

REQUEST FOR PROPOSALS

COLLECTION, ANALYSIS AND SYNTHESIS OF AIR QUALITY AND RELATED DATA IN LONDON TO INFORM AIR QUALITY ACTIONS

C40 Climate Leadership Group, Inc.
120 Park Avenue, 23rd Floor
New York, NY 10017
United States of America

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1. C40 Cities Climate Leadership Group



The C40 Cities Climate Leadership Group connects more than 90 of the world's greatest cities, representing 650+ million people and one quarter of the global economy. Created and led by cities, C40 is focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks, while increasing the health, wellbeing and economic opportunities of urban citizens.

The current chair of the C40 is Mayor of Paris Anne Hidalgo; three-term Mayor of New York City Michael R. Bloomberg serves as President of the Board. C40 is governed by a Steering Committee made up of C40 member city mayors, elected by their peers to represent the geographic diversity of the network. Currently, the C40 Steering Committee includes the mayors of Amman, Boston, Copenhagen, Durban, Hong Kong, Jakarta, London, Milan, Los Angeles, Mexico City, Tokyo, Paris and Seoul.

C40's work is made possible by our three strategic funders: Bloomberg Philanthropies, Children's Investment Fund Foundation (CIFF), and Realdania.

C40 positions cities as a leading force for climate action around the world. We define and amplify their call to national governments for greater support and autonomy in creating a sustainable future. Working across multiple sectors and initiative areas, C40 convenes networks of cities providing a suite of services in support of their efforts, including: direct technical assistance; facilitating of peer-to-peer exchange; and research, knowledge management and communications.

As a climate organisation of the world's greatest cities, C40 supports its members to move on to a low carbon development pathway, adapt to climate change, curb GHG emissions, and engage in partnerships among themselves and with global organisations, national governments, the private sector and civil society.

C40 Cities Climate Leadership Group, Inc. is a U.S. not-for-profit 501(c)(3) registered organisation, working with the world's megacities to tackle climate change. With offices in London and New York, and people working across the globe, C40 has about 150 staff members. Around a half are UK based, around a quarter are US based, the remainder cover roughly another 15 countries. C40 is continuing to expand with plans to register entities in other countries this year. C40 Inc. in the U.S. would remain as the party entering into contracts and handling most financial transactions for all its global affiliates.

2. Summary and Background of the Project

London has the largest network of high accuracy automatic air quality monitors of any city, a larger network of passive lower-cost NO₂ diffusion samplers, and in addition has access to world-class modelling of emissions through the London Atmospheric Emissions Inventory.

However, despite this capability, a very small proportion of the city is covered by air quality measurements, especially for the smallest particulates (including PM_{2.5}, Ultra Fine Particles, Black Carbon). This limits the ability of London and indeed other similar cities, to fully understand how pollution varies over space and time, including the extent to which localized pollution hotspots exist and change. Incomplete observational data means London lacks an optimal detailed baseline against which to design, target and assess the impact of policies, and to engage citizens with information about air quality that is relevant to their lives – as they live, work and travel.

With the recent advances of lower cost fixed, mobile, portable, remote and wearable sensing technology, it has become possible to generate new data to fill these gaps, providing an opportunity to revolutionise both policy making and the engagement of citizens. This project seeks to add new data to the existing network of measurements already collected by London to determine how a richer body of evidence could shape new air quality policies.

C40 is seeking proposals for data collection and analysis in London with a view to supporting policy making, policy evaluation and citizen engagement. London with its air quality expertise and existing monitoring and analytical tools is ideally placed to conduct a pilot of this kind to establish how these new methods of data collection, synthesis and assessment can benefit cities in tackling the air quality crisis. The proposals should consider issues specific to London but also have a clear view on replicability in other C40 cities, including those that have less developed, more traditional air quality monitoring or modelling capabilities.

3. Proposal guidelines and bidder qualifications

This Request for Proposal represents the requirements for an open and competitive process. Proposals will be accepted until **5:00pm EST, March 9th, 2018**. Any proposals received after this date and time will not be accepted and will be returned to the sender.

Proposals may be received from organisations, teams of organisations, including for-profit and not-for-profit organisations. Bids may be received from non-UK based organisations.

