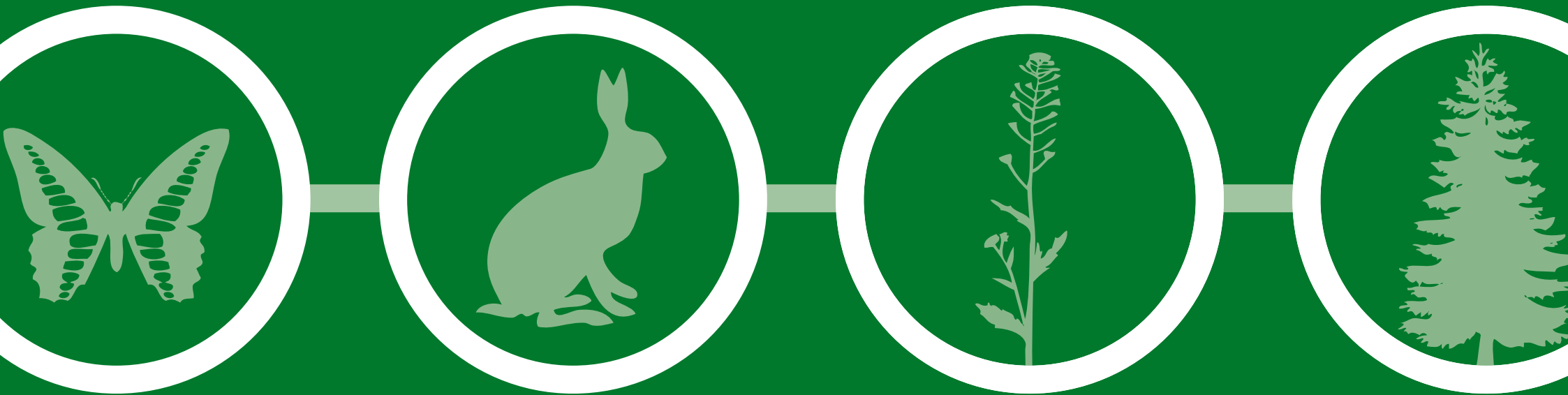


London Underground Environment Strategy

2008 – 2013



Contents

Introduction	3
London Underground Environment strategy	4
Managing environmental impacts	5
Embedding 'environment' into the business	7
Managing carbon and energy use	9
Improving resource use and waste management	10
Conserving wildlife and habitats	11
Managing noise	12
Improving air quality	13
Managing potential pollution	14
Current and future performance	15





Introduction

London Underground (LU) plays an important role in managing the environmental impacts of transport in London by providing a service which reduces road congestion and, as a result, carbon emissions and other air pollutants. The Tube and public transport are part of the solution to both global issues such as climate change and local issues such as air quality.

LU service improvements will result in an increase in the number of journeys taken by Londoners on the Tube each day which, if it reduces the number of car journeys across the city, will have a significant positive effect on global and local environments. As such, delivery of LU infrastructure projects and service improvements are central to improving London's environmental performance.

However, while LU can improve the quality of the urban environment and provide a low carbon transport option, it is recognised that LU must also manage the impact of its operations on the environment. LU's vision is to provide London with a truly world class transport system and good environmental performance is integral to that vision. This Environment strategy focuses on the impact of LU's activities on the environment and sets out priorities for the next five years. It establishes the foundations which will allow LU to understand, manage and minimise its environmental impacts as well as govern day-to-day activities.

Over the years LU has reported improving environmental performance of its business. With the firm foundation this Environmental Strategy provides, LU will build on this success over the next five years.

About London Underground

LU is the oldest underground transport system in the world. It began as a six kilometre stretch between Paddington and Baker Street in January 1863 providing a small steam train service connecting mainline overground stations to the city. Today LU runs over 408 kilometres of track and serves 275 stations over 12 different lines. With a land property portfolio of over 4,000 hectares, LU covers most of London as well as parts of Buckinghamshire, Hertfordshire and Essex. In 2006–07 we transported over a billion passengers for the first time and in 2007 we broke the Tube passenger record by carrying 4.17 million passengers on 7 December. We employ over 19,000 employees. In 2003 LU became part of Transport for London (TfL). TfL is the public body responsible for managing transport across the capital.

LU Environment strategy

This Environment strategy focuses on the impact of LU activities on the environment and sets environmental priorities over the next five years. It establishes the foundations which will allow LU to understand, manage and minimise its environmental impact as well as to govern day-to-day activities.

