

Board

**Transport
for London**



Date: 7 November 2012

Item 6: TfL Health, Safety and Environment Report 2011/12

This paper will be considered in public

1 Summary

- 1.1 The purpose of the TfL Health, Safety and Environment Report 2011/12 ('the report') is to inform the Board of TfL's health, safety and environment (HSE) performance during 2011/12. The Board is asked to note the report.
- 1.2 The report was considered by the Safety and Sustainability Panel (SSP) at its meeting on 27 September 2012.

2 Recommendations

- 2.1 **The Board is asked to note the TfL Health, Safety and Environment Report 2011/12.**

3 Background

- 3.1 TfL has produced an integrated HSE report for the past two years, reflecting wider TfL efforts to consolidate its reporting and to drive efficiencies across the organisation.
- 3.2 Covering the financial year ending 31 March 2012, the report provides a review of TfL's HSE performance focusing on those issues that have the greatest alignment to the organisation's strategic objectives and outcomes. The report is attached as Appendix 1.
- 3.3 The report was produced by TfL's HSE team, based on information provided by TfL's business areas and is produced according to government guidelines on good practice reporting for organisations.
- 3.4 Health and safety performance data covers employee safety, customer safety, contractor safety and staff sickness absence. Road safety data for Greater London and the Transport for London Road Network is also provided in the report, but the timescale is the Calendar year of 2011.
- 3.5 The report includes environmental performance data from London's public transport operations, including taxis and private hire vehicles, and the support services run by TfL and its main contractors. Performance is assessed against Group-wide environment targets, which were set in those areas where TfL considers it has the largest environmental impact. These are carbon dioxide emissions, air pollutant emissions and waste and recycling. Targets

are set for 2017/18 against a 2005/06 baseline and were developed through the aggregation of a series of forecasts from the businesses.

- 3.6 The environmental impact of privately-owned vehicles falls outside the scope of the report. TfL publishes this material in its Travel in London Report, which takes a broader look at the environmental impact of transport in the Capital as a whole and summarises trends and progress in relation to the implementation of the Mayor's Transport Strategy.
- 3.7 The report has been reviewed by the GLA and by TfL's SSP in September 2012. The Independent Advisers to the SSP commended the integrated approach and development of greater clarity in looking at performance in the report, which they believe represents good practice. They concluded that the report indicates both substantial commitment to HSE throughout TfL and describes generally good performance.
- 3.8 Following discussions at the meeting of the SSP, TfL has agreed to consider further developing its performance indicators for health and safety and environment performance.

List of appendices to this paper:

Appendix 1: TfL Annual Health, Safety and Environment Annual Report 2011/12.

List of Background Papers:

Safety and Sustainability Panel paper, September 2012.

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Health, Safety and Environment report

2011/12



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Message from the Commissioner

In an extraordinary year, Transport for London (TfL) played a vital role in keeping the city moving.

We worked hard to prepare the transport network for the year's historic events – the Queen's Diamond Jubilee and the Olympic and Paralympic Games. Our aim was to provide a safe, sustainable 'public transport Games' and early analysis shows this has been achieved with great success and record passenger numbers.

Throughout this unprecedented activity, we continued to deliver transport services with health, safety and environment as a priority. Our work to make the city's roads safer for everyone is seeing solid results. Safety was at the forefront of all our upgrade projects. We continued to see safety improvements across our operational services, and will continue to further improve these.

We made good headway with projects that aim to improve London's air quality in line with the Mayor's Air Quality Strategy. We introduced tighter standards for larger vans and minibuses to enter the Low Emission Zone, launched an awareness campaign to reduce emissions from engine idling and began a trial of innovative dust suppressants on key roads. We also introduced green walls at selected locations, with emission-trapping plants used to absorb harmful particulate matter from exhaust fumes.

We also worked hard to ensure our services produce fewer pollutants. This year Londoners have seen more environmentally friendly buses on the Capital's streets, including the first New Bus for London. While increased capacity and frequency on certain Underground lines led to an overall rise in carbon dioxide (CO₂) emissions, amounts have decreased per passenger kilometre owing to the rise in the number of people travelling on the Underground.

The number of people now using the Capital's healthiest form of transport – the bike – is rapidly growing. The Mayor's flagship Barclays Cycle Hire scheme has become an integral part of life in central London and in 2013, we will expand it into southwest London with an additional 2,000 new bicycles and around 5,000 new docking points.

As we move forward with the renewal and construction of key transport infrastructure over the coming years, we will continue to put health, safety and the environment at the top of our agenda while providing our customers with value for money.



Peter Hendy CBE
Transport Commissioner

About this report

TfL produces a separate report covering health, safety and environment (HSE), as it offers stakeholders more background and defined data for this important area of its business.

Performance data and scope

This report provides an update on HSE performance across TfL, which comprises London Underground, London Rail, Surface Transport, Crossrail and the Corporate directorates. The report covers the normal financial year (from 1 April 2011 to 31 March 2012). However, the road safety data for Greater London and the Transport for London Road Network (TLRN) covers the calendar year (from January to December 2011).

The safety data covers customer, employee and contractor safety. Health data relates to employee wellbeing, and includes employee sickness absence, but does not cover contractor or customer health issues.

Environmental data covers London's public transport operations, including taxis and private hire vehicles (PHVs), plus the work activities undertaken by TfL and its main contractors.

TfL aims to provide more extensive data, which means that some business areas have reported new environmental information for the first

time, while other improvements in reporting mean that some previously estimated data has been replaced by actual data. This has resulted in some changes to the figures reported last year.

Where possible, data is compared over five years and where appropriate, comparisons have been made with previous years (a summary is in Annex 1).

Developments during the year

There were three notable developments during 2011/12. First, the Commissioner launched a review of TfL to improve its organisational structure and identify ways of working that would deliver continued cost efficiencies.

Throughout the process, called Project Horizon, the maintenance of HSE capability and performance was a key factor and any changes were only made after careful consideration of the implications for the relevant area of TfL's operations.

Secondly, preparations continued for the 2012 Games to ensure transport services would play a central role in the success of the event.

Thirdly, 3.7 billion passenger journeys were made on TfL operated services in 2011/12, with an ever increasing number of people using all services. More passenger journeys were made on the Tube than ever before, with 1.17 billion in 2011/12. Also the volume of train services operated increased by five per cent to 72.4 million train kilometres.

Further information

Outside the scope of this report:

- Information associated with privately owned vehicles
- Regulatory HSE legal compliance and enforcement data

Changes that impact the 2011/12 data:

London Underground

- More than half of the service on the Metropolitan line was provided by new, air-conditioned S-Stock trains
- Victoria line trains started operating full regenerative braking, which saves energy
- A new platform at Stratford Regional station was built to help keep passengers moving during the Games

London Rail

- The Docklands Light Railway (DLR) upgrade was completed in May with the introduction of three-car trains on the Tower Gateway to Beckton route
- The Stratford International extension was completed in preparation for the Games
- London Overground opened the link from Dalston Junction to Highbury and Islington

Surface Transport

- The first five buses in a new fleet that uses hydrogen fuel cell technology started operating in March 2012. This new technology means nothing but water vapour is emitted from the exhaust tailpipe

Health, safety and environment management in TfL

HSE management

The objective is to achieve world-class excellence in all aspects of TfL's HSE performance.

Each business area develops annual Health and Safety and Environment Improvement Plans (HSEIPs) to direct long-term improvement.

The majority of HSEIP elements were achieved this year. Of the few remaining ones, actions were deferred or not fully met because of the challenges of Project Horizon. Incompleted actions will be completed in 2012/13.

The annual HSE Assurance Letters process, in which the TfL business areas confirm to the Commissioner and to Safety, Health and Environment Assurance Committee (SHEAC) how they rate themselves against defined requirements, was completed again for the year 2011/12.

Health, safety and environment management system (HSEMS)

There has been limited change to the HSEMS across the TfL Group, in part because TfL's safety management systems have reached a stage of maturity where significant change is less likely or necessary. It has also been agreed that, under Project Horizon, a more consistent TfL-wide management system covering all activities will be developed and will include the HSEMS. This will be a significant workstream for 2012/13.

Communication

Outcomes and recommendations of Project Horizon have been communicated to all employees in TfL, and to recognised trade union officials who have been consulted about the changes throughout the year.

In the run up to the Games, employees have been briefed on HSE matters to emphasise the key role that the delivery of a safe transport system will play.

A safety leadership refresher training course, which is being delivered to all senior managers across TfL during 2012 and into 2013, emphasises the significant role that they must play in ensuring effective health and safety performance across TfL.

Working with suppliers

TfL is committed to working with suppliers to ensure that their products and services meet the environmental and responsible procurement requirements of the Greater London Authority (GLA). TfL expects suppliers to have an HSEMS that is compliant with national or international standards.

Monitoring and reporting of performance

TfL business areas set HSE targets on key performance indicators (KPIs). This enables improved trend analysis and focuses management on putting in place any necessary remedial actions.

HSE performance data is made up of lagging indicators (reports of incidents and events that have happened) and leading indicators (actions and completed procedures that are undertaken to improve the control of events in the future). These indicators are collated, validated and consolidated at business area level. Reports are then incorporated into the periodic HSE reviews in all parts of the business on agreed TfL KPIs.

Businesses present to the SHEAC on a quarterly basis. SHEAC reports to the TfL Board after each meeting.*

This process of planning, implementing, monitoring and reviewing risks is a key driver behind TfL's continual improvement of HSE performance.

*From 1st April 2012 this became the Safety and Sustainability Panel

Occupational health and wellbeing

TfL's focus on prevention through engaging with employees on health issues helps improve general wellbeing and reduces work-related ill health and days lost to sickness. In 2011/12 this was mainly achieved by:

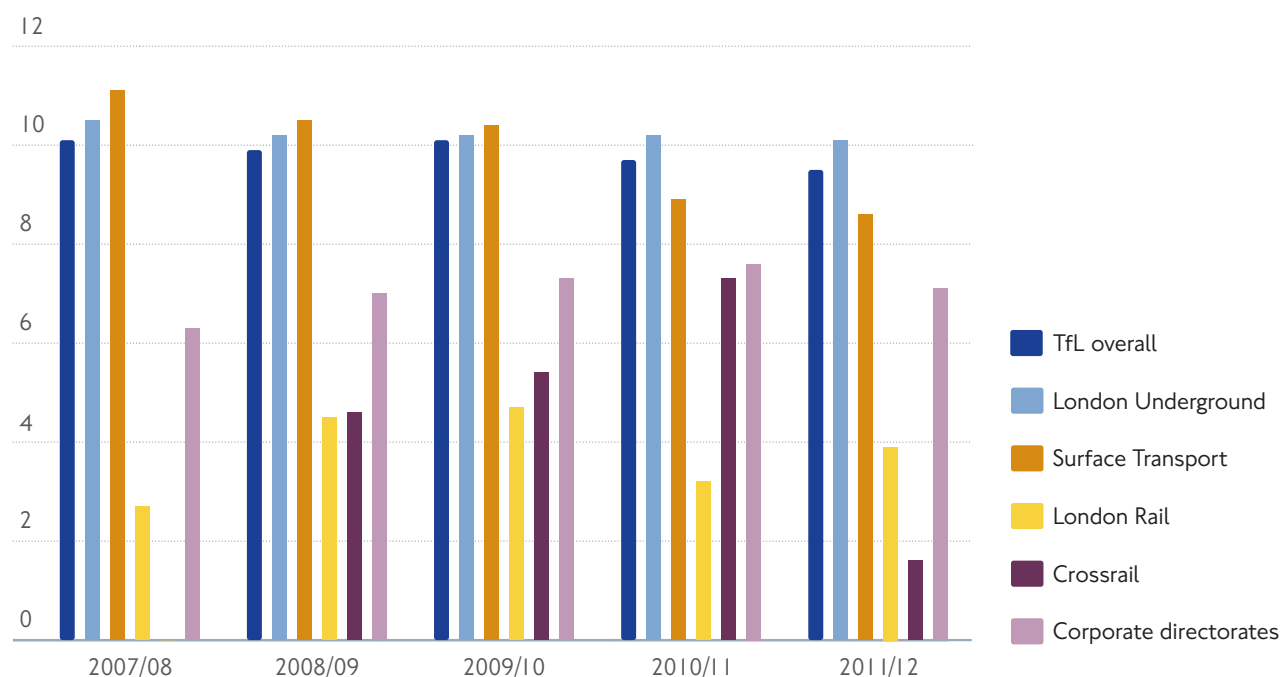
- Conducting 40 health fairs for operational employees at different sites across TfL, including each of the main head offices, to encourage self health management
- Promoting the prevention of communicable and work-related diseases, through accessible guides and information on TfL's intranet

- Ensuring appropriate employee assistance programmes are in place for health issues, including physiotherapy, counselling and personal health advisory services

TfL uses sickness absence data to identify health risks and implement further health interventions. Annual sickness absence across TfL decreased slightly from 9.7 days per full-time equivalent (FTE) in 2010/11 to 9.5 days in 2011/12.

