

Board

Transport
for London



Date: 4 February 2015

Item 6: TfL Health, Safety and Environment Report 2013/14

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to ask the Board to note the Health, Safety and Environment (HSE) Report for 2013/14.
- 1.2 Members of the Safety, Accessibility and Sustainability Panel and the Independent HSE Advisers to the Panel were invited to comment on an earlier draft. Their comments have been addressed where this has been possible and longer term issues will be developed into the report for 2014/15. The Panel reviewed the final report at its meeting on 18 December 2014.

2 Recommendation

- 2.1 **The Board is asked to note the TfL Health, Safety and Environment Report 2013/14.**

3 The Annual HSE Report

- 3.1 The Annual HSE Report has been published as a stand alone report for a number of years. This provides an effective focus on this important subject area, and is in line with best industry practice. The report provides details and comment, which for most of TfL covers the year 2013/14, but for road safety the details are for year 2013 as road safety data is collated nationally on the calendar year.
- 3.2 The report is attached as Appendix 1. It contains a number of highlights, which include:
 - (a) the work to improve cycling safety, especially with the Heavy Goods Vehicle Task Force on better driver standards and vehicle compliance; the improvements on cycle superhighway provision and new junction low level cycle signals;
 - (b) the reduction in the number of people killed or seriously injured on the Transport for London Road Network being reduced by 31 per cent compared with last year;
 - (c) the improvements across TfL's networks in terms of accessibility;
 - (d) real achievements in the progressive introduction of Euro V, VI and hybrid buses, assisting in meeting the challenging targets that TfL has set for improving air quality and cutting CO₂ emissions;

- (e) the collection and recycling of more waste from the transport system than ever before;
- (f) the award of the London Healthy Workplace Charter, at the excellence level, for TfL's work to enhance occupational health for its staff; and
- (g) TfL's campaigns on reducing customer injuries across the TfL network, with serious accidents to customers having fallen on London Underground to the lowest for 10 years

3.3 However, there were also three accidental fatalities to customers using TfL systems, and a further three fatalities in the supply chain working on TfL sites. These sad events remind everyone at TfL why they must work tirelessly on health and safety every day.

List of appendices to this report:

Appendix 1: HSE Report 2013/14

List of Background Papers:

Paper to the Safety and Sustainability Panel on 18 December 2014.

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Health, Safety and Environment Report

2013/14

MAYOR OF LONDON



TRANSPORT
FOR LONDON
EVERY JOURNEY MATTERS

Message from the Commissioner

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I am proud of the real improvements in our health, safety and environment performance across TfL this year; achievements that are taking place on a network handling greater numbers of passenger journeys than ever.

I am particularly pleased with our work to improve in cycling safety, especially the work we lead with the industrial Heavy Goods Vehicle Task Force to improve driver standards and vehicle compliance. There remains much to do, but we have taken an important step forward, and we hope other transport authorities will follow our lead.

The number of people killed or seriously injured on our roads has reduced by 31 per cent compared with last year, and I believe our plans for 2014/5 and beyond will lead to further reductions.

We have made our transport network ever more accessible. New Underground trains have easier boarding, improved visual and audio information, and better space for wheelchairs and buggies, and more stations have been made wheelchair accessible.

We designated 2014 the Year of the Bus, and saw some real achievements in the fleet. Ninety-five per cent of buses are now wheelchair accessible, while the progressive introduction of Euro V, VI and hybrid buses made a significant contribution to achieving the challenging targets we have set for improving air quality and cutting CO2 emissions.

We have collected and recycled more waste from the transport system than ever before, helping to cut delays, improve customers' experience and reduce costs.

We are also committed to the health and wellbeing of our staff. This year we were awarded the London Healthy Workplace Charter, at the excellence level, for our work to enhance occupational health for TfL staff.

We have placed considerable focus on reducing customer injuries across the TfL network. Serious accidents to customers have fallen, with the numbers on London Underground being the lowest for 10 years.

But, we also saw three accidental fatalities to customers using our networks, and a further three fatalities in our supply chain working on TfL sites. These sad events remind us all why we must work tirelessly on safety and health every day.



Sir Peter Hendy, CBE
Commissioner

About this report

This report gives stakeholders more background and better data on the important area of health, safety and environment (HSE) than is possible in Transport for London's (TfL's) Annual Report.

Performance data and scope

It provides an update on HSE performance across TfL, which comprises London Underground (LU) and London Rail (LR), Surface Transport (ST), Crossrail and the Specialist Services directorates. Generally the report covers the financial year from 1 April 2013 to 31 March 2014. However, the road safety data for Greater London and the Transport for London Road Network (TLRN) covers the calendar year from January to December 2013, to align with national statistics.

The safety data includes customer safety, employee safety and supplier safety. Health data relates to employee wellbeing and includes employee sickness absence, but does not cover supplier or customer health issues. Environment data covers London's public transport operations, including taxis and private hire vehicles, plus the work activities we and our suppliers undertake.

Our continual effort to provide more accurate data means that there are some changes to the figures reported last year where further checks have clarified data. Where possible, data are compared over five years and, where appropriate, comparisons have been made with previous years (a summary is in the Annexe).

Changes to the Reporting of Incidents, Diseases and Dangerous Occurrences Regulations 2013, (RIDDOR) were implemented on 1 October

2013, altering what had to be reported to the Office of Rail Regulation (ORR) and the Health and Safety Executive. This had some impact on the figures during the second half of the year.

There were two main issues. First, the length of time taken off work following an injury before it had to be reported changed from more than three to more than seven consecutive days. The second issue, concerned incidents involving non-workers where the workplace/infrastructure was a contributory factor in an injury. For example, if someone running down a staircase fell, the injury was no longer reportable if, on investigation, the stairs were in good condition and did not contribute to the incident. But if the customer tripped on an uneven floor, which was in the process of being retiled, and was taken to hospital for treatment, the injury would be reportable.

The changes also helped to clarify another issue that had caused some challenges. If a customer is injured and taken to hospital in an ambulance, it has not always been possible to establish details of any injury sustained once they have entered hospital. Because of this there has been a tendency to report such incidents as a major injury even though the actual injury might not be known. This new clarification led to a change in approach from 1 October 2013, with only known injuries being reported. Consequently there is a discontinuity during the year and in comparison with past data. We have used the definition that was in place at the time for all injuries. We have not reworked any of the historic data or graphs to align them to the new definition.

For more information about our revised Business Plan, which covers the period to 2014/15, visit tfl.gov.uk



Energy-saving measures on London Underground include regenerative braking on trains, which saves up to 25 per cent of electricity used during the braking process

Step-free: One of the new humps now installed at 21 station platforms to improve wheelchair access



Overview of 2013/14

There has been significant work in TfL to reduce the risks to cyclists in London. The Industrial Heavy Goods Vehicle (HGV) Task Force, working with the Department for Transport (DfT), Metropolitan Police Service, City of London Police and the Driver and Vehicle Standards Agency, has been enforcing vehicle compliance standards and driver training and compliance with the Fleet Operator Recognition Scheme (FORS) standards. In September 2013, the Mayor, with the London boroughs, proposed the Safer Lorry Scheme. This initiative will improve the standards of HGVs operating in London and would ban the most dangerous from the Capital. Consultation on the proposal began at the end of July 2014.

During 2013 there was a 31 per cent fall in the figures for killed or seriously injured (KSI) casualties on London's roads across almost all the categories. Plans now in place are aimed at yet further reductions. There has been much successful work to improve road traffic signals and pedestrian crossings to help both pedestrians and road users.

A major incident occurred on Docklands Light Railway (DLR), when a supplier's employee was fatally injured. Also, a Crossrail supplier's employee was killed during tunnelling. These two events led to detailed reviews within London Underground, London Rail and Crossrail into site management, monitoring, supplier selection and how lessons learnt can be best shared, and this continues. One of our bus supplier's drivers

was killed in August 2013. The inquest is yet to be heard. Three customers suffered accidental fatalities. An intoxicated man fell under a train; a person fell on a bus; and a cycle hire member collided with an HGV.

The number of incidents occurring as customers board and alight trains, so called platform train interface (PTI) incidents, continued to increase across London Underground. Most were the result of people caught in train doors while boarding or alighting trains, or falling between platform and train. The changing profile of the PTI following the introduction of new level-access rolling stock on the sub-surface lines has contributed to this. Additional mitigation measures such as gap fillers, different methods of highlighting the PTI, and enhanced customer announcements continued to be developed and implemented. A customer awareness campaign was also developed aimed at reducing customers rushing and getting caught in the doors.

We have been awarded the London Healthy Workplace Charter, achieving the highest level of excellence. This recognised the significant work Occupational Health, in collaboration with other TfL teams, is doing to improve the health and wellbeing of our employees.

London Underground and London Rail continued to make the railway more accessible. We aim to reduce journey time taken by passengers with mobility problems and to give more people confidence to use public transport.

Progress included:

- The new trains on the Victoria and sub-surface lines meet the latest accessibility requirements, such as easier boarding and alighting, improved lighting, visual and audio information and more space for wheelchair users and pushchairs
- Support in the form of online information to help make journeys easier. Directenquiries.com provides detailed access information at all stations; describe-online.com provides text guides to station layouts and facilities which work with screen reader software for visually impaired people; step-free access guides; audio guides; larger print guides and maps
- London Underground/London Rail support the right of each customer to decide whether they are accompanied. Accompanied journeys/travel training is available through our mentoring scheme
- During the year we added platform humps to a further 21 platforms on the Underground

In March 2014, we launched the 'turn up and go' accessibility initiative. All London buses, taxis, DLR, London Tramlink and London Overground networks are now 'turn up and go', meaning there is no need to book in advance.

An increasing number of Tube stations are now accessible to disabled customers, including wheelchair users. It is recognised that many

stations were built in an era when accessibility was not considered, but increasingly this issue is being addressed. A total of 95 per cent of bus stops are accessible by wheelchair users and all buses are.

Preparations by London Underground/London Rail for weather extremes in the first three months of 2014 built on work undertaken before Christmas 2013. The planning had anticipated wind, snow and ice, but it was heavy rain, flooding and wind that impacted on track conditions and overhead lines. The maintenance and recovery directly controlled by London Underground and London Rail was generally well managed.

Waste collected by TfL from stations, offices and depots, reached the highest levels ever, mainly through better collection methods. We set a target of 70 per cent of waste recycled and reused, but in fact achieved nearly 75 per cent. Record levels of waste from construction, demolition and excavation across the organisation were collected, with recycling and reuse figures reaching almost 99 per cent.

We have set a target for reducing normalised CO₂ by 20 per cent by 2017/18, as measured against a 2005/06 baseline. This year we bettered the 2017/18 target. Next year an absolute target will also be set.

Health, safety and environment (HSE) management in TfL

Air pollutants arise largely from vehicle engines. We have set a target for two key measures: to reduce NOx emissions by 40 per cent from our operations by 2017/18 against 2005/06 levels, and to reduce total PM10 emissions by 50 per cent by 2017/18. There has been a reduction in NOx levels but these remain above the target. On PM10 levels, we have achieved the lowest figures for five years but there is still much to do to meet these challenging targets.

A large part of our recent work focused on placing vulnerable road user safety at the core of London's road safety agenda. Key developments in individual safety action plans have led to:

- The publication of the Motorcycle Safety Action Plan published in March 2014
- The release of the Pedestrian Safety Action Plan for wider public comment at the end of March and its publication summer 2014
- The development of London's second Cycle Safety Action Plan, released in draft for wider public comment in summer 2014 before being published later in 2014

To ensure that the road safety portfolio is targeted at the right activities, places and people, we brought together a Road Safety Steering Group, involving a wide range of road safety partners and stakeholders to scrutinise, support and campaign in partnership.

There was an increase in objects, most commonly mobile phones, dropped on to the track by customers, and a tool to recover them was developed.



A new tool has been introduced to retrieve mobile phones from the track

HSE management

Our HSE objective is to achieve world-class excellence in all aspects of performance. An important part of this is benchmarking against national and international standards. During the year a review was undertaken of the maturity of the London Underground/London Rail safety management system, as measured against the ORR's Railway Management Maturity Model (RM3). This showed that the Rail and Underground business was achieving a middle Level 3 (top mark is 5) and these results were developed into a defined improvement plan for 2014-2016. Surface Transport benchmarked its maturity against this model in 2012 achieving a level 3, and has been using it to develop yearly improvement plans. A number of our suppliers also undertake reviews against this model.

During 2012/13, a project began to align the different HSE management systems across TfL into a single organisation-wide system and the first stage was completed by the end of 2013/14.

Each business develops annual HSE plans and objectives to aid the process of identifying hazards, evaluating risks and risk precursors, and then monitoring and reviewing the control measures that are put in place. Progress is reported quarterly to the business and the Safety and Sustainability Panel, which reports to the TfL Board.

This process of planning, implementing, monitoring and reviewing risks is crucial to our pursuit of world-class HSE performance.

HSE communication

We place considerable emphasis on the importance of communicating HSE issues to customers, employees and suppliers. The customer safety awareness campaign, which began in 2012/13, continued throughout the year and provided a common approach across the organisation, with consistent messages being heard and seen as customers moved from service to service. On London Underground and London Rail the approach was used to target slips, trips and falls using posters, local announcements and interventions from station staff. Escalators were particularly targeted on London Underground, and the results toward the end of the year began to show reductions. On Tramlink, messaging to hold on tight when the tram was moving was introduced, and similar messages were deployed on buses. The approach will continue into 2014/15.

Working with suppliers

We are committed to working with suppliers to ensure that the products and services they provide meet our requirements. We need suppliers to have a health, safety and environment management system (HSEMS) compliant with national or international standards.

The approaches, which began in 2012/13 with suppliers, were further developed in 2013/14. London Underground has extended its supplier assessment tool, which aims to measure and assist in improving HSE performance at procurement and delivery stages. Suppliers have been actively involved and have been positive about the approach. London Rail

Occupational health and wellbeing

started to adopt this approach towards the end of the year. London Underground continued to hold supplier forums to share good practice and work together to tackle areas of perceived weaknesses. A key event early in April 2014 was the Rail and Underground Supplier Safety Forum, 'Together We're Safer', which brought together leaders from Rail, Underground and their associated supply chains to learn from each other. HSE requirements were also important in the franchise and concessionaire competitions and new consultant frameworks run during the year.

Monitoring and reporting of performance

Our businesses set HSE targets on key performance indicators (KPIs). These have been developed progressively and changed over time to ensure they reflect a continually improving understanding of risks. This enables better trend analysis and focuses management on any necessary remedial actions.

