

# Environment Scrutiny Commission

Tuesday 23 July 2019

7.00 pm

Ground Floor Meeting Room G02A - 160 Tooley Street, London SE1  
2QH

## Presentations

### List of Contents

Item No.	Title	Page No.
4.	<b>Air Pollution</b>	1 - 61

**The following presentations and reports are enclosed:**

- Officer presentation on Air Quality
- Dr Ian Mudway, senior lecture at the School of Population Health and Environmental Sciences at King's College London, presentation
- The Zero Emissions Network presentation
- London living Streets follow up report

# Air Pollution in London: impacts on children's health

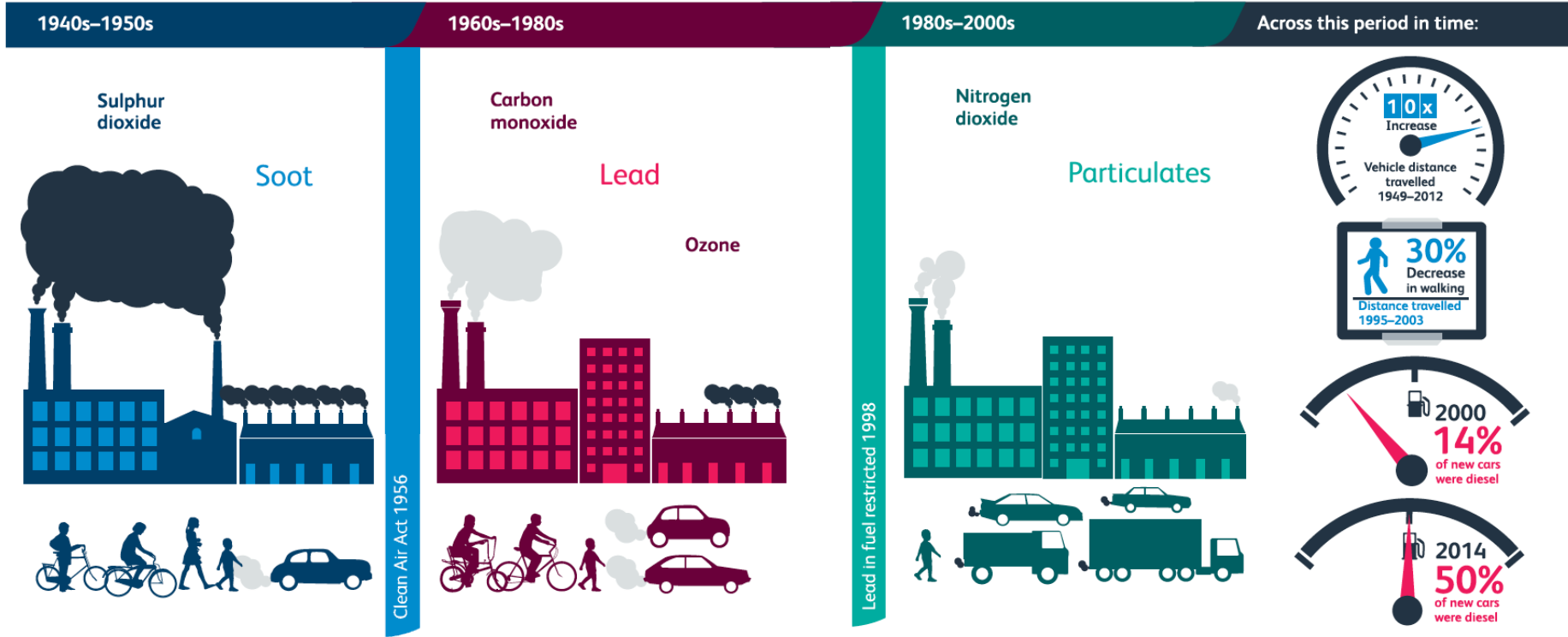


**Dr Ian Mudway**

MRC-PHE  
Centre for Environment & Health



# The changing face of air pollution



# Short & long-term effects



*The Mortality Effects of  
Long-Term Exposure to  
Particulate Air Pollution  
in the United Kingdom*

A report by the  
Committee on the  
Medical Effects of  
Air Pollutants

What about short term effects?  
What about other pollutants?

## As a result of poor air quality:

- UK population lost 340,000 years of life in 2008
- This loss of life is **equivalent to 29,000 deaths (40,000)**
- the average loss of life would have been 2 years, (though the actual amount would vary between individuals).
- The burden can also be represented as a loss of life expectancy from birth (for everyone) of 6 months in susceptible populations

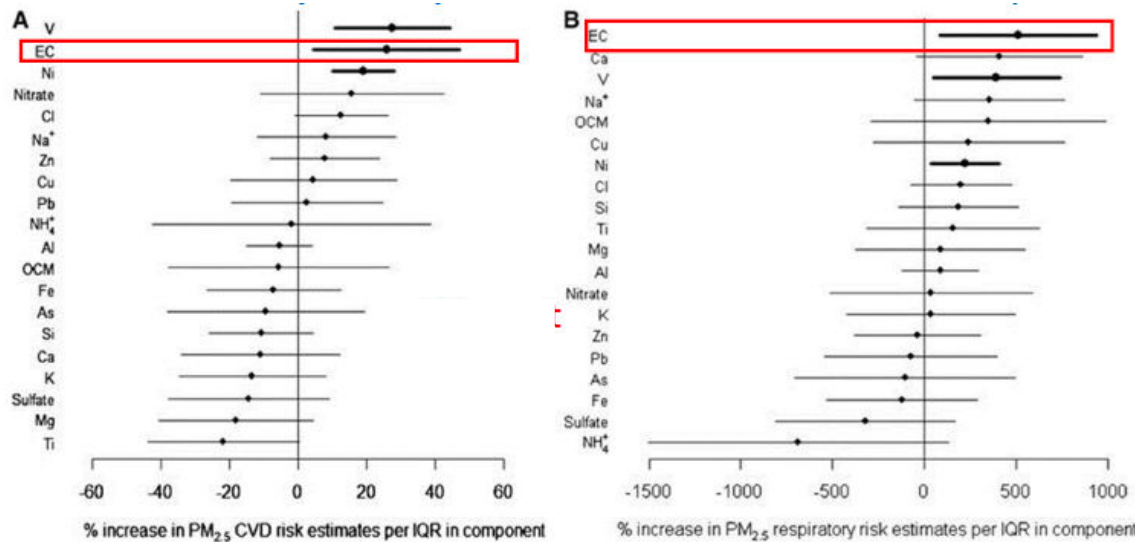
3

Published December 2010



# Black Carbon – a better health indicator?

## *Toxic component or source indicator?*

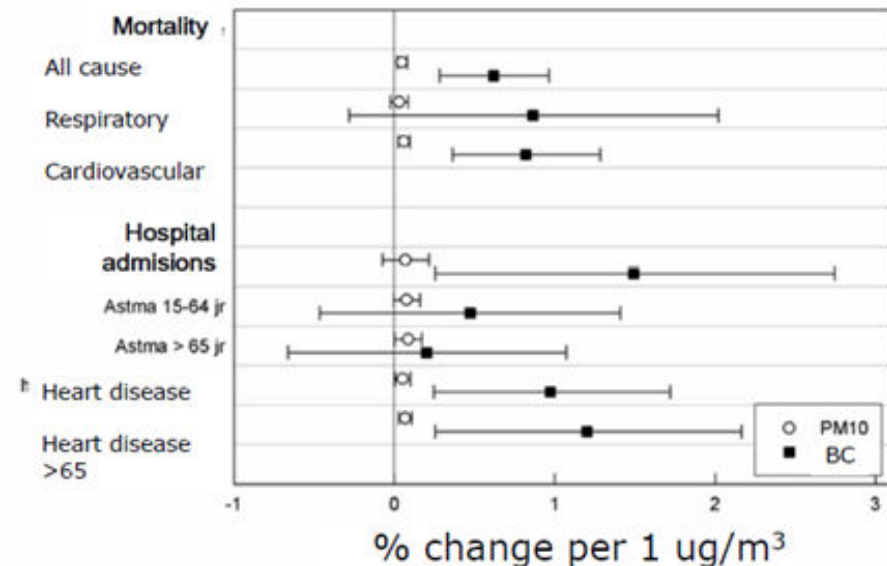


Estimated county- and season-specific relative risks (RR) of cardiovascular and respiratory hospitalization associated with PM<sub>2.5</sub> components in 106 U.S. counties for the years 1999 through 2005

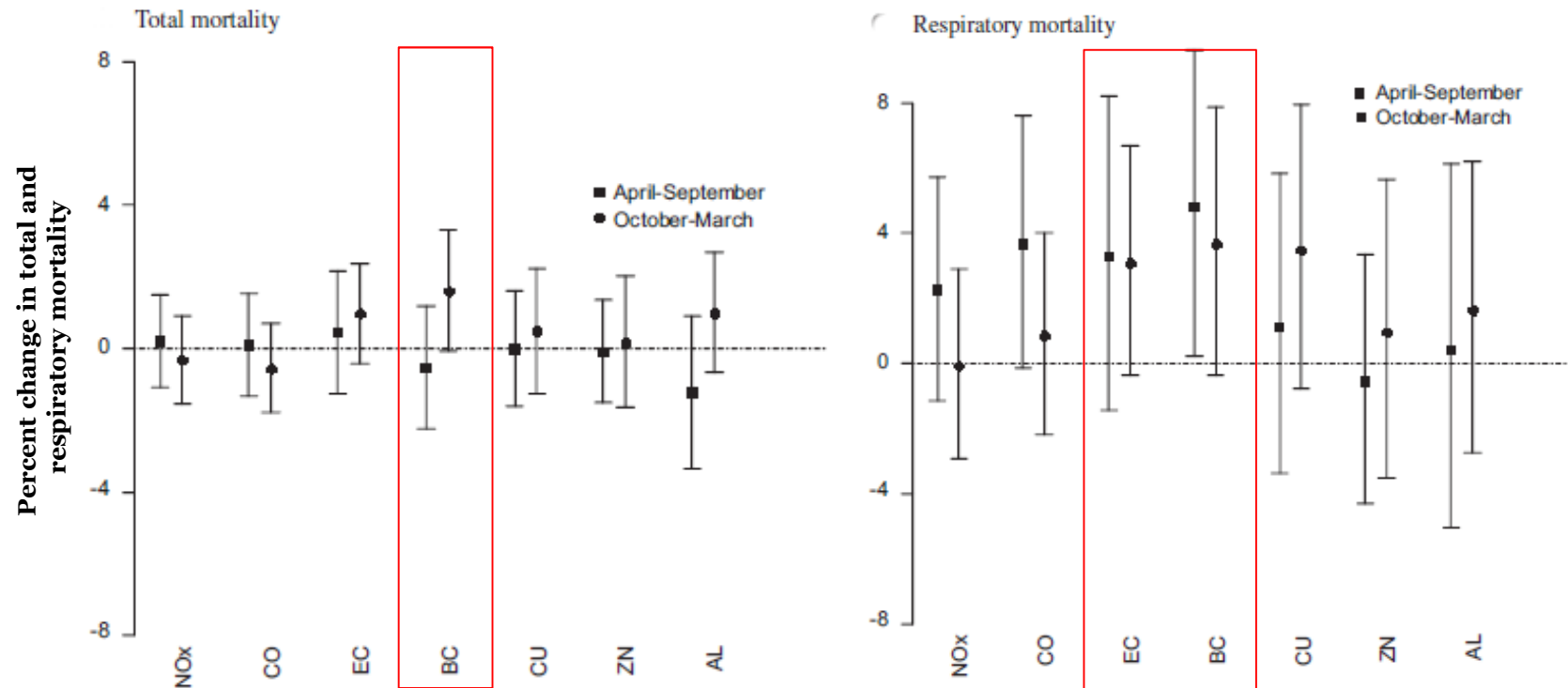
Bell et al, Am J Respir Crit Care Med, 2009

