprenticeship training provider costs.

For the construction Industry this means that employers with a payroll over £3m will be required to contribute to two training levies. CITB estimates this could impact around 700 employers and generate around £35m of Apprenticeship levy. The Government and CITB are aware that for some employers this is undesirable and have agreed that CITB will work with the construction industry to develop a CITB levy system that is supported by the majority of the industry, allows both levies to co-exist and allows CITB to continue supporting employers to train their workforce; both in apprenticeships and beyond.

What this Levy system will look like is not yet agreed but one possible outcome is for a reduction in the levy paid to CITB. This, along with the future use of Levy funds will form discussions with

employers and their representatives during 2016, with resulting changes being included in the next Levy Order that will be placed before Parliament in 2018.

In the meantime CITB will also be working with industry to determine what, if anything, it can do to support employers that will face both the CITB Levy and the new Apprenticeship Levy for the period April 2017 – April 2018.

The guidance published by the Government provides a good starting point to find out more.

D2N2 LEP - Construction Labour Research

Technical Appendices

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Date: 16 March 2016

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Appendix A. Methodological note about the LFT

The Labour Forecasting Tool (LFT) was used to develop a profile of estimated labour requirements in the LEP area. The tool creates a bottom-up approach to skills forecasting by aggregating the employment from individual projects to create an area-specific profile. The Labour Forecasting Tool can predict labour requirements (i.e. number of operatives and managers) on a month-by-month and trade-by-trade basis given no more than the type of project, its value or gross floor area where appropriate, its location and its start and end dates. The LFT produces an indication of the total construction labour demand arising for that project. The labour for the project may or may not stem from within the immediate vicinity and in some cases (e.g. professionals) be based in another part of the country.

The projects analysed were assigned the most appropriate project model in the LFT's database. For the scope of this analysis, the following models were used:

- New Housing
- Public Non-residential
- Private Commercial
- Private Industrial
- Infrastructure:
    - Airports
    - Bridges
    - Digital Infrastructure
    - Flooding
    - General Infrastructure
    - Generation (Energy from Waste)
    - Generation (Renewables - Onshore)
    - Mining
    - Roads
    - Stations (Underground/Network rail)
    - Undefined Energy
    - WTW/WWTW

Construction employment is broken down into 28 occupation groups[16].

The labour demand is shown in three ways:

1. Total person years by occupation: the total person years for each occupation required for the project. This output takes no account of the project duration which has been given in the original data. For instance if the total person years were 50, this means that if the project lasts for one year there would be 50 people employed for one year; if it lasted for two years then there would be an average of 25 people employed each year.

[16] The employment profile is disaggregated by 28 occupational groups within the LFT. Details of these groups are given in Appendix B.

2. Total person years by sector: the total person years required for the workload broken down by sector of the construction industry.
3. The total person years distinguished based on whether the labour demand arises from known projects or from estimates of other work.

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.

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

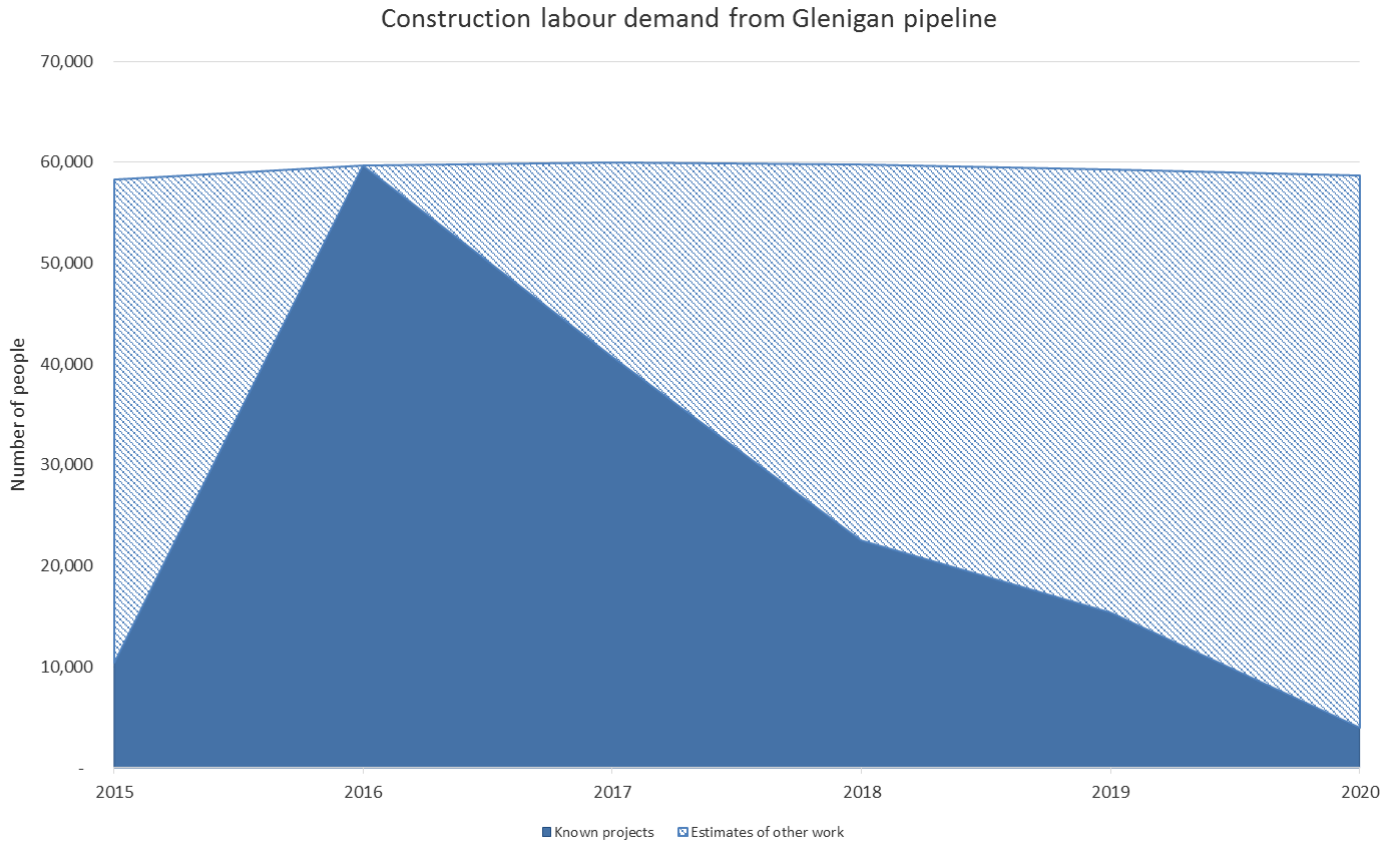
	(4129) Financial administrative occupations nec
	(4138) Human resources administrative occupations
	(4151) Sales administrators
	(4159) Other administrative occupations nec
	(4162) Office supervisors
	(7130) Sales supervisors
	(7220) Customer service managers and supervisors
	(4161) Office managers
5 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