Our HSE performance data is made up of a mixture of lagging indicators (incidents and events that have happened), and leading indicators (actions and procedures undertaken to improve the control of events in the future). These indicators are collated, validated and consolidated at the business level.

As reported on page 6, we have been awarded the London Healthy Workplace Charter, achieving the highest level of excellence for the work that we do to improve the health and wellbeing of our employees.

We continued to focus on prevention of ill health by engaging with employees to improve general wellbeing and reduce work-related ill health and days lost to sickness.

A number of health promoting activities took place in 2013/14:

- A total of 45 health fairs were held for employees at different sites across the organisation, covering operations and maintenance staff, and our head offices, with the aim of encouraging self-health management. Clinicians measured basic health parameters such as height, weight and blood pressure, and provided personal advice about fitness, muscle and joint health, mental health and nutrition. Information was made available about stress and resilience, healthy eating, health and shift work and managing conditions such as diabetes and hypertension. Feedback continued to be positive. A high proportion of employees who attended made a commitment to change something about their lifestyle. Occasionally serious conditions were identified enabling treatment through employees' GPs
- Events were organised during Mental Health Awareness Week. The counselling team also held successful events at other times

during the year at head office locations to raise awareness of mental health issues

- This was the second year of our five-year strategy to address weight loss and reduce obesity, helping employees maintain a healthy weight. Food labelling for cold food in head office canteens was introduced. An online 12-week weight loss programme to support employees was run twice during the year. Eighty per cent of participants reported they lost weight as a result, and more than 30 per cent did not put any back on
- The Occupational Health team continued to work with London Underground managers in local areas where stress was identified as a concern from the staff Viewpoint survey results. Actions tailored to meet individual needs were developed. Stress awareness training was given, and further training for managers was carried out
- Step It Up, a strategy within London Underground and London Rail for raising employees' physical activity levels, was launched in the year. The programme included an initial assessment of fitness for employees, promoting stair climbing, organising local walks and signposting to other walking and cycling events. Local health champions were trained to set up activity groups such as walking, cycling and running. This programme will continue through 2014/15
- 'Health tips of the month' were shown on the intranet as part of the toolkit to promote health campaigns

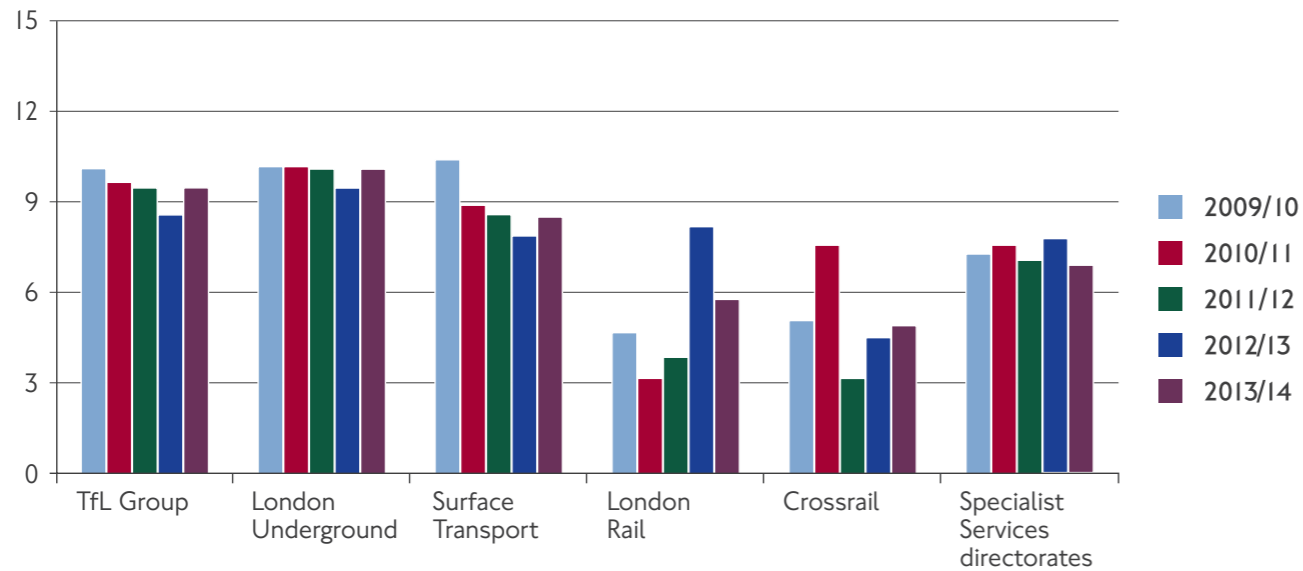


Figure 1: Average sickness absence per FTE by TfL business (2008/09 – 2013/14)

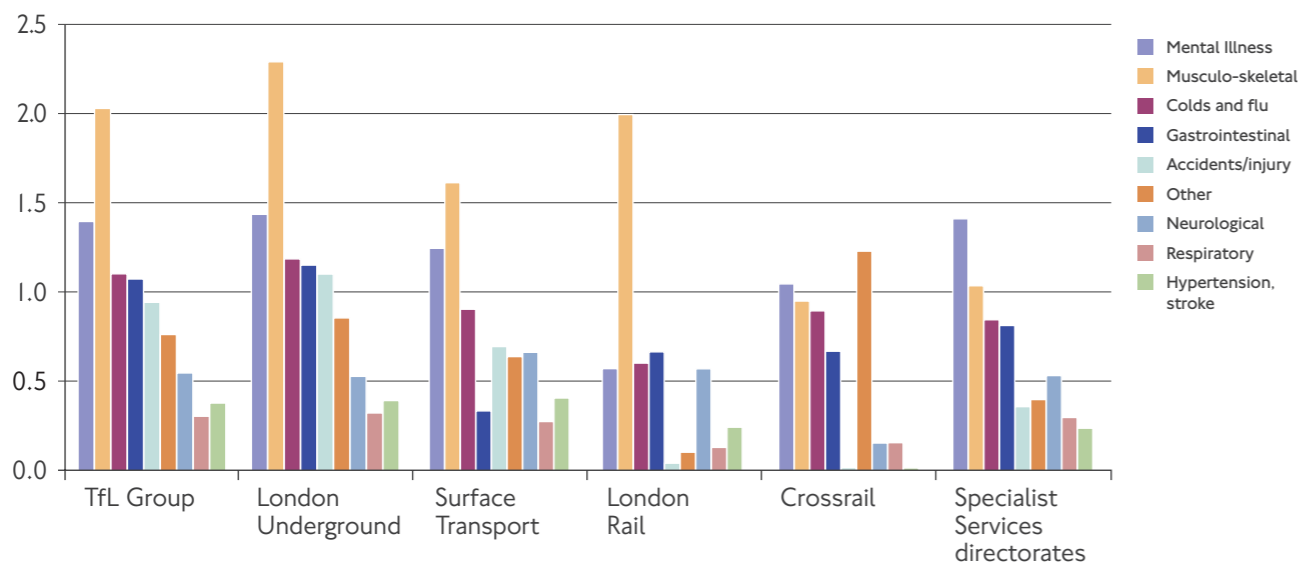


Figure 2: Average days lost to sickness absence per employee, by category and business area (2013/14)

- A flu jab campaign ran during the autumn and early winter, providing flu jabs on site at many operational and head office locations. Take-up was good

We use sickness absence data to identify health risks and introduce further health actions. Annual sickness absence across TfL increased from 8.6 days per full time equivalent (FTE) in 2012/13 to 9.5 days per FTE in 2013/14.

The three most frequently reported categories of sickness absence across TfL in 2013/14 were musculo-skeletal disorders, mental illness and colds and influenza.

This analysis is used to develop assistance programmes across the business, such as support with workplace stress, and reasonable adjustments for physical impairments.

Safety

We do not include public road traffic accidents (RTAs) as a major incident or in the data set out in this section. However, we remain responsible for collating information and reporting on RTAs and, where appropriate, instigating action to improve road safety. Data on killed or seriously injured casualties for RTAs is posted on the TfL website four times a year. Performance on the TLRN in Greater London is reported in the road safety section of this report. Suicide or suspected suicide, trespass, crime-related fatalities or non work-related medical fatalities are excluded from this report.

Customer safety

We consider customer safety to be of paramount importance and continually seek to improve our operations to reduce accidents and injuries. The definition of customers also covers members of the public using our

business premises, including people using rights of way, tenants and off-duty employees.

Accidental fatalities are those arising from incidents while using our services, or where they occur on our premises.

There were three customer accidental fatalities across the organisation in 2013/14. One occurred on London Underground infrastructure, when an intoxicated male fell under a train at Hounslow East as it left the platform. A cycle hire scheme member was fatally injured in a collision with a lorry in July 2013 on Whitechapel High Street. In December 2013, a bus passenger suffered a fatal head injury following a fall on board a bus on Kingsbury Road, in northwest London.

	2009/10	2010/11	2011/12	2012/13	2013/14
London Underground	1	0	3	1	1
Surface Transport	4	0	5	0	2
London Rail	0	0	0	0	0
TfL Group	5	0	8	1	3

Table 1: Five-year trend for customer accidental fatalities across the TfL Group (customer-facing businesses)

Customer major injuries

A customer injury is defined as 'major' against a defined list, including most fractures, amputations or injuries which lead to admittance to hospital for more than 24 hours. During the year, customer journey numbers continued to rise compared with previous years, so both total numbers and figures normalised by customer journeys are provided.

In Surface Transport, major injuries to customers reduced slightly from 862 in 2012/13 to 855 in 2013/14, equivalent to 0.36 major injuries per million passenger journeys.

London Underground's customer major injuries reduced from 157 in 2012/3 to 127, the lowest figure since 2002/03. London Rail's customer major injuries reduced slightly from 10 in 2012/13 to nine in 2013/14. Overall this meant London Rail and London Underground had a rate of 0.97. The reduction in major injuries to customers is in part due to the difference in classification of major injuries after the changes in RIDDOR explained at the start of the report, but also appears to be a result of the improved campaigns and controls introduced during the year.

In Figure 3, the major injuries have been normalised per million customer journeys.

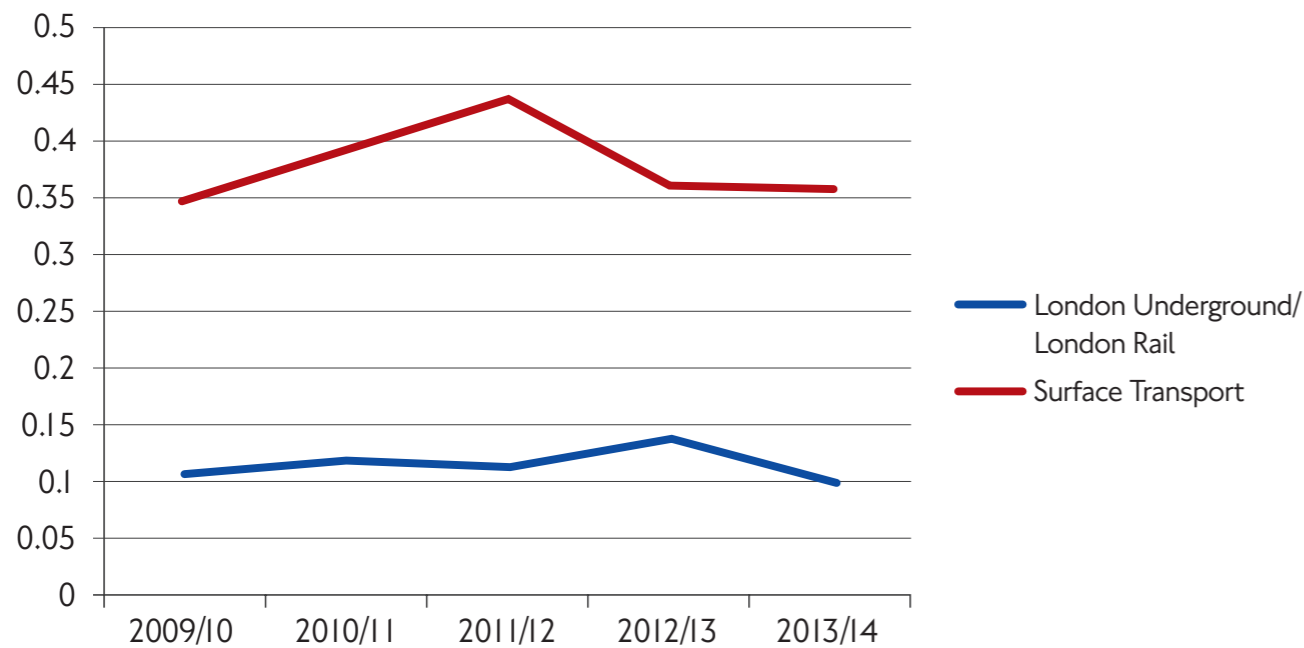


Figure 3: Customer major injury rate (per million customer journeys)

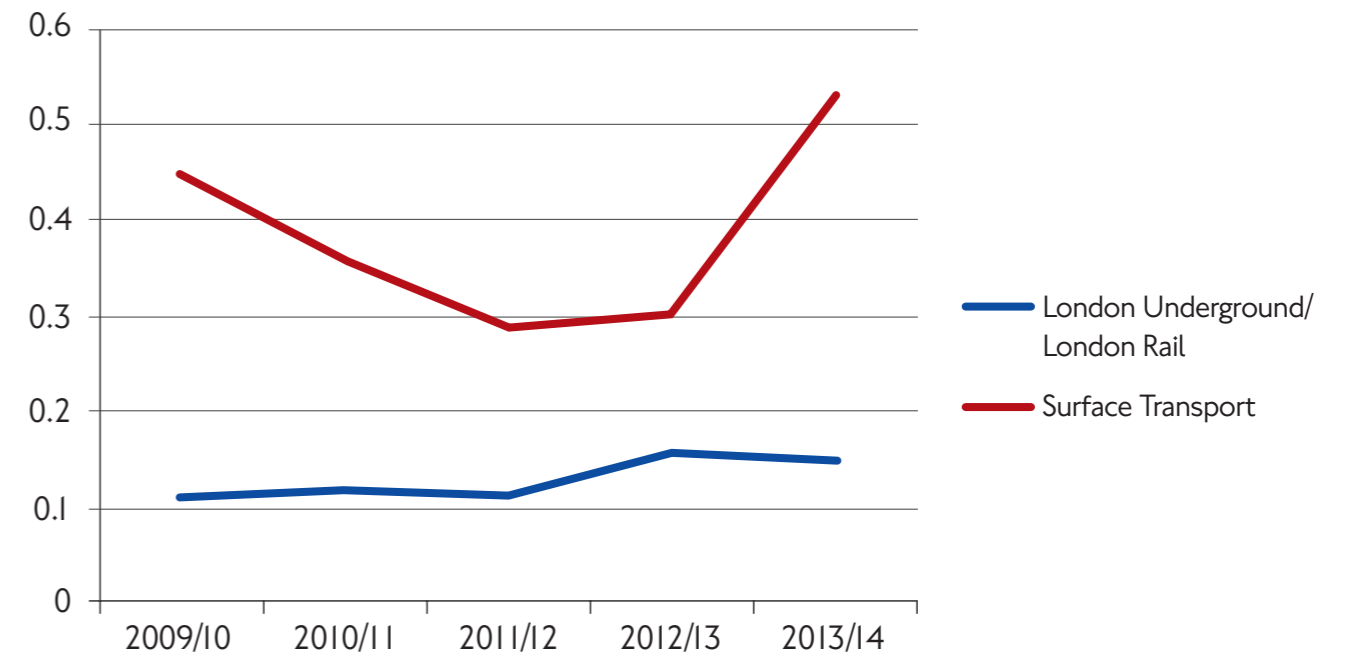


Figure 4: Employee major injury rate (per 1,000 employees)

The number of PTI incidents continued to increase across London Underground. As previously reported, most incidents were the result of passengers being caught in train doors as they boarded or alighted trains, or falling between platform and train. The changing profile of the PTI following the introduction of new level-access rolling stock on the sub-surface lines has contributed to this. A programme of additional mitigation measures continued to be developed and implemented, and a customer awareness campaign was also launched, aimed at preventing passengers rushing and getting caught in closing doors.