Systematic review and meta-analysis of health effects of BC compared with PM mass based on data from time-series studies and cohort studies that measured both exposures

Janssen et al, Environ Health Perspect, 2011



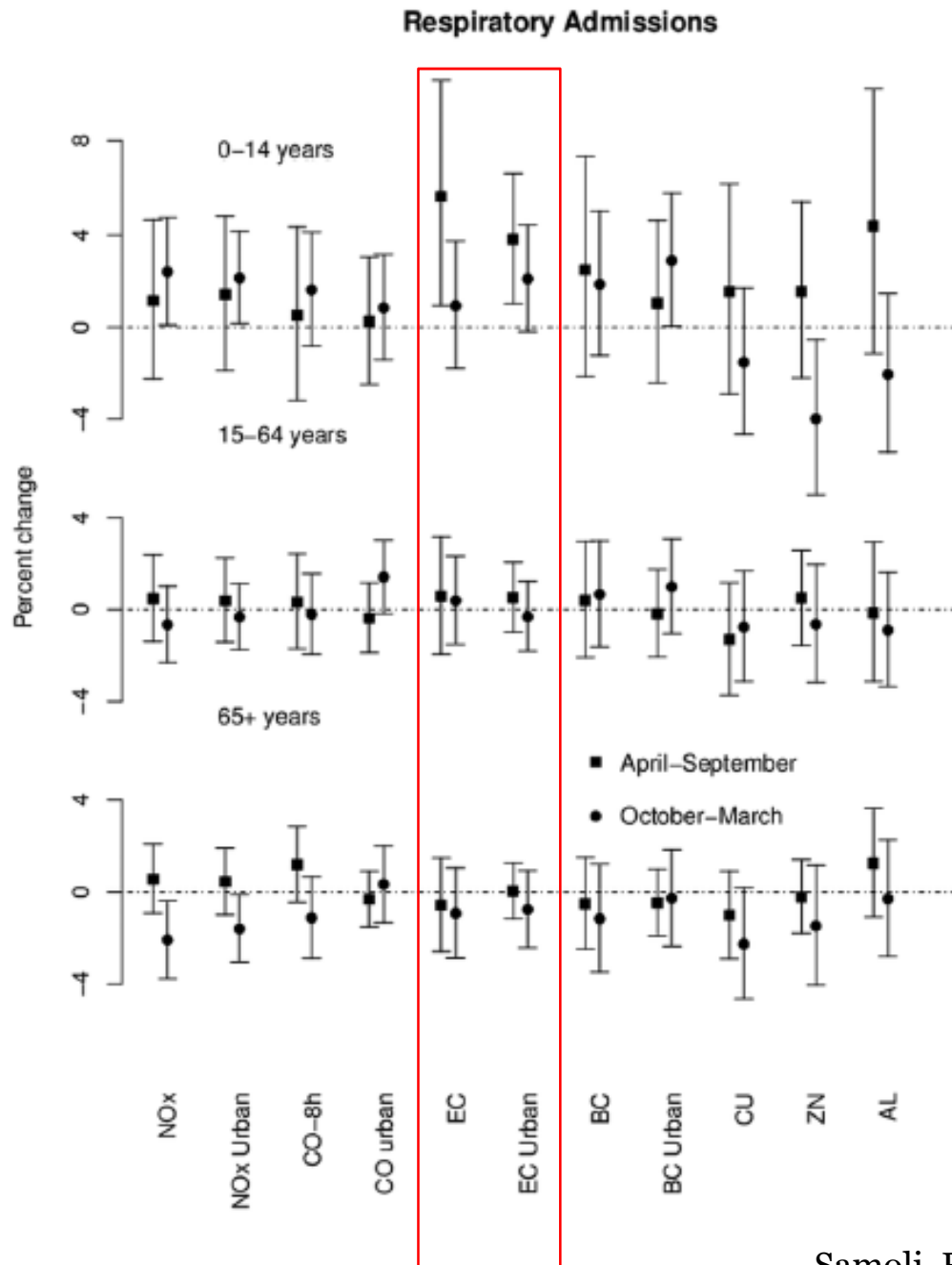
# Short-term exposure to traffic-related air pollution and daily mortality in London (2011–2012)



**NOx:** General traffic indicator  
**CO:** Petrol vehicle exhaust  
**EC:** Diesel vehicle exhaust  
**BC:** Diesel vehicle exhaust  
**Cu:** Brake wear  
**Zn:** Tire wear  
**Al:** Road dust resuspension

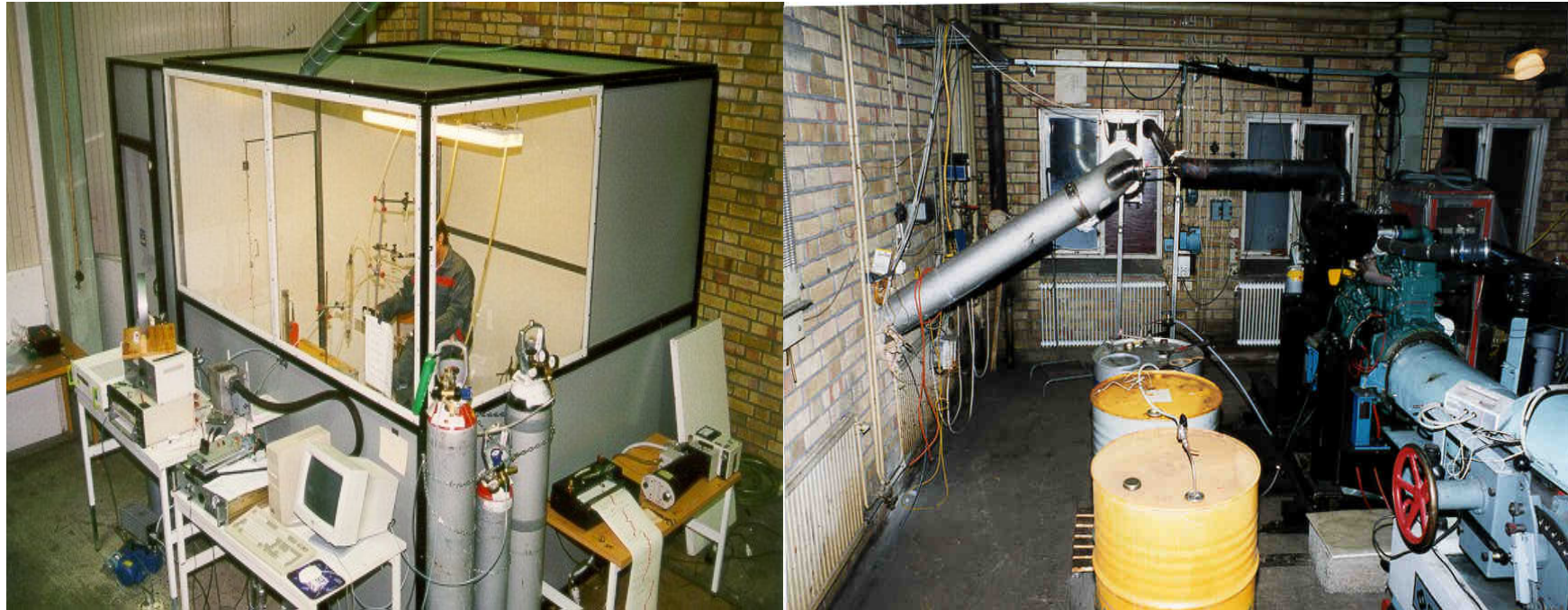
Atkinson RW, et al. Int J Hyg Environ Health. 2016;219(6):566-72

## Short-term exposure to traffic-related air pollution & respiratory hospital admissions in London



**NOx:** General traffic indicator  
**CO:** Petrol vehicle exhaust  
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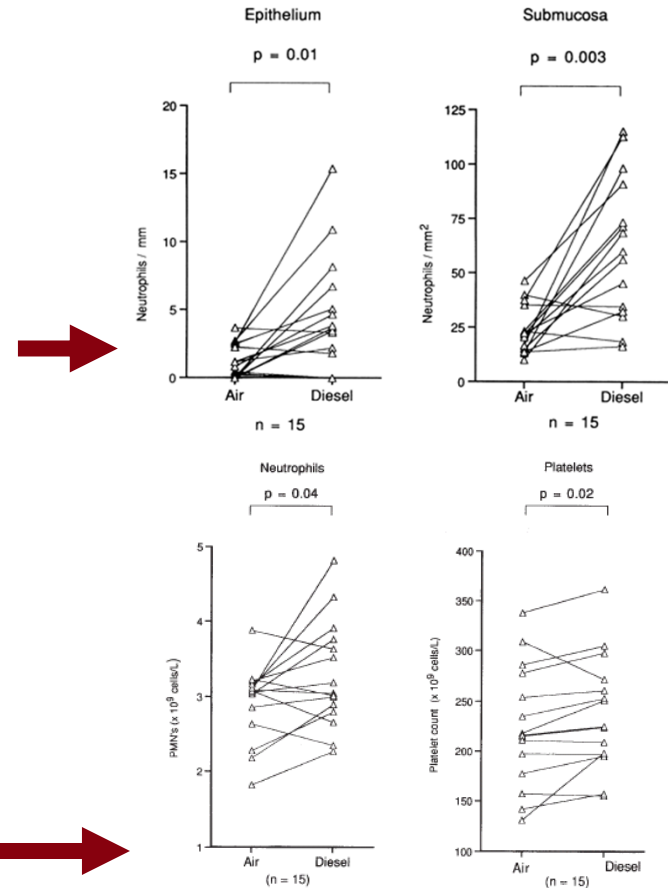
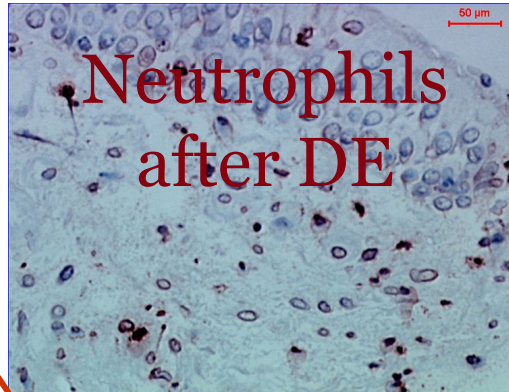
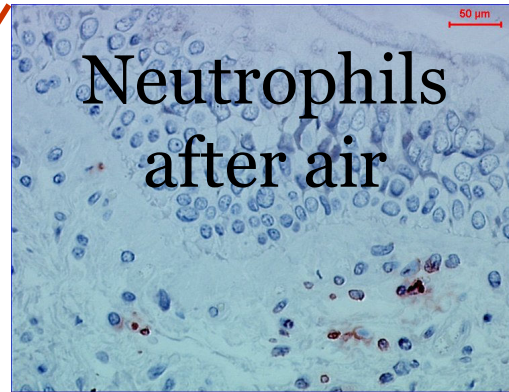
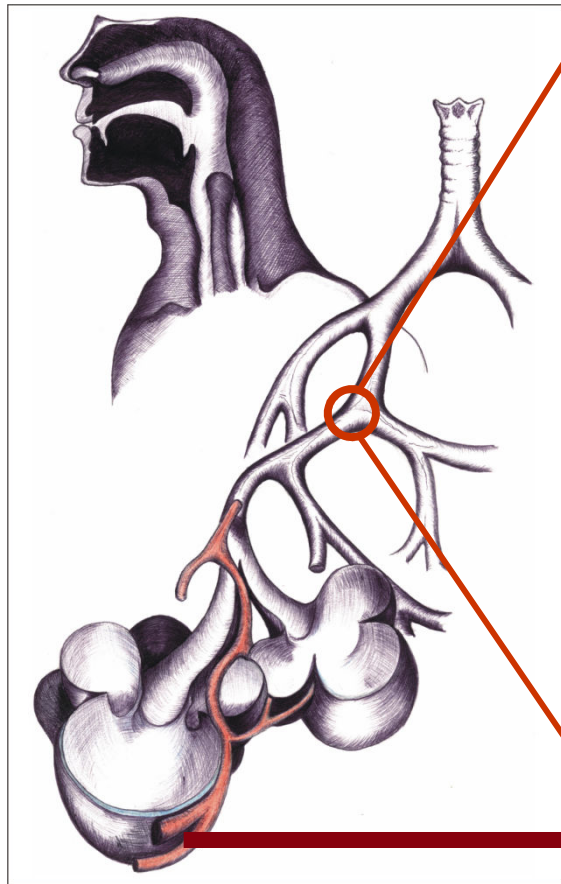
# Controlled Diesel Exposures