The strategy is driven by LU's core environmental objective. Key performance indicators (KPIs) have been established for each environmental issue.

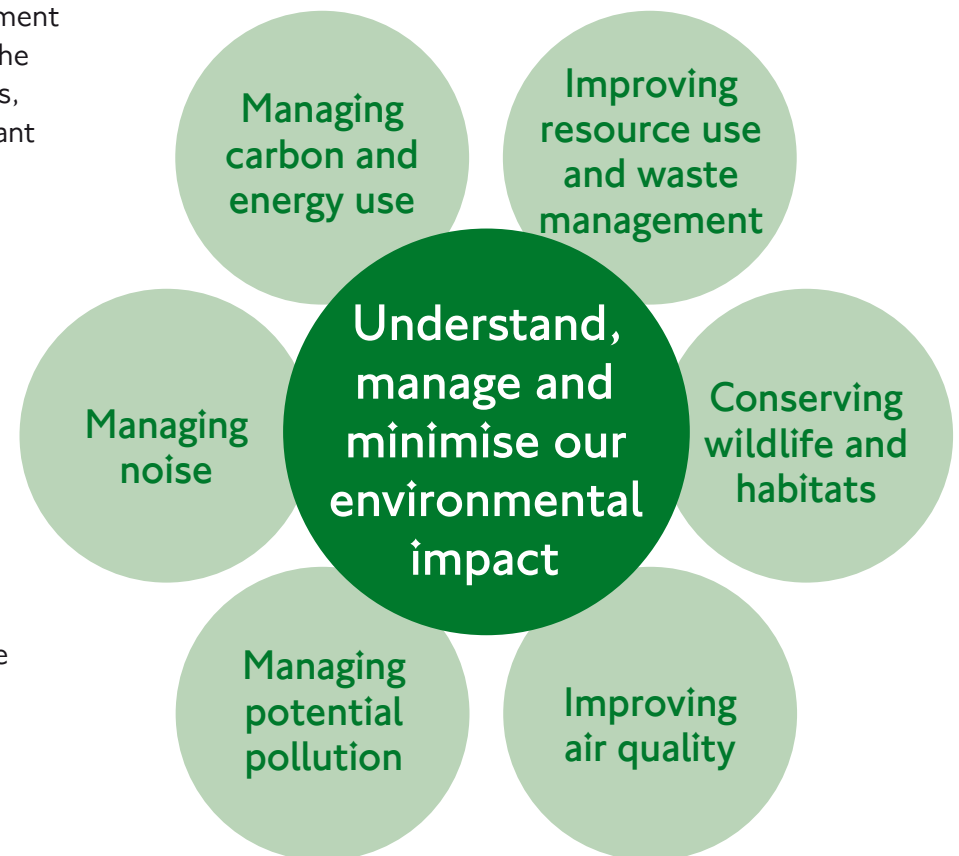
London Underground in 2013

In five years time, LU will be 10 years into its major investment programme to transform the Tube. LU, with its suppliers, will have delivered significant capacity increases and service improvements across the network.

The Tube will have supported a successful Olympic and Paralympic Games, played an active role in a wide number of events across London, and will have continued to carry Londoners across the Capital each day.

LU is committed to continuous environmental improvement; the aim is to have further improved environmental performance by 2013. By embedding good environmental practices into the business, LU plans to deliver:

- A low carbon transport service
- More sustainable resource use
- Improved recycling performance
- A valuable refuge for plants and animals
- Improved local environments – managing noise nuisance, minimising air pollution and preventing land/water pollution





Managing environmental impacts

LU operates a well developed Health, Safety and Environmental Management System (HSEMS) to ensure that its environmental impacts and performance are managed appropriately.

At the heart of the environmental element of the HSEMS is the Health, Safety and Environment (HSE) Policy which is supported by a number of standards and procedures that set requirements for LU activities. The HSE Policy requires LU to comply with the spirit and the letter of environmental legislation and to improve its environmental management and performance. LU also manages the environmental performance of its operations and projects through standards and process documents, such as Contract Quality, Environment, Safety and Health (QUENSH) Conditions. Working closely with suppliers helps to ensure they deliver good environmental performance for the Underground too.

As part of HSEMS LU produces an Environmental improvement programme (EIP) each year which sets objectives, priorities and targets for the year ahead. HSEMS is regularly reviewed to take into account changes in business activities, responsibilities and legislation.

