



2009 WINNING CASE STUDY  
Platinum Award Winner and Environmental Consultancy  
Deloitte with Transport for London

## The London Low Emission Zone

### Executive Summary

London has some of the worst air quality in Europe. It exceeds EU and UK legal limits, impacts Londoners' health and quality of life, and can reduce life expectancy. As much of the pollution comes from road transport, in 2005 the Mayor of London asked Transport for London (TfL) to introduce a Low Emission Zone (LEZ) to deter the most polluting vehicles from driving in Greater London.

TfL asked Deloitte to provide programme management and specialist technical consulting services to help implement the scheme. Deloitte's previous experience of working with TfL on the Congestion Charging scheme meant we were able to bring relevant know-how of implementing transport management schemes.

The complexity, scale and timetable of the project were daunting. The Mayor wanted the zone operational as quickly as possible in order to maximise health benefits. As the first UK LEZ, there were many challenges, including defining the legal and operational framework, determining affected vehicles, developing operational systems and establishing a national filter fitting and certification service.

Nevertheless, on 4 February 2008 the scheme was launched on schedule.

Deloitte's consultancy involved: providing the necessary governance and management rigour to manage a complex programme involving multiple workstreams and third party suppliers; resolving the technical and policy issues of how to identify vehicles by their vehicle type and emissions standard; and designing, implementing and monitoring new nationwide vehicle certification processes.

There was an immediately observed reduction in polluting vehicles entering London; within four months more than 95% of affected vehicles were compliant.

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Charles Buckingham, Impacts Monitoring Manager, TfL

## What was the opportunity/ challenge faced by the client?

Air pollution is estimated to cause 1,000 premature deaths and 1,000 hospital admissions every year in Greater London. To reduce the pollution from diesel-engined vehicles, Ken Livingstone, then Mayor of London, asked TfL to implement a Low Emission Zone (LEZ).

The scheme was to cover the whole of Greater London and apply to the most polluting vehicles - diesel-engined lorries, buses and coaches. It would be the first such zone in the UK, and the largest by area in the world, covering 1,500 sq km.

Implementing the LEZ involved multiple workstreams including:

- Policy development and consultation
- Operational systems development and implementation
- Camera installation
- Boundary definition and signs installation
- Public Information
- Vehicle testing and certification
- Impacts monitoring
- Stakeholder engagement.

TfL faced the challenge of co-ordinating and delivering these activities within the aggressive timetable set by the Mayor. By providing an experienced, flexible and multi-disciplinary team, Deloitte helped TfL to successfully meet this challenge.

## Brief Project Background

TfL engaged Deloitte to support the LEZ project in two phases. Between November 2004 and July 2005, Deloitte was asked to review the original LEZ feasibility study produced by the Greater London Authority in 2003. In this phase, Deloitte confirmed the basic scheme design, developed the implementation plan, defined the scheme operating model and constructed the business case.

TfL approved the implementation plan and business case in July 2005, and asked its Congestion Charging Directorate to implement the scheme. In August 2005, TfL asked Deloitte to provide programme management and technology services to support the implementation. Deloitte then worked closely with TfL throughout the implementation programme and launched the scheme in February 2008.

## Consulting Activity

Throughout the programme, Deloitte offered a strong cross-competency team that combined programme management, operations and technology expertise.

## Phase 1 – Reviewing the feasibility of the scheme

During the review phase, the Deloitte team used its programme management expertise and experience of implementing the Congestion Charging scheme to develop the overall LEZ implementation plan. This required critical path analysis of the time it would take to complete the statutory consultation activity combined with the time required to develop the operational infrastructure using existing TfL service providers.

During this phase Deloitte also developed the LEZ business case, which had three elements:

- a model of how much it would cost industry to comply with the scheme
- a model of the costs to TfL of developing and operating the scheme
- a model of the estimated health benefits of the scheme. This was developed by engaging with third party air quality and health impacts modelling expert organisations.

Deloitte's technology team developed the operating model for the scheme, and worked out how to develop a database to hold LEZ compliance information for all vehicles in the UK. The team also identified a system for certifying vehicles so that TfL would have proof that a vehicle complied with LEZ emissions standards.

Deloitte's work in developing the implementation plan, business case and operating model for the LEZ laid the foundations for proceeding with the implementation of the scheme.

## Phase 2 – Implementing the UK's first Low Emission Zone

In August 2005, TfL appointed its own LEZ implementation team, headed by Nick Fairholme. The TfL team provided expertise in policy development and stakeholder management, and was supported by experienced operational staff from the Congestion Charging Directorate.

Deloitte provided a Programme Manager, Louise Hodgskiss, who worked alongside Nick Fairholme to lead the overall delivery team.

Michael Youngman of Deloitte's technology practice led the technical workstreams which developed monitoring and analysis systems and defined the operational systems infrastructure and customer service functions.

Over the life of the project, Deloitte deployed a team of around ten full-time and five part-time consultants. The details of our consulting activity over the life of the implementation programme are summarised below.

## Managing the programme: resolving potential problems across nine workstreams

The LEZ project had nine workstreams, all of which had to be planned, co-ordinated and reported on. Deloitte helped TfL to establish a Programme Management Office to oversee these workstreams. The project had a weekly Project Board meeting with TfL managers, which enabled the team to spot and resolve potential problems quickly.