Employee safety

As an employer, we take the safety of our employees very seriously. Safety risks are kept under continual review and control measures are put in place to ensure employees work in a safe environment. We set out the ways people should work, ensure there are competence frameworks in place and maintain compliance checks of the key risk controls. In London Underground there is a weekly safety hour for

communicating key safety messages. Rail and Underground also ran a series of sessions with a prominent safety campaigner.

Employee fatalities

There were no employee fatalities during 2012/13. This is the eighth consecutive year that no work-related employee fatalities have occurred.

Employee major injuries

In 2013/14, there were 24 employee major injuries: 16 in London Underground, a rise from 10 the previous year; seven in Surface Transport, which is up from four in 2012/13, and one in London Rail, down from two the previous year. Slips, trips and falls, manual handling and assaults were the major elements in these numbers. Improvements are being addressed through targeted training and supervision. There were no employee major injuries in Crossrail or the Specialist Services directorates during the year. The details are set out in Figure 4 for the five-year rolling trend.

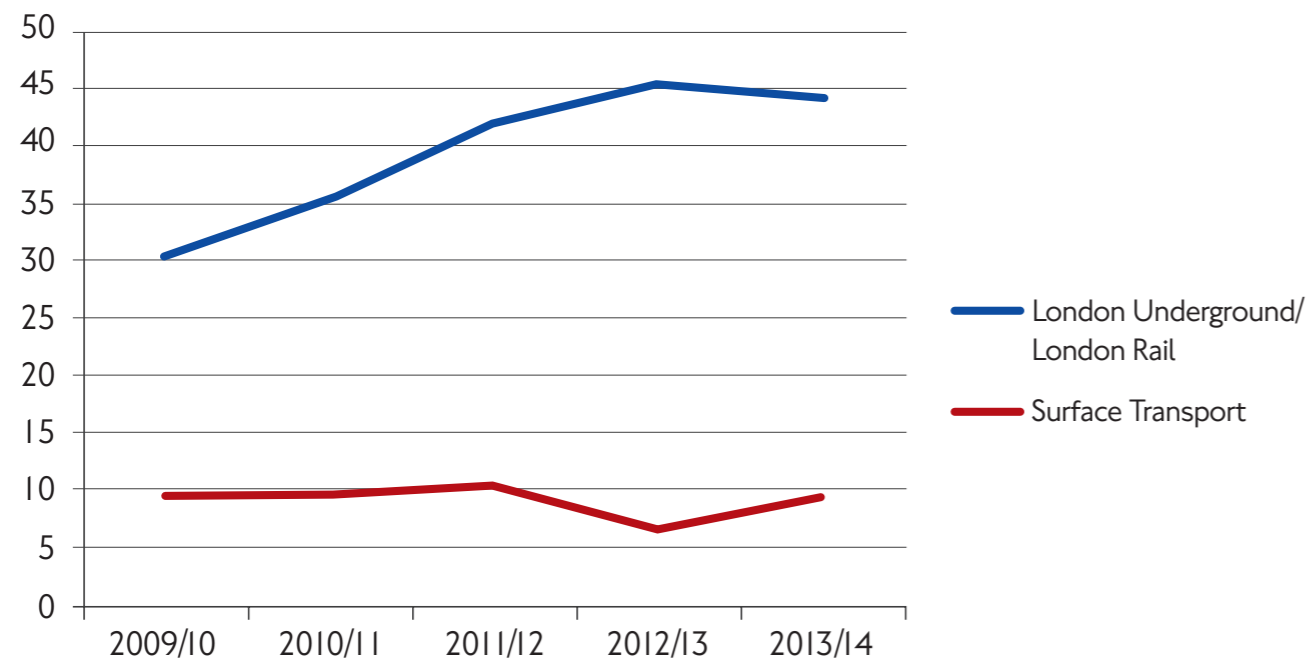


Figure 5: Employee assault rate (per 1,000 employees)

Employee assaults

We take threats of, and actual, workplace violence to employees and suppliers very seriously. We believe tackling the issue is crucial to maintaining good morale, which in turn helps maintain reliable, consistent, high-quality services.

The TfL definition of employee assaults includes ‘any incident where, in circumstances related to their work, a member of staff is physically assaulted, threatened or abused, thereby affecting their health, safety or welfare’. This is further broken down between physical and non-physical assault.

Trends and multiple employee assaults are analysed and appropriate controls are put in place. Necessary measures are included in safety improvement programmes across the organisation.

In Surface Transport, the number of assaults on employees rose by 27 per cent from 96 in 2012/13 to 117 in 2013/14. The increase

should be viewed in the context of a low level of incidents in 2012/13 compared with previous years, and this year’s figure is similar to the three years prior to 2012/13. There was much better intervention and reporting as a result of the positive work of the Surface Transport Workplace Violence Unit.

In London Underground and London Rail the combined rate fell slightly, but remains well above levels seen in 2009/10. In fact, London Rail had no employee assaults in the year. The main reason why employee assaults are so much higher in London Underground than Surface Transport is that London Underground employs many more frontline staff, whereas Surface Transport tends to employ suppliers in frontline roles.

Targeted conflict avoidance and incident training for customer-facing employees continued to be provided. Wherever there is sufficient evidence, legal proceedings are pursued against those who assault our staff, with a high level of success.

Supplier safety

In London Rail and Surface Transport, the main customer-facing service is provided by private sector suppliers, and assaults that do occur tend to be against the supplier workforce. On the capital programme and heavy maintenance side of the business there are few assaults. We expect our suppliers to take such events seriously and support this.

The suppliers’ incident data in this section has not been normalised. The number of staff, especially working for suppliers on the modernisation of the Tube and heavy maintenance side of the business, tends to fluctuate on large projects, making data comparisons difficult.

Supplier fatalities

There were three supplier fatalities in TfL in 2013/14. A construction worker was killed at Pudding Mill Lane on the DLR. This is still under investigation by the Health and Safety Executive.

A bus driver, employed by a TfL supplier, was killed in August 2013 when hit by his unattended bus. The inquest is yet to be heard.

A construction worker on the Crossrail project, sustained fatal injuries while carrying out tunnelling work in the Holborn area. The accident remains under investigation by the Health and Safety Executive.

Supplier major injuries

The total number of major injuries across our suppliers as a whole has increased against last year but remains lower than the previous two.

The number of suppliers’ RIDDOR major injuries on London Underground work increased to 12 in 2013/14 compared with 11 in 2012/13, and continues to be related to higher numbers of projects in their construction phase. There was increased engagement with suppliers throughout the year on safety management through the Capital Programmes Directorate.

	2009/10	2010/11	2011/12	2012/13	2013/14
London Underground	14	5	8	11	12
London Rail	0	4	5	2	4
Surface Transport	87	116	107	75	79
Crossrail	2	0	3	17	23
Specialist Services directorates	1	0	0	0	0
TfL Group	102	125	123	105	118

Table 2: Supplier major injuries over the past five years

At London Rail, four supplier major injuries were reported in 2013/14 compared with two in 2012/13. There were no supplier major injuries for work carried out for the Specialist Services directorates. Crossrail major injuries rose slightly.

Surface Transport's supplier major injuries increased slightly from 75 in 2012/13 to 79 in 2013/14. Most of these were connected with injuries sustained by bus drivers in road traffic collisions.

Supplier assaults

The majority of supplier assaults continue to be connected with revenue protection, in particular while Revenue Protection Inspectors are checking fares. The vast majority of supplier assaults were non-physical, usually verbal. Visible policing continued across the network and officers are active in engaging with frontline employees and suppliers.

There was a slight fall in supplier assaults in the year. Assaults on London Underground's suppliers decreased from 24 in 2012/13 to 20 in 2013/14. At London Rail, supplier assaults reduced from 347 in 2012/13 to 330 in 2013/14. Most were non-physical assaults. Crossrail and Specialist Services directorates had no supplier assaults in 2013/14. In Surface Transport, there was a slight reduction in the level of reported bus driver assaults (physical and non-physical assaults) from 1,598 in 2012/13 to 1,588 in 2013/14.

Dedicated Workplace Violence Units operate in London Underground and Surface Transport to assist in training and analysis of the best ways to manage assaults on staff. The working partnership between us, our suppliers, the British Transport Police and Metropolitan Police Service continued to focus on targeting known hotspots and supporting investigations and court proceedings where possible. Conflict avoidance forms an important aspect of training for all frontline staff.

	2009/10	2010/11	2011/12	2012/13	2013/14
London Underground	29	23	27	24	20
London Rail	188	339	411	347	330
Surface Transport	618	1,288	1,702	1,598	1,588
Crossrail	0	0	0	0	0
Specialist Services directorates	0	0	0	0	0
TfL Group	835	1,650	2,140	1,969	1,938

Table 3: Supplier assaults over the past five years

Process and precursors

Effective safety management does not just look at negative outcomes. It tracks other factors which contribute to events. In this way, incidents can be anticipated and prevented. In the London Underground/London Rail businesses, mathematical risk models are used which are based on past experience. Potential outcomes, such as derailment, collision or station fires, are identified and the potential risks of fatality are quantified. The impact of these risks, known as Top Events, is shown in the organisation's safety risk profile, usually expressed in predicted fatalities per year.

Surface Transport has not previously used detailed risk models in its services, but the first is now being developed for the Woolwich Ferry as part of the new franchise and will highlight the Top Events in this operation.

We understand the factors and activities that can contribute to Top Events. Safety controls are focused on managing these factors – known as precursors. As a result, we are in a better position to control the risks. The precursors are made up of processes such as: design assurance reviews; track inspections; road traffic signal inspections; covert bus driver quality monitoring; bus engineering monitoring or rail station reviews. Also included are events such as: lift defects; broken rails; or bus engine failures. These precursors are tracked through regular performance review processes.

London Underground and the three business units in London Rail (DLR, Tramlink and London Overground) all have safety risk models (major accident risk models). While these models quantify similar risks, the models for different parts of the business are structured differently from each other in order to represent their operations.

The models are reviewed regularly to ensure risks are understood. This continuing structured review and information from existing models ensures we can prioritise implementation of appropriate risk controls and identification of safety improvement opportunities.

The updates also allow London Underground, DLR, Tramlink and London Overground to quantify improvements in safety which have been delivered as part of our investment programmes. The risk profile also identifies opportunities for improving resilience.

Crossrail does not yet have detailed risk models, but these will be developed for the railway operations phase.

We continue to improve these models to ensure they accurately reflect the safety risk profile on the railway and so we can address the most significant risks. Our long-term plan is to continue improving the safety risk models for London Underground, London Rail and Surface Transport.

Road safety

This section provides a summary of personal injury road traffic collisions and casualties in Greater London in 2013 compared with 2012 and the average for 2005-2009. This is the baseline against which we measure progress towards the target of a 40 per cent reduction in the number of people killed or seriously injured (KSI) by 2020, set out in the Safe Streets for London, London's Road Safety Action Plan to 2020. This document can be found at tfl.gov.uk.

Safe Streets for London 2020 was published in June 2013. Central to the plan is the longer-term ambition to work together to free the Capital's roads from death and serious injury. The plan has a particular focus on reducing the number of vulnerable road user casualties, which accounted for 79 per cent of KSIs in 2013, and identifies 56 actions within four

themes: safe roads; safe vehicles; safe people and delivering in partnership.

Data presented are for personal injury road traffic collisions occurring on the public highway and reported to the police, in accordance with the STATS 19 national reporting system. It should be noted that large percentage changes in small numbers may not necessarily be statistically significant.

A total of 23,066 road traffic collisions involving personal injury were reported to the Metropolitan and City Police during 2013 within Greater London. This is a four per cent reduction in collisions compared with 2012. These collisions resulted in 27,199 casualties. Of these casualties, 132 were fatally injured, 2,192 were seriously injured and 24,875 were slightly injured.

