

Working with the construction industry

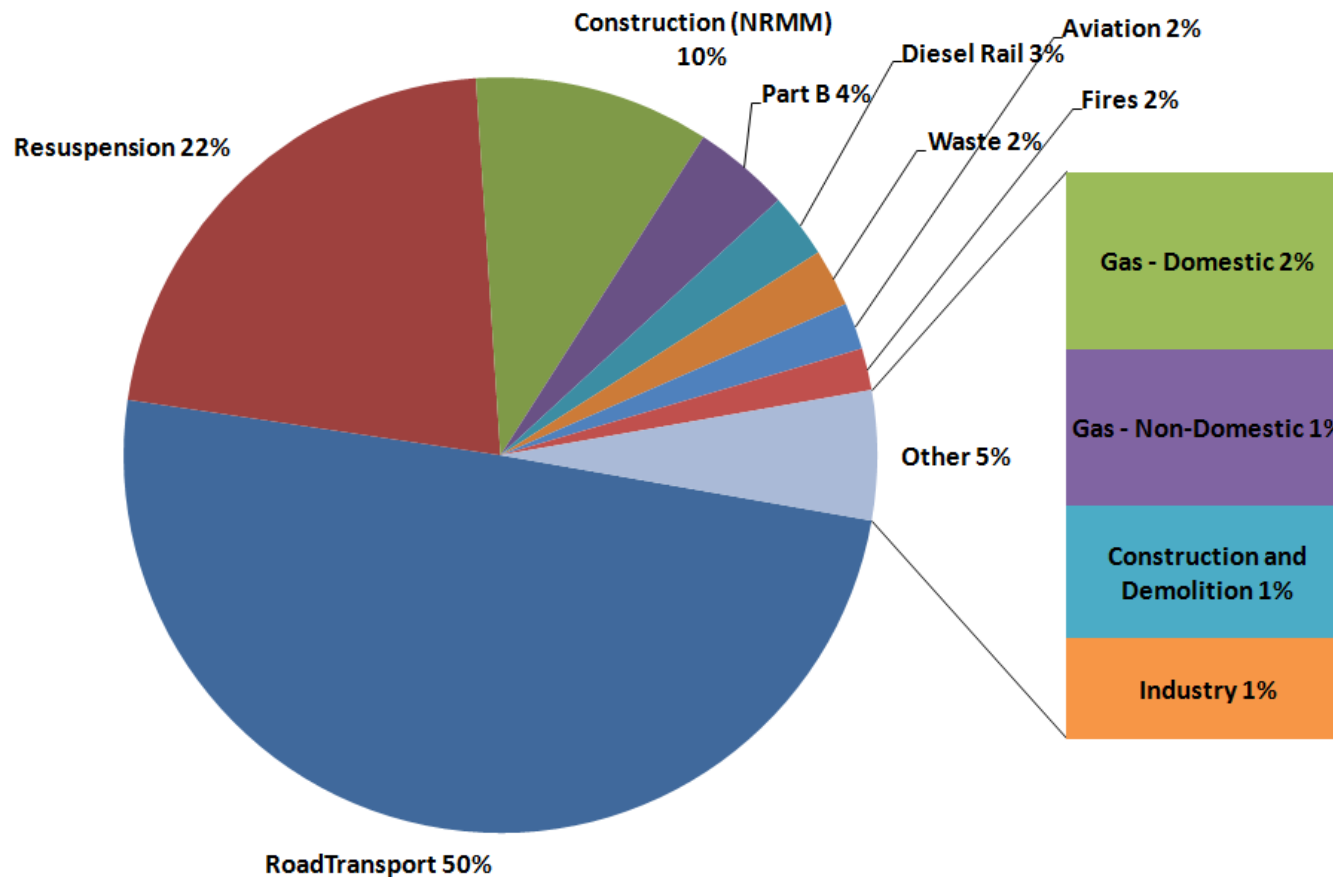
Daniel Marsh – King's College London

2nd July 2015



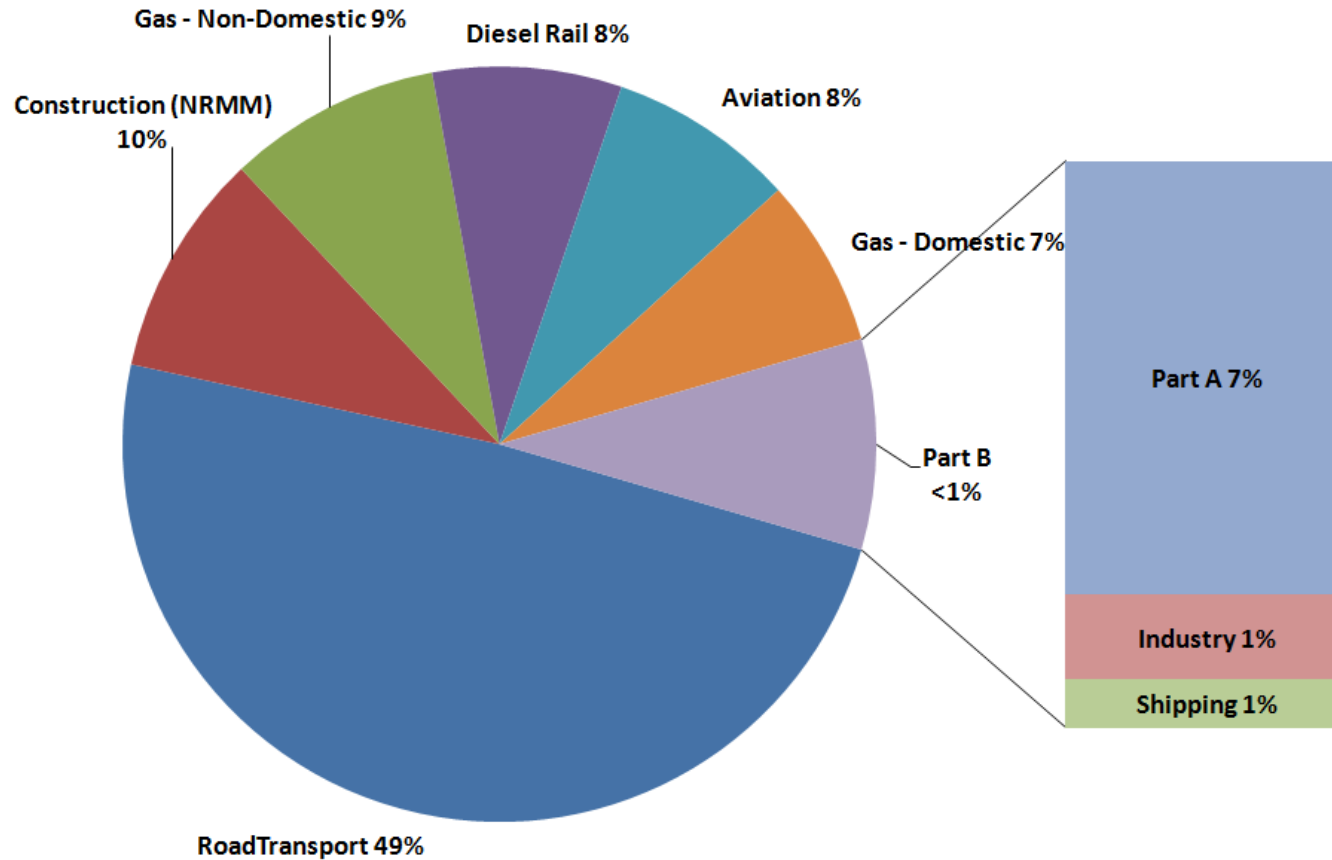
**WHY TARGET THE CONSTRUCTION
INDUSTRY?**

LAEI PM₁₀ emissions (t/annum) 2010



MRC-PHE
Centre for Environment & Health

LAEI NO_x emissions (t/annum) 2010



MRC-PHE
Centre for Environment & Health

Sources and health impacts of construction generated pollution

- The main pollutants being generated are particulate matter (PM) and nitrogen dioxide (NO₂)
- The main sources are from onsite machinery and generators (termed 'non-road mobile machinery' - NRMM) as well as dust generated from activities such as demolition and earthworks
- Material tracked out onto the public highway can be re-suspended and remain in the air for many hours or even days



LONDON LOW EMISSION

CONSTRUCTION PARTNERSHIP

SUPPORTED BY
MAYOR OF LONDON



Project Objectives

- Raise awareness across the construction industry of its impact on local air quality.
- Encourage the uptake of 'best in class' pollution reduction (abatement) measures.
- Improve pollution monitoring and make this data available for construction sites in London.
- Help to fund 'best in class' abatement measures at construction sites.
- Evaluate the cost benefit of pollution abatement techniques.

