

# Clean Air Better Business Final Stakeholder Meeting and Celebration Event

3 April 2019

Westminster City Hall, 64 Victoria Street.

## Clean Air Better Business - Agenda

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1. Welcome and introductions
2. London Air Quality Network Update – Andrew Grieve
3. Time To Breathe Campaign – Matthew Holder
4. The Northbank Air Quality Update – Alison Gregory
5. Victoria BID Air Quality Update – David Beamont
6. Clean Air Better Business Summary Report – Brendon Harper
7. Roundtable Updates - All

# London Air Quality Network

Andrew Grieve, Kings College London



# CABB Look Back



Andrew Grieve  
CABB Meeting 03/04/19





# Widget

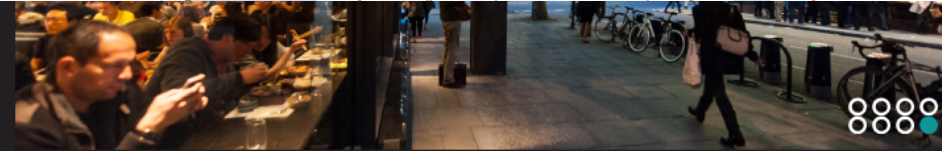
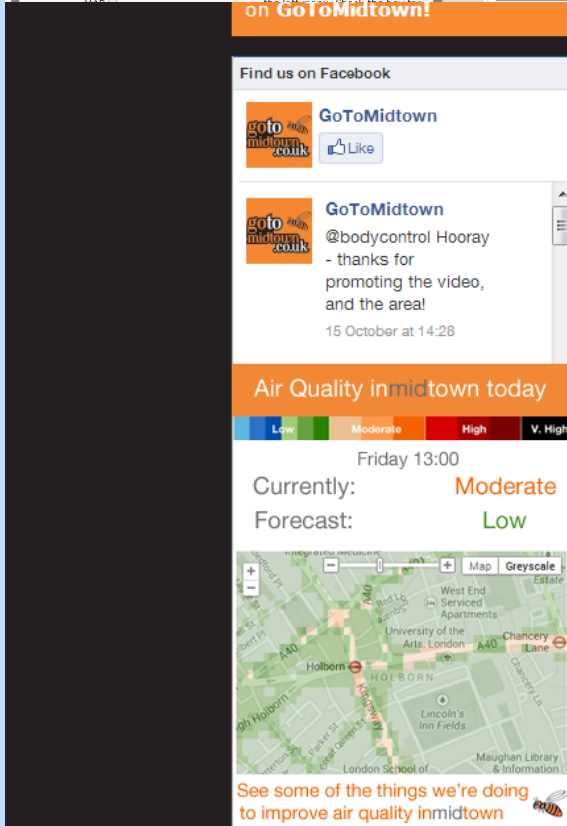
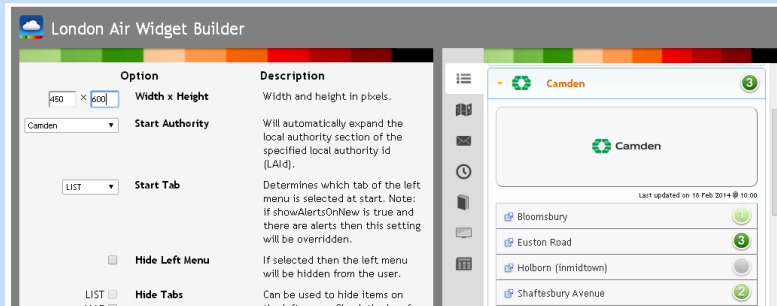
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Corin Wates - inmidtown



# Widget



## The best place for businesses to thrive in London

If your business needs to operate from central London, in an area with a diverse business population, a vibrant, energetic atmosphere, excellent connections to other parts of London and beyond, and all set against a rich tapestry of history, culture, boutique shops and great public spaces, then you've found what you are looking for. inmidtown represents 570 businesses in Bloomsbury, Holborn and St Giles – an area which is thriving. We're going places; come with us.

measurable  
results

inmidtown  
membership

improve  
the area

GoToMidtown

## inmidtown carbon savings

0000005.4

kg CO<sub>2</sub>

[click here to compare](#)



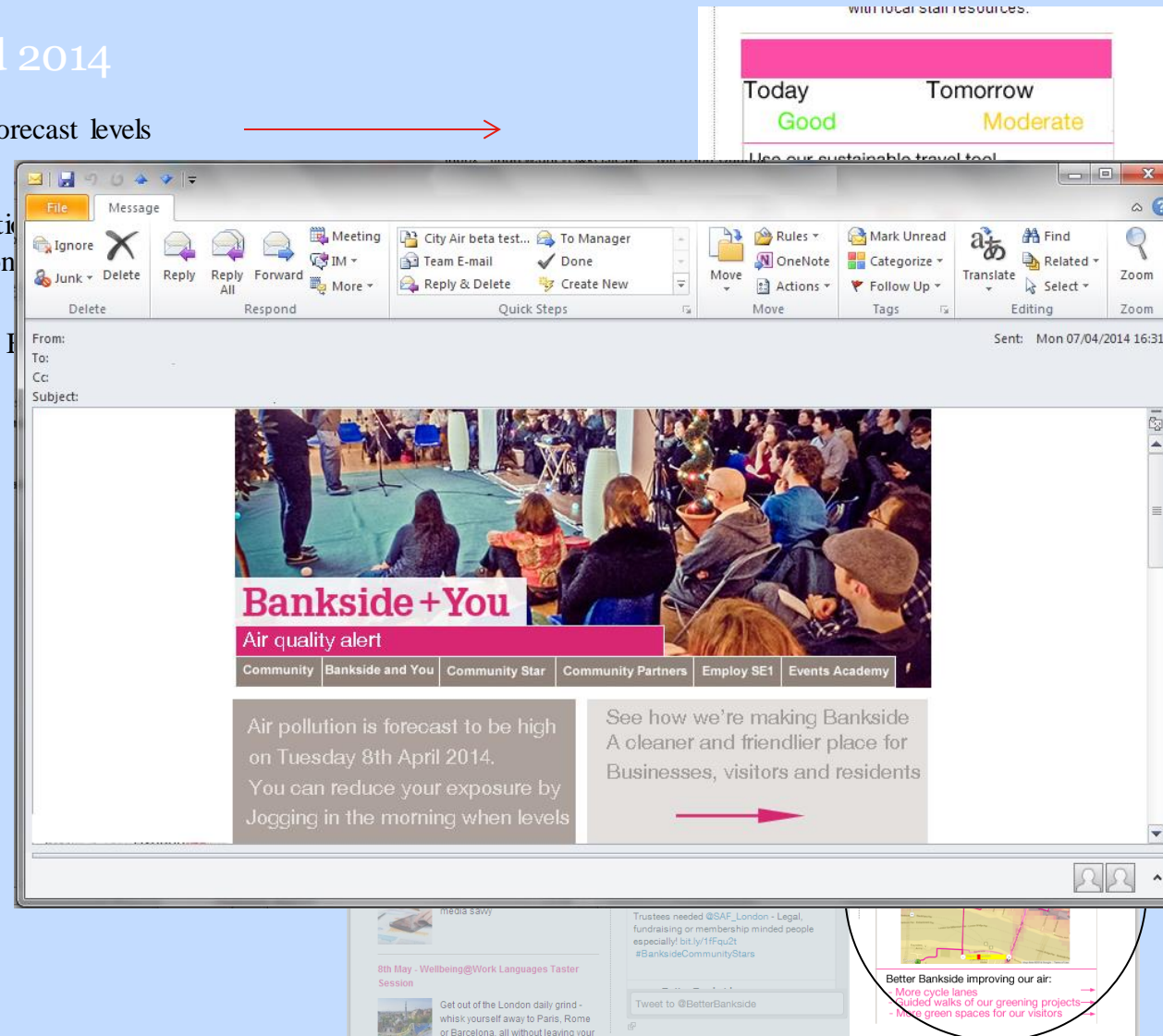
# Widget

Pitched 2014

Today/Tomorrow forecast levels

Map of either pollution  
station(s) centred on

Messages / links to



# Widget

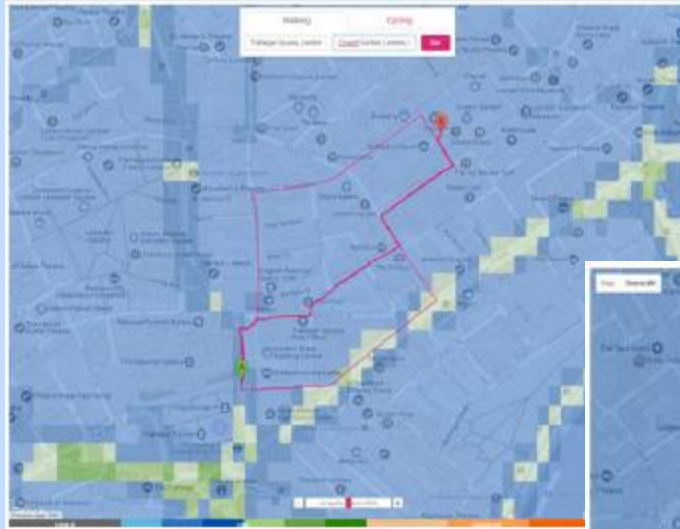
- V1.0

The screenshot displays the inmidtown website interface with several key components:

- Top Navigation Bar:** Includes a logo, contact information, and a link to a press release.
- Left Sidebar:** Contains contact details for inmidtown (2nd Floor, Sicilian Avenue, London WC1A 2QR, 020 7078 7077, info@inmidtown.london) and links to Site Map, Disclaimer, Privacy, and ©inmidtown 2015.
- Main Content Area:**
  - Live Air Quality:** A widget showing current air quality as 'Low' with a color-coded scale (Low, Moderate, High, V. High) and a map of Covent Garden.
  - Plan your journey:** A widget titled 'Plan your journey, based on the live, best air quality levels' featuring a map of Covent Garden with a route from Leicester Square to High Holborn, L. It includes a 'Walking' button and a 'Go!' button.
- Footer:** Contains a cookie notice: 'This site uses cookies' with 'No problem' and 'More info' links.

