

# Appendix A:

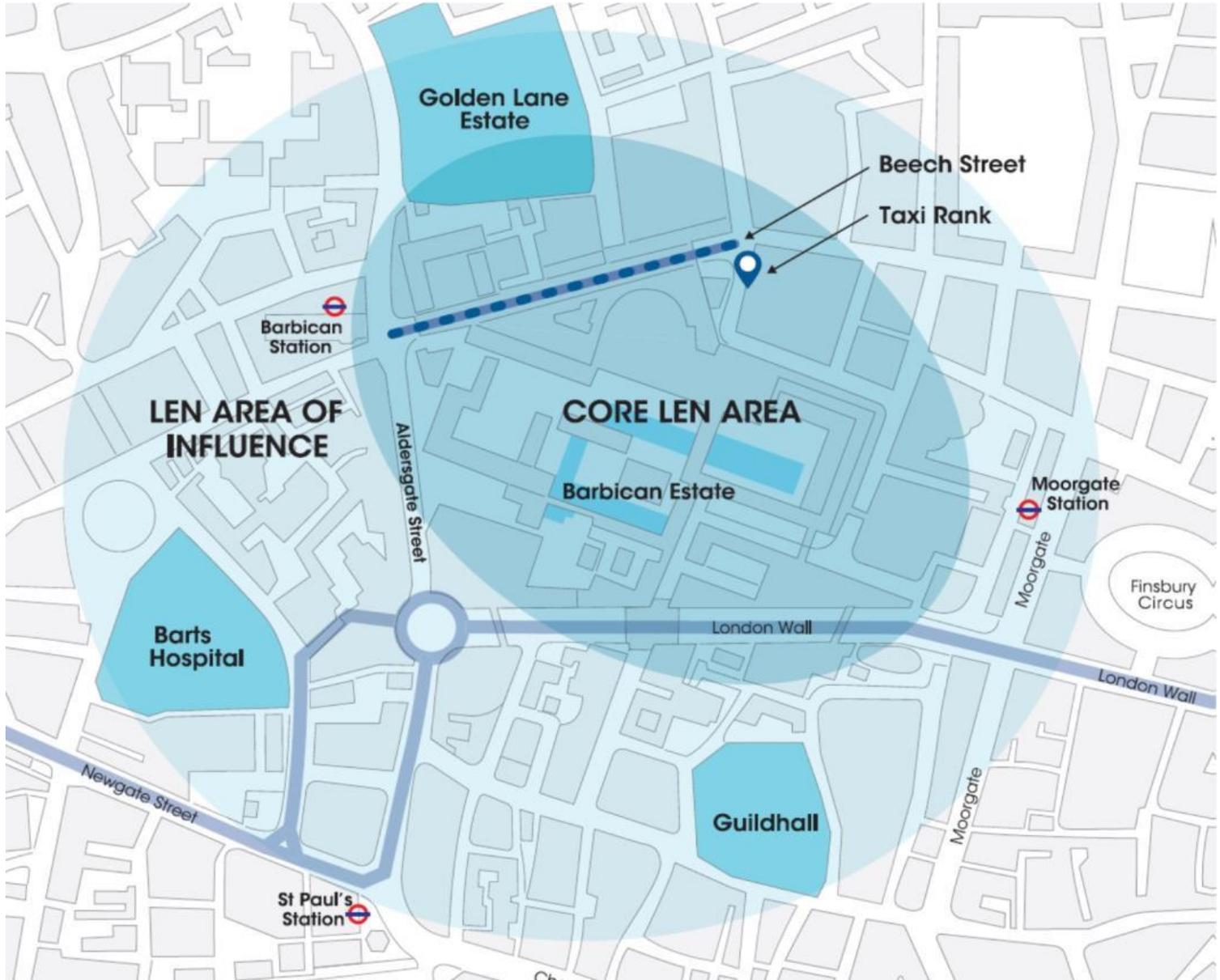
## Summary of City of London Low Emission Neighbourhood (LEN) schemes undertaken in 12 months to August 2017



SUPPORTED BY

**MAYOR OF LONDON**

# LEN Area Map



## Engagement – *Launch Event*

The LEN launch event was held at the City of London Girls School in January 2017. **Over 160 people** attended the event, including approximately 100 residents. Stakeholders and residents heard from speakers on subjects that included the LEN project proposals, the actions being proposed by the Mayor of London on a London-wide level, in addition to hearing from Client Earth on why they were taking the Government to Court.

