



Crossrail

SUSTAINABILITY REPORT 2013



A WORLD-CLASS NEW RAILWAY FOR LONDON AND THE SOUTH EAST

Crossrail route map

Key

	Step-free access from street to train		National Rail connection
	Step-free access from street to platform		Airport connection
	Step-free access in direction of arrow only		Airports not on the Crossrail route - to travel to these airports passengers will need to travel on other connecting rail services. Step-free travel is possible but assistance will be required to get on and off some trains. Travel from Luton Airport Parkway Station to Luton Airport is via an accessible bus.
	Station which requires the use of steps or escalators		
	Surface line		
	Tunnel		
	Portal (tunnel entrance and exit)		

Crossrail is Europe's largest infrastructure project. Stretching from Maidenhead and Heathrow in the west, across to Shenfield and Abbey Wood in the east, the new railway will cover over 100km of track including 21km of new twin-bore rail tunnels and nine new stations.

Crossrail will, for the first time, deliver a direct connection between all of London's main employment centres; linking Heathrow with Paddington, the West End, the City and Canary Wharf. The new railway will reduce journey times, ease congestion and improve connections.

Up to 24 trains per hour will operate in the central section between Paddington and Whitechapel during peak periods, with each train able to carry 1,500 passengers. An estimated 200 million people will travel on Crossrail each year. Many of these people will be making the switch from road transport to an environmentally sustainable railway.

When Crossrail opens in 2018, it will increase London's rail-based transport network capacity by 10 per cent and dramatically cut journey times across the city.

Through new transport links and significant over-station developments being delivered, Crossrail will leave a legacy of economic sustainability. The new railway will support regeneration across the capital and add an estimated £42bn to the economy of the UK.

Crossrail already delivers social benefits across the UK with thousands of jobs and business opportunities for companies of all sizes.

Crossrail will make travelling in London and the South East easier and quicker, and help to reduce crowding on London's transport network.

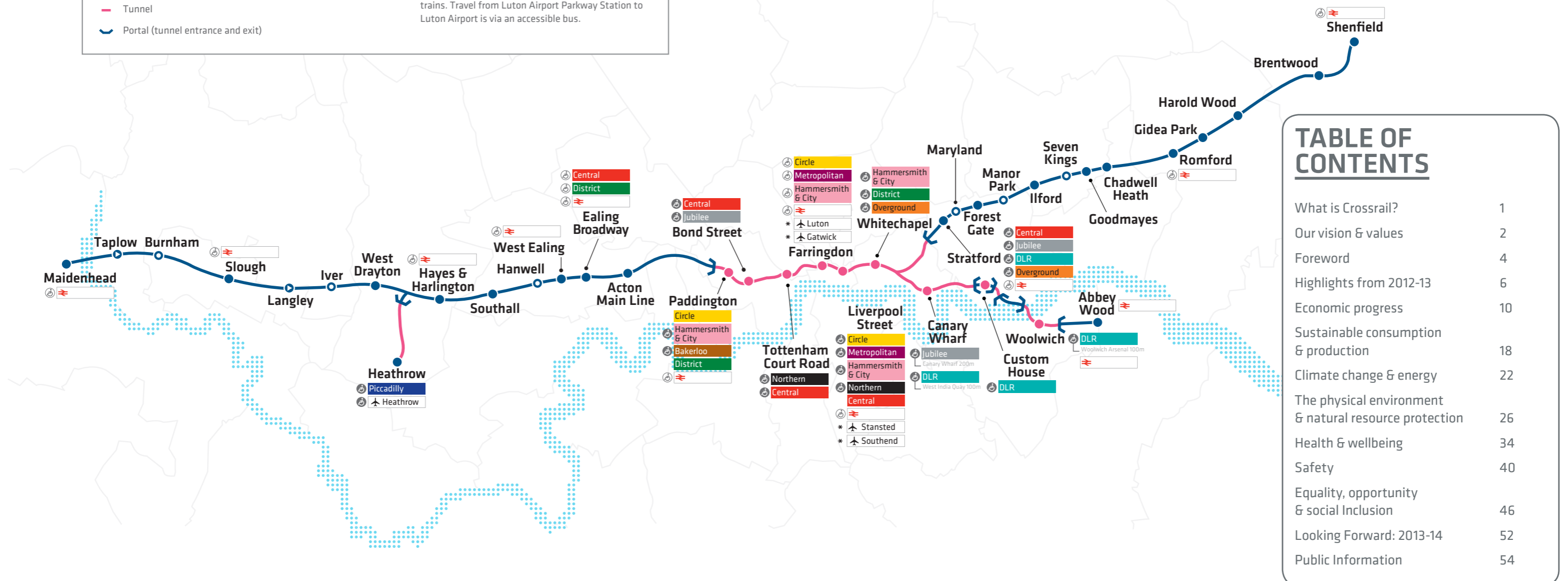


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OUR VISION & VALUES

MOVING LONDON FORWARD

Crossrail is vital to London's sustainability. A principal reason for building the railway is that it will secure London's competitiveness as a world city. This requires an efficient and reliable transport system that keeps people moving and supports future population growth.

Crossrail will contribute to a reduction of 500m kilometres worth of car journeys annually. This will support economic growth and access to trade with less environmental impact.

Improving journey quality, reliability and safety for millions of daily commuters are also vital components in ensuring that London's workforce can arrive at work in a productive state of mind and be ready for the day ahead.

We are committed to delivering a transport system that is fit for the future. Operational efficiency, the ability to maintain the infrastructure as well as good train and station design has been incorporated in the development process from the inception of the project.

The construction of the project must also provide employment opportunities for people, allowing them to learn new skills and have access to the supply chain. The environmental impact of our construction materials is also a key consideration. This is being evaluated through the design and procurement process.

In all these areas, Crossrail is **Moving London Forward.**

CROSSRAIL VALUES ▶

SAFETY

We put safety first

INSPIRATION

We believe it's in our power to change things for the better

COLLABORATION

We're stronger together

INTEGRITY

We keep our promises

RESPECT

We treat people as we'd like to be treated

Crossrail's sustainability vision is that the railway will be designed, built and managed in a way that meets both Government's strategy for sustainable development and the expectations of our principal stakeholders. We always strive for continuous improvement, and aim to complete the Crossrail project on time and within our funding envelope.

Spray Concrete Lining at
Whitechapel station

WELCOME TO CROSSRAIL – A SUSTAINABILITY STORY IN THE MAKING

Crossrail is Europe's largest infrastructure project – and one which is being built in the heart of a great world city.

For an investment of £14.8bn, Crossrail will deliver £42bn of economic benefit to UK plc. When it fully opens in 2019, Crossrail will increase London's rail capacity by 10 per cent, reduce journey times, ease congestion and promote economic development. Crossrail will get people out of their cars and onto our trains, as it brings an extra one and a half million commuters within a 45-minute journey of London's major commercial centres. For these reasons, it could be said that the Crossrail story is all about sustainability.

In this second annual sustainability report, we review the impact of Crossrail on the economy, the environment and the communities who live and work around our projects.

A catalyst for regeneration

During its construction, we estimate that Crossrail will create 75,000 opportunities for businesses, generating enough work to support the equivalent of 55,000 full time jobs. Around 60 per cent of this work is currently going to small and medium sized UK businesses based outside London. Last year, we commissioned an independent report to assess the regeneration impact of Crossrail. A key conclusion was that from 2012-21, Crossrail could increase the value of property along its route by £5.5bn, accelerate the building of 57,000 new homes and 3.25m square metres of new commercial space.

Exceeding environmental targets

Our first completed structure, the Royal Oak portal, was rated as 'excellent' by the Civil Engineering Environmental Quality (CEEQUAL) scheme with the impact on neighbours and traffic management described as 'exemplary'. I am pleased that all our tunnels, portals and shafts are currently on target to receive an excellent rating. We are also exceeding our targets for diverting waste from landfill. Last year, close to 100 per cent of demolition waste was usefully reused and 91 per cent of our excavated soil was sent to help create a wildlife reserve and recreational sites, most notably at Wallasea Island in the Thames estuary. Wherever possible, we transport waste by rail and sea which has taken over 100,000 lorries off London's roads. At the same time, we are doing all we can to protect vulnerable road users by insisting that any haulage vehicle used on Crossrail is fitted with safety equipment and by providing safety training to nearly 5,000 lorry drivers.

Listening to local communities

Crossrail is committed to being a good neighbour to the communities along our route. Our community relations team works to address local sensitivities and to minimise disruption. Last year, a record 11 Crossrail sites received awards in the 2013 Considerate Constructors Scheme National Site Awards and four of these sites ranked among the very best in the UK.

We also listened to the communities who want us to find jobs for local people. In 2012-13 86 per cent of new job starts at Crossrail were recruited locally; three-fifths of whom were previously unemployed. At our Tunnelling and Underground Construction Academy in Ilford, we are training a new generation of tunnellers; more than 4,500 have so far completed courses since it opened in 2011. We have employed 198 apprentices to April 2013 and expect to exceed our target of 400 apprentices during the lifetime of the programme.

At Crossrail we believe all harm is preventable and safety is our most important value. We have set new standards for open and honest incident reporting, requiring our contractors to apply this principle throughout their supply chain. We also require them to provide occupational health services and so far 6,000 workers on Crossrail have received health assessments. While our safety record is better than the UK construction industry average, the incident frequency rate has also risen. We consider this unacceptable. Together with our contractors, our focus is to ensure that every member of the team has the right to, and indeed does, go home unharmed every day.

As we approach the halfway stage of the programme, we are proud of our many achievements and are prepared for the challenges ahead. Through our comprehensive carbon management programme, we aim to reduce construction energy by 8 per cent. However, the construction phase accounts for only 15 per cent of Crossrail's carbon footprint throughout its planned 120-year lifespan. During the next phase of the programme, we will increasingly focus on the fit-out of our stations, the integration of railway systems and the delivery of a carbon efficient railway.

Crossrail has a great sustainability story to tell and a commitment to share best practice with the industry. There is much we are able to learn from other projects and in the spirit of collaboration, I offer an open invitation to anyone working on major infrastructure programmes to see what we have achieved so far.



Andrew Wolstenholme OBE
Chief Executive Officer

HIGHLIGHTS FROM 2012-13

Tunnel boring machine Victoria
lowered into Limmo Shaft

ECONOMIC SUSTAINABILITY

- Crossrail is on time and within its funding envelope
- 97 per cent of Crossrail-related contracts won by UK companies
- 3 in 5 contracts won by businesses outside London

ENVIRONMENTAL SUSTAINABILITY

- 32 per cent recycled content by value – exceeding our stretch target of 20 per cent
- Close to 100 per cent of construction and demolition waste recycled
- 80 per cent of non-exempt Crossrail construction equipment is fitted with diesel particulate filters or Cat 3b engines to reduce harmful emissions

SOCIAL SUSTAINABILITY

- By the end of the financial year, 198 apprentices were working on Crossrail and we remain on track to meet our target of 400 apprentices over the lifetime of the project
- 4,660 lorry drivers have attended custom-designed safety training
- 86 per cent of new Crossrail jobs were filled by Londoners and 62 per cent by people who were unemployed

CROSSRAIL APPRENTICE AWARDS

In March 2013 Skills Minister Matthew Hancock MP, Crossrail's Chairman Terry Morgan and Crossrail's Chief Executive Andrew Wolstenholme hosted an event in the Houses

of Parliament. The event celebrated the project's apprentices and revealed the results of the inaugural Crossrail Apprentice Awards.

Regina Tumblepot, Apprentice Engineer working on platform tunnel construction at the new Whitechapel Crossrail station with contractor BBMV*, was named Apprentice of the Year and Trade Apprentice of the Year.

BBMV Skills Manager Tom Lane received the Apprentice Champion Award and accepted the Outstanding Tier One Apprentice Employer Award on behalf of BBMV for their outstanding commitment and contribution to apprentices working on the project.

Ana Costa, Apprentice Accountant, was named Specialist Apprentice of the Year for her 'outstanding work' at DSJV**, while Ray Stephenson of MPB Structures received the Chairman's Special Prize for Achievement for his commitment and approach to work.

Crossrail received more than 130 award nominations and the winners were selected by a judging panel including Chairman Terry Morgan, Talent and Resources Director Valerie Todd and Peter Davies of the National Apprenticeship Service.

One of our winners will become the overall Crossrail Apprentice of the Year and go forward to the National Apprenticeship Awards.

*Balfour Beatty, ALPINE BeMo Tunnelling, Morgan Sindall and VINCI Construction Joint Venture
**Dragados Sisk Joint Venture



HEALTH AND SAFETY AWARDS

Crossrail's Health and Safety programme has received industry recognition winning three awards in the year:

- Institution of Occupational Safety and Health (IOSH) Rail Group award for occupation health for our focus on raising standards for occupational health provision in the construction and rail industry
- IOSH Award for Transport and Logistics for the focus on lorry safety, especially in protecting cyclists and other vulnerable road users
- Royal Society for the Prevention of Accidents (RoSPA) gold award for evidence of a good health and safety management – achieved by answering 10 performance questions supplemented by a concise evidence portfolio

NEW INITIATIVES CONSIDERATE CONSTRUCTORS SCHEME (CCS)

During the year, Crossrail became a client partner of the CCS. Client partners are companies or organisations that want to improve the image of the construction industry. They are expected to encourage compliance with all parts of the scheme's code at their registered sites. Our membership as client partner is a visible demonstration to our contractors that Crossrail strives to be a good neighbour wherever our work takes place.

CROSSRAIL DIVERSITY AND INCLUSION GROUP

In response to measuring and monitoring Crossrail's diversity data, our Sustainability Committee decided to form a Crossrail Diversity and Inclusion Group. We will report on their progress in the 2013-14 report.

INNOVATION

CROSSRAIL BREAKS THE MOULD

We are the first major project to develop a strategy and method for managing innovation in large-scale projects.

The past year has seen us formalise our Innovation Strategy, aligning our innovation activities with the programme's overall vision and goals. We believe that to become effective innovators, people must believe their organisation welcomes and encourages ideas from everyone in the business.

This is not restricted to doing things better for Crossrail, but for the construction industry. It connects closely to our theme of a learning legacy in our Sustainability Strategy. We intend to share successful innovation and more new ideas in future reports.

REPORT STRUCTURE

This second annual sustainability report is a review of performance during the financial year April 2012-13 for the entire Crossrail programme. The scope is broader than our first report, which concentrated on the central section in London, where most of the work was focused during that year.

2012-13 brought a significant increase in works on the section of Crossrail to the west of London, and particularly on the Stockley Park fly-over and Acton dive-under.

Sustainability for Crossrail draws on the six themes of Transport for London's (TfL) sustainability framework and develops them

further into seven themes based on issues considered to be material to Crossrail.

The principle of 'promoting good governance' from the UK Government sustainable development strategy is applied across all seven themes. The principle of 'using sound science' underpins all Crossrail's design and construction. Six of the Crossrail sustainability themes align precisely with those of TfL. The seventh, sustainable consumption and production, is adapted specifically for Crossrail because such a massive infrastructure project demands scrutiny of final disposal of waste materials.

Within the seven themes, a series of 18 Key Sustainability Initiatives (KSIs) were defined for Crossrail in 2009 and reviewed in 2012-13. Three relate to sustainability governance, responsible procurement and learning legacy.

Crossrail's performance against these KSIs is measured by 17 Key Performance Indicators (KPIs). We report on all of them in this document, using the seven themes we have used to define sustainability. Each of these sections is clearly identified within the report, and helps us show what we have done well and what we need to monitor, measure and improve.