# Widget

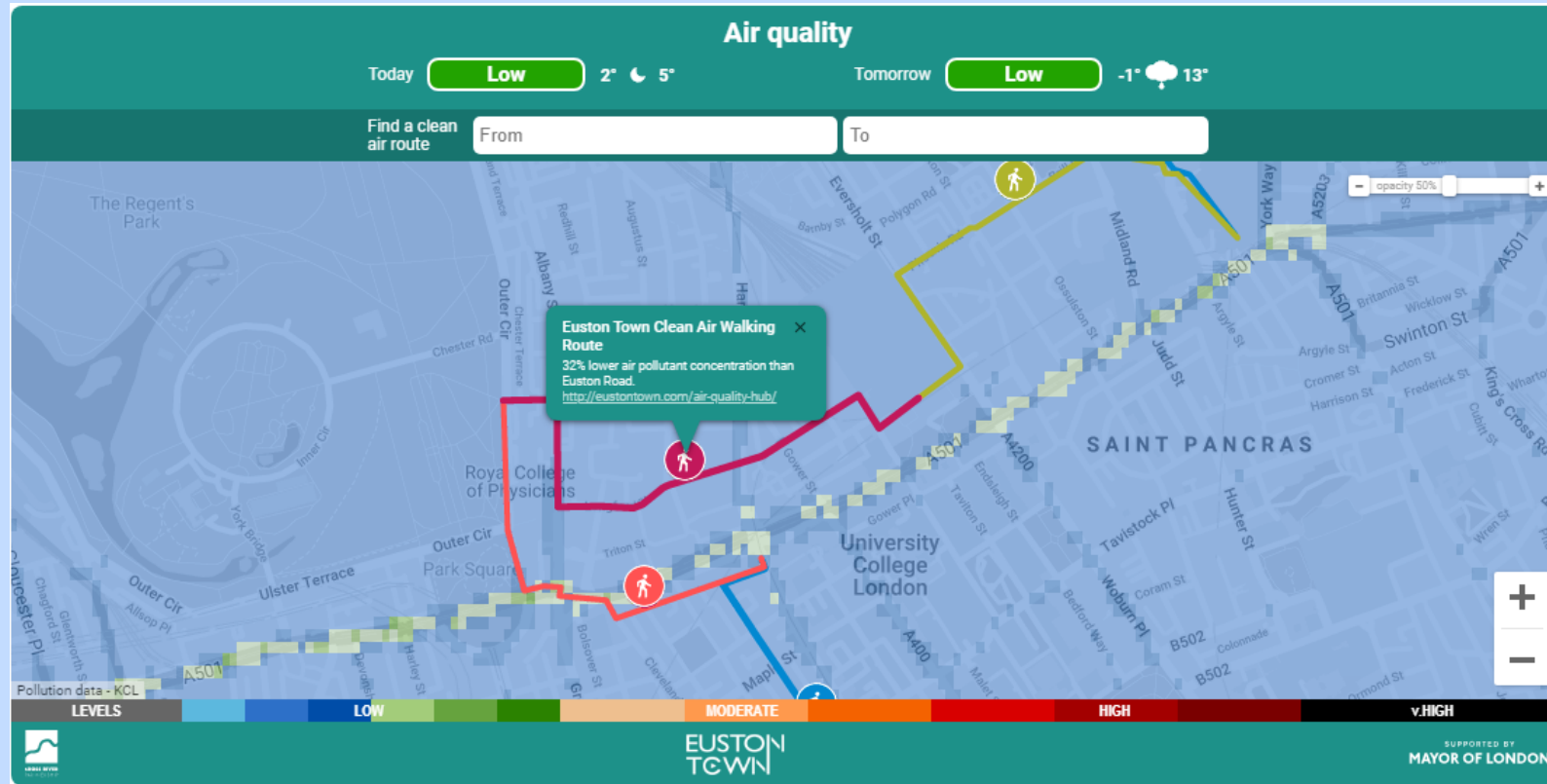
- V2.0 - Proper Low-Pollution Routing





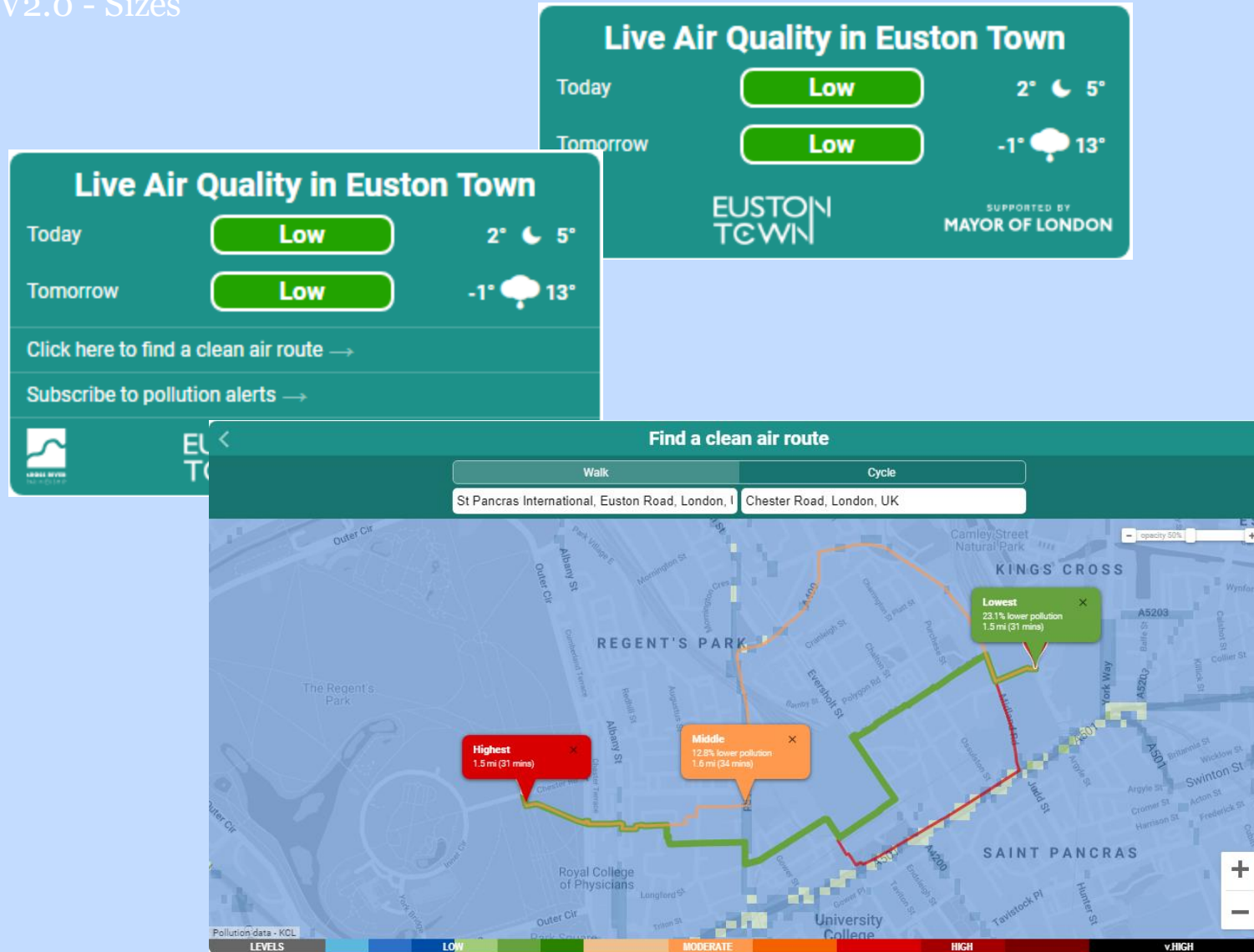
# Widget

- V2.0 - Wellbeing Walks



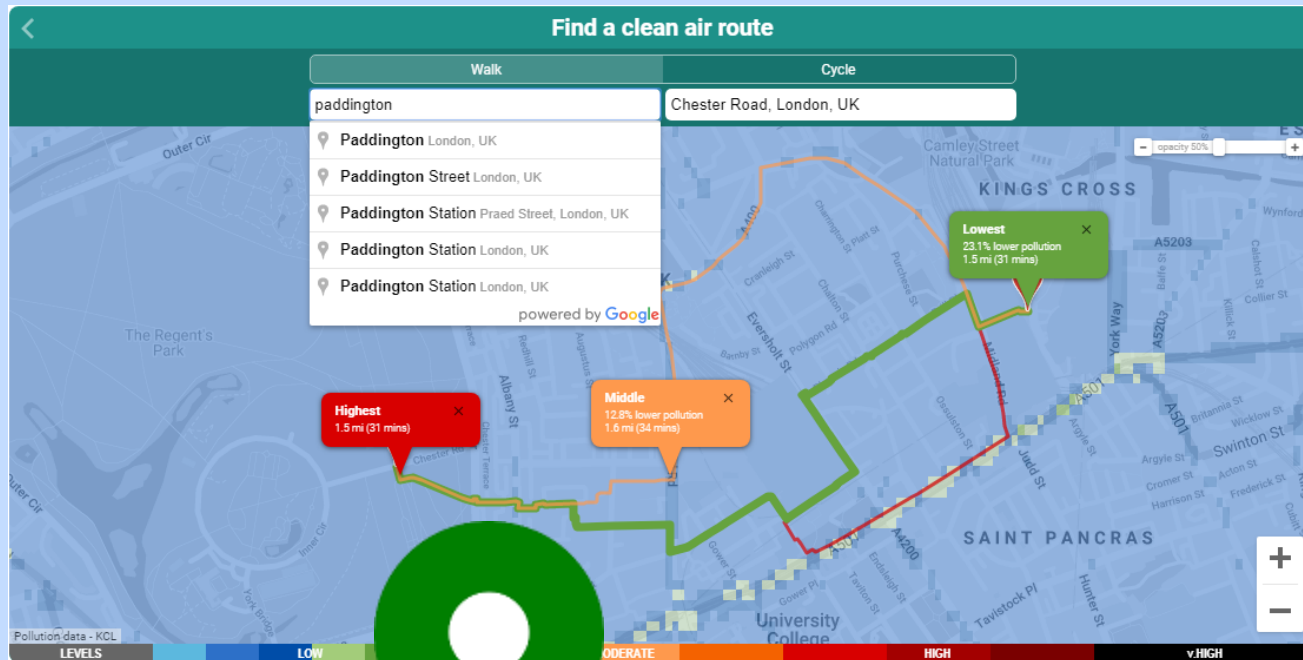
# Widget

- V2.0 - Sizes



# Widget

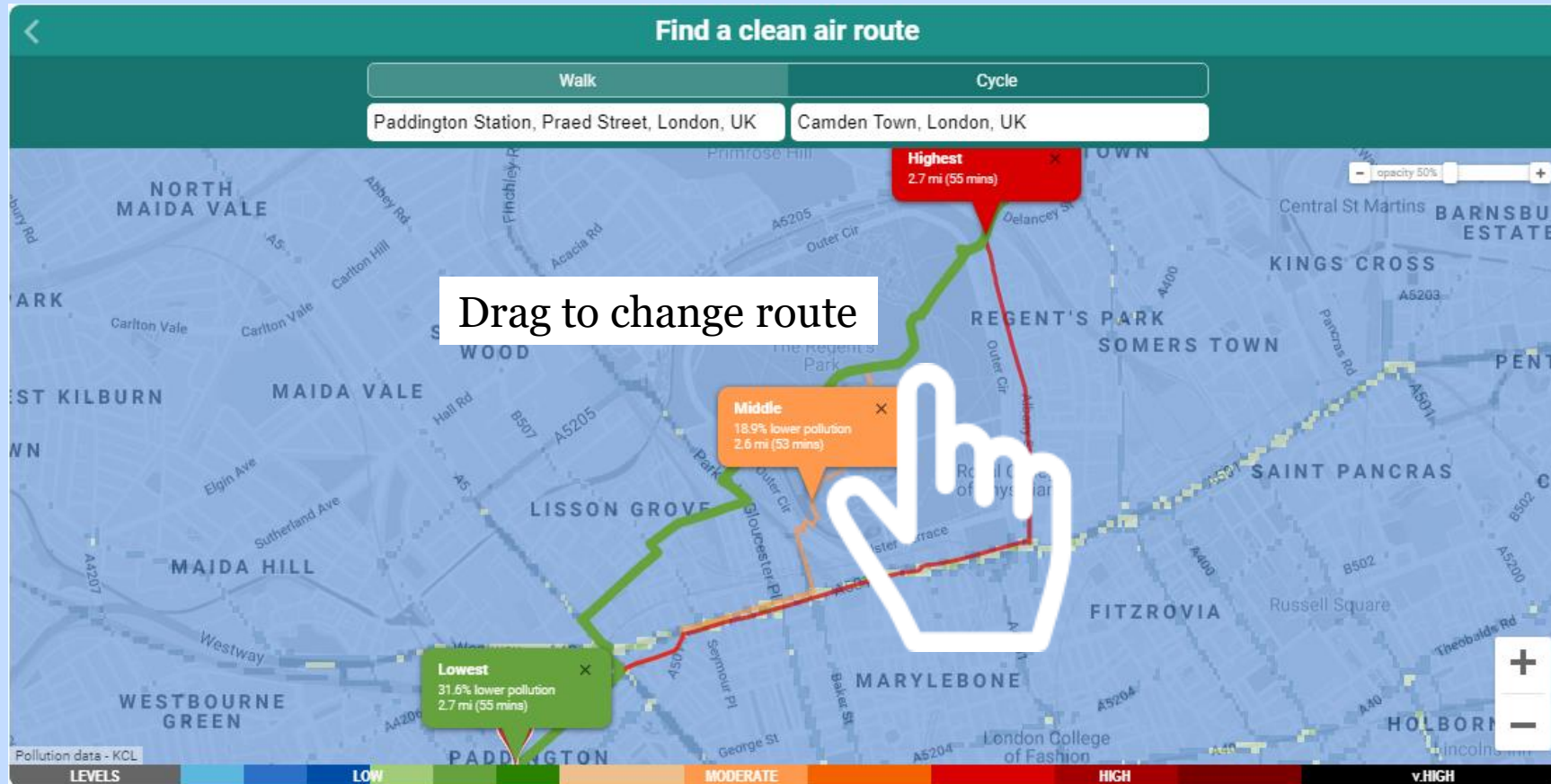
- V3 - Drop pin from/to





# Widget

- V3 - Drag to change route



# Widget

- V3 - Pollution alert forecast emails!

**Live Air Quality In Euston Town**

**TODAY LOW** 7° 14° **TOMORROW MODERATE** 6° 16°

Subscribe to pollution alerts ✉ >

Find a clean air route 🚶 >

From To

opacity 50%

Web Version | Update preferences | Unsubscribe | Like | Tweet | Forward

**CROSS RIVER PARTNERSHIP** September 2018  
Delivering London's Future Together

**Moderate PM2.5 particulate air pollution forecast valid from Thursday 27 September to end of Thursday 27 September**

Thursday is forecast to be another fine sunny day with temperatures above twenty degrees in the afternoon.

Relatively calm conditions or light wind activity overnight into Thursday morning will give way to a fresh south-westerly breeze from late morning until the evening.

Back-Trajectories show that air arriving on Thursday will have travelled from the North Sea before spending time over the continent. Particulate levels are forecast to be elevated early morning with a continental import combining with local emissions in calm conditions. The fresh south-westerly breeze later in the morning should aid dispersion, however we expect to see an increase again in the evening, as local wind activity eases and local pollution combines with the continental import.

Overall, particulate levels will likely be elevated very early and again later in the evening with PM2.5 expected to reach the 'Moderate' level threshold on Thursday.

Air pollution is expected to remain 'Low' for the following pollutants during the forecast period:

Nitrogen Dioxide  
Ozone  
PM10 Particulate  
Sulphur Dioxide

# Widget

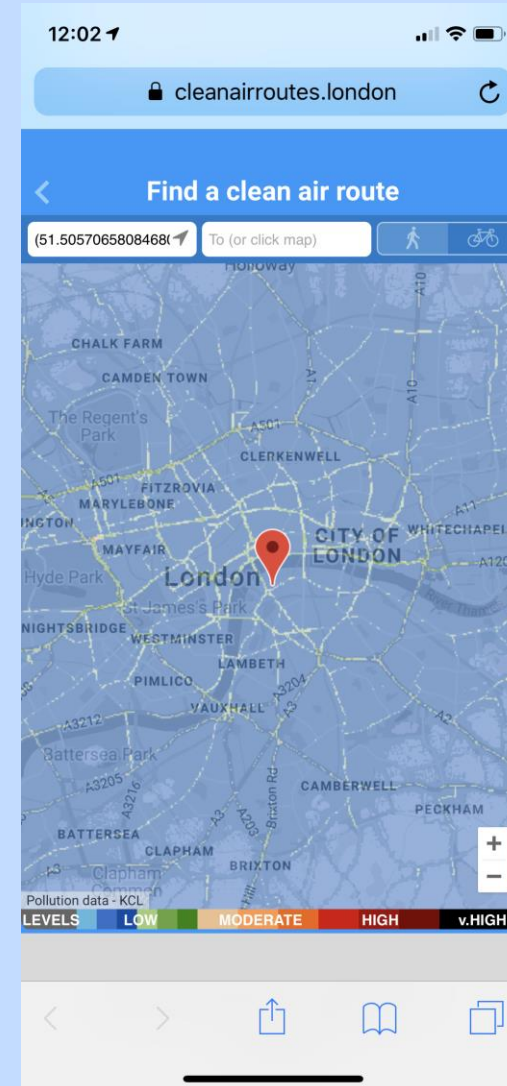
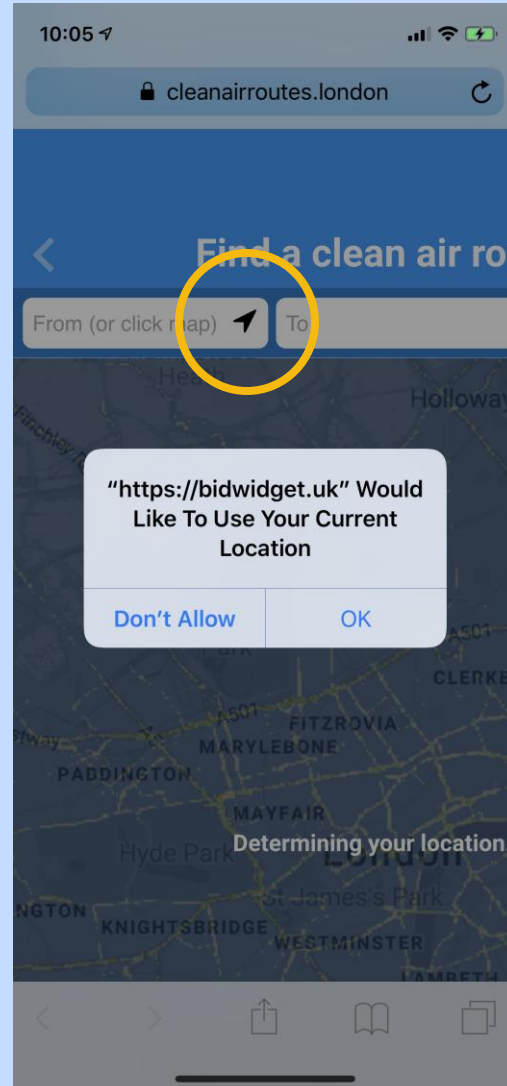
- V3.0 - Admin – show/hide clean air routes

The screenshot displays the 'BID Widget 2 — admin' interface. On the left, a sidebar lists various widgets: 'Audience No1 - BID website', 'Audience No2 - Running Group website', 'Audience No3 - Local Business website', 'Widget #4', and 'Mini'. A green button labeled '+ Add new widget' is at the bottom of the sidebar. The main content area is titled 'Widget appearance' and includes fields for 'Widget title override' (set to 'Test Widget'), 'Background colour' (set to '#8080c0'), and 'BID logo URL' (set to '/widget/assets/img/bid-logos/KCL.png'). Below these, there are 'Corners' options: 'Rounded' (selected) and 'Square'. A section titled 'Clean Air Routes' is circled in yellow, showing a list of routes: John Adam St, Phoenix Road, Whitfield Street, Euston Road, Regent's Canal, and Warren Street. Each route has a radio button next to it. On the right, a 'Preview' section shows a 'Test Widget' with weather information for 'Today' and 'Tomorrow' (both showing 'Low' and temperatures of 15°/20° and 13°/21° respectively). Below the weather is a map of London with a 'Find a clean air route' search bar and a map showing various locations like Chalk Farm, Camden Town, and the City of London. A legend at the bottom of the map shows pollution levels: Low, Moderate, High, and Very High.