LU monitors and reports on its environmental impacts regularly – quarterly on an internal basis, and annually to the public, through the TfL Environmental Report. These reports include information on LU's environmental performance and certain aspects of the environmental performance of LU's main suppliers. Other environment reports and information are available through the TfL web site:

TfL's Environmental Objectives

- Reduce greenhouse gas emissions
- Reduce pollutant emissions to air
- Reduce transport related noise and vibration
- Reduce resource consumption and improve green procurement
- Maintain and, where possible, enhance the quality of London's built environment
- Reduce the waste generated by TfL activities, by applying the principles of reduce, reuse, recycle
- Maintain and, where possible, enhance the quality of London's natural environment

<http://www.tfl.gov.uk/corporate/about-tfl/8817.aspx>

Mayor of London and Transport for London environmental priorities

The Mayor of London has a number of environmental strategies which place obligations on LU. A number of these strategies and plans

directly relate to the environmental priorities set out in LU's Environment strategy such as the Climate Change Action Plan, Ambient Noise Strategy, Air Quality Strategy, Biodiversity Strategy and the forthcoming Business Waste Strategy. Some of the strategies and plans set targets which may apply indirectly on LU, such as the Mayor's target to reduce carbon dioxide emissions from London transport by 60% by 2025 compared to 1990 levels and the target on the GLA group, including TfL, to recycle 70% of its industrial and commercial waste by 2020.

LU's actions will contribute to delivery of these targets by TfL and London as a whole. We have actively participated in the development of the strategies and will continue to support delivery of these and future strategies and plans.

A number of the priorities in LU's Environment strategy reflects TfL's key environmental objectives. LU reports against a series of environmental KPIs that measure performance against these objectives to TfL each year.



Embedding 'environment' into the business

Good environmental practice relies on an understanding of the environmental implications of our operations, maintenance and projects being fully embedded into our day-to-day and planning activities. This allows us to ensure that issues are identified at an early stage and we can plan how to eliminate an issue or manage it appropriately.

To ensure that the right environmental issue is considered at the appropriate time – during a project or during day-to-day operations and maintenance – it is important that our employees, at all levels in the organisation, understand how they can contribute to good environmental practice for LU.

Specific actions required to deliver the activities outlined will be set out each year in our Environment improvement plan. We will also set targets to measure progress towards our environmental objectives. We will report on our performance against the KPIs set out in this Strategy and other supporting indicators in our Environment Report each year.

Over the next five years, we intend to deliver improved environmental performance through delivery of the key objectives set out in this strategy. By 2013, we hope that many of the strategic objectives will be embedded in our programmes and processes. At that stage, we will review this strategy and our KPIs and will outline how we will manage our environmental practices and impacts beyond 2013.



Objectives

- To engage employees, at all levels in the organisation, in good environmental practice
- To ensure that environmental issues are considered during the operation of our service, maintenance and project activities
- To ensure that processes are in place which allow the environmental issues to be considered at the right time at all stages of project development and implementation
- To have robust systems which allows us to monitor and report on the impact of our activities and the activities that our major suppliers undertake on our behalf
- To have a robust and effective Environmental management system that delivers good environmental practice at a strategic and day-to-day level

How we will deliver

1. **Employee engagement.** A number of environmental awareness raising campaigns have been delivered in LU in recent years using expertise from our environment and communications teams. We will further develop and implement campaigns that will focus on how employees can help deliver good environmental practice in their day-to-day roles. We will also improve our processes for ensuring that environmental issues are considered at all stages of our projects, maintenance and operational activities.

2. **Environmental impact of LU projects and maintenance.** This Strategy sets out our priorities in terms of understanding, managing and minimising our environmental impact. Our suppliers have a good understanding of our environmental priorities. We will put processes in place to ensure that project managers, suppliers and contractors consider the right environmental issues at the right time when delivering projects.
3. **Monitoring and reporting environmental impact.** We currently report on a wide range of environmental impacts, but know that there are some areas where existing monitoring systems could be improved. We will improve our systems for monitoring the environmental impact of our activities through a range of measures, which may include introduction of specific contractual conditions, use of automatic monitoring systems, etc.
4. **Environmental Management System.** We will review our HSEMS to ensure that the system will deliver good environmental practice at a strategic and day-to-day level.