LLECP Website

- A dedicated website containing information on the air pollution impacts from the construction industry and the available abatement measures.
- Demonstrate ‘best in class’ mitigation and abatement techniques
- Provide trial details and a real-time pollution measurement platform on the project website

www.llecp.org.uk

MRC-PHE
Centre for Environment & Health

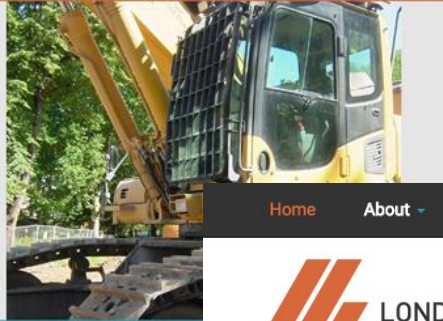


Industry targeted LLECP Website

What is my legal requirement?

From September 2015 the London Mayor will introduce new standards to reduce pollution emissions from the construction industry with tighter standards proposed for the start of the London Ultra Low Emission Zone in 2020.

[Read more...](#)



Working together to build a cleaner London

Are you a...



Project manager



Property developer



Local resident



Local authority officer

How do I find out...



Health advice



Non Road Mobile Machinery

London Low Emission Construction Partnership

The London Low Emission Construction Partnership (LLECP) is a collaboration between the 'Cleaner Air Boroughs' in central London and King's College London. The project is funded by the Greater London Authority (GLA) and aims to reduce emissions from the construction industry.

[Read more...](#)



Air Pollution Forecast

Today



[More information and health advice](#)

Tweets

Construction Dust UK @
New #NRMM #emission s
#London from Septembe
#construction pic.twitter.c
[Show Photo](#)

Construction Dust UK @
#Air #Pollution Linked To
May Narrow The Arteries
#construction #health

Working together to build a cleaner London

Are you a...



Project manager



Property developer



Local resident



Local authority officer

How do I find out about...