# Widget

- V3.0 – Locate me

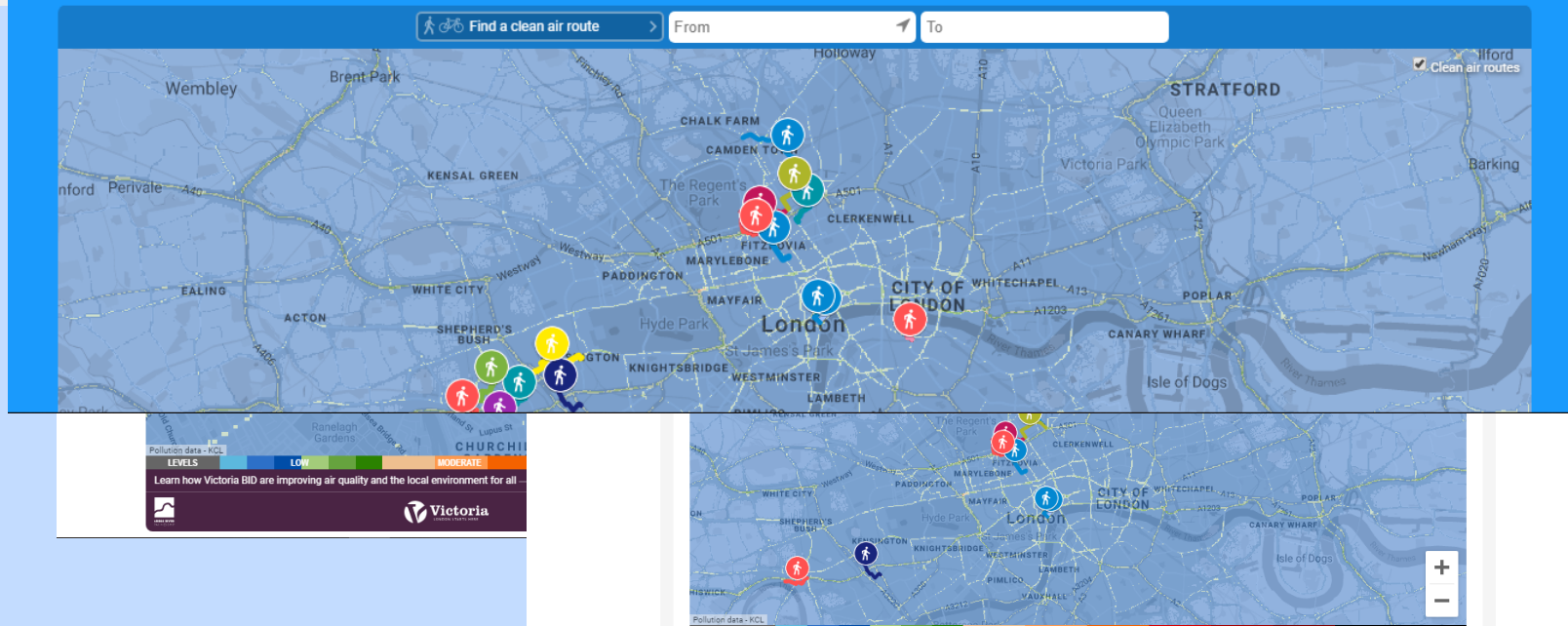


# Widget



## Clean Air Route Finder

Some streets have cleaner air than others. Reduce your exposure to air pollution by taking a clean air route.



# Monitoring



# Personal Monitoring

## Personal Exposure and Air Quality in Northbank



A detailed study on commuter exposure  
for Northbank Business Improvement District  
by King's College London  
July 2017



SUPPORTED BY  
MAYOR OF LONDON



## Personal Exposure and Air Quality in Victoria

A detailed study for the Victoria Business Improvement  
District by King's College London  
October 2017





# Personal Monitoring

## 6.1. Participant A Commute: Cycles from Stratford to Victoria

### Background

Participant A's commute involves cycling from her home in Stratford to her office in Victoria.

In week 1 she took a route following the cycle superhighway down Mile End Road, along Embankment and along Birdcage Walk to Victoria Street.

This journey takes approximately 50 minutes and is

In the second week, she changed her route to cycle Farrington Road joining the cycle superhighway at and is shown on the map below in blue.

Figure 2 - Map showing the week 1 cycle route in yellow



### Analysis

Participant A cycled the week 1 route on the mornings of 13<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup>, 16<sup>th</sup> and 19<sup>th</sup> June.

As described in section 4.1, the two contrasting journeys of week 1 and week 2 were all equalised to 75 minutes which were shorter than this were equalised by n recorded in her office environment.



## 5.4. Motorcyclist

### 5.4.1. Introduction

Motorcyclists exposure has been less well studied than driver exposure. Motorcyclists though are clearly at risk of high exposures

### 5.4.2. Results

Figure 8 below shows the cumulative black carbon concentrations measured over each journey. The solid lines show morning commutes while the split lines show evening commutes.

Figure 8 Motorcyclist journey comparisons

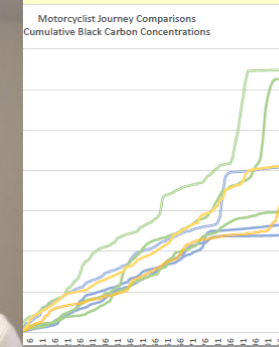
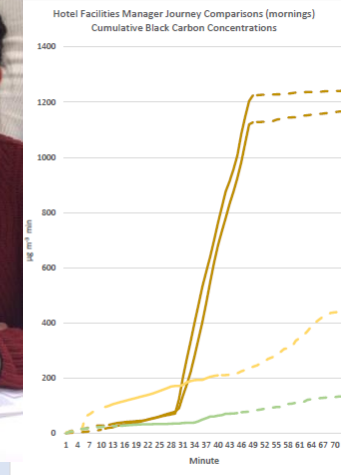


Figure 9 Hotel FM journey comparisons



Key:  
• Bakerloo line Harlesden to Charing Cross  
• Overground line Harlesden to Euston / Walk (busy route)  
• Overground line Harlesden to Euston / Walk (quiet route)



# Anti-Idling



Clean Air Action Days  
Anti-Idling Campaign  
Monitoring Report



Andrew Grieve, Anna Font, Gary Fuller  
Environmental Research Group  
King's College London  
August 2016



SUPPORTED BY  
MAYOR OF LONDON



# Anti-Idling

- 1 – The lowest concentrations on the 16<sup>th</sup> are lower than those on the 15<sup>th</sup>
- 2 – The highest concentrations on the 15<sup>th</sup> are higher than those on the 16<sup>th</sup>
- 3 – The median (dotted line) of the measurements on the 16<sup>th</sup> was lower than that of the 15<sup>th</sup>
- 4 – The 95<sup>th</sup> percentile of measurements (solid line) was higher on the 15<sup>th</sup> than on the 16<sup>th</sup>

Figure 12 Density distribution plot (log scale) West End 15th March vs 16th March

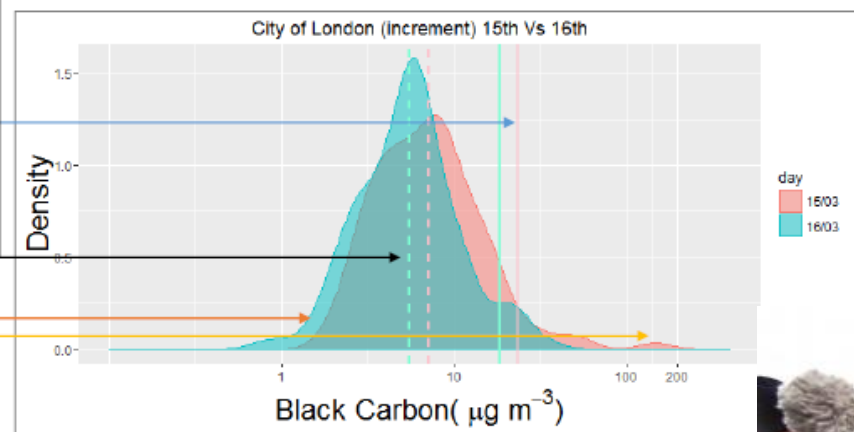


Table 1 Medians, 95th percentiles and differences in  $\mu\text{g}/\text{m}^3$  for each day

Location	8th			9th			Difference of 9th as % of 8th
	Median	95th percentile	Difference	Median	95th percentile	Difference	
City	9.5	23.8	14.3	15.9	34.9	19.0	32.9
West End	5.6	11.6	6.0	2.4	8.7	6.3	4.8
Waterloo	15.6	53.2	37.6	9.4	39.8	30.4	-19.0
Wandsworth	2.1	15.6	13.4	0.9	9.4	8.5	-36.3

Location	15th			16th			Difference of 16th as % of 15th
	Median	95th percentile	Difference	Median	95th percentile	Difference	
City	7.1	23.7	16.5	5.5	18.4	12.9	-22.2
West End	2.9	7.8	4.9	3.1	7.9	4.8	-1.2
Waterloo	1.6	9.0	7.4	2.9	8.7	5.8	-21.5
Wandsworth	2.0	5.0	2.9	1.8	3.7	1.9	-36.2





# Parklets

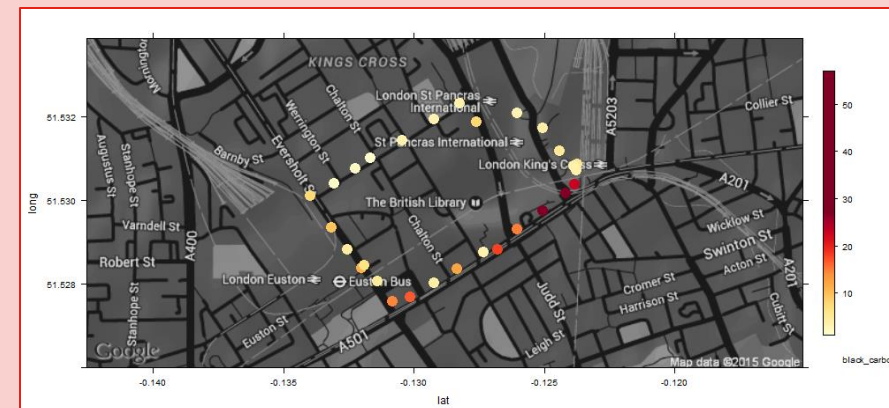
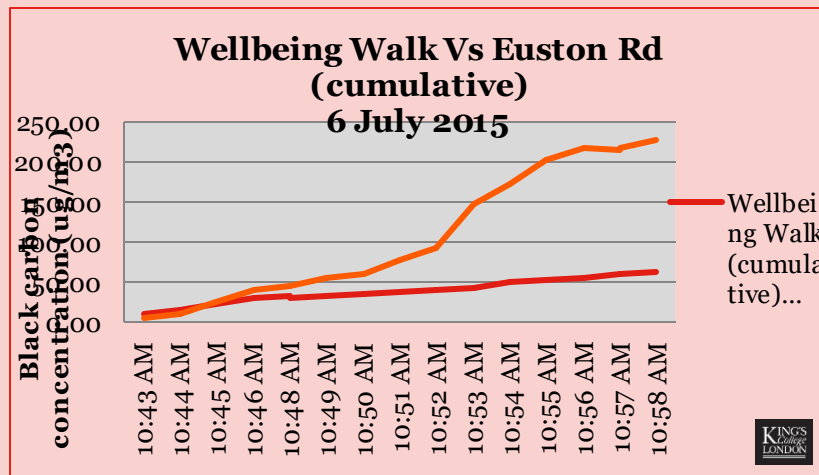


**TEAM  
LONDON  
BRIDGE**





# Clean Air Routes



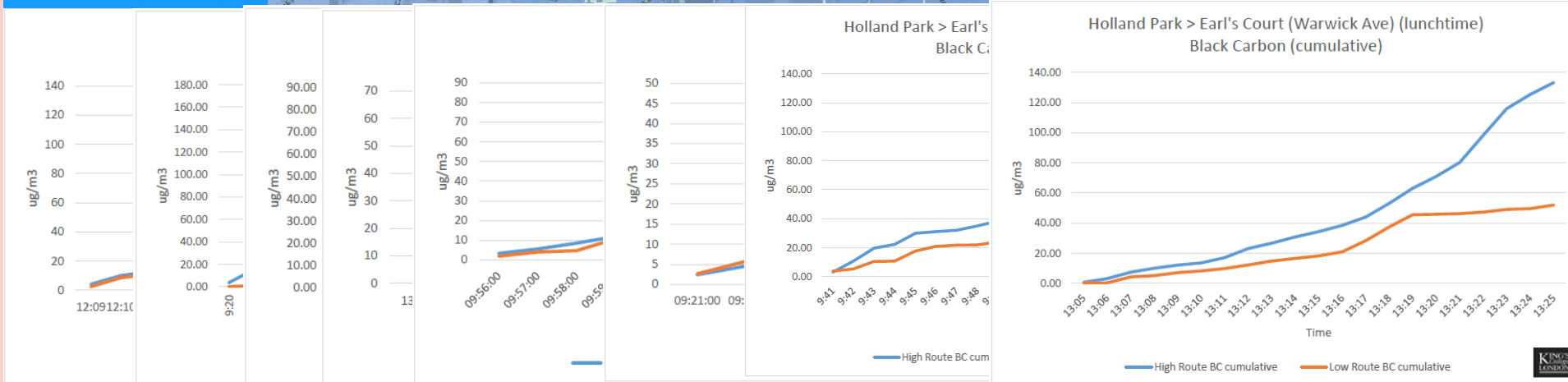
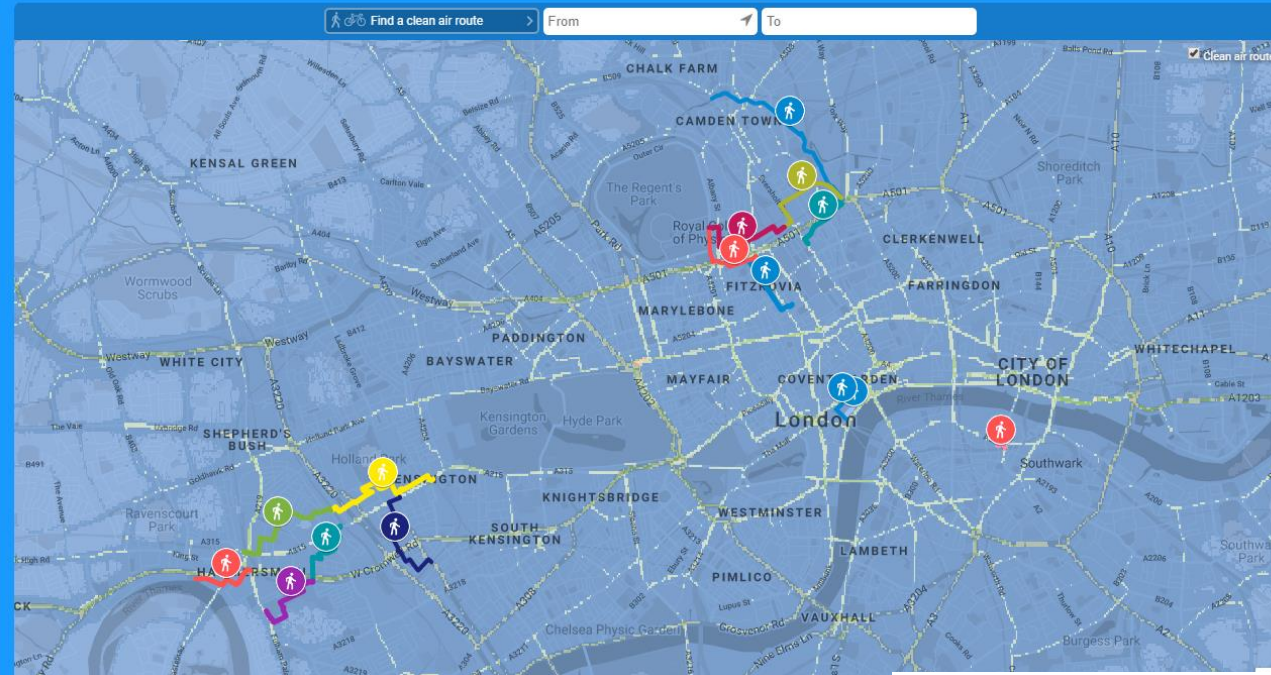






# Clean Air Route Finder

Some streets have cleaner air than others. Reduce your exposure to air pollution by taking a clean air route.



