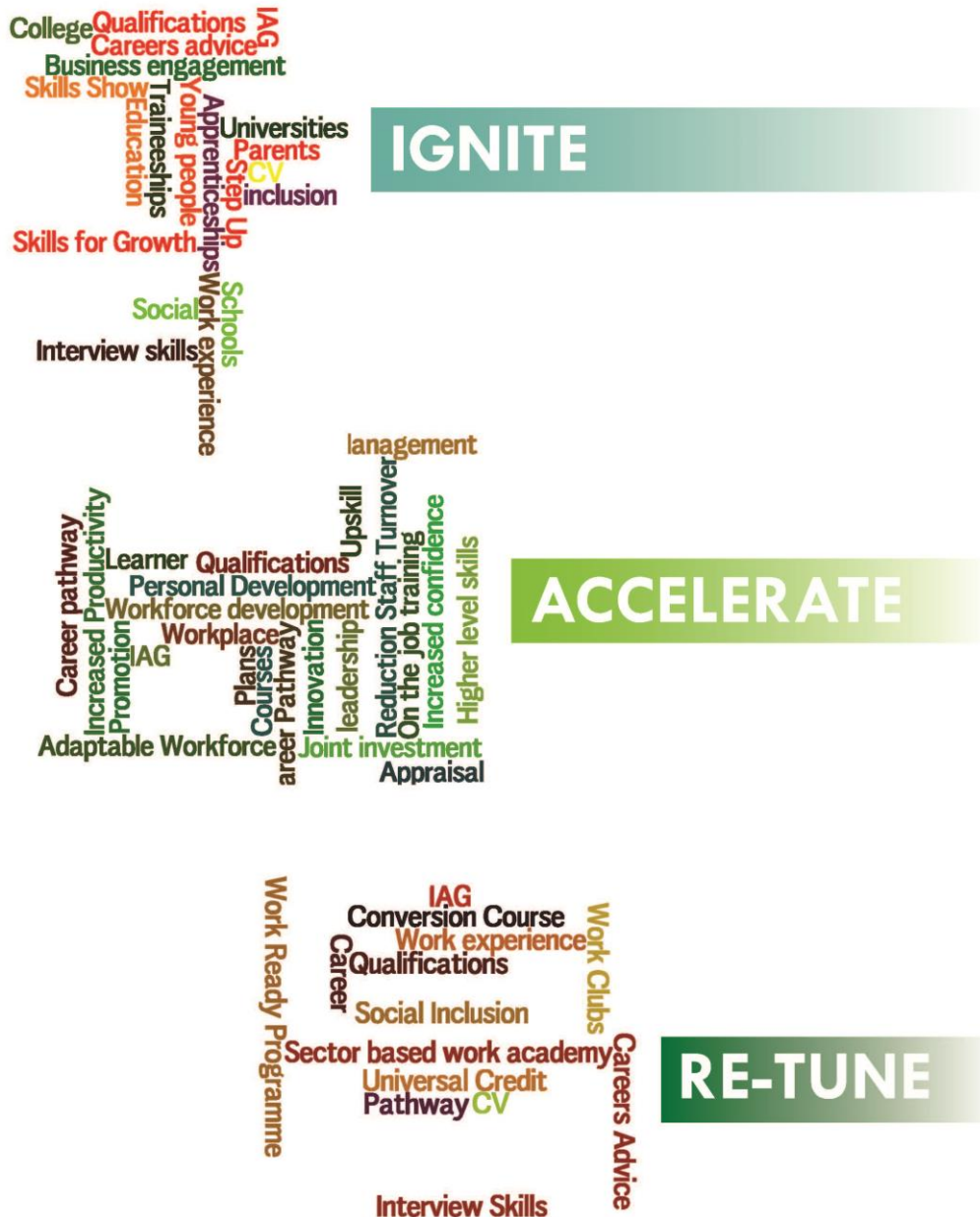


# Getting our People Ready for HS2



## Getting our People Ready for HS2

### Vision

HS2 will deliver new job opportunities at a scale and range not seen for decades. We will ensure that local people are inspired and skilled to fill these opportunities and that they continue to develop their skills throughout their careers, driving productivity and attracting new investment.

Collaborating with local delivery partners in education and training we will **ignite** interest in the jobs that will be delivered through this Growth Strategy, engaging with young people from an early age, raising awareness of career pathways and influencing their choices.

We will invest in our local workforce and **accelerate** their progression along the skills continuum ensuring that individuals achieve their full potential be it academically and/or vocationally. We will ensure that our existing workforce has the skills that businesses require to encourage them to invest in the area, grow and innovate.

We will **re-tune** the skills of the adult workforce so that those who are out of work or employed in declining sectors, are able to re-train to access the jobs created as a result of HS2 and support further economic growth.

### **Our vision for HS2 – what employment and skills success looks like**

- Local people secure employment across the full range of construction, planning and engineering opportunities arising throughout the delivery of HS2
- Local people are skilled and ready to fill the longer terms jobs that will be created as a result of the completion of HS2 and their skills are key to attracting additional investment
- Young people are fully aware of the opportunities arising as a result of HS2 throughout their education and tailor their education, training and career choices based on comprehensive, independent careers advice informed by up to date economic analysis and excellent links with industry
- HS2 contractors are supported and able to recruit locally so that they have the right people with the right skills at the right time to keep the project on track
- Businesses coming into the area or investing in growth as a result of HS2 are supported to recruit locally and invest in skills through a multi-agency partnership offering a seamless service to meet their workforce needs thus driving productivity and increasing the area's GVA whilst reducing unemployment

## GBS LEP – Skills and Employment Summary

Our Strategic Economic Plan (SEP) sets out our vision for Greater Birmingham and Solihull’s role as the major driver of the UK economy outside London. HS2 is central to achieving this vision, and without the right workforce and skills, we cannot fully deliver on HS2. We will ensure that:

- There is access to an appropriately skilled workforce enabling HS2 to deliver high quality outcomes on time and to budget
- The National College for High Speed Rail (NCFHSR) is operating effectively to deliver the higher level skills needed for HS2 construction
- Longer term, that:
  - HS2 infrastructure and logistics workforce and skills needs are met,
  - West Midlands advanced manufacturing , engineering and construction companies maintain their workforce and have improved access to skills whilst HS2 needs are also met, and
  - Local and incoming businesses of all sizes have the workforce and skills they need across sectors of the economy to maximise HS2 growth potential.

Our Skills Action Plan sets out LEP actions in key areas – working with schools to promote careers and raise ambition, embedding apprenticeships and supporting workless people into work – to ensure that both short term and longer term skills needs can be delivered. It is now nearly two years since our plan was developed. We are in the process of renewing our skills plan, linking it more closely to LEP area employment support activity and further strengthening how we work together in partnership to respond to the challenges of HS2 and the range of economic opportunities emerging since SEP development, as well as new political opportunities around Growth Deals and devolution.

Central to renewing our skills plan is our new skills framework, with three key themes:

- IGNITE – targeting those in education and training to raise aspirations and ensure that the right advice and support is in place for young people to achieve their ambitions. This includes the LEP’s vision for pathways through to higher level vocational skills required for HS2 and delivered through the National College for High Speed Rail.
- ACCELERATE – targeting those in work, to make skills and career progression – including to higher level vocational skills – the norm and support productivity increase
- RE-TUNE – targeting unemployed people and those whose skills don’t match labour market demand.

The development of a skilled workforce to deliver HS2 is a key element that will run through each of these themes which, in turn, will be integrated within our key delivery strategies including Skills Investment Zones, ESIF and business support.

All relevant assets and resources in the LEP area will be leveraged to ensure effective delivery as follows:

PEOPLE: We will build on having a diverse and comparatively young population as a key asset in meeting HS2 employment and skills needs. An example of what this will look like is set out in the case study below. We recognise that we have specific issues at the extremes of the skills spectrum with too many people with no qualifications and not enough people with qualifications at level 4 and above and we will focus our activity on addressing this issue. Our HS2 Growth Strategy will act as a catalyst to ensure that all GBS LEP residents, including those furthest from the labour market, are aware of and can access employment and skills opportunities provided through the Growth Strategy, reach their potential and rebalance supply and demand for skills at the extremes.

### **Our vision for HS2 – success for local people**

Hi, my name is Ana.