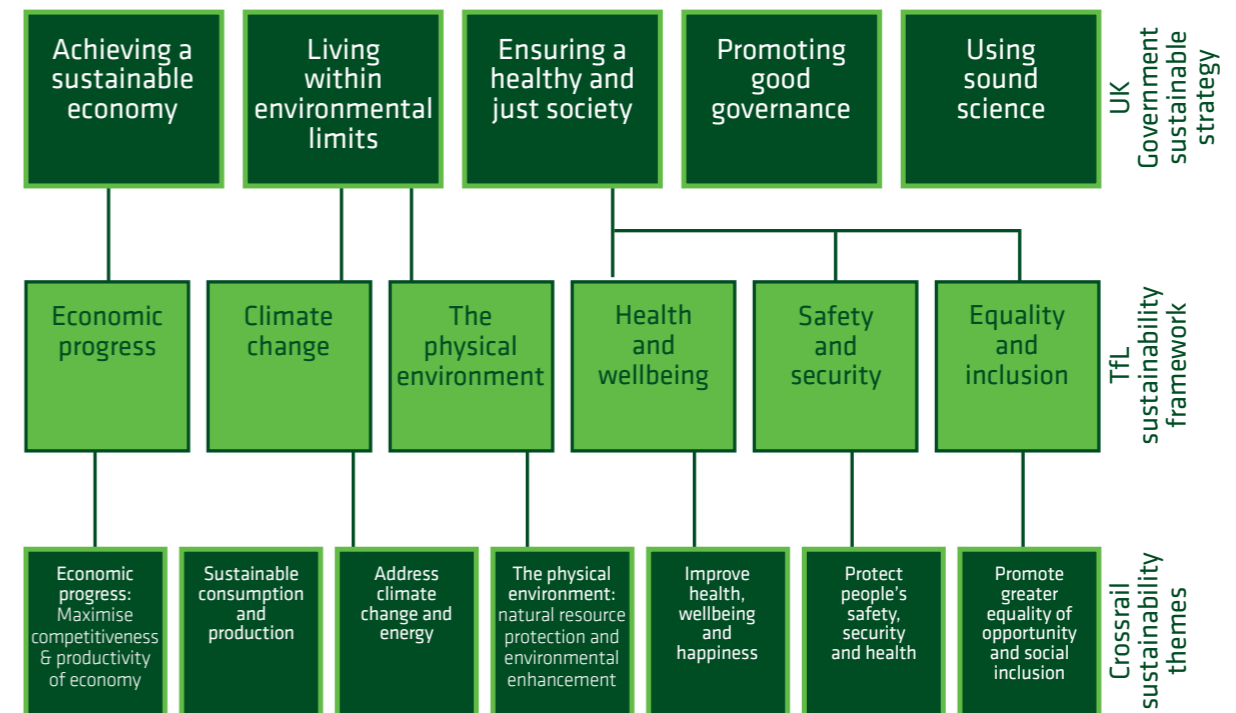
SCOPE

This report covers the entire works being undertaken on the Crossrail route. This is broadly divided into the central section, consisting of entirely new tunnels and stations in central London, and what is described as 'on-network', the sections of the route being delivered by Network Rail. These sections extend to the west and east of London and consist of upgrades to the existing rail network to facilitate Crossrail services. This is an increase in the scope of this report since the 2011-12 report and reflects the start of works on the on-network section of the route.

Crossrail's Key Sustainability Performance Indicators

1. Location of businesses awarded Crossrail-related contracts and their values
2. Delivery of 'whole-life' value
3. Number and size of businesses awarded Crossrail-related contracts
4. Environmental assessment ratings
5. Recycled content by value
6. Recycling and reuse of waste material
7. Crossrail's carbon footprint
8. Environmental complaints
9. Construction health and safety
10. Health and safety performance index
11. Diversity in Crossrail's workforce
12. London living wage
13. Strategic labour need and training compliance
14. Apprentices
15. Jobs brokerage service and local employment
16. Volunteer numbers
17. Work experience placements from boroughs along the Crossrail route

CROSSRAIL SUSTAINABILITY THEMES AND LINKAGE WITH TFL/UK GOVT.





ECONOMIC PROGRESS

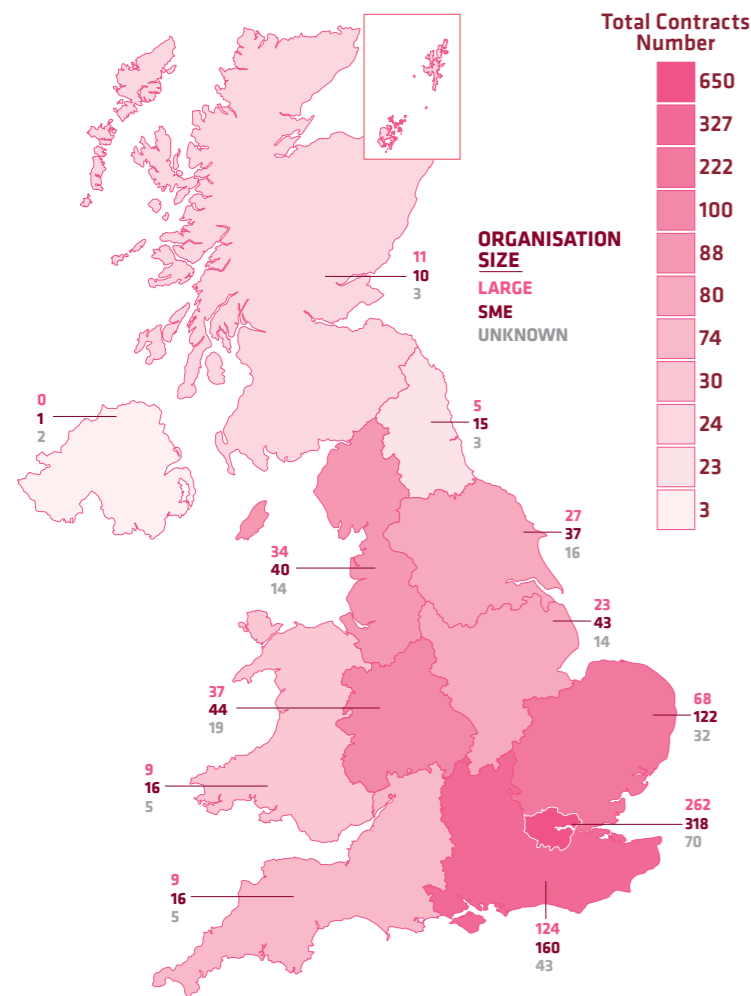
Tunnel segment factory
Chatham, Kent

Crossrail will deliver an estimated £42bn to the UK economy and is already bringing substantial economic benefits to London and the UK. During construction, Crossrail will create 75,000 business opportunities and support the equivalent of 55,000 full time jobs right around the UK.

Since the first sustainability report in 2012, the construction phase of Crossrail has progressed on time and within our funding envelope.

HIGHLIGHTS ▶

- All procurements planned for 2012-13 were completed successfully
- The present benefit to cost ratio is significantly above the benchmark rate for major transport investments
- UK companies hold 97 per cent of Crossrail-related contracts, with more than 3 in 5 contracts going to businesses outside London



INDICATOR 01 - LOCATION OF BUSINESSES WINNING CROSSRAIL CONTRACTS

Distribution of Crossrail-related supply chain contracts (tier one to tier three) to March 2013.

This map (left) shows the geographic distribution of Crossrail supply chains and how companies across the UK are benefiting from the project.

MOVING BRITAIN FORWARD

In 2012-13 Crossrail awarded its final main works contract for the new station at Bond Street. It pushes the value of Crossrail tier one contract awards over the £5.5bn mark, providing a welcome boost to the construction industry and the UK economy.

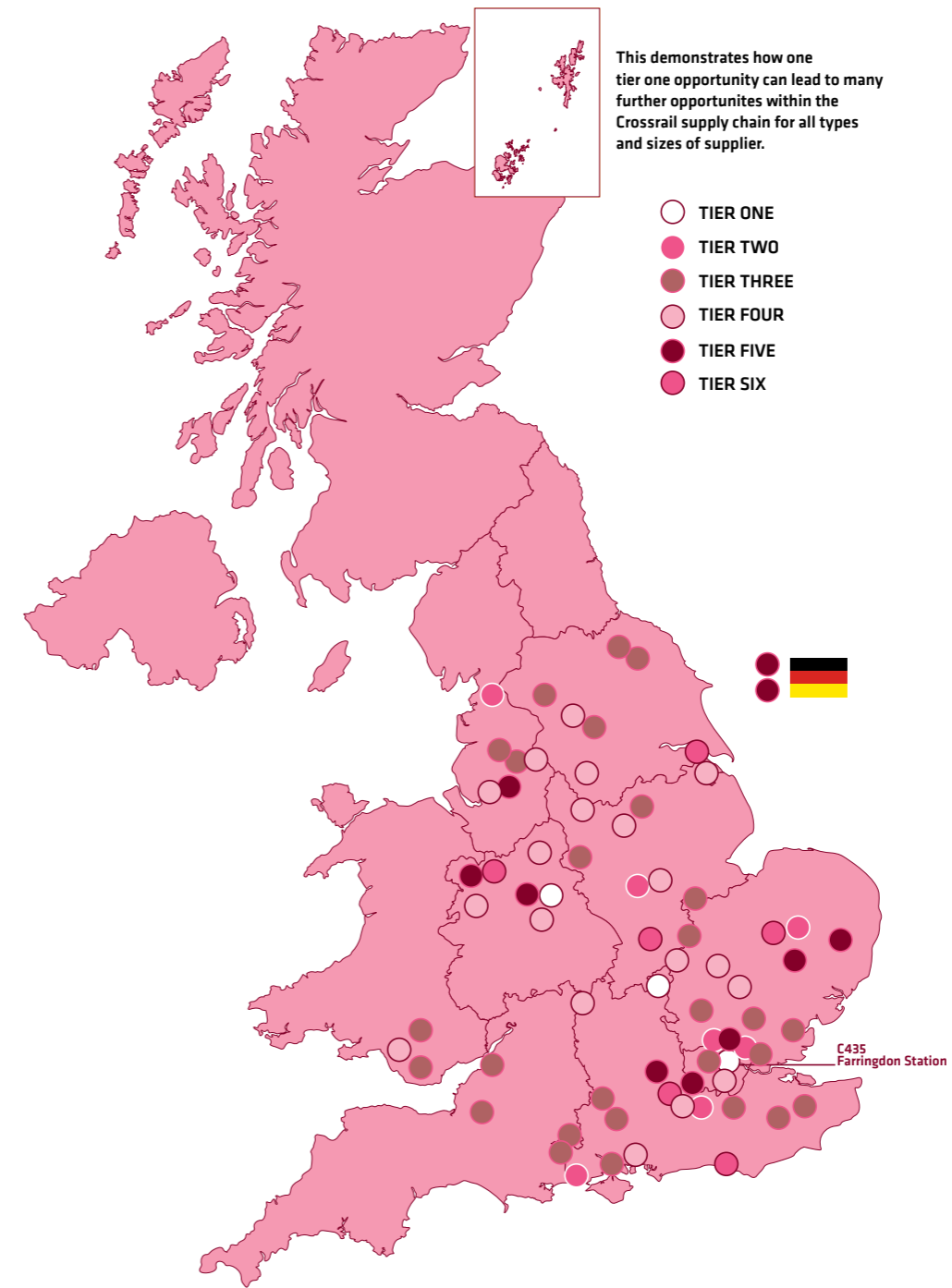
Companies across the UK are winning work connected to Crossrail. This map (below left) is a snapshot of the thousands of businesses that will benefit over the lifetime of Europe's biggest construction project. More than three in five businesses (62 per cent) that have won bids are outside London.

As a public sector client, Crossrail has a detailed understanding of how our investment cascades down to suppliers. We monitor all main supply chains beyond our own direct tier one contracts. This data and information, drawn from our online CompeteFor* contract opportunities portal, shows the following national and regional impact in the UK for 2012-13:

- New contracts which were awarded, supported the equivalent of 13,800 full time jobs across the UK
- 3 out of 5 of these full time equivalent jobs (8,310) are outside London
- We estimate supply chain expenditure at £865m, of which £460m (53 per cent) was spent outside London

The Crossrail programme and its supply chain will create an estimated 75,000 business opportunities and the equivalent of 55,000 full time jobs around the UK. Crossrail's financial impact reaches far beyond London.

*CompeteFor is a free service that enables businesses to compete for contract opportunities linked to major public and private sector buying organisations.



This demonstrates how one tier one opportunity can lead to many further opportunities within the Crossrail supply chain for all types and sizes of supplier.

FOLLOWING A CROSSRAIL CONTRACT

To understand Crossrail's economic impact, we followed the supply chain journey of a Crossrail contract through three tier one contracts.

We began with each tier one contractor's spend on tier two subcontractors and suppliers. Taking a random group of five tier two contractors, we mapped the cascade of spending down from tier two organisations to tier three and, where possible, beyond.

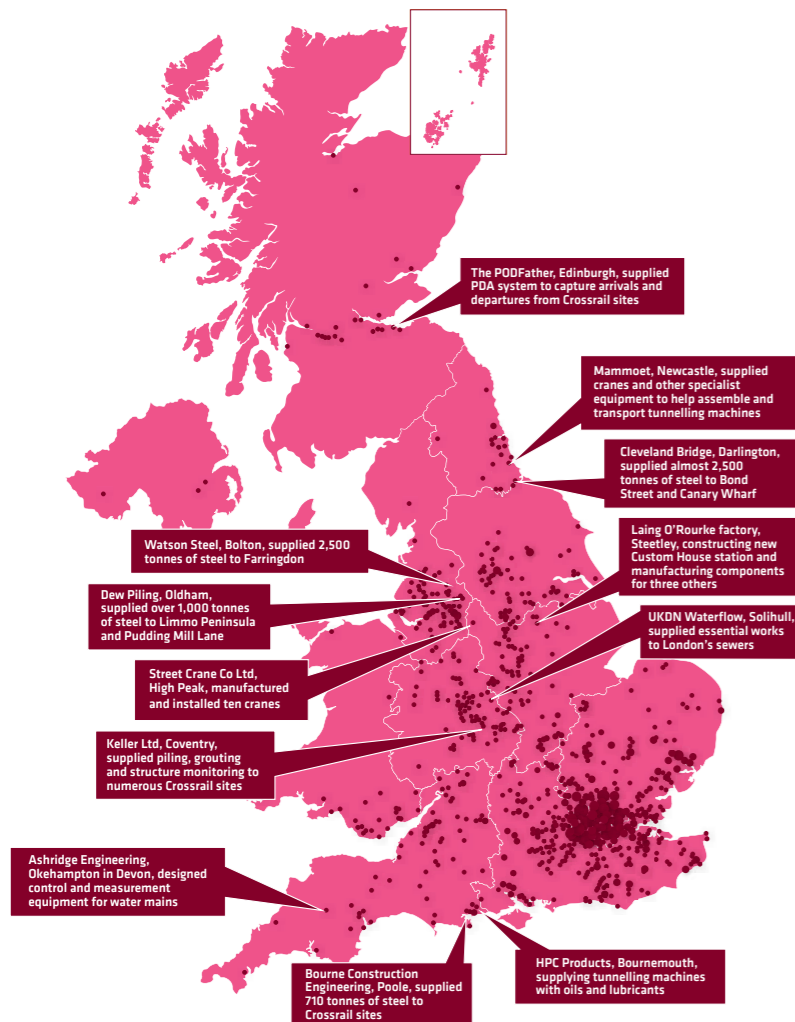
The map (above) highlights the geographic locations of organisations we sampled at each tier of the supply chain. This is not a comprehensive list of suppliers in each tier, but a representative example of how a single contract at tier one leads to multiple sub-tier transactions throughout the supply chain.