In 2010/11, the UK national average for work-related ill health was 15 days lost per FTE (Health and Safety Executive; health and safety statistics 2010/11).

Figure 1: Average sickness absence per FTE by TfL business areas (2007/08 – 2011/12)



Other health improvement activities included:

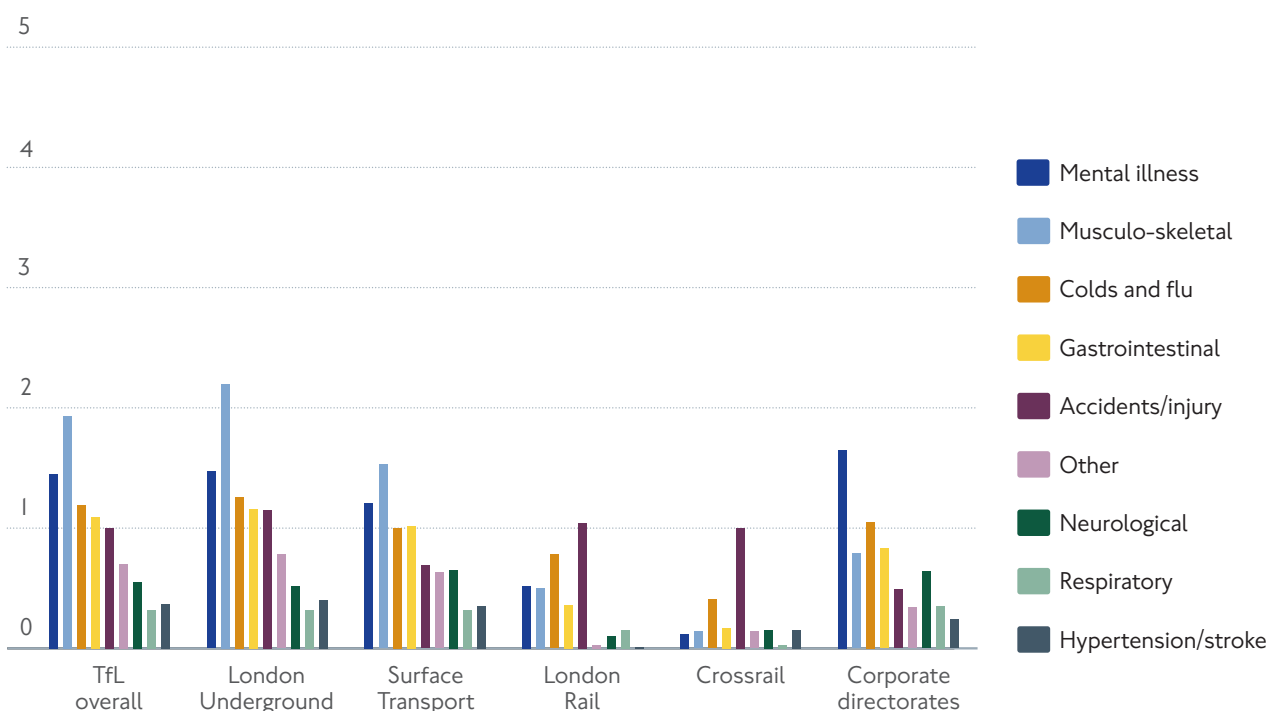
- The introduction of a new colour vision standard for eyesight testing that is specific to individual work tasks, and uses the most up-to-date technology
- A focus on lower limb initiatives by the physiotherapy team that helped 141 employees either stay at work or return to work as quickly as possible
- The development of an online training course on mental resilience to raise awareness, aid understanding of

mental health matters and enable quick recovery after periods of stress

- Surface Transport and Chief Operating Officer group in London Underground have been working with the Occupational Health Unit and the Human Resources department, to develop a nine-month programme to help build employee mental resilience ahead of the Games

As in previous years, the three most frequently reported categories of sickness absence across TfL in 2011/12 were colds and flu, musculo-skeletal and mental illness.

Figure 2: Average days lost due to sickness absence per employee, by category and business area (2011/12)



Safety

Major incidents

Incidents that are classified as major are:

- Fatalities to employees, contractors, passengers or members of the public on TfL property or premises (excluding suicide or suspected suicide, crime-related fatalities or non-work-related medical fatalities)
- Incidents resulting in three or more people requiring hospital treatment due to accidental injury
- Significant incidents where the final total costs are likely to be more than £1m to TfL, including those covered by insurance
- Incidents where prosecution is likely, there is a regulatory interest, or there is (or likely to be) significant media interest

TfL specifically excludes public road traffic accidents (RTAs) from this classification. However, it remains responsible for collating information and reporting on RTAs and instigating, where appropriate, action to improve road safety. Performance on the TLRN is reported in the road safety section of this report.

Customer safety

TfL considers customer safety to be of paramount importance and continually seeks to improve its operations to reduce accidents and injuries.

The definition of customers also covers members of the public using TfL business premises, including people using rights of way, tenants and off-duty employees, unless the attack was because of their uniform.

Accidental fatalities are those arising from incidents while using TfL services, or where they occur on TfL premises. They exclude suicides, trespasses, crime-related incidents and medical fatalities. Unfortunately, there were eight customer accidental fatalities across TfL in 2011/12. There were none reported in 2010/11.

- In May 2011, a customer under the influence of alcohol was fatally injured when he fell while sliding down an escalator at Kentish Town station
- In June and September 2011, two bus passengers were fatally injured after falling while travelling on vehicles that had to brake hard to avoid collisions
- In June 2011, a person fell between the carriages of a train on its approach to Chalfont & Latimer station; the deceased had tried to walk between the carriages
- In September 2011, a bus passenger sustained a fatal injury when she fell as a bus moved forward at a bus stop
- In January 2012, a passenger fell and was injured, when a bus braked hard to avoid a lorry that veered into its path. The passenger subsequently died

- In February 2012, a passenger under the influence of alcohol was fatally injured when he fell on to the track at Barons Court station
- In March 2012, a person was fatally injured after slipping then falling down the stairs of a bus

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

	07/08	08/09	09/10	10/11	11/12
London Underground	0	1	1	0	3
Surface Transport	4	2	4	0	5
London Rail	0	0	0	0	0
TfL Group	4	2	4	0	8

In at least two of the incidents, alcohol consumption played a part. TfL bans the consumption of alcohol on its services.

Surface Transport had five accidental fatalities and all were attributed in part to

slips, trips or falls on buses. Driver quality monitoring (DQM) has been intensified in the run up to the Games. It is also built into Business and Technology Education Council (BTEC) qualifications to ensure bus drivers have the skills needed to reduce the impact of fall-related injuries.

Customer major injuries

A customer injury is defined as ‘major’ if the person is taken to hospital, although the actual injury may not always be a significant one.

In Surface Transport there was a reduction in major injuries in 2009/10, but since then the figure has been rising. Major injuries increased by 24 per cent, from 861 in 2010/11 to 1,064 in 2011/12.

London Underground’s total customer major injuries increased by eight per cent, from 127 in 2010/11 to 137 in 2011/12.

In London Rail, customer major injuries rose by 38 per cent, from eight in 2010/11 to 11 in 2011/12.

There are no common causes for rises in customer major injuries, but during the period actual customer numbers have continued to go up. In figure 3, major injuries have been normalised per million customer journeys.

Employee safety

TfL evaluates risks and puts control measures in place to ensure that employees work in a safe environment.

In the past year, TfL has made good progress against targets, including those relating to Games preparations.

Employee fatalities

There were no employee fatalities at work during 2011/12. This is the seventh consecutive year that no work-related employee fatalities have occurred.

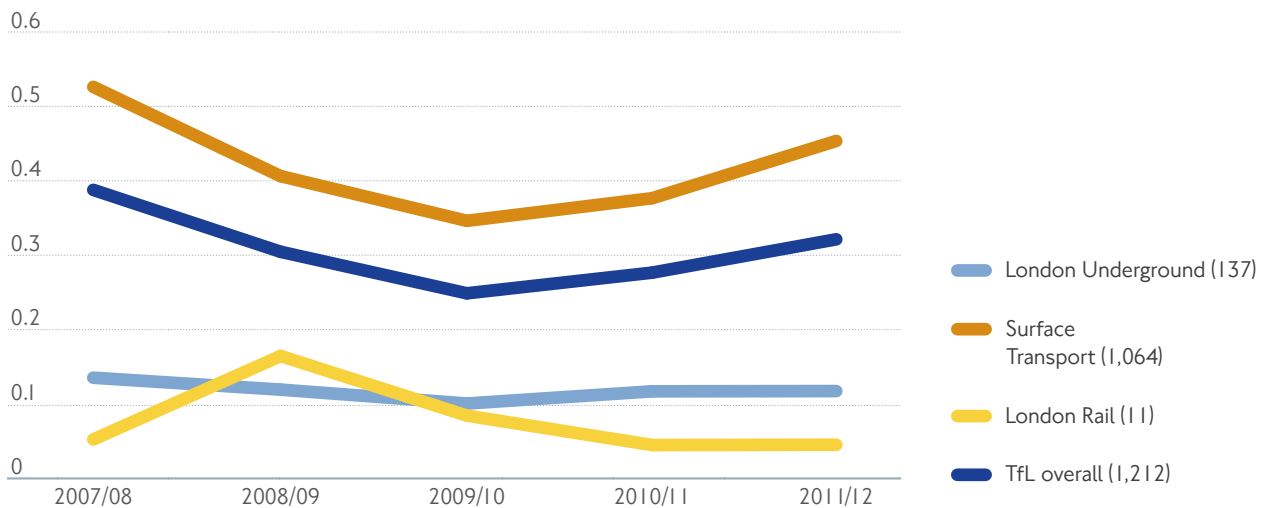
Employee major injuries

These are defined by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations and must be reported to the Health and Safety Executive or the Office of Rail Regulation. They include limb fractures, injuries leading to unconsciousness, or admission to hospital for more than 24 hours.

In 2011/12 there were 16 employee major injuries, compared with 19 in 2010/11. This represents an 18.7 per cent drop.

In London Underground there was a decrease from 13 in 2010/11 to 12 in 2011/12.

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



In Surface Transport, there was no change on last year's employee major injuries with four reported in 2011/12. There were no employee major injuries in London Rail, Crossrail or the Corporate directorates during the year.