I'd like to tell you about how HS2 has changed my life.

I was always really keen on drawing at school but didn't really think about my future career. We had a fantastic company, Innovate Engineering, that came in to my school. They worked with us to let us know about the range of careers available and the skills that are needed. They encouraged us to keep our options open and work on ICT, maths and sciences as well as arts. In ICT, we did some CAD and it was really exciting – it inspired me to continue my interest in drawing using CAD. In year 10, I had a work placement with Fiveway Electronics and got the opportunity to see what projects they were doing and how CAD was used for real. I had good advice and support from my school to make sure I chose the right subjects for my GCSEs – double science and Product Design as well as English and maths. They were fantastic about making sure I had the right help to get good grades in those subjects I knew I would need to pursue my design interests.

The best option for pursuing my engineering design career was through Birmingham Metropolitan College, so my school arranged for me to move across to the college who placed me with QZ Engineering to do an advanced engineering apprenticeship. This included an NVQ level 2 in basic engineering tailored to the needs of the company and an NVQ level 3 in electronic control engineering. I did a technical certificate at level 3 BTEC in Engineering, electrical / electronic pathway, with a mix of both mechanical and electrical units and CAD. It was kind of scary going to a new place and having to leave my friends behind. I was worried about being the only girl too. But there were some other girls and we had fantastic support from the tutors – and there were more girls coming up behind us – now I think it is nearly half girls at the college. And the boys were great too – we all worked together.

While I was at the college, there was a big drive on training students for HS2. I hadn't really thought about doing something in a "heavy" engineering sector. But there was a real buzz about the fact that something this big was coming into Birmingham and when the college encouraged us to think about HS2 opportunities, I realised that the big stuff is really exciting and I wanted to be part of that. This meant that QZ Engineering was not best placed to provide me with a higher apprenticeship.

I applied to FutureRail Engineering for a degree level apprenticeship vacancy. I was able to attend the prestigious new National College for High Speed Rail to study for a Foundation Degree and then

progressed to a full BEng (Hons) degree. I was able to earn a wage while I learned. It has been really hard work and sometimes I have struggled, but I have had great support from NCFHSR and FutureRail and have completed my engineering degree – working on HS2 for real. Next – I’m not sure. I aim to become a chartered engineer, so I will do a Master’s – Aston University is internationally acclaimed – and on the doorstep. And I want to travel – now the HS2 infrastructure is complete here in Birmingham, my skills are in demand all over the world.

It’s been really exciting to be right at the centre of something this big that is transforming Birmingham. Lots of my friends and family are getting in on the act too. My dad now has a great job with the logistics centre – he was able to retrain after he had been unemployed on and off for years. Some of my cousins are working there too – my cousin is doing a logistics apprenticeship. My friend is working in a new retail outlet in Curzon and is now a trainee manager, and another friend is working as a paralegal in Legal Z International which came into the new site next to Curzon.

**PLACE:** Each place within the GBS LEP area has specific sector, spatial and workforce strengths. We will identify specific areas of opportunity, to include HS2, and create Skills Investment Zones as a focus for our delivery strategies. This will prioritise our investment to ensure that local people are supported to secure these opportunities and that our investments align with workforce demands. Through this approach we will support local people to access opportunities within their travel to work area with a particular focus on identifying opportunities suitable for people within significant areas of unemployment, such as East Birmingham.

**PARTNERS:** We have strengthened the partnership and governance arrangements of the LEP to underpin the delivery of our employment and skills strategies. We have a strong track record locally of working with residents furthest from the labour market and placing them into jobs, for example, the Birmingham New Street Gateway.

### **Birmingham New Street**

Working with partners across the LEP area, Birmingham City Council leads a multi-agency partnership that has delivered the skilled workforce required to redevelop New Street Station and is now focused on supplying the skills required for the new outlets that are moving in to New Street, including the flagship John Lewis store.

The partnership has delivered on a range of skills needs ranging from apprentices and graduate placements to routes back into work for the unemployed.

Performance during the redevelopment phase:

- 208 Unemployed Birmingham residents have participated in customised Pre Employment Training
- 49 Members of the Project Management and Delivery Team have completed project and management related training
- 4,618 Individual labour resource recorded as working on the project
- 120 Jobs safeguarded for Birmingham residents

- 1,442 Jobs/apprenticeships/graduate opportunities created for Birmingham residents
- 67 Birmingham residents have gained an Apprentice Opportunity (107 apprenticeship cumulative starts)
- 34 End User Jobs – Network Rail & London Midland

Key to the success of the partnership has been having a clear project management structure with a single point of contact coordinating activity to match the supply and demand for skills. This model of working is now being replicated by Network Rail in other parts of the country and will be applied to the delivery of Skills Investment Zones, including HS2.

**EDUCATION, TRAINING & SKILLS PROVIDERS:** The National College for High Speed Rail will be a national beacon for higher level rail skills. The LEP will ensure that the College is launched in September 2017. The LEP will build on the strong track record of its local Employment and Skills Boards in developing business partnerships with schools, UTCs, colleges, universities and private providers to ensure a strong pipeline of appropriately skilled recruits for job vacancies, and learners coming forward to take up NCFHSR places and other higher level skills opportunities. Our FE college partners are already committed to working as a consortium and are in the process of broadening their membership to include higher education and private training providers. Providers working together to develop the pathways between them and through to employment is key.

**LEADERSHIP AND MANAGEMENT:** To achieve the employment and skills vision for the HS2 Growth Strategy, the LEP will set the strategic direction and lead the coordination of employment and skills provision across the range of HS2 related activity in the West Midlands. Through the development of the strategy we are strengthening our partnership working on a cross LEP basis to better provide that oversight role. We will make use of our West Midlands Procurement Framework to maximise the number of traineeship, apprenticeship and other employment opportunities made available to local residents and we will support contractors to deliver this. We will aggregate skills demand, and coordinate supply. We will project manage and monitor HS2 skills and employment delivery as part of our overall employment and skills programme as well as it being embedded within the local HS2 project team.

**INVESTMENT:** We will coordinate local investment in employment and skills in order to maximise the impact and avoid duplication. This includes securing ESIF and other grant funding and working with partners and businesses to get the best possible return on their investment through delivering the best outcomes for local people. We will continue to work with Government departments to influence their investment in the area to support the delivery of our employment and skills strategies with a view to securing a Skills Devolution Deal by the end of 2015 as proposed by the Chancellor in February.

### **Economic Benefits**

- 10% of all jobs relating to the construction of HS2 (1,042 per year) will be filled by Midlands residents previously unemployed. This will provide the following benefits to the exchequer between 2017 and 2022:
  - A total saving in benefits of £15.6m 2017-2022
  - A total of £12.2m in additional tax income 2017-2022
- Post build 10% of all jobs created across all sectors in the wider economy (average of 4,000 new jobs per year from 2026 to 2045) will be filled by Midlands residents previously unemployed. This will provide the following benefits to the exchequer between 2026 and 2045:
  - A total savings in benefits of £218.4m 2026-2045
  - A total of £171.5m in additional tax income 2026-2045
- The West Midlands will match the England average for resident workforce qualified to level 4 to meet both HS2 and wider skill needs. This level of up skilling is projected to have the following impacts:
  - West Midlands GVA increase by 2.6%
  - Increase of £1.15bn in tax revenue from the West Midlands

### **Delivering the Vision**

#### **Strategic Leadership**

Through the leadership of the LEP's Employment & Skills Board (ESB), we are securing the buy in to deliver our vision from Government, industry leaders, other WM LEPs and key stakeholders delivering education, employment support and skills. The ESB will set the direction and the pace to deliver the skills required to build HS2 and support the wider economic growth of the region.

Our strategic framework for skills , outlines three key areas of activity to be delivered through a multi-agency partnership of strategic and delivery partners focussed on understanding and balancing the supply and demand for skills. Identifying and rapidly responding to employer needs is crucial to our success which is why our economic intelligence and business support functions are an integral part of delivering our skills ambitions. All elements of delivery will be overseen by the ESB to ensure connectivity and the engagement of employers in co-designing our solutions.

#### **Ignite**

We will coordinate and promote an 'HS2 Ready' careers inspiration programme, drawing together activity already delivered through HS2 limited, Tomorrow's Engineers, CSR City, the National Careers Service and others to provide a coherent offer to schools, colleges, universities, young people and their parents/carers. This programme will be delivered from Primary school upwards and will include bringing the world of work into core classroom activities with opportunities to engage across all curriculum areas.



