HEALTH & SAFETY ANNUAL REPORT 2014

MOVING SAFETY FORWARD
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
THE CROSSRAIL PROGRAMME
THE HISTORY OF CROSSRAIL AND THE CROSSRAIL ACT

The idea to create a new rail line that provided better cross-capital links gained support in 1974 through the 1974 London Rail Study, published by the then Greater London Council and Department for Environment. The study proposed that the cross-Capital link needed to be more than just another Tube line. For London and areas beyond to maximise the benefits on offer, the scheme needed to feature a mainline railway that leveraged the usefulness of the existing Tube network. The idea was discarded until a 1980 discussion paper noted that Tube and rail capacity were reaching their limits. However, it wasn’t till 1989 that the Government published a Central London Rail Study which took many ideas of the 1974 study and developed them in more concrete ways.

In October 1990 the Government finally gave the go-ahead to British Rail and London Transport to develop the east-west Crossrail scheme, however due to recession in the early 90s, the Bill to proceed was rejected. This was followed by years of consultations and proposals until 2008 when The Crossrail Act received Royal Assent. In 2009, after 35 years of planning and development, the Crossrail project finally started to be realised with the breaking of ground at Canary Wharf.

A NEW RAILWAY TO MOVE LONDON FORWARD

Crossrail is Europe’s largest construction and infrastructure project. As a major part of the Mayor of London’s Transport Strategy, Crossrail will provide a new, fast and efficient railway for London and the south east.

The new service will run through the heart of London and connect the City with Maidenhead and Heathrow in the west and Shenfield and Abbey Wood in the east, providing faster journey times and greater travel flexibility.

Crossrail boasts many benefits. Each hour during peak times up to 24 spacious, air-conditioned trains will run between Paddington and Whitechapel. Capacity on the London rail network will be increased by 10 per cent. Importantly, Crossrail will also give a £42 billion boost to the UK economy over a 60 year period with contracts supporting businesses and communities across the UK.

With a massive 21km of twin tunnels, the line will connect 28 existing Network Rail stations with nine new stations to be built at Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel, Canary Wharf, Custom House and Woolwich.

Each Crossrail train will be around 200 metres long and carry up to 1,500 passengers. Around 200 million people will travel on Crossrail each year.

AN ETHICAL APPROACH TO CONSTRUCTION

Our supply chain includes a good proportion of the UK’s major construction companies and a wide distribution of sub-tier contractors. This provides us with a great opportunity to effect change in the way the UK construction industry approaches health and safety management.

Jobs and skills creation, community support, environmental care and considerate construction are interwoven into Crossrail’s activities.

Around 18,000 people will work on the programme and at least 400 apprentices will be trained through our supply chain. To this end, Crossrail has established a world-class Tunnelling and Construction Academy (TUCA) which will leave a lasting legacy for the construction industry. It will contribute to the development of new qualifications and health and safety standards across the industry, sharing innovation and best practice for years to come.

Our contractors are required to give their time, money and effort to our Community Investment Programme, supporting the local community through actions such as mentoring, sports activity sponsorship, and literacy and employability programmes.

Sustainability and environmental activities are supported through initiatives like our work with the Royal Society for the Protection of Birds (RSPB) to build Europe’s largest man-made...
nature reserve at Wallasea Island in Essex, using 99 per cent of our clean excavated material. We are also undertaking one of the most extensive archaeology programmes in the UK, as well as a high profile art programme.

Our trains will save at least 20 per cent on energy consumption through their innovative regenerative braking system which will return energy to the electrical grid.

To keep disruption to a minimum, all Crossrail worksites must register with the Considerate Constructors’ Scheme or a similar borough-run programme. The scheme scores and monitors sites for appearance, safety, community engagement and environmental protection.

CROSSRAIL THE COMPANY

Crossrail Limited is the company charged with delivering Crossrail. Formerly known as Cross London Rail Links (CLRL), it was created in 2001 to promote and develop new lines that meet the needs of people and businesses throughout the South East, and to ensure that London continues in its role as the Europe’s leading financial and business centre.

Established as a 50/50 joint venture company between Transport for London (TfL) and the Department for Transport, Crossrail Limited became a wholly owned subsidiary of TfL on 5 December 2008.

Crossrail’s sponsors are Transport for London and the Department for Transport and partners include Network Rail, Heathrow Airport, the City of London Corporation, Canary Wharf Group Plc and Berkeley Homes.
INTRODUCTION

In the past year, we have made significant progress on constructing the running and platform tunnels as well as Crossrail’s new stations. The final tunnel commenced this year and in 2015 all tunnel boring machine activity will be complete.

Health & Safety is Crossrail’s number one value and we strive to make Crossrail a healthy and safe place to work. Tragically, we were not able to deliver on this commitment in March when one of our colleagues, Rene Tkacik, a worker at our Fisher Street site, was killed while at work. Our thoughts remain with his family, friends and work colleagues. It is essential that we learn the lessons from this tragic incident to prevent it happening again. I continue to believe that there is nothing on Crossrail that cannot be done safely and that all harm is preventable. This has only served to reinforce my view, that one of Crossrail’s legacies must be to make the construction industry safer.

Health & Safety is and must remain the most important value for everyone at Crossrail. To this end, we continue to develop our ‘Target Zero – A State of Mind’ approach to health and safety. Under this banner, we have delivered two highly successful ‘Stepping Up’ weeks, involving every site and location across the programme and continue to utilise our Gateway assessment scheme and Health and Safety Performance Index (HSPI), to recognise and reward proactive approaches by our contractors, to improving health and safety performance. Over the course of this year, we have seen encouraging signs in our health and safety performance indicators, with trends showing sustained improvement.

I am also pleased to be able to report that Crossrail’s health and safety management system continues to be certificated by Lloyd’s Register Quality Assurance (LRQA) against the British Standard for Occupational Health and Safety (OHSAS 18001).