The bid should provide a detailed description of the work to be performed in response to the scope of works set out under paragraph four below, but should not exceed 20 pages, single-spaced, 12-point font.

The maximum budget for the proposal is **US \$1,000,000**. Cost effectiveness of proposals will be taken into account in the evaluation of bids received.

All costs must be itemized, including an explanation of all known fees and costs, and where they are estimated, and all costs should be in US dollars.

Where other sources of funding are being used to deliver parts of the proposed study this must be clearly stated, including whether the funding is provisional or secured.

An organisational structure must be provided for the bidding team, indicating who holds responsibility for the project management and delivery, with CVs included for those with responsibility. The outsourcing or contracting out of any work to meet the requirements, must be clearly stated in the proposal and all such costs must be included and itemised. Organisations carrying out the outsourcing or contracting must be named and description provided including details for the primary point of contact in the organisation.

All data will be owned by the Greater London Authority and must be provided on an open platform in a standard, regularly accepted format (e.g. netCDF, NASA Ames, etc) to allow for easy access and use by third parties (e.g. through an API).

All contractual terms and conditions will be subject to review by C40 legal department and will include scope, budget, schedule and other necessary items pertaining to the project. Contract terms and conditions are attached and will be amended to reflect GLA's ownership of data.

Decommissioning procedures will be discussed during the proposal refining stage with the winning bidding team, but the costs for this should be included in your proposal.

The winning bidders will be required to participate in up to 3 events hosted by C40 and the Greater London Authority in which the results of the study will be presented and discussed; costs for travel should be included within your proposed budget.

4. Project Purpose and Description

The purpose of this Request for Proposal is to solicit proposals from teams experienced in air pollution measurement and analysis in order to conduct a fair and extensive evaluation to select a winning proposal based on criteria set out below.

1.1. Scope of work

This project seeks to collect quality-assured, high resolution, local air quality data and where appropriate to synthesise it with other relevant data sources, so that the impacts of policy interventions to address air pollution can be assessed.

The area of interest is the Greater London Authority area (see map below), in its entirety. Proposals are solicited that are capable, within the budget identified, of delivering a comprehensive data gathering and synthesising exercise over a period of 12 months, commencing in 2018, and running from initial deployment of hardware (see timeline below).

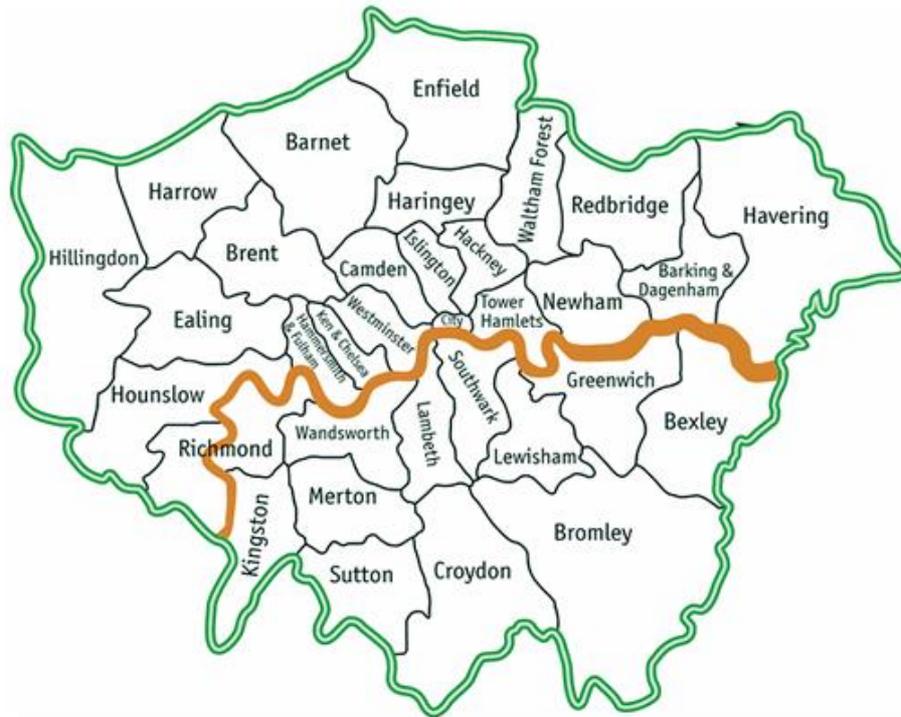


Figure 1: Greater London Authority area

1.1.1. Data collection

Please provide details of:

- How the proposal will use innovative deployment of sensors and instruments to gain an accurate and meaningful assessment of current air quality at a hyperlocal (street by street / postcode) spatial resolution;
- The proposed location(s) and deployment strategy for the study, which must be within Greater London;
- The type of sensors/instruments – these can be fixed, remote sensing or mobile, wearable, or a combination thereof, with the goal of mapping air quality throughout the city and particularly identifying and quantifying concentrations in emissions hotspot areas, as well as at sensitive locations such as schools. While any proposed sensing approach will be assessed on its own merits, there is interest in how mobile monitoring can be incorporated into any sensing network to significantly increase the number of data points to be delivered within the budget available;

- The sensor/instrument measurement strategy and any numerical or modelling methods to be used.

Please provide a list and description of the sensors/instruments to be deployed, including details of:

- Current status of the technology (e.g. market readiness, certification status);
- Proposed pollutants to be monitored including a rationale for their selection. At a minimum this must include NO₂ and PM_{2.5}, but proposals are not limited to just these. Other parameters could include monitoring of PM₁₀, NO, O₃, CO, SO₂, VOC, BC and CO₂;
- Any other data to be collected, for example traffic fleet, ANPR, meteorology etc;
- Measurement frequency and resolution for each pollutant and how this will translate to a spatial estimation of concentration;
- Expected accuracy and precision for each parameter;
- The duration of data collection in the study and how seasonality effects would be addressed if measurements are made on sub-seasonal timescales. As a guide, the observational period would be expected to be no less than one month of sustained observations and no longer than 12 months.
- A detailed sensor/instrument maintenance and operation plan;
- Calibration schedule, quality control plan, traceability of measurement to national or international standards. Include where appropriate measures to be taken to avoid measurement bias, cross-sensitivity and address possible interference (e.g. due to varying environmental conditions or other pollutants);
- A sensor/instrumentation decommissioning plan for the end of the project.
- Proof of acceptance by the wider scientific community of the general measurement and experimental approaches to be used, as evidenced, for example, by prior peer-reviewed research results.

1.1.2. Data analysis and syntheses

Please provide details of:

- The proposed data-handling system (all data will be owned by the Greater London Authority and must be available on an open platform) to allow for easy access and use by third parties (e.g. through an API);

- Automatic data processing, manipulation and quality assurance (e.g. calibration, harmonising lag-times, time-stamping and alignment of different data sets);
- The proposed approach to supporting wider data analysis, including data formats, metadata, data accessibility and re-use policies;
- The proposed approach to integrating the data with other information sources that can assist in the characterisation of air pollution concentrations e.g. source attribution, validation of land-use models, identification of potential ‘hot spots’ and forecasting of poor air quality episodes;
- Integration of new data collected with pre-existing London air quality data, where publically available.

1.1.3. Data Presentation

Please provide details of the proposed approach to providing:

- Open access to the raw data and timeliness of data availability;
- Open access to the data analysis methodologies including ‘white boxing’ of any algorithms and machine learning tools;
- Provision of data in graphical formats including an online platform that represents level of air pollution at a street by street level, that are easily interpretable by policy makers and the general public, and are able to be used to motivate citizen action on air quality and increase support for city air quality action.

1.1.4. Towards international best practice

Please provide details of:

- The potential replicability of the study in other locations and cities;
- An assessment of any dependencies that could limit the ability to translate the approach to other locations;
- Any features of the study that are considered unique to London.

1.2. Project Timeline

All proposals in response for this RFP are due no later than **5:00pm EST March 9, 2018**.

Evaluation of proposals will be conducted from **March 12, 2018, to March 26, 2018**. If additional information or discussions are needed with any bidders during this two-

week window, the bidder(s) will be notified. A short-list of finalists will then be compiled, and those on the short-list will be notified.