We will deliver the Birmingham campus of the National College for High Speed Rail (NCfHSR), bring together key stakeholders to develop a curriculum that meets current and future industry needs and ensure that there are appropriate pathways in place to feed students into the NCfHSR and on into successful careers. Progress to date includes:

- Shadow Board established – chaired by Terry Morgan, HS2 Limited
- NCfHSR HQ will be in Birmingham
- Plans for College at design concept stage (RIBA Stage 1 Plan of Works)
- Feasibility brief being developed to align build to curriculum needs
- Curriculum offer is in development through the Shadow Board (alongside Doncaster)
- Appointment of NCfHSR Chief Executive currently underway – due to be completed Summer 2015
- Application for formal incorporation of college has been agreed by secretary of state – to be completed 2015

### Accelerate

Delivering a workforce qualified to level 4 on the scale that we project is required will not happen through the 'ignite' phase alone. Working with local businesses and prospective HS2 contractors to develop their existing workforce to be 'HS2 Ready' is a significant part of our strategy with a number of strands including:

- Amalgamating demand for skills from businesses of all sizes across the supply chain and leading a multi-agency approach to meeting this demand through training and recruitment support
- Delivery of workforce development activity through the NCfHSR
- Securing ESIF funding to support workforce development as an integral part of the HS2 Supply Chain Initiative
- Boosting the take up of apprenticeship programmes and increasing progression to higher apprenticeships

### Re-tune

Building on the success of projects such as New Street Gateway, we will project manage a multi-agency approach to up skilling the unemployed and supporting them to access jobs created by and because of HS2. We will coordinate the use of existing resources to gain maximum value from them and secure additional resources through ESIF and other routes to deliver additional activity.

Provision will include:

- Careers advice
- Work experience placements
- Pre-employment training
- Application support
- Interview skills
- Post-employment support to ensure sustainability



## **GBS LEP Commitments to Delivering the Skills for HS2 and the Wider Skills Needs**

GBS LEP has a strong track record in partnership working which will underpin the delivery of this strategy. We are at the early stage of discussions with key businesses and education, employment & skills providers who will be asked to sign up to a detailed employment and skills charter that includes the following commitments. We ask that Government also make a commitment to supporting us to deliver on our ambitions. These commitments will also underpin negotiations with Government on the proposed Skills Devolution Deal.

<b>GBS LEP Commitments</b>	<b>Government Commitments</b>
<p>Direct activity, set the pace and coordinate investment</p> <p><u>Ignite</u></p> <ul style="list-style-type: none"> <li>• Develop and coordinate ‘HS2 Ready’ careers advice programme to be delivered in conjunction with HS2 limited, Tomorrow’s Engineers, CSR City and the National Careers Service</li> <li>• Deliver the physical infrastructure for the National College for High Speed Rail(NCfHSR)</li> <li>• Coordinate the curriculum input for the NCfHSR and feeder routes through engagement of HS2 Ltd, business stakeholders, Schools, FE &amp; HE.</li> <li>• Ensure that the NCfHSR opens on time and with a good take up of places</li> <li>• Maintain and promote up to date intelligence on demand for skills for HS2</li> </ul> <p><u>Accelerate</u></p> <ul style="list-style-type: none"> <li>• Invest the LEP’s Local Growth Fund into capital projects that deliver state of the art training facilities that meet employer needs</li> <li>• Workforce development will be at the heart of the HS2 Supply Chain Initiative</li> <li>• Promote tendering opportunities to local businesses</li> <li>• Amalgamate demand for skills from businesses of all sizes across the supply chain and lead a multi-agency approach to meeting this demand</li> <li>• Secure ESIF funding to support activity</li> </ul>	<ul style="list-style-type: none"> <li>• Meet additional demand for engineering and engineering construction sector skills which will be required, including to backfill SME and supply chain skills lost to HS2</li> <li>• KPIs – harmonise these between Government departments to ensure there are no conflicts of outcome for providers in placing people in <u>sustainable</u> work and progressing them on the journey to and in work with learning and qualifications</li> <li>• Ensure skills providers are not penalised for achieving job outcomes rather than completion.</li> <li>• Provide a clear line of communication between the LEP and DfE, in partnership with BIS, to support a better connection between formal education, careers advice and pathways into employment</li> <li>• Investment into the new model of working with DWP Work Coaches being developed in partnership with the LEP</li> <li>• Continued support from BIS attachment to develop a skills devolution deal</li> </ul>

<p><u>Re-Tune</u></p> <ul style="list-style-type: none"> <li>• Project manage a multi-agency approach to upskilling the unemployed and supporting them to access HS2 vacancies. To include             <ul style="list-style-type: none"> <li>- Careers advice</li> <li>- Work experience</li> <li>- Pre-employment training</li> <li>- Application support</li> <li>- Interview skills</li> </ul> </li> <li>• Secure ESIF and match funding to support the multi-agency partnership</li> </ul>	
<p><b>Businesses Commitments</b></p>	<p><b>Education, Employment &amp; Skills Provider Commitments</b></p>
<p><u>Ignite</u></p> <ul style="list-style-type: none"> <li>• Co-creation and delivery of HS2 Ready Careers Programme</li> <li>• Co-creation of the curriculum for the NCfHSR and feeder routes</li> <li>• Work experience for young people in education and training, including traineeships</li> </ul> <p><u>Accelerate</u></p> <ul style="list-style-type: none"> <li>• Create 1,000 Apprenticeship Opportunities</li> <li>• Generate 14,600 person years of construction employment opportunities</li> <li>• Overtraining to meet demand beyond own workforce needs</li> <li>• Use of facilities for training</li> <li>• Commitment to upskilling</li> <li>• Take on apprentices</li> <li>• Apply West Midlands Procurement Framework to local contracts</li> </ul> <p><u>Re-Tune</u></p> <ul style="list-style-type: none"> <li>• Advance notice of vacancies to DWP</li> <li>• Work experience for JSA claimants</li> <li>• Engagement in pre-employment training including Sector Based Work Academies</li> </ul>	<p><u>Ignite</u></p> <ul style="list-style-type: none"> <li>• Engage in the ‘HS2 Ready’ programme and identify opportunities to bring the world of work into the classroom</li> <li>• Offer work experience as a key part of the educational experience</li> <li>• Develop and promote feeder routes into employment, further and higher education at the volumes and in the vocational subjects required to meet demand</li> <li>• Promote the delivery of independent careers advice</li> </ul> <p><u>Accelerate</u></p> <ul style="list-style-type: none"> <li>• Quality – employer led to industry standards</li> <li>• Invest in the development of provision that meets employer needs</li> <li>• Deliver provision at the volume and in vocational subjects required</li> <li>• Support the delivery of provision against amalgamated demand</li> <li>• Develop specialisms to ensure that employer needs are met</li> </ul> <p><u>Re-tune</u></p> <ul style="list-style-type: none"> <li>• Work with employers to co-create and deliver pre-employment training programmes</li> </ul>

## Evidence Base – HS2 Skills

HS2 is expected to generate jobs in two distinct phases:

The construction of HS2, from London to the Midlands, is likely to require a labour force of 65,000 job years, with the majority of construction activity taking place between 2017 and 2022. A large proportion of HS2 construction jobs will be on a contract basis, which means that the actual labour requirement is unlikely to greatly exceed 10,000 jobs in any one year. These jobs will be primarily in the fields of design, project management, civil engineering construction and specialist railway engineering.

Post build around 81,000 new permanent jobs will be generated in the wider economy. These new job opportunities will be created by new development land released at Curzon Street, UKC/Interchange and Washwood Heath, as well as increased investment in the wider region. These jobs are expected to be delivered on a phased basis over a 20 year period through to 2045. On average this will involve an additional 4,000 jobs per year for 20 years across the wider West Midlands area. The majority of these new long-term jobs are expected to be generated in a range of key target sectors including business, professional & financial services, low carbon advanced manufacturing and digital & creative as identified in the GBSLEP Strategy for Growth and Strategic Economic Plan.