The risks associated with our activities have been continually changing and evolving since the project started and, as we move into the fit-out phase in the next 18 months, the speed of this change will accelerate. Civil engineering-based organisations will be replaced by multi-trade disciplines, with short-duration contracts. This changing workforce will need to embrace the Crossrail culture quickly, whilst having to interface with numerous other trades and contracts. Maintaining our current trend of improving health and safety performance, during this period of intense change, will be one of our key challenges in the coming year.

We remain committed to drive up standards for the whole industry. By pioneering new ways of approaching health and safety we want to leave a legacy that will help to make the construction industry safer, long after Crossrail is complete.

Andrew Wolstenholme OBE
Chief Executive
‘Target Zero – A State of Mind’ permeates everything we do at Crossrail. It is enshrined in our health and safety policy. Transport for London’s health, safety and environment policy was aligned with a Crossrail-specific approach when it was deemed more appropriate.

We have actively promoted both these policies and have made them available to all employees and contractors via the project intranet, Crossrail’s external website and on staff noticeboards.

**We see it as our role to:**

1. Provide alignment between Crossrail’s vision and the supply chain through the Target Zero programme

2. Provide a framework standard for the contractors to work to (via the Crossrail ‘Contractors and Industry Partners Health, Safety and Environment Standard’ and contractual documentation such as ‘Works Information’)

3. Ensure provisions and arrangements are in place to ensure full compliance with the Construction (Design and Management) Regulations 2007

4. Engender a culture of sharing intellectual health and safety property between all Crossrail stakeholders and contractors to raise the level of performance within the UK construction industry
The fundamental principles of Target Zero

Our Golden Rules are designed to create a safe working environment and it’s essential everyone complies with them. They will be applied firmly and fairly. Breaking the Golden Rules is a serious issue that could lead to removal from site and disciplinary action. So read them, understand them, and put safety at the centre of your day.

Safety is our primary value, nothing is so important that it cannot be done safely.

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

As you work on Crossrail, ask yourself these questions every day:

What could go wrong?

Would I let a loved one do this?

Is it safe or should I stop?

ALL PROJECTS

ALL WORK MUST BE EFFECTIVELY ASSESSED, PLANNED AND CONTROLLED. SO ALWAYS:

• assess the risk to you and all others
• produce and comply with a safe system of work
• expect the workplace to change and control new risks as they occur
• communicate the risks and explain the safe system to the frontline workforce
• ensure work is adequately supervised and carried out by a trained and competent workforce
• maintain a tidy workplace
• use the correct tools, equipment and PPE
• stop work immediately if you think it is unsafe for you or anyone else
• report all incidents, near-misses and unsafe situations and support those who do

DRIVING

Never drive or operate vehicles or plant:

• unless you are authorised and medically fit to do so
• unless it is fit for purpose and in a safe state of repair
• above the limits set for speed, weight and overhead restriction
• where the risk of hitting pedestrians or operatives is not controlled

LIFTING

Never:

• lift unsecured loads
• exceed the operating limits of any piece of lifting equipment
• use any piece of lifting equipment unless appropriately tested and inspected
• lift unless the ground/foundation has been assessed or designed by a competent person
• stand or walk under a suspended load
• lift without planning it first
• put your hands in a pinch point during a lift
WORKING AT HEIGHT
Never work at height:
• if there are safer alternatives
• unless you are protected by a solid barrier or, where this is not possible, a harness
• unless all materials, tools and equipment are safely secured and prevented from falling

ELECTRICS
Never work on energy or electrical systems unless an authorised person has:
• isolated, discharged and locked to the system and tested it to prove it is safe
• issued a Permit to Work stating that the work is safe to proceed

SPRAYED CONCRETE WORKS
Never:
• visit a tunnel under construction unless you absolutely have to
• stand under ‘open ground’ as material can fall from the face and bench – not just from overhead
• stand under freshly sprayed (green) shotcrete
• stand or walk in a driver’s blind spot

CONFINED SPACES
Never enter a confined space:
• if there are safer alternatives
• unless you are medically fit and trained to do so
• unless the air within the space has been tested and declared safe or unless the safe system of work specifically describes measures for maintaining safe breathable air
• unless an emergency plan and system is in place
• without a Permit to Work recording that the work is safe to proceed

BREAKING GROUND
Never undertake digging, excavation or ground breaking activities unless:
• a survey of the area has been completed to identify all risks and structures in the ground
• a Permit to Work is in place recording that the work is safe to proceed
• controls are in place to ensure that the ground will not collapse during the work
Our health and safety model was developed to best serve the project and the structure of the organisation. At the heart of what we do is supply chain capability. The model reflects that our contractors are competent, aware of their responsibilities and have health and safety programmes in place that are appropriate for their activities.

To provide a focus for health and safety activities, Target Zero is underpinned by six pillars which support measurement of health and safety performance: leadership and behaviour, communication, designing for health and safety, workplace health, workplace safety and performance improvement.
CORPORATE OBJECTIVES

In order to measure our performance against the overall corporate objective to ‘Deliver Target Zero’, three specific health and safety objectives were set during 2013/14:

Corporate Objective 1: Strive for excellence in industry health and safety performance

Continued focus on Health and Safety Performance Index (HSPI) and Gateway by achieving an HSPI score equal to or greater than 2 in 85% of contracts.

In Period 13 (2013/14), 100% of contracts (16 contracts) scored 2.00, or above, exceeding the corporate objective.

Corporate Objective 2: Reduce the RIDDOR Major injury accident frequency rate (AFR) rate from 0.14 (2012/13 rate) by 60% to 0.056

Crossrail’s firm belief that all harm is preventable contributed towards the setting of extremely challenging targets throughout 2013/14. Although this year was marked by a 30% reduction in the RIDDOR AFR over the latter periods of 2013, the year-end value of 0.14 matched the accident frequency rate from 2012/13.
Corporate Objective 3: Reduce the Lost Time Case (LTC) AFR from 0.70 (2012/13 rate) (0.70) by 60% to 0.28.

In keeping with the Crossrail’s belief that all harm is preventable, this was an extremely challenging target set for 2013/14. Through sustained effort and commitment by everyone on Crossrail, we have seen a consistent reduction in the Lost time AFR following a peak in July, with an overall 30% reduction in the Lost Time Case AFR.