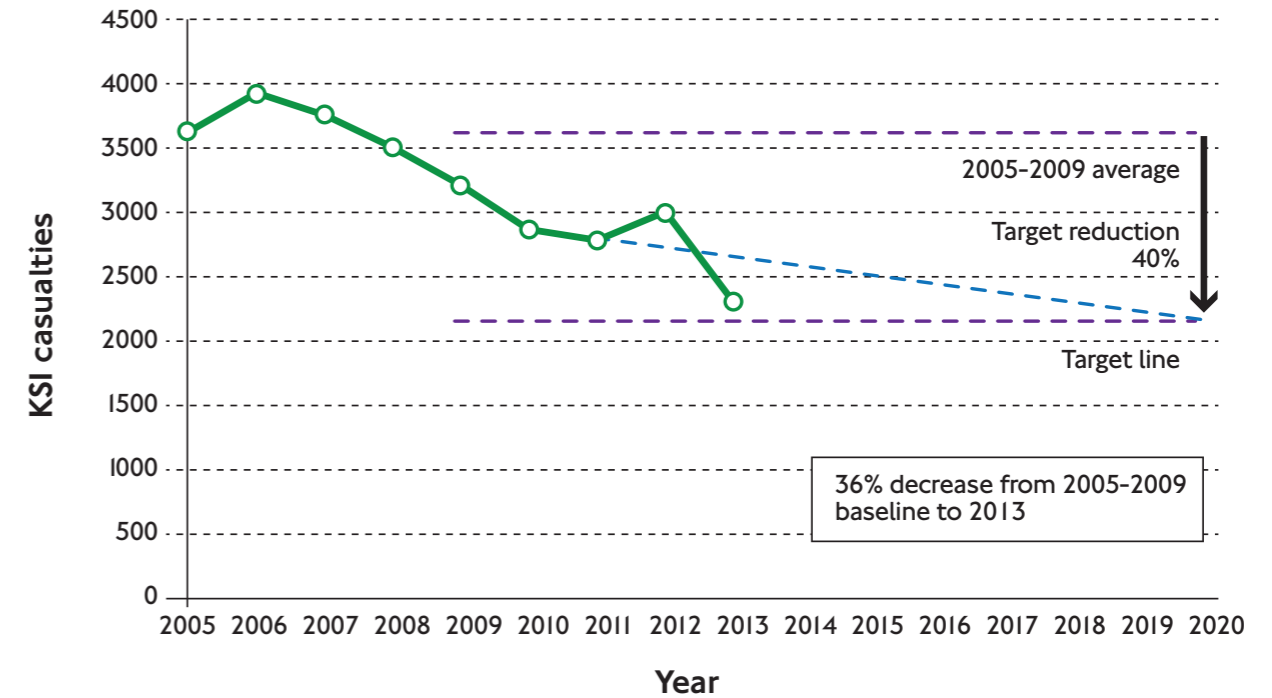


Figure 6: Trend in KSI casualties between 2005 and 2013 to target

Casualty trends in Greater London

In 2013, fatalities fell by one per cent (134 to 132), to the second lowest level since recent records began. KSI casualties decreased by 23 per cent in 2013 (3,018 to 2,324) compared with 2012. Slight injuries fell by three per cent (25,762 to 24,875) and overall casualties in 2013 fell by five per cent from 2012 levels.

Comparing the number of KSI casualties in 2013 against the 2005-09 baseline, all KSI casualties were down by 36 per cent in Greater London and by 31 per cent on the TLRN. Figure 6 shows KSI casualty reduction in London between 2005 and 2013 and progress towards London's road safety target.

In 2013, pedestrians accounted for 49 per cent of all fatalities, 35 per cent of all serious injuries and 17 per cent of slight injuries in London. Overall, pedestrian casualties decreased by two per cent in 2013 compared with 2012. This decrease was not statistically significant. Pedestrian fatalities also fell from 69 in 2012 to 65 in 2013, a reduction of six per cent and the second lowest number on record. KSI pedestrian casualties decreased by 25 per cent, while slight injuries rose by five per cent.

Cyclists accounted for 11 per cent of all fatalities, 21 per cent of all serious injuries and 17 per cent of slight injuries in London during 2013. Although the total number of cyclist casualties increased by less than half a per cent in 2013 compared with 2012, the number of fatalities was unchanged, with 14 in 2012 and 2013. More notably, pedal cycle KSI casualties decreased by 27 per cent in 2013 compared with 2012, while slight injuries increased by five per cent.

In 2013, riders and passengers of powered two-wheelers (P2W) accounted for 17 per cent of all fatalities, 22 per cent of all serious injuries and 16 per cent of slight injuries in London. P2W casualties decreased by three per cent in 2013 compared with 2012. This decrease was not statistically significant. Fatalities decreased from 27 in 2012 to 22 in 2013, a decrease of 19 per cent and the lowest number on record. P2W KSI casualties decreased by 19 per cent in 2013 compared with 2012, while slight injuries fell by one per cent.

Safer cycling: Cycle improvements to the Cycle Superhighway



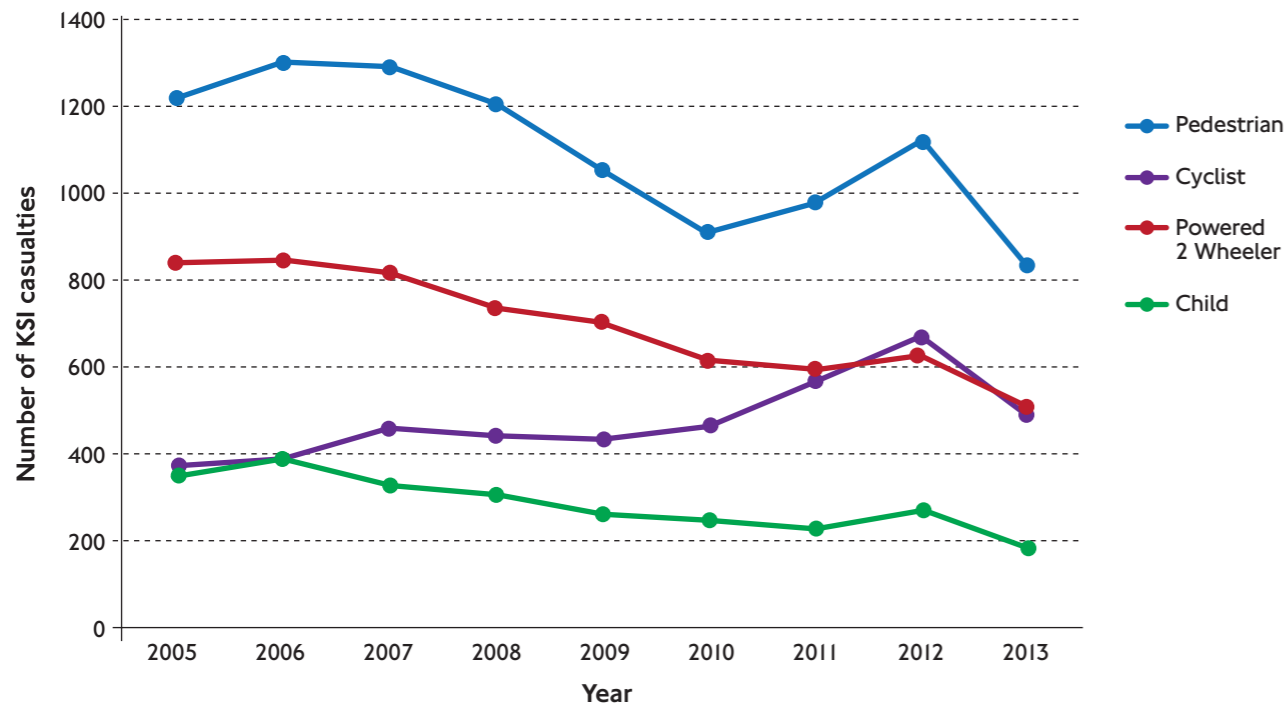


Figure 7: Vulnerable road users and child KSI casualties in London (2005 to 2013)

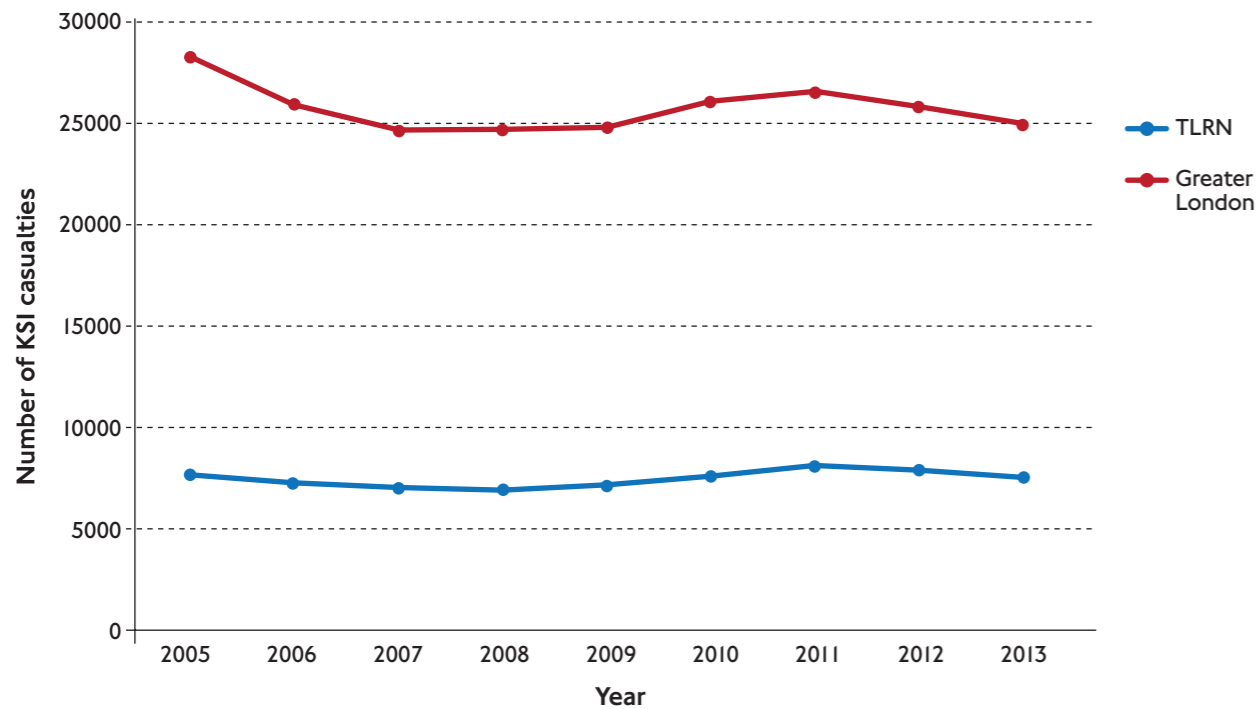


Figure 8: Slight casualties in Greater London and on the TLRN (2005 to 2013)

Figure 7 shows the trend in KSI casualties by vulnerable road user (pedestrian, cyclists, P2W user) and child KSI casualties in London between 2005 and 2013. Child KSI casualties form part of the total number of KSI casualties in London.

Figure 8 shows the trend in slight casualties in Greater London and on the TLRN between 2005 and 2013. In 2013, slight casualties fell by three per cent in Greater London and by four per cent on the TLRN compared with 2012.

Further analysis of London's collision and casualty data, including data extract files, can be found at www.tfl.gov.uk/roadsafety

Safe Streets for London

It was in June 2013, together with the Mayor, we published Safe Streets for London, an ambitious plan to make London's roads and streets safer for all who use them. It contained 56 actions to transform road safety in the Capital, and reduce KSI casualties by 40 per cent by the end of the decade.

Over the past year, against a backdrop of a significant reduction in the number of KSI casualties in the Capital, we have successfully raised awareness of this road safety ambition through stronger partnerships with stakeholders and better sharing of data and knowledge.

In March 2014, Safe London Streets - Our Six Road Safety Commitments was published. These commitments make clear how, together with London boroughs and other partners, we are working to meet London's road safety targets to:

1. Lead the way in achieving a 40 per cent reduction in the number of KSIs on the Capital's roads by 2020 — with a longer term ambition of freeing London's roads from death and serious injury
2. Prioritise safety of the most vulnerable groups — pedestrians, cyclists and motorcyclists — which make up around 80 per cent of serious and fatal collisions
3. Provide substantial funding for road safety,

invested in the most effective and innovative schemes

4. Increase efforts with the police, boroughs and enforcement agencies in tackling illegal, dangerous and careless road user behaviour that puts people at risk
5. Campaign for changes in national and EU law to make roads, vehicles and drivers safer
6. Work in partnership with boroughs and London's road safety stakeholders to encourage best practice and share data and information

As previously stated, much of our recent work has focused on placing vulnerable road user safety at the core of the road safety agenda through the development of individual safety action plans. These have included:

- The Motorcycle Safety Action Plan, published in March 2014
- The Pedestrian Safety Action Plan, released for public comment at the end of March 2014 and published in summer 2014
- The development of London's second Cycle Safety Action Plan, released in draft for wider public comment in summer 2014 before being published later in the year

We have also brought together a Road Safety Steering Group, involving a wide range of road safety partners to scrutinise, support and campaign in partnership to ensure the road safety portfolio is targeted at the right activities, places and people.

Low-Level Cycle Signals are being installed at 33 junctions to improve cycle safety

Major safety initiatives in 2013/14

Reducing injuries from slips/trips/falls on buses

In June 2013, Surface Transport launched a safety campaign aimed at reducing falls on buses. The campaign messages addressed the issue of passengers not using the handholds provided, or not taking care on the stairs and not leaving buggies unattended. It was used at roadside locations and was subsequently strengthened by messaging on bus interior panels.

Pedestrian Countdown Signals

The installation of Pedestrian Countdown signals has continued apace. More than 200 locations are now equipped with this user-friendly technology. Signals innovation has continued with trials of pedestrian Split Cycle Offset Optimisation Technique (SCOOT), which uses sensors to detect larger groups of pedestrians and extends the green man phase when needed.

Traffic signal innovations

To reduce cycle-related accidents, Surface Transport is developing and evaluating new, innovative signals for cyclists. These will enable cyclist movements at signalised traffic intersections to be separately controlled from other general traffic movements. This will remove potential conflicts, for instance from left-turning vehicles. Initial TfL-funded trials during 2013/14 produced positive results and, as a result, 13 locations across the Capital have been approved for on-street trials.

Low-Level Cycle Signals

The UK's first Low-Level Cycle Signals were installed at Bow Roundabout as part of the Cycle Superhighway Route 2 extension programme. This follows successful off-street trials at a test track in 2013. These trials support the Better Junctions programme, which will radically overhaul 33 junctions to improve safety for cyclists. This innovation is complemented by other cycle safety-related measures through the Cycle Superhighway expansion programme, such as installing bus stop by-passes at suitable locations.

Safety camera programme

Progress was made on the safety camera replacement programme, which will see more than £30m invested to replace outdated 'wet film' safety cameras across London's road network. This programme also includes innovative trials of average-speed cameras to reduce speed related KSIs and reduce congestion on four key corridors.

In January 2014, it was announced that 20mph speed limits would be introduced on two corridors on our road network in the City of London.

Operation Safeway

The Metropolitan Police's Operation Safeway ran from November 2013 to January 2014 in response to the tragic cluster of cyclist fatalities in late 2013. The operation saw more than 2,500 Met officers carry out high-visibility enforcement and education activity to increase awareness of road safety issues. This is now a regular initiative with two events a month.



Safety of heavy goods vehicles

The Industrial HGV Task Force, as previously reported, is a joint initiative funded by TfL and the DfT and combines resources from the DfT, TfL, the Metropolitan Police Service and City of London Police and the Driver and Vehicle Standards Agency. Its aim is to crack down on compliance with HGV vehicle standards, particularly construction industry-related vehicles, in the Capital. Additionally, the Safer Lorry Scheme, proposed by the Mayor and London's local authorities, will improve the safety of HGVs operating in London and ban the most dangerous lorries from the Capital. Consultation on the details of the proposal began at the end of July 2014.