From a labour supply perspective it is important that:

- The skills of the West Midlands region are aligned with the build and post build skills requirements to ensure that residents are able to fully participate in and benefit from the new employment opportunities;
- That the West Midlands labour market is able to meet the skills requirements of employers both during the build and post build phases of HS2;
- That the West Midlands labour market is able to support these skills requirements without causing labour supply constraints elsewhere in the local economy;
- That there are sufficient high level skills in the West Midlands labour market to attract employers to the region and to maximise the inward investment impact of HS2.

The tables below set out the expected skills requirements for both the build and post build phases of HS2.

	Total	No Quals	Level 1	Level 2	Level 3	Level 4+	Apprenticeships & Other
<b>HS2 Build Phase (job Years)</b>							
2015	837	92	134	142	151	209	109
2016	1,570	173	251	267	283	393	204
2017	7,327	806	1,172	1,246	1,319	1,832	952
2018	13,607	1,497	2,177	2,313	2,449	3,402	1,769
2019	11,514	1,267	1,842	1,957	2,072	2,878	1,497
2020	11,514	1,267	1,842	1,957	2,072	2,878	1,497
2021	8,897	979	1,424	1,512	1,601	2,224	1,157
2022	8,897	979	1,424	1,512	1,601	2,224	1,157
2023	733	81	117	125	132	183	95
2024	105	12	17	18	19	26	14
Avg 2017- 2022	10,293	1,133	1,647	1,750	1,852	2,573	1,338
Total 2015- 2024	65,000	7,150	10,400	11,050	11,700	16,250	8,450
Source: Albion Economics, HS2 Consortium, Solihull Observatory							

	Total	No Quals	Level 1	Level 2	Level 3	Level 4+
<b>HS2 Post Build Phase (New Jobs per Year)</b>						
2026	4,631	293	548	907	926	1,957
2027	4,631	293	548	907	926	1,957
2028	4,631	293	548	907	926	1,957
2029	4,631	293	548	907	926	1,957
2030	4,631	293	548	907	926	1,957
2031	4,003	253	473	784	800	1,692
2032	4,003	253	473	784	800	1,692
2033	4,003	253	473	784	800	1,692
2034	4,003	253	473	784	800	1,692
2035	4,003	253	473	784	800	1,692
2036	3,434	217	406	673	686	1,451
2037	3,434	217	406	673	686	1,451
2038	3,434	217	406	673	686	1,451
2039	3,434	217	406	673	686	1,451
2040	3,434	217	406	673	686	1,451
2041	4,121	261	487	807	824	1,742
2042	4,121	261	487	807	824	1,742
2043	4,121	261	487	807	824	1,742
2044	4,121	261	487	807	824	1,742
2045	4,121	261	487	807	824	1,742
Annual Avg 2026-2045	4,047	256	479	793	809	1,711
Total 2022-2045	80,940	5,124	9,573	15,853	16,178	34,211
Source: HS2 Growth Strategy, Solihull Observatory						

The specific labour supply and demand issues arising out of these employment projections are set out below separately for the build and post build phases of HS2. However, the evidence suggests that a dual focus is required; addressing very specific skills gaps to meet the labour demands of the build phase allied to a longer term aim of raising skills across the entire workforce in order to support and maximise the post build new job creation opportunities.

#### HS2 Build Phase Labour Demand

A report by Albion Economics for Industry Leaders Group (ILG) established by Greengauge 21 (GG21) sets out the labour demand for the construction of HS2.

It is estimated that HS2 construction will utilise 65,000 job years over the course of the project (12 years 2015 to 2026). The vast majority (over 95%) of construction activity will take place between 2017 and 2022, with a peak requirement for construction labour in 2018. In 2018 the requirement is expected to be for 12,700 jobs.

The table below sets out the requirements by type of activity (the average annual requirement has been calculated for just the period 2017 to 2022 as: job years/6).

This shows that a large majority of jobs are in the civil engineering field in the construction of the tunnels, structures and stations, each of which account for broadly one-fifth of all jobs. Specialist railway engineering jobs only account for around 11% of projected employment, although these are on average more highly skilled. The 'other' category includes workers on utilities, preliminaries, ancillary and additional items as well as civil works that don't fall under the main civil engineering headings.

	<b>HS2 Build Labour Requirement</b>			
	<b>% Total</b>	<b>Total Job Years</b>	<b>Peak</b>	<b>Average Annual (2017-2022)</b>
Specialist Railway Engineering	11%	7,150	1,397	1,192
Of which:				
Permanent Way	8%	5,200	1,016	833
Signalling & Telecoms	2%	1,300	254	208
Electrification & Plant	1%	650	127	104
Tunnelling	21%	13,650	2,667	2,188
Structures	19%	12,350	2,413	1,979
Stations	20%	13,000	2,540	2,083
Other	26%	16,900	3,302	2,708
Project Management	3%	1,950	381	313
<b>Total</b>		<b>65,000</b>	<b>12,700</b>	<b>10,417</b>
Source: Albion Economics, Solihull Observatory				

The Skills requirement for specialist railway engineers is provided in a report commissioned by, and prepared for HS2 Ltd by a consortium of Whole Life Consultants Ltd, CITB, NSARE Ltd and Experian<sup>1</sup>. The skills demand for general civil engineering construction jobs (tunnelling, structures and stations) is likely to reflect overall skills in the construction industry, as identified by UKCES Working Futures. The demand for project management skills is likely to be higher and be at level 4 and above.

<sup>1</sup> Labour & skills forecasting and gap analysis research to support policy development, March 2014

On this basis the skills requirement for HS2 over the period 2017 to 2022 is set out below.

	Annual Average Skills Requirement 2017-2022	
	Total	% Total
No qualifications	1,127	11%
Level 1	1,675	16%
Level 2	1,785	17%
Level 3	1,879	18%
Level 4+	2,591	25%
Apprenticeships & other	1,406	13%
Source: Albion Economics, HS2 Consortium, Solihull Observatory		

Total skills requirements across the whole of the build phase in job years are set out below, highlighting the projected volume of skilled workers required by year.

	HS2 Build Labour Requirement (Job Years)						
	Total	No Quals	Level 1	Level 2	Level 3	Level 4+	Apprenticeships & Other
2015	837	92	134	142	151	209	109
2016	1,570	173	251	267	283	393	204
2017	7,327	806	1,172	1,246	1,319	1,832	952
2018	13,607	1,497	2,177	2,313	2,449	3,402	1,769
2019	11,514	1,267	1,842	1,957	2,072	2,878	1,497
2020	11,514	1,267	1,842	1,957	2,072	2,878	1,497
2021	8,897	979	1,424	1,512	1,601	2,224	1,157
2022	8,897	979	1,424	1,512	1,601	2,224	1,157
2023	733	81	117	125	132	183	95
2024	105	12	17	18	19	26	14
Total	65,000	7,150	10,400	11,050	11,700	16,250	8,450
Source: Albion Economics, HS2 Consortium, Solihull Observatory							

### HS2 Build Phase Labour Supply

At the time of the 2011 Census 183,700 West Midlands residents were employed in the construction sector. By applying data from the Business Register and Employment Survey a sub-sector breakdown of this construction labour force can be estimated. As the table below shows, this would equate to a West Midlands labour force of around 24,500 people in civil engineering. Of these it is anticipated that around 2,000 will specialise in railway, bridge and tunnel construction.



<b>Number of West Midlands Residents Employed</b>	
Project Development	5,479
Civil Engineering Construction	24,545
Of Which:	
Construction of Railways, bridges & Tunnels	2,080
Construction of other civil engineering projects	22,465
Construction of domestic buildings	34,059
Construction of commercial buildings	10,775
Demolition & Site Preparation	5,654
Installation, Finishing etc	103,177
Source: ONS Census 2011, BRES	

The table above suggests that there could be some supply side constraints in specialist fields. For instance, the combined average annual demand for specialist railway engineering and the construction of tunnels and structures (excluding stations) during the main HS2 build period of 2017-2022 will be for around 5,400 jobs. In total there are just 2,080 people in the West Midlands employed in the construction of railways bridges and tunnels, suggesting a possible shortfall in labour supply of 3,000. A significant proportion of this shortfall are likely to include non-specialised, general construction tasks, however, specialised rail related civil engineering and construction remains an area of skills development need.