Deloitte's programme management work also involved conducting readiness reviews ahead of the scheme go-live. This meant that management could focus on critical areas of the project. The readiness review work led to go-live planning where the Deloitte team organised the preparation, communications and reporting for the launch day itself.

### Managing suppliers: co-ordinating activities

The LEZ project relied on numerous third party supplier organisations to provide services to support the scheme. Capita provided the operational and systems infrastructure for the LEZ contact centre and web site. Deloitte's operations and technical resources worked very closely with Capita to design and assure their systems and services.

TfL also relied on agencies of the Department of Transport to provide key vehicle data and services. Deloitte worked with the Vehicle Operator and Services Agency (VOSA) to establish a nationwide vehicle inspection and certification regime, linked to Capita's systems, to automatically register vehicles that passed the emissions tests.

### Technology: classifying every vehicle in the UK

The legal framework of the LEZ required a robust set of scheme rules, based on vehicle type and emissions. This had to be supported operationally by a database that would correctly classify each vehicle in the country according to these rules. This had to enable the automatic classification of the majority of UK vehicles, without requiring them to register with TfL.

Deloitte's technical team developed a robust, low-cost prototype database by combining available data from manufacturers and government agencies supported by a set of business rules. Deloitte developed these rules together with TfL's policy team so that policies (e.g. exemptions) could always be supported by the data available.

### Financial modelling: keeping models up-to-date

As the scheme design evolved, we had to update the financial models that supported the business case. Deloitte provided modelling expertise to maintain the scenario-based models, and reviewed these with third party transport advisors to verify the underlying assumptions.

## Success Factors and Challenges

At the end of the project, Deloitte and TfL carried out a review that identified several factors that contributed to the project's ultimate success:

- *An integrated team focused on a single objective* – the TfL and Deloitte team leaders were committed to promoting an integrated team that worked seamlessly together. The focus on solving problems together contributed greatly to the team meeting the project's aggressive deadline.
- *A consistent, flexible team with a long history of working together* – Deloitte provided key consultants who were involved in the project from the feasibility stage in November 2004 through to the scheme go-live in February 2008. This was critical for such a technically complex project where understanding of the project policy and operational detail was vital at all stages.

- *Robust governance structure* – Deloitte helped TfL to put in place a strong governance framework to closely track every element of the project. An Independent Engineer’s review concluded that the project was “well governed, well managed and led, and well resourced”.
- *Management of third party suppliers* – The Deloitte team included people who had previously worked on TfL’s Congestion Charge, so they knew TfL’s key suppliers, operations and contracts. Combined with Deloitte’s deep understanding of the LEZ, this enabled the team to work closely with suppliers to ensure they delivered successfully.

The key challenges faced by the project included:

- *Managing stakeholders* - many stakeholder groups, particularly from the freight industry, felt that they were being unfairly targeted by the Mayor and TfL. The Deloitte team worked closely with TfL’s stakeholder team and vehicle emissions technology experts so we could successfully address the challenges and concerns of vehicle operators.
- *Developing policy for a scheme that was the first of its kind in the UK* – it was a considerable challenge to develop robust policy rules for the scheme that could be supported by operational systems. Deloitte developed a prototype for the critical database component using Open Source tools and an Agile development method to enable rapid assessment of scheme policy options.
- *Tracking operator compliance* – in the approach to the scheme go-live, it was important to understand whether operators were taking action to comply with the scheme requirements. Deloitte’s work in developing the vehicle compliance database enabled TfL to analyse data from its monitoring cameras and assess the compliance status of all vehicles. This had never been possible before in London, and Deloitte has developed a permanent system for tracking ongoing vehicle compliance.

## The Client/ Consultant Relationship

From the start of the project both Deloitte and TfL recognised the importance of working as one team to share experience, combine areas of expertise and solve problems together. The joint LEZ team shared an office and were united by one clear, common goal: launching the scheme by 4 February 2008.

Nick Fairholme and Louise Hodgskiss, the respective TfL and Deloitte team leaders, set the working dynamic for the project by having an open and collaborative working relationship and actively encouraging team building and social events. This was important for a project of such a long duration.

In feedback, the vast majority of people who worked on the project agreed that it was “*one of the best teams I’ve ever worked with*”.

Nick Fairholme, Head of LEZ, TfL

*“Deloitte brought together a highly committed, multi-disciplinary team who played an invaluable role in taking the Low Emission Zone from an initial feasibility study to final implementation. Together we met the challenging timetable set by the Mayor and the scheme became fully operational on 4 February 2008.”*

Charles Buckingham, Impacts Monitoring Manager, TfL

*“I have always found the Deloitte team to be 'refreshingly different'. It is no exaggeration to say that our monitoring work with LEZ would not have been possible without Ben Travis [Senior Consultant] and his team. Keep up the good work guys - it is much appreciated and admired by us!”*

Graeme Craig, Director of Congestion Charging and Traffic Enforcement

*“The LEZ launch was not just successful but almost entirely painless. This was due to the hard work and dedication of the project team, the positive approach to team working that TfL, Deloitte and our key service providers shared, and the thorough and rigorous approach towards project management established at the start of the project.”*