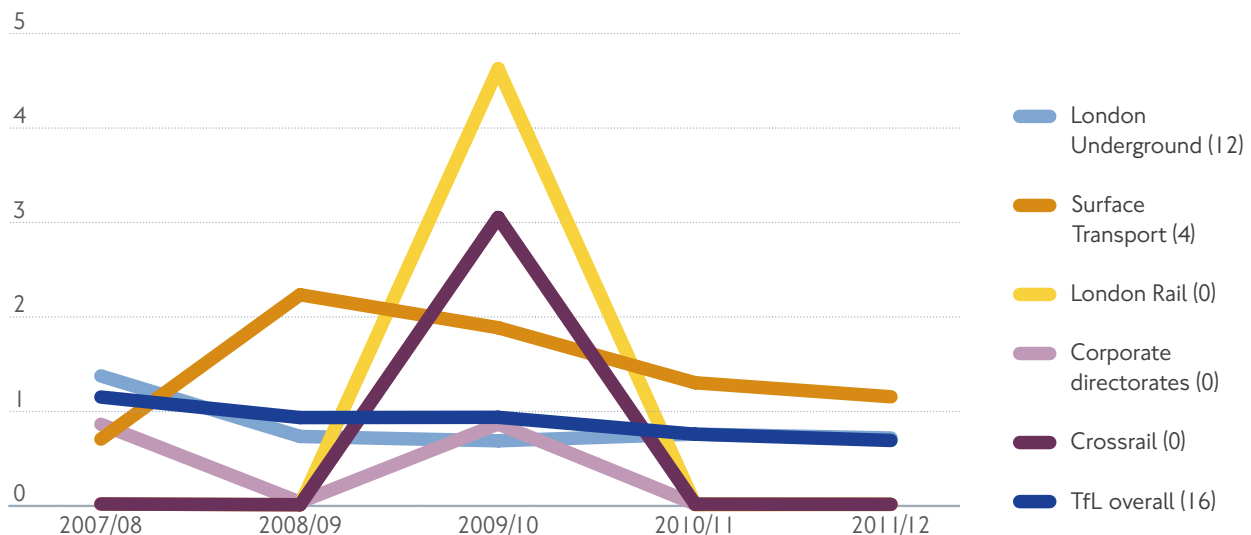
The details set out in figure 4 below show that for 2011/12 across TfL, the rate stands at 0.67 major injuries per 1,000 employees. The most recent major injury rate for the UK transport sector, as reported by the Health and Safety Executive, put the rate at 4.6 per 1,000 employees.

Employee assaults

TfL takes threats to employees and workplace violence very seriously. It believes tackling the issue is crucial to maintaining good morale, which in turn helps deliver reliable, consistent and 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,

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



thereby affecting their health, safety or welfare.' This is then further broken down between physical and non-physical assaults.

Trends and multiple employee assaults are analysed and appropriate controls are implemented. Necessary measures are included in safety improvement programmes across TfL.

In 2011/12, London Underground reclassified the threat and verbal assault categories as non-physical. A refreshed data set for the whole organisation has been produced, with some of these changes contributing to this year's employee assaults trend.

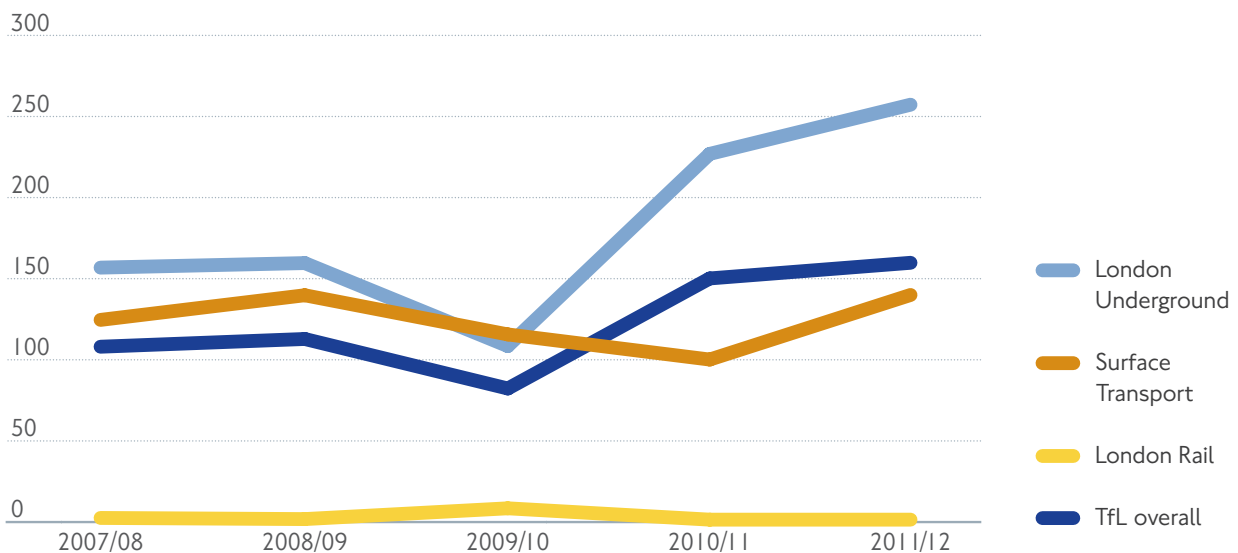
In London Underground there was a five per cent increase in employee assaults from 2,324 in 2010/11 to 2,449 in 2011/12.

In Surface Transport, the number increased by 13 per cent, from 129 in 2010/11 to 146 in 2011/12.

In London Rail no employee assaults have been reported since 2009/10.

In both London Rail and Surface Transport, which are areas of the TfL business where the main service is delivered by private sector contractors, the greater number of assaults occurred to the contractor workforce.

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



Targeted conflict avoidance and incident training for customer-facing TfL employees continues to be provided. TfL has also worked to improve successful conviction rates following assaults on staff.

Workplace violence units are operating in London Underground and Surface Transport. The partnership between TfL, its contractors, the British Transport Police (BTP) and Metropolitan Police Service (MPS) is focused on targeting known hotspots and supporting investigations and court proceedings where possible.

Contractor safety

The contractor incident data in this section has not been normalised. The number of staff working for contractors tends to fluctuate on large projects, which makes comparison difficult.

Contractor fatalities

There was one fatality to a ferry worker contracted by Surface Transport in 2011/12. Marine Accident Investigation Branch has fully investigated the incident and recommendations will be taken forward.

Contractor major injuries

The major injury trend for TfL contractors as a whole has not changed significantly in the past five years. However, there have been more significant variations within the different business areas over the five years; there are no common reasons for the differences.

Table 2: Contractor major injuries over the past five years

	07/08	08/09	09/10	10/11	11/12
London Underground	11	16	14	5	8
Surface Transport	149	105	87	116	107
London Rail	10	4	0	4	5
Crossrail	0	1	2	0	3
Corporate directorates	1	0	1	0	0
TfL overall	171	126	104	125	123

London Underground figures for 2011/12 were comparable with the previous year, and much improved on the previous three years.

Surface Transport’s contractor major injuries decreased from 116 in 2010/11 to 107 in 2011/12. All of these involved bus drivers.

In London Rail, contractor major injuries increased from four in 2010/11 to five in 2011/12.

In Crossrail, the number rose from zero to three as the project progressed from the design phase to construction work.

Contractor assaults

Assaults on London Underground’s contractors increased from 23 in 2010/11 to 27 in 2011/12.

In Surface Transport there were 1,702 contractor assaults of which 98 per cent were against bus drivers.

In London Rail, contractor assaults rose from 339 in 2010/11 to 411 in 2011/12, an increase of 21 per cent.

Crossrail and Corporate directorates had no contractor assaults in 2011/12.

Table 3: Contractor assaults over the past five years

	07/08	08/09	09/10	10/11	11/12
London Underground	26	22	29	23	27
Surface Transport	1,168	888	618	1,288	1,702
London Rail	41	217	188	339	411
Crossrail	0	0	0	0	0
Corporate directorates	0	0	0	0	0

It is important to note that, across TfL, the vast majority of contractor assaults were non-physical (verbal). TfL’s contractors all have programmes in place so staff can be trained in conflict avoidance.

A marketing campaign to help reduce assaults against both TfL employees and contractors was launched in 2011/12.

Visible policing across the network has increased and officers are engaging more with customer-facing employees.

Personal safety and system safety

The safety performance that TfL delivers for customers, staff, contractors and members of the public is underpinned by a rigorous and planned approach to safety management, which has been established over a number of years. This includes the development and application of detailed risk models and the tracking of key performance indicators.

TfL distinguishes between two types of safety – ‘personal safety’ and ‘system safety’. Personal safety refers to events that affect only one person or a small number of people, and is monitored effectively by recording data including the number of injuries or assaults that may take place in a year. System safety is concerned with the monitoring of TfL’s systems and procedures to determine where improvements can be made.

In both cases, TfL monitors the effectiveness of proactive safety management activities including recruitment, training, inspection and maintenance.

There are different indicators across TfL and these are reviewed at directorate level. The results are then used to develop safety improvement plans and determine targeted investments to improve HSE performance.

TfL does not report on all these tools in this report but without such an approach, it would not be able to maintain its performance levels and continually seek improvements.

Road safety

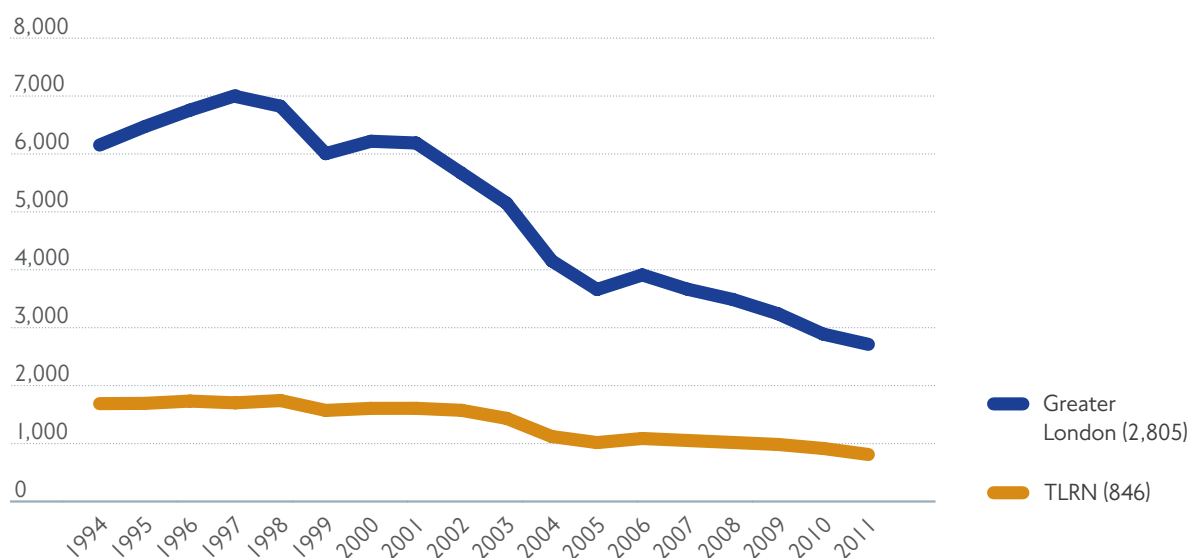
This section provides a summary of personal injury road traffic collisions and casualties in Greater London in 2011, compared with 2010. Figure 6 below, shows the long-term trend for all killed or seriously injured (KSI) casualties for Greater London as a whole and for the TLRN.

In Greater London, a total of 24,443 road traffic collisions involving personal injury were reported to the Metropolitan and City Police during 2011. This is a one per cent increase compared with 2010. These collisions resulted in 29,257 casualties. Of these, 159 people were fatally injured, 2,646 were seriously injured and 26,452 were slightly injured.

Greater London trends

There was a three per cent decrease in all KSI casualties in 2011, compared to 2010 – the lowest number since 1986 (the earliest year of police-reported casualty data for Greater London). Fatalities increased by 26 per cent. This followed an exceptionally low recorded level in the Capital and nationally in 2010. Despite this increase the number recorded in London during 2011 was the second lowest on record. The graph below (figure 6) shows the KSI trends in Greater London and on the TLRN.