The highest levels of qualification obtained by those in construction employment in the West Midlands is shown in the table below. Compared with England the West Midlands has proportionally more people employed up to NVQ level 2 (50% compared to 46%) and fewer qualified to NVQ level 3 and above (34% compared to 35%). The region also has fewer people with apprenticeships or other qualifications (16% compared to 19%) although this cannot be split between the two. In order to match the England rate the West Midlands would need around 6,000 fewer qualified at NVQ level 2 and below, around 2,000 more qualified to NVQ level 3 and above and around 4,000 more with other qualifications or apprenticeships.

	<b>West Midlands Count</b>	<b>% Total</b>		<b>West Midlands Excess/Deficit</b>
		<b>West Midlands</b>	<b>England</b>	
No qualifications	26,626	14%	13%	2742
Level 1	30,528	17%	16%	769
Level 2	34,299	19%	17%	2459
Level 3	31,165	17%	17%	-682
Level 4+	30,883	17%	18%	-1313
Apprenticeships & Other	30,188	16%	19%	-3975
Total	183,689			

Source: ONS Census 2011, Solihull Observatory

## HS2 Build Phase Skills Gap Analysis

A recent High Speed Rail Skills Workshop<sup>2</sup> attended by industry experts from the rail and construction sectors highlighted the fact that the rail industry in the UK continues to be affected by a gap in skills and knowledge. Delegates recognised that skilled labour lost as a result of redundancy during the recession will be hard to recover and that the image and reputation of the industry has been damaged by stories of decline.

To ensure there is adequate skilled labour available and to future-proof their business, employers need to promote future opportunities to attract educated new entrants to the industry and train their existing staff, many of whom have years of valuable experience and transferable skills. Alongside highly skilled individuals with the specialist skills to operate continually evolving new technologies the sector also needs individuals with a more general skills set, who are employable and are site ready (relevant health & safety qualifications, behaviours, leadership skills etc.) as well as the capacity to fill middle management positions with sector specific knowledge.

Research commissioned by HS2 from the National Skills Academy for Rail Engineering (NSARE) and other partners<sup>3</sup> suggests that HS2 construction skill shortages and/or recruitment pressures are most likely to occur in the following disciplines:

- Train control systems design engineers and technicians;
- Overhead line design engineers and technicians;
- Track design engineers and high output plant operatives;
- Rolling Stock;
- Civil engineering operatives;
- Plant operatives;
- Plant mechanics and;
- Scaffolders.

These skills gaps were endorsed by delegates to the HS2 workshop, who noted that in the short term the range of skills required would include site supervisor skills, management skills, project skills and data revolution skills. In the longer-term the requirements will also include higher technical skills in signalling systems, a broad range of digital skills and data communication skills. Delegates also noted that Building Information Modelling (BIM) will become more prominent in infrastructure projects such as HS2, but that there is still a lack of knowledge surrounding the use of BIM technology which may lead to specific training requirements.

The findings of the NSARE skills gap analysis is summarised in the tables below for the specialist railway engineering and construction elements of the HS2 build phase.

---

<sup>2</sup> Organised by the Shadow Board for the National College for High Speed Rail (NCfHSR): Birmingham, February 2015

<sup>3</sup> A consortium of Whole Life Consultants Ltd, CITB, NSARE and Experian

<b>Potential Skills Gaps in Specialist Railway Engineering</b> <i>Source: Whole Life Consultants Ltd, CITB, NSARE and Experian</i>	
<b>Occupation type</b>	<b>Key Skills Issues</b>
Train control systems, design engineers and technicians	780 specialists likely to be required at peak periods and all will need knowledge of the European Railway Traffic Management System (ERTMS). There is limited experience of this technology in the industry.
Overhead line design engineers and technicians	Peak demand from HS2 will reach 500. Proposed electrification of other parts of the railway network by Network Rail will have a big impact on the availability of experienced and well qualified staff.
Track design engineers and high output plant operatives.	This is laying 120 miles of new track rather than maintenance of 11,000 miles of existing track, so the labour need will be small, possibly around 100. Very similar to tunneling where current construction is capital and not labour intensive. Track design is undertaken by graduate engineers. Many of the operatives are part time and semi-skilled and will need significant training to enable them to build and maintain high speed lines. The amount of level 4 training and development is very limited and operatives working on the HS2 project will need significantly higher skills.
Rolling Stock	Currently two discrete phases of procurement are being planned which will result in two peaks of activity requiring around 5,000 and 9,800 people respectively with a large trough between the two. This profile of procurement will be extremely difficult for manufacturers to cope with from a skills perspective and HS2 will probably need to work closely with prospective suppliers to smooth out the workload over several years.

<b>Potential Skills Gaps in Construction</b>	
<i>Source: Whole Life Consultants Ltd, CITB, NSARE and Experian</i>	
<b>Occupation type</b>	<b>Key Skills Issues</b>
Scaffolders	There are well established training schemes for scaffolders, although specific experience in tunnels and at great height might need to be addressed.
Plant operatives	Although the demand for employment is not on the same scale as that for civil engineering operatives, there would still be some pressure on the available workforce. A significant amount of plant operative related training is already being delivered through a very well established network of training providers; however its adequacy will be dependent upon the type or category of machinery that will be operated. With prior warning it is felt that the existing training schemes will cope with the demand, depending on the plant required by the build.
Plant mechanics and fitters	There is an established route to recruit and train and the possibility of recruitment from mining, agriculture and automotive industries.
Civil engineering operatives	This is a concern although civil engineering covers a variety of job roles. The report suggests more detailed analysis of the specific skills needed by HS2.

The NSARE research notes that demand for the specialist railway construction element of HS2 is considered to be manageable provided that the skills challenges within the railway industry are addressed in the next five years. Particular emphasis will need to be placed on encouraging entrance to apprenticeship training schemes, whilst also engaging with Tier 1 contractors and their supply chains in identifying suitable sources of labour.

Delegates to the High Speed Rail Skills Workshop identified a further range of factors that need to be considered when addressing the skills gaps identified in the rail industry and the importance of taking an industry wide view of skills and of working together to develop a suitable pool of talent:

- Raising awareness with teachers and parents of the benefits of vocational pathways and opportunities in industry will be vital to encourage more young people into the sector and specifically to meet the challenge of attracting more young women into the sector.
- A more co-ordinated approach to engaging schools must be a part of this along with more detailed careers information, advice and guidance in schools and colleges.
- In addition to this, role models who are happy to share their experiences with school age children will help to encourage more young people to study the right qualifications and follow relevant pathways.
- While the majority of employers recognise that training their employees is the right thing to do there are many barriers that prevent them from implementing training programmes including the cost of training, loss of productivity due to college commitments, low return on investment if staff decide to leave and crucially a lack of insight into the detailed plans and skills requirements for future government infrastructure projects such as HS2.
- A critical issue that must be addressed is the lack of clarity for employers of where to go and who to speak to about their specific skills requirements.
- Employers are aware that there are various pathways including Apprenticeships and Traineeships but often find it difficult to identify the right path or match their job opportunities to the Apprenticeship frameworks that are available.
- In addition to this, it is clear from the feedback gathered that employers are keen to explore Traineeships but require more detailed information on how it will benefit their business.
- It is hoped that the development of High Speed Rail in the UK will lead to further training opportunities and fill the gaps in provision that exist currently.

Delegates also recognised the vital role that the High Speed Rail College will play in meeting future skills requirements, highlighting that the curriculum should support new and advanced technologies for example, systems integration, design and signalling together with industry standard facilities that will support a ‘hands on’ experience.

Evidence from the Curriculum Statement for the High Speed Rail College shows that the bulk of the training and development that currently goes on in Railway Engineering is predominantly at Level 2 and 3. NSARE report that those that do level 4 qualifications often use generic advanced engineering or manufacturing pathways. There is very little level 4 provision specifically for rail employees and prospective new entrants that is targeted at rail employer’s needs. There will be a step change in knowledge and skills for all engineers and operatives that will work on HS2. Some systems that HS2 will use (such as train protection and signalling) are moving towards digital and electronic systems that will need different skill sets that the current workforce do not have. In effect, the new technology means systems engineers are required, rather than just specialists in specific disciplines. This is compounded by the plans of Network Rail and others to roll out this kind of technology across the entire network in the next fifteen years. What is needed is an injection of skilled level 4 operatives and engineers in a variety of disciplines that can support HS2 and the roll-out of digital technology and advanced manufacturing in the wider railway industry in the next ten years.