**Exposure to DE:  $PM_{10}$   $300\mu\text{g}/\text{m}^3$  and filtered air for 1 hour &  $100\mu\text{g}/\text{m}^3$  and filtered air for 2 hours**



# Diesel induces inflammation



Inflammation  
 Impaired lung function  
 Impaired microbial defences



Blood viscosity  
 Impaired vascular function  
 Ischaemia  
 Arrhythmias



# Impacts of Air Pollution across the Life Course

Low birth weight



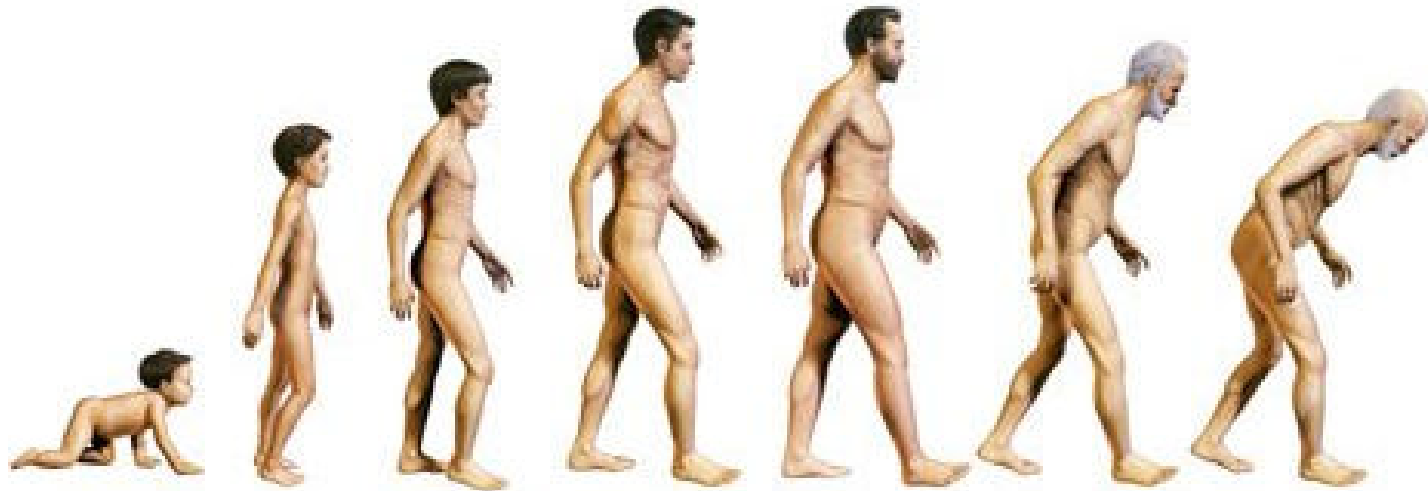
Smaller lungs  
Cognitive ability?



Increased risk of chronic disease  
Acute respiratory exacerbations



Acute and chronic  
Premature death  
Dementia



**What about growing up here?**



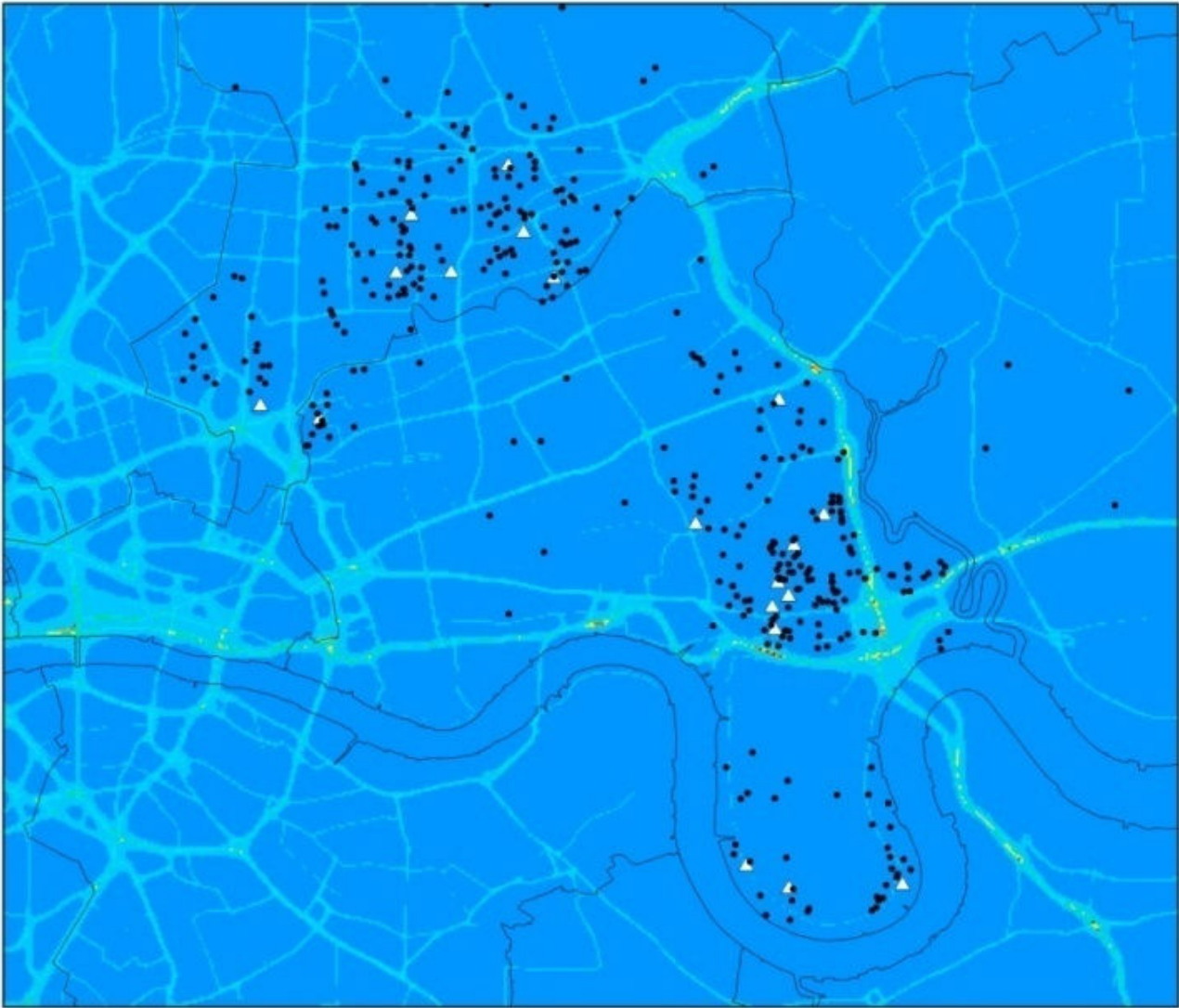
# Pollution in Tower Hamlets & Hackney

2009 PM<sub>25</sub> Annual  
( $\mu\text{g m}^{-3}$ )

- < 13
- 13 - 15
- 15 - 17
- 17 - 19
- 19 - 21
- 21 - 23
- 23 - 25
- 25 - 27
- 27 - 29
- 29 - 31
- 31 - 33
- > 33

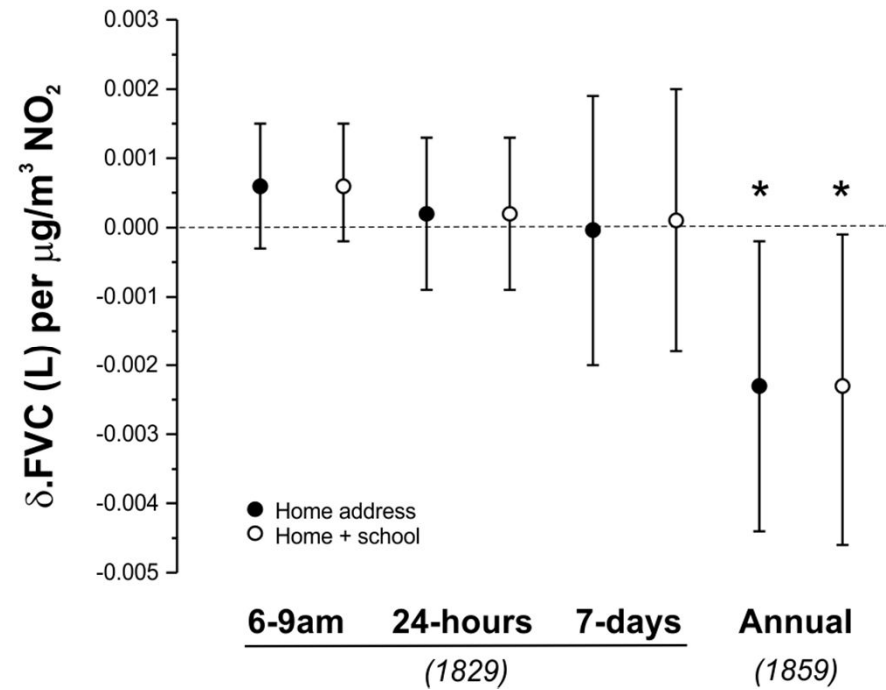
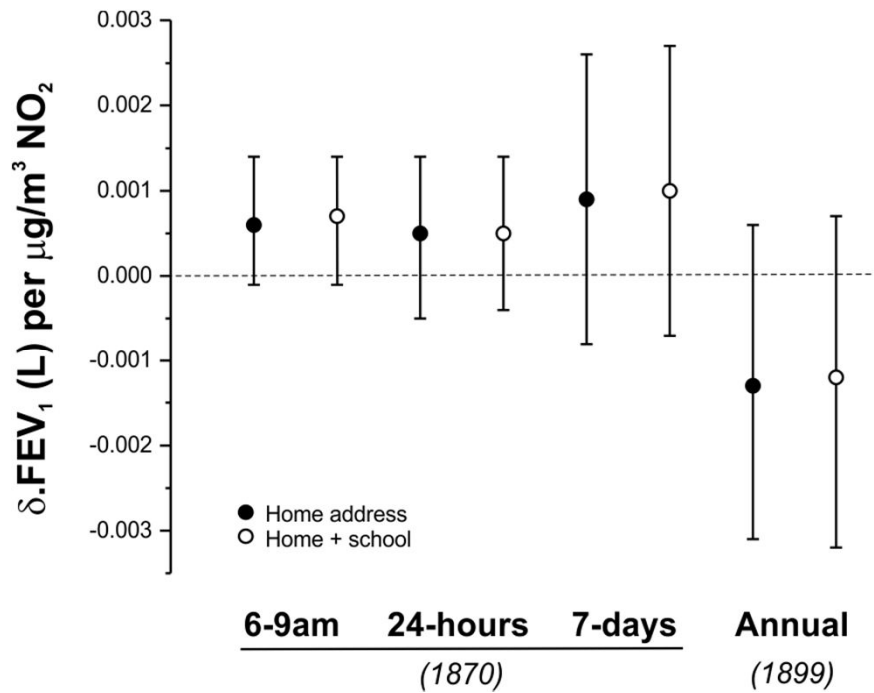
- △ Schools
- Individuals

0 2km





# Evidence of reduced lung volumes



# Causes for Optimism





# Evidence that improving air pollution delivers measurable health benefits

The NEW ENGLAND  
JOURNAL of MEDICINE

ESTABLISHED IN 1812    MARCH 5, 2015    VOL. 372    NO. 10

## Association of Improved Air Quality with Lung Development in Children

W. James Gauderman, Ph.D., Robert Urman, M.S., Edward Avol, M.S., Krios Berhane, Ph.D., Rob McConnell, M.D., Edward Rappaport, M.S., Roger Chang, Ph.D., Fred Lurmann, M.S., and Frank Gilliland, M.D., Ph.D.