Innovating for the future

We are engaging the DfT to seek changes to the Traffic Signs Regulations and General Directions that should become approved for UK-wide use from April 2015 onwards. If approved, the proposed changes would also enable other highway authorities to benefit from the pioneering work that has been undertaken by TfL.

New bus sensor technology trial

Surface Transport will work with technology providers to test detection software to improve bus driver awareness of pedestrians and cyclists. As part of the trial, four buses, two on route 25 and two on route 73, will be fitted with new pedestrian and cyclist detection software for six weeks. The Transport Research Laboratory will undertake a study of the data from the trial and report on the performance of the software.

Environment

Reducing carbon emissions

Our continuing investment in London's public transport system will increase capacity over the next decade. One of our major challenges is to achieve this without continued growth in carbon emissions from the energy used by our trains and vehicles. Progressively improving the efficiency of our operations is an essential part of reducing carbon and other greenhouse gas emissions. Performance for normalised and total carbon emissions is set out below.

Normalised CO₂ emissions reduction

Our target is to reduce the normalised CO₂ emissions from our main public transport services, as measured in grams CO₂e per passenger km, by 20 per cent in 2017/18 as measured against a 2005/06 baseline. (Note that while we are only reporting CO₂, all emissions are reported in tonnes of CO₂ equivalents (CO₂e)). Normalised emissions are those associated with the main TfL public transport services – London Underground, London Rail and London Buses. At present, emissions from taxis and private hire vehicles cannot be normalised with enough accuracy to be included in the target.

Normalised emissions of CO₂ by mode of public transport

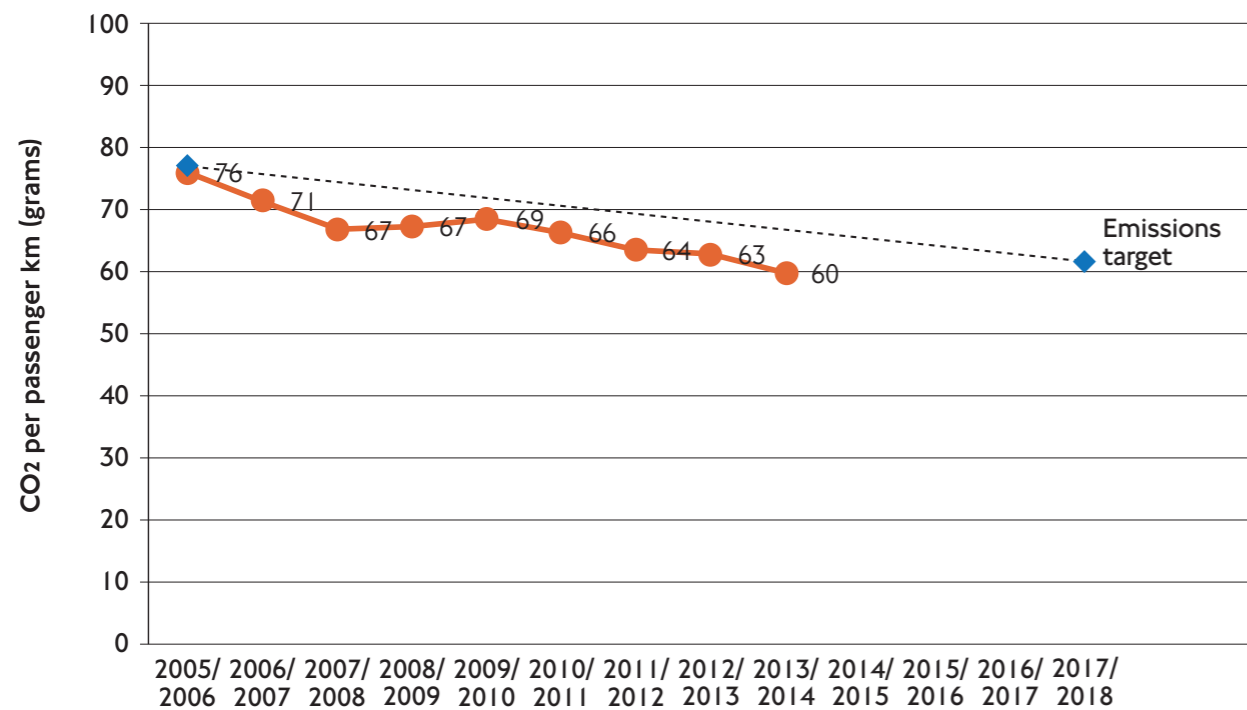


Figure 9: Normalised emissions of CO₂

In 2013/14, our public transport services reported a fall in normalised emissions to 60 grams CO₂e per passenger kilometre, just over 20 per cent below the baseline (77 grams CO₂e per passenger km) (Figure 9). This is partly influenced by the Government's published CO₂ emissions factors (see the Appendix 'Reporting Methodology affecting our carbon emissions', which explains the changes), but we are currently on track to meet our 2017/18 target.

The level of normalised CO₂ emissions per passenger kilometre for each passenger transport mode is shown in Figure 10. It should be noted, however, that these do not contribute to our CO₂ total in equal proportions. Most of our CO₂ emissions (90 per cent) originate from London Underground and London Buses.

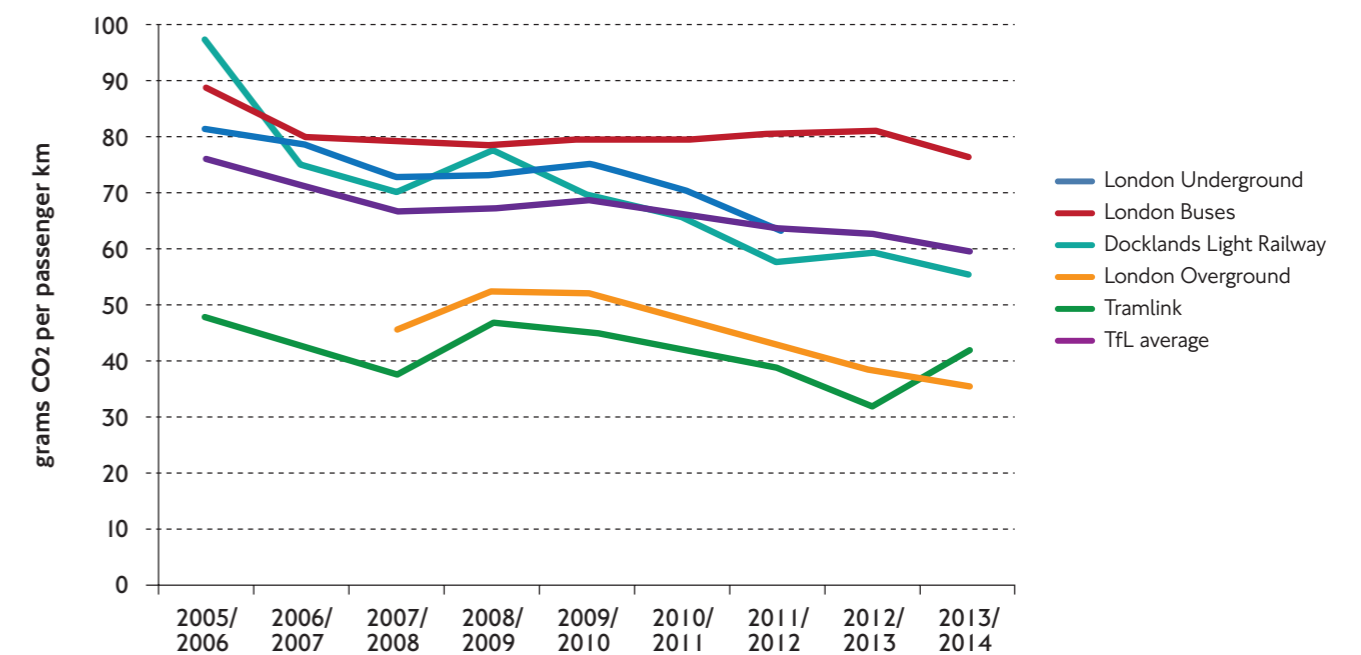


Figure 10: Normalised emissions of CO₂ by mode of public transport

London Underground

Total CO2 emissions reported by London Underground decreased by just over one per cent compared with the previous year. Electricity consumption on the network increased slightly compared with 2012/13, as operated train kilometres increased. The impact of the increase was partially reduced by the introduction of regenerative braking on the Metropolitan line in November 2013.

London Underground's demand for traction current continued to increase in 2013/14, with passenger kilometres travelled up to 10.4 billion (from 10.1 billion in 2012/13). As further regenerative braking is brought on line in London Underground, it is expected this will be reduced further.

Buses

Using an improved method which more accurately calculates emissions from our buses, 2013/14 normalised CO2 emissions associated with the London Bus network were 76.5 grams per passenger kilometre compared with 81 grams per passenger kilometre in 2012/13. This was achieved through the continued replacement of older buses with newer Euro V buses and the introduction of more hybrid buses, which now comprise nearly 10 per cent of our fleet.

Docklands Light Railway

In 2013/14, normalised CO2 emissions associated with DLR reduced to 55 grams per passenger kilometre compared with 58 grams per passenger kilometre in 2012/13. This is

primarily influenced by the Government's published CO2 emissions factors and DLR carrying a record number of passengers.

Overground

In 2013/14, normalised CO2 emissions associated with the London Overground saw a further reduction in normalised emissions to 36 grams per passenger kilometre, from 38 grams per passenger kilometre in 2012/13. This was also primarily influenced by the Government's published CO2 emissions factors and the first full year of operating the fully orbital service, which contributed to a rise in passenger kilometres operated from 780 million in 2012/13 to 840 million in 2013/14.

Tramlink

Normalised emissions from Tramlink were 42 grams CO2 per passenger kilometre compared with 31 grams per passenger kilometre in 2012/13. There was a rise in energy use as a result of an increase in services and the additional trams in service, but mainly significant improvements in the accuracy of reporting which showed a higher use than had previously been realised.

Total CO2 emissions

The total amount of CO2 emissions associated with all of our activities in 2013/14 was 2,183,740 tonnes, compared with 2,196,381 tonnes in 2012/13.

Of these absolute emissions, 62,590 tonnes were from transmission and distribution losses from electricity purchased from

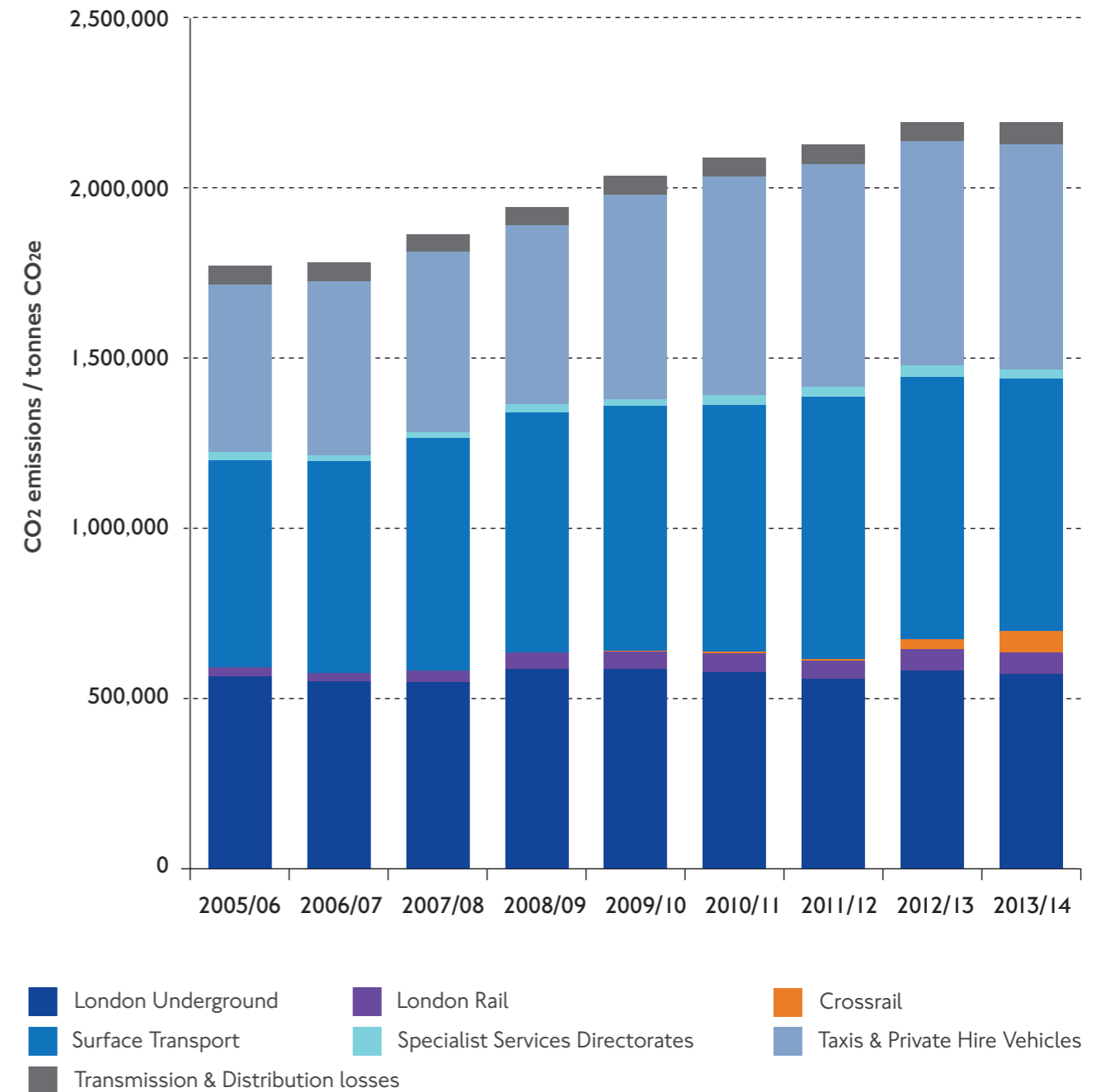


Figure 11: Total CO2 emissions for TfL and its business units

the National Grid. This is being calculated separately in 2013/14 for the second year, in line with Defra guidance for company reporting purposes. The total CO2 emissions are shown in Figure 11, with contributions from different business areas as well as transmission and distribution losses being stated separately.

Transport services

We have direct control over energy use by its main public transport services as well as the maintenance and operation of the TLRN, the energy consumption of traffic lights in the Capital, construction works and head offices.