Managing carbon and energy use

We are the single biggest consumer of electricity in London and one of the top 10 electricity consumers in the UK. Improvements across the network, such as introduction of increased services, new trains and modernised stations, will result in an increase in electricity consumption over the next twenty years. Electricity consumption is a significant contribution to climate change and we have a responsibility to ensure that we use energy efficiently.

The primary source of our CO₂ emissions is associated with fossil fuel combustion during electricity generation. Other sources of CO₂ emissions are our back-up gas turbine power plant and our road fleet.

Objectives

- To understand and improve the carbon impact of all areas of our business
- To deliver a low carbon transport solution for London

How we will deliver

We have developed a Carbon emission reduction plan which sets out how we plan to tackle carbon emissions across our operations. The Plan has adopted a three-pronged approach:

- 1. Embedding energy conscious behaviour.** We believe that we can reduce energy for certain operations and improve energy management by embedding a greater understanding of energy demand in all our activities – from project development to individual behaviours. We will improve energy management at our operational sites through mechanisms such as our Station energy challenge. We will also put processes in place to ensure that energy demand is considered at all stages of our business planning and project management, including early development, design and implementation.
- 2. Energy efficient and renewable technology and systems.** We will investigate and trial technologies and systems which could reduce energy demand across our network. We will also consider how we can incorporate renewable energy technologies across our operations. We will work with our contractors and suppliers to incorporate energy efficient design and systems in new assets and infrastructure.

- 3. Influencing the supply chain.** We will work with our energy suppliers to improve the carbon profile of our power demands. We will use our position as a major power consumer to work with and influence our power suppliers. We will also work with energy stakeholders to identify energy generation opportunities in London.

We have also produced a Carbon Footprint report which quantified the carbon impact of a range of activities, such as waste management, the goods and services we procure, water use, etc. This report is being used to direct good environmental practices and improved performance.

Key performance indicators

- Grams CO₂ per passenger km
- Traction power (MWh) per million passenger journeys

Improving resource use and waste management

We have adopted the GLA Responsible Procurement Policy and in March 2006 became signatories to the highest level of the Mayor's Green Procurement Code. This gives a framework for purchasing that ensures wherever possible recycled/reused materials are bought and the environmental and social effects of purchases are taken into consideration in procurement activity.

A wide variety of wastes are produced as a consequence of operating, maintaining and investing in the Underground service. These wastes include customer waste, station and depot waste and waste associated with station, track and infrastructure projects. We aim to improve the environmental profile of the materials we use, to reduce the amount of waste associated with our activities, to recycle more and to increase the proportion of waste we recycle.

Objectives

- To improve the environmental profile of the materials we use
- To reduce the amount of waste produced
- To increase the proportion of waste recycled

How we will deliver

We have established KPIs for each area and will monitor and report on performance.

- 1. Improving the sustainability of the materials we use.** We will increase the range of environmentally friendly products and materials available through our internal procurement system. We will also work to increase the sustainability of materials purchased by our suppliers on our behalf.
- 2. To reduce the amount of waste produced.** We will implement systems for managing the materials that we use, focusing in particular on reducing the amount of paper we use. Although we have limited control over the waste our customers leave on our trains and in stations, we will consider systems for improving how we manage this waste. We will also review other areas where we can reduce resource use and waste generation, both internally and with our suppliers.

- 3. To increase the proportion of waste recycled.** We will provide access to a wider range of recycling facilities across the business. We will investigate ways of improving recycling of our customers waste. We will also work with our suppliers to ensure that waste associated with upgrading our network is recycled.

Key performance indicators

- Proportion of station, depot and office waste recycled (%)
- Proportion of construction and demolition waste recycled (%)

Conserving wildlife and habitats

We are one of the largest landowners in London and our trackside provides an important refuge for a variety of flora and fauna in London. Our land often provides an important green corridor linking the Capital's open spaces and helping wildlife to move around.

In May 2007 we published LU's first Biodiversity Action Plan (BAP). This plan sets out objectives and actions which will help us conserve and enhance the wildlife and habitat value of our property.

Objectives

- To conserve, and where reasonable practical to enhance, the biodiversity value of LU property
- To increase awareness amongst staff and the travelling public of biodiversity in London

How we will deliver

Our BAP sets out a series of actions which we plan to implement over three years (2007–2010).