### ABSTRACT

**BACKGROUND** Air pollution levels have been trending downward progressively over the past several decades in southern California, as a result of the implementation of air quality-control policies. We assessed whether long-term reductions in pollution were associated with improvements in respiratory health among children.

**METHODS** As part of the Children's Health Study, we measured lung function annually in 2120 children from three separate cohorts corresponding to three separate calendar periods: 1994–1998, 1997–2001, and 2007–2011. Mean ages of the children within each cohort were 11 years at the beginning of the period and 15 years at the end. Linear-regression models were used to examine the relationship between declining pollution levels over time and lung-function development from 11 to 15 years of age, measured as the increases in forced expiratory volume in 1 second (FEV<sub>1</sub>) and forced vital capacity (FVC) during that period (referred to as 4-year growth in FEV<sub>1</sub> and FVC).

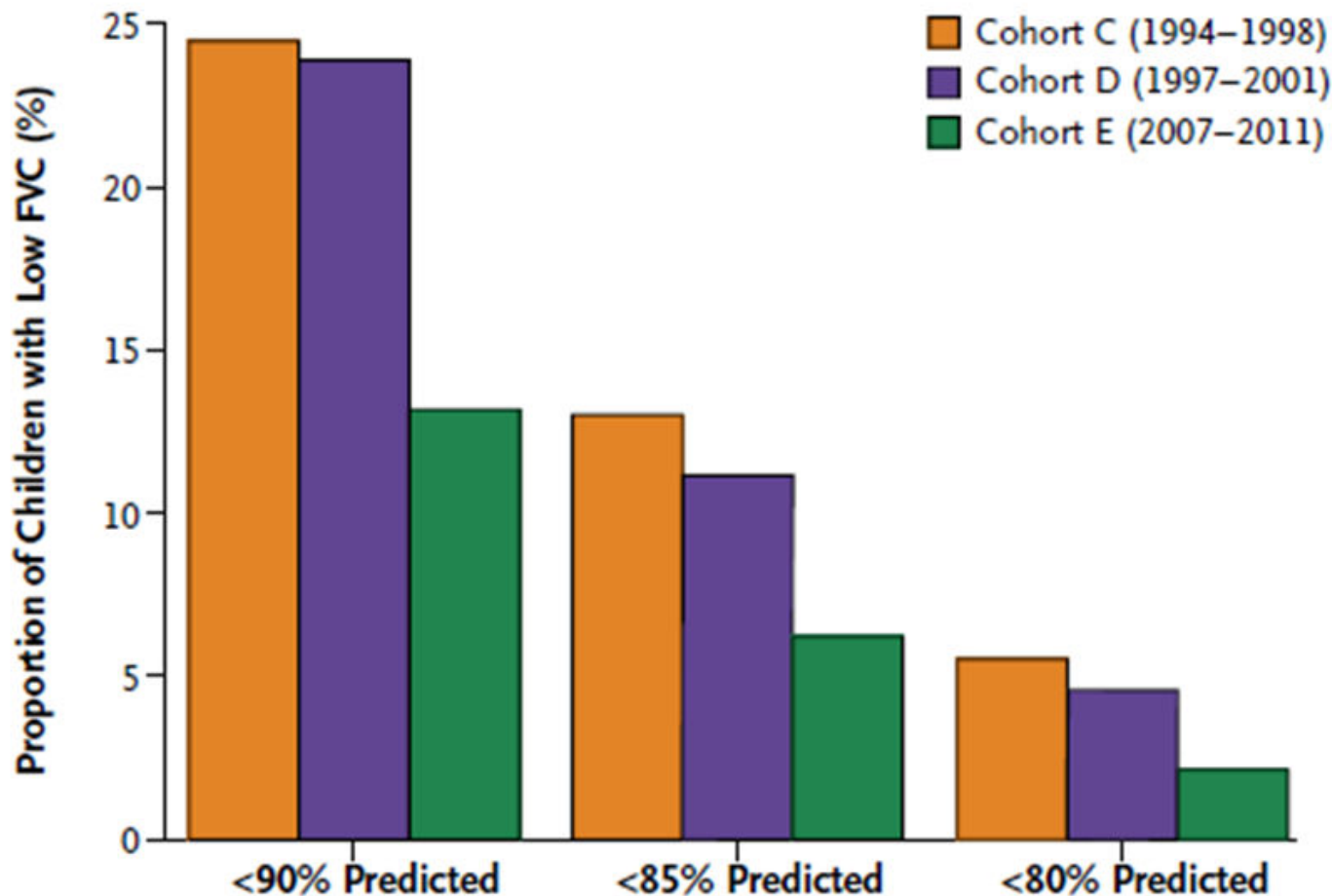
**RESULTS** Over the 13 years spanned by the three cohorts, improvements in 4-year growth of both FEV<sub>1</sub> and FVC were associated with declining levels of nitrogen dioxide (P<0.001 for FEV<sub>1</sub> and FVC) and of particulate matter with an aerodynamic diameter of less than 2.5 μm (P=0.008 for FEV<sub>1</sub> and P<0.001 for FVC) and less than 10 μm (P<0.001 for FEV<sub>1</sub> and FVC). These associations persisted after adjustment for several potential confounders. Significant improvements in lung-function development were observed in both boys and girls and in children with asthma and children without asthma. The proportions of children with clinically low FEV<sub>1</sub> (defined as <80% of the predicted value at 15 years of age) declined significantly, from 79% to 6.9% to 3.6% across the three periods, as the air quality improved (P=0.001).

**CONCLUSIONS** We found that long-term improvements in air quality were associated with statistically and clinically significant positive effects on lung-function growth in children. (Funded by the Health Effects Institute and others.)

From the Department of Preventive Medicine, University of Southern California, Los Angeles, Calif.; U.S. EPA, R.E. R.M., E.R., R.C., F.G., and Scripps Technology Resources (F.L.); both of California. Address reprint requests to Dr. Gauderman at the Department of Preventive Medicine, University of Southern California, 2005 State St., 200 K, Los Angeles, CA 90089, or at jmg@usc.edu.

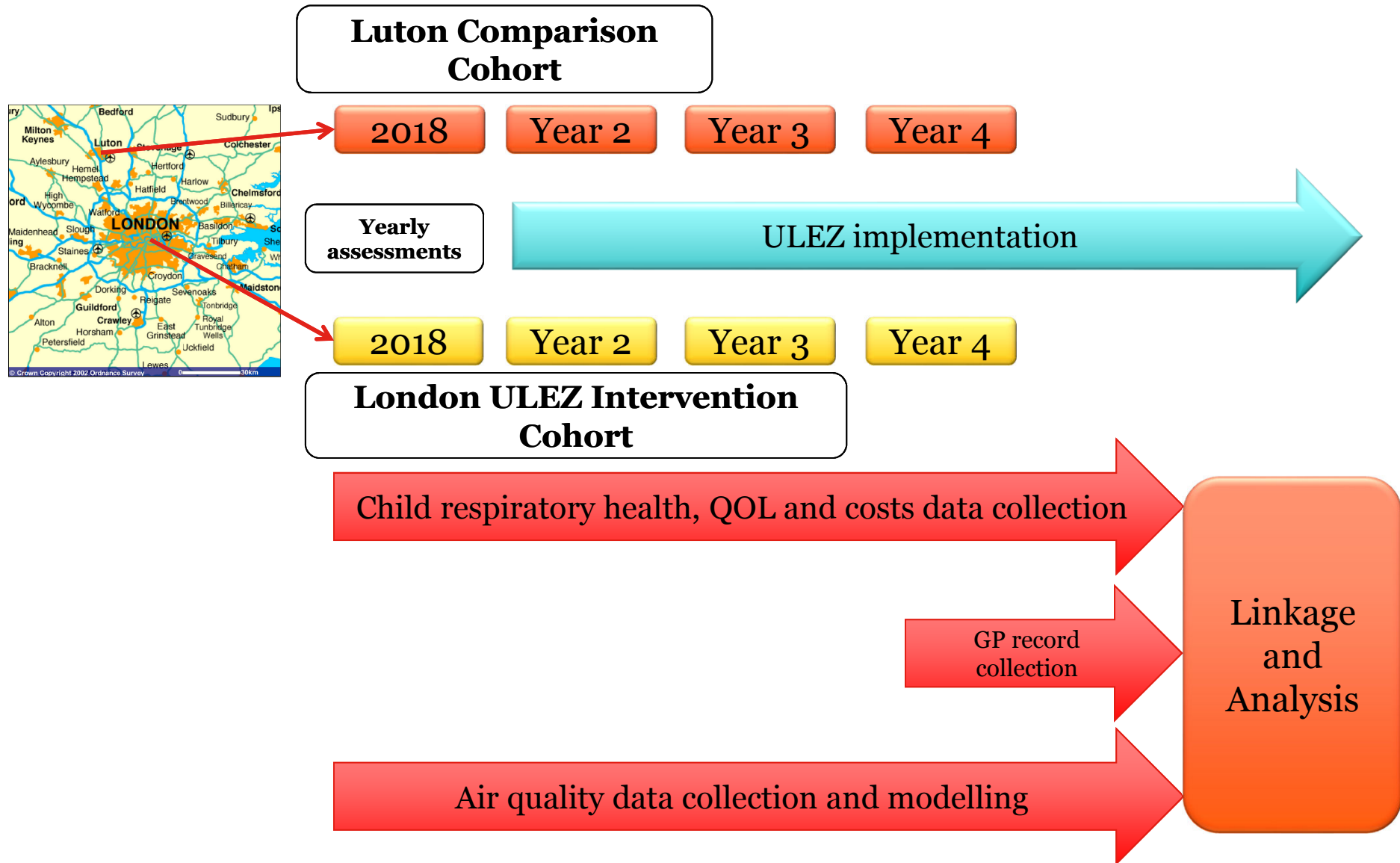
Reprint requests to Dr. Gauderman at: DOI:10.1056/NEJMoa1410123 Copyright © 2015 Massachusetts Medical Society.

N ENGL J MED 372:10 NEJM ORG MARCH 5, 2015 905



Gauderman WJ, et al. NEJM. 2015;372(10):905-913.