Second stage presentations may be required for the short-list of finalists; if so the presentations will be held between **April 2, 2018 and April 16, 2018, and can be done in person or remotely over video conferencing.**

The selection decision for the winning bidder will be made no later than **April 23, 2018.**

Proposal and scope of work refinement will be completed by **May 15, 2018.**

Our preferred timescale for hardware deployment is that it will be completed by **July 1, 2018. However, we will consider alternative timescales for deployment if these would result in enhanced functionality or other improvements that would not be possible on our proposed timetable. All deployment should ideally be completed by September 30, 2018, and phasing of deployment is acceptable, beginning with London's Central Ultra Low Emission Zone. In all cases the quickest possible deployment should be proposed and will be a factor in the assessment of proposals.**

Data collection will be ongoing for one year from initial deployment.

Activity	Date
Request for Proposals issued	February 1, 2018
Responses submitted by	March 9, 2018
Evaluation	March 12, 2018 – March 26, 2018
Second stage presentations	April 2, 2018 – April 16, 2018
Selection decision	April 23, 2018
Proposal refinement	May 15, 2018
Hardware deployment	July 1, 2018
Data collection	Ongoing for one year from initial deployment

5. Project Budget

The total budget for this proposal should not exceed US \$1,000,000.

If any additional sources of funding contribute to the study, this must be clearly stated including whether they are secured or pending.

All proposals must include a detailed budget of costs to complete the tasks described in the scope of work. Costs can be stated as one-time or non-recurring costs and monthly recurring costs, along with any day rates of the key individuals involved. The budget should be broken down for each of the following areas:

- Project design
- Project management

- Sensor deployment/installation, operation and maintenance
- Data analysis and synthesis
- Presentation of data via an open-source platform

6. Supporting Information

Bidders should provide the following additional supporting information for consideration alongside their proposal:

1. A brief description and history of the bidding organisation(s)

Including your organization's experience with:

- Deploying multiple and/or complex air quality instrumentation in an urban environment and delivering high quality, assured observations to international standards;
- Handling large volumes of data in real-time from disparate air quality observations;
- Sharing information about data collection and calibration with a range of data users, including experience of real-time operational provision of data services.
- Deploying sensors and instruments in innovative ways to support research and/or policy
- Troubleshooting technical issues where experimental and observational precedents are not available.

2. An organisational chart

Illustrating the composition and size of your team and the staff who would be working on the project, with job titles and CVs.

3. Case studies

Please provide at least two case histories of similar work undertaken that include key individuals who would be working on this pilot project; ideally one case study of which demonstrates previous work within the public sector on air quality (preferably within cities).

4. Letters of support

Where proposals are submitted from multiple organisations please include relevant letters of support.

7. Proposal Evaluation Criteria

C40 and the Greater London Authority will evaluate all proposals based on the following:

- Overall proposal suitability, ability to meet the scope and needs included in this document based on evidence of similar work at comparable scale for city government;
- Innovative application of measurement technology that can deliver robust, accurate, timely data;
- Ability to analyse and synthesise data sets to provide a new understanding of environmental issues;
- Ability to present data on an open platform and provide transparency in relation to the analysis and assurance undertaken;
- Cost effectiveness of proposal;
- Replicability of the technical approach in other locations.

8. Submission

C40 invites you to submit a proposal. Each bidder must submit 1 copy of their proposal by **March 9, 2018 at 5:00pm EST** to Joshua Alpert, Director of Special Projects at jalpert@c40.org

Submissions should be concise and include:

- A detailed work programme and timeline of delivery outlining how the above requirements will be delivered on time and to the expected standard to not exceed 20 pages;
- Any additional deliverables and / or information relevant to this tender;
- A full, detailed, cost breakdown and a daily cost for additional days as required;
- Details of the organisation and proposed project team – please include relevant experience / expertise and limit CVs to two pages per person;
- Examples of relevant case studies;
- Letters of support;
- Confirmation of adherence to C40's terms and conditions (see section 9)

9. Terms and Conditions

Please find attached the terms and conditions of C40, including:

- Service Provider Agreement for Non-US Entity
- Service Provider Agreement for US Entity

All bidders should confirm that they will accept these terms and conditions should they be successful.