In terms of construction, there are established pathways for new entrants to enter the construction industry and an effective network to recruit train and support them once in the industry, although there are fewer opportunities for education and training in skills that relate to building permanent way and other rail infrastructure at levels 4 and 5.

### HS2 Post Build Wider Skills Needs

Once HS2 construction is complete and the line is operational, increased connectivity both to the West Midlands and across the region are expected to generate significant amounts of new investment, with around 81,000 new jobs created over a 20 year period across all sectors of the economy as a result.

The majority of these jobs can be directly linked to the new development opportunities available in and around Curzon Street (36,000), UKC Interchange & Hub (16,500) and Washwood Heath (2,900). However, the benefits of increased connectivity across the whole region will also be a significant factor in terms of new job creation (24,000 attributable to wider connectivity impact).

	<b>New Jobs 2026-2045</b>	<b>% Total</b>
UKC Interchange & Hub	16,500	20%
Curzon Street	36,000	40%
Wider Connectivity	24,000	30%
HS2 HQ	1,500	2%
Washwood Heath (Depot & development land)	2,900	4%
<b>Total</b>	<b>80,900</b>	
Source: HS2 Growth Strategy		

The majority of these new post build HS2 jobs are expected to require level 4 and above skills (34,000, 42%), with nearly two thirds requiring Level 3 skills and above (50,400, 62%). Just 18% of these new jobs in the wider economy are likely to be suitable for people with low skills (5,100, 6% no qualifications, 9,600, 12% level1).

	<b>New Jobs 2026-2045</b>	<b>% of Total</b>
Level 4+	34,194	42%
Level 3	16,170	20%
Level 2	15,845	20%
Level 1	9,568	12%
No Qualification	5,122	6%
<b>Total</b>	<b>80,900</b>	
Source: HS2 Growth Strategy, Solihull Observatory		

The table below shows both the total number of new jobs expected to be created as a result of HS2 across all sectors of the economy in each year from 2026 through to 2045, as well as the skills requirements of those jobs.

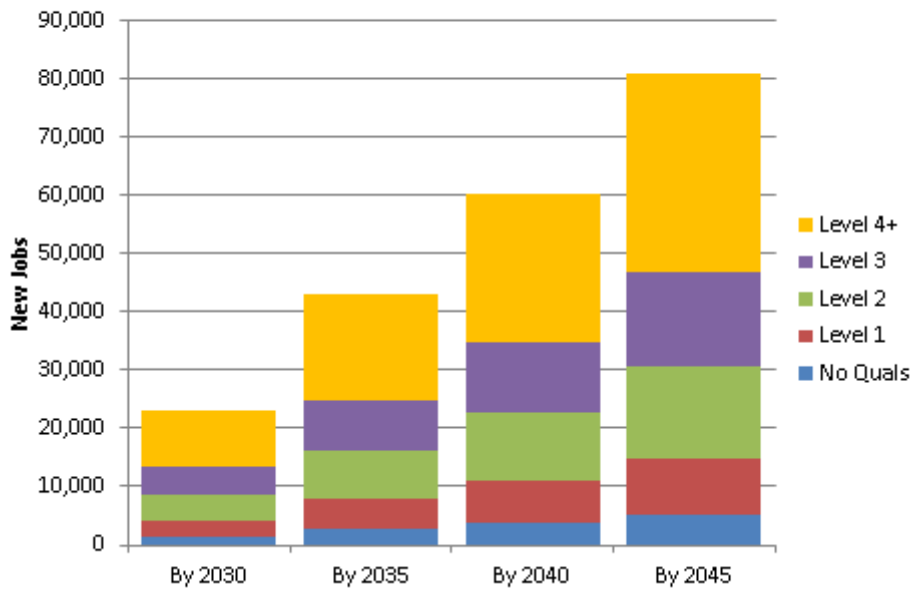
	Total	No Quals	Level 1	Level 2	Level 3	Level 4+
	<b>HS2 Post Build Phase (New Jobs per Year)</b>					
2026	4,628	293	547	907	925	1,956
2027	4,628	293	547	907	925	1,956
2028	4,628	293	547	907	925	1,956
2029	4,628	293	547	907	925	1,956
2030	4,628	293	547	907	925	1,956
2031	4,001	253	473	784	800	1,691
2032	4,001	253	473	784	800	1,691
2033	4,001	253	473	784	800	1,691
2034	4,001	253	473	784	800	1,691
2035	4,001	253	473	784	800	1,691
2036	3,432	217	406	672	686	1,451
2037	3,432	217	406	672	686	1,451
2038	3,432	217	406	672	686	1,451
2039	3,432	217	406	672	686	1,451
2040	3,432	217	406	672	686	1,451
2041	4,119	261	487	807	823	1,741
2042	4,119	261	487	807	823	1,741
2043	4,119	261	487	807	823	1,741
2044	4,119	261	487	807	823	1,741
2045	4,119	261	487	807	823	1,741
<b>Total 2022-2045</b>	<b>80,900</b>	<b>5,122</b>	<b>9,568</b>	<b>15,845</b>	<b>16,170</b>	<b>34,194</b>
Source: HS2 Growth Strategy, Solihull Observatory						

The cumulative impact at the end of each five year period is shown in the table and chart below.

	Total	No Quals	Level 1	Level 2	Level 3	Level 4+
	<b>HS2 Post Build Phase (New Jobs per Year)</b>					
Total Jobs by:						
2030	23,142	1,465	2,737	4,533	4,626	9,782
2035	43,147	2,732	5,103	8,451	8,624	18,237
2040	60,307	3,819	7,133	11,812	12,054	25,490
2045	80,900	5,122	9,568	15,845	16,170	34,194
Source: HS2 Growth Strategy, Solihull Observatory						



### Cumulative New Jobs Generated Post HS2 Completion by Skills Requirement



Comparing the skills distribution of the 81,000 new long-term jobs that HS2 completion is expected to generate to the distribution of skills in the currently available West Midlands workforce<sup>4</sup> suggests that the region requires a broad uplift in skills to support this job creation and to maximise the employment opportunities arising from HS2. For instance 42% of the new jobs created as a result of HS2 are expected to require Level 4 skills and above, whereas just 32% of economically active 16-64 year olds are currently qualified to this level across the West Midlands.

	Skill Requirements of HS2 Jobs 2026-2045	Skills in the Economically Active Population
Level 4+	42%	32%
Level 3	20%	17%
Level 2	20%	20%
Level 1	12%	17%
No Qualifications	6%	14%

Source: ONS Census 2011, Solihull Observatory

Closing the skills gap between the West Midlands and the England average would go a long way towards alleviating any potential skill shortages post HS2 completion and help attract inward investment.

<sup>4</sup> Currently available workforce is defined as the economically active 16-64 population

As the table below shows the economically active population in the West Midlands region is relatively less formally qualified than the England average. For instance in the West Midlands 13% of the economically active population have no qualifications (compared to 10% for England), with a total of 29% qualified to a maximum of NVQ level 1 (compared to 25%). At the other end of the spectrum 45% in the West Midlands are qualified to NVQ level 3 and above (compared to 49%) and 30% qualified to NVQ 4 or higher (compared to 34%).

	<b>Skills in Economically Active Population</b>	
	<b>England</b>	<b>West Midlands</b>
No qualifications	10%	13%
Level 1	15%	16%
Level 2	17%	18%
Apprenticeship	3%	3%
Level 3	15%	15%
Level 4+	34%	30%
Other qualifications	5%	5%
Source: ONS Census 2011		

Excluding those with apprenticeships and with other qualifications (which are broadly the same across all areas), the shift in skills required for the economically active population in the West Midlands to mirror that of England as a whole is shown below. This highlights that around 122,500 economically active individuals in the West Midlands would have to move from level 3 skills and below to level 4 skills, equating to 5% of the economically active population in the region. The majority of this lower skilled excess supply relative to England is among those with no qualifications.

