



SKILLS TO BUILD

LCCI / KPMG Construction Skills Index
(London and the South East) 2014

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London Chamber of Commerce and Industry (LCCI)

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LCCI would like to thank everybody that contributed to this report.

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After a period in the doldrums, the last 24 months have seen a real pickup in construction activity. But the loss of hundreds of thousands of skilled workers to the recession and our failure to invest in training new staff has left many companies scrambling to find the right people.

Earlier this year, the London Chamber of Commerce and Industry (LCCI) published a report that underlined some of the major issues preventing more house building across the capital. It covered land supply, planning and access to finance. But the skills crisis facing construction firms required separate and more detailed analysis. This report for the first time provides evidence of the shortages felt so acutely by firms in London and the South East.

We need to take action to resolve this. We have to motivate construction companies to bring more young people in, to invest consistently in training and to develop the specific skills required today.

I believe that is a key job facing the industry. This is not another issue for Government to resolve alone. Solving the skills crisis is the prime responsibility of developers, contractors, sub-contractors and training providers, with help from the public sector.

I hope the findings of this report provide a wake-up call. Finally, we have to start developing the skills to build for decades to come.

A W Pidgley CBE, LCCI President and Berkeley Group Chairman



We have every reason to be optimistic about the recent surge in construction activity. The increasing level of confidence in the UK economic outlook is driving ever higher levels of demand in housing, commercial building and civil construction. As a result we are seeing a strengthening pipeline of work across the country and the construction industry is responding and bringing in more capacity daily.

But, despite all best intentions, the industry will struggle to meet rising demand if it does not invest in attracting new talent into the industry and invest in training the existing labour force. This report shows that we are fast approaching a massive gap in London and the South East between the available construction workforce and the demand for labour on site. The analysis indicates that by as early as the middle of next year the shortfall in labour could be as much as 20%.

Through this report we call on the industry itself, major clients, policy makers and training providers from schools to specialist colleges to take heed of the severity of the problem and implement change urgently. We need the Government and other major clients in the sector to embed training requirements in procurement contracts; we need schools to be measured and rewarded for helping students secure apprenticeships and employment in the sector; and we need the Skills Funding Agency to bring together industry bodies and representatives to redesign training and apprenticeship frameworks to meet the requirements of modern methods of construction.

If we tackle these issues then the future for the industry is bright. We will see the largest house building programme and the largest public investment in significant infrastructure for more than a century. We will see an industry transformed by technology. And we will see new recruits bring innovation and confidence into the sector. These are exciting times and we need to work together to project the image of the industry as a great place to work, and ensure its future success.

Richard Threlfall, Head of Infrastructure, Building and Construction, KPMG



The economic environment of the construction sector

The UK economy has performed well ahead of analysts' expectations over the past 12 months. A series of macroeconomic indicators have provided an upbeat view of current performance and future prospects. From Q1 2013 the UK has experienced six quarters of economic growth for the first time since 2007, indicating improving conditions in the economy. The rate of unemployment is also falling rapidly – currently 6% compared to a peak of 8.4% in August 2011.

In common with the UK economy, the construction sector confounded most commentators' expectations by growing in 2013 and making a solid start to 2014. After a decline of 7.5% in 2012, the sector grew by 1.6% in 2013 and grew by 1.8% in Q1 2014, the first quarterly growth since 2011. Construction in London and the South East had a less severe downturn in 2008 and 2009 than nationally, and was more resilient in 2012, shrinking by 2.5% compared to a decline of 7.5% in the UK as a whole. However, it was not as strong in 2013, growing by 0.5% compared to an increase of 1.6% in the UK.

London and the South East were ranked first and second in terms of output among the regions of the UK over the last year, accounting for over £41 billion of output. They are by far the most dominant regions in Great Britain for construction activity. The construction market in London and the South East over the past year has been dominated by the residential sector, which is unsurprising given that it has been the major driver of growth in the sector in the UK. According to Barbour ABI, 36% of contracts awarded in London and the South East in the past 12 months were in the residential sector, with the commercial and retail sectors accounting for 24% and 16% in infrastructure.

The construction sector is forecast to continue with growth of 4.5% this year and 4.8% in 2015. Given the recent strong performance of the London and South East construction sector, this pattern is likely to be reflected or possibly exceeded in future years. One cautionary note for the sector is the potential adverse impact any measures that are brought in to cool the housing market could have on the output of the residential sector, which has driven recent growth in construction in London and the South East, and across the UK.

In conclusion, the UK economic performance has greatly improved over the last 12 months with strong growth of 2.7% forecast for this year and 2.3% for 2015. With unemployment falling and inflation relatively stable, the outlook for the UK economy looks strong in the short term. However, the threat of a house price bubble and low levels of productivity, as well as a continuing export gap and weakening performance in the Eurozone, remain key challenges for the UK economy. It is Barbour ABI's view that the near-term outlook for the UK economy is good, but these fundamental issues will be vital in ensuring sustainable economic growth.

Michael Dall, Construction Economist, Barbour ABI

I. EXECUTIVE SUMMARY

Construction skills shortages are significantly affecting the delivery of projects across the industry. Following a long recession, in which the construction sector was one of the worst affected, a surge in activity over the last year has seen firms struggling to find skilled labour to cope with increased demand. While much anecdotal evidence exists of these shortages, there is little quantitative evidence to illustrate where the skills gaps are, and how they impact upcoming projects.

This report closes the evidential gap by quantifying construction skills shortages across London and the South East, showing how they impact on the delivery of key infrastructure projects and public policy goals. Using a unique methodology developed by the Greater Manchester Chamber of Commerce, the report outlines the labour required to deliver the construction projects planned for London and the South East between 2014 and 2017, and the gaps in training provision that must be filled to meet this demand.

The report delivers the following key findings:

- **£95.7** billion worth of construction output is currently in planning and due to occur in 2014-17, but this is expected to be substantially higher as more projects come into the system
- **20%** more workers will be required on average to meet pipeline demand in 2014-17 than were needed in the 2010-13 period
- **604,903** workers will be needed on site to deliver projects currently in planning in April 2015
- **51%** average increase in training provision will be required to meet demand for construction labour between 2014-17, to plug a gap of over 14,800 trainees
- A significant increase in competency-based training is needed to meet demand for construction managers, roofers, bricklayers, roofers, scaffolders, electricians, labourers and non-construction operatives, among others
- **22,580** units shortfall between the house building target in the Strategic Housing Market Availability Assessment (SHMAA) and the housing planned for delivery in the 2015 pipeline
- **255,558** workers are needed on site to deliver the 2015 pipeline of housing, with an additional 48,370 required to meet the house building target in the same period

These figures show that:

- **Current levels of training provision will be insufficient to meet the increased demand for labour over the coming years**
- **Training providers are not supplying qualifications that the industry needs**
- **Unless the supply of construction workers is increased, house building targets will not be met and the delivery of large infrastructure projects will be jeopardised**

The report outlines the following measures to rectify the issues behind construction skills shortages:

i) **Better incentives for industry to train more**

Changes to public procurement rules are required to incentivise skills training in the construction industry and create sustainable employment. Postcode limitations in Section 106 (S106) reduce the pool of labour firms can draw upon and restrict trainees from moving to projects in other areas to complete their training.

Recommendation 1: Infrastructure UK should drive a commitment to embed skills and employment requirements in public procurement contracts, aimed at both Tier One contractors and suppliers.

Recommendation 2: Local authorities should employ more flexible definitions of local labour when setting Section 106 requirements to allow apprentices to move across boroughs and complete their training.

ii) Incentivising young people to enter the construction sector

Negative perceptions of the construction industry are prevalent among education professionals as well as young people and their parents, leading to poor careers advice. The predominance of academic results as a measure of schools' performance creates further disincentives to pursue non-academic routes, such as apprenticeships, vocational training or work experience. Engaging young people with the construction industry from an early age would improve their understanding of the opportunities available.

Recommendation 3: The Government should fund schools to provide obligatory, quality and unbiased careers advice from Year 7, and make it a requirement that they submit an annual careers report, evaluating the range of careers and training options covered.

Recommendation 4: Schools should be evaluated on the basis of destination measures, which should include progression into apprenticeships and employment, as well as further academic study.

Recommendation 5: To ensure that new apprentices and trainees arriving on site are able to meet minimum industry expectations, the Skills Funding Agency should fund pre-employment qualifications and look to extend this to competency tickets.

iii) Improving the quality and quantity of training provision

Current qualifications are slow to reflect changing practices and modern methods of construction. Better communication between training providers, industry leaders and sector bodies, as well as greater visibility of the pipeline of construction projects, would improve training providers' ability to respond to the needs of the industry.

Recommendation 6: The Skills Funding Agency should convene industry bodies and representatives to redesign training and apprenticeship frameworks to reflect modern methods of construction, and disseminate them for adoption by training providers.

Recommendation 7: Local and regional authorities should maintain and share a pipeline of future projects, with skills responsibility and funding devolved to the most appropriate level of functional economic activity, to enable the commissioning of demand-led training provision.

Recommendation 8: The Government must review the impact of proposed changes to the apprenticeship funding system to minimise the financial and administrative burden on SMEs, and increase the level of funding given to apprentices between 19 and 23 years of age to encourage the acquisition of higher-level qualifications.

2. INTRODUCTION

After a prolonged downturn, the construction sector has recently seen significant growth. However, according to many construction businesses, a shortage of skills is one of the biggest threats to the continued growth of the sector. Many construction firms have struggled to recover from staff losses incurred during the recent recession, which comprised of over 400,000 people across the industry (the second highest redundancy rate of any sector in the UK)¹. A further 400,000 UK construction workers are expected to retire over the next five to ten years.² Companies are now experiencing further difficulties in recruiting enough skilled workers, for both professional roles and manual trades, to keep pace with new work.

The recession also impacted on colleges and universities, many of which saw the need to downsize departments and reduce places available on construction-related courses. This has resulted in severe and immediate skills shortages to meet the pipeline of projects, leading to rising wages,³ increased competition on hiring between firms and, on occasions, the need to turn down projects due to a lack of suitably trained staff.

While significant anecdotal evidence exists of the skills gap within the construction sector, there remains a lack of quantitative evidence on the issue. This report aims to highlight areas where there is a shortage of skilled workers by looking at the labour required to meet the pipeline of planned construction work due between 2014 and 2017.⁴ In conjunction with data provided by regional skills providers, it is possible to determine where there are shortfalls in meeting industry requirements, and how training provision needs to change in the future to meet demands.

The limited supply of construction workers has the potential to threaten the delivery of key public policy goals – including the delivery of the London Mayor's housing target and key infrastructure projects. The report will therefore look closely at longer-term infrastructure projects in London and the South East due for delivery outside of the 2014-17 analysis period, and assess whether there is enough skilled labour to meet the demand for such developments.