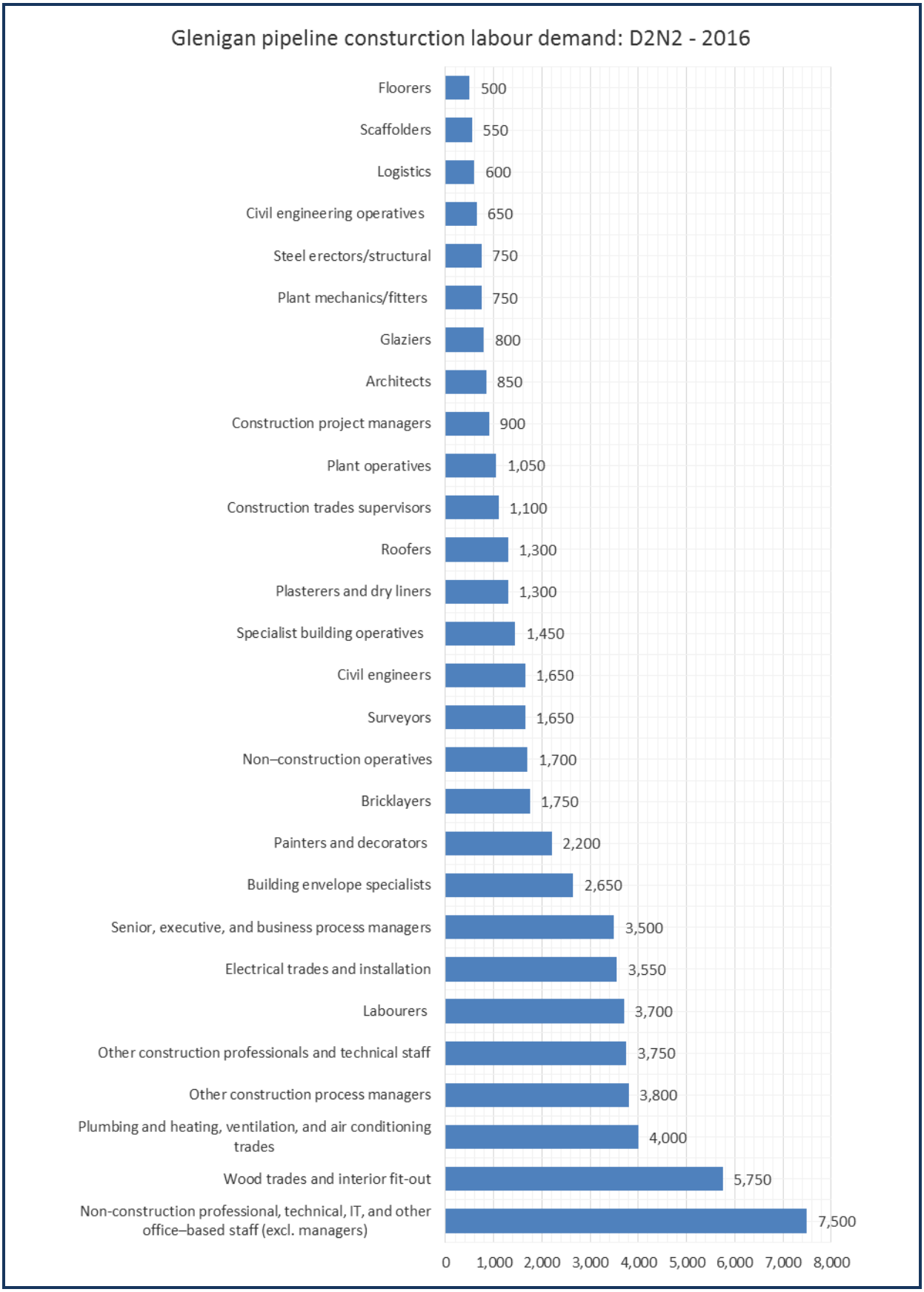
15 Scaffolders	
	(8141) Scaffolders, stagers and riggers
16 Plant operatives	
	(8221) Crane drivers
	(8129) Plant and machine operatives nec
	(8222) Fork-lift truck drivers
	(8229) Mobile machine drivers and operatives nec
17 Plant mechanics/fitters	
	(5223) Metal working production and maintenance fitters
	(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%) 3541

	(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. Construction labour demand for the D2N2 LEP area




Glenigan pipeline consturction labour demand: D2N2 - 2016
Floorers 500
Scaffolders 550
Logistics 600
Civil engineering operatives 650
Steel erectors/structural 750
Plant mechanics/fitters 750
Glaziers 800
Architects 850
Construction project managers 900
Plant operatives 1,050
Construction trades supervisors 1,100
Roofers 1,300
Plasterers and dry liners 1,300
Specialist building operatives 1,450
Civil engineers 1,650
Surveyors 1,650
Non–construction operatives 1,700
Bricklayers 1,750
Painters and decorators 2,200
Building envelope specialists 2,650
Senior, executive, and business process managers 3,500
Electrical trades and installation 3,550
Labourers 3,700
Other construction professionals and technical staff 3,750
Other construction process managers 3,800
Plumbing and heating, ventilation, and air conditioning trades 4,000
Wood trades and interior fit-out 5,750
Non-construction professional, technical, IT, and other office–based staff (excl. managers) 7,500
0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000

Appendix D. Glenigan projects removed and their corresponding local authorities

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

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type	Reason for omission
1	Residential Units	Bassetlaw	-	01/01/2016	28/01/2017	Private Commercial	Missing cost
2	Demolition	Rushcliffe	-			Public Non-housing	Missing value and dates
3	Retail Development (Extension)	Nottingham	200.0			Private Commercial	Missing dates
4	Gas Pipeline	South Derbyshire	90.0			Infrastructure	Missing dates
5	833 Residential Units/Care Home/School/Hotel	Gedling	47.2			Private Commercial	Missing dates
6	510 Houses/40 Flats & 1 Restaurant/Commercial Units	North East Derbyshire	41.3			New Housing	Missing dates
7	Supermarket & Hotel/Restaurant/Cafe Units	High Peak	35.0			Private Commercial	Missing dates
8	445 Residential Units, 1 Care Home, 1 Retirement Unit & 1 Shopping Centre	High Peak	26.9			New Housing	Missing dates
9	149 Houses	Bolsover	11.2			New Housing	Missing dates
10	Warehouse & Office Unit	Ashfield	11.0			Private Industrial	Missing dates
11	Student Accommodation/Retail/Office	Nottingham	8.8			New Housing	Missing dates
12	Production Facility	Ashfield	7.5			Private Industrial	Missing dates
13	Supermarket & Retail Units	High Peak	7.4			Private Commercial	Missing dates
14	90 Houses	Chesterfield	6.8			New Housing	Missing dates
15	57 Houses/12 Flats & 8 Bungalows	North East Derbyshire	5.1			New Housing	Missing dates
16	16,176 Solar Photovoltaic Panels	Bassetlaw	5.0			Infrastructure	Missing dates
17	38 Houses & 22 Bungalows	Ashfield	4.5			New Housing	Missing dates
18	53 Houses	Amber Valley	4.0			New Housing	Missing dates
19	Student Accommodation/Retail Unit	Nottingham	3.8			New Housing	Missing dates
20	5 Supermarket & Retail Units	Rushcliffe	3.5			Private Commercial	Missing dates
21	50 Residential Units	North East Derbyshire	3.4			Private Commercial	Missing dates
22	Solar Farm	Derbyshire Dales	3.0			Infrastructure	Missing dates
23	44 Residential Units	High Peak	3.0			New Housing	Missing dates

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type	Reason for omission
24	Convenience Store	Mansfield	3.0			Private Commercial	Missing dates
25	50 Houses & 8 Commercial Units	Broxtowe	2.9			New Housing	Missing dates
26	48 Houses	Bolsover	2.8			New Housing	Missing dates
27	33 Houses & 4 Flats	Ashfield	2.8			New Housing	Missing dates
28	34 Houses/Bungalows/Flats (New/Conversion)	North East Derbyshire	2.6			New Housing	Missing dates
29	20 Houses	Newark and Sherwood	2.1			New Housing	Missing dates
30	Bypass	Chesterfield	2.0			Infrastructure	Missing dates
31	Business Park (Extension)	Rushcliffe	1.9			Private Industrial	Missing dates
32	20 Houses	Derbyshire Dales	1.5			New Housing	Missing dates
33	24 Houses	Mansfield	1.5			New Housing	Missing dates
34	Church/Community Facilities	Rushcliffe	1.5			Public Non-housing	Missing dates
35	Office & Police Station Building	Bolsover	1.2			Private Commercial	Missing dates
36	Holiday Homes/Leisure Facilities	Derbyshire Dales	1.2			Private Commercial	Missing dates
37	Spectator Stands	Rushcliffe	1.1			Private Commercial	Missing dates
38	Vehicle Sales & Workshop	Nottingham	1.0			Private Commercial	Missing dates
39	Residential Development	Derby	1.0			Private Commercial	Missing dates
40	Vehicle Workshop	Nottingham	1.0			Private Commercial	Missing dates
41	72 Residential Units & 1 Barn/Offices (New/Refurb)	Gedling	1.0			New Housing	Missing dates
42	Hotel (Extension)	Bassetlaw	1.0			Private Commercial	Missing dates
43	13 Houses	Derbyshire Dales	1.0			New Housing	Missing dates
44	Hotel (Conversion)	South Derbyshire	0.9			Private Commercial	Missing dates
45	12 Houses	South Derbyshire	0.9			New Housing	Missing dates
46	Visitor Building	Newark and Sherwood	0.6			Public Non-housing	Missing dates
47	10 Industrial Units	Broxtowe	0.6			Private Industrial	Missing dates