# Pedestrian Exposure Mapping



## Mapping Pedestrian Exposure in Bankside

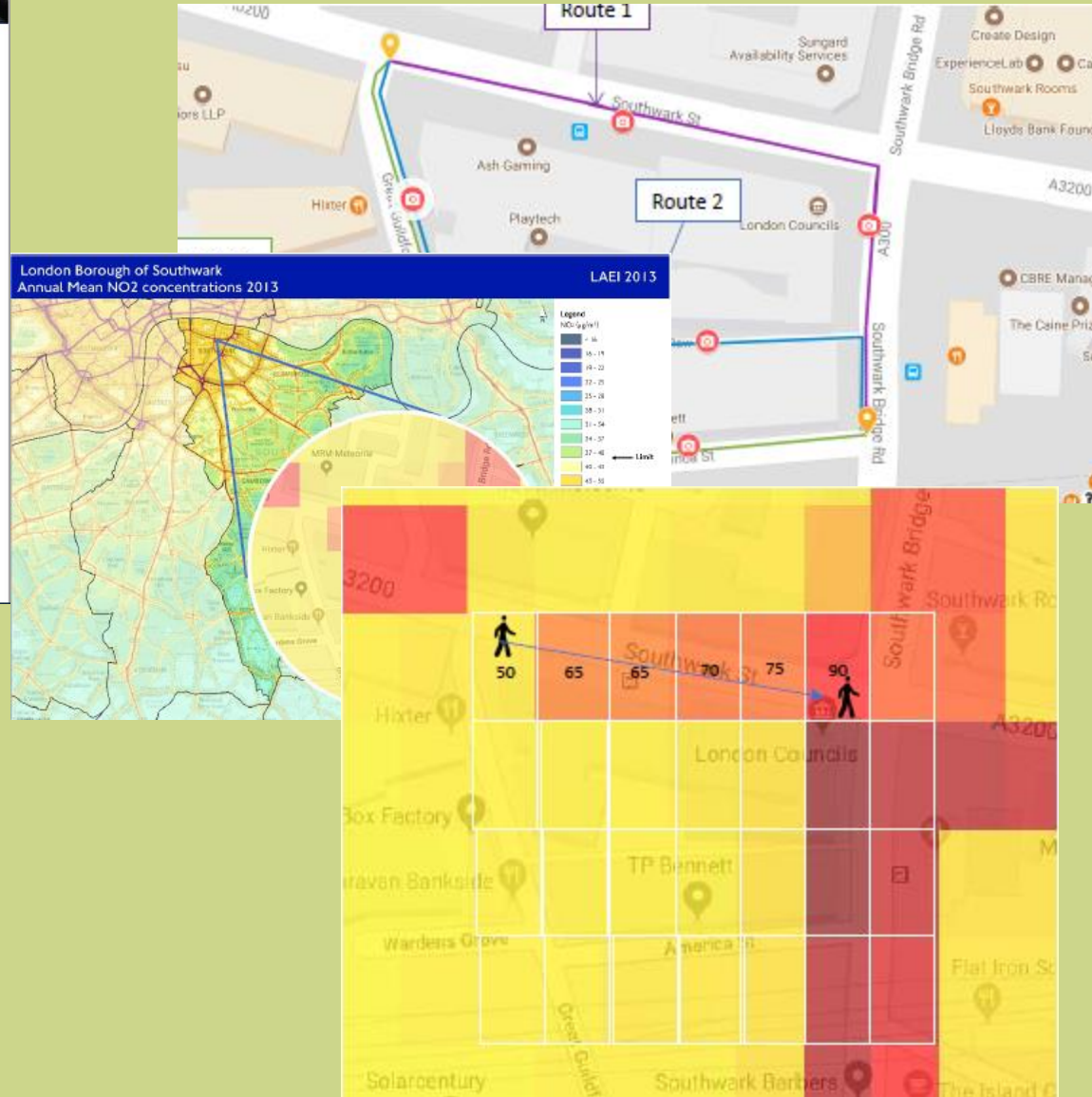
Combining air pollution and footfall data to gain a more accurate picture of exposure



King's College London  
June 2018

Better  
Bankside

KING'S  
COLLEGE  
LONDON



# Pedestrian Exposure Mapping



Below shows an example individual exposure dose equation calculation for two street sections in the study.

$$\text{Dose per person} = C * T * V$$

Where:

$C$  = Is the concentration of pollution in micrograms per metre cubed ( $\mu\text{g}/\text{m}^3$ )

$T$  = Is time (in minutes)

$V$  = is the volume of air inhaled per unit time in metres cubed per minute ( $\text{m}^3/\text{min}$ )

Importantly, the units in the calculation align; pollution concentration is expressed in  $\mu\text{g}/\text{m}^3$ , ventilation rate is expressed as  $\text{m}^3/\text{min}$  and time is expressed in minutes.

$$\text{Dose per person } (\mu\text{g}) = \mu\text{g}/\text{m}^3 * \text{min} * \text{m}^3/\text{min}$$

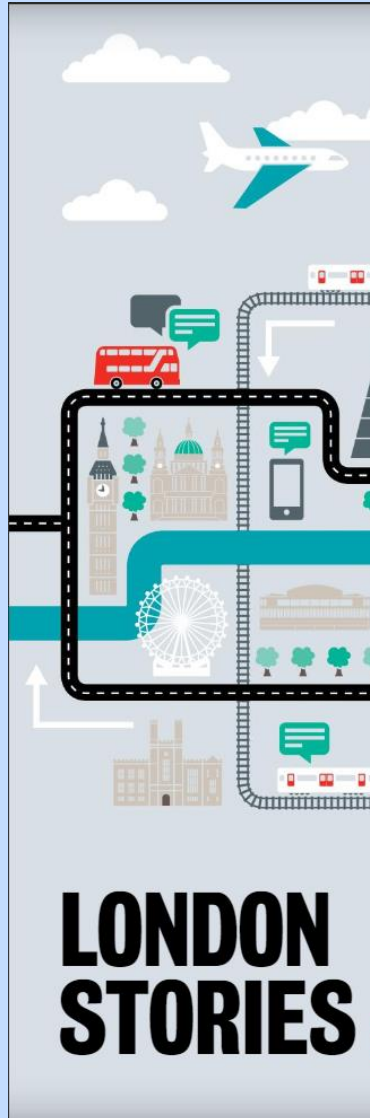
Table 3 Per person and total dose calculations per day for street segments in the study area

Southwark Street	Southwark Bridge Road (long)	Southwark Bridge Road (short)	America Street	Keppel Row	Great Guildford Street long	Great Guildford Street short
Distance (m)	97	52	19	74	81	60
Time (s)	75	40	15	57	62	46
Footfall	2710	1731	1731	722	2165	2165
Mean Concentrations						
NO2 ( $\mu\text{g}/\text{m}^3$ )	79	109	94	61	56	59
PM10 ( $\mu\text{g}/\text{m}^3$ )	33	38	35	30	29	29
DOSE (per person)						
NO2 ( $\mu\text{g}$ )	1.18	0.87	0.27	0.69	0.70	0.54
PM10 ( $\mu\text{g}$ )	0.49	0.30	0.10	0.34	0.36	0.27
Total ( $\mu\text{g}$ )	1.67	1.18	0.38	1.04	1.06	0.81
Section Dose (total)						
NO2 ( $\mu\text{g}$ )	3,195	1,509	476	501	1,511	1,179
PM10 ( $\mu\text{g}$ )	1,335	526	177	247	782	580
Total ( $\mu\text{g}$ )	4,529	2,036	653	748	2,293	1,759

nd route.



# King's & London



King's London Stories

## LONDON AS A LIVING CLASSROOM

The city in which the university makes its home is a distinctive feature of a King's education

KING'S EDUCATION STRATEGY sets out the university's ambitions to integrate London into the learning experience, drawing on the city's potential as a living classroom. In support of this, partnerships with local boroughs and organisations across the capital are becoming a distinctive feature of a King's education. These collaborations help students take away the best possible life opportunities and develop lifelong connections and networks that will support them throughout their careers. At the same time, the students offer partners across the capital new insights and perspectives on their challenges and opportunities.

*Black in the Union Jack? Black Lives in Modern London* illustrates how King's embeds London into the curriculum across its Arts and Sciences faculties. This module from the Faculty of Arts & Humanities is an exploration of the ways in which black people have lived, loved, worked, studied, played and become politically engaged in modern London. It has been developed in partnership with Black Cultural Archives (BCA) in Brixton and sees lectures, seminars and hands-on tasks delivered in alternate weeks at King's and at BCA.

Within the university's Health faculties, King's students – many of them the medics, doctors and

"I feel so fortunate to be able to live in London. It's important that we take advantage of what students at other universities do not have at their fingertips."

King's student, commenting on *Black Lives in Modern London*



King's London Stories

## STAYING ALERT

Scientists at King's are providing official air quality forecasts to the Mayor of London

KING'S IS WORKING in partnership with the Mayor of London, Sadiq Khan, to ensure schools and vulnerable Londoners are quickly informed of significant incidents of poor air quality in the capital.

Scientists at King's Environmental Research Group use data from the London Air Quality Network, alongside projections from other leading forecasters, to deliver coordinated warnings and urgent alerts to the Mayor's office. It is hoped that the alerts will encourage Londoners to make small changes that might reduce their exposure to toxic air.

The Mayor of London said, 'I introduced air quality alerts within months of becoming Mayor. The system has proved to be very successful but I am delighted to bring the expertise of King's College London on board so that we can reach more Londoners, particularly the most vulnerable, with the very latest information.'

King's is one of the leading providers of air quality information and research in the UK. The Environmental Research Group combines air pollution science, toxicology and epidemiology to determine the impacts of air pollution on health. This world-leading research is being used by

"Providing accurate, up-to-date information on air quality is a central component of King's civic duty, and this exciting new partnership with the Mayor of London will enable that message to be delivered to those most affected by air pollution."

Timothy Baker, Principal Air Quality Analyst at King's College London

London boroughs and local Business Improvement Districts (BIDs) to combat air pollution.

Westminster City Council used King's pioneering research to create 'air quality backpacks' that monitor pedestrians' exposure to harmful pollutants on Westminster's streets. King's scientists have worked with several central London BIDs to create low-pollution walking and cycling routes, with one between Embankment and Covent Garden reducing pollution exposure by 47 per cent.

King's commitment to tackling air pollution in London makes a tangible difference to the wellbeing and health of Londoners, with many of the city's air quality improvement measures informed by the university's pioneering research. ■



# Thanks!

**Andrew Grieve**  
Andrew.grieve@kcl.ac.uk

# Time to Breathe Campaign

Matthew Holder, British Safety Council

# **Time to Breathe**

**British Safety Council campaign on Air  
Pollution**

# British Safety Council as a charity



**Our vision:**

**No-one should  
be injured or  
made ill at work**

Most have protections under H&S law in UK

Yet some more at risk than others.

Our campaigns focus on some of these most vulnerable workers.

Campaign on Air pollution aimed at outdoor workers. Evidence building.

Looking for help.



# Air pollution in London



# Air pollution and outdoor workers



Air pollution is a growing concern – Royal College of Physicians/Ministers/Unite (Diesel Register). WHO. IARC.

Scientific understanding growing – lungs, to heart and brain. Some say the new asbestos or smoking.

Outdoor workers often ignored, inc. police, road maintenance, newspaper sellers, construction, delivery

H&S law tends to be workplace based. HSE doesn't regulate ambient air pollution.



# Time to Breathe: launch 12<sup>th</sup> March 2019



# time to breathe



Time to Breathe will:

- Highlight risks to outdoor workers and call for more research
- Provide employers with free materials – posters, fact-sheets, research
- Call for better protections for all workers from policy-makers
- Crucially, a new tool to help employers and workers



# Canairy: the app for London's outdoor workers



London has the best pollution data in world (not yet in other UK cities)





Partnership with King's College. London - software calculates durational exposure to main pollutants

A professional App – only for Supporting employers


App message will be action orientated for employer/worker

Data collected will enable employers to better assess, control and monitor their outdoor worker long-term exposure to air pollution

# Canairy: functions

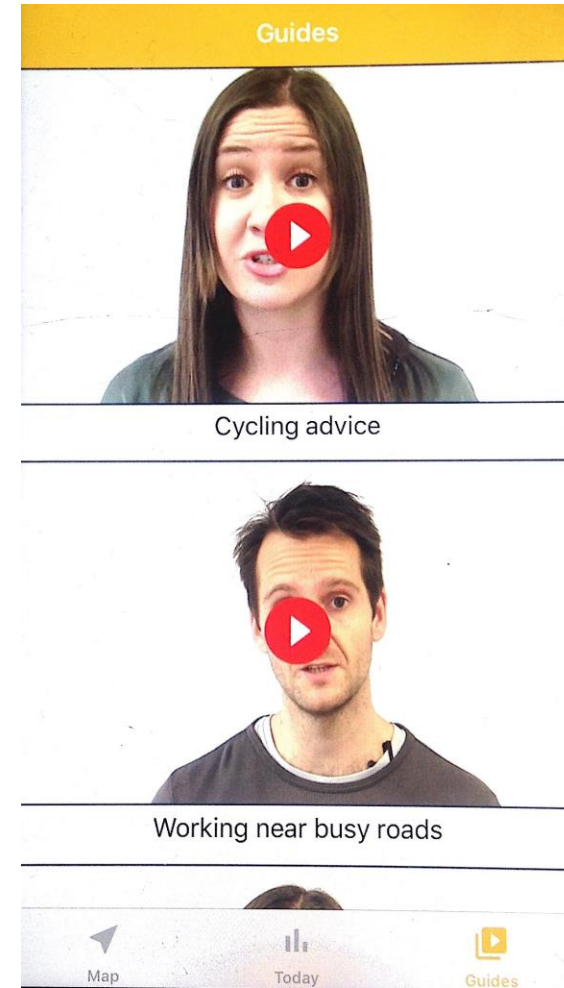
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Register