In producing this report, London Chamber of Commerce and Industry (LCCI) has engaged with over 150 stakeholders (ranging from training providers, developers, contractors and sub-contractors government and industry bodies) in order to understand problems experienced across the construction sector and develop solutions. The following three chapters present a pipeline of projects planned for construction in 2014-17, and quantify the construction skills gap based on the labour required to meet them. This is followed by analysis of how the skills shortage manifests in specific large infrastructure projects and the ability to meet specific public policy goals, such as house building targets. The final chapters address the challenges that have led to skills shortages, and offer ways to incentivise employers to encourage entry into the industry and improve training provision.

¹ House of Commons (2014): *No more lost generations: creating construction jobs for young people*, A cross-party parliamentarians' inquiry, with the Chartered Institute of Building and the Construction Industry Training Board. p.12

² 19% (equivalent to 406,000 people) of UK construction workers aged 55+ are set to retire in the next 5-10 years. CITB (2013): *UK construction industry facing skills 'time bomb'*, 8 August 2013.

³ See for example ADP Workforce Vitality Index, at <http://workforcereport.adp.com/>

⁴ Pipeline refers to the construction projects in the planning system that are planned for delivery within a certain period.

3. PIPELINE VALUE

This chapter outlines the pipeline of construction projects currently planned for the 2014-17 period in London and the South East, including projects that commenced construction before 2014 and are ongoing during this period. This is based on projects currently within the planning system, rather than a forecast of total construction output within the same period. It should be noted that the Barbour ABI database, on which the analysis is based, does not take account of:

- projects that do not require planning permission
- housing refurbishments
- repairs and maintenance ('R&M') projects (comprising approximately 34% of all construction output in the London area and 40% in the South East)⁵

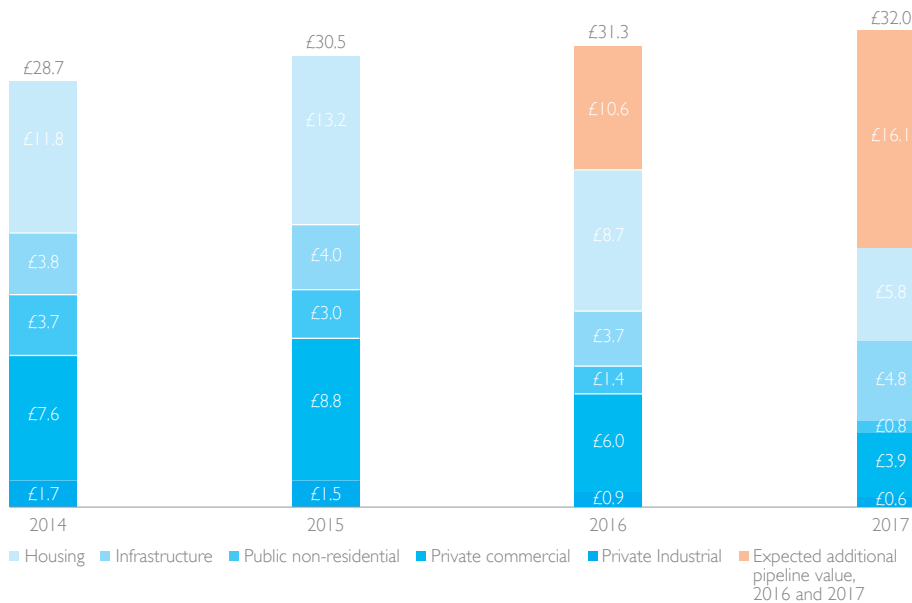
In addition, to ensure that there is a high degree of certainty attached to the pipeline's delivery, this analysis excludes £1.7 billion worth of construction output, namely:

- projects with a value under £500,000
- projects that have an unspecified duration or start and end date
- projects that have been refused planning permission, abandoned or withdrawn from planning

Based on the above, the actual pipeline value, as well as the labour requirements analysed in the next chapter, are likely to be significantly higher.

Based purely on the conservative methodology in this report, **there is £215.8 billion worth of construction output in the pipeline for London and the South East, of which £95.7 billion is due to occur in the four-year period between 2014 and 2017.** £51.7 billion of the £95.7 billion worth of projects have already been contracted, and another £15 billion worth of projects have already been granted detailed approval. The analysis also reveals a 200% increase in new project starts between 2013 and 2014.

Figure 1: Pipeline value (£ billion) by project type, 2014-17, London and South East⁶



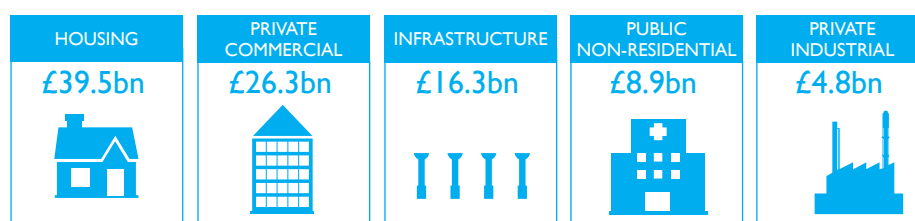
⁵ Office for National Statistics (2014): *Output in the Construction Industry, July 2014 and New Orders Q2 2014*. For 2010-2013 period inclusive, this equates to an average quarterly construction output of £2 billion in London and £1.9 billion in the South East.

⁶ Please note that the figures for the expected additional pipeline value for 2016 and 2017 are for illustrative purposes only.

Figure 1 shows the annual construction output currently in planning, which is due to occur between 2014-17.⁷ While there is a fair degree of visibility of output in 2014 and 2015, new projects are continually coming into the pipeline and a large number of construction projects to be delivered within that period are yet to reach the planning stage, so it is expected output for 2016 and 2017 will either reach or surpass the 2015 pipeline value. It is widely expected that this growth will continue, with the CITB forecasting a 2% average annual growth in construction output across London, and 2.9% for the South East, between 2014 and 2018.⁸ Based on the assumption that the pipeline value analysed would grow by a similar rate, Figure 1 illustrates the additional construction pipeline value that should be expected to occur across 2016 and 2017.

Figure 2: Pipeline value in London and South East for 2014-17

Total pipeline value in planning system: £95.7bn, of which



By project type, **housing** represents the single largest sector for both output and new project starts in the four years to 2017. Across London and the South East, a total of £39.5 billion worth of housing output is expected to be delivered, with the highest proportion (£13.2 billion) occurring in 2015. Housing has a shorter planning approval timeline compared to other types of construction projects, so housing output is expected to increase by a greater proportion than other outputs over the analysis period.

Private commercial is the second-largest sector with a total of £26.3 billion output due to occur between 2014 and 2017. Of this, £25.5 billion relates to projects due to start construction in that period, indicating a positive outlook for this category of projects. The remaining £800 million relates to projects that have already commenced construction and will be ongoing during the analysis period.

Private industrial construction output had been subdued post-recession, as many firms were cautious with capital investment, but has recovered well in 2014. Of the total £4.8 billion total output in 2014-17, a total of £2.3 billion worth of private industrial projects are expected to start in 2014. This is a 230% increase from 2013 and a ten-fold increase from 2012.

Public non-residential projects have maintained high investment levels, despite austerity measures. Of the £8.9 billion output, £4.2 billion worth of projects are expected to start in 2014 and an additional £2.7 billion due to start in the subsequent three years. The remaining £2 billion relates to projects that had commenced construction before 2014 and are ongoing.

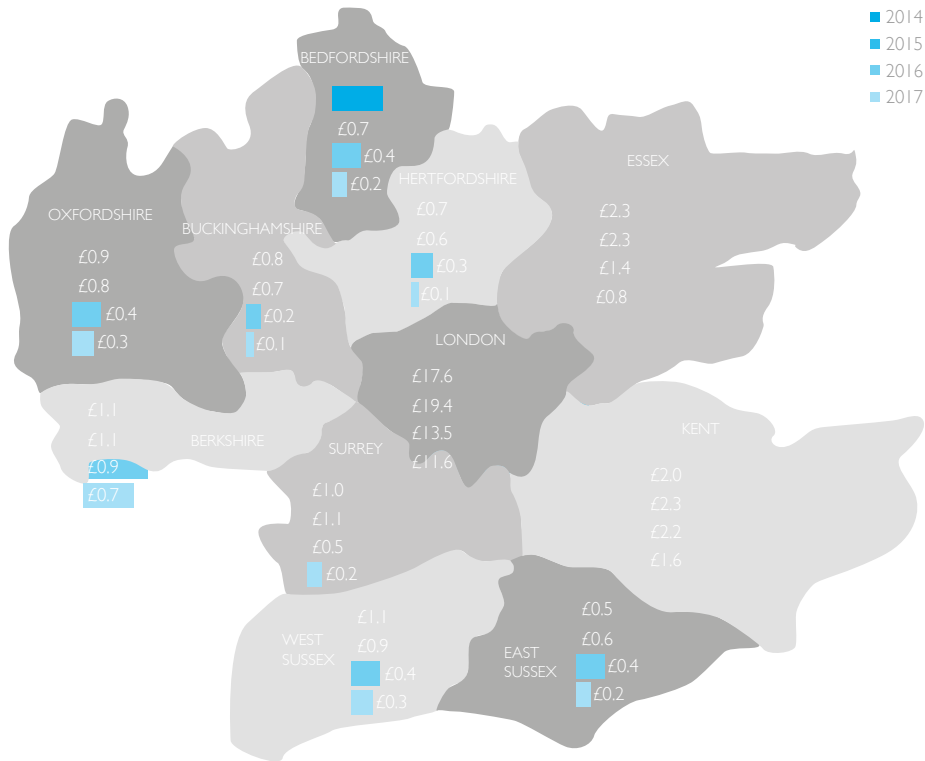
Infrastructure shows an increase in output value during the 2014-17 period, in line with expectation in the Government's long-term infrastructure plans. In addition, a total of £17.1 billion worth of infrastructure projects are expected to start in 2017, including Phase One of High Speed 2. The majority of this output will occur beyond the 2014-17 period (excluded from the analysis). With work on other major projects due to start post-2017, it is expected that infrastructure will deliver high values of output and require a large amount of labour beyond 2017.

In terms of geographical spread, the majority of construction projects are planned for the London area. Out of the £95.7 billion due to be delivered in 2014-17, £62.1 billion worth of projects are in London and the remaining £33.6 billion is in the ten counties in the South East. Of the latter, Kent and Essex have the highest pipeline values (see Figure 3).

⁷ The value of projects with duration beyond a year has been divided equally across all years of the project. Please see the Methodology chapter for more details.

⁸ CITB & Experian (2014): *Construction Skills Network, Greater London 2014-2018*, Labour Market Intelligence, pp. 10-11, and CITB & Experian (2014): *Construction Skills Network, South East 2014-2018*, Labour Market Intelligence, pp. 10-11. The calculation for expected additional pipeline value for 2016 and 2017 in Figure 1 assumes an average annual output growth rate of 2.5% across London and the South East.