There were also several information stands offering opportunities to learn more about air quality in the City, register for the “Greening the Grey” for City in Bloom challenge, and learn about electric vehicles, including the chance to test drive BMW and Nissan electric vehicles.



**Attendees in front of electric vehicle stand**



**Residents and stakeholders waiting for event to start**

## Engagement – *Clean Air Day and Bike Week Pop Up Events*

On Saturday, 17<sup>th</sup> June, a Pop Up event was held at Fann Street on the Golden Lane Estate, funded and initiated by the LEN project in partnership with the Road Danger Reduction Team, to raise awareness of air quality and promoting safer cycling.

Dr Bike mechanics were on site to offer cycle safety checks and minor repairs while the City of London Police provided free bike security markings which enables bikes to be returned to people easily if they are ever stolen. The London Cycling Campaign were also on hand to tell people how easy it is to cycle in the Capital and were handing out maps and information. The Road Danger Reduction team were on hand to offer advice and information on both air quality and keeping safe on the City's roads.



**Dr Bike and LCC marquee in Fann Street**



**LEN and Road Danger Reduction pop up stall**

## Engagement – *City of London Girls School Lecture*

As part of the awareness raising activities for the LEN project a lunchtime lecture was arranged for students of the City of London School for Girls (CLSG). The lecture was given by the leading air quality academic, Dr Ian Mudway from King's College London on the health impacts of air pollution.

Dr Mudway is a lecturer in respiratory toxicology within the School of Biomedical Sciences at King's College London and an affiliated member of the MRC-PHE Centre for Environment & Health. His recent and ongoing work examines the impact of both traffic and biomass derived particulate matter on the healthy and asthmatic airway, as well as the impacts of chronic exposures to these pollutants on children's respiratory health.

Dr Mudway has also developed lung lining fluid stimulants to provide rapid screening techniques to assess the toxicity of ambient particulate matter, which have been employed to assess the impact of traffic management schemes in London, including the Congestion Charging and Low Emission Zones.

The 45 minute lecture was very popular, with over 100 students in attendance to learn more about the impact of air pollution on human health.



**Dr Mudway talking to the students**



**Students listening to the lecture**

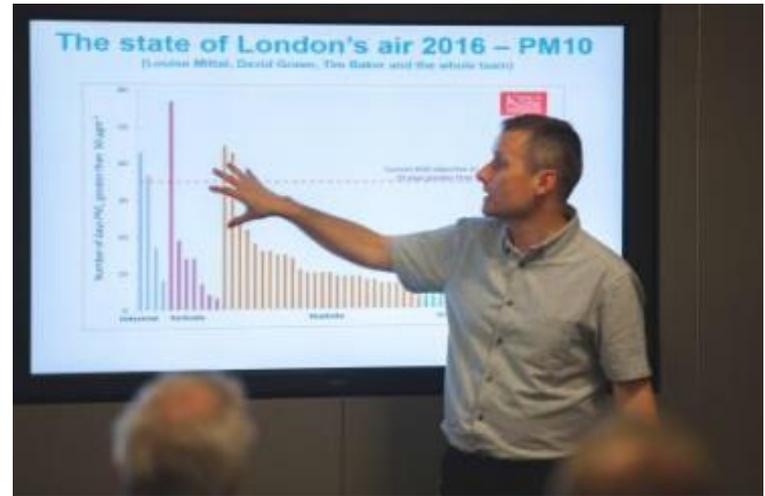
# Business Engagement – Air Quality Champions Network

LEN business engagement activities commenced in early 2017 and so far **50 organisations have engaged**, more than 20 participating in an air quality benchmarking survey.

The Air Quality Champions network was launched on 16<sup>th</sup> June at a lunchtime seminar workshop hosted by Investec, Gresham Street, with **over 40 business representatives** in attendance.

The workshop included presentations by Investec, an update on the LEN project by CrispAir, a resident's perspective on air quality from Barbican resident Sarah Hudson, in addition to Dr Gary Fuller, from King's College University of London, outlining the latest developments on government policy and academic research on air pollution in the UK.

Air Quality Champions are organisations that are committed to reducing their emissions and improving air quality in the Square Mile; their actions are held up as case studies and examples for other organisations to copy or follow.



**Dr Gary Fuller from King's College presenting at the Investec Air Quality Champions workshop**



**Lunchtime workshop attendees listening to Keith Cotton from CrispAir Consulting**

## Business Engagement - Commute to Work Air Pollution Monitoring

The LEN project has funded and provided personalised particulate monitoring for employees on their commutes to and from their place of business. Individuals at the following businesses have participated:

- Museum of London
- Linklaters
- Deutsche Bank
- Simmons & Simmons
- Skanska
- Investec
- Museum of London
- Schrodgers
- Eversheds
- British Lung Foundation

Individuals were given a personal sidepak monitor and a GPS tracker and asked to keep a log of their daily commute journey.