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type	Reason for omission
48	Supermarket & Hot Food Takeaway	Nottingham	0.5			Private Commercial	Missing dates
49	Football Club House (Extension)	Broxtowe	0.4			Public Non-housing	Missing dates
50	Garden Centre (Extension)	Ashfield	0.3			Private Commercial	Missing dates
51	Self Storage/Containers	South Derbyshire	0.3	10/09/2013		Private Industrial	Missing date
52	Specialist Consultancy Services Framework	Derby	32.0	18/01/2016	15/01/2018	Public Non-housing	Consultancy framework
53	Consultancy Services	Nottingham	7.0	04/01/2016	04/07/2016	Public Non-housing	Consultancy framework
54	Consultancy Framework	Nottingham	10.0	01/08/2011	01/10/2016	Public Non-housing	Consultancy framework
55	Shale Gas Exploration	Nottingham	100.0	07/08/2017	05/08/2019	Private Industrial	Consultancy framework
56	327 Houses/Bungalows & 18 Flats	Nottingham	25.9	23/12/2015	19/01/2017	New Housing	Duplicate of 14426344
57	160 Homes	South Derbyshire	12.1	25/01/2013	25/01/2016	New Housing	Duplicate of 14395537
58	114 Student Flats	Nottingham	6.1	21/07/2015	19/07/2016	New Housing	Duplicate of 15256936
59	Employment Development	Doncaster	10.0	16-Nov-15	16-Nov-16	Private Industrial	Removed by D2N2 LEP
60	269 Residential Units/7 Live/Work Units & 1 Care Home/Creche	Erewash	20.9	02-Nov-16	30-Nov-17	New Housing	Removed by D2N2 LEP

Appendix E. Significant Glenigan projects and corresponding local authorities

This sections provides a list of all the significant projects analysed, organised by the local authority within which they occur. The projects appear in the following as they were put into the LFT, broken down into different elements and areas, when required, i.e. if a mixed project was broken down into new housing and private commercial, both elements are included here, each with its corresponding construction value. For this reason, there 250 entries appearing in the following table, as opposed to 180 significant projects identified in Glenigan.

The naming scheme functions as such:

- The prefix D2N2 has been added to all projects.
- The number following that is just an increasing number for distinction purposes.
- The third character if applicable denotes either the breakdown into different project types (when lower case) or different areas (higher case). The letters a, b, c etc. are arbitrarily assigned for distinction purposes.
- The name of the project as it appears in the Glenigan database follows.
- The type of the project appears next, determining which LFT model was used.
- In the case of non-infrastructure projects, a suffix denotes whether the project in question is a new project or repair and maintenance works, to determine which specific LFT model is used. Infrastructure projects are treated as new construction.
- In the case of non-infrastructure projects, the last suffix denotes the duration of the project (short =< 12 months, medium = 12-24 months, long = > 24 months), which determines the labour profile of individual coefficients).

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
1	D2N2-0517 - Scape National Minor Works Framework - General Infrastructure	Nottingham	1,500.0	03/08/2015	05/08/2019	Infrastructure
2	D2N2-0930 - Infrastructure/Roads Framework - Roads	Broxtowe	1,500.0	01/04/2017	01/04/2021	Infrastructure
3	D2N2-0659 - Town Centre Development - Private Commercial - New - short	Mansfield	476.4	25/07/2016	07/03/2017	Private Commercial
4	D2N2-0225 - Leisure & Tourist Resort - Private Commercial - New - long	Chesterfield	400.0	07/08/2017	03/08/2020	Private Commercial
5	D2N2-0309 - Rail Freight Development - Private Commercial - New - long	South Derbyshire	248.3	12/09/2016	12/09/2019	Private Commercial
6	D2N2-0648 - Defence & National Rehabilitation - Public Non-housing - New - long	Rushcliffe	200.0	24/08/2015	24/08/2018	Public Non-housing
7	D2N2-0816 - Housing (Improvement Works) Framework - Housing R&M - R&M - long	Gedling	200.0	02/11/2015	30/12/2019	Housing R&M
8	D2N2-0004 - Minor & Major Construction Framework - Non-housing R&M - R&M - medium	Derby	175.0	07/09/2015	04/09/2017	Non-housing R&M
9	D2N2-0012 - Offices, Hotel & Retail Units - Private Commercial - New - long	Derby	150.0	06/06/2016	03/06/2019	Private Commercial
10	D2N2-0976 - Employment & Distribution Development - Private Commercial - New - short	Bassetlaw	118.5	22/03/2016	25/12/2016	Private Commercial
11	D2N2-0504 - Motorway - Roads	Nottingham	115.0	08/09/2016	09/09/2021	Infrastructure
12	D2N2-0533 - Shopping Centre (Redevelopment) - Private Commercial - New - long	Nottingham	114.0	02/05/2016	29/10/2018	Private Commercial
13	D2N2-0085 - Aerospace Campus - Private Commercial - New - medium	Derby	104.0	08/05/2016	08/06/2017	Private Commercial
14	D2N2-0997a - Employment Park - Private Commercial - New - long	Bassetlaw	100.0	29/08/2016	29/08/2020	Private Commercial
15	D2N2-0997b - Employment Park - Private Commercial - New - long	Bassetlaw	100.0	29/08/2016	29/08/2020	Private Commercial
16	D2N2-0860a - 1800 Residential Units & Commercial Units - New housing - New - medium	Ashfield	99.6	28/02/2016	27/03/2017	New Housing
17	D2N2-0002 - Flood Defence Scheme - Flooding	Derby	82.8	01/12/2015	26/11/2019	Infrastructure