Figure 3: Pipeline value for projects in planning (£ billion) by county, 2014-17⁹



Main findings:

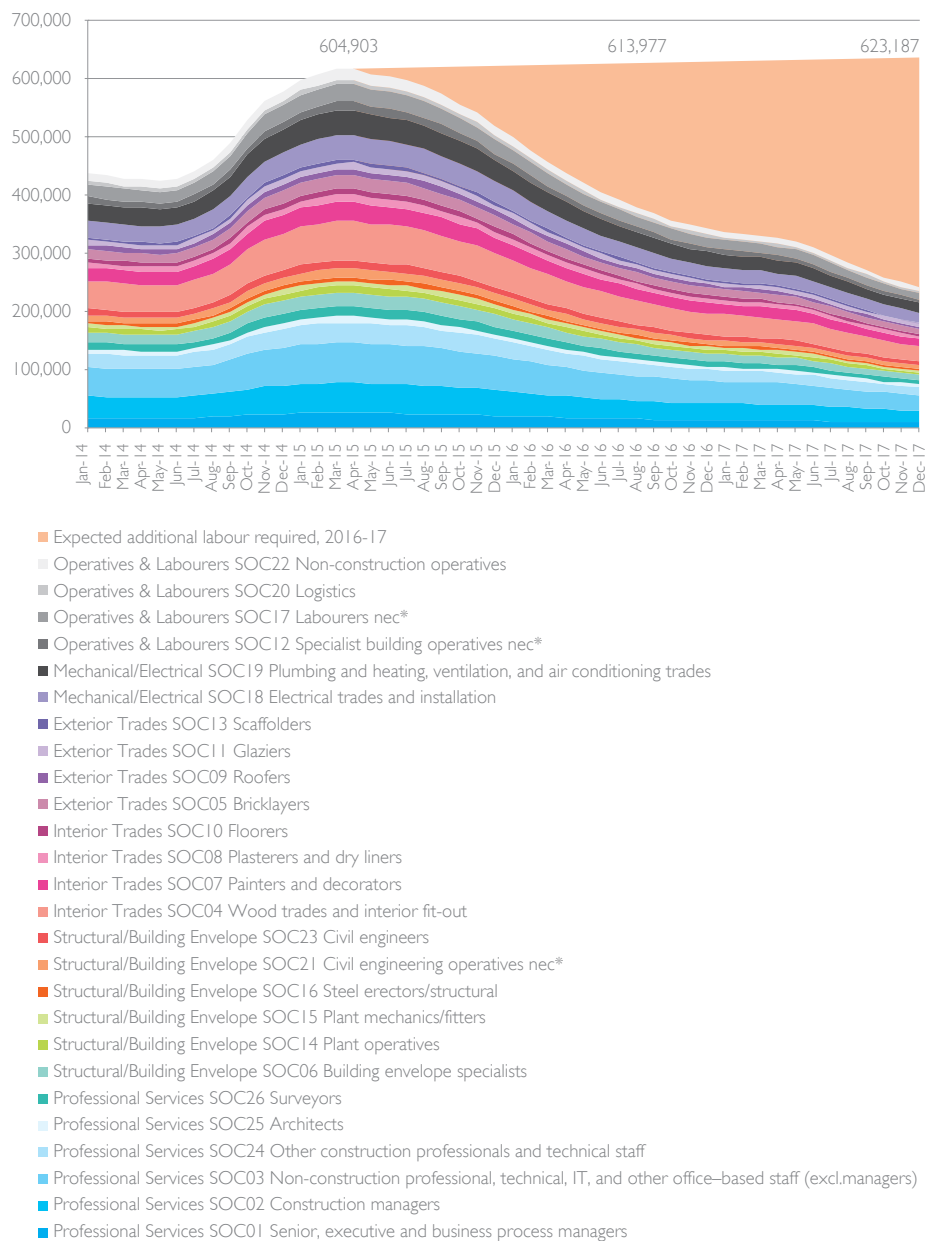
- There is currently £95.7 billion worth of construction output in the pipeline for London and the South East due in the 2014-17 period.
- Output value is expected to grow at an average of 2% per annum in London and 2.9% in the South East
- Housing represents the single largest sector for both output and new project starts.

⁹Please note that due to rounding, the breakdown numbers in the graph may not add up to the totals quoted.

4. LABOUR REQUIREMENT

Based on analysis using the CITB's Labour Forecasting Tool, this chapter outlines the workforce required, across 26 separate occupations, to deliver the pipeline of all projects currently in planning in London and the South East for the 2014-17 period.

Figure 4: Labour requirement, by SOC code, to deliver the pipeline of projects for 2014-17 in London and South East¹⁰



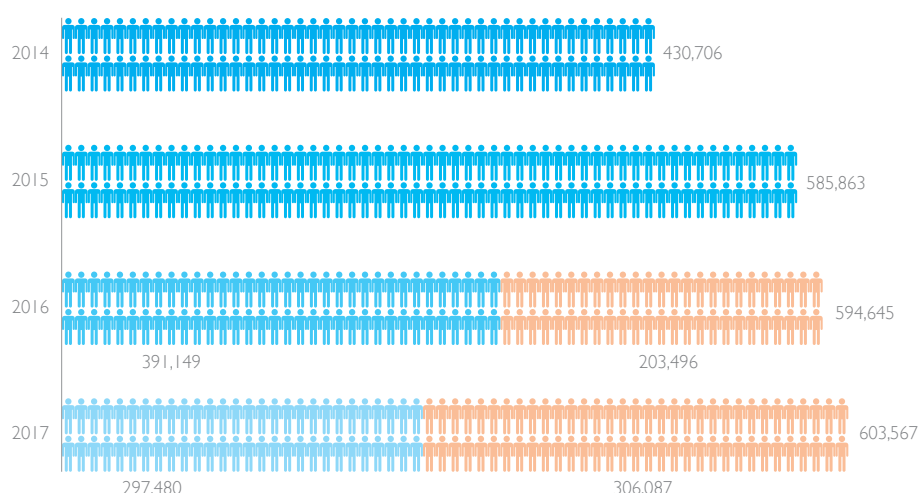
¹⁰ Please note that the figures for the expected additional labour figures for 2016 and 2017 are for illustrative purposes only.

The monthly analysis in Figure 4 shows that **the peak in labour required to fulfil the pipeline of projects currently in the planning system occurs in April 2015 at a total of 604,903 construction workers.** This includes **40,294** electricians, **41,409** plumbers, **21,791** bricklayers, **32,452** painters and decorators, **66,122** carpenters and wood fitters, **16,178** surveyors, and **50,758** construction managers.

The profiled labour requirements should be considered conservative estimates as they exclude those projects not requiring planning and R&M projects. As more projects come into planning, **it is expected that the labour requirement for 2016 and 2017 will either reach or surpass the 2015 level.** The CITB forecasts construction employment in London to increase by an average of 1.4% per annum between 2014 and 2018 in London and by an average of 1.6% per annum in the South East.¹¹ Assuming that the labour required to deliver the pipeline of projects analysed grows by a similar rate, Figure 4 illustrates the additional labour that is expected to be required to fulfil the additional output across 2016 and 2017.

Per annum, the total labour demand across London and the South East is expected to be 430,706 workers in 2014, increasing to 585,863 workers in 2015 (see Figure 5). Based on the same assumption above, Figure 5 illustrates the expected additional labour that might be required to meet all projects that come into planning in 2016 and 2017.

Figure 5: Total labour requirement for projects in planning for 2014-17 in London and South East, and additional requirement for 2016 and 2017



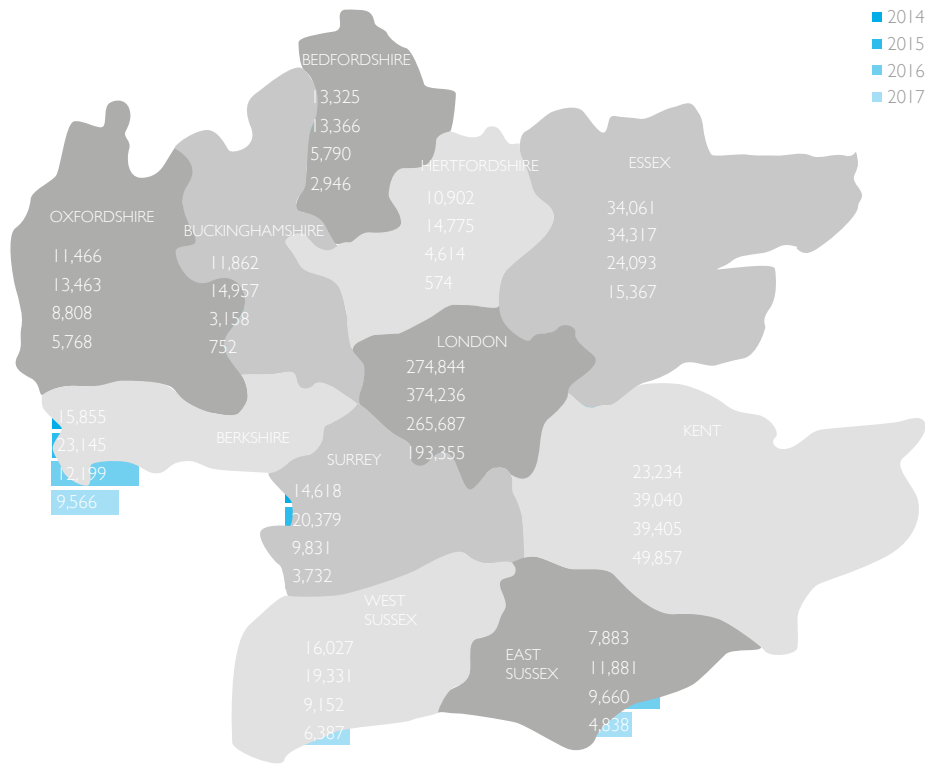
The median average demand for workers in the 2014-17 analysis period is 410,928 workers compared to the 341,638 workers required in 2010-13.¹² Over the analysis period, **labour requirements for the construction industry are therefore expected to average 20% higher than in the previous four years.** With more projects anticipated to be added to the pipeline in future years, the actual demand for workers in 2014-17 is likely to be significantly higher.

Figure 6 illustrates the geographical spread of demand. The highest labour requirement is in the London area, as it has the highest proportion of construction projects planned. The total labour requirement for London is for 374,236 construction workers in 2015, compared with 200,796 in the South East. As with the pipeline value, Kent and Essex have the highest labour requirements of the South East counties analysed.