The vast majority of the Crossrail supply chain stays in the UK. Only two tier five opportunities are outside Britain. One was for the supply of fixings systems used to secure concrete, brickwork, blockwork, stonework and plasterboard. These are critical to safety and require specialist, precision engineering and fitting.

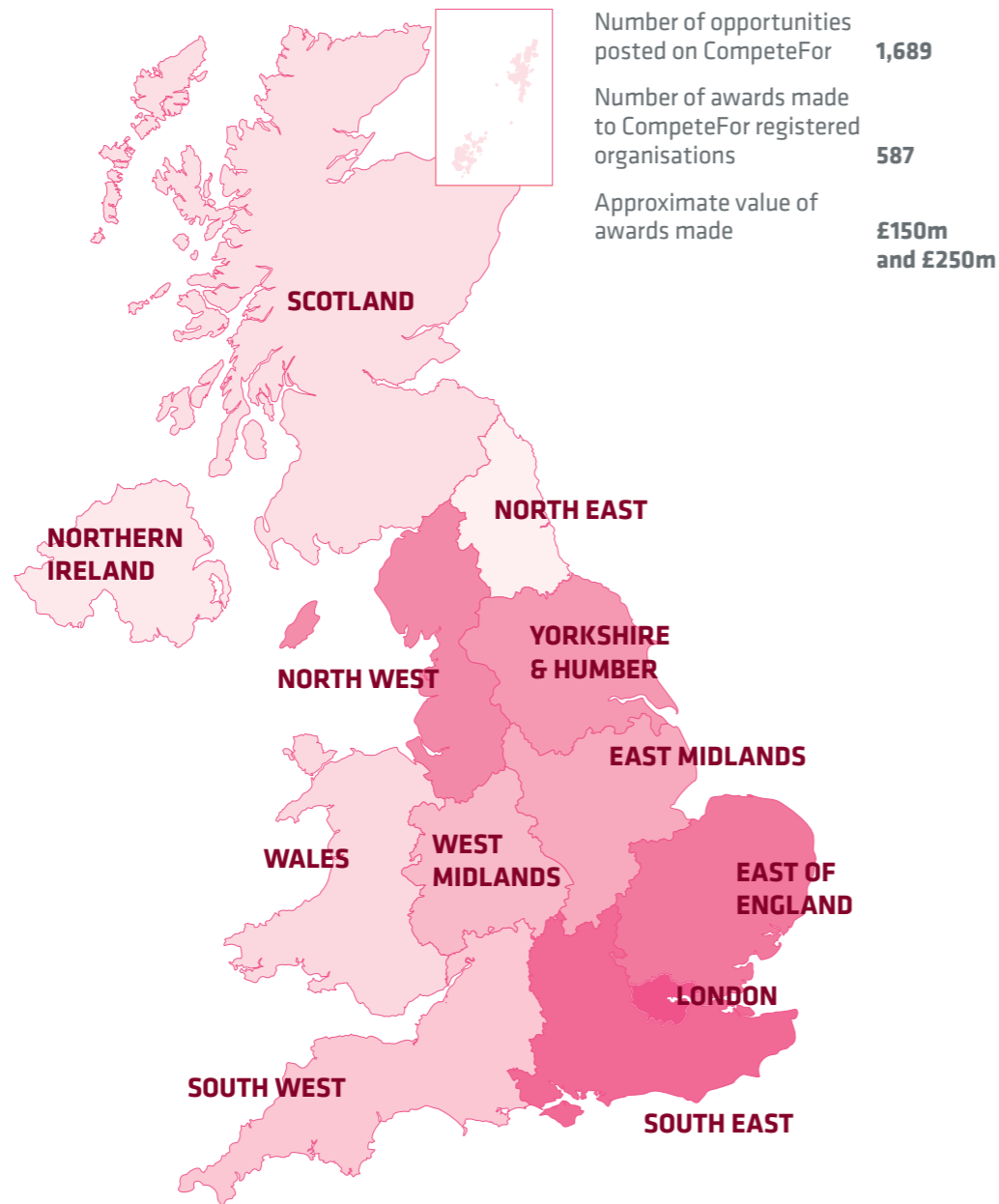
In some cases we were able to assess tier six contractors, but often a Crossrail contract continued to travel further down the supply chain creating new business opportunities at every level.

ENGAGING THE SUPPLY CHAIN

The detailed knowledge we have of our supply chains allows us to see how opportunities are spreading across the country, from principal tier one contractors down.



20 million hours already completed on the construction of Crossrail



This information allows our main contractors to target areas of the UK that are less well represented, but nonetheless have the people and companies with the skills and services we need.

At the end of the 2012-13 reporting period we created a 'heat map' of supply chain providers by region.

To encourage businesses in under-represented areas to compete for work on Crossrail we are working with national and regional enterprise organisations including Constructing Excellence, which we joined in 2013.

During 2012-13, our extensive work to recruit more businesses into our supply chain included:

- Taking more than 30 'market soundings' to increase interest and awareness of our emerging procurement plans
- Engaging more than 20 trade associations, professional bodies and their members

- Visiting all nations and regions to make presentations about how to get involved in the programme
- Attending more than 100 conferences, seminars and meet-the-buyer events, engaging with an estimated 6,000 organisations
- Holding a 'meet-the-contractor' event, and arranging some 150 meetings between suppliers and Crossrail contractors
- Advertising 1,689 opportunities to more than 170,000 registered companies on CompeteFor, with 587 contracts awarded up to the end of the 2013 financial year
- Receiving 12,000 visits to our website's supplier guide page (www.crossrail.co.uk/suppliers), and almost 200,000 page views of the Crossrail supply section
- Hosting drop-in sessions for MPs, telling them about businesses in their constituencies involved in Crossrail and explaining how other interested suppliers could become involved



INDICATOR 02 – DELIVERY OF WHOLE-LIFE VALUE

All standards and specifications for Crossrail include whole-life costs. We carry out investment appraisal and ask for evidence to support how any proposed change to the project baseline affecting capital expenditure will result in better value for money. The current portfolio of assessable change has a current rate of return on investment at 1 to 1.2. The business case for Crossrail was revised in 2011. It concluded the Crossrail investment return is better than previous forecasts. The present benefit to cost ratio (BCR) for Crossrail is 2.2 to 1. This significantly exceeds the benchmark rate of between 1 and 1.5 to 1, which is generally expected of major transport investments.

ETHICAL SOURCING

Crossrail manages a collaborative contractor working group called Ethical Supply Chains in Construction. It was formed in response to the huge challenge posed by the complexity of procurement that often makes it difficult to determine the origin and provenance of parts and products used in the industry. The group works with supply chains and trade associations to get a better understanding of the issues and seeks to implement measures that can improve ethical sourcing. It has developed a best practice method for purchasing commodities not covered by existing certification schemes. This is now used by our tier one contractors and their supply chains.

'The Ethical Supply Chains in Construction group brings together procurement specialists from all our tier one contractors. They are working together to improve ethical sourcing. It's a step-by-step journey. Our aim during the Crossrail project is to get our tier one contractors to continuously check their supply chains. We want the message to spread that ethical sourcing is a crucial aspect of working on major projects in the UK.'
Mike de Silva, Sustainability Manager, Crossrail

'Crossrail's programme to address ethical issues within its supply chain is exemplary in the UK and truly pioneering for such a major project. Crossrail has taken a leadership position by openly inviting its suppliers, relevant trade bodies, certification bodies and others to engage in working groups to raise awareness and debate some very challenging topics. This is leading-edge practice for a major civil engineering project and I believe that Crossrail offers an important case study on responsible procurement for similar projects in the UK and Europe.'
Professor Jacqueline Glass, Loughborough University, Network Manager, Action Programme for Responsible Sourcing

Distribution of Crossrail-related supply chain contracts (Tier one to Tier three) to March 2013						
	Total Contracts (No.)	Organisation Size				Size Unknown
		Large		SME		
		No.	% of known UK contracts*	No.	% of known UK contracts*	
London	650	262	17.8	318	21.6	70
South East	327	124	8.4	160	10.9	43
South West	74	25	1.7	44	3.0	5
East of England	222	68	4.6	122	8.3	32
East Midlands	80	23	1.6	43	2.9	14
West Midlands	100	37	2.5	44	3.0	19
North West	88	34	2.3	40	2.7	14
Yorkshire and the Humber	80	27	1.8	37	2.5	16
North East	23	5	0.3	15	1.0	3
Wales	30	9	0.6	16	1.1	5
Scotland	24	11	0.8	10	0.7	3
Northern Ireland	3	0	0.0	1	0.1	2
Total UK	1701	625	~42	850	~58	226
Non-UK	50	Source: Crossrail Programme Supply Chain database, CompeteFor data and SAP *total number of known UK contracts equals 1475				
Total	1751					

INDICATOR 03 – NUMBER AND SIZE OF BUSINESSES AWARDED CROSSRAIL-RELATED CONTRACTS

Data collected from a large sample of the supply chain, representing 1,751 contracts, from tier one to tier three shows that more than half (58 per cent), where the size of the organisation is known, are small or medium sized enterprises (SMEs)

REGENERATION

In October 2012, Crossrail published a report commissioned from independent commercial property consultants, GVA. The report concluded: 'Crossrail is more than a new rail link; it will be a catalyst for regeneration in key locations and a driver of London's economic growth, particularly from a property perspective.'

The study predicted Crossrail could help create additional residential and commercial value of £5.5bn between 2012 and 2021, an additional 18 per cent increase as a direct result of Crossrail. It also said the programme may stimulate construction of up to 57,000 new homes and 3.25m square

metres of commercial space within 1km of stations on the route.

URBAN INTEGRATION

Crossrail will bring environmental renewal to many areas, with high-quality finishes to stations and their surrounding areas. Crossrail will leave a positive legacy in the 'urban realm', so people living and working nearby benefit from the regeneration effects of the new railway.

Extra funding is being leveraged to complement Crossrail's own spending, and developments above Crossrail stations are being designed to achieve the maximum benefit and aesthetic quality in the surrounding environments.

Since completing central section urban integration designs at the end of 2011, we have completed eight master plan schemes. These are for surface level stations at Abbey Wood, Ealing Broadway, Hayes and Harlington, Ilford, Maidenhead, Romford, Slough and Southall. We have made good progress towards our aim of completing urban integration designs for 27 stations in London by the end of 2013.

We are also well on the way to raising the £90m for specific urban integration projects. In December 2012, TfL agreed to provide £30m to fund London boroughs' spending on improvements to areas immediately adjacent to Crossrail stations. Crossrail is also adding a further £30m, meaning two-thirds of the funding target is secure.

NETWORK RAIL AWARDS SOUTH EAST SPUR

Network Rail awarded Balfour Beatty Rail a £130m contract to build a two-mile section of the Crossrail route from Plumstead to Abbey Wood in southeast London.

Under the contract, Abbey Wood will get new station premises, and bridges will be modified along the route to take the overhead electric wires used by Crossrail's energy efficient trains. A new platform will also allow for easy interchange with North Kent services, increasing travel flexibility. Main construction work starts in 2014 and is an important section of the 'on-network' elements of Crossrail that comes under Network Rail.

CASE STUDY ► CompeteFor and Environmental Fabrications Ltd

Based in Dromore, Co. Down, Northern Ireland since 1993, Environmental Fabrications manufactures steel products. It has a turnover of £2m and specialises in three areas: pipework and welding; structural metalwork; and architectural metalwork. Clients come from the water, food, gas, oil and retail sectors, for which the company makes everything from handrails, balustrades and staircases to industrial pipe and plate work.

So far the company has won four Crossrail contracts, all found through the CompeteFor portal. The company is providing 300 tonnes of steel to our Limmo Peninsula site in East London and our tunnel-segment manufacturing factory at Chatham in Kent. Their work includes creating gantry cranes, jetties, access platforms and handrails.

All the company's 20-strong employees have worked at some point on Crossrail contracts. Their success on Crossrail has helped Environmental Fabrications win other work in the UK. They are now setting up a new office in Suffolk where they plan to employ up to 10 people from the local area, including apprentices.



SUSTAINABLE CONSUMPTION & PRODUCTION

HIGHLIGHTS ▶

- All tunnels, transit portals and shafts linking underground to surface levels gained a Civil Engineering Environmental Quality (CEEQUAL) 'excellent' rating at client and interim design stage
- Our Tunnelling and Underground Construction Academy (TUCA) received a 'BREEAM excellent' environmental assessment rating
- We are achieving 32 per cent of recycled content by value – exceeding both our 15 per cent target and 20 per cent 'stretch' target
- 91 per cent of excavated soil has been transported to Wallasea Island nature reserve and other wildlife creation or recreational sites

Sustainable consumption and production is about achieving more with less. This means not only looking at how goods and services are produced, but also the impacts of products and materials across their whole lifecycle.

It is important to develop awareness and understanding of responsible consumption and production. To achieve this we have regular 'toolbox talks', 'lunch and learn' sessions, and competency training across the Crossrail programme. These knowledge-sharing forums contribute to the continuing development of our staff, both on site and in support functions.

INDICATOR 04 – ENVIRONMENTAL ASSESSMENT RATINGS

Crossrail has adopted two formal assessment methods to evaluate overall environmental performance. They cover the design, construction and operation of the railway, and measure the impact across the whole life of the programme.

CEEQUAL

All tunnels, portals and shafts linking underground to surface levels, including ventilation and emergency access routes, are evaluated through the Civil Engineering Environmental Quality (CEEQUAL) assessment scheme. At client and interim design stage, the evaluation rated all tunnels, portals and shafts 'excellent'.

During 2012-13, an assessment on the first of our fully completed structures, Royal Oak Portal, also achieved 'excellent' status. Its traffic management and effect on neighbours gained an 'exemplary' rating, with both sections scoring 100 per cent.

This sets the bar for all other structures assessed under the scheme. All eight are on target to secure an 'excellent' rating. The next structure for evaluation is the Paddington Integrated Project. This will be covered in our 2013-14 report.

One area for improvement is in carbon and energy management, which scored 37 per cent. This area often scores poorly in civil

construction projects, but we are putting measures in place across the programme which will increase our performance in the future. These include developing a better understanding of our carbon footprint and working with our contractors to reduce it through improvements in embodied carbon and improved fuel efficiency in construction.

You can read more about CEEQUAL at www.ceequal.com

BREEAM

We have adopted the Building Research Establishment Environmental Assessment Methodology (BREEAM) for all stations in the Crossrail central section. This is the first time anyone has applied the methodology to evaluate an underground station, and we have worked closely with the Building Research Establishment (BRE) and consultants to develop customised criteria. It is an innovative approach and should establish a benchmark for others to use in future.

All Crossrail stations in central London assessed during this reporting period passed the design stage assessment and a rating of 'very good' is targeted for all. This continues the positive progress reported last year from the pre-assessment rating. Abbey Wood station's design assessment also puts it on target for a 'very good' rating.