	<b>Change in West Midlands Qualification Levels to Match England Average</b>
No qualifications	-67,823
Level 1	-22,271
Level 2	-22,227
Level 3	-10,219
Level 4+	122,539
Source: ONS Census 2011	

### Wider Skills – Sector Analysis

It is not possible to fully anticipate the sector breakdown of the 81,000 new jobs expected to be created by the completion of HS2. However, it is likely that a substantial proportion will be created across the priority sectors identified in the GBS LEP Strategy for Growth and the Strategic Economic Plan:

- Business, Professional & Financial Services;
- Low Carbon;
- Life Sciences & Healthcare;
- Education;
- Advanced Manufacturing & Engineering;
- Digital & Creative;
- Logistics & Transport;
- Tourism & Hospitality;
- Food & Drink.

This is consistent with forecasts by Steer, Davies, Gleave<sup>5</sup> which suggest that all of these sectors, with the exception of advanced manufacturing & engineering (where employment levels could fall due to productivity gains) will be subject to relatively high levels of employment growth through to 2030. In addition many of these sectors represent local specialisms (i.e. represent a higher proportion of the local economy than nationally). The approximate number of people currently employed in the West Midlands in each of these key sectors is shown in the table below:

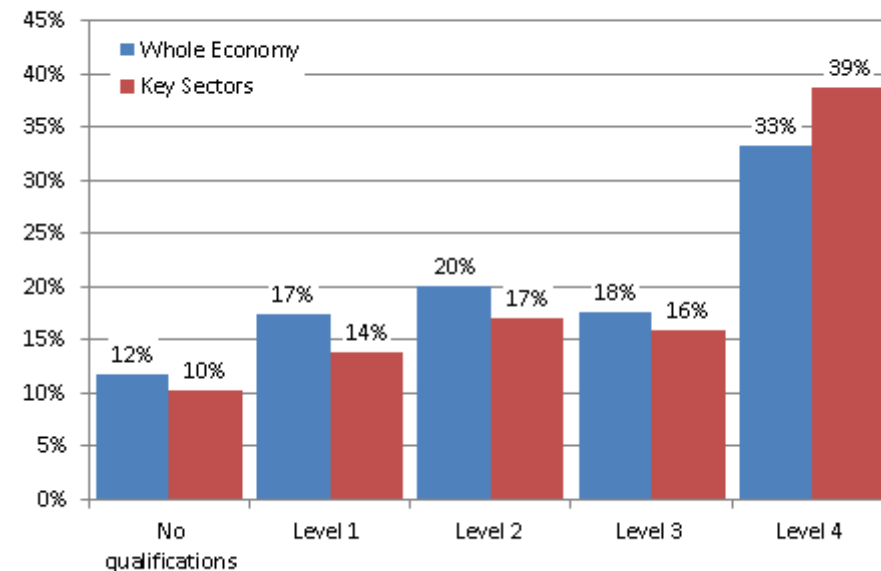
	<b>West Midlands Employed</b>
Business, Professional & Financial Services	327,527
Low Carbon	440,860
Life Sciences & Healthcare	271,366
Advanced Manufacturing	98,650
Digital & Creative	81,888
Logistics & Transport	115,031
Tourism & Hospitality	150,306
Food & Drink	168,744
Education	250,515
Source: ONS Census 2011, BRES	

Individuals working within these key sectors are, on average, better qualified than the West Midlands employed population as a whole, with around 24% qualified to a maximum of NVQ level 1

<sup>5</sup> HS2 Growth Strategy – Economic benefit Analysis: March 2015

(compared to 29% for the whole economy) and 39% qualified to NVQ level 4 and above (compared to 33%).

### Highest Level of Qualification Among West Midlands Employed Population



Source: ONS Census2011

At an individual sector level, the proportion in the West Midlands with a maximum qualification of NVQ level 1 ranges from over 45% in the logistics & transport sector to 15% in digital & creative and education. The proportion qualified to NVQ level 4+ ranges from 60% (education) to under20% in logistics & transport, tourism & hospitality and food & drink.

Comparing the qualification levels of those employed in the West Midlands with England provides some insight into potential skills deficits in the key sectors. Those key sectors in which the West Midlands has a significant skills deficit are likely to face the greatest challenge in terms of attracting inward investment.

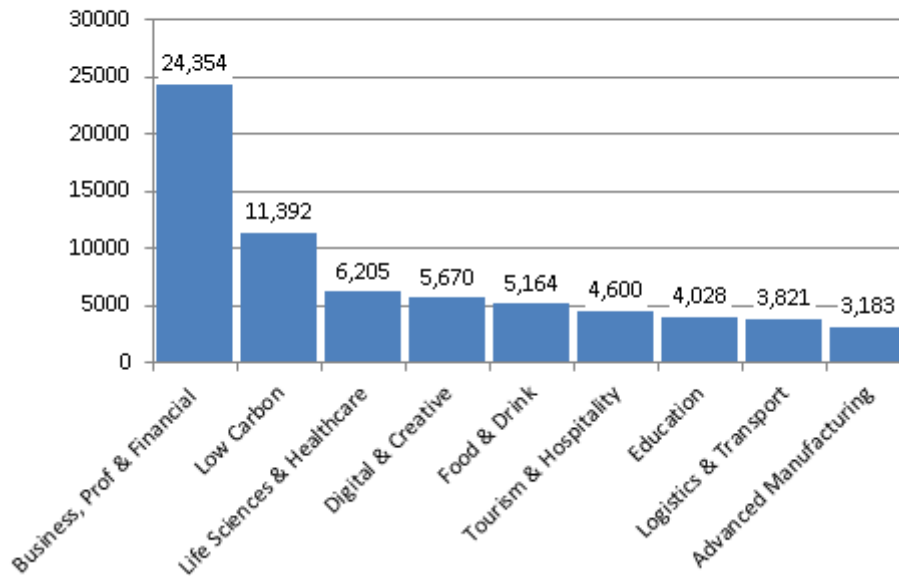
	% Max Level 1		Level 4+	
	West Midlands	England	West Midlands	England
Business, Professional & Financial Services	25%	21%	41%	49%
Low Carbon	25%	23%	42%	45%
Life Sciences & Healthcare	16%	16%	46%	49%
Advanced Manufacturing	26%	23%	43%	46%
Digital & Creative	15%	13%	52%	59%
Logistics & Transport	47%	43%	18%	21%
Tourism & Hospitality	38%	35%	17%	20%
Food & Drink	38%	35%	17%	20%
Education	13%	13%	60%	62%
Source: ONS Census 2011, BRES				

All sectors in the West Midlands appear to have a deficit in terms of employees qualified to level 4+ and substantially so in the business, professional & financial services and digital & creative sectors. Raising skills levels to level 4 will be a key part of our delivery strategies.

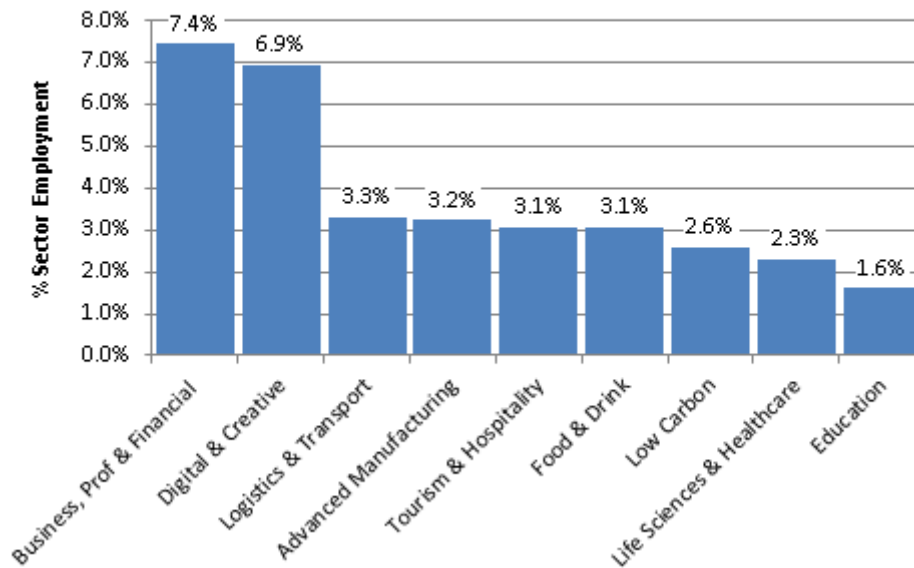
The table below shows the number of additional level 4+ skills that the West Midlands region would have to develop in order for the local skills pattern to match that for England as a whole and expresses this as a proportion of the total employed in the sector.