¹¹ CITB & Experian (2014): *Construction Skills Network, Greater London 2014-2018*, Labour Market Intelligence, p. 12, and CITB & Experian (2014): *Construction Skills Network, South East 2014-2018*, Labour Market Intelligence, p. 12. The calculation for expected additional labour required for 2016 and 2017 in Figure 5 assumes an average annual output growth rate of 1.5% across London and the South East.

¹² The historic labour analysis shows there was a requirement of 255,099 workers in 2010, 435,214 in 2011 (possibly because of the 2012 Olympic Games construction projects), 332,786 in 2012 and 350,429 in 2013.

Figure 6: Total labour requirement for projects in planning by county, 2014-17



Main findings:

- Total labour demand is expected to be 430,706 workers in 2014, increasing to 585,863 workers in 2015.
- 604,903 workers will be needed on site to deliver the projects in April 2015.
- The average annual demand for 2014-17 is 20% higher than in the previous four years.

5. QUANTIFYING THE SKILLS GAP

For the construction industry to grow, it needs the right types of skilled workers. These can only be created by providing access to training that is both relevant and industry-approved. Consultation with training providers and employers has identified that a minimum of 5% of the total workforce should be in competency-based training at any one time to sustain labour supply (including both the up-skilling of existing employees and new entrants to the industry).¹³

Employers have highlighted that they only value competency-based qualifications. Competency-based training includes only NVQ-level qualifications which are work-related and include an element of on-site assessment. Table 1 highlights the training deficit based on the average annual competency-based training delivered currently in London and the South East compared to the 5% training requirement.¹⁴ **There is a 14,807 (51%) deficit in training provision per annum than the 29,293 needed to meet demand for construction labour in 2015.**

Table 1: 2015 labour and training requirement, and training deficit/surplus

Total 2015 labour requirement	585,852
2015 training needs (min 5% of total requirement)	29,293
Current average annual training provision: competency-based	14,486
Competency-based training deficit	-14,807
Competency-based training deficit (%)	-51%

The training delivered across London and the South East, therefore, will be insufficient to meet the immediate demand for construction labour without absorbing labour from other areas (including Europe). While access to migrant workers is vital for filling the immediate skills gaps in the sector, construction companies should be able to rely on a consistent supply of domestically-trained labour in the long term. **Given that training levels would be inadequate to meet demand in 2015, the expected future growth in construction output will further exacerbate this deficit.**

Case study: On-site competency

One of the most common complaints from industry is the lack of available staff with on-site competency. This is a concern in both manual and professional trades. Frustrated with the poor quality of available labour produced by colleges and inspired by his own experience as an apprentice, Kevin McLoughlin, founding Director of K&M McLoughlin Decorating (a painting and decorating firm with over 25 years industry experience) opened the first decorating apprentice school in the UK in 2010. To date, 60% of K&M staff are former apprentices. The school also runs a pre-employment training course, which focuses on job discipline, in addition to training in painting and decorating. Since the programme started in November 2012, 232 young people have completed the course. Out of that, 105 have been deemed employable and 101 of these have secured full-time employment.

¹³ Please see the Methodology chapter for more details on the methodology devised by GMCC.

¹⁴ Please note the Skills Funding Agency data, on which this analysis is based, includes further education and work-based training only, and does not take into account degree-level qualifications.

The analysis has identified training deficits in 23 of the 26 occupation codes, with significant undersupply of competency-based training for construction managers, roofers, bricklayers, scaffolders, electricians, labourers and non-construction operatives, among others.

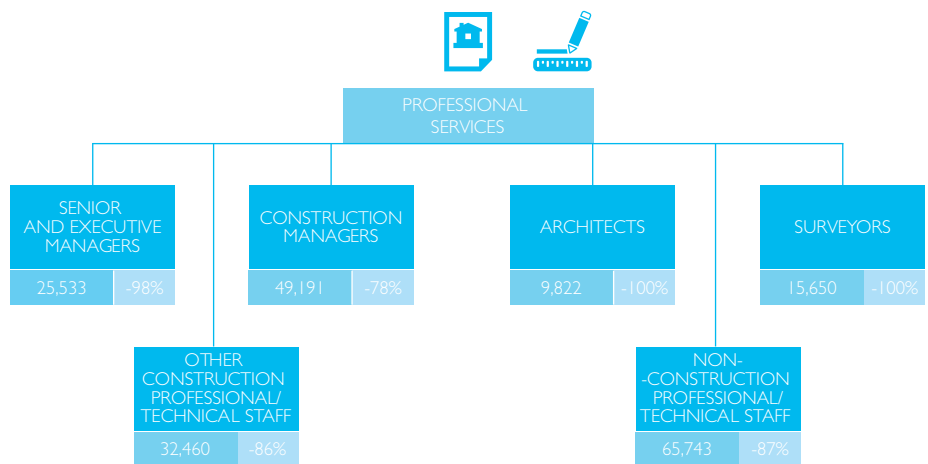
We have recently seen severe shortages of bricklayers, mechanical and electric trades, as well as plant operatives. Others like carpentry and joinery and painting and decorating, on the other hand, have been less severe.

Duncan Bullimore, Director, Hays Construction (the UK's largest specialist recruitment company)

Professional services

The requirements for all occupations within the professional services for 2014-17 indicate an increase of 20% over the average required for 2010-13. This grouping requires the highest number of workers in 2015 relative to other occupations. The demand for non-construction professional, technical, IT, and other office-based staff is 65,743 workers in 2015 (see Figure 7). This represents a demand of 3,287 training places in 2015, but with only 432 competency-based qualifications delivered per year, there is an 87% undersupply. There is also very high demand for construction managers and other construction professionals and technical staff – at 49,191 and 32,460 respectively in 2015, leading to a 78% and 86% undersupply of training.

Figure 7: 2015 labour requirement and training deficit for professional services



In terms of architects and surveyors, while this analysis does not cover degree-based qualifications that these professions require, there is anecdotal evidence from industry representatives reporting skills shortages. For example, according to a recent survey, 54% of construction industry respondents said there was an insufficient number of quantity surveyors available to meet workloads, up from 41% the previous quarter.¹⁵ Further analysis is required to identify any gaps in these two professions, which universities need to address.

We've experienced immediate problems in recruiting quantity surveyors and estimators. These are typical areas in the industry where there has always been a shortage of suitably qualified people.

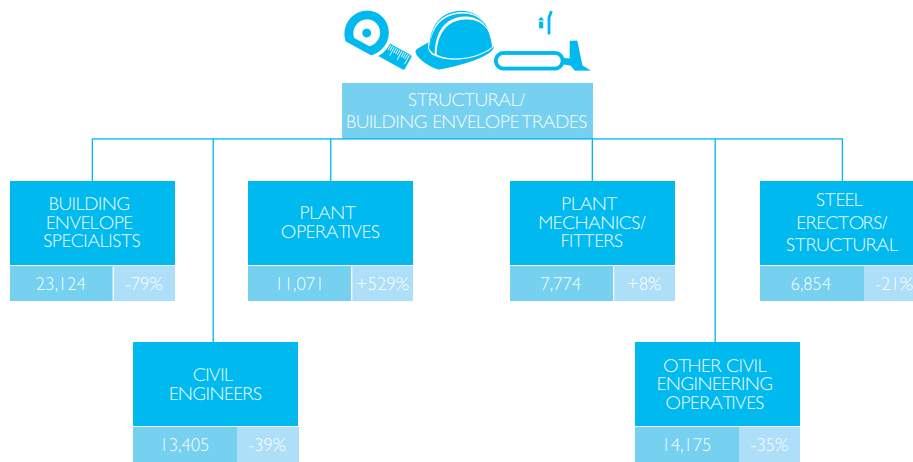
Steve Drury, Director, Roof Limited (medium sized principle contractor)

¹⁵ RICS: Skills shortage concerns reach highest level since 2008, Press Release, 16 July 2014

Structural and building envelope trades

The skills required within the structural and building envelope trades are highly specialised.¹⁶ Demand for steel erectors and structural trades is set to increase by 22% over the analysis period against the previous four-year average, while the requirement for the other trades is expected to increase by 20%. However, there is a training undersupply of 79% (see Figure 8). Given that building envelope is not a currently recognised career path and features a number of modern methods of construction, it makes the need for industry-led training provision even more acute.

Figure 8: 2015 labour requirement and training deficit/surplus for structural/building envelope trades



Civil engineers and civil engineering operatives represent an additional skills shortage area, at 39% and 35% respectively.

We know that there is a skills shortage in the transport industry, which is why we have made significant investments to bridge the skills gap. There has been a complete rebalancing in the age range of engineers, with fewer 16-24 year olds and more people over 60. The average age of an engineer is now above 50. This is something we are working to address, through our graduate scheme, apprenticeships, work experience placements, training schemes and partnerships with education providers.

Miles Ashley, Programme Director of Crossrail and Stations, Transport for London

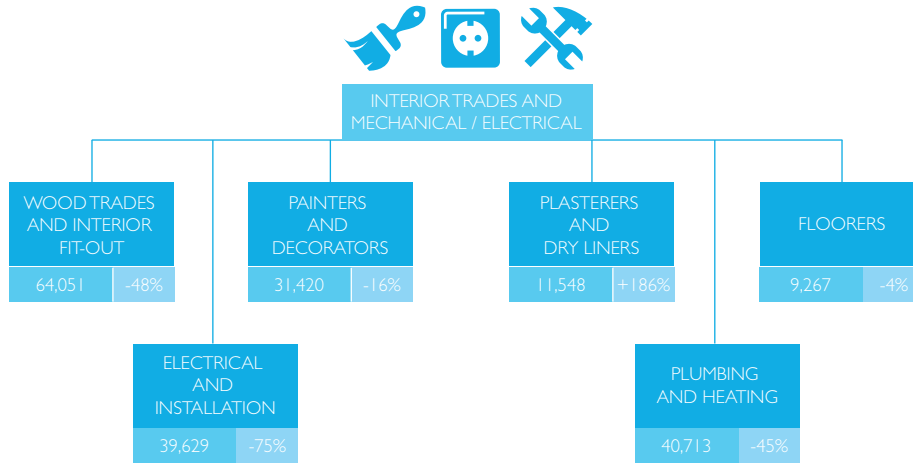
While the analysis shows an apparently large oversupply of training for plant operatives (by 529%), this is mitigated by the fact that plant operatives are required to pass different qualifications for different machinery, as well as mandatory on-site Health and Safety elements of NVQ courses in plant operation, which increase the number of qualifications needed per worker (potentially leading to double-counting).

Interior trades, mechanical and electrical

The interior trades also demonstrate a 20% increase in demand over the next four years compared to the 2010-13 average. Wood trades and interior fit-out specialists need 3,203 training places in 2015, which leaves a training gap of 48% (see Figure 9). Painters and decorators are not traditionally classed as a skills shortage area, but even the natural skill replacement rate requires 1,571 training places in 2015, leaving a gap of 16%.