![Lost-Time Incident Frequency Rate (2013/2014)](image)

**STRATEGIC OBJECTIVES**

Underpinning the corporate objectives, are four strategic objectives.

**Strategic Objective 1: Target Zero: Continue to promote the Target Zero philosophy with appropriate visibility to relay the principles of Crossrail’s Health & Safety values**

To promote the Target Zero principles across the programme ensuring their prominent visibility at all locations and their demonstration in day-to-day activities by all contract teams and with each individual engaged on Crossrail.

Crossrail Target Zero (A State of Mind) is how Crossrail communicates its intention to prevent harm to those involved in the project. All new members of the Crossrail team continue to undergo an extensive induction process, which outlines how, as an individual, they will be responsible for delivering Target Zero within their sphere of influence.

To continue to raise the profile of the Target Zero philosophy, a significant number of initiatives and activities have been undertaken in 2013/14. These are outlined below.
Stepping Up Week

The SHEL T (Safety Health and Environmental Leadership Team) is made up of leaders from both Principal Contractors and Crossrail. The SHEL T recognised that, in order to make a positive impact, on such a diverse and extensive project, a combined focus was required that showed Leaderships’ commitment to health and safety and positively influenced health and safety culture and worker engagement. ‘Stepping Up Week’ was launched to meet these requirements and provide a medium to embed the Target Zero philosophy.

Each of the 40 live sites across the programme devised their own bespoke schedule, which included a combined leadership message to open and close the week at every site, as well as various site specific activities, including a mock rescue operation and numerous exercises to improve hazard spotting. The week coincided with European Health and Safety Week and was embraced across the programme. The feedback from the site teams was overwhelmingly positive and following the success, Stepping Up Week will now occur bi-annually.

Target Zero Roadshow

The Target Zero Roadshow utilised actors to dramatize health and safety related situations and scenarios that site operatives may be confronted with; this supported our efforts to embed the Target Zero message and re-enforce the behaviours we expect to see from site operatives. Sessions were held across the programme at a number of Principle Contractors’ sites.

Strategic Objective 2: Leadership and Behaviour – Continue to develop and roll out a leadership programme for Crossrail

Continue with the roll out of the Crossrail Frontline Leadership Programme (FLP), enhancing the leadership skills of supervisors engaged on the Crossrail programme. Continue with the development of parallel programmes and workshops for other leaders from both Crossrail and the Principal Contractor community.
The FLP continues to recruit supervisors and appropriate mentors from the Principal Contractor population. Over 150 supervisors were engaged in the programme over the course of the year, exceeding the annual objective of 100.

Other activities targeted at delivering this strategic objective are outlined below.

**Behaviour Influences Behaviour**

Crossrail’s Behaviour Influences Behaviour (BIB) programme was designed to raise health and safety standards and to help achieve the Target Zero goals by driving the right behaviours. In addition to rolling out awareness training, Crossrail continued to promote the programme through the use of ‘Walk the Talk’ drama-based roadshows. These roadshows reached over 3,000 people on the programme and continue to be used by the Tier 1 contractors as a means of actively engaging with their teams. ‘Walk the Talk’ was also recognised in the International Visual Communications Awards (IVCA) in March 2014, with Silver awards for ‘Best Internal Event’ and ‘Most Effective Event’.

**Principal Contractors’ Health and Safety Forum and Workshops**

Four forums and workshops were held with the Principal Contractors’ Health and Safety Managers. These were used to develop the scope of ‘Stepping Up Week’, review the results of the ‘Have Your Say’ survey and to share best practice and ideas across contracts.

**Strategic Objective 3: World Class Standard**

*Achieve world-class health and safety standards through innovation and continuous improvement.*

All health and safety initiatives and activities we undertake are aimed at striving towards world class standards. Below is a selection of highlights from the year.

**Climate Survey**

In August 2013, Crossrail rolled out the first Health and Safety ‘Have Your Say’ Survey. The Survey comprised 65 targeted questions, formulated from analysis of current trends and consultation within the Crossrail team. Both paper and online versions were made available to everyone working on the project.

Results were analysed across 8 key behavioural categories, with bespoke reports distributed to each site. Site teams were encouraged to use the key findings to develop appropriate site-specific improvement plans.

An action plan was developed by Crossrail following the key learning outcomes. Each site also engaged their teams in the learning outcomes from this survey during ‘Stepping Up Week’.
During the first quarter of 2014, a series of workshops were carried out to promote engagement with site teams on the improvement opportunities identified in the survey. A total of 17 ‘Engagement Workshops’ were completed across the programme.

It is planned to conduct a further survey in 2014, which will allow for comparisons to be made on the initial baseline.

**Gateway Scheme**

Gateway is Crossrail’s reward and recognition scheme for Tier 1 contractors, providing an opportunity to showcase innovations and inspirational programmes. Gateway assesses all delivery contracts against Crossrail’s six Target Zero pillars of health and safety as illustrated below.
The Gateway scheme is designed to drive excellence, by promoting the raising of standards and the sharing of good practice.

Two assessment cycles were carried out in 2013/14. Successful completion of each assessment cycle leads to the award of Gateway ‘Foundation’, ‘Commendation’, or ‘Inspiration’ Status.

The scheme is reviewed periodically to ensure standards are continually raised.

- **Gateway Foundation status** is awarded to Contractors who attain a ‘required standard’ (score one point) on each applicable opportunity area within every given Target Zero pillar.

- **Gateway Commendation status** is awarded to Contractors who achieve good practice (score two points) on each applicable opportunity area within 3 or more Target Zero pillars.

- **Gateway Inspiration status** is awarded to Contractors that achieve good practice (score two points) on each applicable opportunity area within all six Target Zero pillars and have at least three pillars at inspiration i.e. all opportunity areas scoring at least 2 and 50% or more opportunity areas scoring 3.

- Recipients of a Gateway Inspiration award must show continuous improvement and excellence in all six Target Zero pillars.