- 1. Increasing biodiversity awareness.** These actions include development of a Biodiversity Communications Plan which will provide our employees with information on wildlife and habitats on the LU network using a range of media and will increase awareness amongst the public of the biodiversity value of LU property.
- 2. Improving biodiversity information.** We will also develop processes to ensure that all appropriate information is captured and shared amongst the business, particularly for major projects. We will also encourage our major suppliers and contractors to develop processes to ensure they manage wildlife and habitats on our network.
- 3. Reviewing the BAP.** The BAP will run for three years: 2007–2010. In 2010 we will review our success in meeting our objectives and will consider how we manage wildlife and habitats beyond this date. We have discussed potential biodiversity KPIs with stakeholders such as TfL and the GLA. While there is no KPI which is appropriate at the moment, we will continue to work with these stakeholders and others to develop a suitable KPI for the future.



Managing noise

Operating a railway can result in noise and vibration which may be a nuisance to people living or working near our railway lines, stations or depots. Certain activities such as construction or maintenance works are an essential element of upgrading and operating a railway. Keeping customers safe and informed is an important part of operating a world-class public transport network. However, we want to ensure that noise nuisance is minimised wherever possible.

The noise that we generate in our activities is from three main sources:

- contractor activity in engineering works and asset maintenance through our investment programme
- public address (PA) systems and tannoy announcements
- track and asset based noise such as from wheel-rail interfaces

Objective

- To minimise noise nuisance associated with our railway wherever possible

How we will deliver

- 1. Monitoring noise and vibration complaints.**
We will monitor the complaints associated with noise and vibration to identify where our neighbours have concerns. We will work with our neighbours, local councils and other stakeholders to address their concerns.
- 2. Working with suppliers to manage noise.**
We will continue to work with LU suppliers to reduce asset based noise and will work with all contractors to ensure that noise nuisance associated with upgrades or other project work is managed appropriately.
- 3. Improving processes.** We will also introduce new processes where necessary to ensure that complaints and issues are dealt with effectively and consistently across LU.
- 4. Noise and vibration KPI.** LU's current noise KPI is set out below. It may be appropriate to consider whether this indicator, or subsets of this indicator, should be normalised, e.g. noise associated with contractor and project activities/£m spend on investment and maintenance.

Key performance indicators

- Number of complaints related to noise and vibration (operations)
- Noise and vibration complaints per 100,000 hours worked (projects and maintenance)



Improving air quality

The level of air pollutants in London can be high due to the incomplete combustion of fuels during transport. This results in the release of substances such as sulphur dioxides (SO₂), nitrogen oxides (NO_x) and particulate matter (PM10). We play a vital role in contributing to air quality improvement in London by providing a mode of public transport which has no direct gaseous emissions to air. Operation of our support road fleet by Tube Lines (which provides services such as collection of waste for recycling and engineering vehicles) does result in direct emissions to air.

