

Clean Air Fund (CAF) Programme



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Air Quality in London

- Air pollution and Londoners' health
- Pollutants: Particulate Matter (PM) & NO₂
- Mayor's Air Quality Strategy (MAQS):
 - Air Quality is improving in London
 - Vast majority of London meets annual average EU limit values for PM₁₀ but not for NO₂
 - Local 'PM₁₀ hotspots' are at risk of exceeding daily limit values
 - Road transport - major local source of pollution
 - Significant pollution sources are not within London - 40% of PM₁₀ coming from outside London



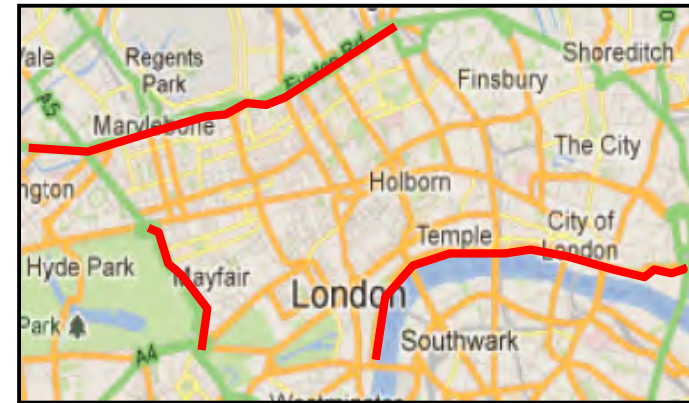
What has TfL been doing to improve air quality?

- Delivered a range of measures in the Mayor's Air Quality Strategy to deliver cleaner transport:
 - Low Emission Zone – tightening standards
 - Reducing emissions from London's bus fleet
 - Introduced age limits for London's taxi and private hire vehicle (PHV) fleet
 - Improving public transport and investment in cycling and walking
 - Measures to smooth traffic flows
 - Encouraging uptake of electric vehicles
 - Promoting Smarter Travel Initiatives

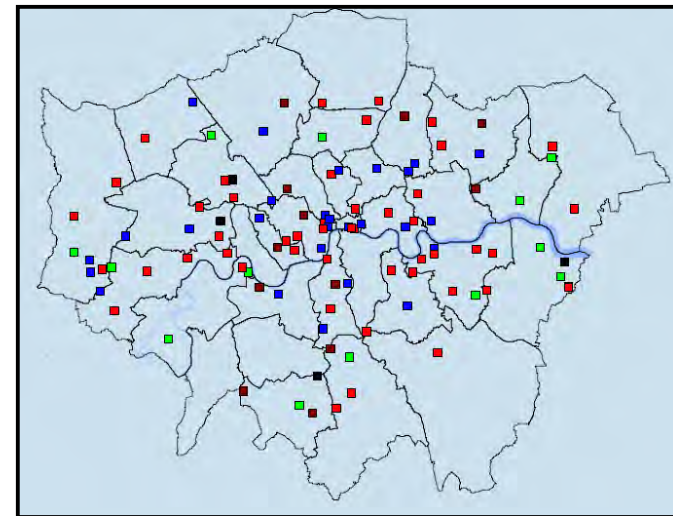


The Clean Air Fund

- MAQS committed to deliver and test 'local measures' to address PM₁₀ hotspots
- Mayor secured a grant of £5m from the DfT for CAF in Spring 2011 that:
 1. short term & targeted local PM₁₀ 'hotspots'
 2. innovative and helped test effectiveness of local measures
- MAQS modelling identified 3 main hotspot corridors 'at risk' in Central London
- LAQN monitoring identifies other locations with high PM₁₀ pollution



3 Central London Hotspot Corridors



London Air Quality Monitoring Network





Green Infrastructure – planted towers, green walls and tree planting to trap PM



Diesel particulate filter fitments to buses on key routes to reduce PM emissions



Trials of Cleaning and Application of Dust Suppressants to trap PM



Business Focused Transport Measures to reduce emissions



No Engine Idling Campaign & Taxi Marshalling at busy ranks to reduce PM emissions



How did we evaluate the effectiveness of the CAF measures?