Health advice



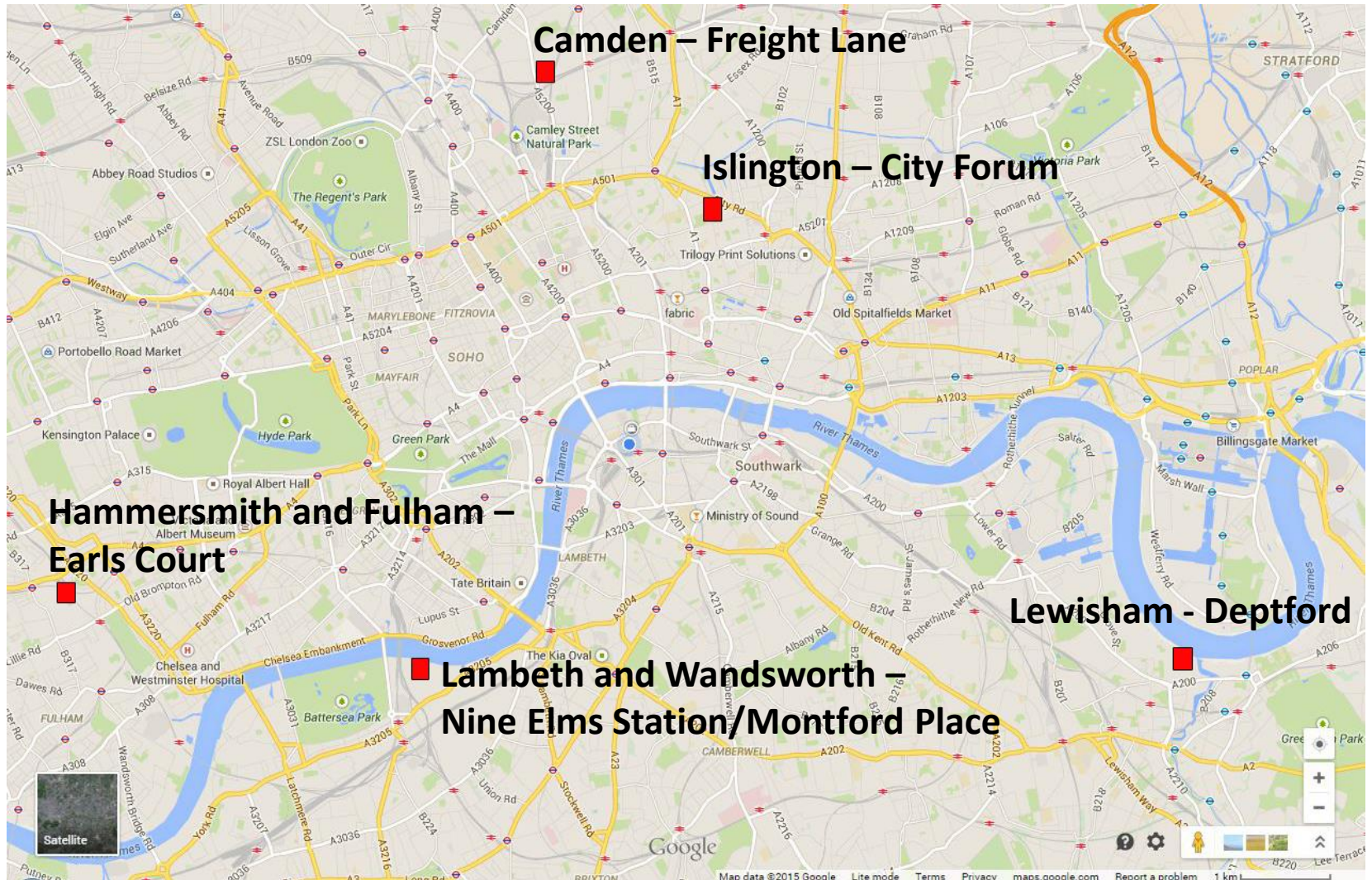
LLECP construction projects



Non Road Mobile Machinery



LLECP trial construction sites



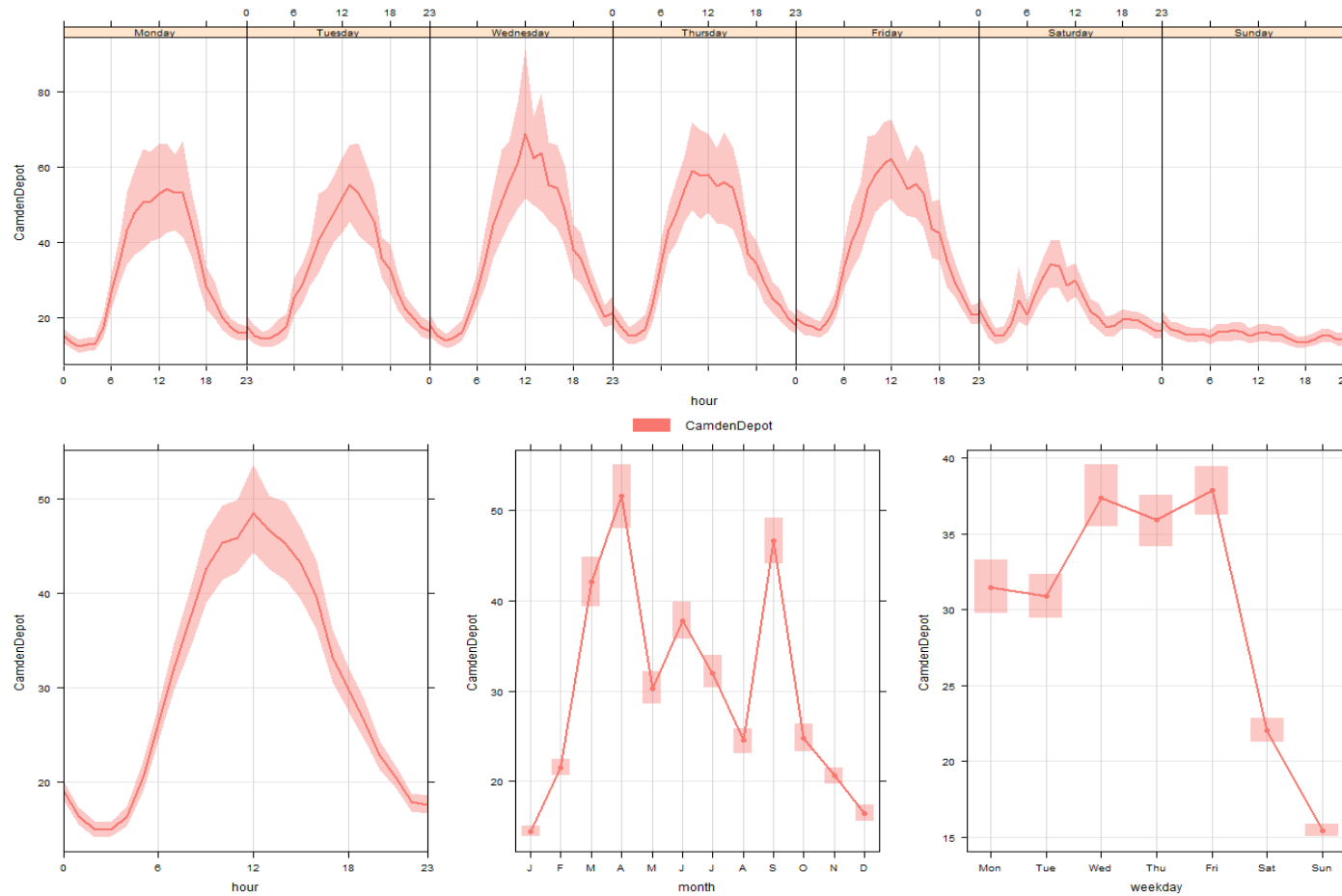
Camden – Freight Lane



Use of Calcium Magnesium Acetate (CMA) chemical dust suppressant to reduce resuspension of particulate matter from trackout around cement batching sites in Camden