- Good practices identified during Gateway assessments are shared across the project via Gateway Inspiration Bulletins, these raise awareness of what’s working well and to encourage the raising of standards across the project.

- Low scoring areas are identified and improvement plans put in place to improve performance.

- The fourth round of assessments were completed in the third quarter of 2013/14, with the fifth round of assessments scheduled for completion in the second quarter of 2014.

Crossrail won the Inspiring Safety Awards for 'Most Inspiring Initiative' for Gateway in November 2013.

This award recognises individuals and organisations that go the extra mile, who adopt a contemporary approach to safety aimed at inspiring the people around them to achieve safety excellence.

Below is a summary of the findings from this year’s Gateway assessments:

- The Bond Street site retained Gateway Inspiration status whilst still improving overall Gateway score by 4%.

- 14 contracts awarded Commendation status.

- 4 contracts awarded Foundation status.

- The most improved contract was the Whitechapel Station site, with a 57% increase in overall score.

- Average Gateway score improved from 1.77 to 1.96.
Gateway has proven a highly successful tool to encourage the implementation of best practices. Gateway assessments and awards are used as a vehicle for incentivising, measuring, recognising and celebrating identified H&S excellence on the Crossrail Project and within the construction industry. Enhancements and changes to the Gateway process are currently being assessed for implementation during 2014/15.

### GATEWAY CYCLE RESULTS PER PILLAR

<table>
<thead>
<tr>
<th>Category</th>
<th>2013-Q1</th>
<th>2013-Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>1.77</td>
<td>1.96</td>
</tr>
<tr>
<td>Performance Improvement</td>
<td>1.71</td>
<td>1.92</td>
</tr>
<tr>
<td>Workplace Safety</td>
<td>1.67</td>
<td>1.82</td>
</tr>
<tr>
<td>Workplace Health</td>
<td>1.92</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>1.18</td>
<td>2.12</td>
</tr>
<tr>
<td>Designing for Health &amp; Safety</td>
<td>1.96</td>
<td>2.2</td>
</tr>
<tr>
<td>Leadership and Behaviour</td>
<td>1.79</td>
<td>1.92</td>
</tr>
</tbody>
</table>

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**C411 CSJV – Gateway Inspiration**

**C305 DSJV – Gateway Commendation**

**C315 Vinci – Gateway Commendation**
The Health and Safety Performance Index (HSPI) is Crossrail’s leading indicator measurement programme. The HSPI is made up of two measures in each of the 6 Target Zero pillars; the periodic Leading Indicator Performance score (measuring ‘effort’ in terms of inputs/activities) and the latest Gateway score (measuring ‘effectiveness’ as an output of their activities), with combined scores classified as follows:

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Does not meet basic contractual expectations</td>
</tr>
<tr>
<td>1</td>
<td>Meets contractual expectations</td>
</tr>
<tr>
<td>2</td>
<td>Exceeds contractual expectations</td>
</tr>
<tr>
<td>3</td>
<td>Demonstrates excellence</td>
</tr>
</tbody>
</table>

The HSPI programme has changed the way the contractors look at performance measurement. Although there is still a focus on the end goal – Target Zero – on a period-by-period basis, the focus has shifted to proactive activity. Friendly competition has developed between the different contracts and Safety Action Teams formed to identify opportunities to improve their performance. Overall performance is shown below.

![Overall HSPI Score - 2013](image)

Average HSPI Score for 2013 = 2.00
VISUAL STANDARDS

Visual Standards have been developed in collaboration with Crossrail contractors to share best practice across all Crossrail sites.

These one-page pictorials are designed to outline what good and poor practice looks like in various risk areas, with 27 developed and issued over the year. Visual standard topics included:

- Access routes and housekeeping
- Chemical storage requirements
- Storage of Lifting Accessories
- Controlling access using Tally Boards
- Manual Handling Re-Bar
- Storage Of Re-Bar
- Scaffold Protection
- Pedestrian-Vehicle Segregation
- Lighting requirements
- Fire Extinguisher identification and storage
- Use of Barriers
- Dust Suppression
- Cable Management
- Visual Display Units
- Abrasive Wheels
- Daily Briefing Delivery
- Access Staircases
- Near Miss-Observation Reporting
- Conveyor Belts
- Toilet Facilities
- Welfare Facilities
- Tool Tethering
BEST PRACTICE GUIDES

Pressurised Systems

The Pressurised Systems Working Group, was formed in response to a number of incidents relating to pressurised systems and stored energy release. Although incidents were experienced across the programme, Crossrail identified the need to bring together relevant Principal Contractors and Joint Ventures, with their supply chain, (in collaboration with Crossrail) to determine what improvements can be made and to disseminate information to all other contracts.

This collaborative effort resulted in the production of a booklet entitled “Best Practice Guide for Pressure Systems”. This has been distributed to all contracts across the programme, with review sessions scheduled to ensure the content remains relevant and current.

Construction Railways Operations

As part of Crossrail’s health and safety assurance regime it was identified that each contract had its own set of processes and procedures for operating and maintaining the construction railways used to serve the TBMs. Examples of best practice had been identified and shared at a local level, but Crossrail identified that the information needed to be distributed to a wider audience across the programme. To address this, Crossrail led a working group to produce a “Best Practice Guide for the operation of Construction Railways”.

The final version, issued in April 2014, was distributed to all operatives working in Crossrail tunnels across the programme. The Guide is now being used as a training resource at the Tunnelling and Underground Construction Academy (TUCA) and has been shared with other tunnelling projects in the UK.

In addition, following an article about the Guide in ‘Tunnel Talk’, (the journal of the International Tunnelling Association), there has been international interest in the Guide. Copies are currently in circulation in Denmark, Spain, Italy, Australia, China and India.
Strategic Objective 4: Occupational Health and Wellbeing – Improve the health and wellbeing of those involved in the Crossrail programme

Continue to implement the health and wellbeing strategy throughout Crossrail. Focus on improving the awareness of health and wellbeing related issues and create plans to address those that can be influenced.

Develop a strategy for Principal Contractors to embark on a programme of occupational hygiene analysis and improvement.