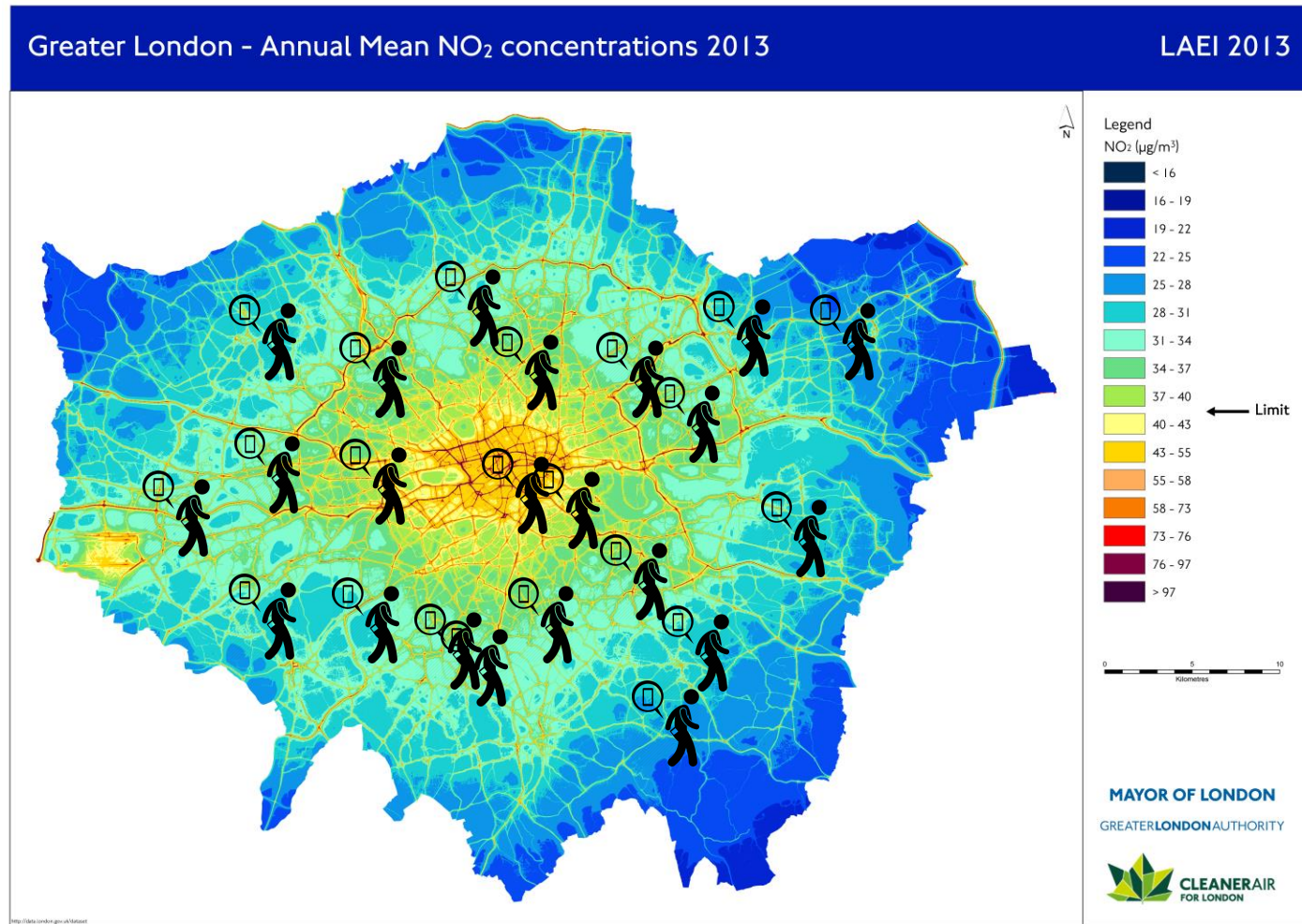


Enter your access code

Submit

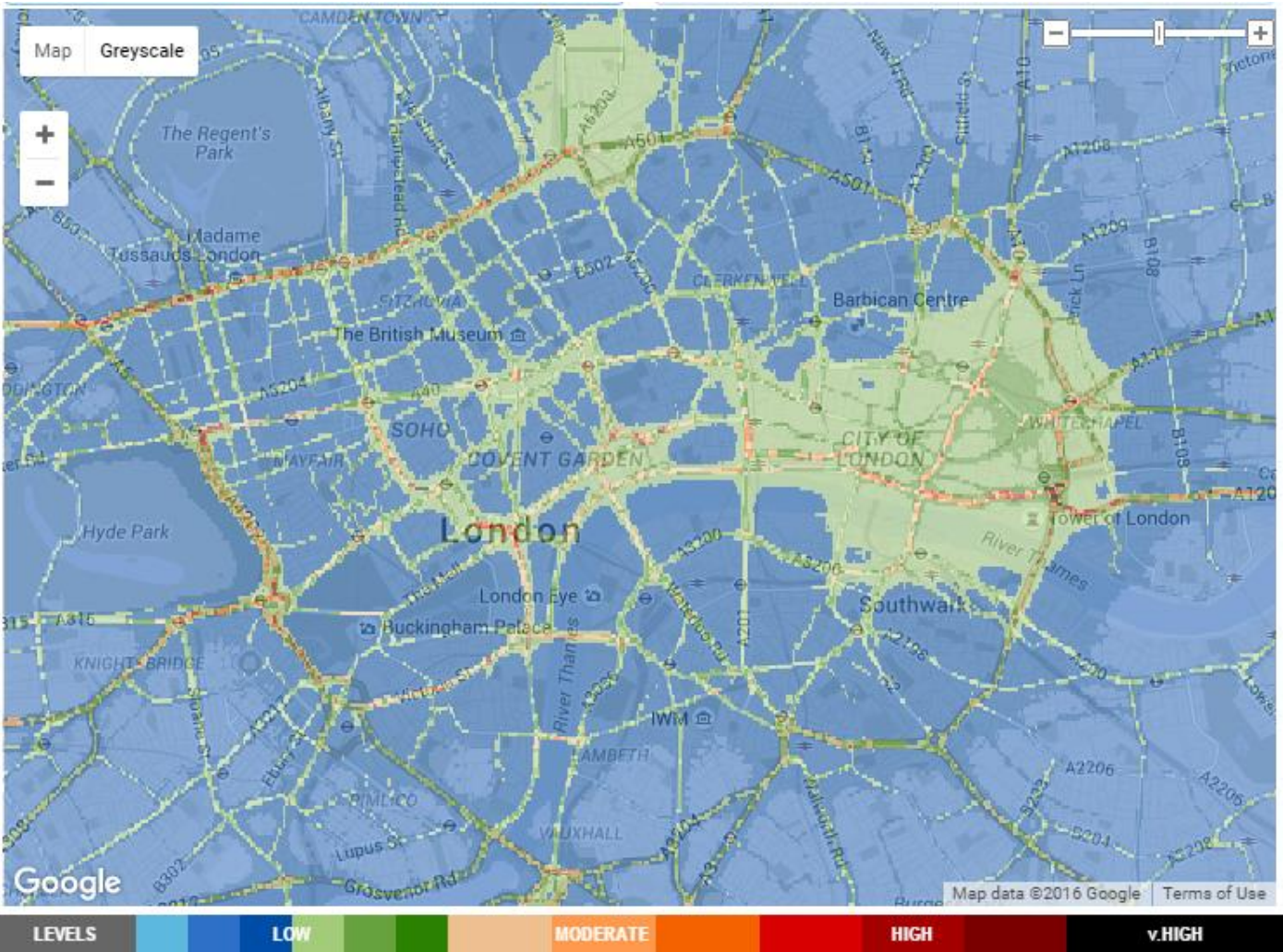
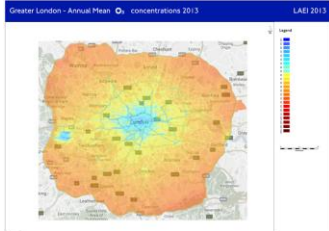
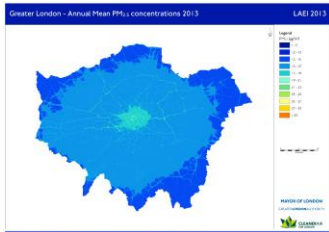
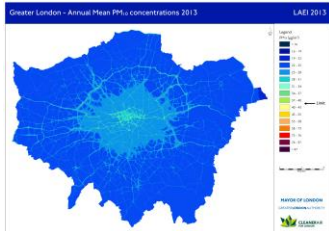
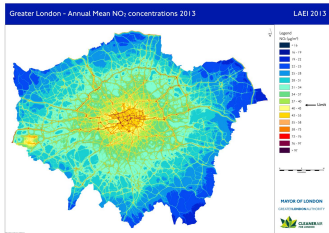