The results have been fascinating and enabled employees to changes their behaviour and routes to work to reduce their exposure to air pollution. Examples of how the data is presented and overlaid onto a commute journey map are shown to the right.

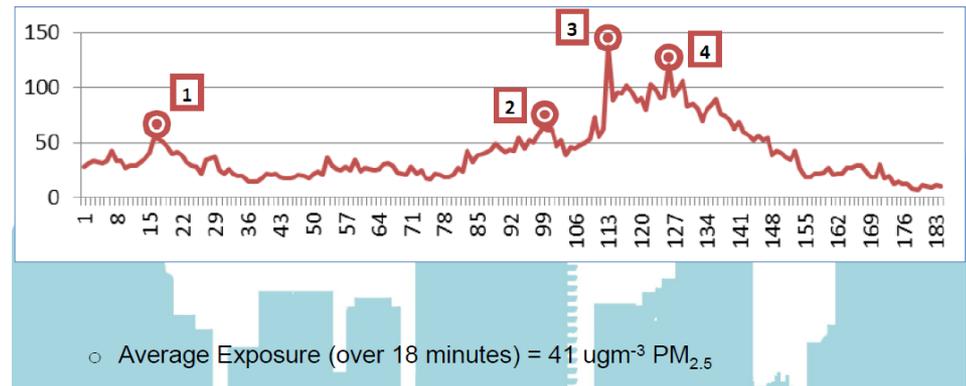
### Monitoring with SKANSKA

- Tube Commute – Paddington to 120 Aldersgate
- Journey Map



### Monitoring with SKANSKA

- Tube Commute – Paddington to 120 Aldersgate
- PM<sub>2.5</sub> Exposure



## Business Engagement – Air Quality Champions Grant Scheme

The LEN Air Quality Champions Grant Scheme was launched in June 2017. Participating businesses can apply for **funding of up to £10,000**.

Through the grant scheme, City firms are being invited to bid for funding to support innovative local solutions to fight air pollution. Examples could include new electric charge points for delivery and service vehicles, working with suppliers to reduce vehicle emissions and empowering staff to monitor air quality on their daily commutes and City journeys.

Successful schemes will be trialled and rolled out to other business in the Square Mile.

The closing date for applications is **29<sup>th</sup> September 2017**, with the final concept to be delivered by 31<sup>st</sup> October 2018.

All participating organisations will be entered into the Air Quality Champions Awards Ceremony to take place in November 2018.

Awards categories will include:

- Most innovative/inventive
- Largest reduction in NOx/PM emissions
- Best value for money



**City of London Corporation**  
**Air Quality Champion Awards**

As part of the City of London Low Emission Neighbourhood (LEN) programme we are delighted to launch a new air quality champions grant scheme.

The aim is to release the creativity of businesses in the Square Mile. We would like you to develop innovative solutions to support the City Corporation in its efforts to improve local air quality. We are looking for suitable schemes that can be trialled, assessed and subsequently adopted by other City businesses if successful.

Businesses that wish to become air quality champions can apply for funding of up to £10,000 to deliver and implement proposals. Ovrleaf are examples of the type of initiatives that will be considered but please do be creative and suggest other ideas!

**CityAir**  
Low Emission Neighbourhood

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## Awareness – Low Emission Walk

The Cleaner Air Foot Prints were installed for National Clean Air week (12<sup>th</sup>-16<sup>th</sup> June 2017) to improve way finding and encourage more people to take the quieter, less polluted route between Barbican Station and Moorgate, thereby reducing their exposure to air pollution.

This alternative route was promoted at the Barbican station and Moor Lane entrances, as well as along the route, and on social media. The launch of the route coincided with the launch of the Moor Lane Pop Up Garden, another LEN initiative.

**Barbican Low Emission Walk  
- Cleaner Air Foot Prints**  
National Clean Air Week (w/c 12 June 2017)

**Follow me for Cleaner Air**

The City of London can suffer from some of the highest levels of pollution in London, and many areas exceed the World Health Organisation (WHO) safe limits for nitrogen dioxide (NO<sub>2</sub>). Did you know that by avoiding busy trafficked routes you can dramatically reduce your exposure to air pollution such as nitrogen dioxide?