Route 11, which runs between Liverpool Street station and Fulham Broadway, offers a great view of St Paul's Cathedral

In 2013/14, we recorded 1,226,716 tonnes of CO₂ emissions from these sources. These emissions decreased from 1,255,012 in 2012/13, primarily as a result of lower CO₂ levels from electricity consumption on rail services.

The remaining emissions associated with our activities come from taxis and private hire vehicles. In 2013/14, total CO₂ emissions from these remained at 655,967 tonnes, broadly the same as the 2012/13 figure.

Taxi and private hire vehicles emissions have been separated from those associated with our other operations in Figure 11 (page 29) as they are from vehicles owned and operated by third parties. We exercise influence over taxi and private hire vehicles emissions through licensing arrangements, which state limits on Euro standards and vehicle age.

Approximately 80 per cent of Crossrail's electricity use was from tunnelling operations, with the remaining 20 per cent from the construction of Crossrail's other new infrastructure such as stations. A number of Crossrail's tunnelling contracts include sourcing electricity from green tariffs, which account for around 50 per cent of its total electricity use.

In 2013/14, London Underground carried more passengers for the fourth consecutive year and ran more passenger train services than in previous years, using largely the same amount of energy. Reductions in the CO₂ emissions are largely due to the 2013 emissions factor.

Signalling upgrades to the Victoria and Jubilee lines provided further increases in weekly service volume to 33 trains an hour.

Although only a small proportion of our overall CO₂ emissions, electricity use associated with Crossrail works increased significantly from 29,657 tonnes in 2012/13 to 68,373 tonnes in 2013/14. This reflects the fact that Crossrail construction has reached its most active stage. The number of tunnel boring machines in full-time operation increased from five at the end of 2012/13 to the full complement of eight in 2013/14.

We continue to exert influence on the UK electricity market to increase uptake of decentralised energy by procuring 10 per cent of our non-traction electricity via good quality Combined Heat and Power contracts.

Specialist Services Directorates

Head offices

Energy efficiency in our head offices improved by eight per cent over the previous year at 308 kWh/m². This was 11 per cent better than typical practice as defined by the Real Estate Environmental Benchmark (REEB – the UK’s largest benchmark of current commercial office buildings).

Total CO₂ emissions remained broadly the same at 28,973 tonnes, despite a net eight per cent increase in floor area following property acquisitions and disposals.

Other corporate sites

We also record energy use at the London Transport Museum, currently reported under the head office figures above.

This year, for the first time, we have been able to collect data from our data centres and record stores. This new data will form a baseline for managing further energy efficiency improvements.

Improving air quality

We monitor the total amount of Nitrogen Oxides (NO_x) and particulate matter (PM10) from our operations. These air pollutants arise largely from vehicle engines. Construction site dust and the wear of brake pads on vehicles also contribute to London’s air quality, but as they are difficult to measure they are not reported in the scope of our KPIs. However, we do ensure controls are in place for construction contracts and vehicle contracts to minimise these.

We control the emissions associated with our main public transport services but have less control over the size of the taxi and PHV fleets. To reflect this, taxi and PHV NO_x and PM10 emissions have been separated from those associated with our public transport services in Figures 12 and 13.

NO_x

We have set a target to reduce NO_x emissions by 40 per cent from our operations by 2017/18 against 2005/06 levels.

In 2013/14, we recorded a generation of 7,347 tonnes of NO_x emissions from all our operations. Total NO_x emissions were lower than last year and the 2005/06 baseline total, but they are still above the required trend line to achieve the 2017/18 target (Figure 12).

Buses accounted for 70 per cent of recorded TfL NO_x emissions in 2013/14. Total emissions from the bus fleet fell by a further 12 per cent in the year, following the retrofitting of Selective Catalytic Reduction technology to 1,015 Euro III vehicles in the fleet.

The remaining NO_x emissions are principally associated with the taxi and PHV fleet, with total emissions split evenly between the two sources. Together, they emitted 1,994 tonnes of NO_x in 2013/14, which is an improvement on the figure of 2,087 tonnes of NO_x in 2012/13.

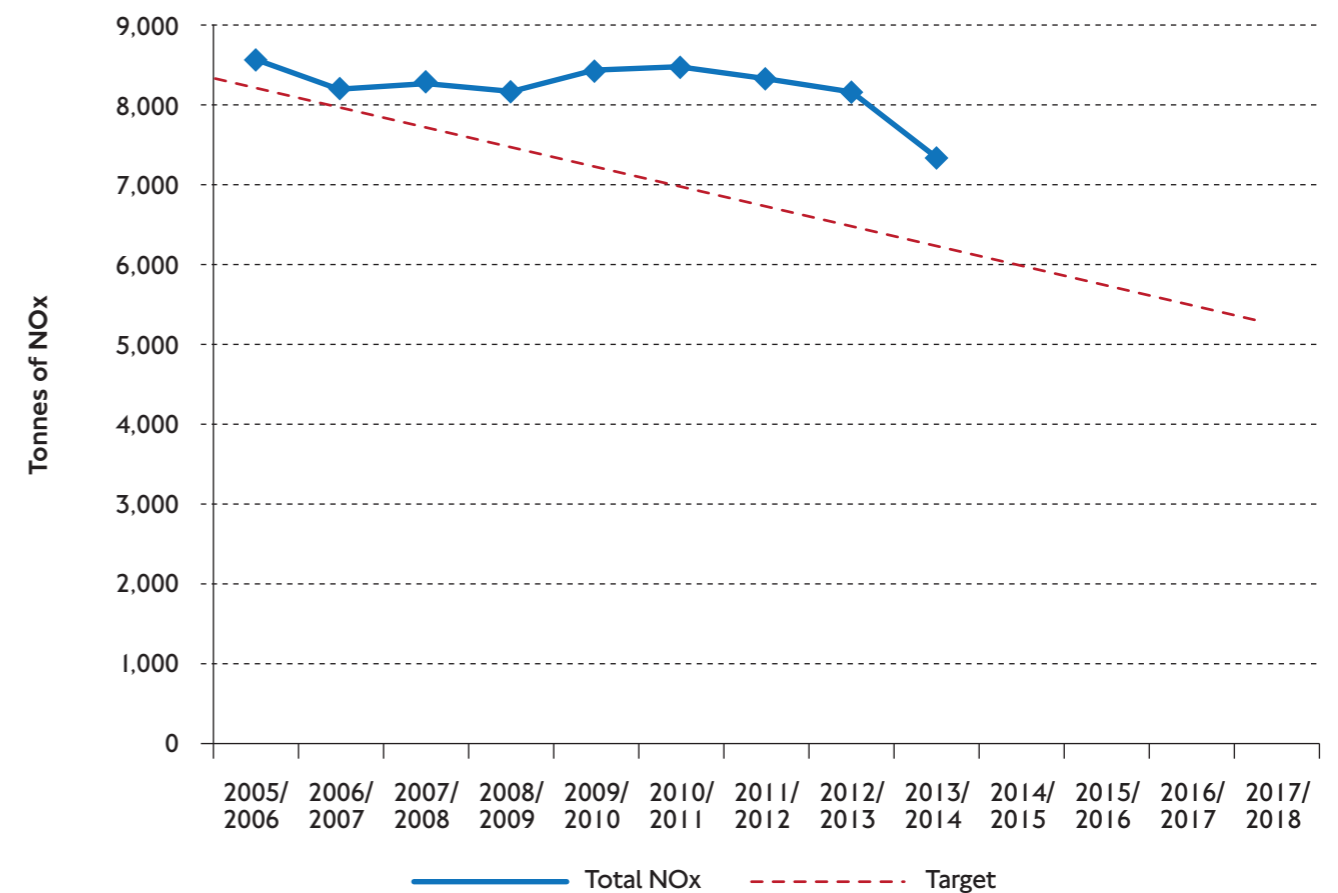


Figure 12 : NO_x target of a 40 per cent reduction in total emissions from TfL operations – emissions from public transport services, taxis and PHVs

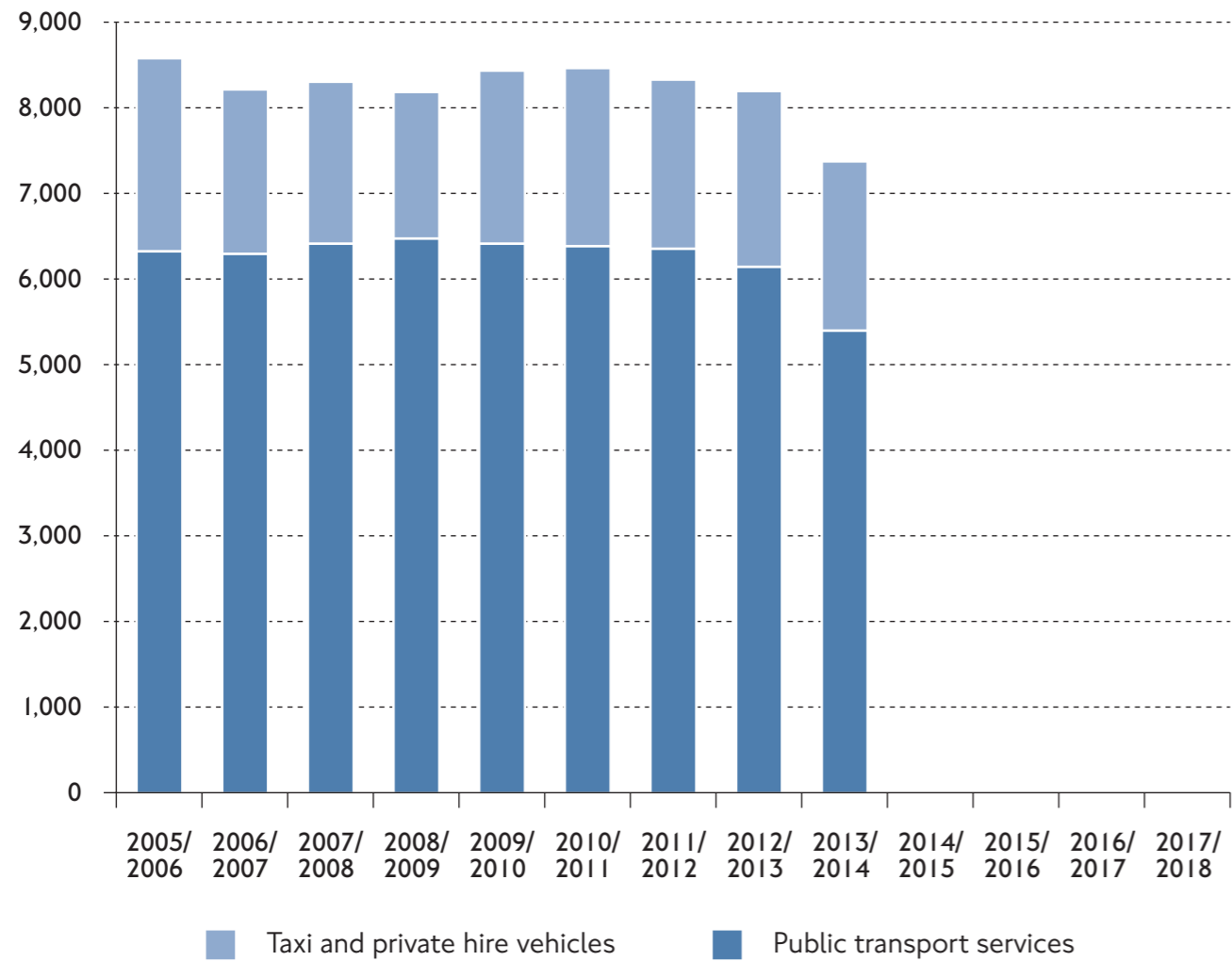


Figure 13: Total NOx emissions from TfL operations

Case study – Reducing NOx emissions on buses

The world’s largest retrofit programme has seen innovative pollution reducing equipment installed on the exhaust systems of 1,015 buses operating on more than 50 routes across London. The retrofit process involves fitting a Selective Catalytic Reduction (SCR) system to the exhaust of each bus. This removes around 90 per cent of nitrogen oxide (NOx) emissions and, together with the Mayor, we are now exploring plans to expand the programme with the DfT.

Priority was given to bus routes passing through areas with high nitrogen dioxide concentrations including those serving Elephant and Castle, Marylebone Road, Fulham Broadway, Oxford Street and Putney High Street. The £10m retrofit programme, which we fund with the DfT, has already produced air quality benefits to 102 of the 187 NO₂ focus areas, identified by the Mayor in the Capital.

Combined with the roll out of new hybrid buses (including the New Routemaster) and the early introduction of new Euro VI buses, the retrofit programme has led to significant improvements in emissions throughout London.



Nine bus routes in London are being served by more than 300 environmentally friendly New Routemasters, including the 390 to Notting Hill Gate to Archway

PM10

We have set a target to reduce total PM10 emissions from our operations by 50 per cent by 2017/18 against 2005/06 levels. The target applies to our public transport services and to the taxi and private hire vehicle fleet.

Over the reporting year, we recorded 117 tonnes of PM10 emissions from all our operations. This is a further reduction from the

130 tonnes reported last year (Figure 14) taxis and private hire vehicles accounted for 86 per cent of total TfL PM10 emissions.

Particulate emissions from buses rose from 18.39 in 2012/13 to 20 tonnes in 2013/14, owing to Euro V buses not having diesel particulate filters fitted. However, PM10 emissions will begin to reduce again with the introduction of Euro VI buses from this year

onwards, as they have diesel particulate filters as a standard fitting. These filters reduce particulate emissions by 90 per cent.

Emissions from private hire vehicles reduced from 38 tonnes in 2012/13 to 33 in 2013/14. This was due to diesel particulate filters coming as standard fittings with new Euro V vehicles in the fleet. The same introduction of Euro V vehicles saw a reduction in particulate

emissions from 64 tonnes in 2012/13 to 55 tonnes in 2013/14.