# ULEZ study – summary



# Scrutiny Committee on Air Quality

Sarah Newman

Commercial Services Business Unit

Regulatory Services



@lb\_southwark



facebook.com/southwarkcouncil



# Contents

- What are the **health issues** of poor air quality
- What is the **air quality in Southwark**?
- What **legal duties** does the council have?
- What is our **performance**?
- What are we doing around **schools**?
- What other **projects** have we delivered?
- What else could we consider – **Ideas**?

# Air quality impacts on public health

- PH to add



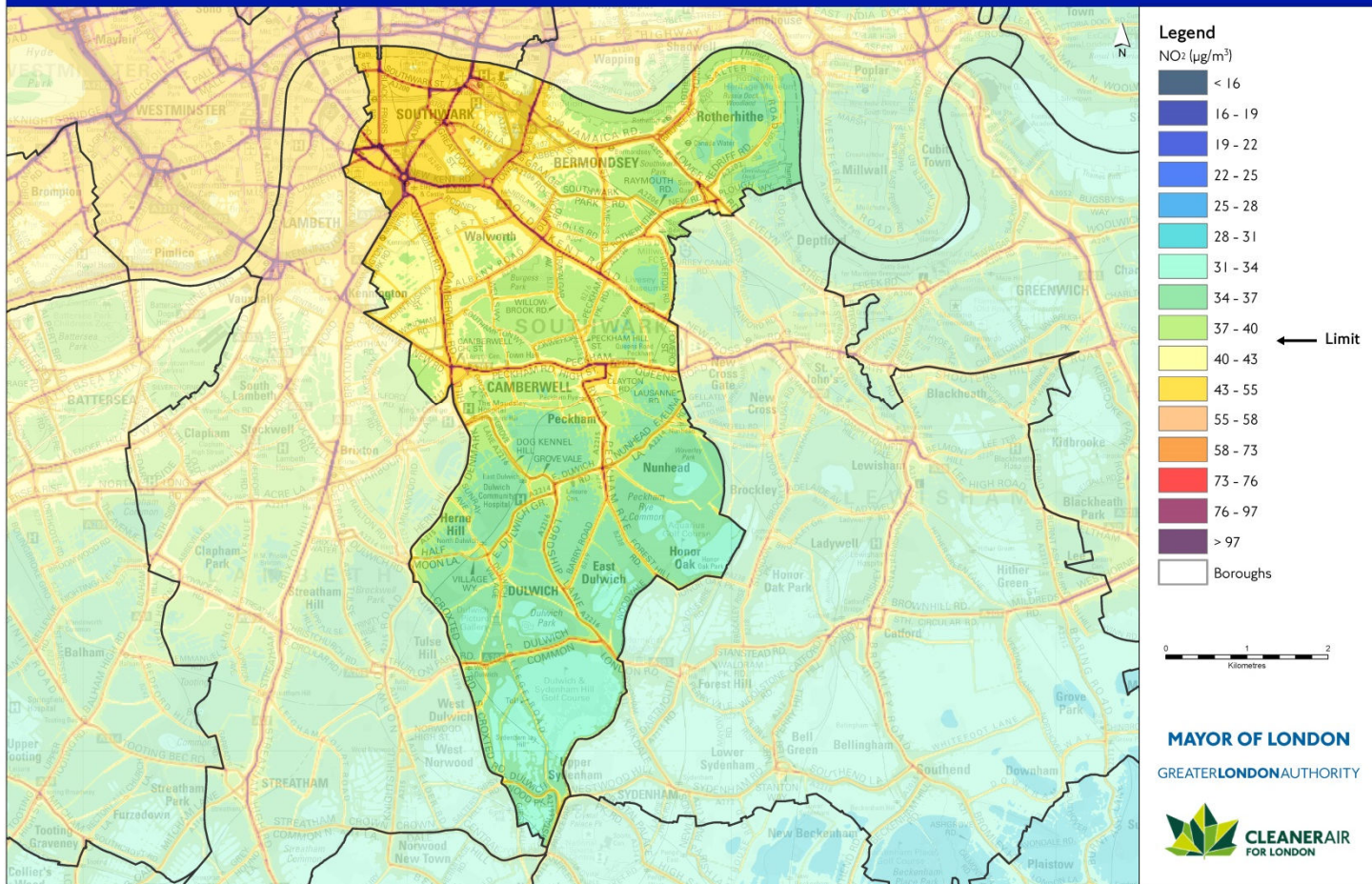
# Air quality impacts on public health

- PH to add more info & slides here

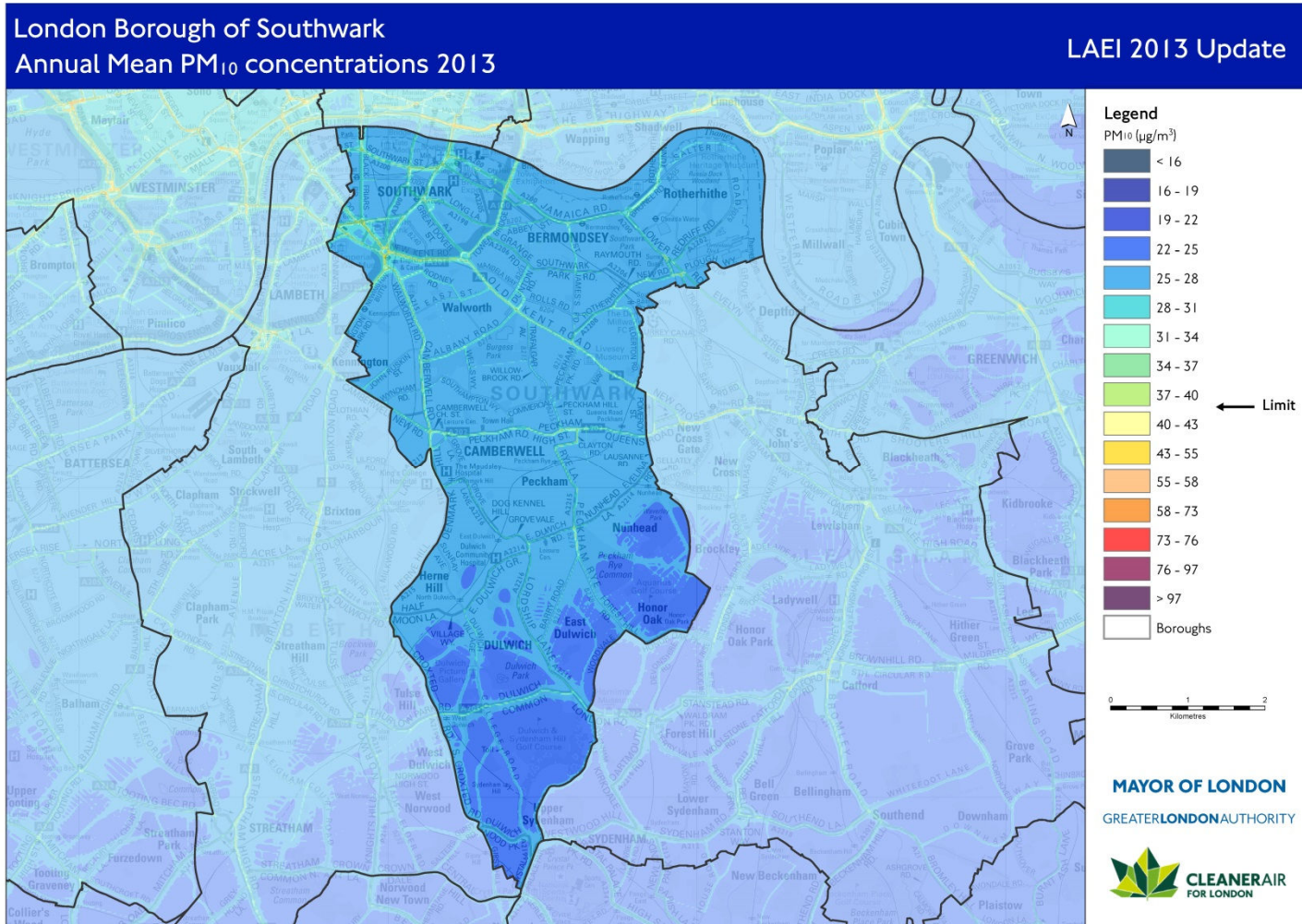
# Air quality in Southwark – NO<sub>2</sub>

London Borough of Southwark  
Annual Mean NO<sub>2</sub> concentrations 2013

LAEI 2013 Update

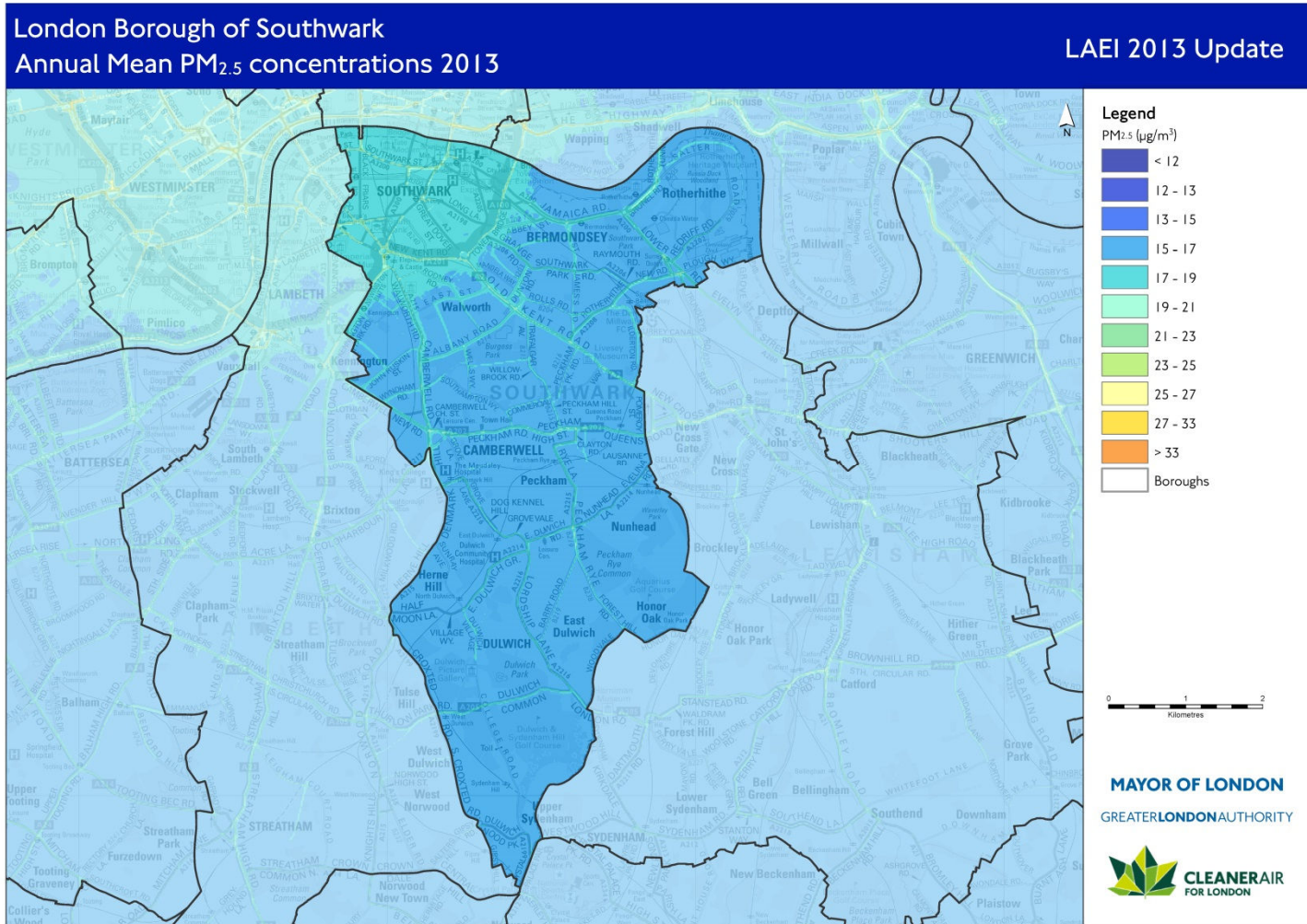


# Air quality in Southwark – PM<sub>10</sub>





# Air quality in Southwark – PM<sub>2.5</sub>



# Air quality legal duties – London

- **To monitor or model** – the concentrations of a defined list of pollutants
- **To declare an Air Quality Management Area** – if any pollutants are over their limits
- **To have an Air Quality Strategy & Action Plan** – what we will do to work towards compliance with national air quality limits
- **To submit an Annual Status Report** – every year to the GLA & Government on our monitoring results and Action Plan progress