Phased CMA trial followed by 'back to black' street cleansing

Freight Lane PM₁₀ concentration profiles



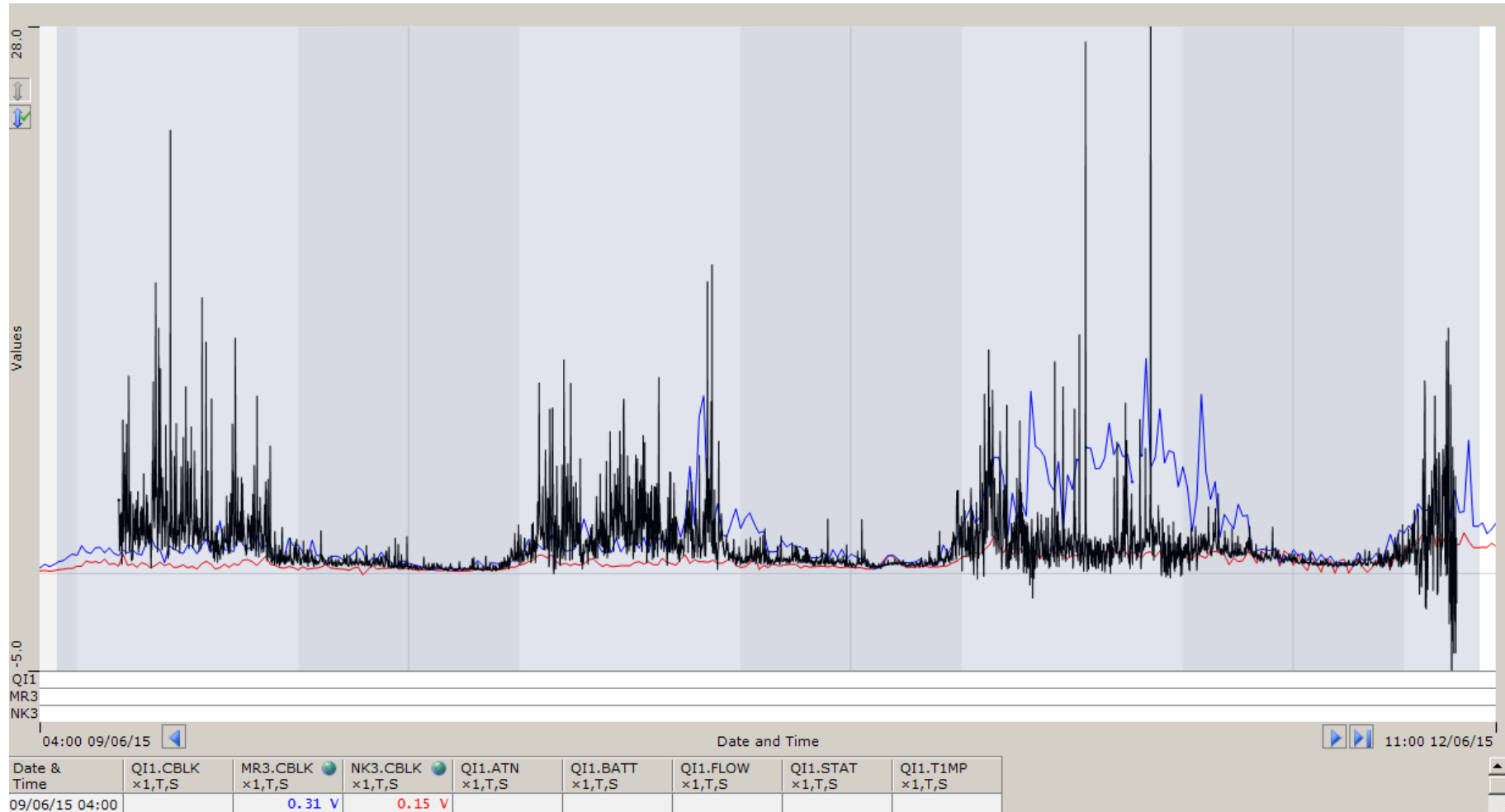
MRC-PHE
Centre for Environment & Health

London Borough of Islington



Black carbon concentrations being recorded with a 'microAeth' personal exposure monitor attached to NRMM in Islington to measure the percentage reduction attainable through use of a cerium oxide based nano particle diesel fuel additive (DPF assist)

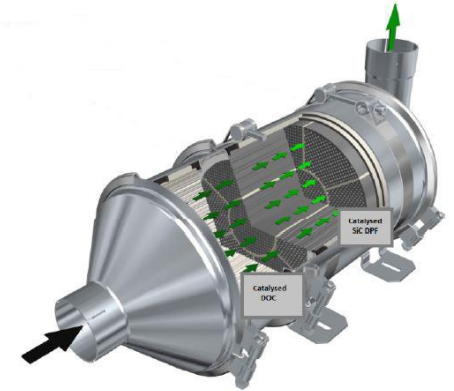
BC concentrations from baseline monitoring week 1



The image shows the interior of a large, multi-tiered arena during a demolition project. The upper tiers of seating are visible on the left, while the right side shows the structural framework of the stands. The central floor is a large, flat concrete area. In the center, a yellow excavator is positioned on a large pile of rubble and debris. To the left of the excavator, there is a blue skip and a dark metal container. In the foreground, there is a rectangular pit with rebar reinforcement. The ceiling is high, with several large, rectangular, light-colored panels hanging from it. The overall scene is one of active demolition and construction work.

**EARLS COURT DEMOLITION –
BLACK CARBON REDUCTION TRIALS**

GENERATORS



Intelligent power solutions and retrofit technology to reduce particulate matter, black carbon and CO2 emissions as well as reducing fuel costs at Nine Elms Northern Line Extension