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
18	D2N2-0542 - Commercial Development - Private Commercial - New - long	Nottingham	70.0	02/11/2015	30/04/2018	Private Commercial
19	D2N2-0781a - 450 Residential & Commercial Units - New housing - New - long	Rushcliffe	50.0	02/03/2015	27/02/2023	New Housing
20	D2N2-0781b - 450 Residential & Commercial Units - New housing - New - long	Rushcliffe	50.0	02/03/2015	27/02/2023	New Housing
21	D2N2-0497 - Industrial Building - Private Industrial - New - short	Bolsover	46.7	11/05/2016	12/11/2016	Private Industrial
22	D2N2-0372 - 500 Houses - New housing - New - medium	Amber Valley	37.5	06/06/2016	03/07/2017	New Housing
23	D2N2-0758 - Industrial/Storage/Distribution Development - Private Industrial - New - short	Newark and Sherwood	35.3	12/10/2015	23/04/2016	Private Industrial
24	D2N2-0723 - Waste to Energy - Generation (Energy from Waste)	Newark and Sherwood	35.0	09/05/2016	06/11/2017	Infrastructure
25	D2N2-0860b - 1800 Residential Units & Commercial Units - New housing - New - medium	Ashfield	34.6	28/02/2016	27/03/2017	New Housing
26	D2N2-0923a - 775 Residential/Commercial Units - New housing - New - medium	Broxtowe	34.3	04/01/2016	01/01/2018	New Housing
27	D2N2-0028a - Commercial Development - Private Industrial - New - long	Derby	33.3	02/11/2015	29/10/2018	Private Industrial
28	D2N2-0028b - Commercial Development - Private Industrial - New - long	Derby	33.3	02/11/2015	29/10/2018	Private Industrial
29	D2N2-0028c - Commercial Development - Private Industrial - New - long	Derby	33.3	02/11/2015	29/10/2018	Private Industrial
30	D2N2-0697a - Residential & Commercial - New housing - New - long	Mansfield	32.7	10/08/2015	06/08/2018	New Housing
31	D2N2-0697b - Residential & Commercial - New housing - New - long	Mansfield	32.7	10/08/2015	06/08/2018	New Housing
32	D2N2-0897a - 1120 Residential Units & Commercial - New housing - New - long	Gedling	31.4	01/09/2015	03/09/2019	New Housing
33	D2N2-0897b - 1120 Residential Units & Commercial - New housing	Gedling	31.4	01/09/2015	03/09/2019	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
	- New - long					
34	D2N2-0034a - Commercial Development - Private Commercial - New - medium	Derby	30.8	28/12/2015	28/12/2017	Private Commercial
35	D2N2-0034b - Commercial Development - Private Commercial - New - medium	Derby	30.8	28/12/2015	28/12/2017	Private Commercial
36	D2N2-0034c - Commercial Development - Private Commercial - New - medium	Derby	30.8	28/12/2015	28/12/2017	Private Commercial
37	D2N2-0331 - Care Village - New housing - New - medium	South Derbyshire	30.0	02/02/2015	31/10/2016	New Housing
38	D2N2-0593 - University Sports Hall (Extension) - Public Non-housing - New - medium	Nottingham	30.0	01/06/2015	01/12/2016	Public Non-housing
39	D2N2-0302 - 492 Residential Units/1 Community Unit - New housing - New - long	South Derbyshire	29.4	25/01/2013	25/01/2016	New Housing
40	D2N2-0988a - 10 Commercial Units & Well-Being Centre - Private Commercial - New - short	Bassetlaw	29.3	15/08/2016	15/08/2017	Private Commercial
41	D2N2-0988b - 10 Commercial Units & Well-Being Centre - Private Commercial - New - short	Bassetlaw	29.3	15/08/2016	15/08/2017	Private Commercial
42	D2N2-0792 - Private Hospital - Public Non-housing - New - medium	Rushcliffe	29.0	06/07/2015	03/07/2017	Public Non-housing
43	D2N2-0708a - 750 Residential Units & 1 Commercial/Community Unit - New housing - New - medium	Mansfield	28.2	27/02/2016	26/03/2017	New Housing
44	D2N2-0708b - 750 Residential Units & 1 Commercial/Community Unit - New housing - New - medium	Mansfield	28.2	27/02/2016	26/03/2017	New Housing
45	D2N2-0192 - Historic Building (Restoration) - Non-housing R&M - R&M - medium	High Peak	28.0	04/04/2016	02/04/2018	Non-housing R&M
46	D2N2-0059 - 370 Houses/Flats & 1 Local Centre - New housing - New - medium	Derby	27.8	09/01/2017	05/02/2018	New Housing
47	D2N2-0929 - 450 Residential Units - New housing - New - long	Broxtowe	26.4	05/12/2016	08/04/2019	New Housing
48	D2N2-0388 - 350 Residential Units - New housing - New - medium	Erewash	26.3	07/03/2016	03/04/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
49	D2N2-0616 - 327 Houses & 18 Flats - New housing - New - medium	Nottingham	25.9	14/12/2015	09/01/2017	New Housing
50	D2N2-0532 - Museum (Redevelopment) - Public Non-housing - New - medium	Nottingham	24.0	15/08/2016	15/08/2018	Public Non-housing
51	D2N2-0682 - 261 Houses/Bungalows & 52 Flats - New housing - New - medium	Mansfield	23.5	06/05/2018	07/05/2019	New Housing
52	D2N2-0519 - Incubator Facility - Public Non-housing - New - medium	Nottingham	23.0	04/05/2015	31/10/2016	Public Non-housing
53	D2N2-0228 - 300 Houses - New housing - New - medium	Chesterfield	22.5	25/02/2016	24/03/2017	New Housing
54	D2N2-0306 - 300 Houses - New housing - New - medium	South Derbyshire	22.5	11/05/2016	11/06/2017	New Housing
55	D2N2-0545 - Demolition/Earthworks/Remediation - General Infrastructure	Nottingham	22.0	05/10/2015	05/01/2017	Infrastructure
56	D2N2-0822a - 903 Homes & Business Park - Private Commercial - New - long	Ashfield	21.1	20/07/2015	16/07/2018	Private Commercial
57	D2N2-0822b - 903 Homes & Business Park - Private Commercial - New - long	Ashfield	21.1	20/07/2015	16/07/2018	Private Commercial
58	D2N2-0822c - 903 Homes & Business Park - Private Commercial - New - long	Ashfield	21.1	20/07/2015	16/07/2018	Private Commercial
59	D2N2-0791 - 254 Houses & 26 Flats - New housing - New - medium	Rushcliffe	21.0	04/03/2016	01/04/2017	New Housing
60	D2N2-0055a - 700 Residential/Commercial Units - New housing - New - medium	Derby	20.5	01/06/2015	01/06/2017	New Housing
61	D2N2-0055b - 700 Residential/Commercial Units - New housing - New - medium	Derby	20.5	01/06/2015	01/06/2017	New Housing
62	D2N2-0878 - 271 Houses - New housing - New - medium	Rushcliffe	20.3	28/04/2016	26/05/2017	New Housing
63	D2N2-0097 - 252 Houses/Flats & Bungalows - New housing - New - medium	Derby	18.9	11/11/2016	09/12/2017	New Housing
64	D2N2-0015 - 250 Houses - New housing - New - medium	Derby	18.8	18/06/2016	16/07/2017	New Housing
65	D2N2-0246 - 250 Houses/Bungalows - New housing - New - medium	North East Derbyshire	18.8	28/12/2015	23/01/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
66	D2N2-0771 - 227 Houses/14 Flats & 9 Bungalows - New housing - New - medium	Rushcliffe	18.8	11/02/2016	10/03/2017	New Housing
67	D2N2-0278b - Industrial Warehouse Unit - Private Industrial - New - medium	North East Derbyshire	18.7	09/11/2015	18/07/2017	Private Industrial
68	D2N2-0491 - 306 Houses - New housing - New - medium	South Derbyshire	18.7	09/06/2014	06/06/2016	New Housing
69	D2N2-0522 - 152 Student Flats (Conversion) - Non-housing R&M - R&M - medium	Nottingham	18.4	07/12/2015	16/01/2017	Non-housing R&M
70	D2N2-0349 - Secondary School - Public Non-housing - New - medium	High Peak	18.0	01/04/2016	01/04/2018	Public Non-housing
71	D2N2-0909 - 290 Residential Units - New housing - New - medium	Broxtowe	18.0	15/09/2014	12/09/2016	New Housing
72	D2N2-0311 - 3 Warehouse & Garage/Maintenance Buildings - Private Industrial - New - short	South Derbyshire	16.5	18/01/2016	25/07/2016	Private Industrial
73	D2N2-0323a - 979 Residential & 3 Commercial Units - New housing - New - long	South Derbyshire	16.4	25/01/2016	21/01/2019	New Housing
74	D2N2-0323b - 979 Residential & 3 Commercial Units - New housing - New - long	South Derbyshire	16.4	25/01/2016	21/01/2019	New Housing
75	D2N2-0323c - 979 Residential & 3 Commercial Units - New housing - New - long	South Derbyshire	16.4	25/01/2016	21/01/2019	New Housing
76	D2N2-0122 - 170 Residential Units - New housing - New - medium	Bolsover	15.9	07/11/2015	07/08/2017	New Housing
77	D2N2-0625 - 214 Student Flats (New/Alterations) - Public Non-housing - New - medium	Nottingham	15.7	04/01/2016	13/02/2017	Public Non-housing
78	D2N2-0804 - 4 Poultry Building - Private Commercial - New - short	Rushcliffe	15.5	13/06/2016	24/12/2016	Private Commercial
79	D2N2-0905a - 325 Flats/25 Houses & Commercial Units - New housing - New - medium	Gedling	15.5	15/05/2016	12/06/2017	New Housing
80	D2N2-0759 - School - Public Non-housing - New - medium	Newark and Sherwood	15.5	03/11/2014	08/08/2016	Public Non-housing
81	D2N2-0733c - Storage & Distribution/Solar Farm - Private Industrial - New - short	Newark and Sherwood	15.2	13/04/2015	13/04/2016	Private Industrial