¹⁶ Building envelope trades refers to building and working professionals involved in the handling, installation and repair of the external portion of walls, including the installation of sheathing membranes, windows, doors, strapping, etc.

Figure 9: 2015 labour requirement and training deficit/surplus for interior trades, mechanical and electrical



Plasterers and dry-liners are one of three occupations to have an oversupply of labour, at 186%. However, this figure should also be treated with some caution. Dry-lining is in fact one of the trades with the most acute skills shortages, according to industry experts. The discrepancy stems from the fact that plasterers and dry-liners are grouped together within the same occupation code; yet, the overwhelming majority of qualifications that align to it are related solely to plastering, with the number of dedicated dry-lining qualifications being extremely small. This means that the oversupply for plasterers is likely higher than shown, while for dry-liners there is an undersupply.

Our labour forecast indicated that Nine Elms Vauxhall will require nearly 300 dry liners in the coming years. Yet, existing apprenticeship frameworks dedicate a very small amount of time to dry lining training, instead focusing on traditional plastering methods.

Phil de Montmorency, Joint Co ordination Unit Manager (Construction jobs and skills), London boroughs of Wandsworth and Lambeth, Nine Elms Vauxhall

Mechanical and electrical trades represent areas of historically high demand, and refurbishments and general domestic housing maintenance enabled these skills to be maintained over the recession. 39,629 workers in the electrical trades and 40,713 workers in plumbing, heating, ventilation, and air conditioning trades will be needed in 2015. This translates to 1,981 and 2,036 training places respectively, leaving undersupply of 75% for electrical and installation and 45% for plumbing and heating.

Exterior trades

In the exterior trades, demand is highest for bricklayers with 21,109 workers and 1,055 training places needed in 2015. As construction activity has gathered pace over the last year, shortages in skilled bricklayers have become particularly prominent, with firms reporting huge increases in demand. The short supply of bricklayers has caused hourly wages to increase by over 25%,¹⁷ with the average self-employed bricklayer now earning between £150 and £200 a day.¹⁸ Current training provision leaves a 61% shortage of bricklayers (see Figure 10).

¹⁷ According to a London-based recruitment company, bricklayers are earning around £19 an hour, up from around £15 per hour previously. The Guardian: *Housing boom brings year of the £40k brickie*, 22 September 2013

¹⁸ Management Today: *Brickies are earning £100k because of the building industry's 'brawn drain'*, 7 April 2014

Figure 10: 2015 labour requirement and training deficit/surplus for exterior trades

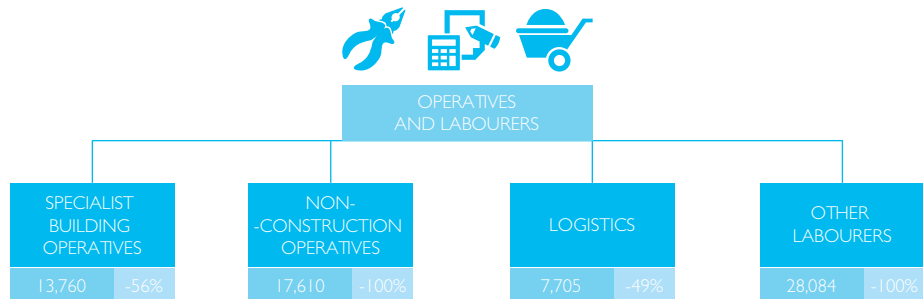


The demand for the other trades within this group is also significant. The demand for scaffolders has seen a 22% increase on the 2010-2013 average and training undersupply for this occupation is high at 100%.

Operatives and labourers

The operatives and labourers group includes those trades that are essential to the smooth running of construction projects, including basic skills (such as labouring) alongside more specialised roles (such as site operatives). Within this group, demand is highest for labourers, at 28,084 workers and 1,404 training places in 2015. Labourers and non-construction operatives have the highest training undersupply, both at 100% (see Figure 11).

Figure 11: 2015 labour requirement and training deficit/surplus for operatives and labourers



Logistics, despite being the smallest in terms of average yearly volume within this group, still needs 385 training places in 2015, which represents a 49% undersupply.

Main findings:

- Current competency-based training provision is 51% less than the training needed to meet the demand for labour in 2015, a gap of over 14,800 people.
- There are training deficits in 23 of the 26 SOC codes, demonstrating that current training does not adequately supply the skills employers need.
- A significant increase in competency-based training is needed to meet demand for construction managers, roofers, bricklayers, scaffolders, electricians, labourers and non-construction operatives, among others.

6. SKILLS REQUIRED TO DELIVER PUBLIC POLICY GOALS

A lack of a sufficiently skilled construction workforce not only holds back growth in the construction sector and the economy, it also calls into question the delivery of key public policy goals. With London's population set to grow by 1.5 million people by 2030, and the wider South East set to expand by a similar amount, the delivery of new homes, transport connections and energy, water and waste infrastructure is crucial to the regions' economic competitiveness. This chapter addresses the skills required to deliver the key infrastructure projects in London and the South East that are necessary to cope with a growing population.

Better housing

It is already apparent that housing shortages in London and the South East undermine economic growth. LCCI's May 2014 report on housing undersupply revealed that 42% of London firms believed that high housing costs were affecting their ability to recruit and retain skilled staff.¹⁹ Over the last decade London's population grew by the equivalent of 306,215 additional households in London between 2004 and 2013.²⁰ Yet, during the same period, just 198,060 dwellings were completed in London – an average of 19,800 dwellings per annum.²¹ One of the barriers identified by property developers to delivering the necessary housing is the skills shortage, with residential developer Crest Nicholson identifying skills as the "critical constraint" to their activity.²²

The Mayor's current London Housing Strategy stipulates a target of building 42,000 new homes per year – double the present rate.²³ The London Strategic Housing Market Availability Assessment (SHMAA) suggests that the target should be even higher – as many as 62,000 homes per year.²⁴ Across the South East region analysed in this report, there is a need for an additional 48,320 homes a year to cope with anticipated demand.²⁵ Therefore, **a total of 110,320 homes per annum will need to be built across London and the South East to meet demand.**

There is a total of £39.5 billion worth of housing construction in the pipeline over the course of the analysis period. This equates to a total of 243,456 housing units across London and the South East between 2014 and 2017, with 87,740 units included in the pipeline for 2015. This falls short by over 22,580 units when compared to the 110,320 housing target.

Furthermore, a total of 255,558 construction workers will be required on site to deliver the 2015 pipeline of 87,740 homes. **However, to deliver the target of 110,320 homes per year, it is estimated that 304,288 construction workers will be required on site each year to work on residential construction alone, resulting in a 48,730 annual shortfall in labour.** Even if all the 14,486 construction workers currently in competency-based training (see Table 1) went on to work in residential development alone, there would still be a significant shortage of skilled workers to deliver both the target and the pipeline for housing – let alone commercial construction and public infrastructure. **Unless the supply of construction workers is increased, house building targets will not be met.**

¹⁹ LCCI (2014): *Getting our house in order: The impact of housing undersupply on London businesses*, at www.londonchamber.co.uk/research/housingreport

²⁰ Greater London Authority (GLA): *Household Estimates by Borough*, at <http://data.london.gov.uk/datastore/package/household-estimates-borough>

²¹ HM Government: *Live tables on house building (Table 253)*, at <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

²² Financial Times: *Crest Nicholson warns of skills shortages in the building industry*, 16 September 2014

²³ Mayor of London (2014): *Homes for London: London Housing Strategy 2014*

²⁴ GLA (2013): *The London Strategic Housing Market Availability Assessment 2013*

²⁵ Taking into account the sum of a fifth of each county's five-year housing requirement, namely: Bedfordshire 18887; Essex 39154; Hertfordshire 17595; Berkshire 20297; Buckinghamshire 23563; Oxfordshire 17040; East Sussex 10981; West Sussex 28569; Kent 49044; Surrey 16467. Turley Associates (2013): *GOR South East and GOR East, Housing Supply Update*

Case study: House building

There is a steady supply of planned long-term projects with a significant housing element that last well beyond the report's 2014-17 pipeline analysis period. For example, **Purfleet Centre Regeneration project** on the north bank of the River Thames in Essex, valued at £950 million, is due to start in 2015 and to be completed by 2030. The project will deliver 3,000 new homes, along with a new town centre and social facilities. Inputting the project through the CITB Labour Forecasting Tool (LFT) shows that at the peak of construction in the early 2020s, the project will require up to 4,000 construction workers a year.

Case study: Large scale regeneration

The **Earls Court Project** will transform the area, providing around 7,500 new homes and work spaces and offices generating up to 10,000 new jobs, as well as retail, cultural, community and education space. Close to £47 million will be spent on improving tube, bus and cycling facilities and services. Over the 20-year construction period, 2,250 construction jobs per year and up to 10,000 permanent full-time jobs will be created. LFT analysis shows that over 20,750 construction workers will be required on site at the peak of construction in 2023. A Local Employment Strategy has been agreed with the local authorities and the project will see an investment of £8 million worth of employment and skills training in the local area. Earls Court also employs a new model of public-private partnership with a first-of-its-kind Joint Venture agreement with Transport for London to enable the redevelopment.

Better infrastructure

The continued population growth across London and the South East puts increasing pressure on the regions' infrastructure, including transport, energy and utilities.

Every day, around 30 million passenger journeys are made using the Transport for London network, representing half of all bus and rail trips in England.²⁶ As more people commute into the capital from surrounding counties, a number of investments in transport infrastructure are required in order to prevent the network from being plagued by overcrowding and unreliability.

To cope with population increases up to 2050, transport investment represents over a third of all capital expenditure required.²⁷ In the same period, it is estimated that a 20% increase in energy and 26% increase in water supply will be needed to meet demand.²⁸ Waste infrastructure will also be challenged, as the annual bill for waste management and street cleaning in London is already the third biggest area of spend for London boroughs.²⁹

Investment in infrastructure is urgently required as demand increases. However, a major concern for many businesses working on large infrastructure projects is the impact the skills shortage will have on the deliverability of these projects. The Greater London Authority reported that there is a risk that the skills shortage would cause a "delay to major (infrastructure) projects".³⁰

Based on the infrastructure pipeline included in this analysis, a total of 124,180 construction workers are required on site in London and the South East in 2015. The labour requirement for infrastructure is proportionately lower than for housing because

²⁶ Transport for London (2014): *Annual Report and Statement of Accounts*, p.14

²⁷ GLA and Arup (2014): *The cost of London's long-term infrastructure*, Final report

²⁸ Mayor of London (2014): *London Infrastructure Plan 2050*, pp. 11, 54

²⁹ London Councils (2013): *Waste Management in London – key challenges*

³⁰ GLA and Arup (2014), p. 175

infrastructure projects tend to be larger in scale and are delivered in stages, allowing workers to move between different stages of the same project and between different projects. With forecasts predicting that the infrastructure new build market would grow by more than 50% over the next five years,³¹ **unless the supply of construction workers is increased, the delivery of future large infrastructure projects will be jeopardised.**

Case study: Transport

First proposed as the Chelsea-Hackney line in the 1970s, **Crossrail 2** aims to connect South West and North East London. The line is considered essential to ensuring that the capital's transport system can keep pace with growing population. Construction is due to begin in 2020 for completion by the early 2030s. The project will cost £16 billion and in its peak year in 2025 will require over 20,600 construction workers on site. The beginning of development will coincide with the aimed completion of Crossrail in 2018. This timing would support the transfer of engineering skills from Crossrail to Crossrail 2.