This temporary route is being introduced to coincide with National Clean Air Day on the 15 June 2017 and the launch of Moor Lane pop up garden at the eastern end of the walk. The aim of this project is to encourage pedestrians in the City to avoid busier roads such as Beech Street and take quieter routes away from traffic, whilst at the same time taking the opportunity to visit some of the wonderful gardens along the route.

This is one of a number of schemes to improve air quality planned for the Barbican and Golden Lane area over the next 2 years to be implemented as part of the Low Emission Neighbourhood (LEN) project. The City of London Corporation and the Friends of City Gardens are working together to create a number of greening projects that will raise awareness of air quality and how people can mitigate their exposure by taking low emission routes away from busy roads.

For further information about air quality in the City of London and the Low Emission Neighbourhood in the Barbican and Golden Lane area visit [www.cityoflondon.gov.uk/ten](http://www.cityoflondon.gov.uk/ten) or email [ten@cityoflondon.gov.uk](mailto:ten@cityoflondon.gov.uk)

For further information on the City in Bloom Air Quality Challenge: 'clean and green for seven/ten' visit [www.tendsofcitygardens.org.uk](http://www.tendsofcitygardens.org.uk) or <http://cleanorgardens.blogspot.co.uk/>

**Route of the Barbican Low Emission Walk**

Take the stairs and enter the building to the right.

Barbican Centre

Take the stairs at 48 St. Peter Lane



## Awareness– *Neighbourhood Stories*

The LEN *Neighbourhood Stories* are a series of interviews with local businesses, residents and visitors, to capture attitudes, beliefs and behaviours, and to raise awareness of the LEN project. The films and photographs have been used as part of the awareness and marketing campaign for the LEN, primarily in social media and at events.

*Neighbourhood stories* forms part of the longer term strategy to engage residents and local businesses, and help support potential physical measures and the introduction of traffic restrictions to improve air quality.

The interviews captured the following:

- Concern about local air quality (what the existing problems are in the area/direct impact on the person's own physical self or wider concerns)
- Positive messages about the LEN project (and the changes LEN will deliver)
- Positive changes people can make (planting, walking and cycling, talking to friends/neighbours/colleagues, changes to business practices)

**Neighbourhood Stories and stakeholder films available on [City youtube channel](#)**



**Barbican resident Sarah Hudson**



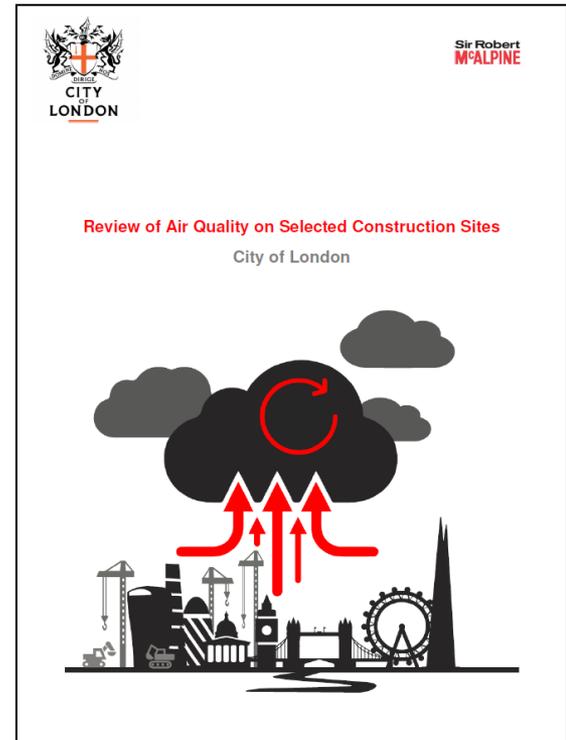
**Anna Kowalewska from Sir Robert McAlpine**

# Construction Sites – *Non Road Mobile Machinery (NRMM)*

Non Road Mobile Machinery (NRMM) is the type of machinery that is used on construction sites, for example generators, diggers or cranes, which contain diesel engines. This equipment must now meet a certain standard set by the Greater London Authority (GLA), and site management should ensure that all site vehicles are well maintained to reduce emissions and are not left idling unnecessarily.

As part of the LEN project Sir Robert McAlpine consultants were tasked with auditing all construction sites within the north west area of the City to assess compliance with the GLA standards and the City of London’s own Code of Practice.

Where compliance was not met the report recommended actions and City officers are working with developers and construction companies to ensure wider compliance.