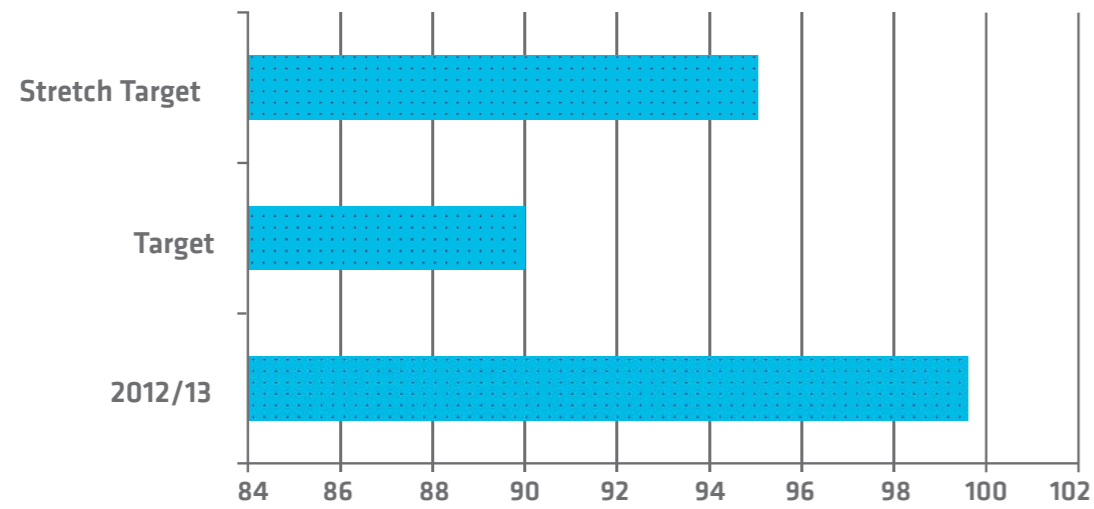
Our Tunnelling and Underground Construction Academy (TUCA) achieved an 'excellent' rating for BREEAM. This is a notable achievement for our contractor Voelker Fitzpatrick. The company took a BREEAM 'very good' design and adapted it to secure the higher rating.

INDICATOR 05 – RECYCLED CONTENT BY VALUE

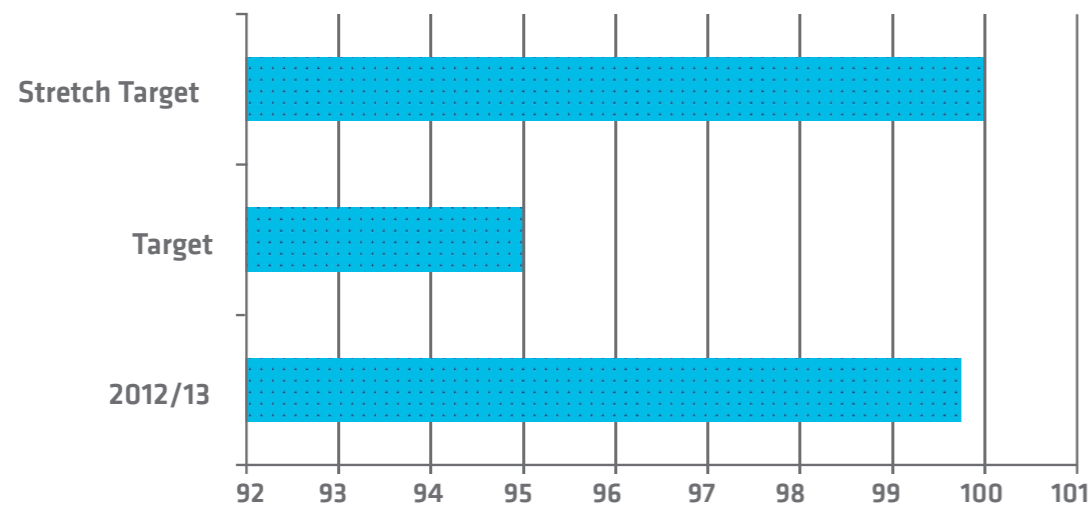
Crossrail has set a target of 15 per cent recycled content by value across the programme, with a 'stretch' target of 20 per cent. At present we are surpassing this figure, achieving 32 per cent of recycled content by value.

This is a significant achievement given the limited potential for using recycled materials in the concrete mixes necessary for tunnel lining. Our contractors have explored ways to maximise recycled content while still complying

Construction and Demolition Waste



Excavated Material



with design specifications. One particular success involves incorporating microsilica, a by-product of alloy manufacture, as an alternative to cement in our sprayed concrete lining.

INDICATOR 06 - RECYCLING AND REUSE OF WASTE MATERIAL

We recycled close to 100 per cent of construction and demolition waste in 2012-13. Crossrail is a signatory to the Government's 'halving waste to landfill' commitment. Under the Crossrail Act, we have a legal requirement to reduce, reuse and recycle waste. From the earliest planning stages we worked with our design teams to minimise waste produced at source, rather than pass the whole burden to our contractors during construction.

We have set ourselves challenging targets to achieve reuse and recycling best practice for the construction industry, as set by the

government-funded Waste and Resources Action Programme (WRAP).

Crossrail produced 66,196 tonnes of construction and demolition waste during the year. With demolitions now largely complete, most of this waste was generated during construction. Reuse and recycling remained high during the reporting period, with close to 100 per cent of clean material valuably reused.

We transported the bulk of our excavated soil to Wallasea Island, where we can help develop the nature reserve habitat. The remainder is reused at other sites, such as a quarry restoration project at Ingreborne Valley in Essex.

Total tunnel and underground station excavations have produced, so far, more than one million tonnes of material, most of which is London clay.

CASE STUDY ▶

Sulphate and selenium in excavated material

Our contractor BAM Ferrovial Kier (BFK) has responsibility for assessing the soil content destined for the wild coast nature reserve at Wallasea Island. They realised that naturally occurring levels of sulphate and selenium would exceed the agreed limits for the site, meaning material might have to go to landfill instead. The company commissioned a special study to further explore what levels would still achieve a safe creation of new habitat on the island, and gained Environment Agency approval for its use.

CASE STUDY ▶

Soil washing at East Tilbury

During 2012-13, we dispatched 180,000 tonnes of earth from Crossrail's sites at Plumstead and North Woolwich to a soil grading centre at East Tilbury for separation into different quality grades. The larger aggregate was sold, mainly for use in the construction industry, with finer graded materials sent for use as soil in landfill restoration.



CLIMATE CHANGE & ENERGY

We are currently on target to achieve our 8 per cent reduction in construction carbon emissions

HIGHLIGHTS ▶

- Our comprehensive carbon management programme includes a reduction target of 8 per cent for construction energy
- We are planning Crossrail's future carbon efficiency by specifying lightweight trains with regenerative braking, 'smart controls' for lighting, heating and air conditioning, and driver advisory systems

When fully operational, Crossrail will reduce carbon emissions by taking 500m kilometres of journeys off the road and onto an efficient railway. While Crossrail's carbon footprint during construction is less than 15 per cent of the total, measures are being taken to reduce this by 8 per cent.

INDICATOR 07 – CROSSRAIL'S CARBON FOOTPRINT

From preliminary designs, the carbon footprint estimate for Crossrail's construction is 1.7m tonnes. This is approximately 15 per cent of Crossrail's overall carbon footprint during its planned 120-year lifespan.

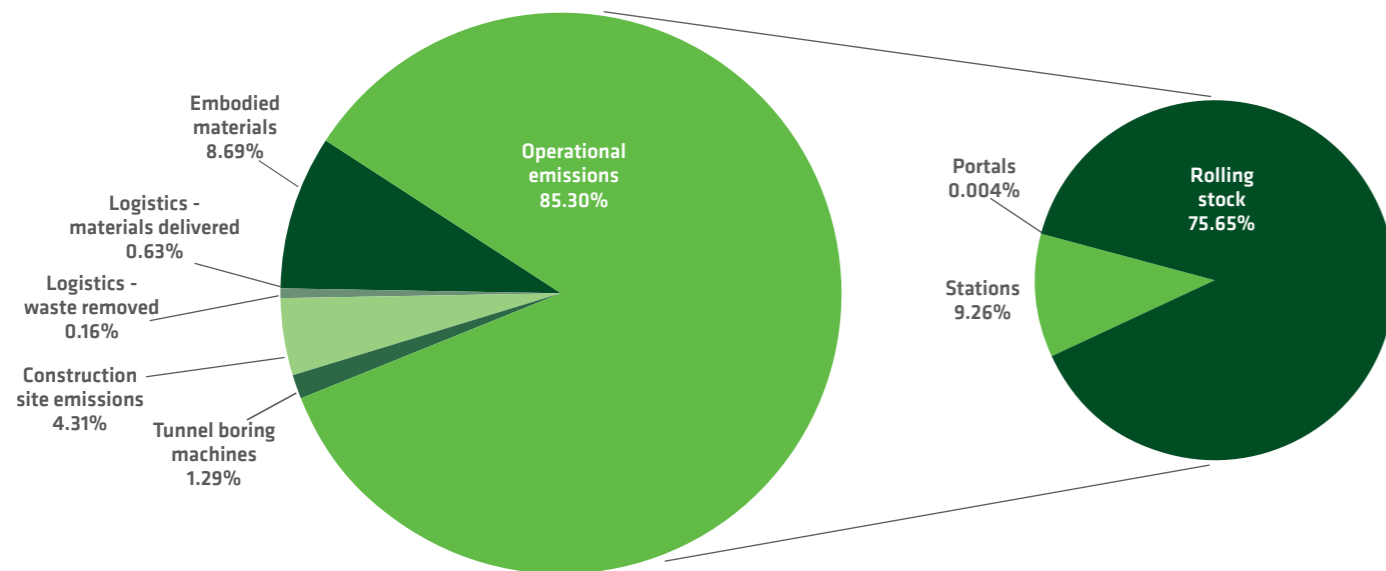
We will use data from our contractors to refine and update the construction carbon

footprint as the programme progresses. We have a commitment to reduce this footprint, working with all our contractors to put in place a comprehensive carbon management programme. It includes a reduction target of 8 per cent for construction energy, covering plant and equipment, vehicle movements to and from sites, site offices and employee facilities.

NEW BENCHMARKS

Consultation with Constructing Excellence, a membership organisation dedicated to improving industry performance in the built environment, has identified that little data is available for energy use in civil engineering projects of similar nature and size to Crossrail. So the data we collect during the programme will contribute to shaping future industry benchmarks for projects of comparable scale.

The challenge of energy reduction is to achieve carbon savings without incurring significant



extra cost. Many measures need extra capital expenditure, often with little prospect of securing a return on the investment during construction. However, we continue to encourage our contractors to test new technologies, record results and evaluate the business case for adopting them. If viability is proven, we will approve the technology for wider use and share this knowledge among Crossrail contractors to achieve maximum benefit.

Several innovative plant and equipment technologies introduced across the programme are already contributing to reduced construction energy use. These include diesel-electric hybrid excavators, LED site lighting and hydrogen fuel cells.

INNOVATION TEMPORARY LED LIGHTING

At Whitechapel our contractor has put in place full LED temporary lighting, one of the first of its kind. During the reporting period we also began working with a specialist supplier on similar LED temporary lighting for tunnelling work. In tandem with improved energy efficiency, we gain significant health and safety benefits, as it provides better quality light for working. The system will also include automatic dimming, reducing light when detectors record no movement in a particular area. This is a unique feature for underground tunnelling.

ROLLING STOCK

Carbon reduction is critical to long term UK sustainability and, as such, we are seeking ways to minimise Crossrail's carbon emissions when services become operational.

During the 120-year design life of Crossrail, energy needed to run services will account for 85 per cent of overall carbon emissions, most of which will come from the trains. However, Crossrail will stimulate a large shift in people travelling by public transport rather than car. Replacing existing diesel and diesel-electric trains with a fully electric service will make a further contribution to carbon reductions.

Crossrail rolling stock will also have the following features to improve energy efficiency:

- Emphasis on weight reduction – trains limited to a maximum mass of 350 tonnes
- Energy consumption targets per km allowing benchmark comparisons with the best UK and European performance by service type
- Regenerative braking – train-motor technology that returns energy to the network during braking
- 'Smart' controls for lighting, heating and air conditioning in carriages – automatically adjusting to the ambient conditions and low energy 'standby' modes when not in service
- Driver advisory systems – to help drivers meet the timetable using energy efficient driving techniques

The 2014 annual report will provide an update on the emerging story of our new trains.



ROLLING STOCK AND DEPOT PROCUREMENT

The procurement of rolling stock and depot contract began with the issue of tender documentation to bidders in February 2012. On 1 March 2013, Crossrail's sponsors, Transport for London (TfL) and the Department for Transport (DfT), announced a change to the funding strategy for this procurement. They confirmed that it would be financed by the public rather than private sector. New tender documentation was issued to bidders in April 2013 and new tender submissions were received in August 2013. Crossrail is currently evaluating these tender submissions.

INNOVATION CROSSRAIL STATIONS

Each Crossrail station will have automatic detectors and sensors for lighting, both in customer and staff-only areas. Energy efficiencies from digital dimming, movement detection, and photocell light equipment will be continuously monitored with graphical data providing a real-time picture of consumption patterns.

These will not only help contribute to sustainability but also operational efficiencies. For example, by monitoring the number of hours each lamp is in use, staff can produce an optimal replacement plan that makes best use of light bulbs and lighting equipment, reduces costs, and prevents premature disposal.

THE PHYSICAL ENVIRONMENT & NATURAL RESOURCE PROTECTION

HIGHLIGHTS ▶

- Seven contractors (at our sites in Bond Street, Farringdon, Liverpool Street and Whitechapel) and Berkeley Homes (our partner organisation at Woolwich) received Green Line recognition for good environmental management
- 80 per cent of Crossrail construction equipment is fitted with diesel particulate filters or Cat 3b engines to reduce harmful emissions
- Throughout the year, Crossrail has been protecting wildlife by moving hundreds of fish, mammals and plants affected by our construction work to safer habitats

Wallasea Island
nature reserve, Essex

Crossrail is rigorous in minimising the risk of environmental incidents. We have an ISO 14001 environmental management system and demand all our contractors to have an equivalent accreditation.

The systems are subject to a process of audit to ensure that they are being effectively employed. Audits are undertaken by the contractors themselves, by independent certification bodies and by Crossrail.

Crossrail was not subject to any regulatory actions during the year.

ENVIRONMENTAL MINIMUM REQUIREMENTS

The Environmental Minimum Requirements (EMR) comprise rules to which those building Crossrail must adhere. Local authorities and statutory agencies worked with us to develop the EMR, and a key part is performance against the Construction Code.

The Code is a comprehensive document setting out how to mitigate the impacts of construction. We put conditions in our contracts to ensure our contractors comply with the requirements. Inspections and audits confirm the terms are being met, with any non-conformance quickly identified.

There is more information about EMR on our website.

GREEN LINE RECOGNITION SCHEME

We recognise that improving environmental performance means helping everyone involved to understand what needs to be done and providing the motivation to do it. Because of this we have created the Green Line recognition scheme. It increases awareness of good practice and encourages better environmental behaviour at all our construction sites.

The scheme recognises contractors achieving set standards of environmental issue management and workforce engagement. During the year, Green Line recognition was awarded to seven contractors at our sites in Bond Street, Farringdon, Liverpool Street and Whitechapel, and to our partner organisation, Berkeley Homes at Woolwich.