Figure 6: All KSIs for Greater London and the TLRN



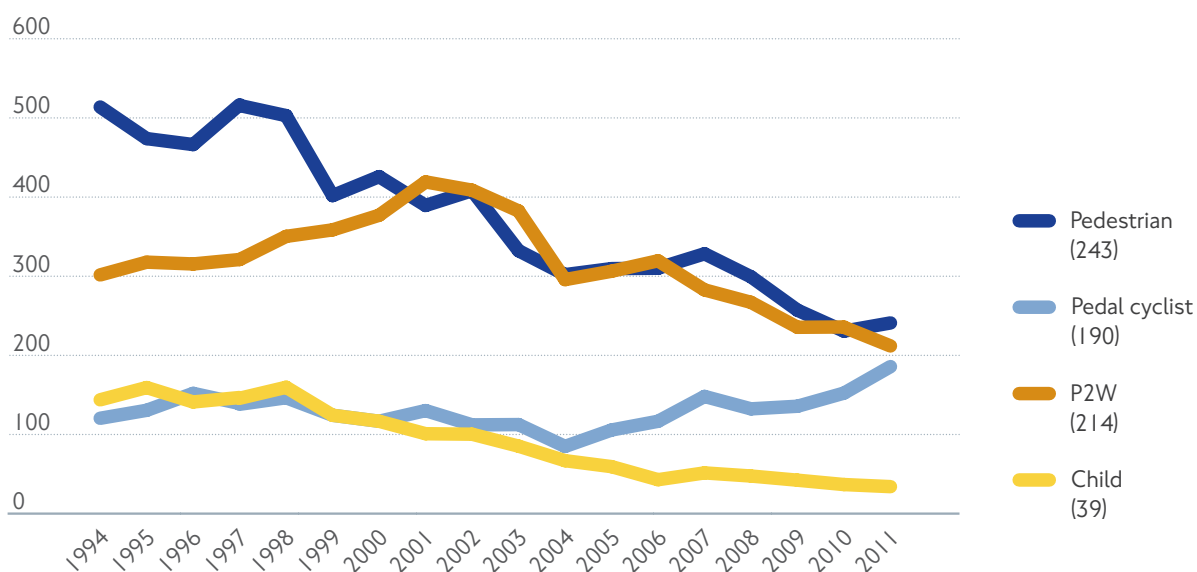
Pedestrians accounted for 48 per cent of all fatalities and 34 per cent of all serious injuries in 2011. Overall, pedestrian casualties increased by one per cent compared with 2010. Within this figure, pedestrian fatalities rose by 33 per cent from 58 to 77 – which is still the second lowest number on record. Serious injuries increased by six per cent and slight injuries remained unchanged.

In 2011, pedal cyclists accounted for 15 per cent of all casualties and 10 per cent of all fatalities. Pedal cycle casualties increased overall by 12 per cent compared with 2010. Within this, the number of fatalities increased

from 10 in 2010 to 16 in 2011, also the second lowest number on record. Serious injuries rose by 21 per cent and slight injuries increased by 11 per cent.

In 2011, riders and passengers of powered two-wheelers (P2Ws) accounted for 16 per cent of all casualties and 19 per cent of all fatalities. P2W casualties increased by eight per cent in 2011, compared to 2010, and fatalities rose by seven per cent from 28 to 30. Serious injuries decreased by three per cent over the same period and slight injuries increased by 10 per cent.

Figure 7: TLRN – all KSIs in vulnerable road user groups



There was a five per cent reduction in KSIs on the TLRN during 2011 compared with 2010. Pedestrian KSIs went up by four per cent in 2011 and there was an increase of 27 per cent in the number of pedal cycle KSIs.

Slight casualties on the TLRN

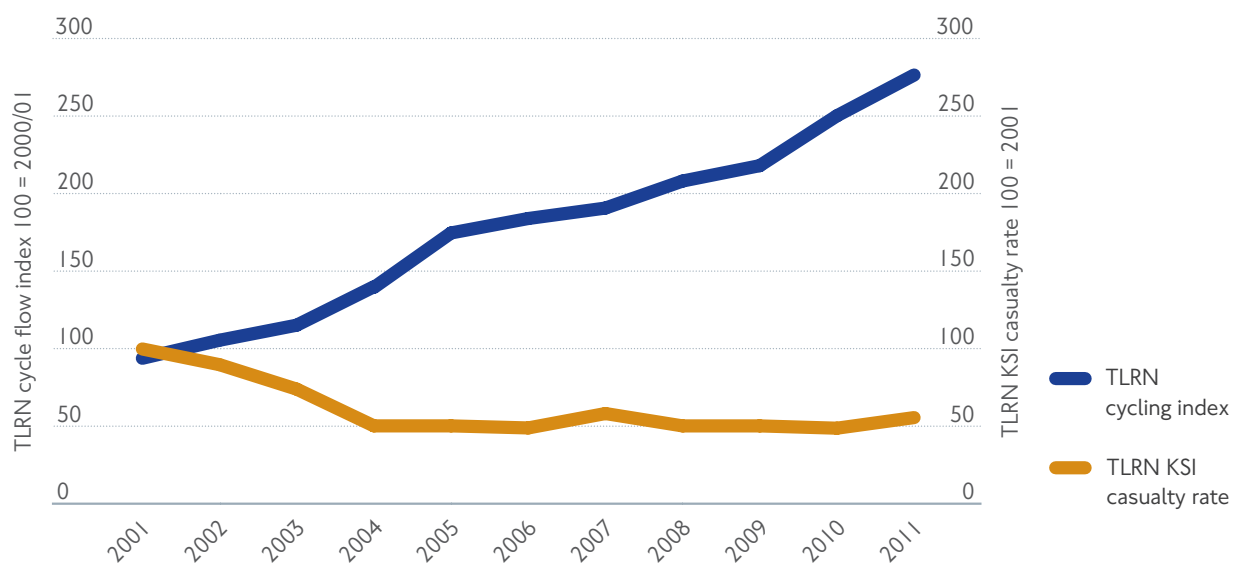
The trend here is similar to that of Greater London as a whole. Slight casualties on the TLRN and in Greater London were stable throughout the late 1990s, with the TLRN accounting for about a quarter of the total. The number of slight casualties fell considerably between 2001 and 2007. In 2011, the figure increased by two per cent in Greater London and six per cent on the TLRN, compared with 2010.

Cyclist KSI casualties on the TLRN

The TfL cycle flow index provides the most reliable measure of cycling activity on the TLRN. It is measured by cycle counters located across the TLRN based on a randomly stratified sample and is indexed to 2000/01.

From 2000/01 onwards, pedal cycle flow on the TLRN has increased year on year. Between 2000/01 and 2011/12 it rose by 173 per cent (nine per cent in 2011/12). Taking into account changes in cycling flow and the number of pedal cycle KSI casualties on the TLRN, the pedal cycle KSI casualty rate on the TLRN fell by 46 per cent between 2001 and 2011.

Figure 8: TLRN cycling KSI casualty rate and TLRN cycling index

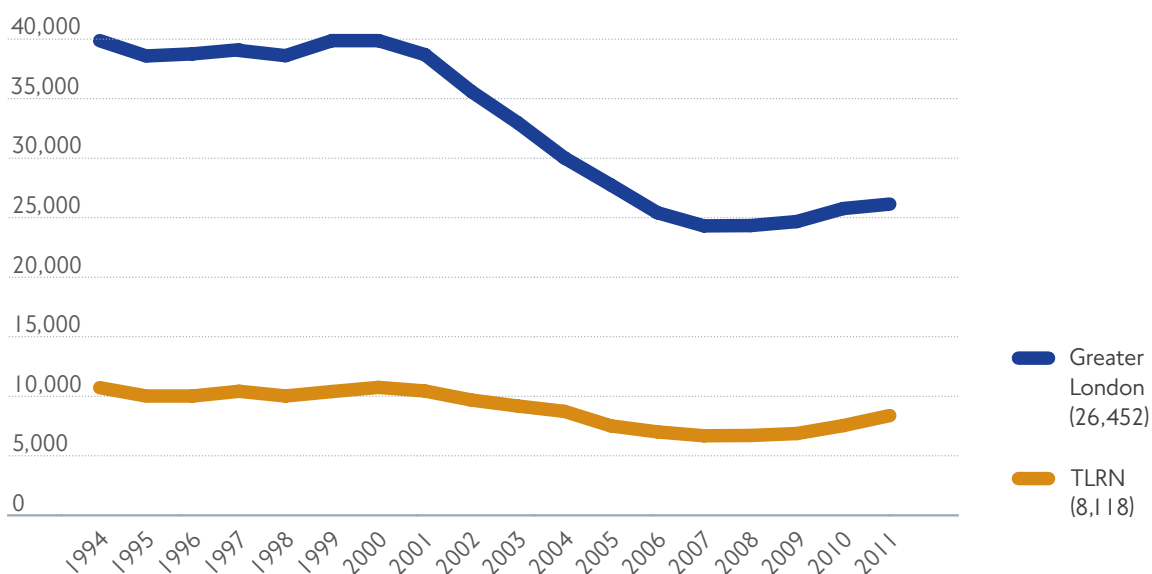


Blackwall enhancement

Essential works to upgrade the northbound Blackwall Tunnel were completed ahead of schedule. The £70m refurbishment of the 113-year-old tunnel meant safety upgrades were finished in time for the London 2012 Olympic and Paralympic Games. The refurbishment included the installation of:

- Improved lighting
- Linear heat detection technology
- Smoke detectors
- Enhanced CCTV cameras
- Video incident detection
- Emergency telephones
- A new public address system
- A fire rising water main
- Way-finder signs
- Traffic lane control signs
- Two fire intervention lifts
- A new ventilation system

Figure 9: Greater London and the TLRN – all slight injured casualties



London-wide

- There are a number of London-wide programmes in place that are designed to help reduce road casualties, including:
 - Changing the physical environment by using highway engineering to create safer streets and public spaces
 - Education, training and awareness campaigns to change people's behaviour
 - Enforcement action by the police and other agencies to help ensure road users act safely

Monitoring and research

During 2011/12, TfL supported road safety casualty reduction targets by undertaking and commissioning research. Two projects were commissioned to focus on pedestrian and motorcycle fatalities.

Changing the physical environment

TfL, in collaboration with the London boroughs, Transport Research Laboratory, Freight Transport Association, BTP and other associations, has led the way in promoting innovative engineering measures that could, potentially, help to reduce casualties.

In 2011/12, a review of cycling on the TLRN and Barclays Cycle Superhighways targeted 149 major TLRN junctions and 377 Barclays Cycle Superhighway junctions for improvement. Design options are now being looked at by TfL, technical experts and external stakeholders.

Education, training and awareness

TfL's education, training and publicity programme was launched in 2005 to influence road user behaviour and contribute towards a safer environment. An example is the London-wide road safety campaign, which is specifically targeted at teenage pedestrians and includes an online game to increase audience engagement.

Enforcement

In 2011, TfL's safety-related enforcement activities were based largely on the use of safety cameras. Speed and red light cameras were installed at sites with a history of high numbers of KSI casualties that may have been caused by excessive speed or running red lights. TfL works with the MPS and the City of London Police to deliver road safety control measures.

Targeted future initiatives

TfL works with different organisations to develop and implement programmes, and analyses core data to suggest further improvements. Future targeted plans are set out below:

Car occupants

- Research to gain a greater understanding of the factors that influence young car driver collisions
- Working with the Department for Transport (DfT) to understand where further improvements to training and licensing issues may contribute to improved safety

Pedestrians

- Working with key pedestrian stakeholders to identify priority action areas for targeted road safety measures and messages

Children

- Developing a programme of road safety campaigns with the London boroughs to promote school cycle training, in particular by engaging pre-school and Early Years education providers

Cyclists

- Implementing initiatives highlighted in the Cycle Safety Action Plan (CSAP). The CSAP is based on a review of road hazards and the most common collision types. It sets out improvements to ensure safer infrastructure, better training and communication and more effective enforcement and regulation. It also looks at enhancements in technology, targeting commercial driving and driving practices, specific research and the development of partnership working. TfL is commissioning an independent review of driver behaviour, vehicle design and the operation of construction vehicles. This will examine what can be done to make operations safer for all road users

Reducing carbon emissions

TfL's continuing multi-year investment programme in London's public transport system will result in 30 per cent more capacity over the next decade. As service capacity increases, one of TfL's major challenges is how to reduce its total CO₂ emissions. Progressively improving the efficiency of TfL's operations will be essential if these emissions are to be minimised.