# Tracking exposure for risk management



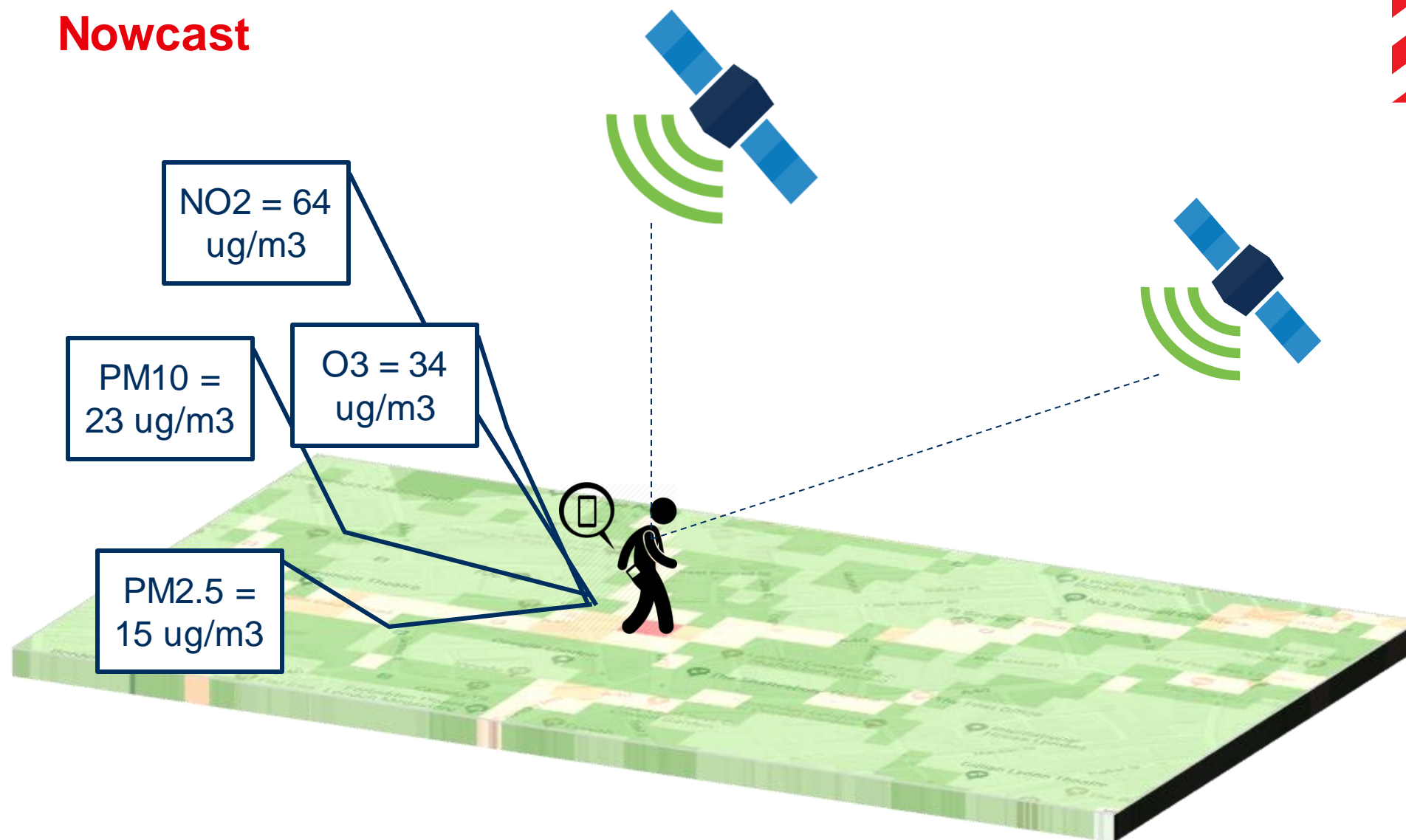


# Nowcast

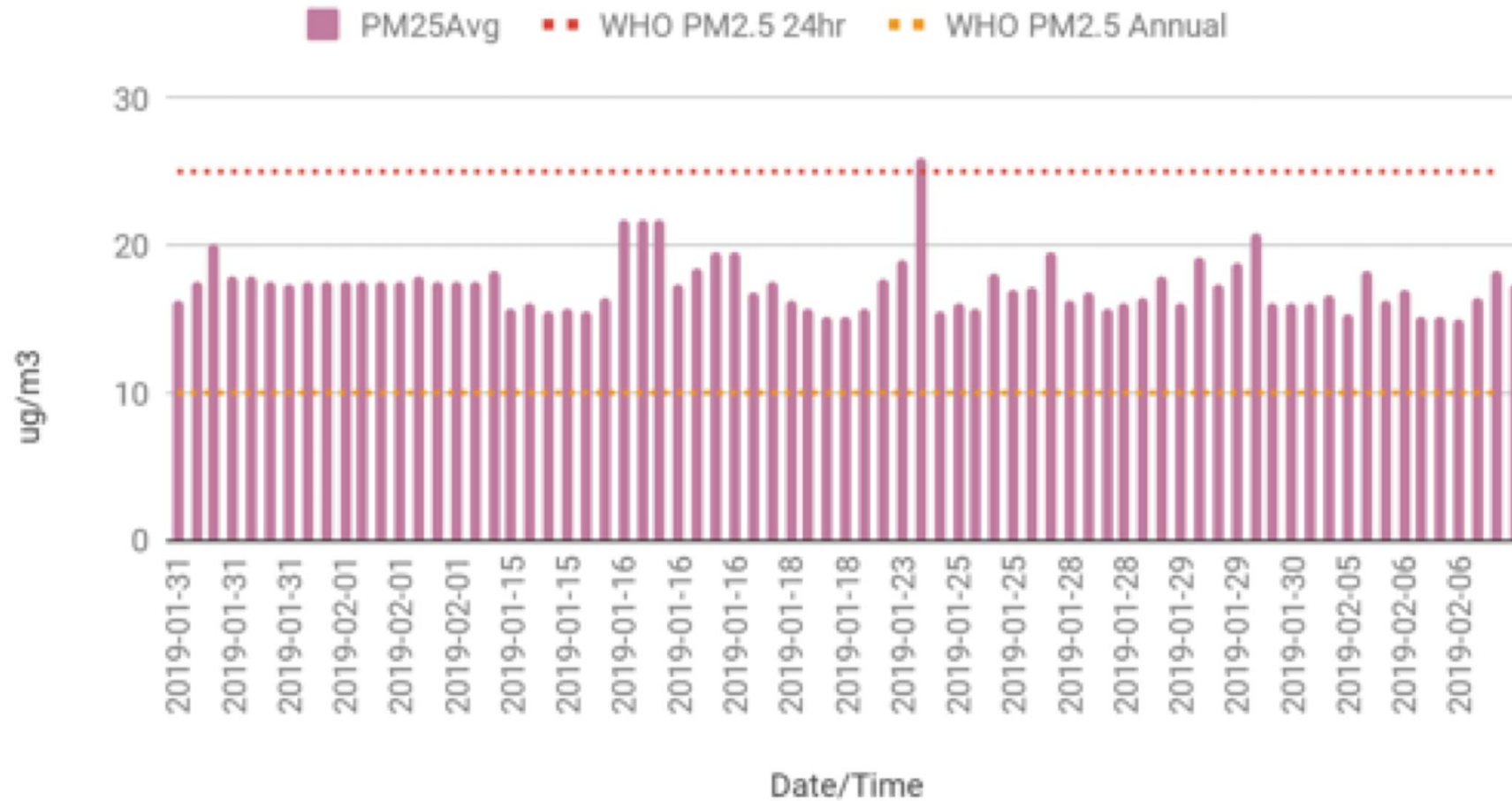




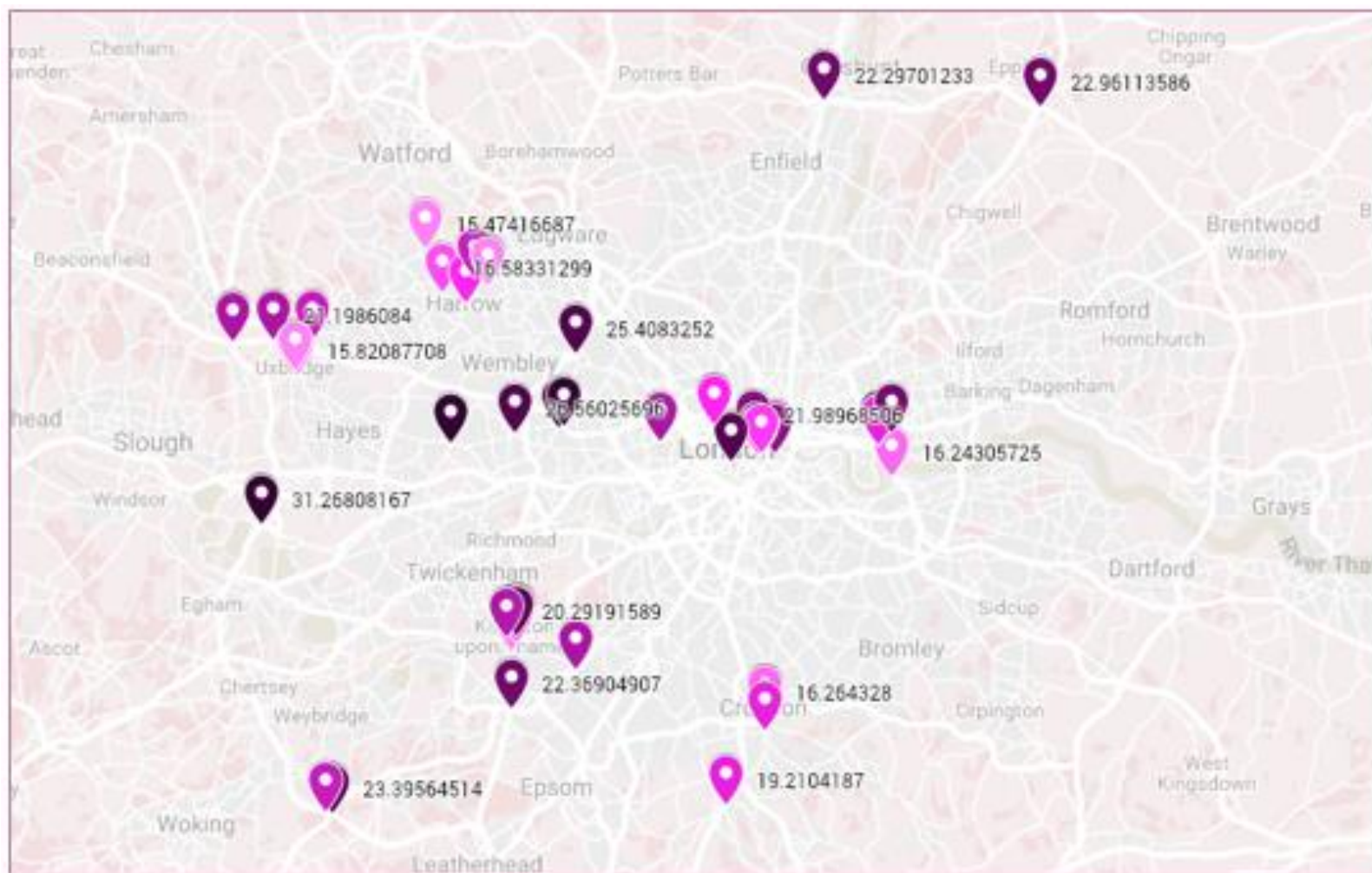
# Nowcast



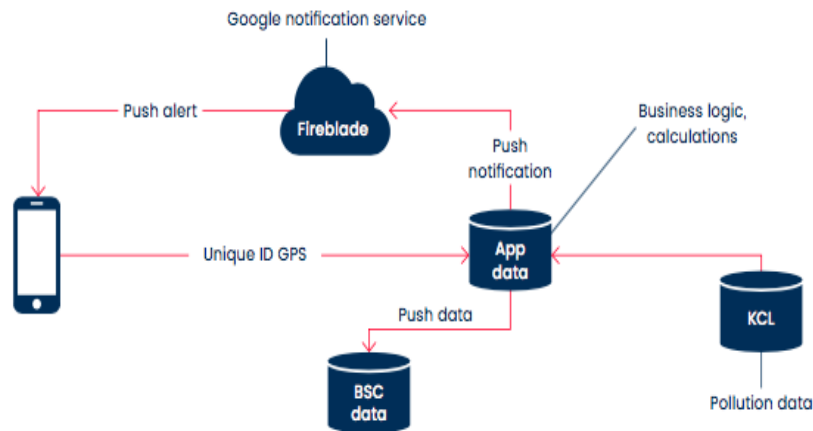
# Database of test results – PM2.5



# Database of test results – PM2.5



Canairy: data flow chart



iOS and Android Exposure database for employers

For employers who want to work with us, *Supporters* will receive codes to access the App for their workers.

First *Supporters* are helping – Kier, Tideway, Lanes Group



# Future development



# Future of campaign

Working with employers to provide information via Canairy.

With more uptake we will have a more accurate view of exposure across London.

Over 50 organisations have requested access to Canairy since launch.

Please get in touch:

[timetobreathe@britsafe.org](mailto:timetobreathe@britsafe.org)

[matthew.holder@britsafe.org](mailto:matthew.holder@britsafe.org)



Let's act now with the info we have, not when it's too late.

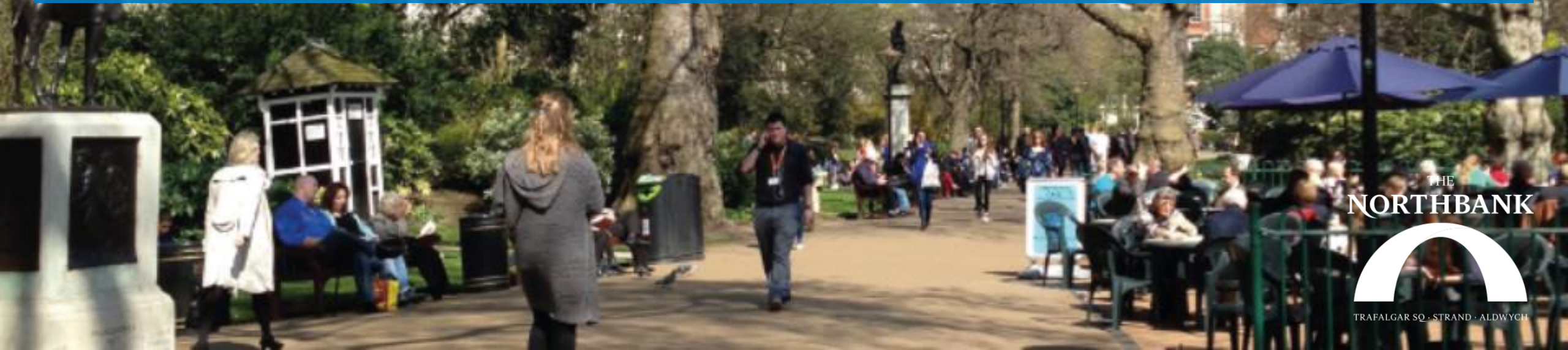
# The Northbank BID Air Quality Update

Alison Gregory, The Northbank BID





# Improved Air Quality



THE  
NORTHBANK



TRAFALGAR SQ · STRAND · ALDWYCH





THE  
NORTHBANK

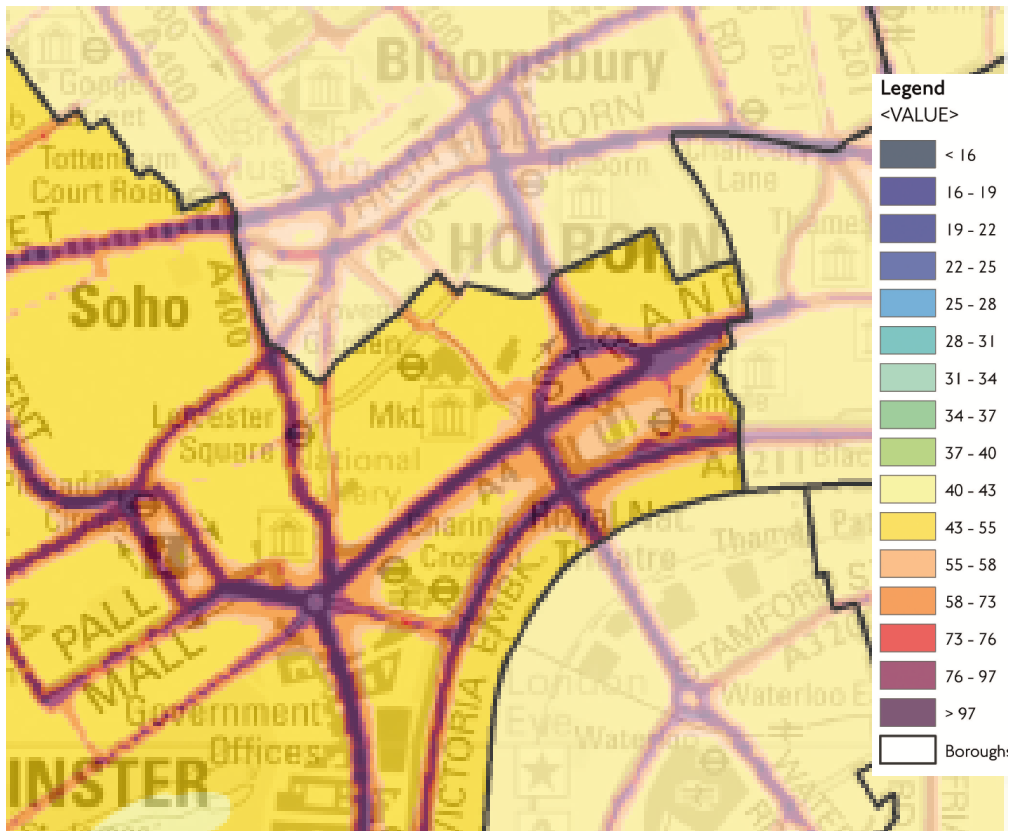


TRAFALGAR SQ • STRAND • ALDWYCH



# Northbank

Annual Average NO<sub>2</sub> concentrations, 2013



# Strategic partners



WORKING  
WITH YOU  
TO BUILD A  
**CITY FOR ALL**  
2018/19



Air Quality Manifesto

March 2018



# First steps

## CLICK. COLLECT. CLEAN AIR.

No one likes missing a delivery at home, but having online shopping sent to your work address adds to traffic congestion and air pollution.

By using a 'click & collect' service you can help reduce the number of vans on our streets, making Northbank a nicer, safer and healthier place to visit, shop and work. It's convenient, easy and affordable.



From the dry cleaners or corner shop near your home to the train station on your commute, there are parcel collection points all over London



Simply choose a local collection point when shopping online or use the collection point's address as your own

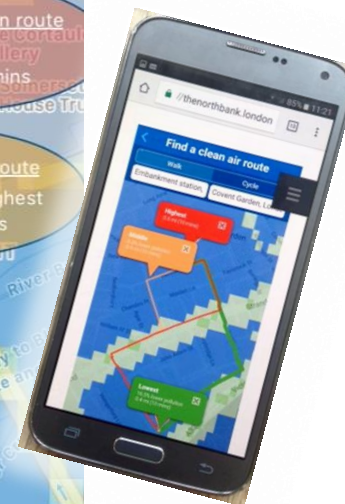
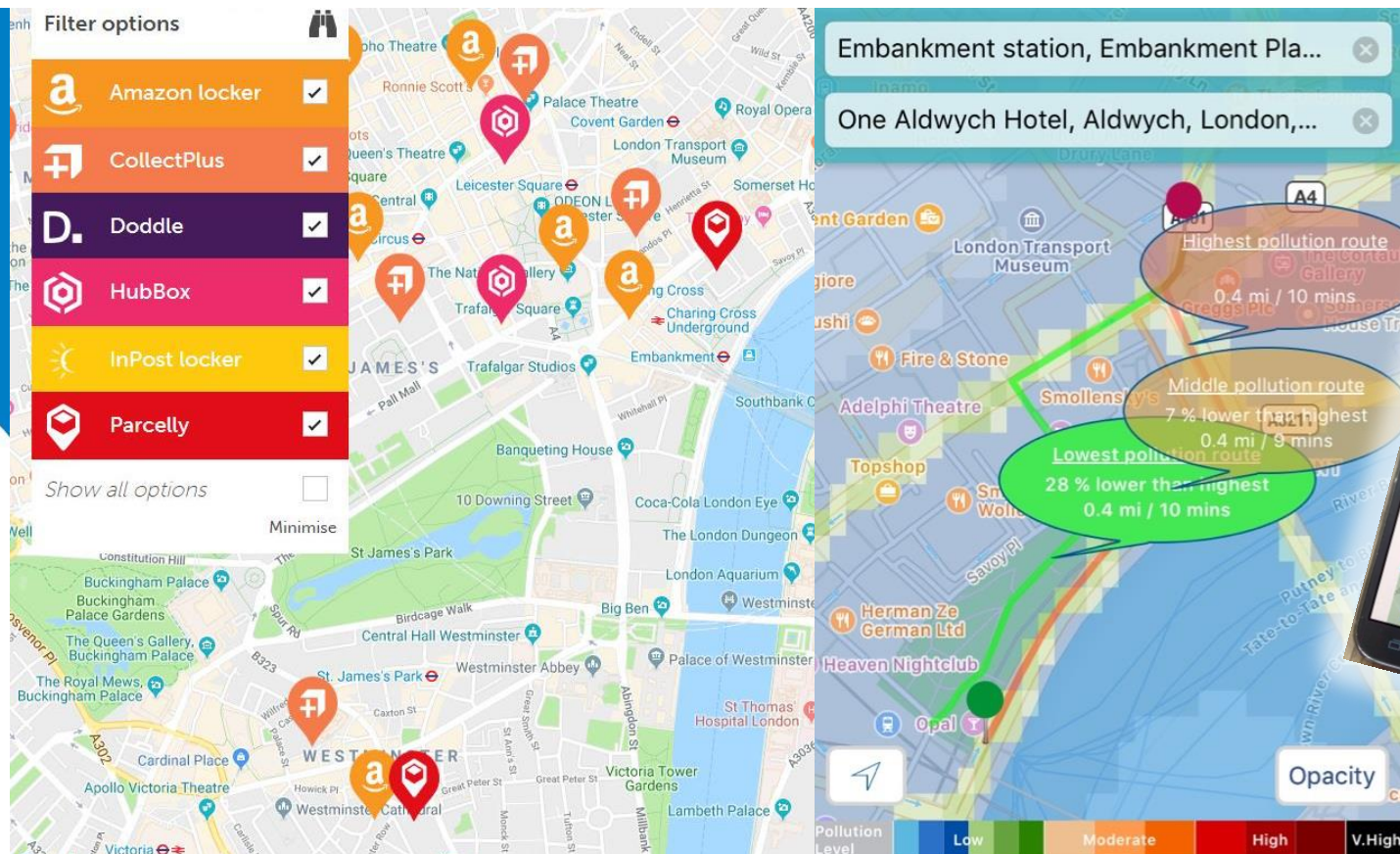


Many options are free and we have negotiated fantastic deals for some of the paid-for services.