INNOVATION

A GREEN START – OUR SITE OFFICE ARRIVES AT ESSEX WHARF

When contractor BBMV needed to set up site offices in March 2013, they decided against the 24 lorry journeys and 5,000km of travel needed to bring new work cabins from their Staffordshire base. Instead, they chose to recycle those of their next door neighbour – Swanlea School in Whitechapel.

Supplier Elliot minimised disturbance to neighbours by transferring the 12 cabins across from the school yard to BBMV's Essex Wharf site.

Recycling the cabins helped BBMV satisfy four of our sustainability objectives and contribute to three of their Sustainability Action Plan targets:

- Restrict carbon emissions
- Protect land and minimise pollution
- Support health and amenity

BIODIVERSITY

Our main biodiversity focus during construction is wildlife and habitat protection.

Renovation of Connaught Tunnel this year meant draining part of the Royal Docks in East London. During this work, more than 300 fish were relocated to other parts of the dock. At Wallasea Island, where our excavated material is being used to create an RSPB nature reserve, 72 water voles were carefully moved out of the way of the works to another area of the island.

We are also looking at how we can improve the biodiversity of sites after completion. Where there are suitable conditions we make provision in our building design. For example, green roofing is proposed for the Paddington Integrated Project, the headhouse



at Connaught Tunnel and the main station building at Whitechapel.

The urban characteristics of Crossrail's central London stations often means reduced scope for biodiversity improvements. We have found other suitable places where careful species selection can provide an appropriate landscape design and improve biodiversity. These include tunnel portals at Westbourne Park, Pudding Mill Lane and Plumstead; shafts at Limmo Peninsula, Stepney Green and Mile End and at Old Oak Common.

On the Crossrail surface section, Network Rail is using Defra's biodiversity offsetting pilot scheme to calculate its impact in developing the railway. The aim is to achieve zero net loss by investing in areas of equal habitat value.

WATER

At many of our sites it is difficult to harvest and store rainwater but, where possible, we and our contractors do so. Our Whitechapel contractor is also testing a water footprint tool for their direct and indirect water use, and using this information to forecast consumption.

During construction we concentrate on protecting water from pollution and carefully monitor how much water we use. Our aim is to gather data that will help form benchmarks for large construction projects in the future.

AIR QUALITY

Estimates show that construction work causes 15 per cent of London's soot particle emissions. As part of the EMR and as a condition of the Crossrail Act 2008, we have a duty to reduce particulate emissions from machinery where practical. The use of diesel particulate filters or cleaner Euro 3b engines will contribute to better air quality in London, especially for communities around Crossrail's sites.

CASE STUDY ▶

Hibernating snakes discovered by Network Rail contractors

Site clearance work at Trenches Bridge near Slough halted when two hibernating grass snakes were found by workers from HOCHTIEF (UK). The snakes were carefully transferred to a specialist reptile centre in Newport for the winter months and successfully released back to site at the end of March.

CASE STUDY ▶

Stockley pond species relocation

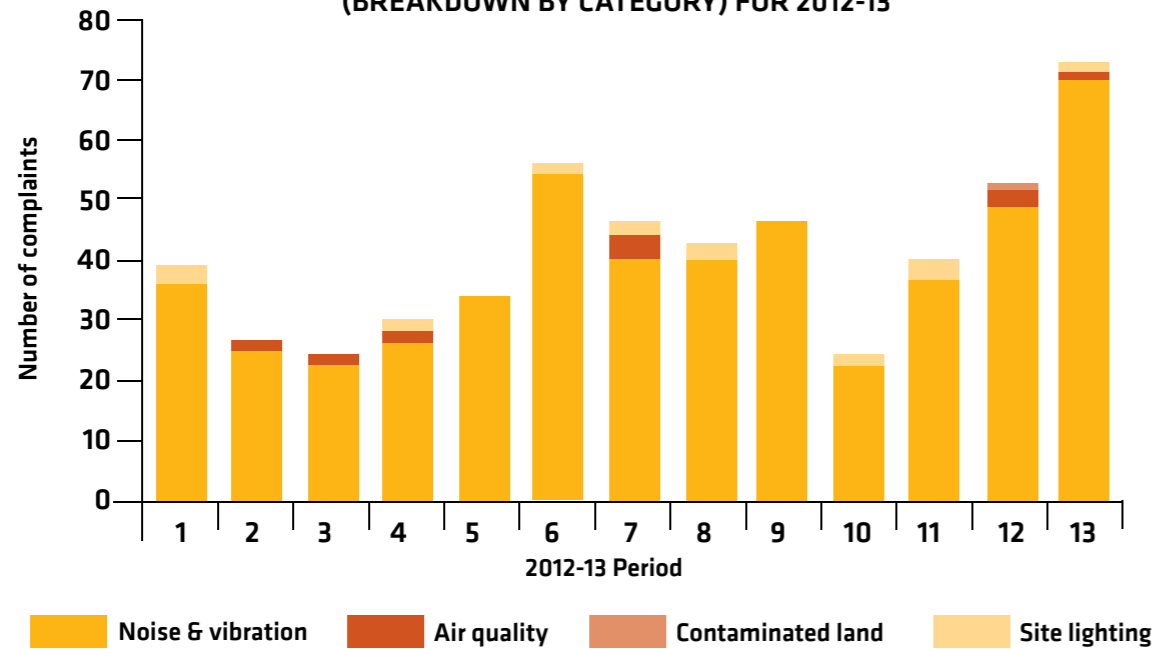
Construction work at the Stockley site involved removing a fishing pond and transferring its wildlife inhabitants. This included 599 fish moved through a technique known as 'electro-fishing'. This method temporarily stuns the fish, allowing them to be safely checked before returning them to the water unharmed.

Among the catch was a European eel, a critically endangered species. It weighed 2.27kg and measured one metre in length. Also, some 30 wild orchids were saved and relocated to a similar habitat at Maple Lodge Nature Reserve along with 46 slow-worms, 593 newts and five frogs.



More than 80 per cent of plant and equipment on site is compliant with Crossrail's air quality requirement

TOTAL NUMBER OF ENVIRONMENTAL COMPLAINTS (BREAKDOWN BY CATEGORY) FOR 2012-13



Since we introduced these cleaner engines in 2010 we have been working with our tier one contractors to put this requirement in place and overcome concerns about equipment reliability, maintenance issues and adverse fuel consumption.

In 2012-13, uptake increased noticeably, and a check across the sites showed nearly 150 pieces (56 per cent) of construction plant with emissions control were used on the project.

Consultation and trials prove that it is not practical to fit emissions control to a further 25 per cent of plant. Therefore in this reporting period we are more than 80 per cent compliant with the requirement. Our next step is to ascertain whether any remaining equipment can be fitted with emissions controls and to tackle some of the more difficult equipment such as large crawler cranes.

INDICATOR 08 – ENVIRONMENTAL COMPLAINTS

Crossrail's construction, especially within densely populated urban areas, inevitably affects those living and working near our sites. We always aim to minimise disruption to local communities and the whole project has had an Environmental Impact Assessment (EIA). An environmental statement was also published and presented to Parliament to accompany the Crossrail Bill in 2005. The process identified sensitive locations and our working methods must be approved by the local authority in order to ensure that disturbance is minimised. All of our contractors must use industry best practice to minimise inconvenience and we have a 24-hour helpline so people affected by the works can seek advice or register a complaint. We review these swiftly and

explore each issue raised. Where necessary we change our working practices to reduce or eliminate the problem.

Of the 444 environmental complaints received by the Crossrail Helpdesk in 2012-13, most related to noise and vibration. The main locations for these complaints were areas where people live close to the works, for example at Whitechapel, Bond Street and Paddington. During the year, we worked with all our contractors to ensure they use the best practical means to minimise the impact of construction, especially noise and vibration, and put measures in place to help those most affected.

BUILT HERITAGE

The Crossrail route avoids demolishing listed buildings with the exception of a small house at 94 Dean Street, Soho. Elsewhere, we refurbish or repair listed buildings in a style sympathetic to the original design. And where possible we try to incorporate existing structures, following good heritage practice and sustainable restoration guidelines.

We have funded the research and recording of previously unlisted structures, which have now been given listed status. Examples include a signal box on London Underground tracks at Liverpool Street and several bridges over the Great Western line between Slough and Paddington.

New station architecture and design work purposely intends to enhance and complement existing listed features. For example, at the new Hammersmith and City station entrance at Paddington, the fused patterning on the glazing takes its style and form from the decorative work on the original Grade 1 listed arch endings.

CASE STUDY ▶

Noise monitoring at Whitechapel

At Whitechapel, equipment continuously monitors noise. It automatically detects when decibels reach defined thresholds.

A traffic light system provides an 'at a glance' check, measuring average noise levels over a set period of time. Amber indicates the period average is likely to be exceeded and some adjustments to working practices are necessary. Red signals that work for the period average are no longer within compliance.

This real-time data allows site engineers and managers to adapt working methods immediately noise levels come close to, or breach, a compliance threshold. The equipment also provides summary emails of each day's noise patterns and a visual display on a website allows tracking of results against time.



ARCHAEOLOGY FIELDWORK PROGRAMME

During the reporting period there were archaeological investigations at 17 of our construction sites.

At our Limmo Peninsula site, near Canning Town in East London, excavations for the temporary tunnel spoil store at Instone Wharf revealed well preserved remains of one of the main timber-piled boat ramps, used to build and launch 19th Century warships by the Thames Iron Works, Engineering and Shipbuilding Company.

The investigations gave us an opportunity to document one of London's most important Victorian industrial archaeology sites.

PLANS FOR POST-EXCAVATION, DISSEMINATION AND PUBLICATION

An important part of our archaeology programme and its learning legacy is how and where we share the results of excavations with our stakeholders and the public. In consultation with English Heritage's London team and the City of London Corporation, we have explored how we can achieve new benchmarks in best practice.

One key result is a programme to speed up public communication and we will produce up to 20 archaeology publications over the next three years, with the first due for release in 2014.

PROFESSIONAL AND TECHNICAL PUBLICATIONS

The Crossrail archaeology team has contributed technical papers and articles to professional conferences and journals throughout the year. We have provided information to: the UK Institute for Archaeologists' events in London and Birmingham; the International Conference for Cultural Heritage and New Technologies in Vienna; the Institute of Archaeology, University College London; and several trade and industry publications.

By sharing our experience and knowledge in this way we hope to set a new standard for best practice that other major construction projects will follow.



More than 3,500 members of the public attended our archaeology exhibitions and lectures presented along the Crossrail route

REUSE OF HISTORIC ASSETS

We have been working with heritage and tourism organisations to make sure that significant historic assets affected by Crossrail construction have a new home.

Several major historic railway engineering items have been donated from Old Oak Common, a former Great Western Railway depot in Hillingdon, and from the former North London line in North Woolwich. A bridge, turntable, carriage lifting jacks, and smaller items such as historic railings are now at some of the UK's most important historic railways. Beneficiaries include: Swanage Heritage Railway in Dorset; Vintage Trains at Tyseley, West Midlands; and Whitwell and Reepham Heritage Railway in Norfolk.

We were also able to dismantle and flat-pack an entire 19th Century pump house, originally part of the Connaught Tunnel North London line. We have donated this to the SS Robin Trust for use as a new ticket office at their historic ship visitor centre in Royal Victoria Dock, east London.

MEDIA COVERAGE AND EDUCATIONAL RESOURCES

News of our archaeological discoveries and events featured in local, national and international media helps us communicate our findings and knowledge to a wide audience. Because of this we are now working with several university departments around the world, and taking part in teaching modules for postgraduate studies at Birkbeck, University of London.

The archaeology programme also supports our Young Crossrail youth programme where members of the archaeology team visit local schools to share their findings and inspire interest in history and archaeology.

IMPROVING AWARENESS AND INVOLVEMENT OF COMMUNITIES IN THE HISTORIC ENVIRONMENT

Throughout the year, more than 3,500 members of the public attended our exhibitions and lectures on archaeology presented to community groups along the Crossrail route. We also held the Bison to Bedlam archaeology exhibition on 17 dates during 2012.

ART PROGRAMME

In March 2013 Crossrail launched Culture Line, our visionary art strategy involving eight of London's most reputable and cutting-edge galleries and key figures from Britain's art community. Together we are curating a selection of premier artists to become part of Crossrail, and the largest collaboratively commissioned UK art project in a generation.

Eight Crossrail stations will feature an art installation, chosen to complement the surrounding design and architecture. Together the artworks will make Crossrail a free linear public gallery, with each station giving visitors the chance to enjoy a major, permanent artwork by a leading contemporary artist.

'Crossrail will set the stage for experiencing world-class art and culture in London. By commissioning ambitious art from leading international artists, Culture Line has great potential to create powerful and engaging experiences for the half million people who will use Crossrail every day.'

'It's a tremendous opportunity for artists to reach a vast new audience. It will also give each of the eight stations a unique visual identity.'

Lydia Yee, Curator, Barbican Art Gallery

The first Culture Line exhibit will launch at Paddington station in partnership with Lisson Gallery, one of the foremost private galleries in Britain. Crossrail selected American artist Spencer Finch for his proposal, A Cloud Index, which will create an index of clouds set within the 120 metre glass canopy that forms the centrepiece of the new station.

The result will create not only a picture of the sky in the tradition of English landscape painting by artists

such as Constable and Turner, but also an arrangement of more than 25 different types of clouds. The image will interact with the environment, changing with different light and weather. On a clear day, the clouds on the glass will float in the blue sky, and on cloudy days they will overlap and interact with the real clouds casting soft, ever-changing shadows into the station.



CASE STUDY ▶ Westway Photography

In preparation for the launch of Crossrail's 2013 Artist in Residence scheme, in September 2012 Crossrail organised a pilot residency involving photographer Paul Wenham-Clarke, who had asked to combine a photography project at the site with his exhibition Westway Photography: a portrait of a community.

The exhibition was to feature a series of photographic portraits of the people who live, work and play under the Westway, portraying the various communities that exist along the route. Paul wanted to link Crossrail to the other images in his project by shooting portraits of the site workers at Westbourne Park, given the impact the site was having and going to have on the area.

The photographs were then shown in St Martins-in-the-Fields Crypt Gallery in Trafalgar Square through January and February 2013.

HEALTH & WELLBEING

Crossrail will help ease travel congestion and contribute to a better commuter experience. Delivering this means giving considered thought to the architecture and layout of our stations. We believe they will be impressive spaces and, combined with our art programme and urban realm improvements, will act as a stimulus for creativity and growth. Before this we have much construction work to undertake. During this time the health and wellbeing of our workforce and stakeholders depends on us acting responsibly and we are working hard to achieve this.

THE BIG DIG

The Big Dig is Crossrail's internal survey of employee satisfaction. We recognise that we are a complex organisation with staff from many different companies and backgrounds. However, we have a responsibility to all and we know that a contented workforce is one that performs well. Put simply, to deliver a world-class project we need a world-class team.

The survey gives everyone working in Crossrail the chance to have their say. It also helps Crossrail's leaders understand what people across the project are thinking and feeling. During the year we committed to Investors in People, an accreditation for employers that gives us a measure of how we compare to others in our own industry and beyond.

Everyone working in the Crossrail team was invited to take part in the Big Dig, while a

sample of some 550 staff members were asked to complete the Investors in People survey.

OCCUPATIONAL HEALTH

We want to leave a better workplace health legacy to benefit the whole construction industry and its 2.4m employees. To do this, we are striving to raise standards that will make sites healthier places to work.

As a large-scale programme, Crossrail can challenge and influence the contractor community, raising the bar on performance and changing the culture of occupational health provision.