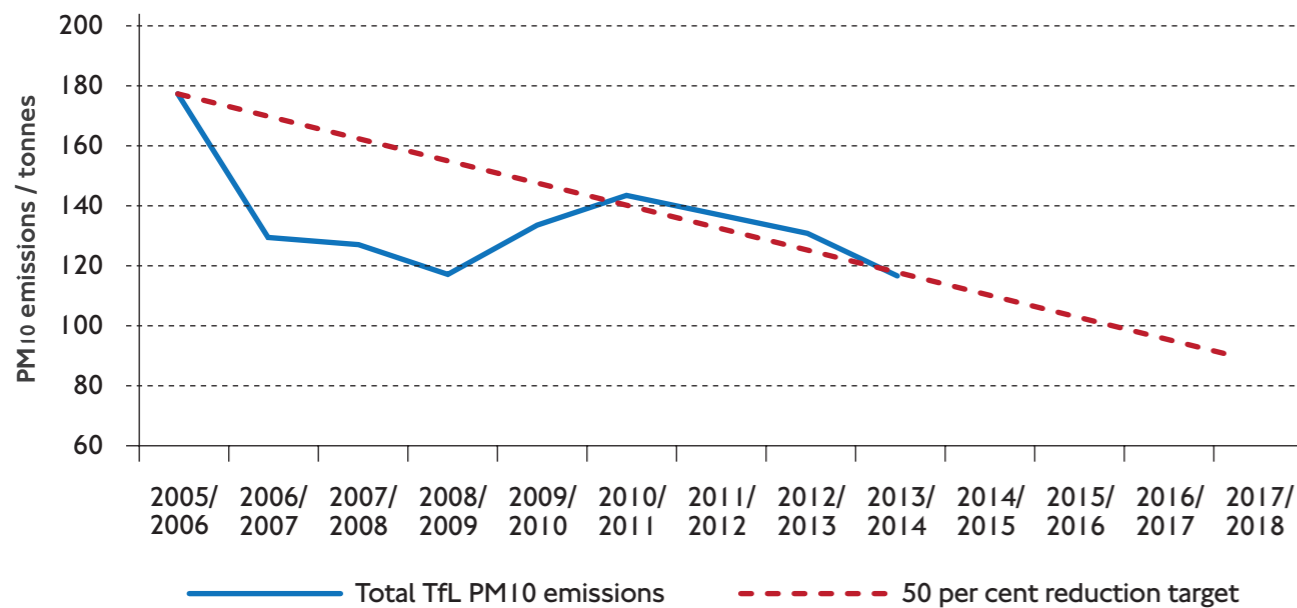


Figure 14: PM10 emissions from TfL operations, including taxis and private hire vehicles

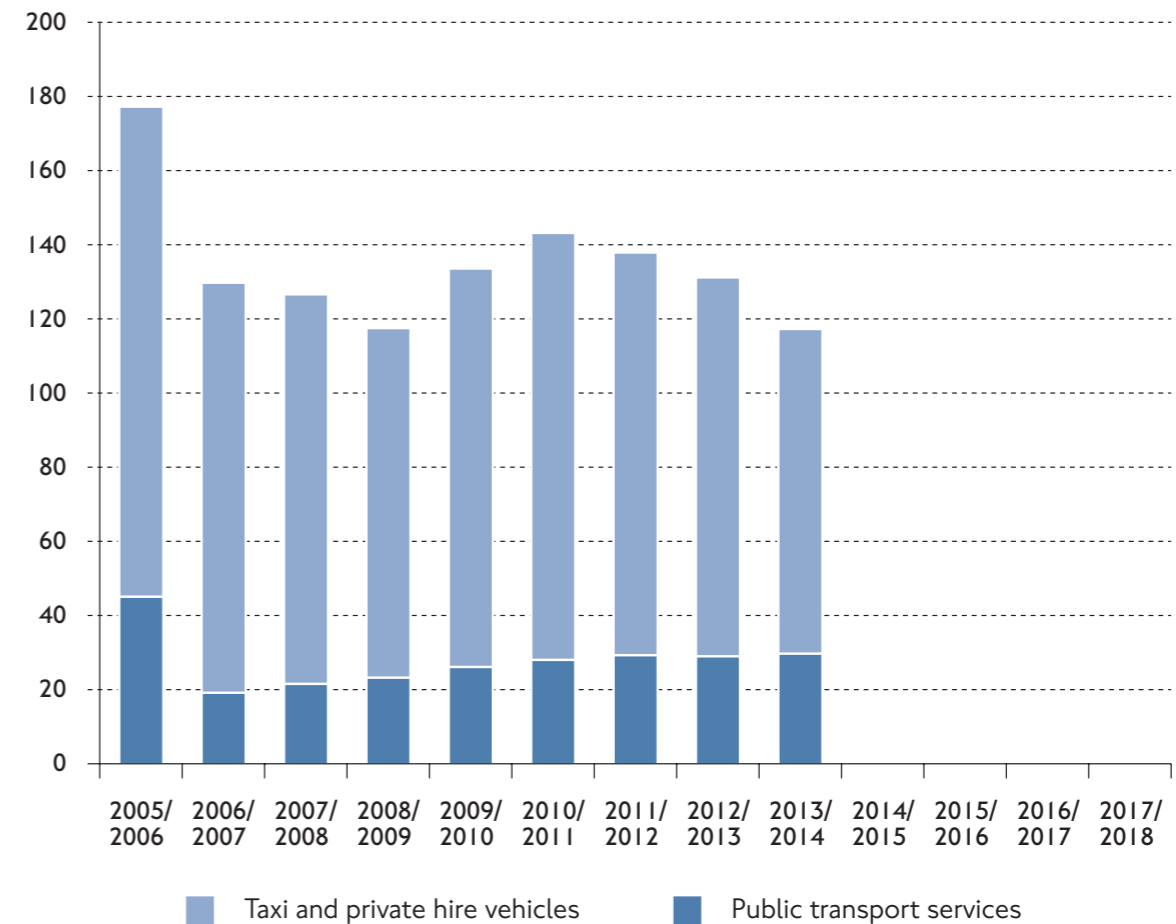


Figure 15: PM10 emissions from TfL operations

Managing noise

In addition to regular maintenance, we carried out significant construction works throughout 2013/14 as part of our investment programme. These included Crossrail, major London Underground construction works and enhancements of the rail and road networks. The number of noise complaints reported to us rose to 1,001 in 2013/14, from 845 in 2012/13.

The number of complaints received by Crossrail increased in 2013/14 to 682 from 441 in 2012/13. Most of these related to noise from the construction of Crossrail's tunnels and stations, and the increase was in line with the increase in the scale and extent of construction work during the year. Crossrail continues to work with its suppliers to ensure the best practicable means are being used to reduce the noise impacts.

The number of noise complaints associated with asset noise, construction, supplier noise and PA announcements on the London Underground network fell to 258 compared with 324 last year, as a result of better planning and communication with London boroughs and residents.

The number of noise complaints associated with London Overground reduced significantly to 35 in 2013/14 from 80 in 2012/13. This is in line with a scaling down of construction from the previous year, and improved controls will continue to be a focus for planning as the capacity improvement work takes effect. Work has also been targeted at noise reduction from 'wheel squeal' at key locations on London Overground.

Resource consumption and recycling

Our operations give rise to different types of waste, including from construction and demolition, from our offices and from litter left by passengers on public transport vehicles. We have a duty to manage these and use resources responsibly. We have taken great strides in this area in recent years, with more and more wastes being recycled and an increasing focus on reducing and reusing waste at source.

Commercial and industrial waste

We set a target to recycle 70 per cent of our commercial and industrial (C&I) waste from stations, depots and offices.

In 2013/14, we collected 46,575 tonnes of waste at stations, maintenance depots and buildings (Figure 16) and recycled 75 per cent of it. This was significantly more than last year (31,813 tonnes). One reason was that we installed more collecting bins on Tube stations and received 30 per cent more litter on the network improving reliability and customers' experience. Litter left by London Underground's passengers and waste from stations and depots accounted for most of our C&I waste. The majority of this goes to recycling centres in London, which separate materials and send them for recycling. London Underground recycled 67 per cent of this waste in 2013/14, an increase of six per cent on the previous year. In addition, approximately 24 per cent of waste was sent for energy recovery.

Nearly 70 per cent of head office waste was recycled in 2013/14, which is 32 per cent better than REEB good practice figures. Additionally, 94 per cent of all remaining waste was sent for energy recovery.

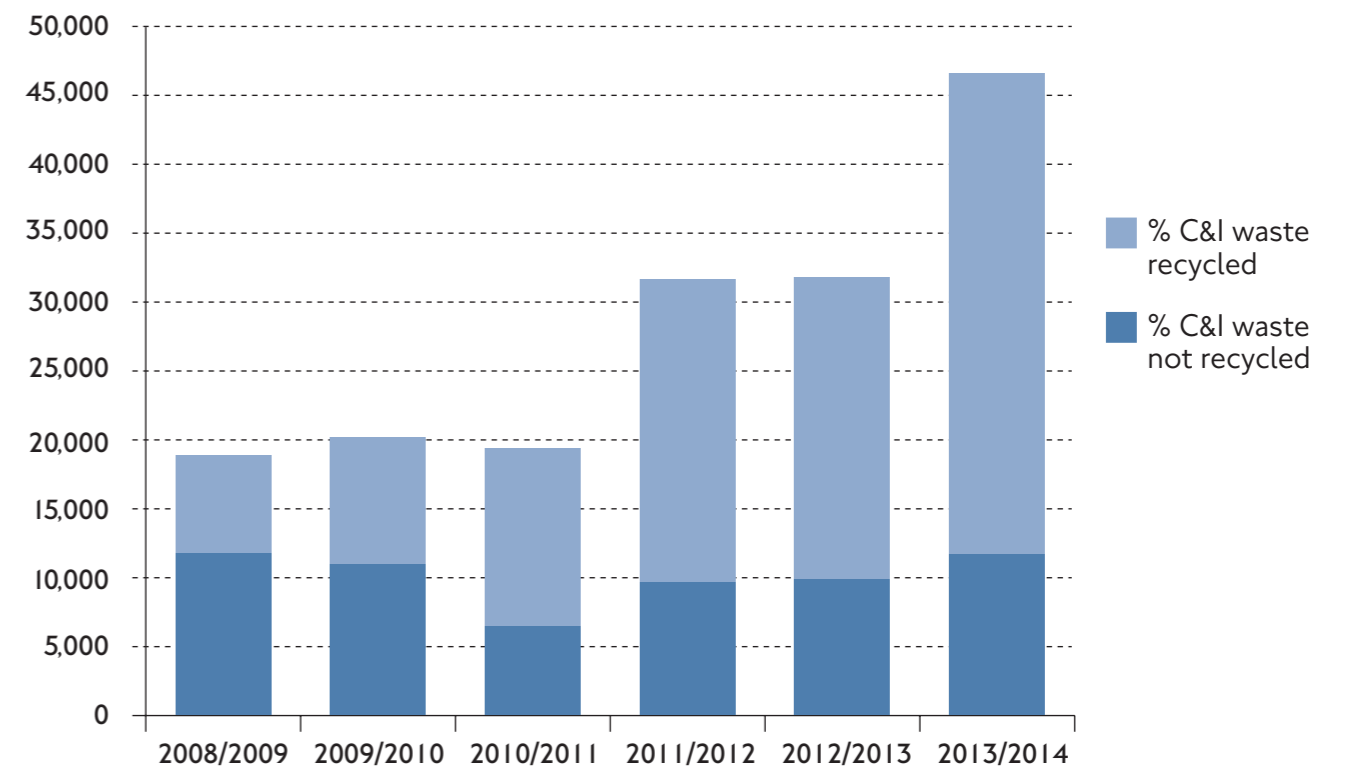


Figure 16: Commercial and industrial waste generated and recycled

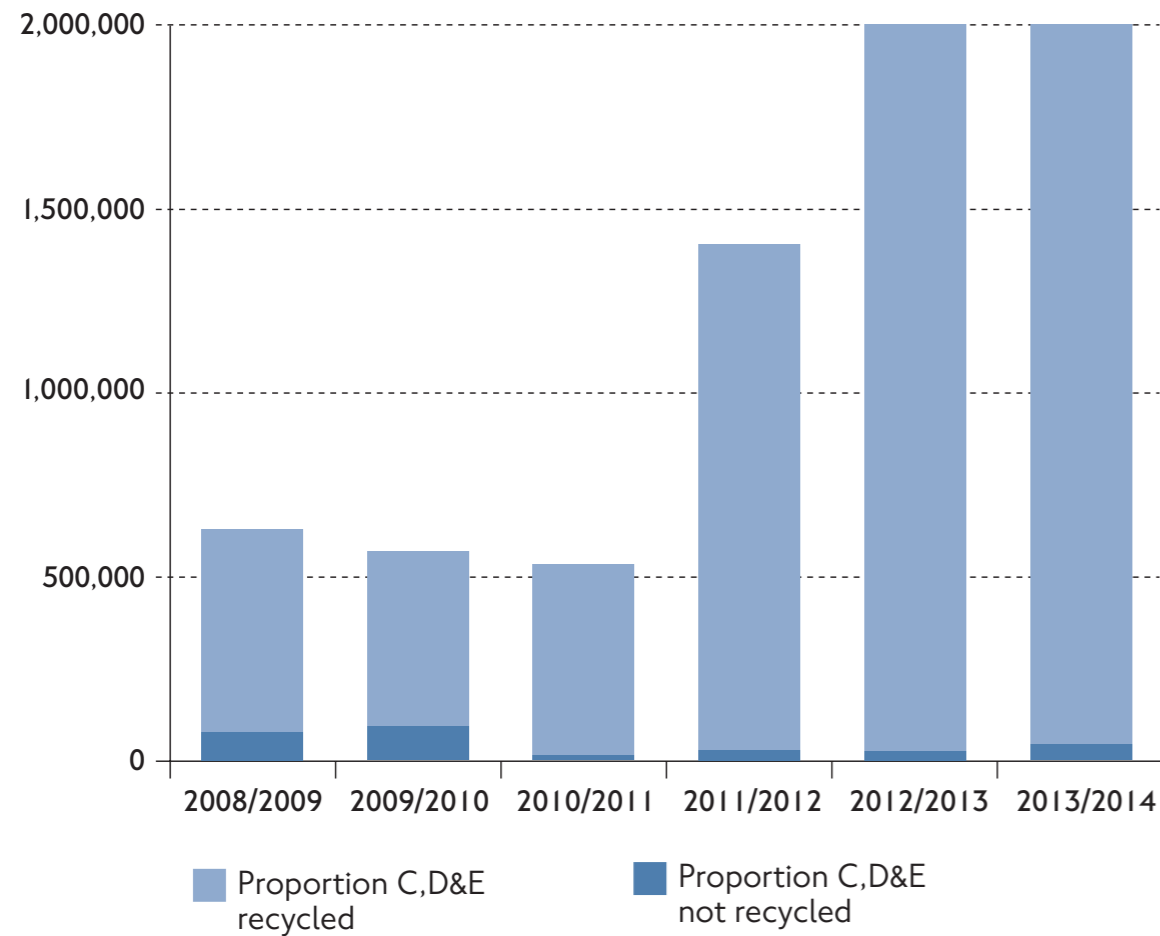


Figure 17: Construction, demolition and excavation waste generated and reused

Construction, demolition and excavation waste

We continued to meet our 2017/18 construction, demolition and excavation (CD&E) recycling target early by reusing or recycling 98 per cent of CD&E waste in 2013/14.