Case study: Utilities

The **Thames Tideway Tunnel** is a major new sewer that will tackle the problem of overflows from the capital's Victorian sewers into the Thames. Work on the £4.2 billion project is set to begin in 2016 and due to be completed by 2023.³² Such an ambitious project will require thousands of workers on site at its peak, so an ambitious skills strategy is already in place,³³ utilising synergies with other tunnelling projects such as Crossrail and existing training facilities such as the Tunnelling and Underground Construction Academy established for the latter's delivery.

Main findings:

- There is a shortfall of 22,580 homes between the house building target of 110,320 homes per year and the 87,740 homes included in the 2015 pipeline.
- 255,558 construction workers are needed on site to deliver the 2015 pipeline of housing, with an additional 48,370 required to meet the house building target in the same period.
- Unless the supply of construction workers is increased, house building targets will not be met and the delivery of large infrastructure projects will be jeopardised.

³¹ National Civil Engineer: *Sharp infrastructure growth predicted*, 4 August, 2014

³² For more information, please see <http://www.thamestidewaytunnel.co.uk/>

³³ Thames Tideway Tunnel (2013): *Skills and Employment Strategy*

7. INCENTIVISING THE INDUSTRY TO TRAIN

The following three chapters examine some of the issues that have led to the construction skills shortage and set out measures that can be taken to rectify them in both the short and long term. They fall under three broad areas: incentivising the industry to train more, encouraging new entrants into the industry, and increasing the quality and quantity of training provision so that it best serves the demands of the industry.

Public procurement rules

Government has long utilised its purchasing power to drive industry standards, and so changes to public procurement rules could be used to incentivise training in the long term. For example, Health and Safety became embedded in the construction industry through a series of statutory requirements within procurement contracts – which meant that Health and Safety procedure was no longer seen as just ‘nice to have’, but essential to operating a successful construction business.

Case study: Changing practices through procurement

In recognition of the key role labour agencies play on site, the London Legacy Development Corporation (LLDC) required Tier 1 contractors to adopt a Labour Agency Vendor Accord (LAVA) to ensure that fair employment practices and consistent wages were implemented throughout the supply chain. The LLDC encouraged clients to draw up a Vendor Accord agreement that ensured contractors worked with agencies that use best employment practice, standardised wage rates, pay employees PAYE and 100% CSCS compliance. This proved valuable when implemented further down the supply chain, where working conditions and wage levels can vary significantly. The Vendor Accord was successful and the Legacy Corporation can now look for similar models of good practice to be implemented on all their construction contracts.

Existing Government-commissioned contracts can provide a framework for how skills and training can be embedded in the procurement process. Any major public sector body heading a supply chain should establish a common set of requirements for contractors and sub-contractors, stipulating a commitment to training (as is the practice with Health and Safety or environmental requirements). Rather than being part of the planning process, these schemes should be prepared as early as possible, so that public and private sector bodies can invest in training with confidence in the future need for skills.

As the Government unit responsible for coordinating the planning and prioritising of UK infrastructure, Infrastructure UK (IUK) is well-placed to drive a commitment across central Government departments and local government to incentivise investment in training through the public procurement process.

Recommendation 1: Infrastructure UK should drive a commitment to embed skills and employment requirements in public procurement contracts, aimed at both Tier One contractors and suppliers.

Section 106

Section 106 (S106) Planning Agreements between councils and developers, form part of the planning application process and act as a tool for mitigating any negative effects associated with proposed development. Training and employment clauses are a common feature of S106 agreements. The council, as planning authority, will set a target for jobs that are to be sourced locally, and these obligations will be passed onto contractors and sub-contractors. The strategy for how these targets will be achieved is then recorded in the form of an Employment and Skills Programme.

Engagement with stakeholders has identified a number of issues with the current S106 system. First of all, the negotiation of S106 agreements is often the responsibility of council planning departments, who have limited understanding of labour demands or the needs of the construction sector. To avoid this, planning officers should ensure they seek specialist consultation where required. **Council officials should also liaise closely with developers and contractors to plan skills requirements prior to developments and use those plans to inform S106 training clauses.** One way of doing this would be to use labour forecasts alongside Employment and Skills plans.³⁴

By asking our contractors to submit labour histograms at procurement stage, we get a good understanding of labour requirements that we use to test the robustness of contractors targets for local labour. By being flexible and having no borough specific targets, we were able to act as a broker with individual contractors and a wide network of partners to deliver job and apprenticeship opportunities.

Paolo Nistri, Senior Regeneration Manager, London Legacy Development Corporation

S106 agreements are failing to both address the construction skills shortage and secure sustainable employment for local people. The main reason for this is that developers can only recruit trainees from a *defined postcode* within the vicinity of the development.

Postcode limitation results in a number of problems. Firstly, contractors struggle to meet the demand for skills because they must source labour from a geographically-defined labour pool. Secondly, the often short-term nature of construction projects and the longer duration of apprenticeships mean that apprentices employed at the beginning of a project may not have finished their training by the time construction is completed. As a result of the strict postcode requirements, once developments finish, apprentices cannot then move with contractors to further developments in different areas, and are therefore unable to complete their training. As contractors are required to release these apprentices, they also face the same issue on their next development in a different area.

Our Section 106 agreement stipulates that trainees should be from Southwark and be previously unemployed. However, there are many other major developers working in the borough, all with the same targets and all fighting for the same people. Given that Lambeth, Greenwich and Lewisham are a short distance away and have people wanting construction work in Southwark, it would make more sense to have a more joined up approach across the London boroughs about S106 targets, based on production capacity within each area.

Nigel McKay, Procurement and Innovation lead, Lend Lease Elephant and Castle (large developer)

The objectives of S106 agreements need to be reframed. Greater flexibility over setting local labour requirements, and allowing trainees to move to projects in neighbouring boroughs, would enable them to complete their training and enhance their long-term employment prospects (which is the boroughs' overall goal). This reform would also enable developers to move trainees to other projects within their supply chain, helping them to train a workforce that they require in the long term, not just to meet project-specific targets.

³⁴One example of this is the Labour forecast and Employment and Skills plan prepared by the Joint Construction Partnership at the Nine Elms Vauxhall Development.

Case study: Cross-borough working

Central London Forward (CLF) is a sub-regional grouping of the eight central London boroughs (City of Westminster; Camden, Islington, Lambeth, Southwark, City of London, Wandsworth and Kensington and Chelsea). In 2014 they submitted a bid to the London Enterprise Partnership to pool some of their respective New Homes Bonus (NHB) allocations into a single fund to be used for Construction Jobs Brokerage and Pre-Employment Preparation. This involved sharing intelligence on projects across boroughs, as well as construction industry job-brokers and employer engagement specialists. This will open up the opportunity for developers and contractors to source employees across the sub-region, allowing them access to a wider pool of labour and meet peaks in demand. The pooled NHB money will also fund pre-employment training. CLF aims to avoid inconsistencies in individual S106 agreements, working towards a memorandum of understanding between boroughs, on the basis of which developers will be asked to discharge their S106 obligation by employing a person resident within the eight CLF boroughs, where it has not proven possible to match a local resident of the local borough to an opportunity.

Recommendation 2: Local authorities should employ more flexible definitions of local labour when setting Section 106 requirements to allow apprentices to move across boroughs and complete their training.

8. ENCOURAGING ENTRY INTO THE INDUSTRY

Training investment is one part of the solution for skills shortages. A steady supply of suitable candidates is equally as important. This requires improving the image of the construction industry and providing better careers advice to help young people consider work in construction. In addition, skills funding must be structured in such a way that training providers can supply potential employees with the skills that the industry requires.

Image of the construction industry

The image of the construction industry has long been a barrier to attracting young people. Young people may associate the industry with trade roles, difficult working conditions and low pay, leading to the sector struggling to recruit young professionals. The industry has been stereotyped as being appropriate for a certain cohort, mainly male and working class. Women, for example, make up just 11% of the construction industry as whole, and just 7% of chartered engineers across all engineering professions.³⁵ Construction also faces competition from other sectors that promote summer internship schemes, graduate programmes, and consistently competitive salaries. The result is that the industry does not have access to a wider skill set.

Stereotypes aside, the construction industry offers a wide variety of opportunities for different trades and professions, as well as rewarding work that has tangible outcomes and clear career progression paths. Yet, this is rarely showcased.

We have to get the message of fulfilment across that comes from working on construction projects. The development of new technologies are transforming the industry and can be a catalyst to get young people engaged. There are great examples such as Crossrail, the Shard and the new Leadenhall Building that showcase the industry and they demonstrate the advanced technological processes required to put together modern construction projects.

Michael Walters, Managing Director – London, AHR Architects (5th largest employer of architects in the UK)

There are examples of industry campaigns that attempt to promote a better image of construction, but they need to be much better coordinated across industry and better communicated by schools and colleges.

Case studies: challenging perceptions on construction

In September 2014, the Institution of Civil Engineers (ICE) produced *Engineering Happiness*, a YouTube video featuring engineers on landmark London projects dancing to Pharrell Williams' *Happy*.³⁶ Featuring a range of projects and engineers from a diverse range of backgrounds, the video was produced in collaboration with schools and sixth forms.

A key priority for members of the UK Contractors Group (UKCG) is to work collectively to help tackle skills shortages in the industry. This has led to the development of *Born to Build*, an online campaign that highlights the opportunities available for young people in the construction industry.³⁷ UKCG also established the annual *Open Doors* weekends in 2012.³⁸ The programme provides an opportunity for young people, teachers and parents to get a behind-the-scenes look at major construction sites across the country and an insight into what a career in construction has to offer.