It is estimated that the construction industry reported 31,000 new cases of ill-health in 2012. Health and Wellbeing is a key focus for Crossrail and its aim is to raise the bar across the industry.

Crossrail aims to prevent work related ill-health and improve individuals’ wellbeing through the delivery of its Health and Wellbeing Strategy (launched this year), health campaigns and by undertaking key pieces of health research. Crossrail believes that, both during and after completion of the project, we have a moral duty to leave health legacies to benefit the construction industry as a whole.

Crossrail has undertaken a variety of initiatives this year to promote improving the management of Health. These have included campaigns targeted at Healthy Eating, Healthy Heart, Back Care, Hot & Cold Weather working, Resilience, Sun and Cancer Awareness, Musculo-Skeletal Disorders and a Healthy Team Challenge - “fighting fit” which attracted 200 participants across Crossrail.

Across Crossrail a ‘999- Protect Your Lungs, They Need You’ campaign ran throughout November 2013. The aim of this campaign was to raise awareness of dust and occupational health hazards on site. Nine site-based persons, on nine different sites championed the campaign across nine ‘at-risk’ trades.

Occupational Health Providers

To ensure appropriate standards in occupational health delivery across the programme, Crossrail has mandated that the supply chain only use occupational health providers that meet the nationally accredited Safe Effective Quality Occupational Health Service (SEQOHS) standard.

Crossrail has set its contractors health-related KPI’s, which are reported on a periodic basis to ensure health campaigns are being delivered, that sufficient drug and alcohol tests are undertaken based on the number of new starters, and to track compliance to the Constructing Better Health (CBH) scheme.

Public Health Responsibility Deal (PHRD)

Crossrail has supported the Department of Health’s Public Health Responsibility Deal (PHRD) and the creation of a Construction Industry related pledge.. Crossrail has committed to the following pledges in October 2013:

• Construction and Civil Engineering Industries (H10)
• Occupational Health Standards (H2)

For more information go to: https://responsibilitydeal.dh.gov.uk/

Crossrail has also contributed to the development of occupational health toolkits, to enable small and medium sized enterprises to sign up to PHRD pledges.

National Examination Board in Occupational Safety and Health (NEBOSH)

Crossrail delivered its first, National Examination Board in Occupational Safety and Health (NEBOSH) certificated, ‘Management Training in Health and Wellbeing at Work’ course. The aim of this course is to help enable managers to better support their employees’ health and wellbeing needs.

Constructing Better Health

Crossrail continues to endorse the ‘Constructing Better Health’ scheme, which assists in ensuring occupational health standards are met. As a leading client organisation, Crossrail’s support is helping to raise the profile of this scheme, promoting it to become an industry standard.
‘999- Protect Your Lungs, They Need You’ campaign ran throughout November 2013
CROSSRAIL HEALTH AND SAFETY MANAGEMENT SYSTEM (HSMS)

The Crossrail H&S Management System consists of:

- An annually reviewed H&S Policy (November) and a suite of other related policies.
- The Health and Safety Manual, an overarching document that covers all areas of our H&S Management System and provides signposting to all relevant policies, procedures and guidance documents.

The annual management review was completed on the 5 July 2013. In the review, a number of areas were identified for improvement and have subsequently been progressed in accordance with planned completion dates. The review concluded that the H&S Management System continues to be both suitable and adequate for the needs of the Programme.

The H&S Management System has this year retained certification to OHSAS18001:2007.

OHSAS 18001 is an internationally applied British Standard and provides a framework for organisations to instigate effective management of health and safety in the workplace.

HEALTH AND SAFETY EXECUTIVE INTERVENTIONS

Crossrail continues to liaise closely with the Health and Safety Executive as part of their Intervention Strategy for Crossrail.

The investigation into the tragic event of 7th March 2014 continues and Crossrail is providing support to HSE where requested.

HSE continue to conduct periodic inspections at sites across the programme and, where required, provide feedback to allow improvements to be made. No formal Improvement of Prohibition notices have been issued during the year.

ASSURANCE

Audit

The H&S Assurance audit programme was revised in period 4, 2013 / 2014 to formalise the assurance checks which had previously been carried out as a “self checking” activity by CRL Health and Safety Advisers (HSAs) on contractors. The revised H&S Assurance audit schedule covered Crossrail’s key health & safety risks with audits being conducted using structured audit checklists against H&S legislation and the requirements detailed in the contract Works Information.

A total of 72 audits were carried out with each tunnelling contractor receiving 6 audits and other contractors receiving 4 audits. Where non-conformances were identified, formal Corrective Action Requests (CARs) were raised; these required the contractors to identify their actions and timescales for addressing the deficiencies identified during the audit. The audit topics generating the highest numbers of CARs included Management of Plant & Equipment. A graph showing the distribution of CARs is provided below:

<table>
<thead>
<tr>
<th>Topic Areas</th>
<th>Number of CARs Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>H&amp;S Communications</td>
<td>1</td>
</tr>
<tr>
<td>Working at Height</td>
<td>5</td>
</tr>
<tr>
<td>Competence Management &amp; Induction</td>
<td>7</td>
</tr>
<tr>
<td>Site security</td>
<td>8</td>
</tr>
<tr>
<td>Vehicle Management</td>
<td>10</td>
</tr>
<tr>
<td>Breaking Ground</td>
<td>11</td>
</tr>
<tr>
<td>Control of Work equipment &amp; HAVS</td>
<td>16</td>
</tr>
<tr>
<td>Internal Audit &amp; COSHH</td>
<td>17</td>
</tr>
<tr>
<td>Plant &amp; Equipment</td>
<td>25</td>
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</tbody>
</table>
The 2014 / 2015 audit schedule was agreed, and consists of 99 audits (77 safety assurance, 22 occupational health); this equates to 4 safety assurance audits and one occupational health audit for each contractor during the year. The audit schedule is based on the risk profile of each of the contracts and compiled collaboratively between the H&S Assurance team and Crossrail Project Managers to ensure that the audits are aligned with programme requirements.