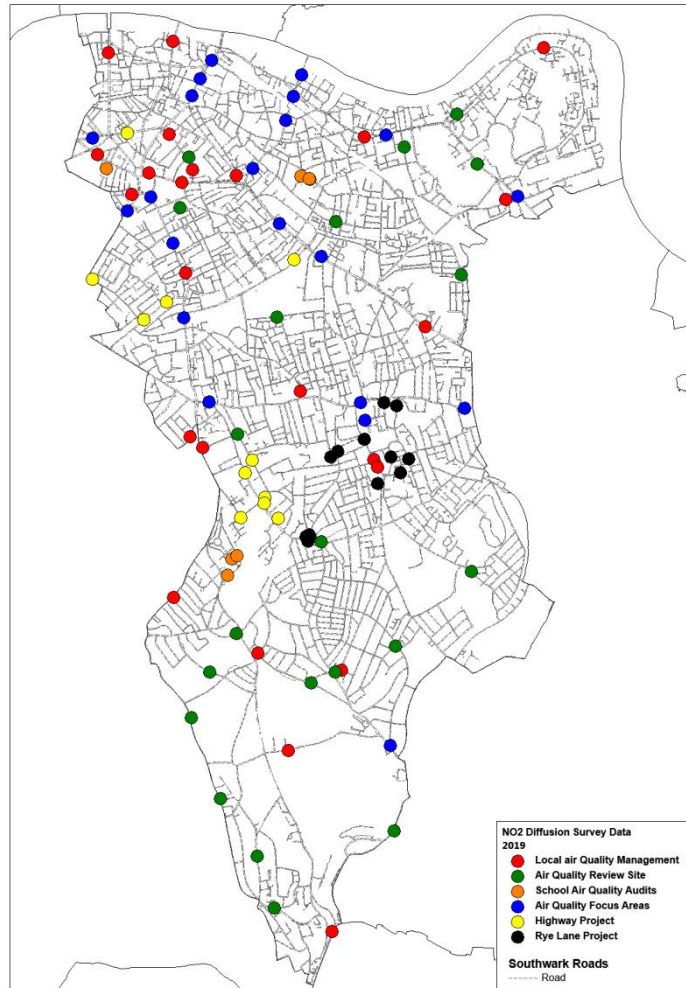
# Monitoring

## Southwark has

- 2 permanent monitoring stations (NO<sub>2</sub>, PM<sub>10</sub> & O<sub>3</sub>)
- 88 NO<sub>2</sub> diffusion tubes
- 7 NO<sub>2</sub> mobile chemical sensors (for assessing highway changes)
- Pollutant maps from GLA modelling (LAEI)

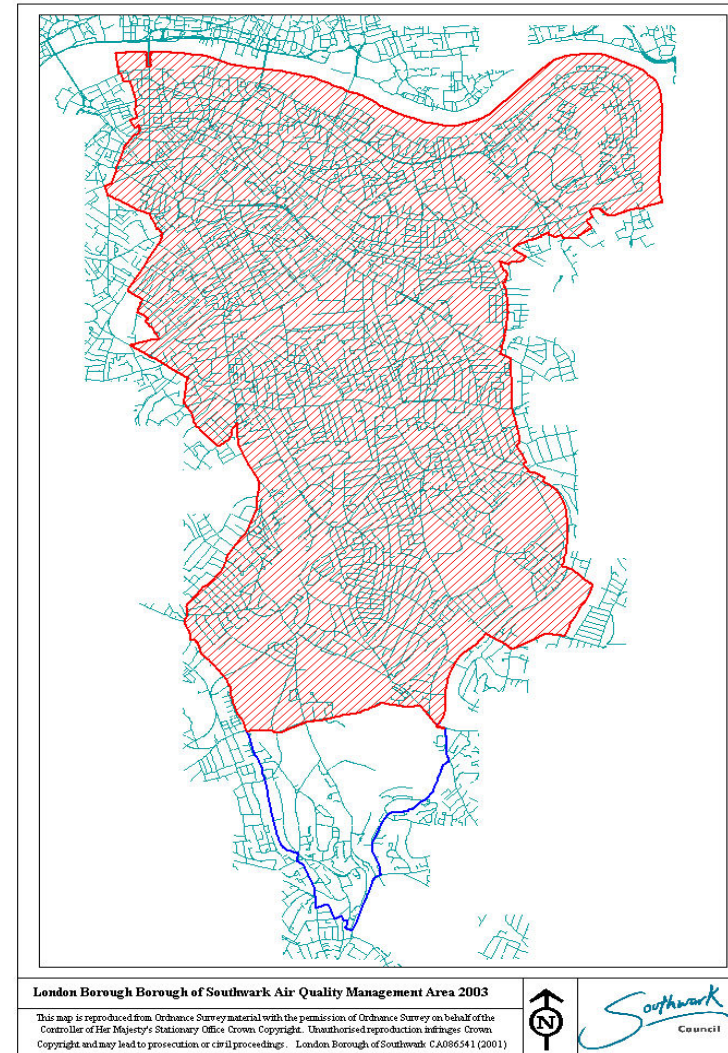


# Map of monitoring locations



# Air Quality Management Area

- Legal duty created by the Environment Act 1995 (enacted in 1996)
- Declared our first AQMA in 2000
- **Currently covers all of borough north of South Circular**
- Must review every 5yrs
- Next review in 2020 – ULEZ



# Air Quality Strategy

## Has 4 high level aims

- Comply with air quality law
- Comply with the London Local Air Quality Management Framework
- Support the GLA's objectives
- Support the Public Health Framework objectives





# Air Quality Action Plan – The basics

- Last reviewed in July 2017
- **113 actions** for delivery
- Is a 'living document' that gets updated by the Annual Status Reports
- Will have **127 actions** once this years ideas for new actions have been consulted and agreed with delivery services



# Air Quality Action Plan – Contents

## Has 8 sections

- **Manage local air quality**
- **Reduce emissions from buildings**
- **Increase public awareness**
- **Reduce emissions from road traffic**
- **Reduce Carbon emissions**
- **Effective regulation**
- **Support the GLA**
- **Support the public health framework objectives**

# Performance

## Managing local air quality

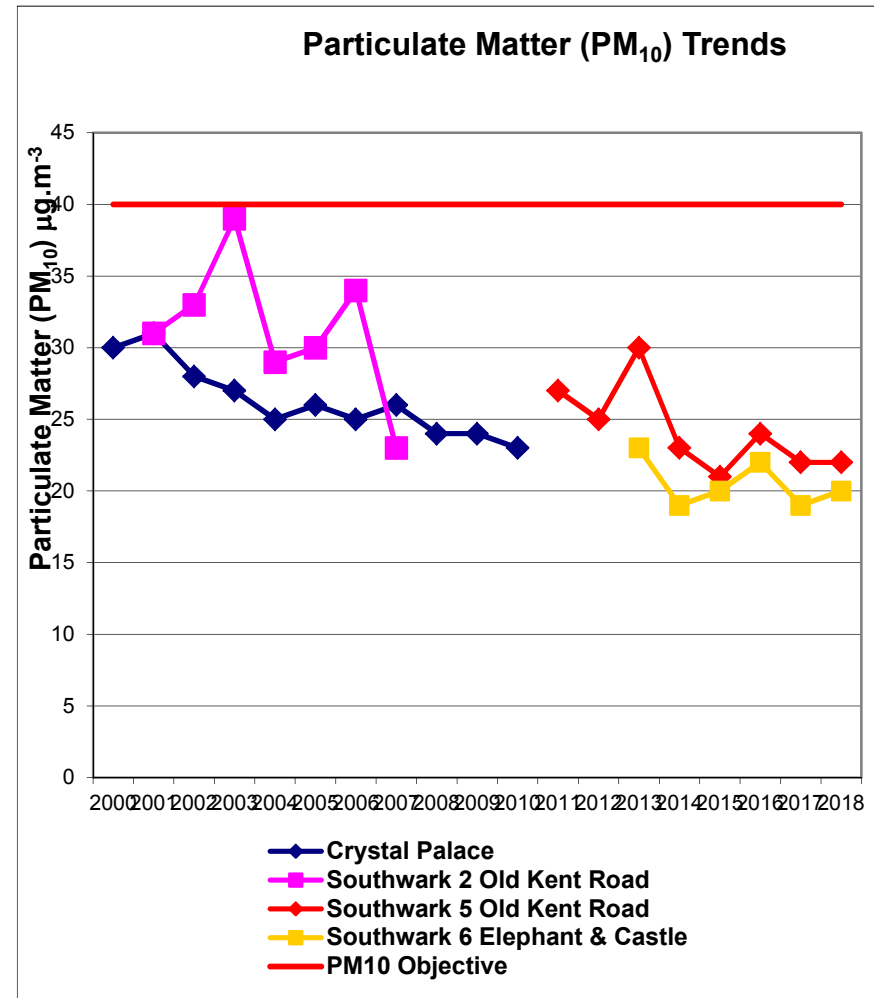
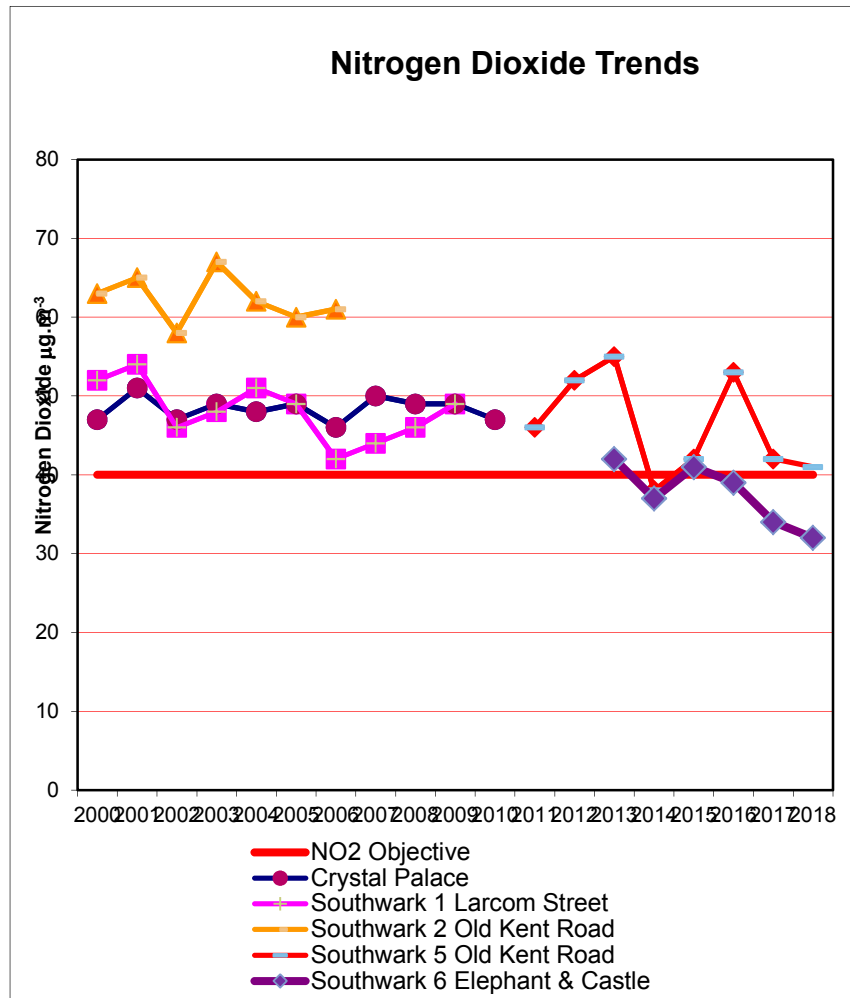
- Installing **3 more** permanent **monitoring stations** in 2019 with **PM2.5** at all 5
- Action Plan and Annual reports **commended** by GLA
- Achieved and kept '**Cleaner Air Borough**' status
- **Air quality** trends are **improving**