# Idling Engines – St Bartholomew’s Hospital Training Event

Following complaints about idling engines outside St Bartholomew’s Hospital the LEN team arranged and funded a No Idling driver training course for ambulance and patient transport drivers.

The event was held with drivers based at St Bartholomew’s Hospital to ensure they not only turn off their own engines but also speak to other drivers to reduce the idling of vehicle engines around the hospital site.



Pop up LEN stall at Barts Hospital



Ambulance drivers learning about the Smogmobile in Barts Hospital courtyard

## Beech Street– *Traffic Restrictions*

A comprehensive feasibility study assessing the impact of different traffic restriction scenarios has been undertaken to determine how best to reduce air pollution in this covered street.

Due to the evolving proposals for the Cultural Mile and the Centre for Music it has become apparent that there is a need for wider traffic modelling requirements to support justification for any proposed traffic scheme.

LEN officers are working with Department for Built Environment (DBE) and the Cultural Mile team to determine how our respective objectives can be aligned to achieve rapid improvement in air quality whilst also delivering the public realm improvements greatly needed in Beech Street.



# Residential Electric Vehicle Charging Points

An Electric Vehicle Working Party was established by the Barbican Residential Committee to develop options for the introduction of electric vehicle charging points for residents on the estate. The LEN Project Manager sits on the Working Party providing advice and input to the project which is being fully funded by the LEN.

Five car parks were chosen to act as pilot sites to identify the most suitable type of electric vehicle charging infrastructure for the estate, and ensure it is future-proofed to enable flexibility if and when technology progresses. The five car parks are Thomas More, Breton / Ben Jonson House, Willoughby Level 01, Bunyon House and Cromwell House.

In March 2017 the power switch rooms and cabling in five car parks were upgraded to accommodate the new charging infrastructure. The EV Working Party has recommended a selection of charging equipment for installation as part of the pilot project to **install 30 charging points (in the 5 car parks)**. The Barbican Residential Committee approved this pilot project on the 5<sup>th</sup> June 2017. It is anticipated that the successful contractor can be appointed by mid-September with installations expected to take place in October 2017.



Image of what the EV wall charger units will look like



Engineers inspecting the newly installed cabinets implemented as part of cabling upgrade works

## Taxis – *EV Charging & Taxi Ranks*

Discussions are on-going with TfL and DBE on how best to provide electric vehicle charging infrastructure for zero emission capable taxis in the City.

The LEN Project Manager was closely involved in identifying the proposed site for a rapid charging hub in the Castle Baynard car park.

Trial holes in the footway have been undertaken at several taxi rest bays in the LEN area to determine their suitability for charging infrastructure. It is hoped that approval can be obtained for at least one fast charging point at a taxi rest bay in the LEN area to act as a trial to determine suitability for elsewhere in the City.

Through the LEN project we are hope to convert taxi rank in Silk Street to a 'Zero Emissions Rank' meaning only the new electric zero emission capable taxis will be able to use it. Again to act as a trial to determine suitability for elsewhere in the City.

# Secure Residential Cycle Parking

As part of the LEN project an audit of the condition and capacity of all cycle parking facilities in the Barbican Estate, Barbican Centre, and Golden Lane Estate car parks was completed in the March 2017. Following on from this audit, a phased programme of installations of upgraded cycle parking facilities is taking place.

In the past 12 months the LEN project has funded and project managed the **installation of 90 secure cycle parking spaces** on the Barbican Estate and a further 6 on the Golden Lane estate.

The LEN project team are also working with the Bike Project charity to donate dozens of abandoned bikes on the Barbican Estate to be recycled and repaired for donation to asylum seekers and refugees living in London.



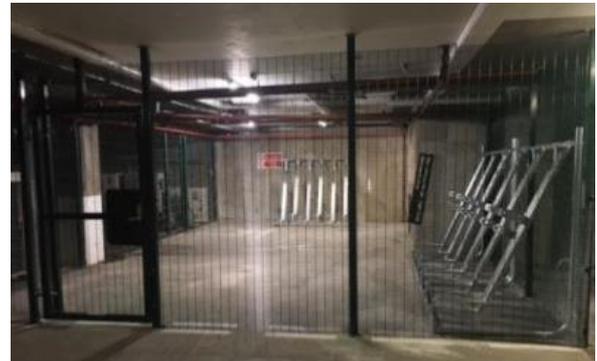
Existing poor quality facilities



Abandoned bikes waiting to be donated



Newly installed cycle hangars



New secure cycle cage

# Golden Lane Cargo Bike Hire Scheme

A cargo bike is on loan to Golden Lane Estate residents for 12 months. The intention is that, if the trial is successful, a permanent scheme will be introduced and it will be expanded to three other locations in the LEN area to provide an area wide scheme for use by residents and businesses.