Additional “ad hoc” audits will be undertaken where the Project Managers identify a perceived risk or seek independent assurance on the adequacy of their local management systems.

**Assurance Assessments**

The seven tunnelling and SCL contractors were all included in a programme of assurance assessments against the requirements of BS6164 “Code of Practice for Health & Safety in the Tunnelling in the Construction Industry”. Around 100 assurance assessments were undertaken, covering the clauses of BS6164 that were applicable to each contractor, using pre-prepared checklists that were circulated to the CRL HSAs and Principal Contractors in advance. The assurance assessments not only identified areas for improvement, but also many areas of good practice that were subsequently shared with all relevant sites.

Whilst Corrective Action Requests were not raised for identified deficiencies, actions were followed up with the Principal Contractors at future H&S audits on similar topics. For 2014/15, the responsibility for carrying out the BS6164 surveillance checks will pass to the Principal Contractor and this will form the scope of a H&S assurance audit in period 8, 2014/15.

Other assurance assessments carried out in 2013/14 included Tunnel Safety Cards and Management of Tunnel Railways.

**Construction Design and Management (CDM)**

CRL H&S Advisors submit a CDM return to the CDM Integrator (CDMI) every period. These returns are comprised of a series of CDM metrics and provide an opportunity for CRL to assess the contractors’ compliance with the requirements of the CDM Regulations, including accuracy of the Construction Phase Plan and Health & Safety File. In support of these submissions, the CDMI carries out a number of verification checks to assure the accuracy of the returns. A programme of approximately 40 CDM verification checks were carried out during 2013/14. Where deficiencies were identified, CARs were raised to ensure that appropriate action was taken to return the activities to a compliant condition.

The CDMI led a series of training events throughout the year at sites across the project to raise the level of understanding, and awareness of CDM.

**External Audit**

A surveillance visit by Lloyd’s Register Quality Assurance was undertaken from the 22nd to 25th July 2013 and confirmed continued certification to the following standards:

- ISO 14001:2004 Environmental Management Systems
- BS OHSAS 18001:2007 Occupational Health and Safety Management Systems

LRQA were able to confirm closure of 6 minor non-conformities, 2 against ISO9001 and 4 against OHSAS 18001. There were no outstanding non-conformities against ISO 14001.

The auditors considered the management systems compliant with the requirements of: ISO 9001:2008 and ISO14001:2004. However, two non-conformities (one major and one minor), were raised against OHSAS18001:2007. These related to an example of non-application of the management system and the effectiveness of monitoring regimes.

Actions were developed to close both non-conformities and these were closed out in accordance with the timescales agreed. The major non-conformity was officially closed out by LRQA in a special surveillance visit undertaken on the 1st October 2013.

LRQA conducted their third Surveillance audit from 31 March – 03 April 2014 and again confirmed continued certification to all three standards.

The report was positive, although one minor non-conformity was identified in relation to corrective action management. Actions to address this minor non-conformity are underway.

The next Surveillance audit was scheduled for October 2014.
COMMUNICATION

Alerts, Inspirations and Best Practice

Safety Alerts are issued when there is a specific safety issue/incident which, without action being taken, could result in a serious or fatal injury. Safety Alerts can be issued on topics related to dangerous equipment, processes, procedures or substances, identified during or after an investigation, or as the result of a received notification from, for example, Principal Contractor’s, Contractors, Manufacturers, Industry Partners, Professional Organisations, Health and Safety Executive, etc.

In support of continuous improvement, examples of Inspiration/Innovation and good practice are also shared across the programme.

- Safety Alerts (48 issued), Inspiration/Innovation (25 issued), Good Practice (30 issued).

Lessons Learnt

Due to the size of the programme and the size of the supply chain, Crossrail has significant potential to gather and share lessons learnt within the industry. To facilitate this, details from incident investigations across the project are shared at a bi-weekly tele-conference attended by Crossrail and Principal Contractor construction teams. This programme has generated working groups to go deeper into some issues such as pressurised systems, the role of the traffic marshal and lifting operations.

Lessons learnt documents are produced for significant learning and distributed prior to and discussed during the bi-weekly tele-conference. Improvement actions are identified and progressed.

During 2013/14 - 68 lessons learnt documents were produced.

Toolbox Talks programme and Connect in Brief

A schedule is in place for toolbox talks, which takes into account our H&S campaigns. The H&S team provide material for two talks per period. These are made available to our site teams to use if required.

Connect In Brief, our internal, electronic weekly communication, now has a safety message on each issue, along with a good news, best practice or an article on our latest health and safety campaign. Crossrail’s monthly newsletter ‘On-Site’ also features relevant health and safety information and is distributed in paper format across the programme.
OPERATIONAL CONTROL

Building a new railway on the scale and complexity of the Crossrail Project, poses an enormous logistical challenge. A ground-breaking approach to address the health and safety of the public exposed to our material transport risks was required. In the last year, Crossrail has had between 15,000 and 20,000 vehicle movements to our sites each period. Each vehicle movement is recorded on Crossrail’s Vehicle Management Planning System (VMPS) and checked for Crossrail safety compliance.

Work Related Road Risk Management Standard (WRRR)

Crossrail has continued to strengthen its position regarding the safety of vulnerable road users. The road safety leadership programme created by Crossrail is now embedded in a new Work Related Road Risk (WRRR) Management Standard for the Construction Logistics Industry. Transport for London facilitated this new standard by creating the Construction Logistics for Cycle Safety (CLOCS) project which is based on the successful procurement strategy initiated by Crossrail in 2010.

This standard is now being adopted and applied across London by public and private sector projects. Already over 60 organisations are committed to working to the new Standard, which is making an impact without any new regulation or legislation behind it; this is a testament to the pioneering work carried out by Crossrail.

Compliance

Crossrail has raised the bar on its standards for vehicle safety compliance across the project. New consequences have been introduced that place more emphasis on the ‘key five’ safety items; those items that make a direct contribution to preventing death or injury to cyclists and pedestrians. Any vehicle found to be ‘non-compliant’ at a Crossrail worksite is turned away, but if the failure is in one of the ‘key five’ items, new consequences are triggered. The driver of this vehicle is suspended and along with the MD of the employing company, he/she must attend the lorry driver-training course again for refresher training.