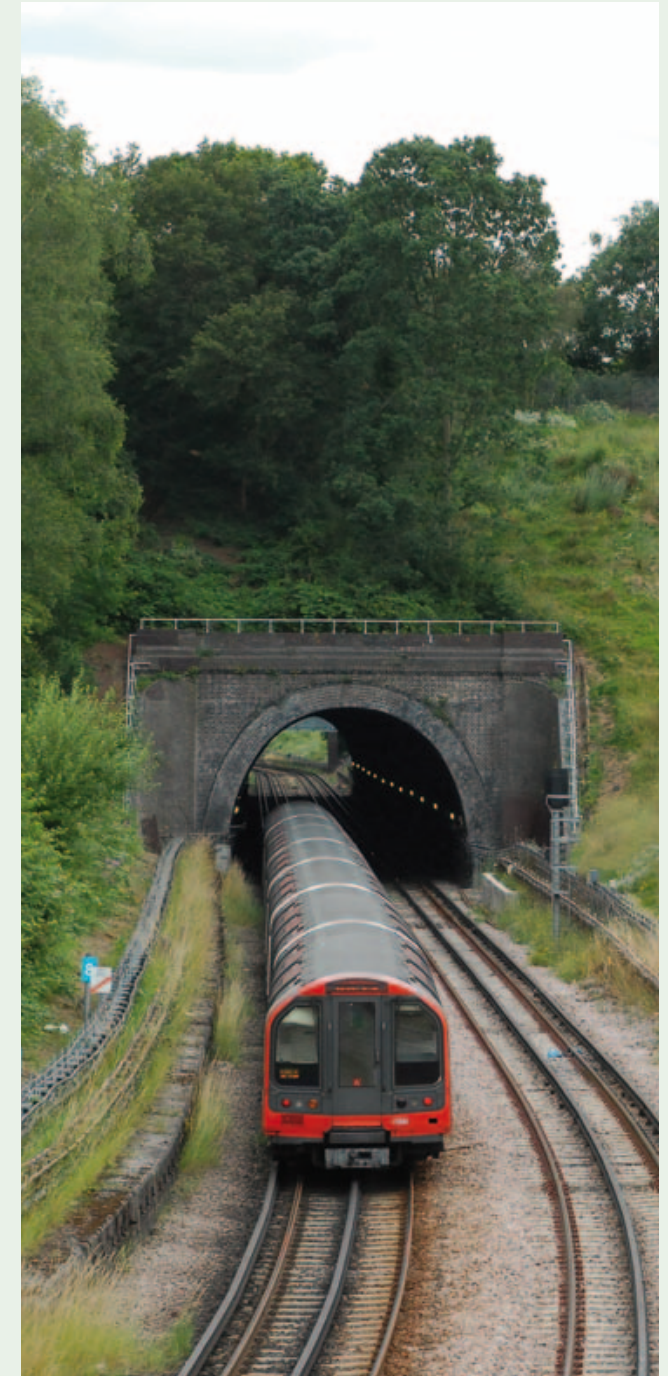
Objective

- To reduce emissions to air from our road fleet

How we will deliver

We are working to improve the performance and profile of our road fleet to minimise emissions of CO₂ and other air pollutants and will reduce noise associated with our fleet. We plan to reduce emissions from our road fleet through a number of means including:

1. **Trialling and adopting low or no-carbon fuel sources.** Trialling and adopting low or no-carbon fuel sources and technologies, such as biofuels, hydrogen, hybrid or electric vehicles.
2. **Improving road fleet environment policy.** Working with other TfL modes to develop a robust support road fleet environment policy and guidelines which will improve the environmental performance of the fleet.
3. **Working with Tube Lines.** Working with Tube Lines, who manages the LU and Infracore road fleet, to reduce emissions.
4. **Developing KPIs.** Alongside the road fleet environmental policy, we will develop KPIs against which we can monitor and report the environmental performance of our road vehicles.



Managing potential pollution

The broad nature of our activities means that there is potential to cause pollution or damage to the environment. Therefore, we have standards which outline how materials should be stored and managed on our network and we, and our suppliers, monitor the control of pollution during construction and maintenance activities.

We are a significant landowner in London and some of our land has been used for a variety of activities – gas works, tanning factories, etc. There is the potential for historical pollution on some of this land and we aim to ensure that any contamination is contained and managed appropriately.

Objective

- To ensure that no major environmental incidents occur as a result of our activities

How we will deliver

1. **Robust monitoring and reporting.** We will continue to identify and monitor possible land and water pollution from LU, suppliers and other sources. Where necessary we will inspect our property, our standards or contract conditions to ensure that pollution and potential pollution are managed appropriately. This includes effectively controlling discharges to rivers and sewers and managing contaminated land.

Key performance indicator

- Number of major environmental incidents





Current and future performance

Each year we report on our environmental performance against a series of performance indicators. This Strategy identifies the priority indicators, including a number of indicators against which we do not currently measure performance.

More details on these and other performance indicators are included in TfL's Environment Reports which are available on our web site:

<http://www.tfl.gov.uk/corporate/about-tfl/8817.aspx>

For more information

Further information on London Underground's environmental practices and performance is available on our web site:

<http://www.tfl.gov.uk/corporate/about-tfl/8817.aspx>

or contact us at:

Customer Service Centre
London Underground
55 Broadway
London
SW1H 0BD

Tel: **0845 330 9880**

Fax: **020 7918 4093**

Email: customer.services@tube.tfl.gov.uk

LU Environment strategy 2008 – 2013, revised in 2011.

Copyright London Underground Limited 2011.

All Rights Reserved. No part of this publication may be reproduced or transmitted in any form (including photocopying or recording) without the express prior written permission of London Underground Limited.

Nothing in this report shall create any legal relations between London Underground and any other party nor shall be deemed to interpret, amend, waive or otherwise affect any provision of any contract or agreement identified herein. The report is issued without prejudice to the exercise by Transport for London or London Underground of their rights under any contract or agreement identified herein.