Find your most convenient collection point, and receive discounted deliveries online at [www.northbank.clickcollect.london](http://www.northbank.clickcollect.london)



SUPPORTED BY  
MAYOR OF LONDON



THE  
NORTHBANK



TRAFALGAR SQ. · STRAND · ALDWYCH



# Collaboration, engagement & energy



# Delivery plans



## Delivery & Service Planning case studies

with Cross River Partnership  
and Steer Davies Gleave



**LSE**  
London School of Economics  
Political Science  
Lincoln Street, Aldwych, London, UK

**Spotlight on the organisation**  
Leading university with over 10,000 students  
12,500 staff (full-time equivalent)  
Student and staff catering  
Campus of 28 buildings  
On and off-street servicing locations

**What is a DSP?**  
Delivery and Servicing Planning (DSP) is the method to reduce by adopting a bespoke package of measures to provide benefit to those working, visiting or living within the area. This case study outlines some of the practices that St Martin-in-the-Fields (LSE) have adopted to improve the sustainability of their deliveries and servicing.

**St Martin-in-the-Fields**  
Trafalgar Square, London, UK

**Q Spotlight on the building**  
18th century Anglican church with music venue, café, shop, conference room, event space and Chinese community centre  
220 cover restaurant / café  
750,000 visitors annually  
On and off-street servicing area

**Q Spotlight on existing practices**  
Although LSE already has good practices which save them money and reduce the emissions and congestion within central London, they wanted to do more.

**St-Martin-in-the-Fields**  
Existing good practices  
✓ Early morning deliveries  
✓ St Martin-in-the-Fields adjacent to the adjacent on foot every day

**New practices**

*We are working to do our bit to improve the local environment.*

*One simple step has been to reduce the frequency of stationary deliveries from twice a week to once a month. Annually this has reduced vehicle trips by 92 trips a year (88%).*

*It's been quite easy to do with a bit more forward planning by everyone and has saved both time and money.*





# Holistic approach



## Streetscape improvements to promote walking

**Places to stop and rest**

**Not too noisy**

**People feel relaxed**

**The scheme**

The Scheme is a joint freight and greening initiative.

Villiers Street sits within The Northbank Business Improvement District (BID), and is one of London's busiest pedestrian streets. The Villiers Street Delivery and Servicing plan (DSP) has been undertaken to enhance the pedestrian experience and looks at ways to reduce vehicle movements, street clutter, and improve air quality. In addition, greening projects are creating a 'cleaner, nicer, greener' walk from Villiers Street to Covent Garden.

# Cleaner Air Well Being Route



CLEANER  
STREETS









# Somerset House





# Enabling and monitoring



## RESIDENTS' NEWSLETTER



Did you know that Somerset House currently receives deliveries that generate emissions equivalent to two planes taking off every day?

Working in partnership with TfL, the Northbank BID and Steer Group, we're working on an initiative to reduce the pollution we're breathing in at work. The first step is to encourage everyone to make a small change in the way that we use the Post Room.

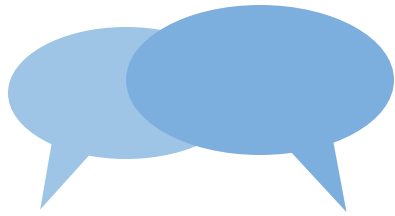
On average, a whopping 22% of deliveries the Post Room receives are personal using services such as *Click & Collect* for personal deliveries, we can drastically reduce our incoming traffic. When you're buying something for yourself online, having it delivered to a local shop near home. It's often just as convenient.



# SPRING

**BRYN WILLIAMS.**  
AT SOMERSET HOUSE

# 2019+



Strategic support  
Policy  
Communications



Health  
Wellbeing  
Area enhancement



Sharing lessons  
Continued learning  
& monitoring



Supply Chain  
EV charging  
Retiming



2019+





# 2019+



VIEW ALONG ALDWYCH LOOKING EAST



VIEW ALONG STRAND LOOKING WEST







#northbankcleanerair



THE  
NORTHBANK

A blue graphic element consisting of a thick, curved line forming an arch or bridge shape.

TRAFALGAR SQ • STRAND • ALDWYCH

THE  
NORTHBANK

A white graphic element consisting of a thick, curved line forming an arch or bridge shape.

TRAFALGAR SQ • STRAND • ALDWYCH



# Victoria BID Air Quality Update

David Beamont, Victoria BID



**Victoria Business Improvement District  
Clean Air Better Business  
Final Event & Celebration  
3<sup>rd</sup> April 2019**















## THE LITTLE GUIDE TO

# Better Air Quality



"Our message is that simple, small changes to business behaviour can improve local air quality and reduce health risks to people whilst making businesses more efficient." **David Beaman, Operations Manager, Victoria BID**

## SITUATION

Poor air quality in Victoria is mostly a result of human activity, specifically local combustion – mainly diesel vehicles and gas boilers. The issue is complex but the sources are broad:

- Transport (cars, taxis, buses and coaches)
- Buildings (gas from boilers)
- Supply chain (light and rigid heavy goods vehicles)

The pollutants of most concern are particulate matter (often referred to as 'PM') and Nitrogen Dioxide (NO<sub>2</sub>). These have a significant impact on human health.

## PARTICULATE MATTER (PM<sub>10</sub> AND PM<sub>2.5</sub>)<sup>1</sup>

Particulate matter (PM) is a complex assemblage of non-gaseous material of varied chemical composition. It is categorised by the size of the particle, for example PM<sub>10</sub> describes particles with a diameter of less than 10 microns (µm). Most PM emissions in London are caused by road traffic, with engine emission and tyre and brake wear being the main sources.

## NITROGEN DIOXIDE (NO<sub>2</sub>)<sup>1</sup>

All combustion processes produce oxides of nitrogen (NO<sub>x</sub>). In London, road transport and heating systems are the main sources of these NO<sub>x</sub> emissions. NO<sub>x</sub> is primarily made up of two pollutants: Nitric Oxide (NO) and Nitrogen Dioxide (NO<sub>2</sub>). NO is of most concern due to its impact on health. However NO easily converts to NO<sub>2</sub> in the air, so to reduce concentrations of NO<sub>2</sub> it is essential to control emissions of NO<sub>x</sub>.

## HEALTH IMPACT

Air pollution is a major environmental risk to health. Elevated levels or long term exposure to air pollution or both can lead to serious conditions affecting human health. This mostly affects the respiratory and cardiovascular systems, and can also lead to further serious conditions such as cancer and aggravation of asthma. People with long or recent conditions may be more susceptible to the effects of air pollution.

- Over 9,000 deaths in London in 2010 were estimated to be attributable to poor air quality<sup>2</sup>
- Air quality in Victoria does not meet health-based targets for NO<sub>2</sub><sup>3</sup>
- The health cost impact of poor air quality in the UK has been estimated to be around £15 billion<sup>4</sup>



Exposure to poor air quality can negatively affect our health and wellbeing.

"We recognise the impact businesses have on air quality and want to make a difference. We're working with staff, suppliers and other tenants to reduce traffic by consolidating deliveries and redirecting personal car to alternative pick-up points." **Anthony Withnall, Director of Workspace & Facilities UK & Ireland, Edeleanu**

## LOCAL IMPACT

Poor air quality has local issues with each area having its own specific elements such as the presence of transport hubs, congested road infrastructure and their surrounding mix of residential, office and retail space.

The map on this page shows the emission profile for Westminster in 2013 for Nitrogen Dioxide (NO<sub>2</sub>). The World Health Organisation and European Union health-based targets see the average concentrations of NO<sub>2</sub> to be below 40 µg/m<sup>3</sup>.

From the map and legend it is clear that in 2013 most of the City of Westminster was in breach of health-based values, with the largest breaches along main roads. Using solar streets when walking is one way of reducing your personal exposure to air pollution, but the key thing is to reduce the pollution near Victoria BID is working hard to address this but there are simple actions that every business can take now to improve air quality.



NO<sub>2</sub> annual mean concentration (µg/m<sup>3</sup>) in the City of Westminster in 2013. Map data 2013, 15 m and OpenStreetMap.

## MONITORING AIR QUALITY

We have installed an air quality analyser in our office to record levels of NO<sub>2</sub> on Buckingham Palace Road for live air quality levels online. Victoria visit the map on our air quality web page. The map is produced by the London Air Quality Network that is managed by Kings College London and draws on data from our and other analysers and enables us to track improvements over time.

Visit: [www.victoriabid.co.uk/work/air-quality](http://www.victoriabid.co.uk/work/air-quality)

<sup>1</sup> Air Quality for Public Health Professionals: City of Westminster (London's current authority) November 2012.  
<sup>2</sup> Understanding the Health Impact of Air Pollution in London, Kings College London 2015

<sup>3</sup> Air Quality for Public Health Professionals: City of Westminster (London's current authority) November 2012.  
<sup>4</sup> Air Pollution: A Guide to a Changing Climate, Defra 2010



deliverBEST shares practical, proven solutions that make deliveries to your business more efficient. It saves you time and money while improving local air quality

[Find out more](#)



Figure 6 - Cumulative Black Carbon concentrations during averaged running and train journeys

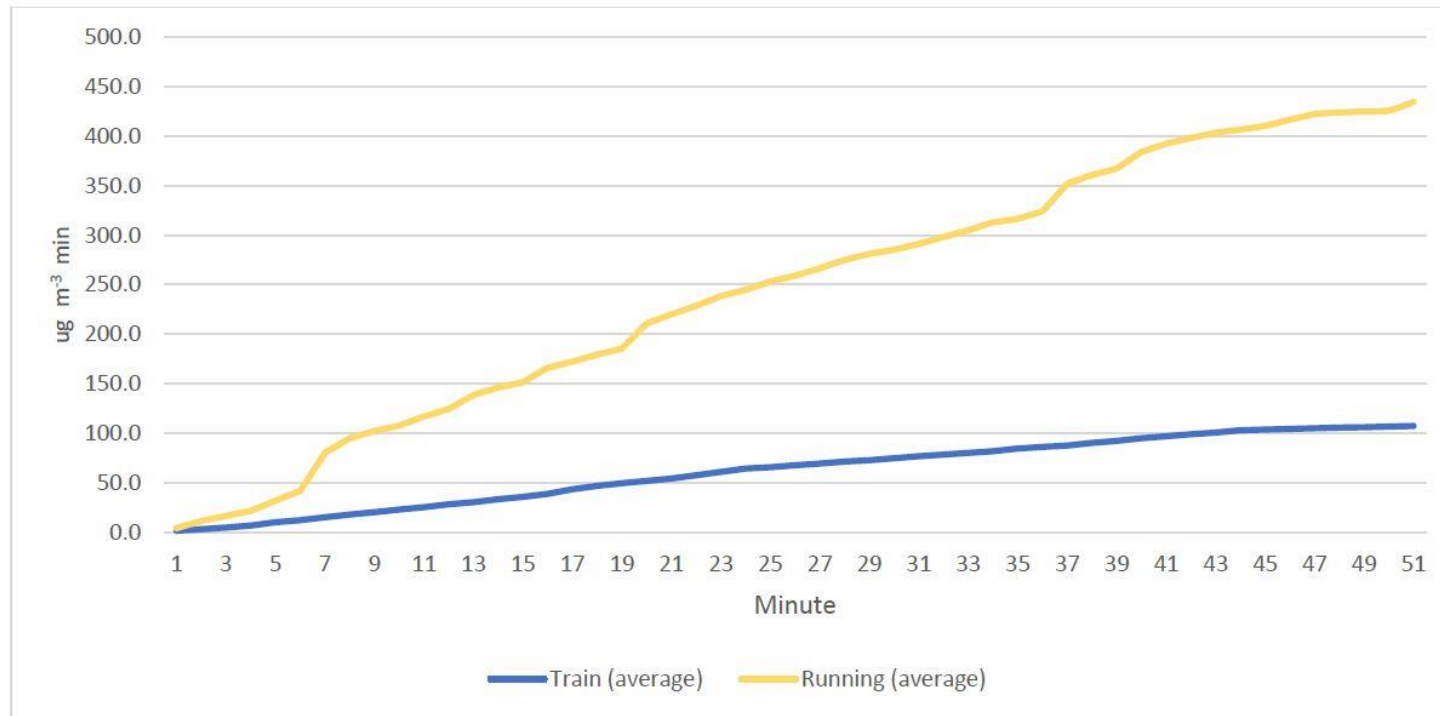


Table 3 - Percentage difference between cumulative black carbon concentrations for train Vs running journeys

Train	Total BC $\mu\text{g m}^{-3} \text{ min}$	Run	Total BC $\mu\text{g m}^{-3} \text{ min}$
09-May	130	09-May	416
11-May	96	16-Jun	417
14-Jun	92	19-Jun	467
<b>Average</b>	<b>106</b>	<b>Average</b>	<b>433</b>
<b>Difference %</b>	<b>-76%</b>		

# Walking Victoria to Sloane Square Underground Station

















# Clean Air Better Business Summary Report

Brendon Harper, Cross River Partnership



**CROSS RIVER  
PARTNERSHIP**

**CLEAN AIR  
BETTER BUSINESS**

SUMMARY REPORT 2014 - 2019

#CleanAirBetterBusiness



SUPPORTED BY

**MAYOR OF LONDON**



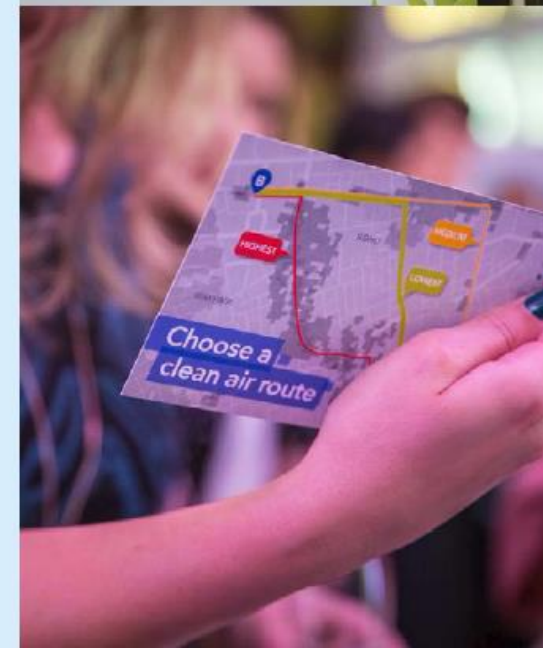
**Over the past six years, Cross River Partnership's Clean Air Better Business programme has brought together central London boroughs, BID's and businesses to support the business sector to reduce emissions and exposure to toxic air pollution.**

Supported by the Mayor's Air Quality Fund, CRP and partners have:

- 1 Put air quality firmly on the business agenda**
- 2 Supported businesses to reduce emissions from freight and servicing**
- 3 Taken on the impact of growing e-commerce deliveries**
- 4 Supported business-led green infrastructure and healthy streets**
- 5 Reduced exposure to toxic air pollution**
- 6 Spread the word that Clean Air is Better for Business**

Air quality is now firmly on the business agenda, with BID's, estates and individual businesses now leading action to clean London's air while achieving commercial and CSR goals.