Since the introduction of the new consequences, the levels of noncompliance amongst the ‘key five’ items has reduced and more companies are adopting best practice.

Training

The Crossrail Logistics Team continue to work across all project supply chains to ensure the highest level of vehicle compliance at every worksite. Over 25 evidence-based, compliance-checking workshops were delivered to over 200 operatives working at Crossrail worksites. The workshops train operatives to check every item of vehicle safety equipment consistently, and ensures an understanding of the contribution each item makes to the safety of vulnerable road users.

Cycle Safety Working Group

In November of 2013, Crossrail established a Cycle Safety Working Group to generate ideas that take the project closer to London cyclists and helping to raise their awareness of the risks faced when sharing London’s roads with HGVs. A major output from the working group was Crossrail’s attendance at the London Bike Show. Along with stakeholder partner the Met Police, a 3-day Exchanging Places event took place during the bike show which was a great success. Over 850 people sat in the cab of a HGV for a cycle safety briefing by the Police. Crossrail’s stand was so successful during the bike show that it ranked in the top five visited exhibits over the 3 days of the show.
Crossrail continue to run the Lorry Driver Training Programme and in June of 2013 achieved the milestone of over 7000 drivers trained. The course is still run 3 days each week to keep pace with the demands of Crossrail supply chains and is attended regularly by the Metropolitan and City of London Police officers and other key stakeholders. During the winter of 2013, several Crossrail Directors, including the CEO, attended the driver-training course.

Crossrail continues to run Exchanging Places events with the Metropolitan Police at or near Crossrail worksites to provide vehicle safety checks, security marking and safety briefings to London’s cyclists. During the period of this report, 11 Crossrail led Exchanging Places were completed.

**EMERGENCY PREPAREDNESS**

The Business Continuity Manager led a wide range of initiatives to improve emergency planning arrangements, liaison with emergency services and reduce the risks to Crossrail’s operations. The Gold Response Control Room was launched at the end of 2013, at 25 Canada Square and was brought into operation following the accident at Fisher Street in March 2014. Training in the role of Gold Command was provided by the Business Continuity Manager to around 60 Crossrail directors and senior managers.

Approximately 15 desktop Emergency Exercises were held during the year, with topics agreed with the Principal Contractors. The Emergency Exercises were facilitated by workshops designed to probe the arrangements that the contractor had in place to respond to the emergency scenario. A report was prepared following each workshop with remedial actions identified; these actions were monitored to ensure that they were adequately closed out.

The Business Continuity team were involved in the Project Griffin counter terrorism workshops and also a number of joint initiatives with the London Fire Brigade, Metropolitan Police, Canary Wharf Group and Citigroup.

An audit was conducted on the Crossrail Incident and Business Continuity Management System (BCMS) to review continuing suitability, adequacy, and effectiveness of the system. The report concluded that the BCMS had matured since the previous audit in April 2013. For example, departmental business impact assessments and business continuity plans were now in place. The audit identified further work is required to meet all the documented requirements of ISO 22301, for example in areas such as monitoring, measurement, analysis and evaluation. The formal Management Systems Review for BCMS was completed in July 2014.
Golden Rules Observation Forms

Golden Rules are designed to assist in creating a safe working environment; site safety inspections are undertaken by the Crossrail site team on construction sites on a regular basis, using the Golden Rules Observation Form (GROF) and reported through RIVO Safeguard. The health and safety directorate analyse the results and report through the H&S dashboards on a period basis.

Work at Height presented most opportunities for improvement, with an average 91% compliance to the GROF question set. Best performing areas include Breaking Ground, Confined Space, and Lifting Operations.
Accident Statistics - Overview

All incidents on Crossrail sites are recorded in RIVO Safeguard incident management system. In total, 14360 incidents were recorded on RIVO Safeguard during 2013/14. This is reflective of a strong reporting culture across the programme.

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>2012/2013</th>
<th>2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major (Specified) Injury</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>RIDDOR Lost Time (Inc 3+days)</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Lost Time Cases (1-3 days)</td>
<td>43</td>
<td>33</td>
</tr>
<tr>
<td>Total all Lost Time cases</td>
<td>85</td>
<td>83</td>
</tr>
<tr>
<td>Total Number of injuries</td>
<td>362</td>
<td>414</td>
</tr>
<tr>
<td>Injuries to members of the public</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>RIDDOR Dangerous Occurrences</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Property Damage</td>
<td>129</td>
<td>185</td>
</tr>
<tr>
<td>Safety Near Miss</td>
<td>2234</td>
<td>3333</td>
</tr>
<tr>
<td>H&amp;S Observations (see note below)</td>
<td>0</td>
<td>7916</td>
</tr>
</tbody>
</table>

Prior to 2013/2014, whilst not entered in RIVO Safeguard, H&S Observations were monitored by Principal Contractors.

Fatality

RIDDOR Fatality – 7 March 2014. It was with deep regret, that in period 13 of this year, a contractor working on a crossover tunnel at our Fisher Street site was fatally injured by a fall of newly sprayed concrete. A comprehensive response to this incident was implemented by the contractor involved, and across the project as a whole. An accident investigation into this tragic incident remains ongoing.