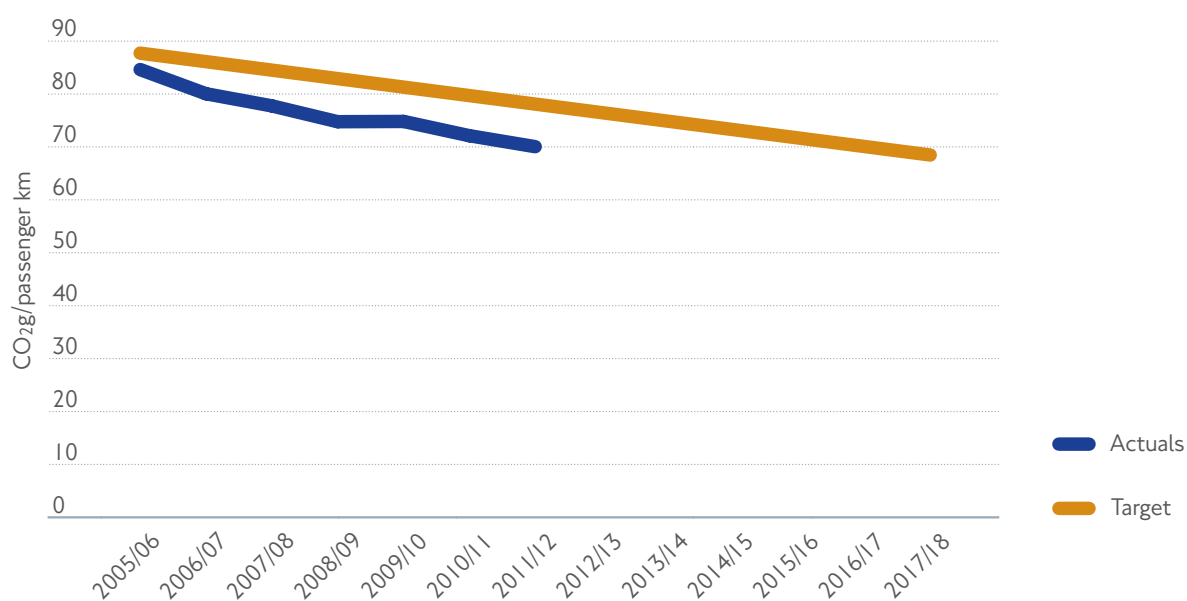
Normalised CO₂ emissions reduction

TfL has set a target to reduce the normalised emissions (measured in grams CO₂ per passenger km) from its main public transport services by 20 per cent by 2017/18, against a 2005/06 baseline.

Normalised emissions are those associated with London Underground, London Buses, DLR, London Overground and London Tramlink. At present, emissions from taxis and PHVs cannot be normalised with enough accuracy to be included in the target.

There has been good progress towards achieving the target. In 2011/12, TfL's public transport services as a whole, experienced a fall in normalised emissions. Together, they now emit 70 grams of CO₂ per passenger km, which is seven per cent below 2009/10 levels and 18 per cent below the baseline (see figure 10). Since 2005/06 TfL has beaten the target each year.

Figure 10: Performance against the target of a 20 per cent reduction in normalised CO₂ emissions



Owing to the scale of their operations, London Buses and London Underground remain the largest contributors to TfL's total CO₂ emissions.

London Underground

During 2011/12 the Tube carried a record 1.17 billion passengers, a rise of more than five per cent compared to the previous year. Improved performance, the delivery of some Tube line upgrades and increased frequency of Jubilee line services, has contributed to a 5.5 per cent reduction in normalised emissions from 72 grams of CO₂ per passenger km to 68 grams of CO₂ per passenger km.

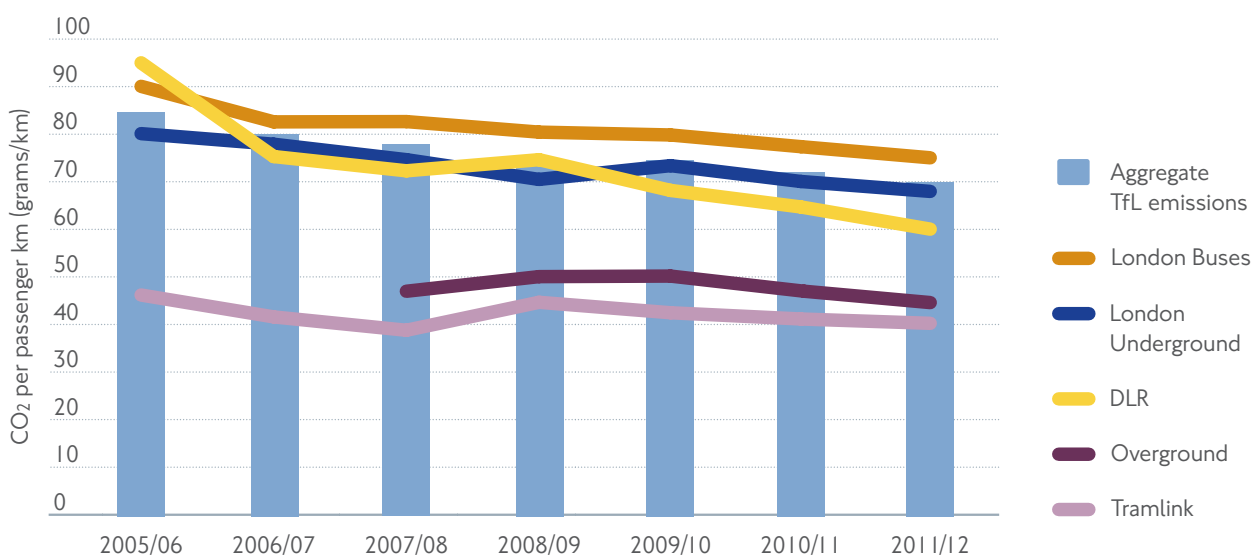
Another contributor has been the 'smart' electricity metering that has been rolled out to 85 per cent of Tube stations to enable greater targeting and monitoring of energy savings. To support this, energy saving metrics are now in place for individual stations as well as for the total non-traction usage.

London Buses

In 2011/12, normalised CO₂ emissions fell by three per cent to 75 grams of CO₂ per passenger km.

This was achieved through the continued introduction of Euro V double-decker buses, which emit less CO₂ than the older Euro II

Figure 11: Normalised emissions of CO₂ by mode of public transport



or III buses they are replacing. In 2011/12, 1,164 new Euro V buses were introduced to the TfL services. The number of hybrid buses also increased, from 106 in 2010/11 to 267 in 2011/12. Hybrid buses have 30 per cent lower fuel consumption than comparable diesel buses.

DLR

The DLR upgrade was completed in May 2011 with the introduction of three-car trains on the Tower Gateway to Beckton route. Normalised emissions were reduced by 10 per cent from 68 grams of CO₂ per passenger km in 2010/11 to 61 grams of CO₂ per passenger km in 2011/12.

The Stratford International extension opened in August 2011. Although this increased energy use, the normalised CO₂ rate was not affected owing to a rise in passenger journeys.

London Overground

The number of passengers using London Overground services increased significantly. This was due to the first full year of operation on the northern part of the extension to Highbury & Islington, as well as enhanced services from May 2011 at peak times, evenings and weekends on many lines. For example, in May 2011 the peak frequency of London Overground services to Stratford increased from six to eight trains per hour, and off-peak frequency between Gospel Oak and Barking went from two to four trains per hour. The opening of the Westfield Stratford

City shopping centre has also resulted in a large rise in the number of passengers visiting Stratford. With more people travelling, normalised emissions fell by eight per cent from 49 grams of CO₂ per passenger km in 2010/11 to 45 grams of CO₂ per passenger km this year.

Tramlink

Tramlink operated slightly more services than in 2010/11. There were increased services on the Wimbledon route and passenger numbers also rose. Normalised emissions were reduced by 2.4 per cent to 41 grams of CO₂ per passenger km in 2011/12, compared to 42 grams of CO₂ in 2010/11.

Absolute CO₂ emissions

Overall, absolute CO₂ emissions associated with all of TfL's operations were 2.14m tonnes in 2011/12, which reflects the forecasted gradual year-on-year upward trend resulting from the upgrades programmes.

TfL has direct control over emissions resulting from its main public transport services, the maintenance and operation of the TLRN, energy consumed by the Capital's street lights and traffic signals, construction works and head offices. London Buses and London Underground account for a large proportion of TfL's CO₂ emissions. In 2011/12, TfL produced 1.49m tonnes of CO₂ emissions from these sources. Absolute emissions from TfL's direct operations

Reducing energy use at Tube stations

Electricity consumption at Tube stations is more than 100 gigawatt-hours per year, with the main contributors being escalators, lighting, ventilation and cooling. This is equivalent to the energy used by 20 three-bedroomed houses in one year. Through the Low Carbon Stations Initiative, London Underground has installed innovative energy-efficient technologies at two 'showcase' locations – Leicester Square and Sloane Square.

The initiative focused on the three key areas of reducing demand, improving efficiency and improving the monitoring and control of energy use. Technologies introduced at the stations include long-

life, low-energy lighting; centralised cooling and heat recovery systems; and innovative automation and control systems. Some of the methods used to reduce energy demand have included automatically switching off public area lighting when the station closes, linking exterior lighting to daylight and using recovered heat for heating and cooling systems.

Much of the equipment trialled has a short return on investment (less than three years) owing to reductions in both energy use and maintenance. Initial energy reductions of more than 25 per cent have already been realised at both locations. The most successful technologies will be introduced across all Tube stations.

increased on the previous year as a result of operating more public transport services and a rise in construction works over the year.

In 2011/12, significant upgrades to the Tube network were delivered and it carried more people and ran more passenger train services than in the previous year. This has contributed to an overall increase in London Underground's absolute CO₂ emissions through increased traction electricity.

The Jubilee and Victoria lines now have upgraded signalling systems and the Victoria line has new rolling stock, which has enabled

the introduction of new timetables delivering more frequent services for passengers. In 2011/12, there were also fewer closures than in the previous year owing to upgrade works and network-wide industrial action.

On the Metropolitan line the new S-Stock trains have been introduced. While these carry more passengers than the older stock they are replacing, per kilometre travelled they use more electricity to maintain passenger comfort and support newer communications and other systems. London Underground is investigating ways of increasing the energy efficiency of its trains.