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
82	D2N2-0106a - 605 Residential/Commercial Development - New housing - New - medium	Amber Valley	15.1	04/03/2016	01/04/2017	New Housing
83	D2N2-0106b - 605 Residential/Commercial Development - New housing - New - medium	Amber Valley	15.1	04/03/2016	01/04/2017	New Housing
84	D2N2-0106c - 605 Residential/Commercial Development - New housing - New - medium	Amber Valley	15.1	04/03/2016	01/04/2017	New Housing
85	D2N2-0963 - 201 Residential Units - New housing - New - medium	Ashfield	15.1	27/02/2016	26/03/2017	New Housing
86	D2N2-0099 - 192 Houses & 8 Flats - New housing - New - medium	Derby	15.0	20/05/2016	17/06/2017	New Housing
87	D2N2-0116 - 200 Houses - New housing - New - medium	Amber Valley	15.0	21/11/2015	18/12/2016	New Housing
88	D2N2-0475a - 400 Residential Units - New housing - New - medium	South Derbyshire	15.0	11/12/2015	07/01/2017	New Housing
89	D2N2-0475b - 400 Residential Units - New housing - New - medium	South Derbyshire	15.0	11/12/2015	07/01/2017	New Housing
90	D2N2-0499 - 250 Houses - New housing - New - medium	Bolsover	15.0	12/10/2015	09/10/2017	New Housing
91	D2N2-0757 - School - Public Non-housing - New - short	Newark and Sherwood	15.0	31/03/2016	31/03/2017	Public Non-housing
92	D2N2-0662 - Church Building - Public Non-housing - New - medium	Mansfield	14.8	11/04/2016	11/05/2017	Public Non-housing
93	D2N2-0637 - School - Public Non-housing - New - medium	Bassetlaw	14.0	01/02/2016	01/01/2018	Public Non-housing
94	D2N2-0120b - Office/Industrial/Warehouse & Distribution Unit - Private Commercial - New - short	Amber Valley	13.8	25/11/2015	29/08/2016	Private Commercial
95	D2N2-0049 - School - Public Non-housing - New - medium	Derby	13.5	02/03/2015	30/05/2016	Public Non-housing
96	D2N2-0940b - 198 Houses/Employment Units - New housing - New - medium	Bassetlaw	13.5	01/01/2016	01/02/2017	New Housing
97	D2N2-0783 - 163 Houses & 12 Flats - New housing - New - medium	Rushcliffe	13.1	15/08/2016	11/09/2017	New Housing
98	D2N2-0852 - 3 Industrial/Warehouse Units - Private Industrial - New - short	Broxtowe	13.0	31/05/2016	11/12/2016	Private Industrial
99	D2N2-0456 - Police & Fire Headquarters - Public Non-housing - New - medium	Amber Valley	13.0	03/08/2015	08/05/2017	Public Non-housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
100	D2N2-0719 - Theme Park - Private Commercial - New - short	Newark and Sherwood	13.0	01/02/2016	30/01/2017	Private Commercial
101	D2N2-0819 - 171 Houses - New housing - New - medium	Ashfield	12.8	24/08/2015	19/09/2016	New Housing
102	D2N2-0627a - 675 Homes & Commercial Units - New housing - New - medium	Nottingham	12.7	14/11/2015	11/12/2016	New Housing
103	D2N2-0627b - 675 Homes & Commercial Units - New housing - New - medium	Nottingham	12.7	14/11/2015	11/12/2016	New Housing
104	D2N2-0627c - 675 Homes & Commercial Units - New housing - New - medium	Nottingham	12.7	14/11/2015	11/12/2016	New Housing
105	D2N2-0627d - 675 Homes & Commercial Units - New housing - New - medium	Nottingham	12.7	14/11/2015	11/12/2016	New Housing
106	D2N2-0990 - Care Home - Public Non-housing - New - medium	Bassetlaw	12.6	26/11/2015	26/06/2017	Public Non-housing
107	D2N2-0942 - 198 Residential Units - New housing - New - medium	Bassetlaw	12.1	22/09/2014	20/06/2016	New Housing
108	D2N2-0021 - Student Accommodation - Public Non-housing - New - medium	Derby	11.7	13/04/2015	17/10/2016	Public Non-housing
109	D2N2-0410 - 153 Houses - New housing - New - medium	Bolsover	11.5	28/12/2015	28/01/2017	New Housing
110	D2N2-0768 - Infrastructure Works (Phase 1) - General Infrastructure	Newark and Sherwood	11.4	05/05/2015	03/05/2016	Infrastructure
111	D2N2-0557 - Student Accommodation (New/Conversion) - Public Non-housing - New - medium	Nottingham	11.3	26/10/2015	05/12/2016	Public Non-housing
112	D2N2-0252 - 150 Residential Units - New housing - New - medium	Chesterfield	11.3	16/08/2015	12/09/2016	New Housing
113	D2N2-0564 - 150 Houses - New housing - New - medium	Nottingham	11.3	08/02/2016	06/03/2017	New Housing
114	D2N2-0854 - 150 Houses - New housing - New - medium	Broxtowe	11.3	29/08/2016	25/09/2017	New Housing
115	D2N2-0899 - 150 Houses - New housing - New - medium	Gedling	11.3	30/04/2016	27/05/2017	New Housing
116	D2N2-0419a - 220 Houses & 32 Offices/1 Restaurant/1 Pub - New housing - New - medium	Derbyshire Dales	11.2	20/11/2015	17/12/2016	New Housing
117	D2N2-0024 - 27 Industrial Units - Private Industrial - New - short	Derby	11.1	19/01/2015	19/01/2016	Private Industrial
118	D2N2-0538 - University Multifunctional Education Unit - Public	Nottingham	11.0	03/06/2014	01/12/2015	Public Non-housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
	Non-housing - New - medium					
119	D2N2-0592 - Housing - New housing - New - short	Nottingham	11.0	27/07/2015	25/07/2016	New Housing
120	D2N2-0885 - Civil Office & Leisure Centre (Extension/Alterations) - Public Non-housing - New - medium	Rushcliffe	11.0	03/08/2015	31/10/2016	Public Non-housing
121	D2N2-0235 - 146 Houses - New housing - New - medium	Chesterfield	11.0	27/04/2016	25/05/2017	New Housing
122	D2N2-0109 - 145 Houses - New housing - New - medium	Bolsover	10.9	17/01/2016	13/02/2017	New Housing
123	D2N2-0042 - Industrial/Warehouse & Office Units - Private Industrial - New - short	Derby	10.8	26/05/2015	26/05/2016	Private Industrial
124	D2N2-0198 - 53 Care Flats & Dementia Care Facility - Public Non-housing - New - short	High Peak	10.7	07/11/2016	07/08/2017	Public Non-housing
125	D2N2-0577 - School - Public Non-housing - New - medium	Nottingham	10.4	21/09/2015	21/03/2017	Public Non-housing
126	D2N2-0202a - 275 Residential Units & 1 Creche/Sports Pavilion - New housing - New - medium	High Peak	10.4	23/01/2017	19/02/2018	New Housing
127	D2N2-0202b - 275 Residential Units & 1 Creche/Sports Pavilion - New housing - New - medium	High Peak	10.4	23/01/2017	19/02/2018	New Housing
128	D2N2-0887 - Supermarket & Petrol Filling Station - Private Commercial - New - short	Rushcliffe	10.1	07/03/2016	07/01/2017	Private Commercial
129	D2N2-0378 - 160 Residential Units - New housing - New - medium	High Peak	10.1	17/08/2015	09/01/2017	New Housing
130	D2N2-0092a - 4 Commercial Units - Private Commercial - New - medium	Derby	10.0	19/02/2016	19/11/2017	Private Commercial
131	D2N2-0092b - 4 Commercial Units - Private Commercial - New - medium	Derby	10.0	19/02/2016	19/11/2017	Private Commercial
132	D2N2-0226 - University - Non-housing R&M - R&M - short	Chesterfield	10.0	16/11/2015	05/08/2016	Non-housing R&M
133	D2N2-0274 - Hospital (Extension/Refurbishment) - Public Non-housing - New - medium	North East Derbyshire	10.0	14/12/2015	13/02/2017	Public Non-housing
134	D2N2-0587 - 142 Houses - New housing - New - short	Nottingham	10.0	19/10/2015	17/10/2016	New Housing
135	D2N2-0144 - 111 Houses/12 Bungalows & 8 Flats - New housing - New - medium	Derbyshire Dales	9.8	28/09/2015	24/10/2016	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
136	D2N2-0102a - 450 Residential & 6 Commercial Units - New housing - New - medium	Derby	9.8	15/10/2015	12/10/2017	New Housing
137	D2N2-0102b - 450 Residential & 6 Commercial Units - New housing - New - medium	Derby	9.8	15/10/2015	12/10/2017	New Housing
138	D2N2-0102c - 450 Residential & 6 Commercial Units - New housing - New - medium	Derby	9.8	15/10/2015	12/10/2017	New Housing
139	D2N2-0626 - 104 Houses & 26 Flats - New housing - New - short	Nottingham	9.8	18/05/2015	18/05/2016	New Housing
140	D2N2-0699 - 130 Houses - New housing - New - medium	Mansfield	9.8	03/10/2016	30/10/2017	New Housing
141	D2N2-0983 - 129 Holiday Lodges - Private Commercial - New - medium	Bassetlaw	9.7	06/06/2016	03/07/2017	Private Commercial
142	D2N2-0084 - V Shop Manufacturing Facility - Private Industrial - New - medium	Derby	9.3	15/01/2015	08/04/2016	Private Industrial