³⁵ Be Onsite, the Women into Construction Project, at <http://beonsite.org.uk/women-construction-project>

³⁶ For more information on the *Institute for Civil Engineers* and to see the video, please visit <http://www.ice.org.uk/News-Public-Affairs/ICE-News/Happy-engineers-get-dancing-to-Pharrell-Williams%E2%80%99-Happy>

³⁷ For more information on *Born to Build*, please visit <http://www.bornbuild.org.uk/>

³⁸ For more information on *Open Doors Weekend 2015*, please visit <http://www.opendoorsweekend.co.uk/>

Of greater concern is the fact that the limited knowledge of opportunities in the construction industry is also prevalent among teachers. Guidance states that schools should “prevent all forms of stereotyping in the advice and guidance they provide.”³⁹ Yet a survey of careers advisers and teachers found that eight out of ten felt they did not have the appropriate knowledge to advise pupils on construction careers.⁴⁰

There is evidence that guidance for non-academic career paths has been particularly affected by the transferral of responsibility for careers advice from *Connexions* to individual schools in September 2012. Ofsted’s evaluation of the state of careers advice post-September 2012 found the standard of careers advice and guidance to be insufficient, with only one in five schools giving all their students detailed careers support.⁴¹ A report by the cross-party Education Select Committee indicated that just one in six schools had maintained the level of spending on careers it had prior to taking on responsibility for careers guidance.⁴²

Recommendation 3: The Government should fund schools to provide obligatory, quality and unbiased careers advice from Year 7, and make it a requirement that they submit an annual careers report, evaluating the range of careers and training options covered.

Schools evaluation

Ofsted’s evaluations have shown that vocational training and apprenticeships are “rarely promoted effectively, especially in schools with sixth forms”, and “the A-level route to universities remained the ‘gold standard’ for young people, their parents and teachers.”⁴³ **Promotion of non-academic routes is unlikely to change unless schools are incentivised differently.**

Current school evaluation measures attach greater weighting to the academic results of students than their employment outcomes. As a result, high-achieving students are encouraged to progress to A-levels and university, while less academically-gifted students are guided towards apprenticeships or vocational education.

Our biggest issue in acquiring young talent has been the school itself. We try and recruit 18 year olds and put them through sponsored part time degree programmes. However, we have had many instances of young people being actively discouraged by schools from coming to us as an employer and attaining their degree rather than going straight to university.”

Steven Hale, Managing Director, Crofton Design (medium sized engineering firm)

As it stands, schools can use the Destination Measures data, published by the Department for Education, to assess how successfully their pupils make the transition into the next stage of education or training, or into employment.⁴⁴ However, only a small proportion of schools currently use this measure. **If the evaluation of schools’ performance was based equally on academic achievement and school leaver destination, this would encourage better and unbiased careers advice and ensure that schools prioritise employment and vocational training in addition to academic qualifications.**

³⁹ Schools can choose to commission additional support from contractors engaged in delivering the National Careers Service, which from October 2015 will expand its offer to schools and colleges. Department for Education (2014): *Careers guidance and inspiration in schools*, Statutory guidance for governing bodies, school leaders and school staff

⁴⁰ CITB (2014): *Educating the educators: Construction’s unique opportunity to work with careers advisers to inspire a new generation of recruits*

⁴¹ Ofsted (2012): *Going in the right direction? Careers guidance in schools from September 2012*

⁴² House of Commons Select Committee on Education (2013): *Careers guidance for young people: The impact of the new duty on schools*

⁴³ Ofsted (2012), op. cit.

⁴⁴ For more information, please see Department for Education (2014): *Key stage 4 and 5 destination measures*

Recommendation 4: Schools should be evaluated on the basis of destination measures, which should include progression into apprenticeships and employment, as well as further academic study.

Engagement with the industry

Careers advice and students' employment outcomes would be greatly improved if schools and FE colleges were better engaged with employers. The Government's Industrial Strategy for Construction identified the need for schools to engage the industry with young people from 11-12 years of age, before GCSE curriculum choices are made.⁴⁵ In this way, students would be able to pursue subjects that are prerequisites for their chosen career path in the construction industry.

Case study: Industry engagement in schools

Make The Grade is a three-year partnership between a comprehensive school, local employers and Ahead Partnership to give pupils opportunities to get hands-on experience and hear from experts. One of the employers involved in the programme is construction consultancy WYG, which invites local Year 10 pupils to visit its offices and learn more about the world of engineering. In addition to a tour of the office, the students take part in a task to challenge their problem-solving capabilities.

Industry engagement with training providers can also enable providers to be more responsive to industry needs. This remains a challenge despite considerable investment in construction skills. A number of employers interviewed were dissatisfied with the quality of young people's skills and attitudes towards work.

Applicants can lack basic numeracy and literacy skills and have difficulty filling in their induction forms. Many are also not aware of the demands of construction: the early starts, the need for a certain etiquette on site. One act of misbehaviour on site can instantly cost us a contract that we've worked for months to secure. Therefore, we are cautious about who we employ on site.

Jason Carter, Business Development, Oxford Hydrotechnics (medium sized sub contractor)

One way to address this gap is through pre-employment training – typically a six-week course, which ensures potential apprentices have the skills necessary to begin a full apprenticeship programme, including punctuality, communications skills and attitude to work. However, there is no consistent and clear funding mechanism for this training, which often leaves employers needing to plug the gap themselves.

Recommendation 5: To ensure that new apprentices and trainees arriving on site are able to meet minimum industry expectations, the Skills Funding Agency should fund pre-employment qualifications and look to extend this to competency tickets.

⁴⁵ Department for Business, Innovation and Skills (2013): *Industrial Strategy: Construction 2025*

9. IMPROVING TRAINING PROVISION

As well as encouraging new entrants into construction work, skills provision and funding must be structured so that training providers are able to supply employees with the skills required by industry.

Modern methods of construction

Lack of awareness among training providers of changes to industry practice – specifically regarding modern methods of construction – is a frequent concern within the sector. For instance, while the majority of training provision is focused on brickwork, which is still in high demand in the housing sector, commercial construction is more likely to require competency in blockwork, which is rarely covered in standard brickwork training.

Off-site construction is another example of a modern method of construction, where components are mostly manufactured in a factory-controlled environment and assembled on-site. In order to meet these new skills needs, as part of the Government's Trailblazers scheme, Laing O'Rourke has taken the lead in developing an 18-month apprenticeship scheme specifically focusing on off-site construction assembly.

Encouraging training of modern methods of construction can be a frustrating and complicated process. Dry lining, for example, is an area where older people in the industry would be able to retrain, though as the SFA do not fund apprenticeships post 18, the CITB are limited to offering traineeships, which are not eligible to drawing down levies.

Phil de Montmerency, Joint Co-ordination Unit Manager, London boroughs of Wandsworth and Lambeth, Nine Elms Vauxhall

One factor in the lack of adopting modern methods of construction in qualifications has been the cost of training, and the need for physical space and capital investment in training facilities. For colleges in central London, where space comes at a premium, this can be a real constraint. One way to overcome this obstacle is by increased collaboration between colleges, allowing training providers to share and improve facilities for training required for modern methods of construction.

Case study: Industry taking the lead

Skills shortages have become increasingly apparent within reinforced concrete (RC) framing, with the Newtown Group estimating that the industry will need over 2,000 more workers, including shuttering carpenters, steel fixers, and finishers, to meet the demands of the industry in the next two to three years in London alone. Barking and Dagenham College plans to establish a RC framing facility with Newtown Group in the near future. The partnership will see participants train at the college for two weeks before an evaluation process of one week on site. Once confident that the trainee/student is committed to working in the profession, they will be enrolled onto an NVQ to complete their training. There are plans for Barking and Dagenham and Lambeth Colleges to deliver RC frame training as a joint venture with Newtown in the future.

At the root of the shortage of training in modern methods of construction, however, is the lack of communication between training providers, industry leaders, and the bodies responsible for setting qualifications. A number of employers referred to the 'stickiness' of the skills system, indicating that it takes too long for changes in industry practice to be reflected in training.

Some developers working on large projects are already looking to adapt certain qualifications to fit their needs. However, a more comprehensive and centralised effort is needed to redesign training frameworks to reflect modern methods of construction. The design of these frameworks should involve both Tier One contractors and the many sub-contractors whom are more likely to directly employ apprentices.

Recommendation 6: The Skills Funding Agency should convene industry bodies and representatives to redesign training and apprenticeship frameworks to reflect modern methods of construction, and disseminate them for adoption by training providers.

Creating a visible pipeline

To make the training system more responsive to the industry's needs, providers need to be incentivised to refocus their training from student-driven provision to employer-led demand. Greater visibility of projects is vital for securing investment in training. On its own, the market fails to signal to young people and training providers the range and number of available jobs. A pipeline that is correlated with up-to-date planning information is vital to creating confidence for investment in skills.

The clear pipeline of projects and labour requirements outlined in this report should show training providers which qualifications they can scale back and which require more provision. Ultimately, this type of intelligence should be driven by Central Government. While many larger developments (such as the Mace Nine Elms Vauxhall project or the LLDC's redevelopment of the Olympic Park) already create their own labour forecasts (via the CITB's LFT), these are often not widely shared beyond project stakeholders. This limits the value of this intelligence in determining wider funding streams.

Infrastructure UK (IUK) compiles the National Infrastructure Plan, a list of the Government's priority infrastructure projects. However, a number of these projects are yet to come to market, which makes it difficult to garner sufficient investment in skills. Miles Ashley, Programme Director of Crossrail and Stations at Transport for London, said: "IUK has attempted to provide greater visibility on the pipeline of infrastructure projects, but the reality is that the decision-making process on major infrastructure in this country is still too short-term. We need to drive the governance process towards more long-term thinking in order to get the levels of investment required to change some of those underlining industry figures." IUK has recently commissioned a separate analysis of required skills from the CITB, which will take geographical distribution of skills into account, as well as the existing state of skills provision.

Pipeline intelligence should be shared with the appropriate level of functional economic areas to maintain a strategic overview of labour market needs. The development of strategies such as the London Infrastructure Plan and subsequent working groups are one example of how such a strategic overview could be achieved. To further ensure that providers can respond to industry needs, skills funding should also be locally devolved to the most appropriate level.⁴⁶ Funding mechanisms would be adjusted at a regional or local level to enable the commissioning of training provision.

The devolution of skills funding would be a significant step forward in helping local authorities respond to the skills needs in their areas. This would allow councils to influence provision of training courses tailored to employer demand rather than courses driven by student preferences.

Nicholas Heslop, Secretary, South East England Councils

Recommendation 7: Local and regional authorities should maintain and share a pipeline of future projects, with skills responsibility and funding devolved to the most appropriate level of functional economic activity, to enable the commissioning of demand-led training provision.