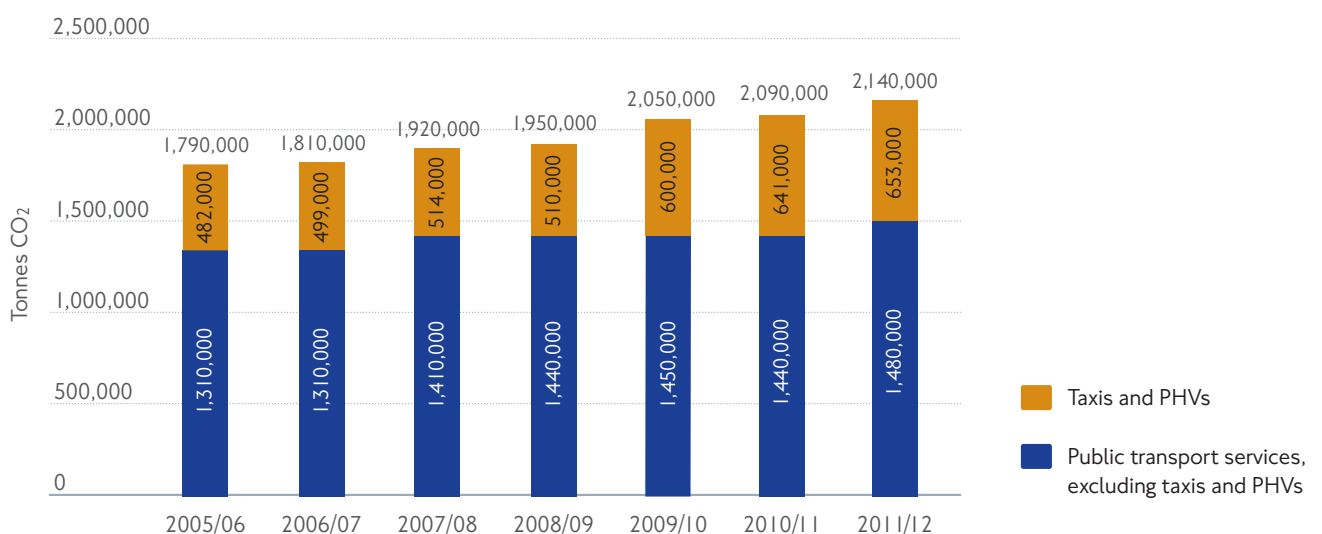
Despite carrying more passengers and operating more kilometres, the absolute CO₂ emissions associated with the London bus network were lower in 2011/12 than in the previous year. This was due to the continuing replacement of older buses with newer Euro V models and the introduction of more hybrid vehicles.

The remaining emissions associated with TfL's activities come from taxis and PHVs and in 2011/12 absolute CO₂ emissions from these sources totalled 653,423 tonnes. This is an

increase of two per cent on the previous year, as an additional 3,297 PHVs (6.5 per cent increase) and 541 taxis (2.3 per cent increase) joined the fleet.

Taxi and PHV emissions have been separated out from those associated with TfL's other operations (see figure 12) as they are from vehicles owned and operated by third parties. TfL exercises influence over taxi and PHV emissions through licensing arrangements (which state limits on Euro standards and vehicle age).

Figure 12: Total CO₂ emissions from TfL operations*



*Figures are rounded up

Carbon Reduction Commitment (CRC) energy efficiency scheme

Energy used at TfL's stations, depots, piers, head offices and buildings, and by highway structures, is within the scope of the Government's CRC scheme. In 2011/12, absolute CO₂ emissions from these sources were 154,000 tonnes.

Energy efficiency

Head office electricity efficiency improved by a further four per cent in 2011/12, compared with 2010/11. This has contributed to an 18 per cent improvement since 2007/08. This year's performance was due to a number of continuing energy efficiency initiatives, including completion of the RE:FIT¹ energy efficiency programme at 22 office locations in 2011 (in particular, concentrating on lighting and building controls upgrades). TfL's ongoing property care programme to upgrade chillers and ventilation plant, as well as installing thousands of LED lights, also played a significant part.

The RE:FIT works, aided by a warmer winter and fewer running hours on TfL's three combined heat and power plants, led to a significant 18 per cent reduction in gas consumption in 2011/12. Overall head office energy consumption decreased by 10 per cent to 289 kWh/m², equivalent to a seven per cent reduction in normalised carbon emissions to 15 kgCO₂/m².

¹RE:FIT is the Mayor of London's innovative scheme to reduce carbon emissions in Greater London

Improving air quality and reducing noise

Air quality

TfL monitors the total amount of oxides of nitrogen (NO_x) and particulate matter (PM₁₀) with a diameter of 10 or fewer microns that result from its operations. These air pollutants arise largely from internal combustion engines in vehicles. Construction site dust and the wear of brake pads on vehicles also contribute, but as they are difficult to measure they are not included in the scope of the KPIs.

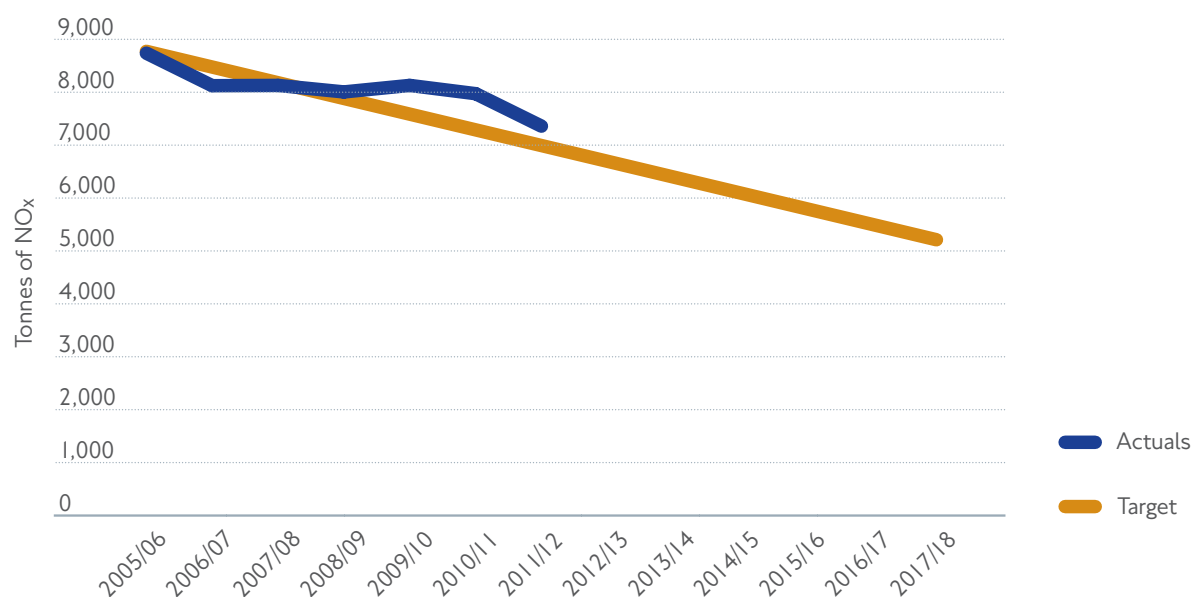
While TfL controls the emissions associated with its main public transport services, it has less control over the size of the taxi and PHV fleets.

To reflect this, taxi and PHV NO_x and PM₁₀ emissions have been separated from those associated with TfL's public transport services in figures 13 and 14.

NO_x

In total, TfL recorded 7,439 tonnes of NO_x emissions from all its operations in 2011/12, which is eight per cent less than the previous year. Performance in 2011/12 means that total emissions are 14 per cent lower than the 2005/06 baseline, but they are still slightly above the required trend line to achieve the 2017/18 target (see figure 13).

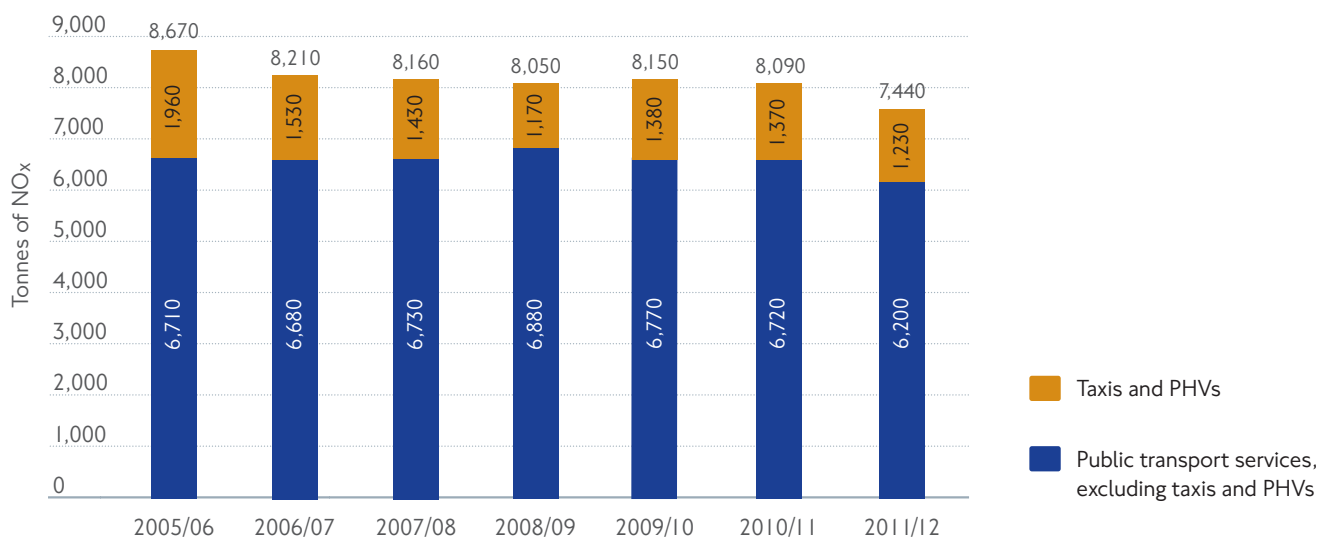
Figure 13: NO_x target of a 40 per cent reduction in total emissions from TfL operations



Buses accounted for 79 per cent of recorded TfL NO_x emissions. In 2011/12, total emissions from the bus fleet were reduced by five per cent despite bus kilometres increasing compared to 2010/11. This was primarily due to the continued introduction of Euro V vehicles.

The remaining emissions are principally associated with the taxi and PHV fleet and are split evenly between the two sources. Together they emitted 1,235 tonnes of NO_x in 2011/12, a slight reduction on emissions in 2010/11 (see figure 14).

Figure 14: Total NO_x emissions from TfL operations*



*Figures are rounded up

PM₁₀

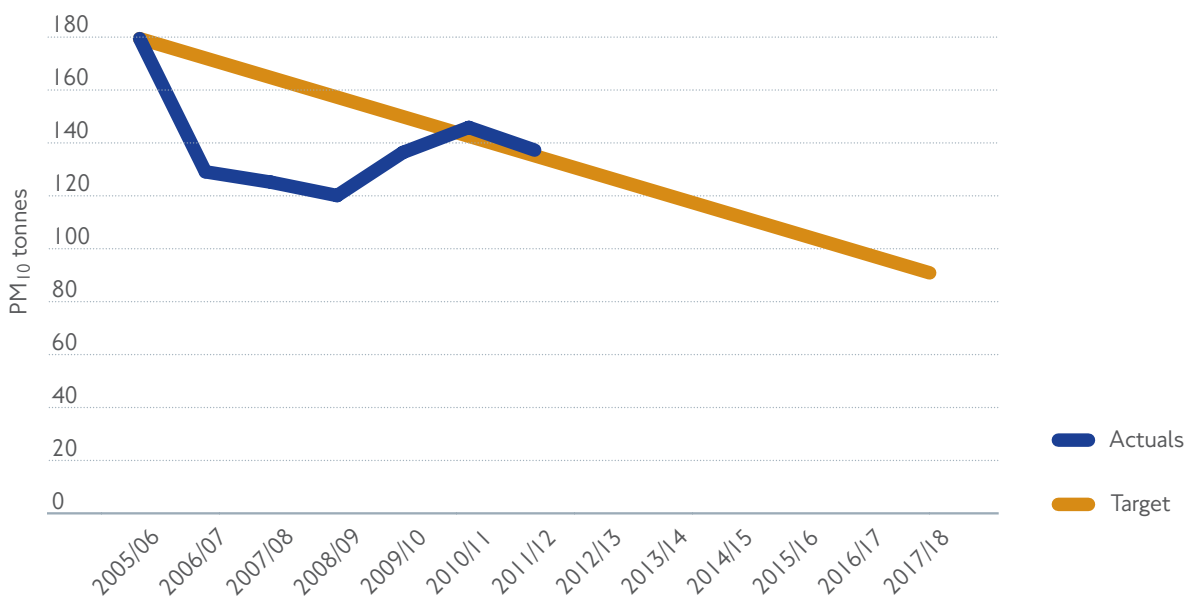
TfL has set a target to reduce total PM₁₀ emissions from its operations by 50 per cent by 2017/18, against 2005/06 levels. The target applies to TfL public transport services and to the taxi and PHV fleet.