Crossrail has produced Healthy by Design, a guide to help people planning construction work make safe choices and meet legal responsibilities right from the start of a project. We also have an agreed set of occupational health standards which is compulsory for contractors and their subcontractors. These standards ensure occupational health services are available to all. This has helped small and medium sized enterprises meet their legal requirements for workplace health.

Construction work can, without prevention and care, pose many specific health hazards such as hand and arm vibration, fatigue and dust. Historically the impact of these on workers' health has not been directly measured because of an absence of data. Information has improved in recent years; we can now carry out the health checks needed for all workers and repeat these regularly.

BIG DIG REVEALS BIG IMPROVEMENT

The 2012 Big Dig survey showed a great improvement in people feeling personally engaged with Crossrail. Overall, 73 per cent of respondents said they felt satisfied, motivated, loyal and proud to work for Crossrail, compared to 65 per cent in 2011. The result was based on a 12 per cent better response rate than the previous year.



Crossrail's Considerate Constructor Scheme performance is considerably above the industry average

However, we identified inconsistent levels of occupational health performance among our contractor community during 2012-13. This included a lack of understanding about occupational health with the potential for non-compliance with laws and mandatory requirements, and greater incidence of ill-health.

To encourage progressive improvement we have a series of practical and innovative ideas to help develop our health and wellbeing strategy. We audit against the Constructing Better Health (CBH) and Crossrail Standards to ensure compliance and consistency of the Occupational Health programme across the project. Our reward and recognition programme – Gateway, also measures progress in workplace health. Contractors' have occupational health KPIs and we regularly measure their efforts to engage their supply chain through our Health and Safety Performance Index (HSPI).

Every Crossrail contractor must run monthly on site health campaigns and offer lifestyle screening appointments to 50 per cent of staff each year. So far, 6,000 workers have had health assessments. The importance of such assessments is shown clearly by the example of one of our contractors who, in April 2012, ran a lifestyle screening campaign and identified 39 workers with raised cholesterol, eight with high blood pressure, and four with diabetes.

Crossrail's endorsement of the CBH scheme has led other main partners, such as Network Rail, to promote the standard across their own supply chains.

CONSIDERATE CONSTRUCTORS SCHEME (CCS)

CCS is a national initiative set up by the construction industry to improve standards of neighbourliness.

Sites register with the scheme and are independently assessed against a code of considerate practice, designed to encourage higher standards of conduct.

A record number of Crossrail sites received awards in the 2013 CCS National Site Awards. These recognise the top 10 per cent of construction sites in the UK for excellent standards of consideration towards their neighbours, workforce and the environment. They are based on the CCS's independent site visits during 2012.

The scheme helps tackle any area of construction activity that may have a direct or indirect impact on the image of the whole industry. It awards CCS points for performance and standards under the following headings: considerate; environment; appearance; neighbour; respect; safety; responsible; and accountable.

In 2013, Crossrail sites won 11 awards. Our contractor at Paddington was a national runner-up, one of only 26 such awards made nationwide.

CCS and Crossrail over the year:

- Average scores have continued to increase, with a steady 3 per cent increase every year
- Contractors are consistently reaching the highest scoring category: 'an exceptionally good site'
- Scores in all assessment categories have increased, with the biggest rise in 'neighbour' scores, and the highest scoring category of 2012

Since January 2013 new criteria include:

- Enhancing the appearance
- Respecting the community
- Protecting the environment
- Securing everyone's safety
- Caring for the workforce

Early scores are extremely promising, with Crossrail averaging 44 of a maximum score of 50, considerably above the industry average over the same period of 37.4.

COMMUNITY INVESTMENT

March 2013 coincided with the first year of our Community Investment Programme. This encourages contractors to donate skills, time, money and expertise to bring lasting benefit to the communities in which they are working. Whether it is volunteering at local primary schools to improve reading, developing people's employability skills, or granting much needed funds to youth schemes, the Crossrail Community Investment Programme is giving something back to local people.

We make sure that we support a diverse group of good causes throughout London's boroughs, especially those where our construction work is taking place. We aim to set a new industry standard for community investment work and hope our good practice inspires future projects.

INNOVATION NON-DESTRUCTIVE PILE REMOVAL

Conventionally, the removal of existing piles (beams driven into the earth as foundations or supports) involves destroying them with reinforced tools.

When faced with the problem of removing existing 34 metre deep piles that clashed with the footprint of the new diaphragm walls (reinforced walls that allow construction) at Moorgate, the team involved had to consider adjacent structures. These included a London Underground tunnel, a working sewer and a listed building. Noise considerations for nearby residential areas and businesses also had to be addressed.

To reduce disruption to the local area, the team developed a technique to remove the piles intact from the ground. This involved de-bonding them from the surrounding soil, and using a custom-made circular cutting tool before lifting them out. This eliminated the vibration and noise that would have otherwise taken place over a prolonged period.



LEVEL	PROJECT
MOST CONSIDERATE SITE RUNNER UP	Costain-Skanska JV: C405 Paddington Station
GOLD	BFK: C300/410 Westbourne Park
SILVER	BFK: C300/410 Bond St and Tottenham Court Road
SILVER	BFK: C300/410 Crossrail Fisher Street Shaft
SILVER	VINCI Construction UK Ltd: C315 Connaught Tunnel
BRONZE	BAM Nuttall Ltd: C807 Dockland Transfer Station
BRONZE	BBMV: Crossrail C510 Whitechapel and Liverpool Street
BRONZE	Canary Wharf Contractors Ltd: Canary Wharf Crossrail Station
BRONZE	Laing O'Rourke Strabag JV: C430 Farringdon Advance Works
BRONZE	Morgan Sindall plc: C350 Pudding Mill Lane
BRONZE	Morgan Sindall plc: C350 Pudding Mill Lane

CASE STUDY ▶

St Luke's Community Centre

A team of four volunteers from Laing O'Rourke, the contractor constructing the new Crossrail Liverpool Street station project, managed the design and installation of a new professional kitchen and utility area for St. Luke's Community Centre in South Islington. Steeped in history, St Luke's Community Centre in Islington has been supporting local residents since the 16th Century. Today, the centre provides a space for local people to gather and delivers activities for the local community. Martyn Craddock, the centre's CEO, thanked Laing O'Rourke and Crossrail: 'The recent refurbishment will help us extend the services and support we offer to the local community, and allow us to benefit people of all ages and backgrounds.'

CASE STUDY ▶

Trahorn Close Gardening Project

BAM Nuttall Keir Joint Venture developed a green garden space for residents at Trahorn Close in Whitechapel with Tower Hamlets Community Housing for their tenants, many of them Bangladeshi families, who live by a worksite entrance and have lost parking space.

The team worked to strip topsoil, excavate soft spots and fill with compacted sub-base material. They also inserted paving slabs, used shrubbery as sound barriers and extra lighting to brighten what is a considerably built up area. Local residents are now able to occupy and make use of this green space.





SAFETY

HIGHLIGHTS ▶

- During the reporting period our Health and Safety Performance Index (HSPI) moved from 1.4 to 1.75, a signal of steady improvement
- To reduce the accident risk and keep road transport to a minimum, we transported 85 per cent, on a tonne per kilometre basis, of our excavated material by rail and water
- 4,660 lorry drivers have attended our custom-made safety training course, and this figure will double by the programme end

Ring-building inside one of the tunnel boring machines

Safety is the most important value on every Crossrail site. The number of hours worked each year on the project has increased from 1.8m in 2009-10 to 15.4m in 2012-13, by the end of which we had more than 7,000 employees.

We have three founding principles for Crossrail health and safety:

- **We all have the right to go home unharmed every day**
- **We believe that all harm is preventable**
- **We must all work together to achieve this**

Our health and safety management system is certified against the British Standard for Occupational Health and Safety (OHSAS 18001), but we are developing this further so Crossrail becomes an industry leader in occupational health and safety practices.

As the quantity and complexity of construction activities has increased, our accident frequency rate (AFR) has risen higher than expected. This increasing trend is not acceptable to us. Everyone at Crossrail, at all levels of our organisation, is taking action to address this as a priority.

Our Target Zero – A State of Mind campaign to improve health and safety has been well received by our supply chain. But we recognise there is more work to do and that it will take time and concerted effort to turn our AFR around.

We have successfully achieved the three goals comprising the 2012-13 Crossrail corporate objective 'deliver target zero'. Further to these goals we have developed a set of strategic objectives, some of which will remain in place into 2013-14 and beyond, with a tactical plan of action.

GOAL 1: Strive for excellence in executing our Construction Design and Management (CDM) regulations duties

We have prioritised our focus on CDM duties throughout this reporting period and have:

- Carried out CDM awareness training for existing employees and new starters, ensuring they are aware of our arrangements and their responsibilities
- Completed CDM assurance checks every month, assessing both Crossrail and principal contractors in key areas of the regulation
- Continuously monitored CDM assurance metrics to ensure all significant concerns are resolved within one month and that all minor or emerging concerns receive resolution within two periods

Through completion of CDM assurance metrics and the subsequent timely completion of any actions raised, we have evidence that awareness of health and safety is rising.

GOAL 2: Implementation of a Crossrail standard for supervisor competency and leadership

We are putting in place a Crossrail standard for supervisory competence and leadership to further improve health and safety. Our Frontline Leadership Programme (FLP) aims to develop the management skills and competencies of our supervisors.

The programme will offer learning modules, with individual assessments to pinpoint gaps in site works supervisors' skills and competencies. Through continuous monitoring and evaluation, the programme will also provide coaching and mentoring to ensure continued improvement.

The six critical areas of leadership competence:

- Understanding people
- Decision making
- Resilience and focus
- Seeing the bigger picture
- Motivating others
- Communicating effectively

GOAL 3: Develop and implement a health and safety scorecard

We have developed an Health & Safety Performance Index (HSPI) to promote and measure the conduct and practices of our contractors. To complement this we have also created a Gateway scheme to encourage contractors to set and achieve high health and safety standards.

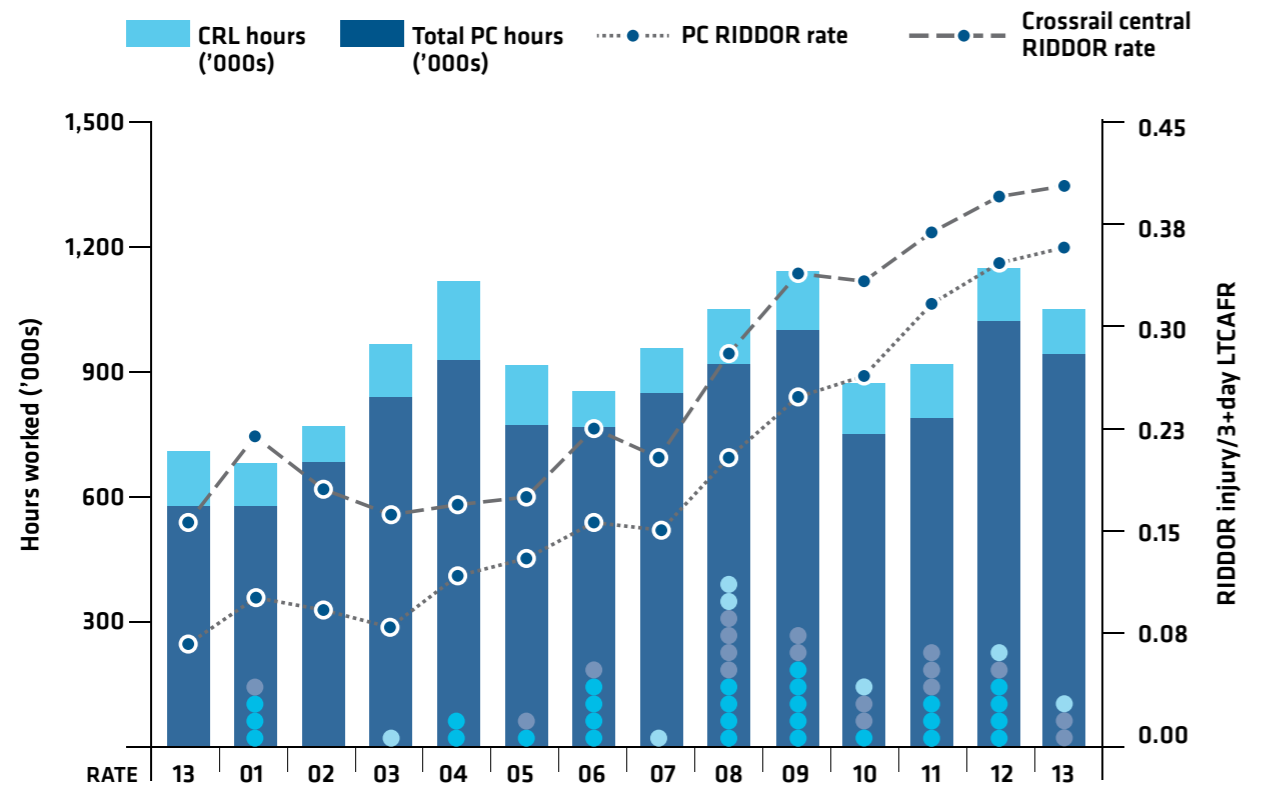
Every six months our health and safety improvements team assess our contractors

against the six pillars of Target Zero. These are leadership and behaviour, designing for health and safety, communication, workplace health, workplace safety, and performance improvement. We award the contractor one of three levels of excellence:

- Gateway foundation – compliance with all possible areas within all six pillars
- Gateway commendation – good practice in all possible areas within 3 or more pillars
- Gateway inspiration – good practice in all possible areas within all pillars plus best practice within 50 per cent of a pillar

The HSPI scorecard scheme has changed the way contractors look at performance measures. While there is still focus on the end goal of Target Zero, they concentrate on driving up their HSPI score each month. A healthy competitive atmosphere has developed between the different Crossrail and contractor teams to improve their scores.

INDICATOR 09 – CONSTRUCTION HEALTH & SAFETY
Health & Safety Performance 2012-13



- CRL – Crossrail Ltd Hours
- Total PC hours – Principal Contractor hours for work undertaken on Crossrail
- RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
- RIDDOR lost time (>3 days) Includes legal RIDDOR 7+ days and 3+ days lost time
- RIDDOR DO – RIDDOR Dangerous Occurrence
- RIDDOR Major injury
- LTC – lost time case
- AFR – Accident Frequency Rate (Industry metric of accident frequency per 100,000 hours worked)



Since developing the HSPI we have had interest from other major UK infrastructure organisations to set a common measurement standard to improve health and safety at work.

INDICATOR 10 – HSPI performance

An HSPI score of one signifies contractual compliance. Above this signifies good practice, of which the maximum score is three. Our overall HSPI score of 1.40 was achieved in the first report, carried out in period four (June 2012). There was a steady improvement throughout the year and, by period 13 (March 2013), we achieved a score of 1.75.

While our HSPI is moving in the right direction, clearly there is room for improvement. In 2012-13 our HSPI measures focused on contractual compliance. However, we have started a more detailed analysis, so we can find out the specific risk control activities we need to measure to show links between HSPI and AFRs.

VEHICLE SAFETY

Building a new railway across London, on the scale and complexity of Crossrail, poses an enormous logistical challenge. During construction we will transport more than 6m tonnes of excavated materials. To keep road transport to a minimum, 85 per cent of this material, on a tonne per km basis, will move by rail and water.

We are running several logistics initiatives to minimise risks associated with our contractors' large goods vehicles. Through these we aim to reduce risk of collisions, raise road safety standards within the construction industry, demonstrate world-class performance and establish a benchmark to which other projects will aspire.