143	D2N2-0007 - 45 Student Flats - Public Non-housing - New - medium	Derby	9.3	14/09/2016	26/10/2017	Public Non-housing
144	D2N2-0799a - 551 Residential/Live/Work/School/Commercial Units - New housing - New - medium	Rushcliffe	9.2	04/04/2016	01/05/2017	New Housing
145	D2N2-0799b - 551 Residential/Live/Work/School/Commercial Units - New housing - New - medium	Rushcliffe	9.2	04/04/2016	01/05/2017	New Housing
146	D2N2-0799c - 551 Residential/Live/Work/School/Commercial Units - New housing - New - medium	Rushcliffe	9.2	04/04/2016	01/05/2017	New Housing
147	D2N2-0766 - Leisure Centre - Private Commercial - New - short	Newark and Sherwood	9.0	20/04/2015	29/01/2016	Private Commercial
148	D2N2-0248a - 124 Houses/12 Flats & 1 Retail Unit - New housing - New - medium	North East Derbyshire	9.0	03/11/2016	01/12/2017	New Housing
149	D2N2-0782 - 116 Houses/Flats & Bungalows - New housing - New - medium	Rushcliffe	8.7	16/03/2015	11/04/2016	New Housing
150	D2N2-0050 - University Science/Engineering Building (Extension) - Public Non-housing - New - medium	Derby	8.7	04/01/2016	13/03/2017	Public Non-housing
151	D2N2-0145 - 115 Houses/Townhouses & Bungalows - New housing	Derbyshire	8.6	17/07/2016	14/08/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
	- New - medium	Dales				
152	D2N2-0038 - 5 Industrial Buildings - Private Industrial - New - medium	Derby	8.5	05/10/2015	17/10/2016	Private Industrial
153	D2N2-0098 - 113 Residential Units - New housing - New - medium	Derby	8.5	14/09/2016	12/10/2017	New Housing
154	D2N2-0985 - 111 Houses - New housing - New - medium	Bassetlaw	8.3	23/06/2016	21/07/2017	New Housing
155	D2N2-0057 - 71 Houses & 39 Flats - New housing - New - medium	Derby	8.3	15/06/2015	11/07/2016	New Housing
156	D2N2-0171 - 74 Houses & 33 Flats - New housing - New - medium	Amber Valley	8.0	11/04/2016	08/05/2017	New Housing
157	D2N2-0457 - Warehouse - Private Industrial - New - short	Amber Valley	8.0	11/05/2016	12/11/2016	Private Industrial
158	D2N2-0893 - Supermarket/Petrol Station/Employment Units - Private Commercial - New - short	Gedling	8.0	23/05/2016	23/01/2017	Private Commercial
159	D2N2-0247 - 105 Houses - New housing - New - medium	North East Derbyshire	7.9	06/11/2016	04/12/2017	New Housing
160	D2N2-0377 - 105 Residential Units - New housing - New - medium	High Peak	7.9	08/02/2016	06/03/2017	New Housing
161	D2N2-0962 - Production/Warehouse Building - Private Industrial - New - short	Ashfield	7.9	14/12/2015	25/06/2016	Private Industrial
162	D2N2-0370a - 310 Residential/Commercial & Leisure Units - New housing - New - medium	Amber Valley	7.8	07/08/2017	07/08/2019	New Housing
163	D2N2-0370b - 310 Residential/Commercial & Leisure Units - New housing - New - medium	Amber Valley	7.8	07/08/2017	07/08/2019	New Housing
164	D2N2-0370c - 310 Residential/Commercial & Leisure Units - New housing - New - medium	Amber Valley	7.8	07/08/2017	07/08/2019	New Housing
165	D2N2-0884 - 89 Houses & 14 Flats - New housing - New - short	Rushcliffe	7.7	30/12/2015	30/12/2016	New Housing
166	D2N2-0395 - 101 Houses - New housing - New - medium	Amber Valley	7.6	11/05/2016	11/06/2017	New Housing
167	D2N2-0502 - 100 Houses & 1 Community/Leisure Centre - New housing - New - medium	Bolsover	7.6	04/01/2017	01/02/2018	New Housing
168	D2N2-0183 - 100 Houses/Bungalows - New housing - New - medium	South Derbyshire	7.5	21/03/2016	17/04/2017	New Housing
169	D2N2-0186 - 100 Residential Units - New housing - New - medium	South	7.5	17/01/2016	13/02/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
		Derbyshire				
170	D2N2-0419b - 220 Houses & 32 Offices/1 Restaurant/1 Pub - New housing - New - medium	Derbyshire Dales	7.5	20/11/2015	17/12/2016	New Housing
171	D2N2-0541 - 4 Office/Retail/Car Showroom/Data Centre Units - Private Commercial - New - short	Nottingham	7.4	07/12/2015	05/09/2016	Private Commercial
172	D2N2-0320 - 95 Houses & 3 Flats - New housing - New - medium	South Derbyshire	7.4	26/10/2016	23/11/2017	New Housing
173	D2N2-0733b - Storage & Distribution/Solar Farm - Private Industrial - New - short	Newark and Sherwood	7.3	13/04/2015	13/04/2016	Private Industrial
174	D2N2-0310a - 485 Houses & 8 Commercial Units - New housing - New - medium	South Derbyshire	7.3	07/09/2015	04/09/2017	New Housing
175	D2N2-0310b - 485 Houses & 8 Commercial Units - New housing - New - medium	South Derbyshire	7.3	07/09/2015	04/09/2017	New Housing
176	D2N2-0310c - 485 Houses & 8 Commercial Units - New housing - New - medium	South Derbyshire	7.3	07/09/2015	04/09/2017	New Housing
177	D2N2-0310d - 485 Houses & 8 Commercial Units - New housing - New - medium	South Derbyshire	7.3	07/09/2015	04/09/2017	New Housing
178	D2N2-0027 - School - Public Non-housing - New - short	Derby	7.2	20/02/2017	19/02/2018	Public Non-housing
179	D2N2-0053 - School - Public Non-housing - New - short	Derby	7.2	20/02/2017	19/02/2018	Public Non-housing
180	D2N2-0283 - School - Public Non-housing - New - short	North East Derbyshire	7.2	20/02/2017	19/02/2018	Public Non-housing
181	D2N2-0440 - School - Public Non-housing - New - short	Erewash	7.2	27/02/2017	26/02/2018	Public Non-housing
182	D2N2-0454 - School - Public Non-housing - New - short	Amber Valley	7.2	27/02/2017	26/02/2018	Public Non-housing
183	D2N2-0483 - School - Public Non-housing - New - short	South Derbyshire	7.2	20/02/2017	19/02/2018	Public Non-housing
184	D2N2-0607 - School - Public Non-housing - New - short	Nottingham	7.2	08/02/2016	08/02/2017	Public Non-housing
185	D2N2-0745 - School - Public Non-housing - New - short	Newark and Sherwood	7.2	08/02/2016	08/02/2017	Public Non-housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
186	D2N2-0914a - 285 Houses/Flats & 3 Industrial/Office/Commercial Units - New housing - New - medium	Broxtowe	7.2	31/03/2016	27/04/2017	New Housing
187	D2N2-0914b - 285 Houses/Flats & 3 Industrial/Office/Commercial Units - New housing - New - medium	Broxtowe	7.2	31/03/2016	27/04/2017	New Housing
188	D2N2-0914c - 285 Houses/Flats & 3 Industrial/Office/Commercial Units - New housing - New - medium	Broxtowe	7.2	31/03/2016	27/04/2017	New Housing
189	D2N2-0559 - Workshop/Office (Conversion) - Non-housing R&M - R&M - short	Nottingham	7.0	11/05/2015	11/12/2015	Non-housing R&M
190	D2N2-0350 - 93 Houses - New housing - New - short	High Peak	7.0	25/12/2017	22/10/2018	New Housing
191	D2N2-0923b - 775 Residential/Commercial Units - New housing - New - medium	Broxtowe	6.6	04/01/2016	01/01/2018	New Housing
192	D2N2-0599 - Multi Storey Car Park & Helipad - Private Commercial - New - short	Nottingham	6.2	07/09/2015	23/05/2016	Private Commercial
193	D2N2-0512 - Student Accommodation - Public Non-housing - New - short	Nottingham	6.1	06/07/2015	06/01/2016	Public Non-housing
194	D2N2-0249a - 159 Houses & 1 Retail Unit - New housing - New - medium	North East Derbyshire	6.0	24/03/2016	24/12/2017	New Housing
195	D2N2-0249b - 159 Houses & 1 Retail Unit - New housing - New - medium	North East Derbyshire	6.0	24/03/2016	24/12/2017	New Housing
196	D2N2-0746 - Council Office - Public Non-housing - New - short	Newark and Sherwood	6.0	28/10/2016	17/08/2017	Public Non-housing
197	D2N2-0316 - School - Public Non-housing - New - short	South Derbyshire	5.5	12/06/2016	06/03/2017	Public Non-housing
198	D2N2-0991 - Storage Building (Extension/Alterations) - Private Industrial - New - short	Bassetlaw	5.4	12/07/2016	22/01/2017	Private Industrial
199	D2N2-0086 - Care Home - Public Non-housing - New - short	Derby	5.2	14/10/2015	18/07/2016	Public Non-housing
200	D2N2-0645 - Railway Station - Stations (Underground/Network rail)	Broxtowe	5.2	06/04/2016	05/10/2016	Infrastructure
201	D2N2-0707 - 3 Light Industry/General Industry/Warehouse Units -	Mansfield	5.2	01/12/2015	12/06/2016	Private Industrial