The cargo bike is being well used, with a resident hiring it to take their children to the Prudential RideLondon Freecycle event in July, and by the Golden Lane baggers.



**Cargo bike with cover being shown on the Golden Lane Estate**



**Local resident Steve Smith with Joe and Sam at the RideLondon Freecycle event in July (Credit: Steve Smith)**

# Barbican City Gardens – Going Ultra Low

The LEN project has helped the City Gardeners team at the Barbican Estate to be almost zero emission with the provision of electric battery powered mowers and blowers and two cargo bikes. Instead of using the diesel van, the City Gardens team now carry their plants and new electric tools from their depot to the Barbican and Golden Lane estates by cargo bike.

The adoption of the new tools, replacing polluting and noisy petrol fuelled equipment, has already made a difference, with residents benefitting from cleaner air and quieter gardens. The battery equipment and the cargo bike were fully funded by the LEN project.



The new Pellenc lithium battery powered mowing, cutting and blowing equipment funded by the LEN project



City Gardener Geoff Rogers on the new cargo bike funded as part of the LEN project



# City in Bloom – Clean and Green for Seventeen

The LEN project has supported the Friends of City Gardens in their City in Bloom, Clean and Green for Seventeen challenge which is part of the Royal Horticultural Society's (RHS) *City in Bloom* and Greening Grey Britain campaign.

The Friends of City Gardens have installed a number of pop up air quality gardens in the public realm. To launch and promote the campaign and LEN project, residents and businesses were given indoor plants that improve air quality.

Two completely new gardens have been constructed in the public realm – one on the Cross Rail site on the corner of Charterhouse Street and Farringdon Road, and the other in the LEN project area on Moor Lane. A dozen other street level gardens have also been replanted by City businesses (Nomura, Eversheds Sutherland, UBS), residents and community groups to raise awareness of air quality.



**Crossrail site pop up garden** (Credit: Friends of City Gardens)



**Lauderdale Place planter** (Credit: Friends of City Gardens)



**Planters at Fann Street Wildlife Garden**



# Moor Lane – Air Quality Pop Up Garden

Moor Lane Pop Up Garden was built and project managed by the Friends of City Gardens, and commissioned and funded by the LEN project. It was conceived and designed by landscape designers Studio Xmpl who were a team of student designers working pro-bono on the project. Friends of City Gardens and local residents **volunteered more than 500 hours of their time** to install the garden, with the help of local businesses and workers from nearby building sites.

The garden is made up of plants with hairy leaves or stems designed to capture and mitigate particulate air pollution and improve biodiversity. The pop-up garden was launched on the 15<sup>th</sup> June as part of National Clean Air Day events in the City of London.



Plants and trees with banner telling people about the Pop Up Garden



What the site looked like before



What the site looked like after installation



Residents & stakeholders gathered at the launch event

# Freight & Servicing

The LEN Project Manager has been working closely with DBE to collect data and information on current freight and servicing activity in the LEN area to inform an action plan for reducing freight traffic in the peak hours.

The LEN project has funded a survey of all on-street loading and unloading activities in the EC2Y (Barbican) and EC2V (Guildhall) post codes to obtain a comprehensive understanding of what activity takes place, when it takes place, and why it takes place.

It is hoped that the analysis of the freight and servicing data collected through these pieces of work will support the implementation of the City's Freight strategy, and potentially inform the development of proposals for a micro-consolidation centre in the area.



**The trial of ULEV only loading bays is being considered as part of the LEN project**



**Electric lorry loading on Cheapside for Costa Coffee – funded by the FREVUE project**

# Delivery & Servicing Plan Case Studies

The LEN project has also funded the development of eight delivery and servicing plan (DSP) case studies of key organisations in the LEN area. Consultants have been working with several businesses and organisations in the LEN area to understand their existing delivery and servicing activities by surveying all incoming and outgoing freight activity.

Support is offered to businesses and organisations to help them implement any of the actions and recommendations made by the consultants in order to reduce their freight related trips.

The organisations participating in the case studies include:

- Barbican Centre
- Museum of London
- Guildhall and Walbrook Wharf
- Deutsche Bank, London Wall
- Linklaters, Silk Street
- Citypoint, Ropemaker Street
- LandSecurities 140 Aldersgate
- Cheapside Business Alliance



**Barbican Centre**

The Barbican Centre considers the role of its catering in air quality

Within the UK, the bar and restaurant sector has a market value of £16.4 billion. Bars, cafés and restaurants have a significant footprint within the City, with trade patterns reflecting increases in population and the extended operating hours due to late night opening growth of night time opening. Specialist requirements and multiple supply chains have led to delivery challenges within the City.