**Cleaner Air  
Borough**

**AWARDED BY THE  
MAYOR OF LONDON**

# Trend monitoring results





# Reducing emissions from buildings

## In council buildings

- 1,693 further ultra-low NO<sub>2</sub> boilers installed during 2018
- Defective light fittings & bulbs replaced with LEDs with motion sensors
- Consolidating services in modern facilities



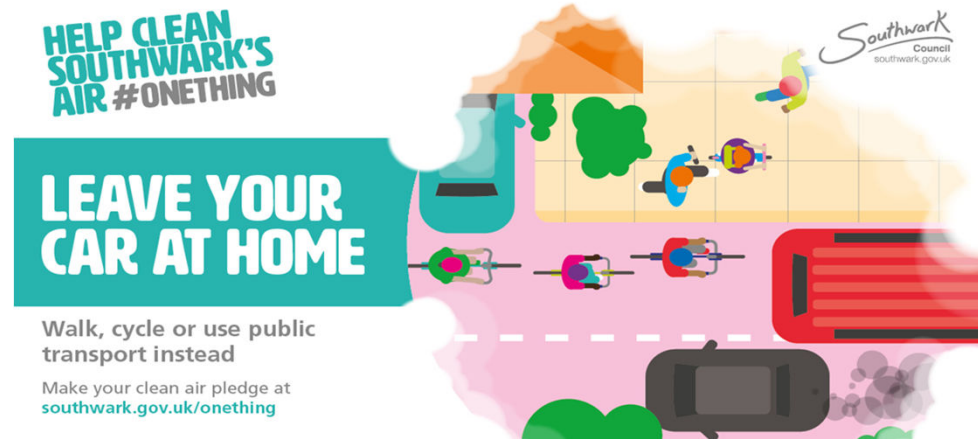
## In other buildings

- Produced guidance for developers
- Assess 100% of planning applications
- Campaign on domestic fuels & log burners
- Work with businesses through BIDs



# Increasing public awareness

- Campaign – **#onething** for air quality
  - On street marketing
  - On the back of buses
  - Digital marketing
  - Posters
  - Make a pledge cards



- **Leaflets for NHS** practitioners & patients
  - Protecting yourself
  - Condensation & mould
  - Gas & carbon monoxide
  - General domestic sources
  - Occupational exposure



# Reducing traffic emissions

- Low emission bus corridors
- Fast chargers for taxis
- Stopping our lease car scheme
- On street chargers for residents
- Adjusting parking fees
- Reducing emissions from our fleet
- Vehicle idling awareness campaigns
- RTO to enforce vehicle idling



# Reducing Carbon emissions

- Development to be carbon neutral, low carbon or no carbon
- Robust planning policies coming
- SELCHP – connect more dwellings
- Strategy for communal boiler upgrade/renewal
- Pension fund divestment
- Ending lease car scheme



# Regulation

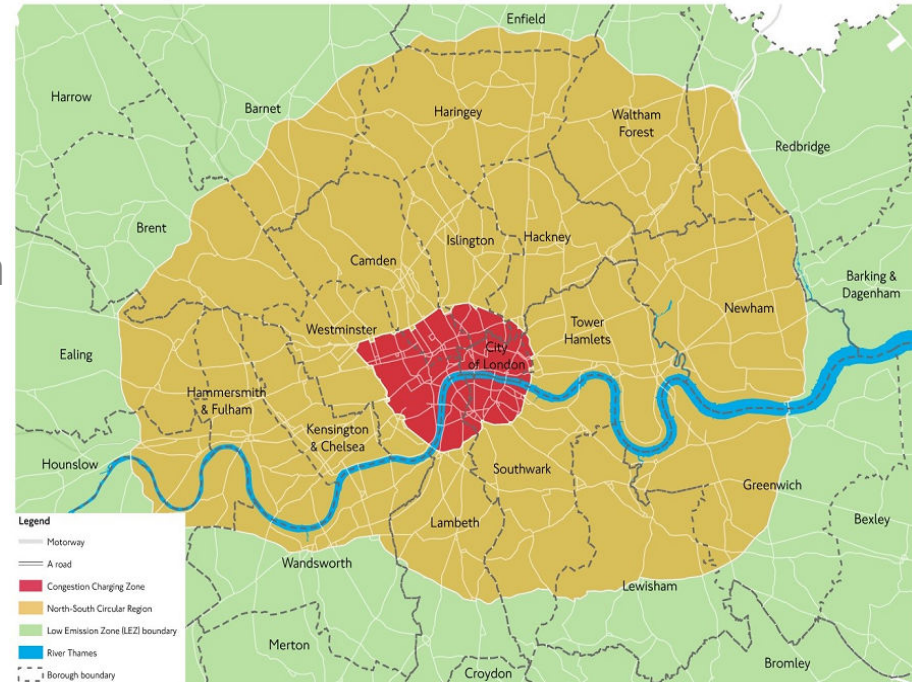
- 100% of polluting processes inspected & compliant
- Produced & enforce a Guide for Demolition & Construction
- All major construction sites inspected for NRMM compliance
- Respond to 100% of complaints about air quality (dust, fume, odour & smoke)
- Highway projects assessed using TfL's Healthy Streets criteria





# Supporting GLA & public health

- Developing projects for all 7 GLA Air Quality Focus Areas
- Support ULEZ expansion
- Embed air quality & climate change in all relevant policies as they renew
- Air quality alerts to those at risk
- Have a JSNA for Air Quality – recommendations in Action Plan



# Performance – Conclusion

Southwark’s performance in delivering the commitments in the Air Quality Action Plan is ...

✓ **Very good**

So, what else are we doing?



# School Air Quality Projects

- Delivered the 'Cleaner Air for Schools' **educational programme** in 12 primary & 5 secondary schools
- Produced **Air Quality Guidance** for schools
- Deliver school travel planning to all schools via the **STARs programme** & provide schools with a **resource pack**
- Arrange and host regular **Southwark Schools Air Quality Network** meetings
- Delivered **air quality audits** at 2 primaries & 3 nurseries – with **grants** given to start implementing the recommendations
- Held 20+ vehicle idling awareness raising events

# School Air Quality Projects – 2

- Targeted **parking enforcement** patrols at schools renown for congestion and dangerous parking
- Provide #onething **campaign resources** to schools holding air quality awareness raising events on request
- 4 **School Streets** installed with up to 14 more planned
- **School Superzone** – a public health programme with an air quality element covering 2 schools in Walworth – also getting a Low Emission Neighbourhood
- Coming soon – Access to **air quality audits for 74 schools** in locations over NO2 limit

# Bills info



# What is a School Street?

A timed **road closure** to motor vehicles immediately outside of a school entrance at school 'drop off' and 'pick up' times

# Objectives

- **Road Safety**

An improvement in road safety and the perception of how safe people feel

- **Active Travel**

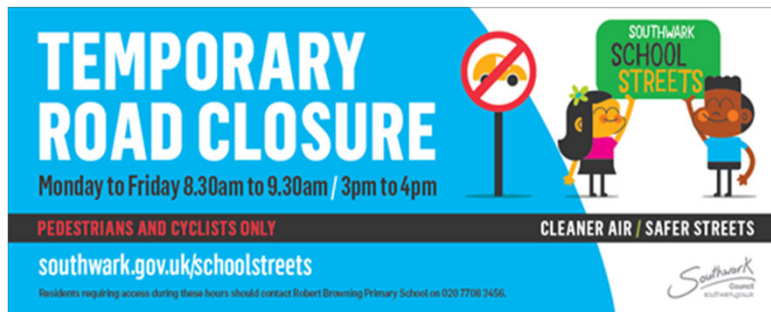
An increase in the number of school users or residents using active travel modes

- **Air Quality**

A reduction in air quality exposure in the localised area

# Process

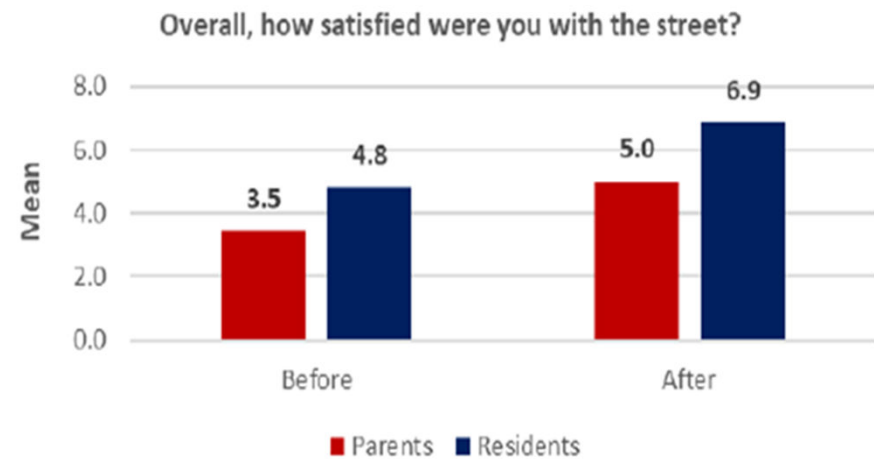
- Phase 1: **Engagement**
- Phase 2: **Trial closure (6 mths)**
- Phase 3: **Monitoring**
- Phase 4: **Permanent implementation**



# Case Study - Robert Browning Primary



17% of respondents have **changed their mode of travel** to walking or cycling since the road closure



# Consultation responses

## Before the closure

*"It needs to be closed during school time. Half an hour before and half an hour after. It is also unsafe with drivers using the pavement. This needs to be resolved, to avoid an incident."*



*"When cars are coming up this road they drive on the pavement. I have seen at least 5 children almost hit by a car mounting the pavement. Drivers are abusive in using the street."*

*"The street is not very safe for kids, either close the street or put up parking restrictions, to prevent drivers from endangering children lives."*

## After the closure

*"I think that [the timed closure] is a wonderful idea. No cars to endanger the children. Now we feel safe coming to school."*

*"[Making the closure permanent] would be a great thing for the children and the community would be enhanced. Put [up a] diverted sign for traffic diversion."*



*"I think this is lovely. Leave this in permanently. We feel so much safer. And as for the aggressive drivers, need to see the back of them. We feel safer with our children."*



# Green screens and in-class filtration

Goose Green, Charlotte Sharman & Tower Bridge Primaries



# Other Projects

- Information – Website updated
- Street cleaning and particulates around Elephant & Castle & Waterloo - with Lambeth
- More anti idling awareness with 14 other London Authorities
- Greening the Elephant – testing dust suppression on construction sites and NO<sub>2</sub> reducing coatings
- Working with BIDs and business to reduce emissions from deliveries and collections – Borough High St. & The Blue
- Green benches
- List of appropriate funding that schools and community groups can access
- Access to Cleaner Greener Safer funds