Number of Lost-Time Incidents per period

![Graph showing number of lost-time incidents per period]
## Major Injuries

### RIDDOR Major Injury Cause

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit/near hit by moving, flying or falling object</td>
<td>12</td>
</tr>
<tr>
<td>Slip trip or fall at same level</td>
<td>7</td>
</tr>
<tr>
<td>Contact with moving machinery</td>
<td>2</td>
</tr>
<tr>
<td>Injured whilst handling, lifting or carrying</td>
<td>2</td>
</tr>
<tr>
<td>Fall/Near fall from height:Less than 2m</td>
<td>1</td>
</tr>
</tbody>
</table>

24 RIDDOR Major Incidents

## Root Causes

### 7+ Days Lost Time Injury Cause

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slip trip or fall at same level</td>
<td>9</td>
</tr>
<tr>
<td>Injured whilst handling, lifting or carrying</td>
<td>3</td>
</tr>
<tr>
<td>Contact with sharp edge / surface</td>
<td>3</td>
</tr>
<tr>
<td>Hit/near hit by moving, flying or falling object</td>
<td>2</td>
</tr>
<tr>
<td>Contact with moving machinery</td>
<td>2</td>
</tr>
<tr>
<td>Lifting operation</td>
<td>1</td>
</tr>
<tr>
<td>Contact with harmful substances</td>
<td>1</td>
</tr>
</tbody>
</table>

21 7+ day Lost-Time Injuries

### Root Causes

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures-Systems</td>
<td>5</td>
</tr>
<tr>
<td>Tools-Equipments</td>
<td>3</td>
</tr>
<tr>
<td>Competence-Knowledge</td>
<td>5</td>
</tr>
<tr>
<td>Attitude - Behaviour</td>
<td>2</td>
</tr>
<tr>
<td>Safety Management</td>
<td>1</td>
</tr>
<tr>
<td>Not Specified</td>
<td>6</td>
</tr>
</tbody>
</table>

## 7+ Days Lost Time

### 7+ Day Lost-Time Injury Cause

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slipping</td>
<td>4</td>
</tr>
<tr>
<td>Injured whilst handling, lifting or carrying</td>
<td>3</td>
</tr>
<tr>
<td>Contact with sharp edge / surface</td>
<td>3</td>
</tr>
<tr>
<td>Hit/near hit by moving, flying or falling object</td>
<td>2</td>
</tr>
<tr>
<td>Contact with moving machinery</td>
<td>2</td>
</tr>
<tr>
<td>Lifting operation</td>
<td>1</td>
</tr>
<tr>
<td>Contact with harmful substances</td>
<td>1</td>
</tr>
</tbody>
</table>

21 7+ day Lost-Time Injuries

### Root Causes

<table>
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<th>Count</th>
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<tbody>
<tr>
<td>Procedures-Systems</td>
<td>5</td>
</tr>
<tr>
<td>Tools-Equipments</td>
<td>3</td>
</tr>
<tr>
<td>Precautions - Attention</td>
<td>2</td>
</tr>
<tr>
<td>Management</td>
<td>2</td>
</tr>
<tr>
<td>Personal Conditions</td>
<td>1</td>
</tr>
<tr>
<td>Competence-Knowledge</td>
<td>1</td>
</tr>
</tbody>
</table>

## Body Injury Location

- **Head:** 4%
- **Arm:** 4%
- **Leg/Foot:** 50%
- **Back:** 15%
- **Hand:** 30%
- **Shoulder:** 5%
- **Chest/Thigh:** 8%
Safety Near Miss Reports

The 50% increase in Safety Near Misses being reported throughout 2013/14 has been as a result of an increased focus following Stepping Up Week.

Incidents on Crossrail controlled sites

Crossrail managed premises recorded 21 incidents during 2013/2014:

- 3 Injuries resulting in lost time
- 11 Near miss reports
- 5 Level 5 observations

Safety Near Miss Cause

only showing causes which contributed to 90% of total incidents reported

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>1216</td>
</tr>
<tr>
<td>Working at Height</td>
<td>315</td>
</tr>
<tr>
<td>Plant/Vehicle Movements and Operations</td>
<td>290</td>
</tr>
<tr>
<td>Tunnelling Operations</td>
<td>278</td>
</tr>
<tr>
<td>Cranes and Lifting Operations</td>
<td>193</td>
</tr>
<tr>
<td>Equipment &amp; Machinery</td>
<td>187</td>
</tr>
<tr>
<td>PPE</td>
<td>124</td>
</tr>
<tr>
<td>Breaking Ground and Excavation</td>
<td>100</td>
</tr>
</tbody>
</table>

Canada Square - Lost Time incidents:

- Cyclist slipped and fell off bicycle in the underground car park. Injured person sustained a fracture to their cheekbone and 10 days lost time.
- Person moving cabinets strained their back resulting in 5 days lost time.

14 Pier Walk – Lost Time Incident

- The incident was caused when the injured person passed a drawing to a colleague and the long edge of the paper struck his right eye. 2 days lost time.

Cardboard Pyramid

- Major 24
- Injuries Lost Time 83
- Near Miss 3378
- Level 5 - 7885

Contractor Incident information

In the 1930s, H.W. Heinrich undertook analysis that suggested, for every major injury, there were 29 minor injuries and 300 non-injury accidents. The results were illustrated with a pyramid now commonly known as the Heinrich pyramid. This idea has been developed through further studies, which have repeatedly shown that although the ratios can vary, the basic principle remains the same. The relationship between Lost Time Injuries and Major Injuries would be expected to be in excess of 2:1 if a healthy reporting culture exists. As can be seen right, the ratio for Crossrail this year was close to 3.5:1 (83 lost time injuries to 24 Major injuries) suggesting reporting levels on the programme were good.

Subcategory: General Breakdown

only showing causes which contributed to 90% of incidents where a cause of “General” was specified

<table>
<thead>
<tr>
<th>Cause</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housekeeping</td>
<td>269</td>
</tr>
<tr>
<td>Risk Assessment/Method Statement</td>
<td>198</td>
</tr>
<tr>
<td>General</td>
<td>181</td>
</tr>
<tr>
<td>Slips, Trips and Falls at the same Level</td>
<td>118</td>
</tr>
<tr>
<td>Blocked Access/Egress</td>
<td>106</td>
</tr>
<tr>
<td>Communication Failure</td>
<td>97</td>
</tr>
<tr>
<td>Material Storage</td>
<td>97</td>
</tr>
<tr>
<td>Unsafe Structure</td>
<td>74</td>
</tr>
</tbody>
</table>
‘Safety is our primary value, nothing is so important that it cannot be done safely’

Steve Hails - Crossrail Health & Safety Director

A STATE OF MIND