The Barbican Centre is a leading international arts centre, founded and principally funded by the City of London Corporation. The Barbican has a number of bars, cafes and restaurants that require a constant supply of beverages and food produce – ambient, chilled and frozen.

A data collection exercise found that the vast majority of deliveries are received morning and early afternoon, due to suppliers' scheduling and to guarantee the freshness and availability of goods.




**Linklaters**

Linklaters looks to contribute to reducing congestion and air pollution through working with their suppliers

Linklaters advises clients on undertaking business responsibly – a commitment which extends to the operations of this leading international law firm. This demands a focus on responsibility and integrity across the business, affecting their interactions with communities and how they manage their environmental and sustainability impact.

Linklaters aims to be the leading global law firm, building relationships with major companies and financial institutions who turn to them for support on their most important and challenging issues.

Linklaters One Silk Street office is located in the emerging

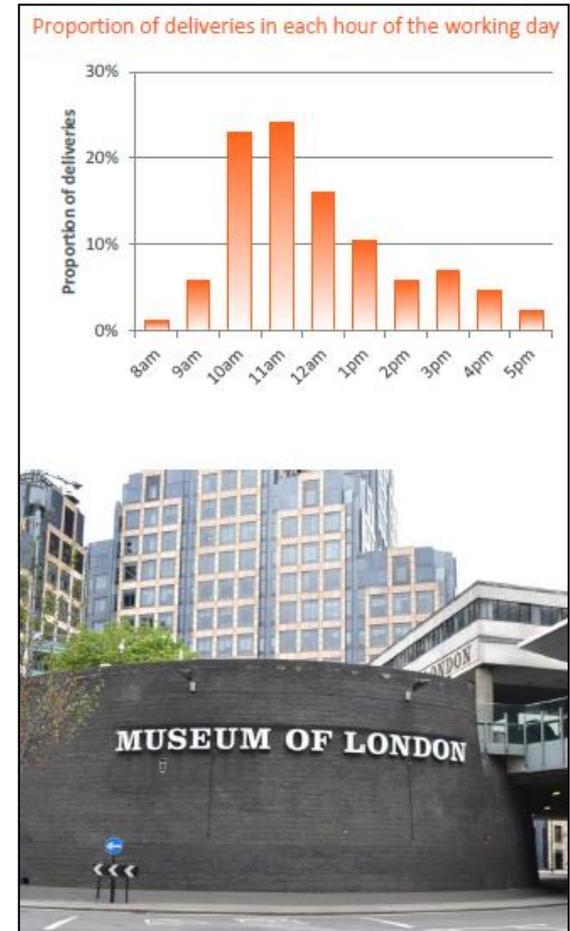
Building on previous improvements

Demonstrating support for the 'City of London Cleaner Air Action Day' in 2015, Linklaters promoted switching off engines for loading bay deliveries while adding criteria to some tenders for mileage to site, to reduce



**Cheapside Business Alliance**

Cheapside takes a collective approach to reducing freight movements and CO<sub>2</sub>



## Monitoring – Smogmobile

The LEN project funded an electric vehicle fitted with specialist air quality monitoring equipment to drive around the streets in the LEN and wider City of London area over a period of three days, to gain a detailed understanding of pollution levels in the City and how they change at different periods of the day and week. The Smogmobile was able to monitor nitrogen dioxide, particulates and black carbon, and had an antennae that could be raised to measure the pollution levels at differing heights.

The results provided by the Smogmobile have helped to improve the understanding of air pollution across the City.