⁴⁶ This was called for in both Lord Heseltine's *No Stone Unturned report* (2012) and in Lord Adonis' *Growth Review* (2014)

The apprenticeship system

To encourage employers to invest more in training apprentices, the system for funding the educational costs of apprenticeships requires reform. The construction sector has a strong tradition of workers learning their trade through apprenticeships, and these apprenticeships are considered to be among the most beneficial in any sector in terms of training quality. However, the number of construction apprentices completing their apprenticeships in England fell significantly to just 7,280 in 2012/13, half its peak level in 2008/09.⁴⁷ Moreover, construction has been found to be one of the worst-performing sectors for apprenticeships in London, with just 0.7 apprentices per 100 employees in the construction sector, compared to 1.8 in business services and 1.2 in retail.⁴⁸

Funding for the educational cost of an apprenticeship is provided by the SFA. However, apprentices are only fully-funded between 16 to 18 years of age: apprentices aged between 19 and 23 years are only half-funded, while those aged 24 and over are no longer eligible for SFA funding. **This incremental decrease in funding can disincentivise employers from investing in further upskilling their workforce, as a construction apprentice completing an 18-month NVQ Level Two apprenticeship will most likely be over 19 years of age.**⁴⁹

The current CITB apprenticeship funding model doesn't always create the right incentives for firms to train and retain the next generation of construction workers. Therefore, what you end up with is a number of construction firms using apprentices as cheap labour on site, getting them to carry out menial tasks, which obviously doesn't help them develop. Due to the way CITB funding is currently allocated for apprentices, some firms will simply lay off apprentices at the end of their two years of training, when the funding stops, and take on new ones. Most of those laid off tend not to stay in the industry as a result. We are working with the CITB to develop an improved funding model that prevents this from happening – the industry is attracting new entrants; now we need to get better at keeping them.

Ian Dickerson, Head of New Entrants and Funding, Kier (main contractor)

The Government has announced changes to the apprenticeship funding regime to ensure that training provision is better suited to employers' needs. These changes would see employers make upfront payments to training providers for their apprentices' training, with costs subsequently recouped from Government via the PAYE system.⁵⁰ The prospect of increased employer contribution to apprenticeship funding has had a mixed reception in the industry. On one hand, the change will encourage training providers to improve the quality of their apprenticeship offer, as employers will be more likely to hold training providers to account. However, others are worried that the proposals could further reduce the number of apprentices. Bodies such as the UK Contractors' Group have expressed concern about a greater financial and administrative burden on SMEs, and reduced levels of public money on offer. Accounting for the additional burden imposed on SMEs is especially pertinent, given that 60% of all apprentices in the sector are employed by firms with fewer than 10 employees.⁵¹

The overriding ambition shown by Government to improve the quality and type of candidates emerging from training providers is welcome. However, any changes to the funding system must take into account the needs of SMEs, so as not to deter them from training apprentices. The Government should also review the reduction in funding of apprentices aged 19 – 23 years to encourage more firms to up-skill employees beyond NVQ Level Two.

Recommendation 8: The Government must review the impact of proposed changes to the apprenticeship funding system to minimise the financial and administrative burden on SMEs, and increase the level of funding given to apprentices between 19 and 23 years of age to encourage the acquisition of higher-level qualifications.

⁴⁷ House of Commons (2014), op. cit.

⁴⁸ London Assembly Economy Committee (2014): *Trained in London: Creating more apprenticeships to support the London Economy*.

⁴⁹ House of Commons (2014), op. cit.

⁵⁰ These changes were proposed in Richard, D. (2012): *The Richard Review of Apprenticeships*; and accepted by the Government in HM Government (2013): *The Future of Apprenticeships in England: Implementation Plan*

⁵¹ CITB Employer Panel: *Employer Attitudes and Motivations in Learning and Training* (unpublished)

10. CONCLUSION

Construction skills shortages are already affecting the delivery of projects. Unless these shortages are addressed, they will have fundamental impacts in the long term. This report demonstrates that shortages are felt across the industry, affecting most trade and professional roles. With 20% more workers required on site to deliver projects already in planning for 2014-17 compared to the previous four years, training provision needs to increase by over 50% to meet the demand for labour. Unless these training gaps are filled, the construction industry's ability to build enough housing and deliver major infrastructure projects will be jeopardised.

Three primary factors underpin the shortage of skilled construction workers: a lack of incentives for firms to train; insufficient numbers of new entrants into the sector; and a lack of capacity within the training system to deliver the skills needed by the industry.

Incentivising firms to train more workers creates a more sustainable workforce. Relaxing postcode restrictions inherent in Section 106 requirements would increase the pool of potential workers and improve the likelihood of apprenticeship completions. Embedding skills and employment requirements into public procurement contracts, meanwhile, would help forge a more long-term culture of training as standard industry practice.

More needs to be done to encourage young people to work in construction. Negative stereotypes of construction work persist, exacerbated by poor careers advice in schools and reluctance to promote non-academic routes such as apprenticeships, work experience or vocational training. Informing parents and students at an early age of opportunities available, and adding destination outcomes to the criteria that schools and colleges are evaluated by, would help address the bias against careers in construction.

Failure to equip candidates with the skills industry requires and the slow pace of adapting qualifications to modern methods of construction are increasingly recognised as issues. Maintaining a visible pipeline of construction projects would provide the critical evidence base to support decision-making, while devolved skills funding would help drive demand-led training provision, better-matched to the needs of the industry.

The construction skills challenge will not be resolved overnight. But by setting in motion these recommendations now, the delivery of projects in the future will not be hampered by a lack of relevant skills. It is time to act and create the *skills to build*.

II. METHODOLOGY

The quantitative analysis in this report was carried out by the Greater Manchester Chamber of Commerce (GMCC). Using the methodology they developed in 2013, the data for this analysis was provided by Barbour ABI, the Construction Industry Training Board's (CITB) Labour Forecasting Tool and the Skills Funding Agency (SFA) data cube.

The pipeline data includes all construction projects in London and the South East that have applied for planning permission in the last three years, which are both ongoing and future.⁵² However, the Barbour ABI data does not cover projects that require no planning permission, including most repairs and maintenance. In addition, to ensure that the analysis is based on projects that have a high degree of certainty attached to their delivery, it excludes projects with a value under £500,000, projects that have an unspecified duration or start and end date, or that have been refused planning permission, abandoned or withdrawn from planning.

The Barbour ABI database defines the South East as the counties of Bedfordshire, Berkshire, Buckinghamshire, Essex, Hertfordshire, Kent, Oxfordshire, Surrey, East and West Sussex. Despite this diverging from the Government Office Region (GOR) definition for the South East,⁵³ this report's analysis has used the Barbour ABI definition as these counties border the Greater London region and workers from these areas readily take up employment in London, making them part of the capital's functional travel to work areas.

The project types represent the primary categorisation that is required for the labour forecast tool and have been formulated by cross-checking the categorisation of projects supplied by Barbour ABI. For example, *infrastructure* includes power generation, sewerage, drainage, and transport (e.g. roads, bridges, ports, railways). *Public non-residential* comprises government-funded projects and social infrastructure, such as schools, hospitals, courts, as well as economic renewal and regeneration projects.⁵⁴ *Housing* is generally defined as all buildings that are constructed for residential use.⁵⁵ *Private commercial* comprises offices, retailing and retail warehouses. *Private industrial* includes factories and other production facilities, mills, warehouses and agricultural buildings.

Work beyond 2015 is, however, likely to increase over and above the levels shown in this report as more projects move into planning over the forthcoming years. This means that **the pipeline volume and labour and skills requirements for 2015 onwards will be subject to upward revision with significant changes likely for 2016 and beyond.**

The labour requirement analysis has been created using the CITB Labour Forecasting Tool developed by Whole Life Consultancy based at the University of Dundee. The results of the analysis are grouped using 2010 occupation codes developed by the Office for National Statistics (SOC codes).⁵⁶

The skills gap and additional training requirements are based on the premise that a minimum of 5% of the overall construction workforce need to be in training at any one time.⁵⁷ On that basis, the figures for 5% of the labour required across each SOC code to deliver the pipeline over the analysis period is compared to current training provision to identify the training gap.

Training provision across all SOC codes is based on data from the SFA for qualification starts and apprenticeship frameworks across London and the South East for the 2010/11-

⁵² Where a project started prior to the analysis period or is expected to continue after 2017, the value figures have been divided equally across all years of the project duration. In most cases the contribution of these project values to the analysis period represent the high mid-way point of costs within the project duration.

⁵³ The GOR of the South East consists of Berkshire, Buckinghamshire, East Sussex, Hampshire, the Isle of Wight, Kent, Oxfordshire, Surrey and West Sussex.

⁵⁴ Using this methodology, railway passenger facilities are classed as infrastructure but station developments that include other uses, such as the HS2 Euston Station or some parts of the Crossrail, are classed as public non-residential.

⁵⁵ Within the public sector this classification includes construction items such as local authority housing schemes, hostels, old peoples' homes, children's homes; and the provision within housing sites of roads and services for gases, water, electricity, sewage and drainage. Private sector housing includes all privately owned buildings for residential use, such as houses, flats, etc., and the provision of services to new developments.

⁵⁶ These SOC codes are also used to categorise labour in the CITB's Labour Forecasting Tool.

⁵⁷ This includes both up-skilling of existing employees and new entrants to the industry. The figure was derived through close consultation with training providers and employers within the Greater Manchester region. Some believe that 10% of the workforce should be in training, to meet the actual demand.

2012/13 period. Wherever information on specialisms is available, the qualifications have been assigned to SOC codes. Because of the way data is collected by the SFA, this exercise is not comprehensive. Many construction qualifications do not align directly with a specific occupation (there are general qualifications in construction that do not contain any one specialism) and there are some trades where skilled labour requirements can be met by utilising supply from other sectors (e.g. non-construction professionals). Other specialisms tend to be entirely degree-led and are not covered within this data set.

All averages across the forecast period are expressed as median. Median is used as a fairer reflection of the fluctuations that occur month by month over the forecast period. The case studies are of projects with substantial public political and financial interests, but include projects that are outside of the main analysis period.

LCCI also conducted qualitative research, including a roundtable discussion in September 2014 and in-depth interviews with over 150 property and construction businesses of different sizes and across all levels of the supply chain, as well as stakeholders such as training providers, local authorities, chambers of commerce, and representative bodies.

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The quantitative research for this report was conducted by the Greater Manchester Chamber of Commerce (GMCC). GMCC is the largest Chamber of Commerce in the United Kingdom, providing business support services to over 4,300 members who collectively employ around one-third of Greater Manchester's workforce. The Chamber is the region's primary body for business support, policy, representation and networking. The aim of the Chamber is to support businesses and to help create the best climate for the region to prosper.

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Barbour ABI

The pipeline data for this report was provided by Barbour ABI. Barbour ABI is a leading supplier of construction intelligence data and specialists in gathering, processing and delivering insight and intelligence on the built environment. Its data reports on every planning application in the UK and tracks over 20,000 projects that do not require planning permission, which are then used by thousands of independent organisations, stretching across sectors such as construction, education and retail. From planning applications through to the subcontractors finishing on site, Barbour ABI provide key intelligence such as project details, start/end dates, materials required and contact information, making it simple for our clients to win more business.

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