In 2011/12, TfL recorded 137 tonnes of PM₁₀ emissions from its operations. This is seven per cent lower than the total PM₁₀ emissions in 2010/11 and 24 per cent lower than the 2005/06 baseline (see figure 15).

Taxis and PHVs accounted for 79 per cent of the overall figure. Total emissions from these sources decreased by six per cent to 109 tonnes in 2011/12, primarily due to the replacement of older taxis with newer Euro V vehicles.

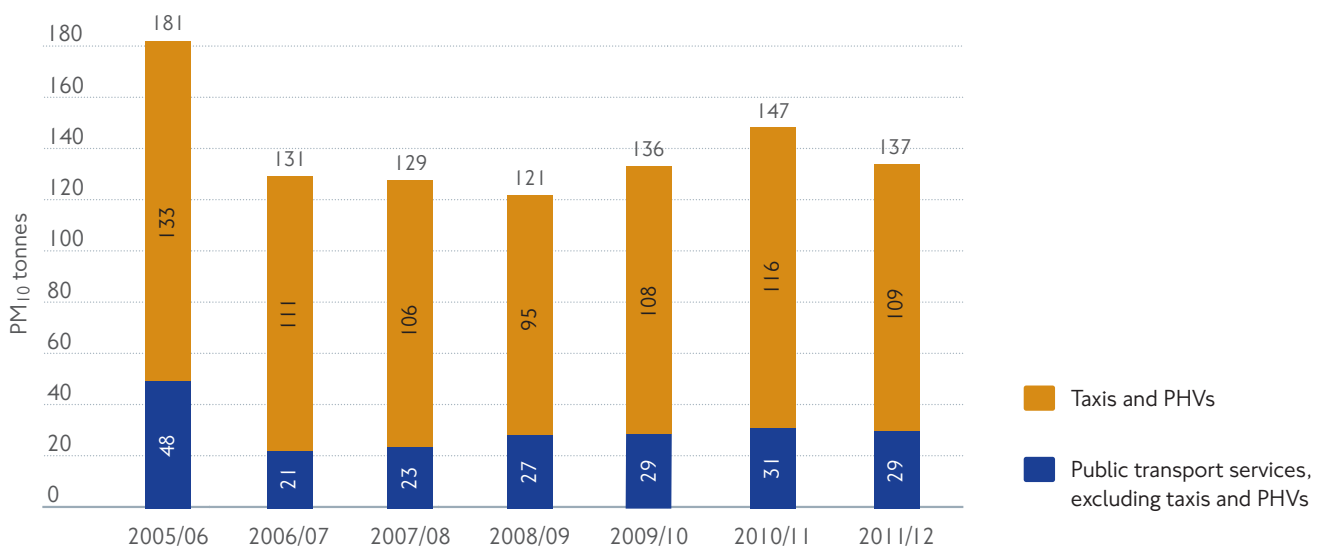
Emissions of PM₁₀ from buses increased slightly from 15 to 17 tonnes between 2010/11 and 2011/12. All Euro II and III buses in the TfL fleet were retrofitted with diesel particulate filters to reduce PM₁₀ emissions in 2009. Further reductions in PM₁₀ are expected as Euro VI buses enter the fleet from 2014.

Figure 15: PM₁₀ target of a 50 per cent reduction in total emissions from TfL operations



The remaining PM₁₀ emissions from TfL's public transport services are mainly associated with river services, including the TfL-operated Woolwich Ferry and Thames Clippers plus other scheduled services that TfL does not operate. PM₁₀ emissions from these services were reduced by nine per cent in 2011/12 compared to 2010/11.

Figure 16: Total PM₁₀ emissions from TfL operations



Clean Air Fund

The Mayor's Air Quality Strategy was published by the GLA in late 2010. It highlighted that the vast majority of London already meets the European Union (EU) limit value for annual mean PM₁₀ concentrations. It also, however, identified a small number of locations in central London that risk exceeding the EU daily mean limit values. As a result, and to complement London-wide measures to improve air quality already being implemented, the Mayor committed to applying targeted local measures to help the Capital meet the EU limit values for PM₁₀.

In March 2011, the DfT awarded TfL £5m to develop and deliver a package of local measures focused on reducing PM₁₀ pollution at priority locations and other identified PM₁₀ hotspots. As a result the Clean Air Fund (CAF) programme was set up and key achievements have included:

- A total of 120 buses to be fitted with diesel particulate filters on routes 7, 10, 49, 148, and 205
- An awareness raising and education campaign in January 2012 to discourage unnecessary engine idling

- Deployment of five taxi marshals in central London to improve management of the ranks, discourage unnecessary engine idling and promote smarter driving courses
- Installation of two trial green walls outside Edgware Road Tube station and The Mermaid Theatre on Upper Thames Street
- Planting 600 new trees, plus shrubs, and a trial of 50 planted towers at identified PM₁₀ hotspots
- A trial application of dust suppressants at known hotspots along six road corridors (Victoria Embankment/ Upper Thames Street, Marylebone Road/Euston Road, Park Lane, A2, Earls Court Road and Blackwall Tunnel approaches) and at two construction sites and five industrial waste sites
- Engagement with more than 300 businesses in priority locations focusing on reducing their travel and deliveries

In autumn 2012, TfL will publish a report outlining the measures delivered as part of the CAF programme, the lessons learnt and key findings on the effectiveness of these local measures in reducing PM₁₀ pollution.

Noise

TfL carried out significant construction works during 2011/12, including Crossrail and major LU upgrades, as well as its regular maintenance programme. However, the number of noise complaints reported to TfL reduced by five per cent to 907 in 2011/12, compared with 951 in 2010/11.

Rail activities

Complaints associated with asset noise, construction, contractor noise and passenger announcements remain the largest sources of environmental complaints received during 2011/12, but the number fell significantly in London Underground compared to 2010/11 (from 574 to 475). This was the result of improved planning and communication with London boroughs and residents.

The number of complaints associated with London Overground also decreased in 2011/12 due to the improved calibration of PA systems following station upgrades.

The scale and extent of Crossrail's construction increased significantly in 2011/12 compared to the previous year, with major works under way at the main station and tunnelling sites across London. Against this backdrop, noise complaints associated with Crossrail increased by 35 per cent in 2011/12 compared to the previous year. Crossrail continues to liaise with all contractors to ensure that the best practicable means are being used to minimise the impact of the works.

Buses and roads

TfL requires that all new buses are two decibels quieter than the legal limit. The number of buses that comply with this standard rose from 37 per cent last year to 54 per cent as newer vehicles were introduced into the fleet. TfL aims to continue reducing noise by using lower noise carriageway surface materials, which now cover around 74 per cent of the TLRN.

The Environmental Noise Directive requires mapping and action planning in relation to noise from major roads, major railways, major airports and agglomerations (large urban areas). TfL reported on noise mitigation actions implemented or planned at 127 'first priority locations' on the TLRN.

Resource consumption and waste recycling

TfL's operations produce different types of waste including construction waste, litter left by passengers on public transport and waste from its offices. TfL has a duty to manage this and use resources responsibly. TfL has taken great strides in this area in recent years, with more waste being recycled and an increasing focus on reducing and reusing waste at source.

Commercial and industrial (C&I) waste

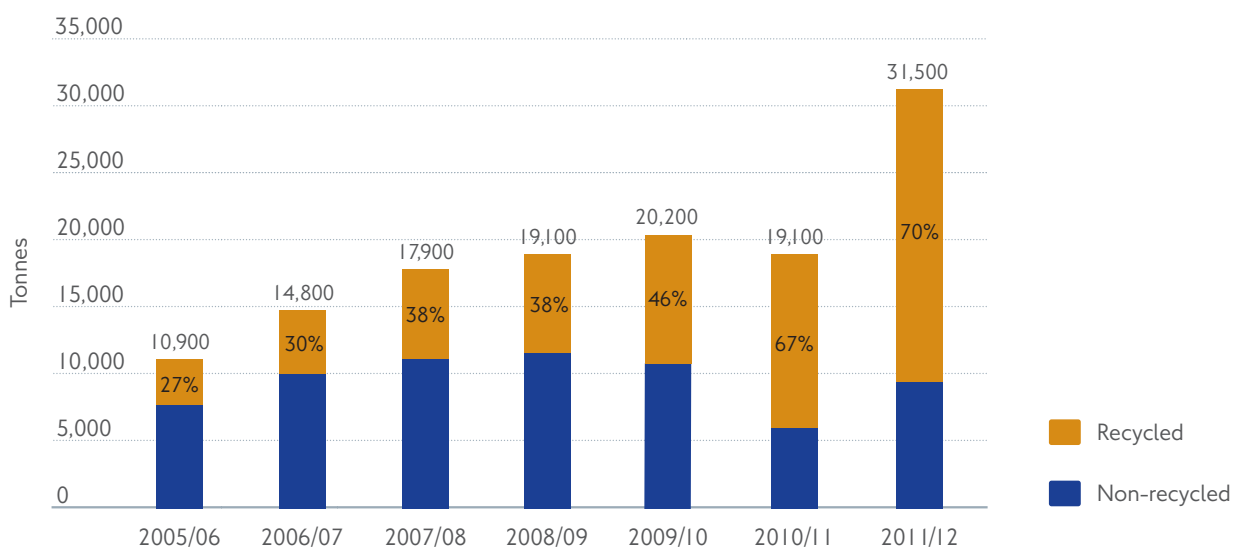
TfL set a target to recycle 70 per cent of its C&I waste by 2017/18. It achieved this target earlier than planned (station, depot and office waste is classified as C&I). In 2011/12, TfL collected 31,453 tonnes of waste at its stations, maintenance depots and buildings

(see figure 17). Further reduction targets will now be set.

More waste was reported by TfL bus operators owing to improved reporting processes in bus maintenance depots. This has contributed to the increase in total C&I waste in 2011/12.

Litter left by Tube passengers and waste from Underground stations and depots accounted for a significant amount of TfL's C&I waste. Most Tube station and depot waste now goes to recycling centres in the Capital. LU recycled more than 80 per cent of this waste in 2011/12 compared to 74 per cent the previous year.

Figure 17: Total annual C&I waste from TfL operations*



*Figures are rounded up

TfL's network of environmental champions continues to be effective in helping staff reduce environmental impact. The total amount of waste produced at TfL's head offices fell by a further 18 per cent in 2011/12 through improved awareness of waste management issues. TfL recycled 70 per cent of the waste generated at its head office locations and this was largely due to the ongoing implementation of bin sharing and 'bin-less' offices and the continued success of TfL's waste recycling contract.