	Additional Level 4 Skills Required to match England	
	Total	% Employed in Sector
Business, Professional & Financial Services	24,354	7.4%
Low Carbon	11,392	2.6%
Life Sciences & Healthcare	6,205	2.3%
Advanced Manufacturing	3,183	3.2%
Digital & Creative	5,670	6.9%
Logistics & Transport	3,821	3.3%
Tourism & Hospitality	4,600	3.1%
Food & Drink	5,164	3.1%
Education	4,028	1.6%
Source: ONS Census 2011, BRES		

### Skills Uplift at Level 4+ Required in West Midlands to Match England Average



### Skills Uplift at Level 4+ Required in West Midlands to Match England Average as % of Sector Employment



## Wider Skills – Gap Analysis

A report by the West Midlands regional Observatory<sup>6</sup> highlights some of the skills that will maximise growth opportunities in key sectors and some significant skills deficits.

### Professional & Financial Services

More skilled paraprofessional staff such as legal executives and accounting technicians

Better developed generic skills in areas such as leadership & management, interpersonal skills, literacy & numeracy, customer service, basic ICT, financial capability/quantitative skills among new entrants, managing teams, sales and managing relationships.

Additional work by Steer, Davies, Gleave notes that the Business, Professional & Financial services are, currently, a people-intensive sector, but there is a complex dynamic at play. On one hand, the growth of this industry is expected to generate greater demand for higher-level skills, as 600,000 additional professional business service jobs are projected to be created in the UK by 2023. To fill these roles, firms of all sizes will turn to non-graduates, who will enter the sector via apprenticeships or other schemes, to ensure that they attract individuals with the right skill set. But, at the same time, the rapid growth in computing power and machine intelligence means that, increasingly, the 'IT-ification' of routine and mundane activity in the sector, characterised by volume and repetition, will be prone to replacement by intelligent systems.

### Hospitality & Tourism

. Key skill deficiencies within the workforce include:

- A lack of skills and expertise to maximise the use of technology – particularly among small and micro businesses
- Skills in marketing, people and financial management among managers and owners of smaller businesses
- Inadequate communication, team working and people and kitchen management skills among chefs
- High level customer service skills across businesses

---

<sup>6</sup> Greater Birmingham and Solihull LEP Future Skills Research: Contextual Review, March 2012



## Transport & Logistics

New skill requirements are being created due to developments in the sector such as:

- The development of new technologies - for example the growing use of the internet for home deliveries has required staff to interact more with the customer, resulting in a greater emphasis on customer service skills.
- A drive to increase productivity and reduce costs involving effective utilisation of warehouse space requires detailed planning and scheduling of product movement. Operatives will need to fulfil their roles of picking, packing, loading or unloading of goods, in a timely manner to ensure schedules are met.

## Digital

Computer games firms are seeking to recruit and/or develop a mix of very high level skills, particularly in programming and computer science, as well as more creative skills in games art and animation. Commercial skills, particularly in relation to negotiation, intellectual property generation and exploitation, and online 'freemium' distribution are also in demand, together with more traditional business skills such as those associated with managing and leading technical teams. A significant proportion, however are experiencing recruitment difficulties and skill shortages – notably in relation to leadership & management, creative talent and various specific technical skills. Skill gaps within the existing workforce, meanwhile, tend to be in areas such as sales and marketing, leadership and management, finance and business development.

In interactive media employers report shortages in entrants with the appropriate combinations of 'hybrid' skills – a mix of specialist skills (e.g. graphic design), and core generic skills (e.g. business/commercial acumen) with cross sector awareness (the ability to provide services to clients from other sectors of the wider economy). More than half, meanwhile, highlight sales and marketing, technical skills such as computer programming, leadership and management, business skills and skills in using sector specific software packages (31%) were also highlighted as skills gap areas within the existing workforce.

Steer, Davies, Gleave research notes that from a regional perspective that competition with London for talent is a major challenge for the sector locally, especially at the more senior end. HS2 therefore offers both a threat and an opportunity: the faster journey to London could enable more local talent to work in London. It could also encourage flows in the opposite direction, locking-in existing local talent on the basis of accessing London rapidly when necessary whilst being located in a lower-cost city with some considerable amenities. Similar reasons could draw in talent from other parts of the country. HS2 could play a significant role in retaining many of the graduates from local universities in this sector, who have traditionally been drawn to London.

### Advanced Manufacturing & Engineering

Older workers, retraining and continuous learning will be significant factors in this sector. Industry experts suggest that , the planning and construction of HS2 is likely to create jobs in some areas of the sector, particularly for the engineering consultancies. In the longer-term, HS2 may offer other sources of well-paid jobs such as through maintenance contracts, which may compete with the Advanced Manufacturing and Engineering sector for 'STEM' (Science, Technology, Engineering and Maths) graduates.

It will be important for the engineering end of the sector in particular, but also for those firms involved in manufacturing components that feed into the rolling stock and signalling systems etc., to determine how it can best retain the skills and experience built up during the planning, design and construction of HS2 – particularly as the focus and investment shifts north to the Manchester and Yorkshire branches. The National College for High Speed Rail, in Birmingham, will offer the city-region the chance to maintain a role in developing and providing skills for the sector more generally. The skills and expertise built up through the presence of HS2 planning, design and construction will potentially be the 'game-changer' impact for the region from HS2. Skilled staff across the sector could move into other Advanced Manufacturing and Engineering businesses and expertise could be exported to other countries developing high speed rail networks. HS2 could thus have a significant impact on the skills profile of, and the 'skills model' in, the region.

### Low Carbon (environmental technologies & transport technologies)

Significant opportunities are expected to arise in renewable energy and micro generation technologies, recycling and waste management and clean and waste water management. This could potentially create a demand for scientific specialists, operational waste plant specialists, installation skills relating to renewable energy systems and appropriately skilled and qualified energy assessors. There is also a demand for more generic skills such as awareness of the global development of environmental technologies and a broad based understanding of sustainability issues.

Transport technology companies need access to people with a combination of higher level technical and wider generic skills in order to exploit these opportunities to the full – for example:

- Design, process, CAD & software, mechanical and electrical engineers with at least a second degree or post doctoral qualifications
- Commercial acumen, sales and marketing, written and verbal communication and language skills

## Life Sciences & Healthcare (pharmaceuticals & biotechnology and healthcare)

The rapid pace of development of new products and technologies is underpinning a growing need for staff in pharmaceuticals & biotechnology with specialist skills in professional science & engineering (notably R&D) and craft and technical occupations. The demand for new and upgraded skills is high – notably for higher level professional, leadership & management and competence based skills. As a result businesses are looking for training and qualifications that equip people with vocational and practical skills.

In healthcare there is a growing demand for ICT skills – in terms of an understanding of how to operate ICT systems, data handling and confidentiality and security issues. There is also a need for staff to develop leadership & management skills and expertise in areas such as developing the capacity and capability of the volunteer workforce (for example informal and unpaid carers) and self-managed care. The need to address persistent shortages of consultants within certain specialties, pharmacists, dental practitioners and specialist nurses and therapists in certain roles is also apparent.

Similarly a trend towards greater independence for service users and technical advances and new technologies are leading to new ways of working in social care. There is a growing demand for staff with commissioning, procurement and contract management skills alongside specialist skills in areas such as dementia care.

## Food & Drink

To remain competitive in the future food and drink firms need:

- Food scientists and technologists with higher level skills
- Engineers with higher level skills and the ability to adapt and learn about bespoke machinery and complex automated systems
- Skilled trades staff with specialist craft skills (e.g. butchery, bakery, meat processing)
- High quality managers and supervisors with the ability to adopt new manufacturing and process techniques (e.g. lead manufacturing, radio frequency identification and high pressure processing)

## Education

There is an increasing need to identify and secure new sources of funding, develop services that are responsive to changing customer needs and to exploit the benefits of new technology. In turn this is generating a demand for professionals with specific technical and practical skills and for transferable and wider employability skills in areas such as ICT, customer service and leadership & management.

## Conclusion

This paper not only sets out the huge challenges and opportunities presented by the arrival of HS2 but, crucially, demonstrates how we will work in partnership across the public and private sector to ensure that local people are skilled and ready to take hold of these opportunities and drive forward economic growth.