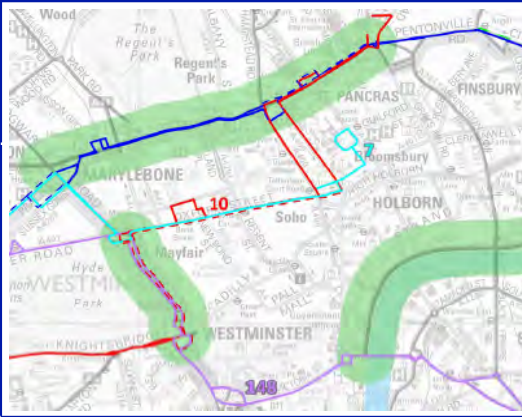
Workstreams	Outputs	Outcomes	Indicators
<p>Bus Diesel Particulate Filters (DPFs)</p>	<p>DPFs fitted on bus routes running through the 3 MAQS PM₁₀ priority locations</p>	<p>Reduction in PM₁₀ Emissions</p>	<ul style="list-style-type: none"> • DPF Performance (% reduction in PM₁₀ emissions) • Number of Buses fitted • Estimated volume of PM₁₀ trapped
<p>No Engine Idling Campaign</p>	<p>Campaign Material e.g. Roadside Posters, Radio Ads, Website</p> <p>On Street Signage</p> <p>Driver & Stakeholder Engagement (incl. Taxi Marshalling)</p>	<p>Increased Driver Awareness</p> <p>Reduction in Driver Engine Idling & PM₁₀ Emissions</p> <p>Stakeholder Support</p>	<ul style="list-style-type: none"> • Driver Campaign Awareness • Driver Attitudes • Claimed Driver Behaviour Change • Observed Engine Idling by Taxis, Bus, Coach • Taxi Driver Questionnaires • Smarter Driver Training Results



Diesel Particulate Filters on Selected Bus Routes



Bus Diesel Particulate Filters

Measures Delivered	<ul style="list-style-type: none"> • Retrofit to 120 vehicles • Targeted at routes 10, 148, 205, 49, 7 	
Effect	<ul style="list-style-type: none"> • 77% reduction in bus PM₁₀ exhaust emissions • 5 routes = reduction of 580kg in annual PM₁₀ emissions • Routes 10 and 205 - DPFs will reduce total annual bus exhaust PM₁₀ emissions on Euston Road by 33% 	
Conclusions	<ul style="list-style-type: none"> • Significant reduction in emissions • Good as can be targeted at specific buses on specific routes • Requires considerable technical input 	



No Engine Idling Programme

Switch off your engine

Using a keyring to switch your vehicle's engine off when stationary, such as when waiting at a traffic light, can reduce air pollution and save money.

4,300 tonnes of sulphur dioxide are emitted by London's cars each year.

9.9million litres of petrol are wasted each year by London's cars idling.

Over 1 minute of idling can drain a car's battery 5-10%.

Play your part

Check your car's battery is fully charged.

Use the keyring to switch off your engine when stationary.

Use the keyring to switch off your engine when stationary.

Use the keyring to switch off your engine when stationary.

A small switch could help prevent asthma attacks

Turn off your engine while waiting outside school. Visit tfl.gov.uk

Mayor of London Transport for London

Switch off engine Reduce emissions

Mon - Fri 8.30 am - 6.30 pm
Saturday 8.30 am - 1.30 pm
Pay by phone 0207 005 0055 or text 07950 080 201 quoting location 8384
Max stay 2 hours No return within 1 hour
Midnight - 8.00 am



No Engine Idling Programme



<p>Measures Delivered</p>	<p>(1) Awareness & Education Campaign</p> <ul style="list-style-type: none"> • Media & Communications Activity <p>(2) Engagement Activity, including:</p> <ul style="list-style-type: none"> • Taxi Marshalling & Driver Training • Fleet Operators & Drivers (bus, coach, freight) <p>(3) Targeted Signage</p>	
<p>Effect</p>	<ul style="list-style-type: none"> • Campaign recognition 40% • Idling On-Street - Overall reduced by 5% <ul style="list-style-type: none"> - Coaches (-11%), HGVs (-16%) • Marshalled taxi ranks – engine idling reduced by 9%. • Smarter driving training (Taxi and PHV) - fuel savings of 25% and 12% 	
<p>Conclusions</p>	<ul style="list-style-type: none"> • Very positive indicators of effectiveness: <ul style="list-style-type: none"> - establishing awareness - changing driver behaviour • 'No Engine Idling' message needs to be sustained 	



Green Infrastructure



Green Infrastructure

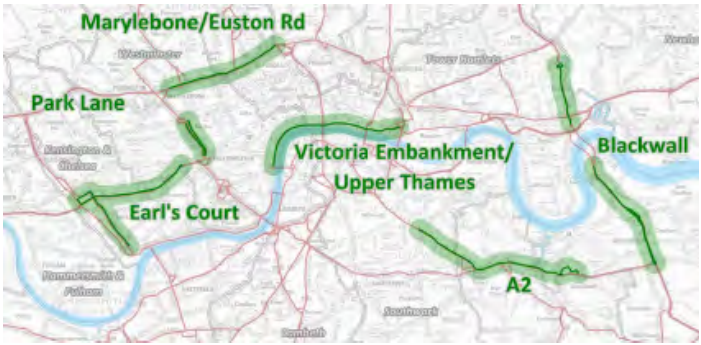
Measures Delivered	<ul style="list-style-type: none">• 600 new trees & other planting• 2 Green Walls<ul style="list-style-type: none">• LU Station - Edgware Road• Mermaid - Upper Thames St	
Effect	<ul style="list-style-type: none">• Research confirmed GI traps small quantities of PM₁₀• Wider environmental benefits – soaks up rain run off, temperature regulation, biodiversity	
Conclusions	<ul style="list-style-type: none">• Supports increasing evidence base on GI's air quality benefits• Green Walls offer excellent awareness raising opportunity• Represents a positive supporting measures	