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
	Private Industrial - New - short					
202	D2N2-0856 - School - Public Non-housing - New - short	Broxtowe	5.0	16/05/2016	09/01/2017	Public Non-housing
203	D2N2-0921 - School - Public Non-housing - New - short	Broxtowe	5.0	11/04/2016	05/12/2016	Public Non-housing
204	D2N2-0313 - Light Industry/Storage/Distribution - Private Industrial - New - short	South Derbyshire	4.9	07/09/2015	14/03/2016	Private Industrial
205	D2N2-0335 - 2 Poultry Buildings - Private Commercial - New - short	South Derbyshire	4.9	15/10/2015	26/04/2016	Private Commercial
206	D2N2-0425 - Hotel - Private Commercial - New - short	Derbyshire Dales	4.5	13/07/2015	13/02/2016	Private Commercial
207	D2N2-0163 - Hotel & Restaurant/Leisure Units - Private Commercial - New - short	Derbyshire Dales	4.1	11/07/2016	21/02/2017	Private Commercial
208	D2N2-0294 - Energy Recovery Facility - Generation (Energy from Waste)	North East Derbyshire	4.0	09/05/2016	15/02/2017	Infrastructure
209	D2N2-0509 - Housing (Alterations) - Housing R&M - R&M - short	Nottingham	4.0	21/12/2015	20/06/2016	Housing R&M
210	D2N2-0009a - 147 Flats (Conversion) - Housing R&M - R&M - medium	Derby	3.7	23/07/2016	20/08/2017	Housing R&M
211	D2N2-0009b - 147 Flats (Conversion) - Housing R&M - R&M - medium	Derby	3.7	23/07/2016	20/08/2017	Housing R&M
212	D2N2-0120a - Office/Industrial/Warehouse & Distribution Unit - Private Commercial - New - short	Amber Valley	3.5	25/11/2015	29/08/2016	Private Commercial
213	D2N2-0096 - Factory (Refurbishment) - Non-housing R&M - R&M - short	Derby	3.5	01/09/2015	11/12/2015	Non-housing R&M
214	D2N2-0923c - 775 Residential/Commercial Units - New housing - New - medium	Broxtowe	3.4	04/01/2016	01/01/2018	New Housing
215	D2N2-0508H - Contractor Framework Agreement 2014 - New housing - New - long	City of Nottingham	2.8	07/09/2015	09/09/2019	New Housing
216	D2N2-0657C - 95 Extra Care Housing Units - New housing - New - short	Ashfield	2.8	04/01/2016	02/01/2017	New Housing
217	D2N2-0657B - 95 Extra Care Housing Units - New housing - New -	Bassetlaw	2.6	04/01/2016	02/01/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
	short					
218	D2N2-0657A - 95 Extra Care Housing Units - New housing - New - short	Broxtowe	2.6	04/01/2016	02/01/2017	New Housing
219	D2N2-0179 - MOT Service Station (New/Alterations) - Private Industrial - New - short	Amber Valley	2.5	14/06/2016	06/09/2016	Private Industrial
220	D2N2-0503a - 90 Houses/5 Bungalows & 3 Industrial Units - New housing - New - medium	Bolsover	2.5	25/06/2016	23/07/2017	New Housing
221	D2N2-0503b - 90 Houses/5 Bungalows & 3 Industrial Units - New housing - New - medium	Bolsover	2.5	25/06/2016	23/07/2017	New Housing
222	D2N2-0503c - 90 Houses/5 Bungalows & 3 Industrial Units - New housing - New - medium	Bolsover	2.5	25/06/2016	23/07/2017	New Housing
223	D2N2-0508Q - Contractor Framework Agreement 2014 - New housing - New - long	City of Derby	2.3	07/09/2015	09/09/2019	New Housing
224	D2N2-0334a - Childers Recreational Camp (Extension) - Public Non-housing - New - short	South Derbyshire	2.2	26/01/2016	07/09/2016	Public Non-housing
225	D2N2-0334b - Childers Recreational Camp (Extension) - Public Non-housing - New - short	South Derbyshire	2.2	26/01/2016	07/09/2016	Public Non-housing
226	D2N2-0905b - 325 Flats/25 Houses & Commercial Units - New housing - New - medium	Gedling	2.0	15/05/2016	12/06/2017	New Housing
227	D2N2-0162a - 3 Supermarket & Retail/Industrial Units - Private Commercial - New - short	Derbyshire Dales	1.6	18/06/2016	15/01/2017	Private Commercial
228	D2N2-0162b - 3 Supermarket & Retail/Industrial Units - Private Commercial - New - short	Derbyshire Dales	1.6	18/06/2016	15/01/2017	Private Commercial
229	D2N2-0162c - 3 Supermarket & Retail/Industrial Units - Private Commercial - New - short	Derbyshire Dales	1.6	18/06/2016	15/01/2017	Private Commercial
230	D2N2-0940a - 198 Houses/Employment Units - New housing - New - medium	Bassetlaw	1.4	01/01/2016	01/02/2017	New Housing
231	D2N2-0248b - 124 Houses/12 Flats & 1 Retail Unit - New housing - New - medium	North East Derbyshire	1.3	03/11/2016	01/12/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
232	D2N2-0278a - Industrial Warehouse Unit - Private Industrial - New - medium	North East Derbyshire	1.3	09/11/2015	18/07/2017	Private Industrial
233	D2N2-0508M - Contractor Framework Agreement 2014 - New housing - New - long	Amber Valley	1.1	07/09/2015	09/09/2019	New Housing
234	D2N2-0508C - Contractor Framework Agreement 2014 - New housing - New - long	Ashfield	1.1	07/09/2015	09/09/2019	New Housing
235	D2N2-0508E - Contractor Framework Agreement 2014 - New housing - New - long	Newark and Sherwood	1.1	07/09/2015	09/09/2019	New Housing
236	D2N2-0733a - Storage & Distribution/Solar Farm - Private Industrial - New - short	Newark and Sherwood	1.0	13/04/2015	13/04/2016	Private Industrial
237	D2N2-0508D - Contractor Framework Agreement 2014 - New housing - New - long	Gedling	1.0	07/09/2015	09/09/2019	New Housing
238	D2N2-0508L - Contractor Framework Agreement 2014 - New housing - New - long	Erewash	1.0	07/09/2015	09/09/2019	New Housing
239	D2N2-0508G - Contractor Framework Agreement 2014 - New housing - New - long	Bassetlaw	1.0	07/09/2015	09/09/2019	New Housing
240	D2N2-0508A - Contractor Framework Agreement 2014 - New housing - New - long	Rushcliffe	1.0	07/09/2015	09/09/2019	New Housing
241	D2N2-0508B - Contractor Framework Agreement 2014 - New housing - New - long	Broxtowe	1.0	07/09/2015	09/09/2019	New Housing
242	D2N2-0508F - Contractor Framework Agreement 2014 - New housing - New - long	Mansfield	1.0	07/09/2015	09/09/2019	New Housing
243	D2N2-0508O - Contractor Framework Agreement 2014 - New housing - New - long	Chesterfield	0.9	07/09/2015	09/09/2019	New Housing
244	D2N2-0508N - Contractor Framework Agreement 2014 - New housing - New - long	North East Derbyshire	0.9	07/09/2015	09/09/2019	New Housing
245	D2N2-0508K - Contractor Framework Agreement 2014 - New housing - New - long	South Derbyshire	0.9	07/09/2015	09/09/2019	New Housing
246	D2N2-0860c - 1800 Residential Units & Commercial Units - New housing - New - medium	Ashfield	0.8	28/02/2016	27/03/2017	New Housing