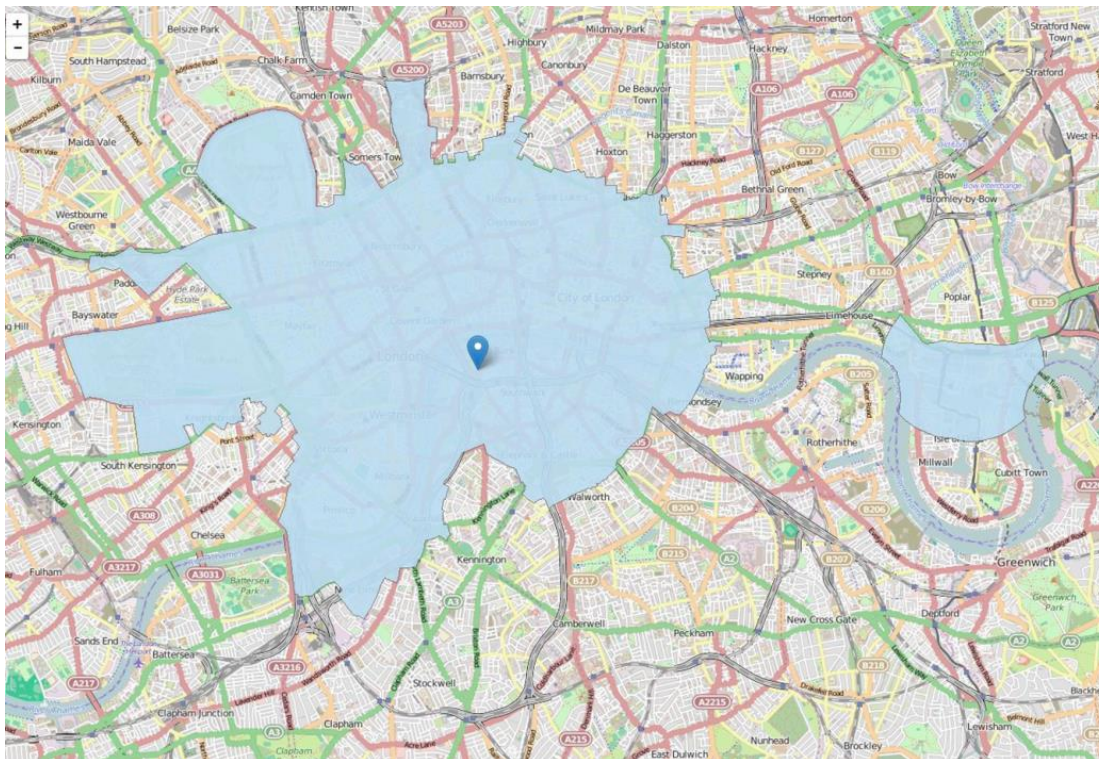
**CLEANER MACHINERY FOR LONDON:
THE LOW EMISSION ZONE FOR NON-
ROAD MOBILE MACHINERY**

London's LEZ for NRMM

1st September 2015

NRMM used across the 'central activity zone' & Canary Wharf will be required to meet stage IIIB of the directive as a minimum

NRMM used on the site of any major development within Greater London will be required to meet stage IIIA of the directive as a minimum



1st September 2020

Tighter emission standards for CAZ, Canary Wharf and Greater London introduced

MRC-PHE
Centre for Environment & Health

Non-road mobile machinery website

- Website to inform developers and contractors about which equipment will be compliant for use within the NRMM low emission zone
- Require registration of NRMM details from all major developments within the CAZ and Canary Wharf
- Allow for NRMM LEZ exemption application
- It will allow for local authority remote enforcement of GLA policy

- It will create a unique data resource that will add to the understanding of what NRMM equipment is currently being used and allow later assessment to demonstrate the uptake of higher emission standards
- It will allow for a more accurate London Atmospheric Emission Inventory (LAEI) to be developed
- It will allow for GLA policy change updates

nrmm.london

**NRMM**

non-road mobile machinery

SUPPORTED BY

MAYOR OF LONDON

London's 'Low Emission Zone' for non-road mobile machinery



NRMM Register

[How to use the NRMM register](#)[How to read engine plates](#)[NRMM Exemption policy](#)[Retrofit technology](#)

Not sure what these are?

[How to use this site](#)

Does this apply to me?

From 1 September 2015 NRMM of net power between 37kW and 560kW used in London will be required to meet standards.

This will apply to both variable and constant speed engines for both NOx and PM.

These standards will be based upon engine emissions standards set in EU Directive 97/68/EC.

Want to find out more?

[Read more...](#)

Project outcomes (so far)

- Need a good communications strategy
 - Brand, website, social media
- Outreach
 - Important to work with local authorities
 - Partnership approach
 - Found good understanding and positive response for change
 - Concerned about personal exposure rather than the environment
- Measurements
 - Starting to produce data on effectiveness of ‘best in class’ measures
- Improvements
 - Need to work better with Local authority planning departments at early stage



llecp.org.uk

nrmm.london

[@ConstructionDustUK](https://twitter.com/ConstructionDustUK)

erg-construction@kcl.ac.uk