# And finally...

## Questions & Suggestions

# ZERO EMISSIONS NETWORK

@ZENCityfringe

ZERO EMISSIONS NETWORK MEMBER

@ZENCityfringe

cleaner air is my business

ISLINGTON

TOWER HAMLETS

Hackney

Live and Work

Cheaper Cleaner Greener

ISLINGTON

TOWER HAMLETS

Hackney

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MAYOR OF LONDON

## Contents

- What is ZEN?
- What do we do?
- Progress to date

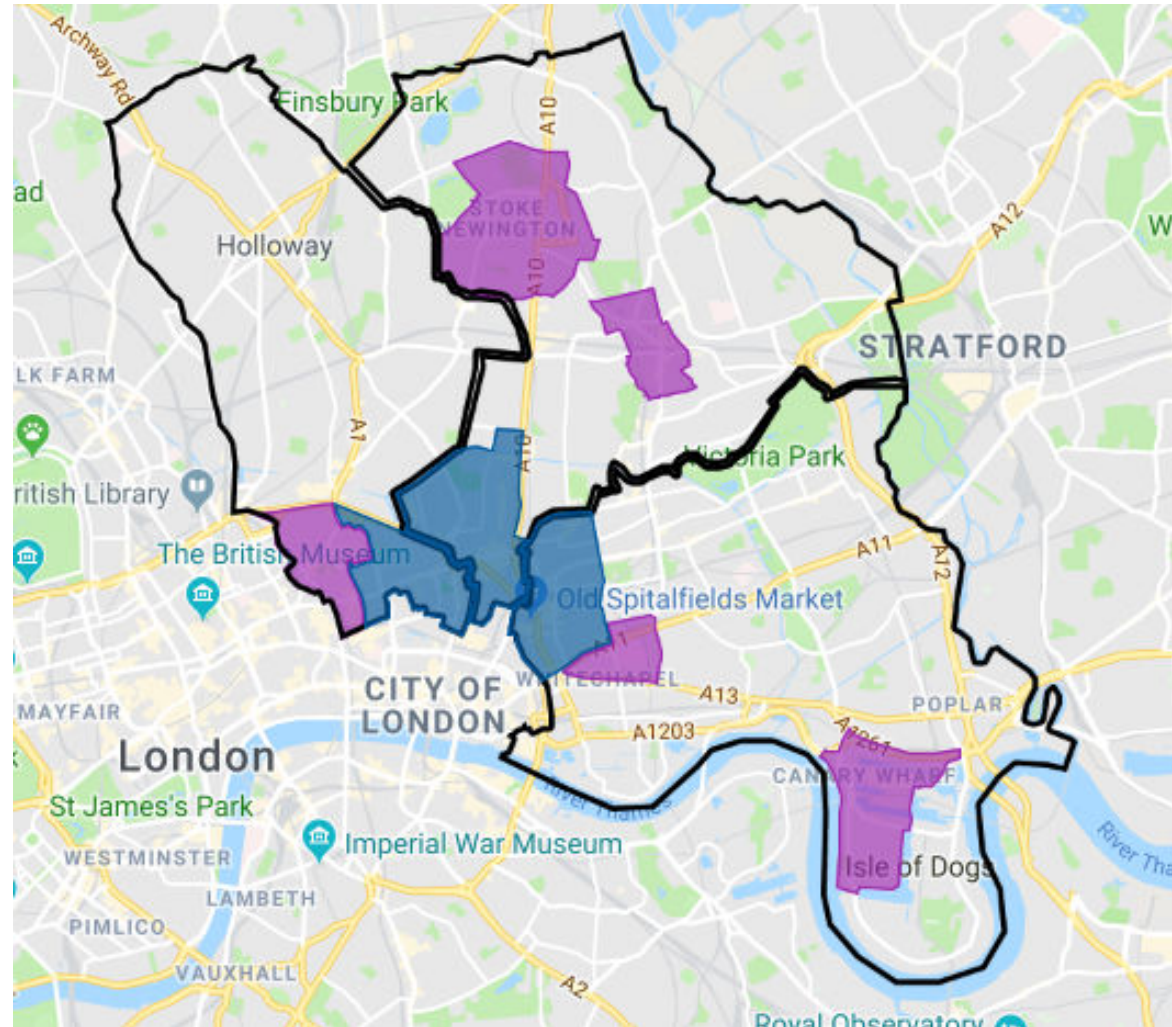


## What is the Zero Emissions Network?

- 3 boroughs
- 2100 businesses and residents
- 1 challenge

# ZERO EMISSIONS NETWORK

@ZENCityfringe



# ZERO EMISSIONS NETWORK

 @ZENCityfringe

ZEN Offers	Business	Resident
£2,000 workplace travel grant	✓	
Free Dr Bike	✓	✓
Free car club membership + credit	✓	✓
Free trials of electric cars, vans and scooters	✓	✓
Free trials of cargobikes	✓	✓
Free trials of e-bikes	✓	
Fix Your Bike Course	✓	✓
Energy Audit + advice	✓	✓
Electric taxi discounts	✓	✓
Free cycle safety seminars	✓	
Request free cycle parking	✓	✓
Free cycle training	✓	✓
50% off Santander Cycle Hire membership		✓
Discounts from ZEN Partners	✓	✓

# ZERO EMISSIONS NETWORK

@ZENCityfringe

## Case Studies





**ZERO  
EMISSIONS  
NETWORK**

 @ZENCityfringe

## Delivery riders

- Scooter Switch Toolkit
- E-bike subsidies for delivery riders



The cover of the 'Scooter Switch Toolkit' guide features a blue background with a white cloud-like shape at the top. In the top left corner, the 'ZERO EMISSIONS NETWORK.com' logo is displayed. In the top right corner, the Twitter handle '@ZENCityfringe' is shown next to a Twitter icon. Below the cloud shape, it says 'SUPPORTED BY MAYOR OF LONDON'. The main title 'Scooter Switch Toolkit:' is in a large, bold font, followed by the subtitle 'A guide for delivery businesses switching from mopeds to e-bikes'. At the bottom, there is a stylized illustration of a delivery bicycle with a cargo box on the back. In the bottom right corner, it says 'Produced in collaboration with steer'.

 ISLINGTON

 TOWER HAMLETS

 Hackney



# ZERO EMISSIONS NETWORK

 @ZENCityfringe



## Achievements

- 1297 business members of the network
- 729 residential members of the network
- 823 emission-reducing business measures
- 465 emission-reducing resident measures
- 11 delivery riders switched from moped to e-bike and toolkit produced
- Awards and best practice examples

**ZERO  
EMISSIONS  
NETWORK**

 @ZENCityfringe

# Thank you

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020 8356 1207

Laura.parry@hackney.gov.uk

[www.zeroemissionsnetwork.com](http://www.zeroemissionsnetwork.com)

**London Living Streets – Presentation to Southwark Council Environment Scrutiny Commission on 23rd July 2019**

We would like to thank you for asking London Living Streets to present to this Commission. It is vital that transport which contributes disproportionately to air pollution and emissions and other negative impacts in the borough, principally through motor vehicle usage, is put under the spotlight.

We will not rehash the points that we have made in writing to the Commission except to restate our view that the issues of the impact of surface-transport emissions and climate change, air pollution, road casualties, lack of physical activity and liveability are all utterly interwoven. On to this list we can also add social justice; so often those who contribute the least are the people who are most affected by the negative impacts of motor vehicle use with the most obvious examples being tied in to the link between deprivation and road casualties and poor air quality.

Obviously, action is needed at governmental level across London, the UK and internationally BUT Southwark is in a strong position to make a big and positive difference through its own policies and initiatives. We would like to dig deeper into 4 out of the list of the 18 measures that we have proposed in the written submission.

**1. Creating Low Traffic Neighbourhoods.** Low traffic neighbourhoods have their origins in residential communities fighting back against the domination of their streets by motor vehicles all of which has been heightened by the advent of Sat-Navs, Waze and Uber. Low Traffic Neighbourhoods involve closing a neighbourhood of streets to through traffic through filters such as bollards and planters or bus gates. Everyone can still access their home/business BUT through vehicles need to reroute their journeys via main roads. Research into the most recent versions of Low Traffic Neighbourhoods in Waltham Forest has linked them to:

- a) reducing traffic levels overall including across the neighbouring main roads as people avoid those short journeys by motor vehicle...this is classic traffic evaporation,
- b) improving health through more walking and cycling,
- c) improved air quality and
- d) reduced casualties.

Of real interest is the fact that Lewisham has taken a strategic approach to this and has divided the borough up into 18 healthy neighbourhoods that it is in the process of starting to deliver. Greenwich too appears to be planning a borough-wide approach and Lambeth has three Low Traffic Neighbourhoods planned in its Brixton Liveable Neighbourhood scheme. Southwark is planning potential Low Traffic Neighbourhoods in Dulwich and South Bermondsey. Southwark should take a strategic approach to the

design, engagement and delivery of Low Traffic Neighbourhoods for the whole borough potentially in collaboration with the three other inner south London boroughs.

**2. Borough-wide Controlled Parking Zone.** As you well know, parking is a battle ground like no other. Southwark set out its reasons in favour of Controlled Parking Zones in its draft Kerbside Strategy in 2017 and said that they were “a proven tool to reduce parking stress and minimise congestion and disruption”. The adopted Movement Plan says that Southwark will introduce a borough wide CPZ. It is important to note that many boroughs already have almost 100% CPZ coverage including non-central London boroughs such as Camden and Tower Hamlets while Southwark has only around 50% coverage. A borough-wide CPZ should be introduced as a matter of urgency along with, as is also set out in the adopted Movement Plan, charges for both on-street and residential parking based around emissions with the aim of higher charges for more polluting vehicles.

**3. Sustainable Deliveries.** Annually across London more than 1m tonnes of CO2 and 10% of London’s NOX emissions come from diesel fueled Light Goods Vans. We need a revolution in the way that freight is moved around the borough and how deliveries are undertaken. Cargo bikes are becoming amazingly efficient movers of freight and electric-assisted cargo bikes are now able to carry up to 300kg. Southwark Council has a tremendous opportunity to become an exemplar borough in London for sustainable deliveries. Each of the borough’s three BIDS are committed to sustainable freight with Team London Bridge pressing ahead with its London Bridge Cycling Strategy; organisations such as Cargo Bike Couriers SE1 and Pedal Me are based in Southwark. With regeneration occurring in Canada Water, the Elephant and the Old Kent Road, it is also possible to lead the way and design delivery and freight consolidation hubs into regeneration plans.

**4. Safer Roads and Streets.** Southwark was one of the first London boroughs to adopt a 20mph limit. Speed limiters, called Intelligent Speed Assistance or ISA, are now coming in for many vehicles and ensure compliance with the limit. All new TfL buses are now fitted with mandatory speed limiters and the EU Parliament recently passed a law to fit over-rideable speed limiters on all new vehicles from 2022. Both Camden and the City of London are a) adopting ISA for new purchases for their own fleets, b) ensuring that ISA is a standard requirement for any service procured with a fleet requirement – this could for example cover all vehicles involved in housing repairs etc and c) encouraging the uptake of ISA in other fleets, such as taxis, deliveries and construction. We strongly advocate that Southwark also adopts this approach and in addition mandates that all car club vehicles with a base in the borough are fitted with a speed limiter.

This is a diverse set of initiatives that try to illustrate the range of influence that a single borough can have but there are many more! Thank you.