CRP looks forward to continuing to support the public and private sectors, working across borough boundaries to support London's goal of clean air.





# 1 Helped put air quality firmly on the business agenda

DEVELOPED AND DELIVERED BUSINESS-LED DELIVERIES AND AIR QUALITY STRATEGY WITH HEART OF LONDON BUSINESS ALLIANCE.



MADE 16 SUBMISSIONS TO BOROUGH, MAYORAL AND GOVERNMENT PLANS AND STRATEGIES.

UNLOCKED OVER **£800K** PUBLIC AND PRIVATE SECTOR INVESTMENT ON TOP OF MAYORAL INVESTMENT.



**PIONEERED LONDON'S FIRST MULTI-BOROUGH ANTI-IDLING AWARENESS DAYS,** now pan-London with fleet operator support.



**HELD 22 PUBLIC & PRIVATE STAKEHOLDER MEETINGS**

and presented at 24 conferences and events.



**SHORTLISTED**  
LONDON TRANSPORT AWARDS 2016 & 2017.



**LESSONS LEARNT HELPED PARTNERS SECURE ADDITIONAL FUNDING**

including The Northbank BID's BLEN and CRP's Defra-funded Clean Air Villages programme.



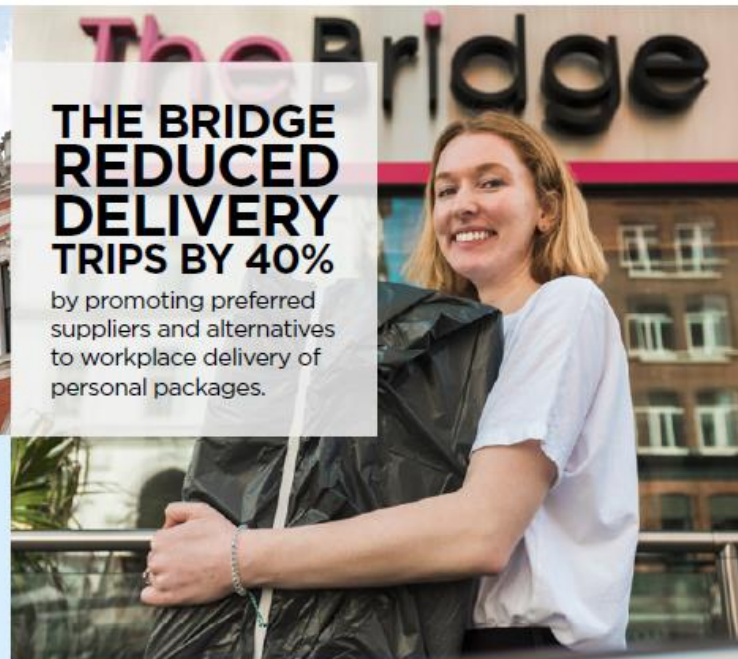
**2** Supported 500+ businesses to reduce emissions from freight and servicing

**OLYMPIA LONDON  
REDUCED DELIVERY  
VEHICLES BY MORE  
THAN 100 A YEAR**  
by consolidating orders  
and changing suppliers.



**THE BRIDGE  
REDUCED  
DELIVERY  
TRIPS BY 40%**

by promoting preferred  
suppliers and alternatives  
to workplace delivery of  
personal packages.



**LAUNCHED  
FREE  
ONLINE  
TOOL**

that recommends  
relevant, proven  
solutions, making  
deliveries more  
efficient.

[www.deliverBEST.london](https://www.deliverBEST.london)



**WINNER  
FLEET HEROES  
AWARDS  
2016 & 2017.**

**THE APOLLO CUT THE  
NUMBER OF LORRIES  
BY 75 A YEAR**

by consolidating suppliers and  
reducing the frequency of orders.





### 3 Took on the impact of growing e-commerce deliveries



**OVER  
22,000  
VIEWS OF  
ONLINE  
PARCEL  
COLLECT  
POINT  
LOCATOR.**

[www.clickcollect.london](http://www.clickcollect.london)

#### DEVELOPED **CLICK COLLECT CLEAN AIR**

behaviour change  
campaign to reduce  
workplace delivery  
of online shopping  
purchases – promoted  
by more than 20 BIDs  
and boroughs.



**AT LEAST 50%  
REDUCTION  
IN PERSONAL  
DELIVERIES**  
to participating workplaces.



**SUPPORT  
AND  
PROMOTION  
OF CLICK &  
COLLECT,**  
a key action in  
the Mayor's  
Freight & Servicing  
Action Plan 2019.

**90%** OF DELIVERIES MADE USING PARCELLY PROMOTION  
CODE NOW BEING DELIVERED OUTSIDE OF ZONE  
1 AND 2 WHERE AIR POLLUTION IS WORST.





# 4 Supported business-led green infrastructure and healthy streets



**150+** LOCALS VOLUNTEERED  
at Brixton BID's Orchard.



**BETTER BANKSIDE'S  
METAL BOX GARDEN**  
**WINNER**  
**PRO-LANDSCAPER  
AWARDS 2018.**



The Fitzrovia Partnership's FitzPark  
**INCREASED  
STREET USER  
WELLBEING  
BY 41%**  
and food and  
beverage businesses  
noted increased sales.



**FITZPARK  
RUNNER-UP  
CAMDEN  
IN BLOOM  
AWARDS  
2017.**



**PLANTED  
38  
NEW TREES  
AND  
1000+  
SHRUBS  
& BULBS**



**WEAREWATERLOO  
REVITALISED  
GRANBY  
PLACE**  
to create a tranquil  
greenspace off  
busy Lower Marsh.



**CHEAPSIDE  
BUSINESS ALLIANCE'S  
GUIDED  
eBIKE RIDES**  
increased participant  
likelihood of cycling by 80%.



## 5 Reduced exposure to toxic air pollution

### TREBLING OF FOOTFALL

along the first Clean Air Walking Route between Euston and Kings Cross Stations.

ONLINE  
CLEAN AIR  
ROUTE  
FINDER USED  
MORE THAN  
140,000  
TIMES.

[www.cleanairroutes.london](http://www.cleanairroutes.london)



THE NORTHBANK  
BID'S COMMUTER  
EXPERIMENTS  
SHOWED ROUTE  
AND MODE  
CHOICE CAN  
CUT EXPOSURE  
DRAMATICALLY.

Walk  
towards  
King's  
Cross  
via St Pancras  
International

### PIONEERED LONDON'S FIRST CLEAN AIR WALKING ROUTE

with Urban Partners,  
and identified 13  
more including  
Euston Town's  
Green Link.

The Wellbeing Walk  
is an alternative walking  
route between Euston and  
King's Cross stations, via  
St Pancras International,  
that encourages people  
to avoid the high levels of  
pollution on Euston Road.



Partners of  
Mayor of London



#### WINNER

ASSOCIATION OF TOWN  
& CITY MANAGEMENT  
AWARDS 2018.

#### RUNNER-UP

SUSTAINABLE CITY  
AWARDS 2018.

Research with  
King's College  
London showed  
**SIDE STREET  
ROUTES  
CAN CUT  
EXPOSURE  
TO POLLUTION  
BY HALF,**  
featured in  
*The Guardian.*



**6** Spread the word that  
**Clean Air is Better for Business**



**20,000 PEOPLE**  
VIEWED CLEAN AIR TOGETHER EXHIBITION  
at New London Architecture.



**100s**  
OF PLEDGES  
TO IMPROVE  
AIR QUALITY.



**REACHED 3.8M PEOPLE ON SOCIAL MEDIA**  
during London's first multi-borough anti-idling engagement day.

RECOGNISED  
VICTORIA BID AIR  
QUALITY CHAMPIONS  
FOR BEST PRACTICE.



Developed localised,  
**BUSINESS-FOCUSSED GUIDES**  
to better air quality.



SUPPORTED  
THE FIRST EVER  
NATIONWIDE  
**CLEAN AIR DAYS.**



PROMOTED  
CLEANER  
VEHICLES  
TO PRIVATE  
**HIRE**  
INDUSTRY.



## Work towards cleaner air continues

Contact us to discuss potential opportunities to work together towards cleaner air.



Westminster City Hall  
64 Victoria Street, London SW1E 6QP

Phone: 020 7641 2198  
Web: [crossriverpartnership.org](https://crossriverpartnership.org)  
Twitter: @CrossRiverPship  
Email: [crp@crossriverpartnership.org](mailto:crp@crossriverpartnership.org)  
LinkedIn: [/cross-river-partnership](https://www.linkedin.com/company/cross-river-partnership)

Delivering  
London's  
Future  
Together for... 



**DELIVER AND  
PROMOTE NEW  
CLEAN AIR  
WALKING ROUTES**  
to, across, and along  
the River Thames.



**MAXIMISE THE  
ROLE OF TRAINS  
BRINGING  
CONSOLIDATED  
FREIGHT INTO  
CENTRAL LONDON  
STATIONS,**  
ready for zero-emission,  
last-mile logistics.



**PILOT MICRO-  
CONSOLIDATION HUBS  
IN CENTRAL LONDON**  
to reduce freight traffic and  
improve air quality.



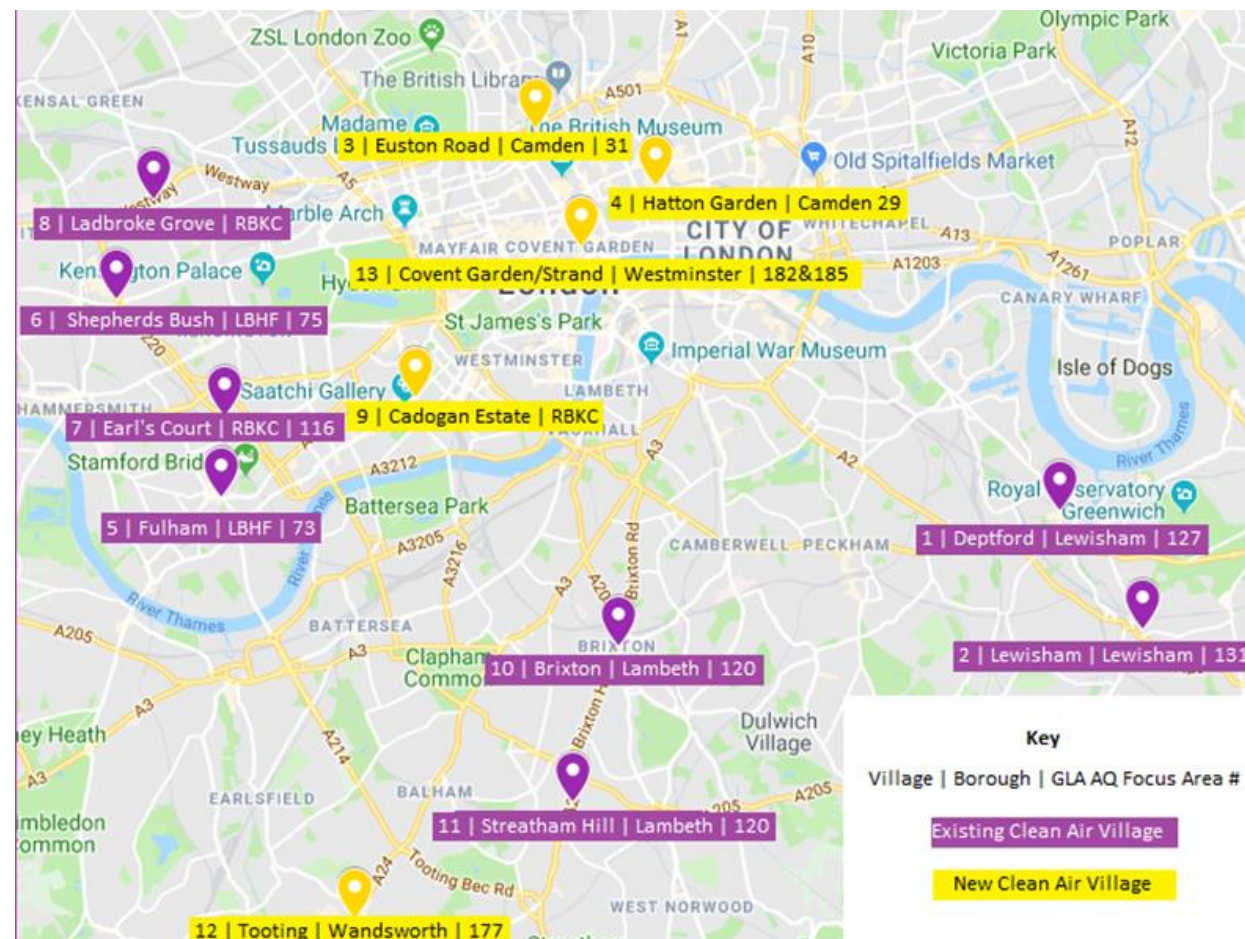
**SUPPORT THE  
ATTENTION GIVEN  
TO AIR QUALITY AT  
EVERY STAGE OF  
THE DESIGN AND  
DEVELOPMENT  
OF THE BUILT  
ENVIRONMENT.**





## Clean Air Villages 2

- Defra Funding Application to continue and extend successful Phase 1 Clean Air Villages project (CAV1).
- 3 new borough partners and 5 new villages.
- Aims:
  - Continued focus on business delivery and servicing trips.
  - Maintain and build on CAV1 momentum.
- Successful application - £413k granted for delivery 2019/20.



## Healthy Streets Everyday

- CRP-led application to the Mayor's Air Quality Fund Round 3.
- £3.2m to deliver pedestrian-priority healthy streets, cleaner air and empower boroughs and communities.
- Streetscape improvements, traffic regulations, car free events, standardised guidance & communications and comprehensive evaluation & monitoring.
- Involves half (16) of London's boroughs as well as BIDs, estates and community-sector organisations.
- Supported by University of Westminster, Kings College London, Global Action Plan, London Car Free Day, Illuminated River Foundation.





## Clean Air Thames

- Mayor's Air Quality Funding Application for collaborative River Freight project.
- 3 key objectives:
  - Retrofitting emission reduction technologies to passenger and freight vessels.
  - Feasibility study and trial of shifting light freight from the road network onto vessels on the River Thames.
  - Identifying under-utilised wharf and pier capacity.

### Steering Group



**CITY  
OF  
LONDON**  
Lead Authority



**CROSS RIVER  
PARTNERSHIP**  
Delivery Partner



THE ROYAL BOROUGH OF  
KENSINGTON  
AND CHELSEA



Borough Partners

Regulatory Stakeholder  
River Thames

### Supporting Partners



UNIVERSITY OF  
WESTMINSTER



Thank You All