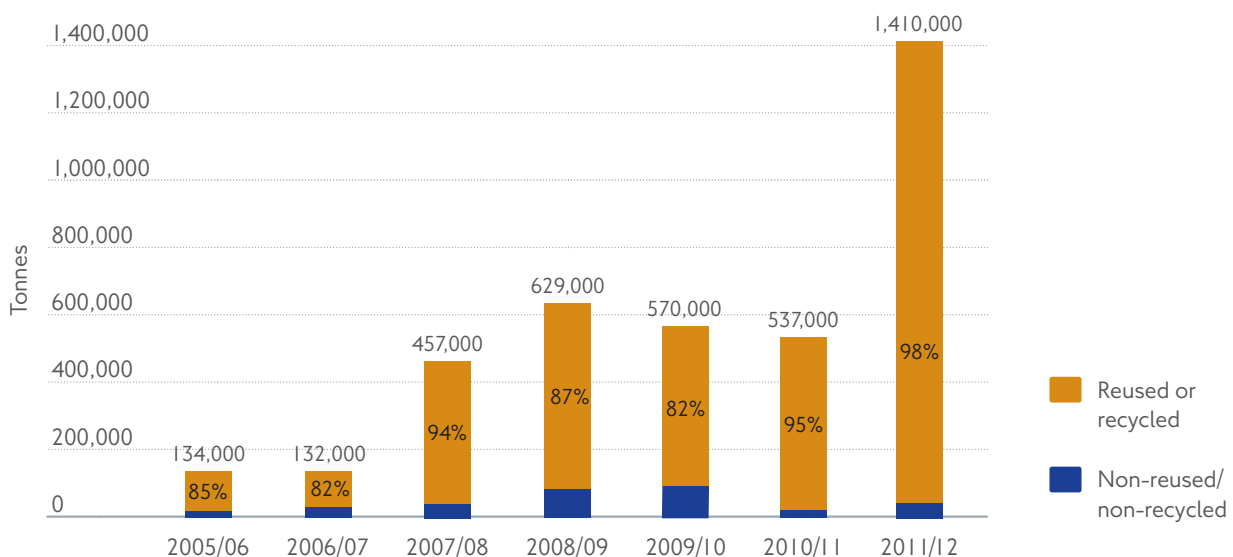
Construction, demolition and excavation (CD&E) waste

TfL has set itself a target to reuse or recycle

at least 90 per cent of CD&E waste over the period to 2017/18. It met its target early achieving 98 per cent in 2011/12.

Over the past year, TfL has carried out significant works as part of its improvement programme. This activity, along with ongoing maintenance, generated 1.41m tonnes of CD&E waste. The amount of this type of waste generated fluctuates over time depending on the works scheduled during the reporting year. In 2011/12, the increase has been mainly due to the inclusion of clean excavated material from Crossrail works.

Figure 18: Total annual CD&E waste from TfL operations*



*Figures are rounded up

Waste associated with the building of Crossrail increased significantly in 2011/12 as construction activity increased. Enabling works such as the demolition of buildings and utility diversions, plus work to construct the Royal Oak and Pudding Mill Lane tunnel portals and the Crossrail station at Canary Wharf, continued. Station building has started at a number of locations including Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street and Whitechapel, and work began on the major tunnelling contracts. Crossrail recycled 96 per cent of its CD&E waste in 2011/12.

The total volume of CD&E waste generated from capital programmes and ongoing maintenance renewal projects on the Tube increased slightly in 2011/12 compared to the previous year. LU achieved an 89 per cent recycling rate from renewal works and projects, such as the Tottenham Court Road station capacity scheme.

In 2011/12 more than 99 per cent of waste associated with the London Overground extension to Clapham Junction was recycled.

The volume of waste generated from the maintenance of the TLRN increased significantly in 2011/12 to 415,782 tonnes. This was due to more works being undertaken plus improved reporting of waste by TfL contractors. Around 99 per cent of the waste was reused or recycled.

Excavated material reuse – Crossrail

Crossrail generated 626,245 tonnes of clean excavated material as a result of its station and tunnelling works in 2011/12. More than 99 per cent (619,765 tonnes) has been beneficially reused.

To date, the material has been used at a number of locations that are being re-landscaped, including a former landfill and quarry. From 2012 onwards, material excavated during Crossrail works will be used to create an RSPB nature reserve at Wallasea Island in Essex.

Water consumption

This is measured at head office buildings and in 2011/12 was 6.3 cubic metres per person, which is better than the best practice guidelines issued by the Department for Environment, Food and Rural Affairs (6.4m³ per person). Water consumption is now measured across a wider portfolio of buildings than has been reported in previous years and data has therefore been re-adjusted. Efficiency has improved by more than 13 per cent since 2010/11. This was achieved by the continued roll-out of various water saving projects, such as installing more water efficient dual-flush toilets.

Annex 1 – summary of TfL HSE KPIs

Health and safety

London Underground					
	2007/08	2008/09	2009/10	2010/11	2011/12
Customer injuries					
Fatal	0	1	1	0	3
Major	144	134	111	127	137
Customer journeys (millions)	1,072	1,089	1,064	1,107	1,170
Employee on-duty injuries (injuries sustained as a result of physical assaults are included)					
Fatal	0	0	0	0	0
Major	19	10	13	13	12
Employee numbers	13,937	13,731	18,886	18,088	17,258
Contractor injuries					
Fatal	0	1	0	0	0
Major	11	16	14	5	8
Employee assaults					
Actual	1,891	1,909	1,917	2,324	2,449
Employee numbers*	12,130	11,870	17,882	10,239	9,615
Contractor assaults					
Actual	26	22	29	23	27

*Assaults only for customer-facing employees

Surface Transport					
	2007/08	2008/09	2009/10	2010/11	2011/12
Customer injuries					
Fatal	4	2	4	0	5
Major	1,169	908	790	861	1,064
Customer journeys (millions)	2,215	2,217	2,294	2,283	2,350
Employee on-duty injuries					
Fatal	0	0	0	0	0
Major	3	10	7	4	4
Employee numbers	4,632	4,482	3,545	3,008	3,345
Contractor injuries					
Fatal	1	1	0	0	1
Major	149	105	87	116	107
Employee assaults					
Actual	215	245	145	129	146
Employee numbers*	1,745	1,756	1,299	1,266	1,093
Contractor assaults					
Actual	1,168	888	618	1,288	1,702

*Assaults only for customer-facing employees

London Rail					
	2007/08	2008/09	2009/10	2010/11	2011/12
Customer injuries					
Fatal	0	0	0	0	0
Major	4	20	11	8	11
Customer journeys (millions)	66.6	119	130	167.3	214.1
Employee on-duty injuries					
Fatal	0	0	0	0	0
Major	0	0	1	0	0
Employee numbers	180	232	235	216	159
Contractor injuries					
Fatal	0	1	0	0	0
Major	10	4	0	4	5
Employee assaults					
Actual	0	0	1	0	0
Employee numbers	180	232	235	216	159
Contractor assaults					
Actual	41	217	188	339	411

Crossrail					
	2007/08	2008/09	2009/10	2010/11	2011/12
Employee injuries					
Fatal	-	0	0	0	0
Major	-	0	1	0	0
Employee numbers	-	294	326	290	371
Contractor injuries					
Fatal	0	0	0	0	0
Major	0	1	2	0	3

Corporate directorates					
	2007/08	2008/09	2009/10	2010/11	2011/12
Employee injuries					
Fatal	0	0	0	0	0
Major	2	0	2	0	0
Employee numbers	2,336	2,177	2,417	2,461	2,574
Contractor injuries					
Fatal	0	0	0	0	0
Major	1	0	1	0	0

Average sickness absence per FTE by TfL business (2007/08-2011/12)					
	2007/08	2008/09	2009/10	2010/11	2011/12
TfL Group	10.1	9.9	10.1	9.7	9.5
London Underground	10.5	10.2	10.2	10.2	10.1
Surface Transport	11.1	10.5	10.4	8.9	8.6
London Rail	2.7	4.5	4.7	3.2	3.9
Crossrail	-	4.6	5.4	7.3	1.6
Corporate directorates	6.3	7.0	7.3	7.6	7.1

Average days lost due to sickness absence by category and business area in 2011/12						
	TfL overall	London Underground	Surface Transport	London Rail	Crossrail	Corporate directorates
Mental illness	1.45	1.47	1.21	0.52	0.12	1.65
Musculo-skeletal	1.93	2.20	1.53	0.50	0.14	0.79
Cold and flu	1.19	1.26	1.00	0.78	0.41	1.05
Gastrointestinal	1.09	1.16	1.02	0.36	0.17	0.83
Accidents/injury	1.00	1.15	0.69	1.04	1.00	0.49
Other	0.70	0.78	0.63	0.03	0.14	0.34
Neurological	0.55	0.52	0.65	0.10	0.15	0.64
Respiratory	0.32	0.32	0.32	0.15	0.03	0.35
Hypertension, stroke	0.37	0.40	0.35	0.01	0.15	0.24

Road safety casualty data

Monitoring casualties in London – all roads.

Casualties in the year 2011 compared to 2005-2009 average and 2010

Casualty severity	User group	Casualty numbers			Percentage change in 2011	
		2005-2009 average	2010	2011	2010	2005-2009 average
Fatal	Pedestrians	96	58	77	33	-20
	Pedal cyclists	17	10	16	60	-4
	Powered two-wheeler	43	28	30	7	-31
	Car occupants	49	27	32	19	-35
	Bus or coach occupants	2	0	1	-	-58
	Other vehicle occupants	3	3	3	0	-6
	Total	211	126	159	26	-25
Fatal and serious	Pedestrians	1,216	913	980	7	-19
	Pedal cyclists	421	467	571	22	36
	Powered two-wheeler	791	615	599	-3	-24
	Car occupants	949	722	499	-31	-47
	Bus or coach occupants	140	98	86	-12	-38
	Other vehicle occupants	110	71	70	-1	-36
	Total	3,627	2,886	2,805	-3	-23

Casualty severity	User group	Casualty numbers			Percentage change in 2011	
		2005-2009 average	2010	2011	2010	2005-2009 average
Fatal and serious	Child pedestrians	232	189	175	-7	-25
	Child pedal cyclists	33	22	19	-14	-42
	Child car passengers	42	31	24	-23	-43
	Child bus/ coach passengers	12	5	6	20	-48
	Other child casualites	12	3	6	100	-49
	Children (under 16 yrs)	330	250	230	-8	-30
Slight	Pedestrians	4,214	4,478	4,466	0	6
	Pedal cyclists	2,718	3,540	3,926	11	44
	Powered two-wheeler	3,806	3,722	4,077	10	7
	Car occupants	12,427	11,851	11,293	-5	-9
	Bus or coach occupants	1,430	1,303	1,384	6	-3
	Other vehicle occupants	1,005	1,109	1,306	18	30
	Total	25,600	25,003	26,452	2	3

Casualty severity	User group	Casualty numbers			Percentage change in 2011	
		2005-2009 average	2010	2011	2010	2005-2009 average
All severities	Pedestrians	5,430	5,391	5,446	1	0
	Pedal cyclists	3,139	4,007	4,497	12	43
	Powered two-wheeler	4,598	4,337	4,676	8	2
	Car occupants	13,376	12,573	11,792	-6	-12
	Bus or coach occupants	1,569	1,401	1,470	5	-6
	Other vehicle occupants	1,115	1,180	1,376	17	23
	Total	29,227	28,889	29,257	1	0

NB. Shaded areas show the national and London casualty reduction target categories.

Environment

	2007/08	2008/09	2009/10	2010/11	2011/12
CO₂ emissions					
Total CO ₂ emissions (tonnes)	1,923,907	1,954,468	2,051,574	2,085,654	2,138,001
CO₂ emissions from TfL's main public transport modes (grams per passenger km):					
TfL's Public Transport Operations (average)	78	75	75	72	70
London Underground	75	72	73	70	68
London Buses	82	81	80	77	75
DLR	73	76	68	65	61
Tramlink	39	46	44	42	41
Overground	47	51	52	47	45
Energy consumption in head office buildings (kWh/m ²)	317	314	311	322	289
Air pollutant emissions					
Total PM ₁₀ emissions (tonnes)	129	121	136	147	137
Total NO _x emissions (tonnes)	8,160	8,050	8,150	8,060	7,439
Transport related noise and vibration					
Number of noise complaints received	529	411	643	951	907
Percentage of TLRN with lower noise surface material	70	70	74	74	74
Percentage of buses in fleet at least 2dB(A) quieter than the required legal limit	18	14	28	37	54

	2007/08	2008/09	2009/10	2010/11	2011/12
Contractor assaults					
Total C&I waste (tonnes)	17,900	19,100	20,200	19,100	31,453
Proportion of C&I waste recycled (%)	38	38	46	67	70
Total CD&E waste (tonnes)	457,000	629,000	570,000	331,000	1,407,365
Proportion of CD&E waste recycled (%)	94	87	82	95	98
Water consumed per occupant in head office buildings (m ³ per person)	7.7	6.5	6	5.7	6.3

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