We have also introduced vehicle safety specifications into our standard contract, including blind spot mirrors, rear warning signs for cyclists and pedestrians, and side-scan

detection and warning systems. We review vehicle safety compliance regularly, as one of our key measures for our contractor HSPI score. Both Crossrail and our contractors check and monitor vehicles that arrive at Crossrail sites. There is zero tolerance for non-compliant vehicles; they are turned away from every site. Results for 2012-13 show that vehicle safety kit compliance is running at 99 per cent.

LORRY DRIVER TRAINING PROGRAMME

Supported by stakeholders including the Cyclists Touring Club, RoadPeace and London Cycling Campaign, we developed a lorry driver training programme in 2009 and currently run three courses a week.

Havering College of Higher and Further Education acts as our training partner and accredits the scheme. We use trainers with road policing, training and enforcement backgrounds, who have experience of large goods vehicle operations and road transport legislation to ensure course content is specific and accurate.

By the end of 2012-13 we had trained 4,660 drivers, a figure set to double by the end of the programme. Driver feedback shows over 90 per cent agree the training makes them safer drivers and more aware of vulnerable road users.

These results prove our safety initiatives are changing attitudes within the construction industry, making both drivers and vehicles

safer. Transport for London include similar requirements for its contractors during procurement and industry bodies such as the Freight Transport Association, Road Haulage Association and Mineral Products Association are supporting our initiative.

Our lorry driver training programme is improving the skills of professional drivers in the UK, leaving a legacy for the construction industry from which the public will benefit.

CYCLE SAFETY AWARENESS

Crossrail has teamed up with the Metropolitan Police Cycle Task Force to hold Exchanging Places cycle safety awareness events across the capital.

The events give cyclists the opportunity to sit in the driver's seat of a large goods vehicle and understand what the driver can and can not see and where there are blind spots. Events took place in Liverpool Street, Bond Street, and Westbourne Park in 2012-13, during which cyclists could receive bike safety checks and registration.

As part of our commitment to help educate young people, an event took place at Swanlea School in Whitechapel in December 2012. This allowed 150 students to get a driver's eye view and learn about the dangers of cycling and moving around construction traffic. The police also led road safety scenarios and talked with students about cycle mechanics and the meaning of traffic signs.

CASE STUDY ▶

People versus plant – improving drivers' visibility

Contractor Balfour Beatty, ALPINE BeMo Tunnelling, Morgan Sindall and Vinci Construction (BBMV) has shown an innovative approach to safety at Whitechapel by installing a 360 degree surround view system to their excavation equipment.

This uses multiple, ultra-wide angle cameras, mounted in strategic locations around the

vehicle. The technology displays a composite real-time view on a screen, which looks just as if the image was taken as an aerial shot above the vehicle. By appearing as a single camera view, the excavator operators can see any movement around them as a single image – thereby improving safety.



EQUALITY, OPPORTUNITY & SOCIAL INCLUSION

HIGHLIGHTS ▶

- During the year, people from London's boroughs filled 86 per cent of new Crossrail jobs, with 62 per cent of new jobs taken by people previously unemployed
- Since opening in September 2011, more than 4,500 people have attended training and courses at the Tunnelling and Underground Construction Academy
- Both our contractor and head office workforce exceed the UK Contractors Group average for black, Asian and minority ethnic (BAME) employees

Crossrail prides itself on its approach to equality and social inclusion in all areas of the project, from planning and construction through to operation. Our contractors each have a comprehensive set of plans to help create and support a diverse workforce and supply chain. We insist our contractors use the CompeteFor website portal to advertise contract opportunities and help maximise the number and diversity of businesses contributing to Crossrail's success. Every contractor must also conform to the London Living Wage, the basic hourly salary rate set by the Greater London Authority.

Crossrail has to be inclusive for users. In everything we do, we are committed to providing the most accessible transport we can, supporting people's mobility and right to travel on public services.

Each of our new stations will have marked routes, step-free access and accessible information and signage to ensure that, as far as possible, passengers can move independently through the station. All our designs comply with the necessary disability legislation, incorporating step-free access to new stations including all nine new underground stations in central London which will have step-free access from street to platform level in both directions.

We are working closely with Rail for London and London Underground, the organisations that will manage the Crossrail stations and services, to ensure that our aims for inclusivity are fulfilled when operational. To achieve this we are placing specific clauses in contracts for the train operating company and rolling stock maintenance contractor.

We ask each contractor to sign up to, and comply with, the Crossrail skills pledge. This underpins their commitment to developing the skills and qualifications of their workforce, supply chain and local community.

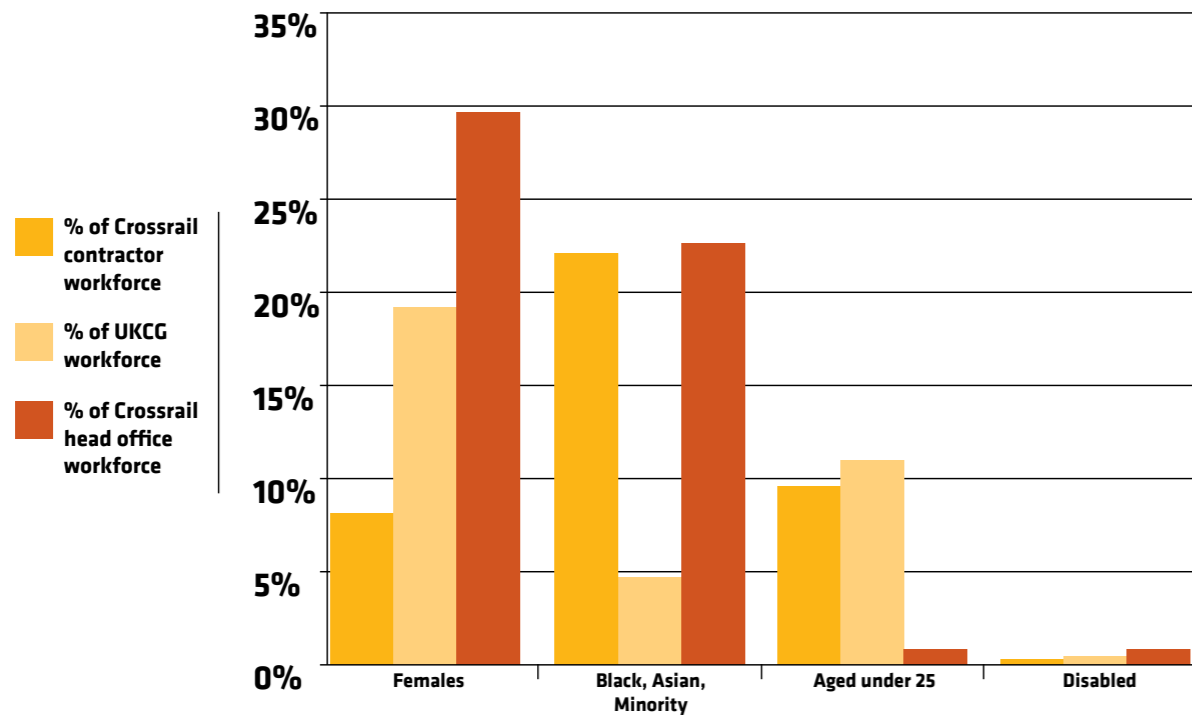
INDICATOR 11 – DIVERSITY IN CROSSRAIL'S WORKFORCE

Crossrail's tier one contractors support our commitment to diversity by aiming to make their workforces reflect London's population by gender, ethnicity, age and disability. They are required to record their workforce composition, which we review every quarter.

The graph (overleaf) shows the diversity of both our head office staff and our contractors' workforces, compared with data provided by the UK Contractors Group (UKCG). The UKCG data comes from a survey of members from February 2011, comprising 32 construction companies in the UK, most of which do not work for the Crossrail project.

For BAME groups, both the contractor workforce and the head office workforce sit well above the UKCG benchmark. However, in other areas,

Workers from black, Asian and minority ethnic groups rose from 20 per cent to 24 per cent and the proportion of individuals aged under 25 increased from 7 per cent to 9 per cent across the contractor workforce



especially the proportion of women employees, we need to do more to improve representation.

In 2012-13, there was an increase in the proportion of female workers from 5 to 8 per cent across Crossrail's contractor workforce. At the same time, there was an increase in workers from BAME groups from 20 per cent to 24 per cent. With greater focus on apprentice and graduate opportunities, there has also been an increase from 7 to 9 per cent in the proportion of the contractor workforce aged under 25.

At Crossrail head office there was no change in the percentage of women in the workforce (29 per cent). But there was an increase from 21 per cent to 25 per cent in the proportion of people from BAME groups and a small increase in the proportion of people identifying themselves as having a disability, from 0.8 per cent to 0.9 per cent.

Contractors provide us with equality and diversity data every three months. All tier one contractors include diversity awareness in their induction process. Many have put diversity programmes in place over the last year, including awareness workshops and safety talks in different languages.

CROSSRAIL DIVERSITY AND INCLUSION GROUP

In late 2012 we set up the Crossrail Diversity and Inclusion Group to bring greater awareness of diversity issues to the workforce. We want every person working on Crossrail, whether directly or indirectly, to feel welcome and supported in an inclusive environment.

INDICATOR 12 – LONDON LIVING WAGE

Our contractors and their supply chains must pay their London-based employees the London Living Wage. This is the hourly rate of pay set by the Greater London Authority based on the cost of living in London. Crossrail works with its contractors to review this data every quarter and throughout 2012-13 our principal contractors provided us with assurance that they and their supply chains were compliant with this commitment.

STRATEGIC LABOUR NEEDS AND TRAINING

Through strategic labour needs and training (SLNT) commitments, Crossrail's contractors develop their workforce skills and offer opportunities for local people to work on the project and improve their employability. We agree SLNT targets during each contract negotiation and, for every £3m in contract value, contractors must achieve one SLNT result, such as an apprenticeship, job start, or graduate training position.

Most of Crossrail's contractors' SLNT (55 per cent) help develop the skills of the existing workforce. While more than a third of the results are Crossrail new work opportunities including apprenticeships, job starts and graduate positions.

INDICATOR 13 – SLNT COMPLIANCE

Crossrail reviews the SLNT progress of its contractors every quarter and provides support to optimise the opportunities provided. In 2012-13, 95 per cent of tier one contractors achieved more than 80 per cent of their SLNT plans

and 55 per cent achieved their full SLNT plans. Twelve of 18 contractors exceeded their target.

INDICATOR 14 – APPRENTICES

The target for 2012-13 apprentices was 200, against our actual recruitment of 198. The chart (right) gives a breakdown of the specialisms of apprentices engaged on the Crossrail project so far.

INDICATOR 15 – JOBS BROKERAGE SERVICE AND LOCAL EMPLOYMENT

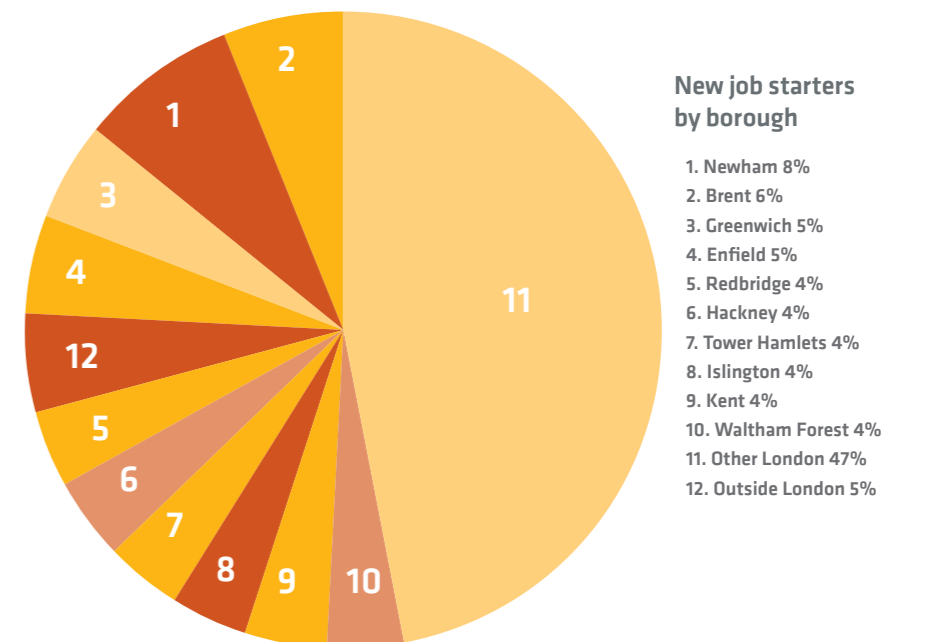
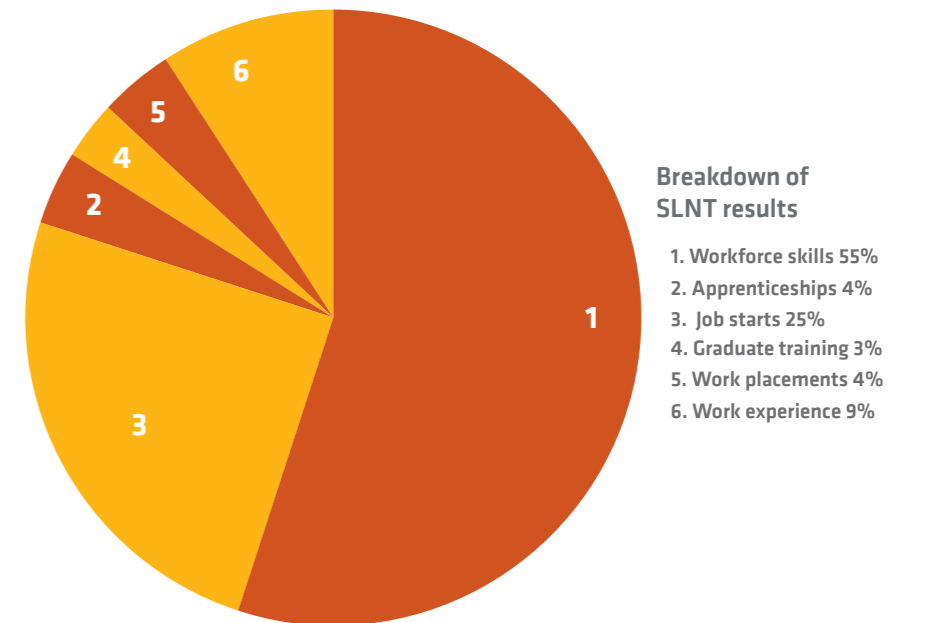
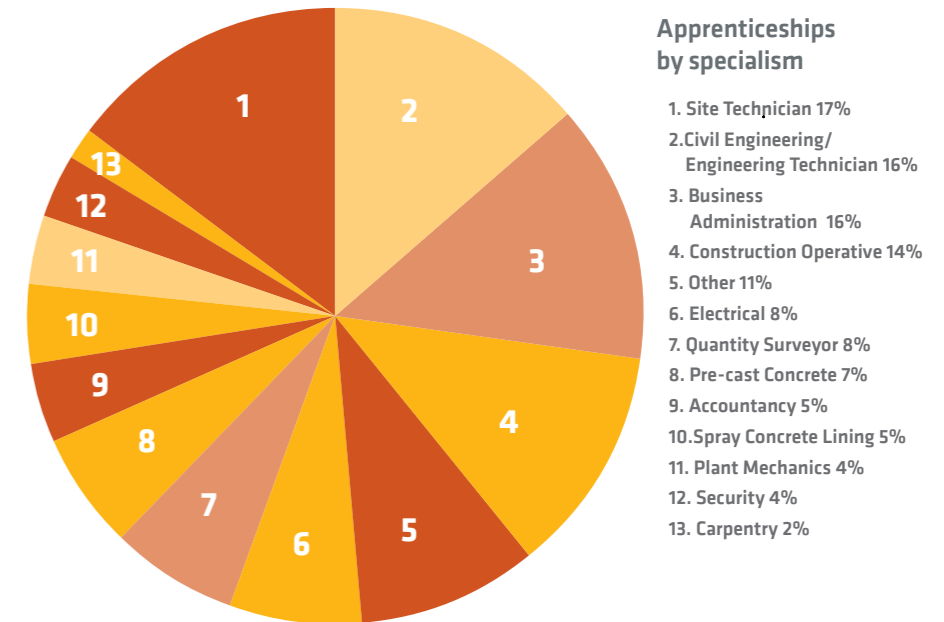
Crossrail runs a jobs brokerage service in partnership with JobCentre Plus, the Tunnelling and Underground Construction Academy (TUCA) and more than 100 referral organisations across London. They help us advertise widely all the Crossrail jobs and apprenticeship opportunities we have available.