The Smogmobile parked in Barts Hospital Courtyard

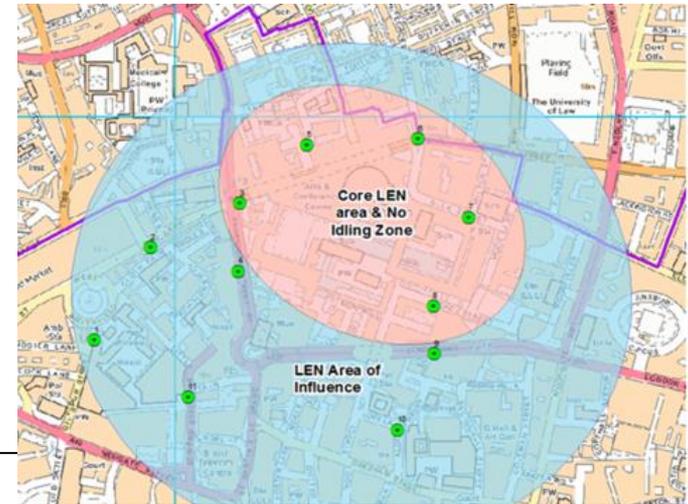


Map showing nitrogen oxide levels produced by Smogmobile

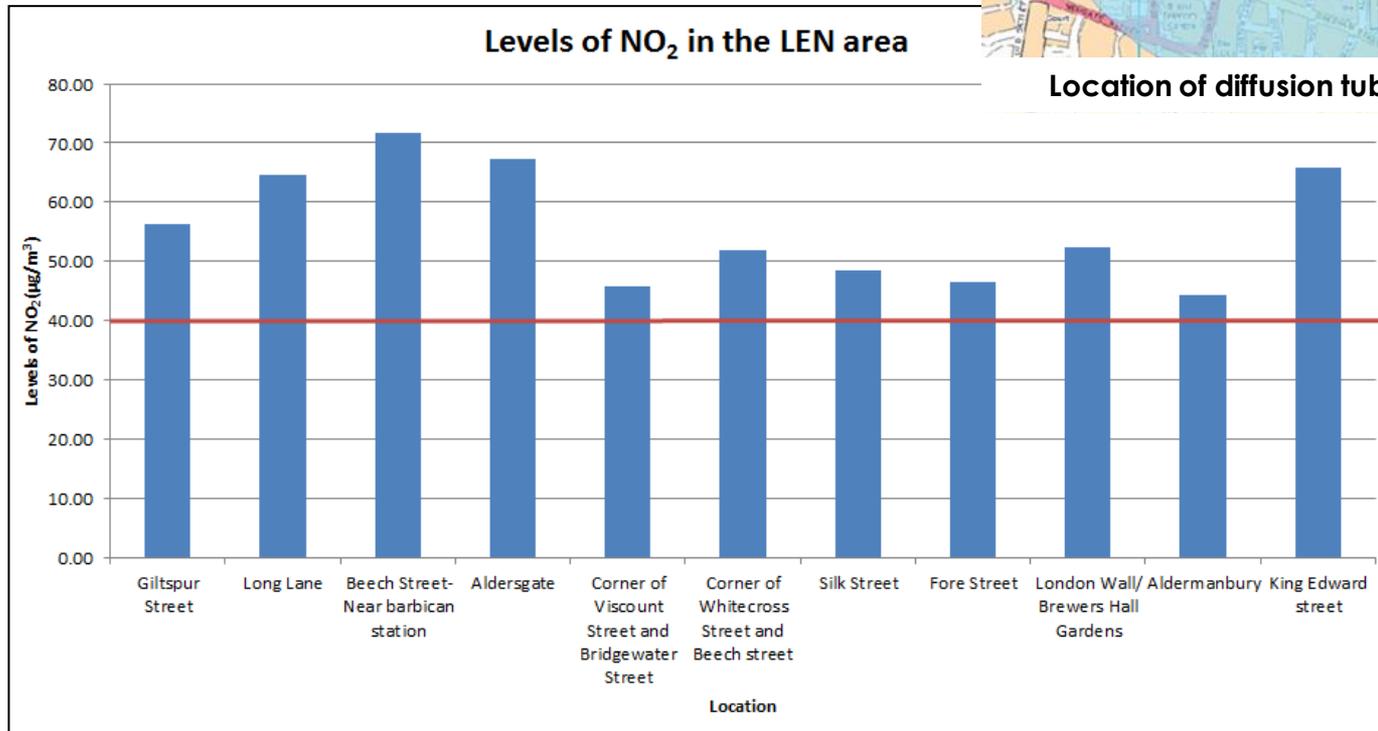
## Monitoring – Diffusion Tubes

A network of diffusion tubes has been installed at eleven sites across the LEN area providing on-going monitoring of nitrogen dioxide (NO<sub>2</sub>) levels since the start of the project. Businesses were also involved in measuring NO<sub>2</sub> levels for a month in May at ten locations. Monitoring of black carbon and particulates has also been undertaken through the use of personal monitors.

Currently the EU/WHO safe threshold limit is not being met at any of the monitoring sites.



Location of diffusion tubes in LEN area



Annual average levels of nitrogen dioxide in the LEN area (40 mg/m<sup>3</sup> is the EU/WHO safe threshold)