Cleaning & Application of Dust Suppressants

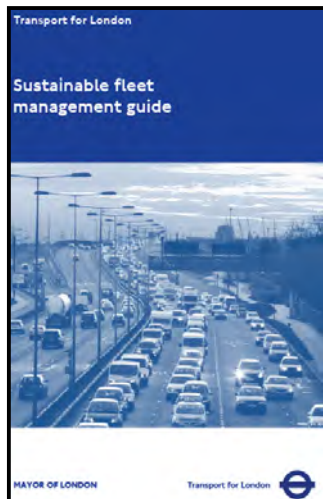


Cleaning & Application of Dust Suppressants

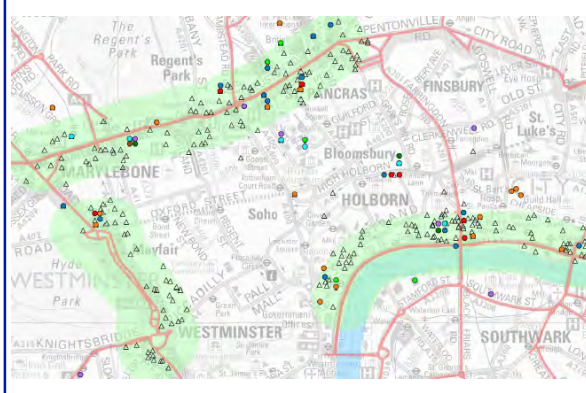
<p>Measures Delivered</p>	<ul style="list-style-type: none"> • Trial applications of CMA to road surface to suppress dust • Expanded trial applications in range of locations <ul style="list-style-type: none"> • Along 6 road corridors (20 miles) • 5 industrial sites and 2 construction sites 	
<p>Effect</p>	<ul style="list-style-type: none"> • Road Corridor Study Sites <ul style="list-style-type: none"> • c16% reduction in total PM₁₀ concentration monitored at Upper Thames St • Unclear results or no effect at four other road locations • Industrial Study Sites <ul style="list-style-type: none"> • Beneficial impacts monitored at three of the four sites • Horn Lane - clear drop in local PM₁₀ (31% and 59%) 	
<p>Conclusions</p>	<ul style="list-style-type: none"> • Valuable in identifying a typology of places where likely to be effective • Supports use in very specific locations: <ul style="list-style-type: none"> • high proportion of local resuspended PM₁₀ • can maximise surface area applicable for treatment • examples - Industrial waste, construction and demolition sites 	



Business Transport Measures & Engagement



Business Transport Measures & Engagement

Measures Delivered	<ul style="list-style-type: none">• Engagement with over 600 businesses• 8 Business Best Practice Guides• Nine Delivery Servicing Plans• Electric Charge Points (cars/LGVs)• Electric pool bikes trialled with 6 employers	 A map of central London, including areas like Regent's Park, Bloomsbury, Holborn, and Southwark. The map is overlaid with various colored markers (red, green, blue) and lines, indicating the locations of transport measures and hotspots. The markers are scattered across the city, with a higher concentration in the central business district and surrounding areas.
Effect	<ul style="list-style-type: none">• Promoting walking – Legible London walking maps, guided lunch walks• airTEXT daily health bulletins in hotspots <ul style="list-style-type: none">• Good business and staff uptake of measures• Some evidence of increased use of sustainable modes	
Conclusions	<ul style="list-style-type: none">• Engagement work around transport measures can change travel behaviour and in turn help to deliver air quality benefits• Many businesses are not aware their impact on local air quality and must present attractive business case examples with evidence of real financial savings	



Clean Air Fund Report

Conclusions

- Successfully delivered a wide range of measures with tangible impacts on awareness, behaviour and PM emissions
 - Bus DPFs, No Engine Idling both give short term tangible emission reduction benefits
 - Green Infrastructure has local air quality and wider benefits
 - Business Engagement can change travel behaviour and deliver air quality benefits
 - Dust Suppressants can produce positive benefits in very targeted locations – industrial waste and construction sites
- Demonstrates that local measures can play a supporting role to London wide emissions reduction measures



Next Steps

- **Publish and share CAF report and research findings**
- **Significant 10 year investment proposed in draft TfL Business Plan, including:**
 - Major investment in public transport, cycling and walking
 - Reducing bus emissions:
 - 1,600 cleaner hybrid buses by 2016
 - Retrofitting upto 900 of London's older buses to reduce NO_x emissions
 - Ongoing activity to deliver the 'No Engine Idling' message
 - Promote delivery of green infrastructure incl. green walls
 - Electric vehicle delivery project
 - Mayor's Air Quality Fund – for delivery of local air quality measures by Boroughs