Crossrail contractors must advertise their vacancies through the brokerage service for a minimum of 48 hours before sourcing applicants by other means.

In 2012-13, nearly 1,000 vacancies were advertised in this way, a fourfold increase on the previous year. Because a complex construction such as Crossrail demands high skill levels, entry-level jobs made up 22 per cent of the advertised positions, skilled jobs another 40 per cent, and the remaining 38 per cent were managerial and technical roles. In 2012-13, 61 per cent of entry-level jobs were filled through the service, which aims to fill two out of three entry-level positions.

Initiatives like the jobs brokerage service support one of the key objectives of the Crossrail skills and employment strategy: supporting local labour and helping local people gain employment within our programme. Our contractors also have a commitment to hiring local people.

In 2012-13, people from London's boroughs filled 86 per cent of new Crossrail jobs, with 62 per cent of new jobs taken by people who were previously unemployed. The chart (right) shows the breakdown of job starts by the top 10 boroughs.



CASE STUDY ▶

Construction training for unemployed people

Whitechapel contractor, BAM Nuttall Kier (BNK) has taken on several community initiatives.

One of these, carried out in partnership with the Osmani Trust community youth organisation, involved running a five-week programme of construction training and careers advice for local people. Seven young unemployed people passed their Construction Skills Certification Scheme (CSCS) test, the first step towards a career in construction. BNK was able to offer apprenticeships to two candidates and continued to help the others search for work.

Robin How, BNK's Project Manager, said: 'In our early discussions with the community, unemployment and particularly youth unemployment, came up time and time again as an issue. By taking on this project we felt that we have done something of great value for our neighbours.'

CASE STUDY ▶

Building Bridges Day

A hands-on bridge-building exercise using newspapers and sticky tape inspired young students to become future construction employees. Using Wallasea Island nature reserve as a theme, students had the chance to try out enterprise, presentation and team-working skills.

The event, in March 2013, was the first in a series of Young Crossrail challenge days for primary school students and is part of our partnership work with local voluntary groups and charities, including Enabling Enterprise. Pupils also had the opportunity to talk to Young Crossrail Ambassadors about their careers and the work happening on the whole Crossrail project.



OTHER WORK OPPORTUNITIES

We want to equip our workforce with key competencies, and workforce skills remain Crossrail's largest SLNT activity. The number of staff carrying out training last year doubled. TUCA offers specialised courses for the tunnelling and underground construction sector, and provides much of this crucial training.

To April 2013, 305 young people had taken part in work experience on the Crossrail project, both on site and at head office.

Longer work placements of between 11 and 100 days enable people to learn, develop or improve their knowledge and skills. There have been 148 such placements on the project.

In 2013, 149 graduates worked on the project, double that of the previous year. The positions offered cover many disciplines and each graduate spends a minimum of six months working either direct with our tier one contractors or a member of the supply chain.

TUNNELLING AND UNDERGROUND CONSTRUCTION ACADEMY (TUCA)

TUCA is a world-class education centre that meets the skills needs of Crossrail, our partners, and other underground construction employers. Since opening in September 2011, more than 4,500 people have attended TUCA, receiving training that ranges from pre-employment courses to workforce development.

Between 1 April 2012 to 31 March 2013:

- 1,197 unemployed Londoners looking to develop skills and gain work on the project attended pre-employment programmes
- 1,915 staff gained the Tunnel Safety Card, a compulsory qualification for anyone working in Crossrail tunnels
- 522 staff successfully completed courses in loco-driver training, gantry crane awareness, use of sprayed concrete lining nozzles, tunnel entry and associated emergency procedures

TUCA has led the development and roll-out of new apprenticeships in sprayed concrete lining and tunnelling operations. In total, some 35 apprentices were trained at TUCA.

YOUNG CROSSRAIL

The Young Crossrail project works with schools and students along the Crossrail route, inspiring the next generation of engineers, designers, tunnellers and construction workers. It is a key part of our wider social sustainability agenda, allied to other work we carry out to help young people find jobs, apprenticeships, graduate schemes and skills.

To do this we have recruited a pool of Young Crossrail Ambassadors, who volunteer their time and expertise to our events and activities, raise awareness of Crossrail, and promote careers in construction, engineering and railway infrastructure.

INDICATOR 16 - VOLUNTEER NUMBERS

During 2012-13, the number of Young Crossrail Ambassadors including Science, Technology, Engineering and Maths (STEM) Ambassadors increased from 26 to 80. Together they hosted visits from work experience students, gave careers talks at schools, and took part in other school events and exercises.

INDICATOR 17 - WORK EXPERIENCE PLACEMENTS PER CENT FROM CROSSRAIL ROUTE BOROUGHES

In 2012-13, Crossrail provided 48 work experience placements at head or site offices, including eight opportunities for young disabled people. Of these placements, 54 per cent were for students from schools and colleges in the boroughs along the Crossrail route, with another 19 per cent drawn from other London boroughs. Newham, Westminster and Tower Hamlets provided the most students for the programme.



LOOKING FORWARD: 2013-14

The Crossrail sustainability journey has come a long way over the past two years during which major construction works have been happening along the route, but there is much more to do. Performance across the majority of our indicators demonstrates a positive trend and the challenge is to maintain this trajectory into next year and beyond. A particular area for concern has been the fluctuation in safety performance and we have identified in this report what is being done to correct this.

Our priority areas for the next year are highlighted below:

Safety performance – In 2012-13 the HSPI measures focused on contractual compliance. However a more detailed analysis has begun, in order to understand which specific risk control activities should be measured such that a greater correlation between HSPI and Accident Frequency Rates can be demonstrated.

Cycle Safety – Continue our drive to minimise risk to cyclists and vulnerable road users, and deliver further training for vehicle operators on the Crossrail project.

Apprentices – Make significant progress towards our target of 400 apprentices during the lifespan of the project.

Supply chain opportunities – Increase regional visits and engagement with regional suppliers through 'meet-the-buyer events' targeting the cold spots on our heat map.

Living wage – Continue our vigilance to ensure that no-one working on Crossrail is being paid less than the London Living Wage.

Community Investment – Launch Crossrail's directly funded community investment programme in Newham and develop an objective and focused measure of the social value of our contractors' community investment activities.

Strategic labour need – Continue the upward trend towards targets in accordance with our Strategic Labour Need & Training Plan conformance.

Energy efficiency – Work with our contractor design teams on energy reduction opportunities in the design of mechanical and electrical equipment in our stations.

Innovation – Continue to work with contractors on identifying and demonstrating emerging technologies for construction equipment.

Environmental behaviours – Move our remaining contractors over the 'Green Line', our above compliance recognition system for environmental engagement.

Historic environment – Hold two community digs that will allow local people to explore the history of their area. We will also develop the first of a series of publications on the archaeology and historic buildings investigated during the Crossrail project.

Reward performance – Recognise and reward the performance of our contractors through Crossrail's inaugural Sustainability Awards which will be launched in 2013-14, and seek validation of our performance by entering for external peer reviewed awards.



PUBLIC INFORMATION

Construction activities

Crossrail is committed to providing information about construction works taking place throughout the route to ensure local communities are aware of construction works that may affect them and the measures being taken to lessen impacts. We also work to keep stakeholders informed about the benefits that the Crossrail service will deliver, current progress and milestones achieved.

Through the Crossrail website www.crossrail.co.uk we have developed the Near You mapping tool to explain local works in each area. It is now also possible to track the location of Crossrail's tunnel boring machines on the website.

To receive email notifications about planned works, sign up to our mailing lists online or by contacting our Helpdesk team. Additionally, specific works are notified to residents and the wider stakeholder community through information leaflets that are disseminated in the local area. Communications material can also be translated into other languages upon request.

Crossrail helpdesk

The Crossrail Public Helpdesk is available to answer any questions about the project and help with any problems which may arise from construction of the railway. The helpdesk operates 24-hours a day, seven days a week. The team is contactable by email helpdesk@crossrail.co.uk or telephone 0345 602 3813. Details are advertised on the Crossrail website, on all our communications material and at construction site locations throughout London.

Crossrail aims to close all complaints within 10 working days, with an initial response made within 24 hours. In practice, passing complaints to contractors is immediate and the response rate is generally much faster than this.

The Secretary of State for Transport has appointed an independent Crossrail Complaints Commissioner. Any member of the public who feels that they have not received information from Crossrail, and has been unable to resolve an issue in communication with Crossrail, may ask the Complaints Commissioner to adjudicate. The application must be submitted in writing and the Complaints Commissioner must respond within 28 days, unless a further time limit is agreed.

The Crossrail Complaints Commissioner will:

- Act as a mediator in unresolved disputes between the project and members of the public
- Make recommendations to the Nominated Undertaker (Crossrail or London Underground) where action might be taken to satisfactorily address complaints, resolve disputes, or mitigate against the future occurrence of complaints or disputes
- Act as Registrar of the Small Claims Scheme – if a claim for loss or damages has been turned down by the Administrator of the Small Claims Scheme, the applicant can request the Complaints Commissioner to adjudicate. The Complaints Commissioner will be able to make financial recommendations if the applicant has suffered a loss or damages of up to £5,000
- Advise members of the public who are unhappy with any aspect of Crossrail's construction on how to lodge a complaint

The Complaints Commissioner will not act before Crossrail, London Underground or its contractor have attempted to address a case, and will not get involved in issues such as property, matters already considered by Parliament in approving the Crossrail Act, or issues which are not part of the Crossrail project.

Our contractors each work in accordance with contractual requirements which have been developed from Parliamentary commitments. They all have dedicated community relations representatives whose role it is to work with communities and address issues of concern. If breaches of agreed work perimeters occur, the methods of working are re-evaluated and communication of agreements re-assessed to prevent recurrence.

STAKEHOLDERS

The Crossrail project strictly conforms to a series of undertakings and assurances agreed with various parties under the Crossrail Act 2008.

Continued community liaison forms a central part of our duties, especially in ensuring our work causes the least disturbance possible. We work within the constraints imposed on us to minimise noise and vibration, dust and road traffic. Crossrail works with contractors to make sure we address all community concerns.

Our stakeholders also include our contractors and we work with them as both client and project manager. They are crucial to our success. Contractors provide and develop many of the innovative solutions required to safely complete a project as complex as Crossrail, with least disruption.

Contractors communicate with Crossrail senior management through many routes, notably our safety health and environment leadership team and a regular forum for project directors. This allows for open discussion on performance, identifying what Crossrail needs to do to improve its leadership and identifying areas where our contractors can achieve more.

Engagement with our workforce has improved significantly through our commitment to Investors in People. Its recognised framework provides the means for our employees to express their concerns in a structured way and helps us address issues and make workplace improvements.

Above all we are responsible to the public and to private sector partners for project funding. There is a strict financial governance process to which we must adhere, with full accountability to our two project sponsors, Transport for London (TfL) and the Department for Transport (DfT).

REPORTING REQUIREMENTS

This report covers our sustainability performance for the financial year 2012-13.

As part of governance and accountability, Crossrail is already subject to a rigorous reporting regime as defined by our sponsors: TfL and DfT. Our reports are required to cover health and safety, security, environment and cost performance. Additional reports cover management and assurance, consents, compliance and change control.

This annual sustainability report is a voluntary publication. By producing it we aim to provide a single source of our sustainability performance information, which may otherwise prove difficult to gain and involve extracting details from several different Crossrail reporting methods.

ORGANISATION PROFILE

Crossrail Limited is registered in England and Wales No. 4212657. Registered Office: 25 Canada Square, Canary Wharf, London, E14 5LQ.

The purpose of the Crossrail project is to build a new railway under central London, linking Maidenhead and Heathrow in the west with Shenfield and Abbey Wood in the east.

Crossrail Ltd was established in 2001 to promote and develop the project. In 2008 the project gained Parliamentary approval when the Crossrail Act received Royal Assent.

Crossrail is jointly sponsored by Transport for London (TfL) and the Department for Transport. Crossrail Ltd is a wholly owned subsidiary of TfL; and is a company controlled by a local authority within the meaning of Part V of the Local Government and Housing Act 1989. The controlling authority is TfL.

The Crossrail organisation comprises employees from several companies, and at March 2013 had 1,231 full time equivalent staff. Of these, 716 are direct Crossrail employees; the rest are drawn from various partner organisations with consultancy and project management expertise.

Operational structure and governance of Crossrail 2013-13

The Crossrail Board comprises:

- Terry Morgan CBE, Chairman
- Andrew Wolstenholme OBE, CEO
- Terry Hill CBE, Non-Executive Director
- Michael Cassidy CBE, Non-Executive Director
- Heather Rabbatts CBE, Non-Executive Director
- Robert Jennings CBE, Non-Executive Director
- Ian Brown CBE, Non-Executive Director
- Phil Gaffney, Non-Executive Director
- David Allen, Finance Director
- Andy Mitchell, Programme Director

Below the main Board is the Executive Committee, comprising the following:

- Andrew Wolstenholme OBE, CEO
- Andy Mitchell, Programme Director
- Chris Sexton, Technical Director
- David Allen, Finance Director
- Louise Brooker-Carey, External Affairs Director*
- Mark Fell, Legal Services Director
- Martin Buck, Commercial Director
- Steve Hails, Health and Safety Director
- Howard Smith, Operations Director
- Valerie Todd, Talent and Resources Director

*Current for the reporting period but no longer with Crossrail

Crossrail has a sustainability committee. This committee is responsible for setting strategy and providing organisational oversight and is chaired by Chief Executive Officer, Andrew Wolstenholme.

Members of the sustainability committee are:

- Andrew Wolstenholme, Chief Executive Officer
- Ian Brown, Non-Executive Director
- Andy Mitchell, Programme Director
- Ailie MacAdam, Central Section Delivery Director
- Chris Sexton, Technical Director
- Valerie Todd, Talent and Resources Director
- Martin Rowark, Procurement Director
- Louise Brooker-Carey, External Affairs Director*
- David Allen, Finance Director

*Current for the reporting period but no longer with Crossrail

If you have any questions relating to this report contact our Public Helpdesk 24-hours a day, 365-days per year on 0345 602 3813.



MOVING LONDON FORWARD



www.crossrail.co.uk