Number	Description	Local Authority	Value (£m)	Start Date	End Date	Project Type
247	D2N2-0508I - Contractor Framework Agreement 2014 - New housing - New - long	High Peak	0.8	07/09/2015	09/09/2019	New Housing
248	D2N2-0508P - Contractor Framework Agreement 2014 - New housing - New - long	Bolsover	0.7	07/09/2015	09/09/2019	New Housing
249	D2N2-0508J - Contractor Framework Agreement 2014 - New housing - New - long	Derbyshire Dales	0.6	07/09/2015	09/09/2019	New Housing
250	D2N2-0419c - 220 Houses & 32 Offices/1 Restaurant/1 Pub - New housing - New - medium	Derbyshire Dales	0.4	20/11/2015	17/12/2016	New Housing

Appendix F. Construction labour demand for each occupational group

Occupation	Total construction labour demand arising from the construction spend in the LEP	
	Average workforce during year of peak	Peak workforce
Senior, executive, and business process managers	3,500	5,500
Construction project managers	900	1,400
Other construction process managers	3,800	5,950
Non-construction professional, technical, IT, and other office–based staff (excl. managers)	7,500	11,750
Construction trades supervisors	1,100	1,750
Wood trades and interior fit-out	5,750	9,050
Bricklayers	1,750	2,750
Building envelope specialists	2,650	4,150
Painters and decorators	2,200	4,950
Plasterers and dry liners	1,300	2,550
Roofers	1,300	2,250
Floorers	500	1,300
Glaziers	800	1,750
Specialist building operatives not elsewhere classified (nec*)	1,450	2,300
Scaffolders	550	950
Plant operatives	1,050	1,650
Plant mechanics/fitters	750	1,150
Steel erectors/structural	750	1,300
Labourers nec*	3,700	5,850

Occupation	Total construction labour demand arising from the construction spend in the LEP	
	Average workforce during year of peak	Peak workforce
Electrical trades and installation	3,550	6,300
Plumbing and heating, ventilation, and air conditioning trades	4,000	5,950
Logistics	600	950
Civil engineering operatives not elsewhere classified (nec*)	650	1,150
Non–construction operatives	1,700	2,700
Civil engineers	1,650	2,550
Other construction professionals and technical staff	3,750	5,900
Architects	850	1,400
Surveyors	1,650	2,600
Total	**59,650**	**93,550**

Appendix G. Training provider overview

Provider	Website	Apprenticeships/ Traineeships/New Entrants
Derbyshire County Council – Highways Training Centre	https://www.derbyshire.gov.uk/transport_roads/roads_traffic/contract_services/training/default.asp	
Derby College	http://www.derby-college.ac.uk/	Advanced Apprenticeship in Brickwork Intermediate Apprenticeship Construction Operations – Groundwork Intermediate Apprenticeship in Brickwork Intermediate Apprenticeship in Maintenance Operations Advanced Apprenticeship in Bench Joinery Advanced Apprenticeship in Wood Occupations Intermediate Apprenticeship in Bench Joinery Intermediate Apprenticeship in Wood Occupations Advanced Apprenticeship in Painting and Decorating Intermediate Apprenticeship in Painting and Decorating Intermediate Apprenticeship in Plastering
Chesterfield College	https://www.chesterfield.ac.uk/	
Vision West Nottinghamshire College	http://www.wnc.ac.uk/	
City College Nottingham	http://citycollegenottingham.com/	
Stephenson College	http://www.stephensoncoll.ac.uk/	Advanced Apprenticeship in Construction and the Built Environment Level 3 Advanced Apprenticeship in Decorative Occupations Advanced Apprenticeship Site Wood Occupations Level 3 Advanced Apprenticeship Trowel Occupations Apprenticeship in Decorative Occupations

Provider	Website	Apprenticeships/ Traineeships/New Entrants
		Apprenticeship in Trowel Occupations Apprenticeship Wood Occupations Site Level 2 Apprenticeship Wood Occupations Bench Level 2

Provider	Website	Apprenticeships/ Traineeships/New Entrants
North Nottinghamshire College	http://www.nnc.ac.uk/	Bricklaying Logistics
Central College Nottingham	http://www.centralnottingham.ac.uk/	Apprenticeship in Bench Joinery (Level 2) Advanced Apprenticeship in Bench Joinery (Level 3) Apprenticeship in Bricklaying (Level 2) Advanced Apprenticeship in Bricklaying (Level 3) Apprenticeship in Building Maintenance (Level 2) Apprenticeship in Construction Operations (Level 2) Apprenticeship in Painting and Decorating (Level 2) Advanced Apprenticeship in Painting and Decorating (Level 3) Apprenticeship in Plastering (Level 2) Advanced Apprenticeship in Plastering (Level 3) Apprenticeship in Plumbing (Level 2) Apprenticeship in Site Carpentry (Level 2) Advanced Apprenticeship in Site Carpentry (Level 3)
Carillion Craft Training - Nottingham	http://www.carillionplc.com/construction-apprenticeships.aspx#.VsL_HyCLSM8	Bricklaying (Level 2 & Level 3) Carpentry and Joinery (Level 2 & Level 3) Painting and Decorating (Level 2 & Level 3) General Construction Operations (Level 2 only) Plastering (Level 2 & Level 3) Interior Systems (Level 2 only)
New College Nottingham	https://www.ncn.ac.uk/	Painting & Decorating Diploma – Levels 1 & 2 Plastering Diploma – Levels 1 & 2

Provider	Website	Apprenticeships/ Traineeships/New Entrants
		Maintenance Operations Diploma – Level 2 Diploma In Basic Construction Skills – Level 1 Carpentry & Joinery Diploma – Levels 1& 2 Bricklaying Diploma – Levels 1 & 2
Safety and Access Ltd		CISRS Part 1 Trainee Scaffolder CISRS Part 2 Scaffolding Training
Nottingham Training & Enterprises		Carpentry & Joinery Diploma Level 1 Painting & Decorating Diploma Level 1 Painting & Decorating Diploma Level 2 Bricklaying Diploma Level 1 Bricklaying Diploma Level 2 Plastering Diploma Level 1 Plastering Diploma Level 2

Appendix H. 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%