Over the past year, we have completed significant works as part of our investment programme. These projects, along with maintenance work, generated just over three million tonnes of CD&E waste.

In 2013/14, CD&E waste generated from construction and maintenance activities increased by a further 50 per cent. This

significant increase was predominantly due to an increase in Crossrail works. The amount of material produced by Crossrail tunnelling and station excavation rose from 1.4 million tonnes in 2012/13 to 1.9 million tonnes in 2013/14. Of this, more than 99 per cent was reused. A large proportion of it is being used in the creation of a new RSPB nature reserve at Wallasea Island.

The volume of waste generated from the maintenance of the TLRN almost doubled, from 412,138 tonnes in 2012/13 to 768,877 tonnes in 2013/14 as a larger roads programme was rolled out. More than 99 per cent of it continued to be reused or recycled.

Case study – Environmental achievements by highways suppliers

The new London Highways Alliance Contracts (LoHAC), which started in April 2013, continue to produce environmental benefits through good practice. Some highlights from last year include:

- Over 99 per cent of all waste is recycled
- Nearly 50 per cent of all products used on the contract come from green or recycled sources
- All cars and vans are Euro V; heavy duty vehicles are Euro VI
- All drivers have undergone fuel-efficient driver training
- Staff travel plans have been drafted to encourage use of sustainable types of transport
- Environmental action plans include installation and trialling of telematic systems on vehicles to monitor driver behaviour, solar panels, LED lighting, water harvesting, cycle parking facilities and electric vehicle charging points at depots, eco-efficient welfare cabins and cold-lay products on site

Water consumption at head office buildings

Total water consumption in head office buildings in 2013/14 remained relatively static at 119,917m³ despite an eight per cent increase in floor area.

Water efficiency continued to improve, with performance for 2013/14 at 5.9m³ per person per year, better than the current Defra good practice figure of 6m³.

Reporting methodology changes affecting our reported carbon emissions

We follow the reporting standards and rules published in the UK Government's Greenhouse Gas Reporting guidelines. These set the approach for measuring electricity and applying emissions factors to understand the equivalent amount of carbon dioxide that arises from electricity generation.

These were updated in 2013 with a new approach, which has had two main implications for our reporting:

1. An annual rather than a five-yearly set of emissions factors is now published. The relevant annual factor must be used for the electricity in the year in which it was generated. The annual emissions factor reflects the carbon dioxide emitted as a result of the electricity generation energy sources mix for that particular year. Therefore calculated CO₂ emissions will rise in a year when carbon intensive energy sources were used in the generation mix (such as coal) and fall when less carbon intensive energy sources were used. Applying these emissions factors each year means that our CO₂ emissions can rise and fall even if our own usage of electricity remains the same. We have re-baselined our carbon emissions for all years according to the yearly emissions factors in the new guidance to ensure we are comparing like with like and following the guidance. Therefore calculated CO₂ emissions we state here for previous years' CO₂ emissions are not the same as shown in previous reports.

2. We have followed reporting guidance to state transmission and distribution losses from electricity generation separately from the main usage of electricity.

For buses, taxis and private hire vehicles, we have a new methodology this year that better aligns our vehicle emissions modelling with audited fuel consumption. This has given us a higher 2013 baseline from which we are forecasting future emissions reductions. We have re-baselined our emissions for all years according to this improved methodology, so figures we state here for previous years' emissions are not the same as shown in previous reports.

To fully account for the biofuel content of certain fuels, we have reported both the direct emissions from combustion of the fuel and the biogenic portion of this fuel, in line with Defra guidance, where this information is available.

Defra's grid emissions factor for 2014 has already been published and we will use it to report on our 2014/15 performance. This factor has an approximately 10 per cent higher CO₂ element than for 2013, so it is predicted that our absolute emissions will increase similarly in 2014/15. However, we will review our reporting process and update our key performance indicators during this year to better report on our own performance outside of the effect of these underlying grid emissions factor changes.

Annexe: Summary of TfL HSE key performance indicators

Safety – London Underground

Customer injuries			
Year	Fatal	Major	Customer journeys (millions)
2009/10	1	113	1,064
2010/11	0	130	1,107
2011/12	3	135	1,170
2012/13	1	157	1,129
2013/14	1	127	1,265
Employee on-duty injuries (injuries sustained as a result of physical assault are included)			
Year	Fatal	Major	Employee numbers
2009/10	0	13	18,886
2010/11	0	13	18,088
2011/12	0	15	17,258
2012/13	0	10	16,382
2013/14	0	16	16,540
Supplier injuries			
Year	Fatal	Major	
2009/10	0	14	
2010/11	0	7	
2011/12	0	2	
2012/13	0	10	
2013/14	0	12	
Employee assaults*			
Year	Actual	Employee numbers*	
2009/10	1,917	17,882	
2010/11	2,376	10,760	
2011/12	2,479	9,875	
2012/13	2,297	10,042	
2013/14	2,753	10,064	
Supplier assaults			
Year	Actual		
2009/10	29		
2010/11	23		
2011/12	24		
2012/13	23		
2013/14	20		

*Customer-facing employees

Surface Transport

Supplier injuries			
Year	Fatal	Major	Customer journeys (millions)
2009/10	4	790	2,294
2010/11	0	861	2,283
2011/12	5	1,064	2,350
2012/13	0	862	2,335
2013/14	2	855	2,392
Employee on-duty injuries			
Year	Fatal	Major	Employee numbers
2009/10	0	7	3,545
2010/11	0	4	3,008
2011/12	0	4	3,345
2012/13	0	4	3,168
2013/14	0	7	3,364
Supplier injuries			
Year	Fatal	Major	
2009/10	0	87	
2010/11	0	116	
2011/12	1	107	
2012/13	0	75	
2013/14	1	79	
Employee assaults*			
Year	Actual	Employee numbers*	
2009/10	145	1,299	
2010/11	129	1,266	
2011/12	153	1,093	
2012/13	96	1,066	
2013/14	117	1,059	
Supplier assaults			
Year	Actual		
2009/10	618		
2010/11	1,288		
2011/12	1,702		
2012/13	1,598		
2013/14	1,588		

*Customer facing employees

London Rail

Customer injuries			
Year	Fatal	Major	Customer journeys (millions)
2009/10	0	11	130
2010/11	0	8	167.3
2011/12	0	11	214.1
2012/13	0	10	254.7
2013/14	0	4	269.5
Employee on-duty injuries			
Year	Fatal	Major	Employee numbers
2009/10	0	1	235
2010/11	0	0	216
2011/12	0	0	159
2012/13	0	2	160
2013/14	0	1	167
Supplier injuries			
Year	Fatal	Major	
2009/10	0	0	
2010/11	0	4	
2011/12	0	5	
2012/13	0	2	
2013/14	1	9	
Employee assaults			
Year	Actual	Employee numbers	
2009/10	1	235	
2010/11	0	216	
2011/12	0	159	
2012/13	5	160	
2013/14	0	167	
Supplier assaults			
Year	Actual		
2009/10	188		
2010/11	339		
2011/12	411		
2012/13	347		
2013/14	330		

Crossrail

Employee injuries			
Year	Fatal	Major	Employee numbers
2009/10	0	1	326
2010/11	0	0	290
2011/12	0	0	371
2012/13	0	0	433
2013/14	0	0	593

Supplier injuries			
Year	Fatal	Major	
2009/10	0	2	
2010/11	0	1	
2011/12	0	4	
2012/13	0	17	
2013/14	1	23	

Specialist Services directorates

Employee injuries			
Year	Fatal	Major	Employee numbers
2009/10	0	2	2,417
2010/11	0	0	2,461
2011/12	0	0	2,574
2012/13	0	0	2,701
2013/14	0	0	2,719

Supplier injuries			
Year	Fatal	Major	
2009/10	0	1	
2010/11	0	0	
2011/12	0	0	
2012/13	0	0	
2013/14	0	0	

Health

Average sickness absence per FTE by TfL business (2009/10 – 2012/13)						
Year	TfL Group	London Underground	Surface Transport	London Rail	Crossrail	Specialist Services directorates
2009/10	10.1	10.2	10.4	4.7	5.4	7.3
2010/11	9.7	10.2	8.9	3.2	7.3	7.6
2011/12	9.5	10.1	8.6	3.9	1.6	7.1
2012/13	8.6	9.5	7.9	8.2	4.6	7.8
2013/14	9.5	10.1	8.5	5.8	5.3	6.9

Average days lost due to sickness absence by category and business area in 2013/14									
	Mental illness	Musculo-skeletal	Colds & flu	Gastrointestinal	Accidents/injury	Other	Neurological	Respiratory	Hypertension, stroke
TfL Group	1.39	2.03	1.10	1.07	0.94	0.76	0.54	0.30	0.37
London Underground	1.43	2.29	1.18	1.15	1.10	0.85	0.52	0.31	0.39
Surface Transport	1.24	1.61	0.90	0.32	0.69	0.63	0.66	0.27	0.40
London Rail	0.57	1.99	0.59	0.66	0.03	0.09	0.56	0.12	0.24
Crossrail	1.07	0.96	0.90	0.70	0.00	1.24	0.22	0.22	0.00
Specialist Services directorates	1.41	1.03	0.84	0.81	0.35	0.39	0.53	0.29	0.23

Road safety

Monitoring casualties in London - all roads. Casualties in 2013 compared with the 2005-09 average and 2011.

Casualty severity	User group	Casualty numbers			Percentage change in 2013 over	
		2005-2009 average	2012	2013	2012	2005-2009 average
Fatal	Pedestrians	96.0	69	65	-6%	-32% *
	Pedal cyclists	16.6	14	14	0%	-16%
	Powered two-wheeler	43.4	27	22	-19%	-49% *
	Car occupants	49.4	19	25	32%	-49% *
	Bus or coach occupants	2.4	2	1	-50%	-58%
	Other vehicle occupants	3.2	3	5	67%	56%
	Total	211.0	134	132	-1%	-37% *
	Children (under 16yrs)	11.6	5	6	20%	-48%
Fatal and serious	Pedestrians	1,216.4	1,123	838	-25% *	-31% *
	Pedal cyclists	420.6	671	489	-27% *	16% *
	Powered two-wheeler	791.2	629	510	-19% *	-36% *
	Car occupants	949.0	448	335	-25% *	-65% *
	Bus or coach occupants	139.6	94	90	-4%	-36% *
	Other vehicle occupants	109.8	53	62	17%	-44% *
	Total	3,626.6	3,018	2,324	-23% *	-36% *
	Child pedestrians	231.8	211	153	-27% *	-34% *
	Child pedal cyclists	32.8	27	17	-37%	-48% *
	Child car passengers	42.2	23	7	-70% *	-83% *
	Child bus/coach passengers	11.6	4	4	0%	-66% *
	Other child casualties	11.8	5	6	20%	-49%
	Children (under 16yrs)	330.2	270	187	-31% *	-43% *
Slight	Pedestrians	4,214.0	4,143	4,343	5% *	3%
	Pedal cyclists	2,718.2	3,942	4,134	5% *	52% *
	Powered two-wheeler	3,806.4	4,022	3,992	-1%	5% *
	Car occupants	12,426.8	11,217	9,850	-12% *	-21% *
	Bus or coach occupants	1,429.8	1,232	1,381	12%	-3%
	Other vehicle occupants	1,004.8	1,206	1,175	-3%	17% *
	Total	25,600.0	25,762	24,875	-3% *	-3% *
	Children (under 16yrs)	1,889.0	1,689	1,677	-1	-11% *
All severities	Pedestrians	5,430.4	5,266	5,181	-2%	-5% *
	Pedal cyclists	3,138.8	4,613	4,623	0%	47% *
	Powered two-wheeler	4,597.6	4,651	4,502	-3%	-2%
	Car occupants	13,375.8	11,665	10,185	-13% *	-24% *
	Bus or coach occupants	1,569.4	1,326	1,471	11% *	-6% *
	Other vehicle occupants	1,114.6	1,259	1,237	-2%	11% *
	Total	29,226.6	28,780	27,199	-5% *	-7% *
	Children (under 16yrs)	2,219.2	1,959	1,864	-5%	-16% *

* Statistically significant changes at the 95 per cent confidence level

Significance testing helps to identify where change may be associated with randomness. Given a set of two different numbers, the difference between them is statistically significant where we are 95 per cent confident that this is not due to randomness. Changes in the number of casualties over time are modelled following the Poisson distribution.

Our safety camera replacement programme will see more than £30m invested to replace outdated 'wet film' safety cameras across London's road network



Environment

	2009/10	2010/11	2011/12	2012/13	2013/14
CO2e emissions (tonnes) - TfL public transport services	1,381,122	1,305,985	1,414,288	1,478,752	1,465,454
CO2e emissions (tonnes) - taxis and private hire	597,924	641,427	653,423	660,582	655,697
CO2e emissions (tonnes) Transport and distribution losses (all)	55,029	55,217	55,624	60,121	62,590
Total CO2e emissions	2,043,180	2,073,331	2,084,322	2,196,381	2,183,740
TfL's public transport operations (average)	68	63	63	61	60
London Underground	74	66	64	61	60
London Buses	80	80	80	81	77
DLR	69	62	58	58	56
Tramlink	45	40	39	31	42
London Overground	52	45	44	38	36
Energy equivalent head office buildings (kgCO2e/m ²)	311	322	283	345	308
Total NOx emissions (tonnes)	7,624	7,535	7,172	7,081	7,347
Total PM10 emissions (tonnes)	132.53	142.21	135.79	130.83	117

	2009/10	2010/11	2011/12	2012/13	2013/14
Number of noise complaints received	643	951	907	845	743
Percentage of buses in fleet at least 2 dB(A) quieter than the required legal limit	28%	37%	54%	61%	64%

	2009/10	2010/11	2011/12	2012/13	2013/14
Commercial and industrial waste recycled (%)	46%	67%	69%	69%	75%
Construction, demolition and excavation waste (tonnes)	569,695	537,288	1,407,365	2,004,299	3,103,473
Proportion of construction, demolition and excavation waste recycled (%)	82%	96%	98%	98%	99%
Water consumed per occupant in head office buildings (m ³ per workstation)	6.15	5.70	6.90	6.8	5.83

Data accuracy

HSE data for previous years has been reviewed and updated where appropriate. This has been due to new information (for example, injuries previously recorded as minor being recorded as major where appropriate) or due to changes in external guidelines, such as Defra guidelines on reporting carbon emissions.

Note also that there have been some differences in RIDDOR during the year from 1 October 2013, which means some definitions are different. We have used the definition appertaining at the time of the incident.

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