**Prior Information Notice (PIN): Requirement for Low Cost PM2.5 Monitoring Sensors, and associated Services DN635658**

1. **Introduction**

TfGM is keen to understand how the market is positioned to deliver low-cost sensor monitoring of PM2.5 emissions across Greater Manchester. This Prior Information Notice (PIN) is an opportunity for suppliers to understand more around the potential requirements and opportunity, and to allow you to submit information that will feed into our operational, procurement and contracting strategy.

TfGM are interested in engaging with the market to obtain information relating to the following:

* Products/solutions available to meet the requirements;
* Suppliers’ ability to provide a turnkey solution, encompassing: equipment supply and installation, data capture and ongoing quality control/ quality assurance, data provisioning, equipment management & maintenance;
* Preferred procurement bundling approaches;
* Any other potential benefits/ options.

On the above basis you are invited to submit a response to the short questionnaire within Annex 1 of this document. The outputs of this will feed into a potential delivery strategy.

Please note this is a Prior Information Notice (PIN) for market engagement only, and does not commit TfGM to any contract or tender release.

1. **Instructions to Respond**

Responders are requested to:

* Review the below information to assess whether they could meet the potential needs of TfGM;
* Submit a response to this PIN by completing the short questionnaire in Annex 1 no later than the time and date noted on the Pro Contract ePortal and return via the Pro Contract ePortal. Please note responses can include attachments for ease.

If you have any questions/ clarifications, please send them via the Pro Contract messaging function. Please note that unless marked commercially confidential and agreed by TfGM, all questions / clarifications and response will be shared via the ePortal with all responders expressing interest.

1. **Context**

According to Department for Environment, Food & Rural Affairs (Defra) official statistics,[[1]](#footnote-2) domestic burning of solid fuel, which includes wood and coal, is responsible for around 25% of all PM2.5 pollution in the UK. The other main sources are industrial combustion and processes, including solvent use, and road transport.

In March 2022 it was announced that the Greater Manchester 10 Local Authorities’ bid for Defra Air Quality Grant Funding had been successful. The bid describes a two-year project in which:

* An updated city-regional Emissions Inventory will for the first time include PM2.5 sources;
* Local demographic research will be undertaken to understand behaviours linked to sources of PM2.5, namely the burning of solid fuel in domestic settings;
* Two consecutive winter behaviour change campaigns will be promoted across the city-region, targeting those who engage in behaviours that contribute to PM2.5 emissions.

The final part of this project involves the monitoring of PM2.5 emissions across the city-region. Currently, PM2.5 is monitored at 10 locations in Greater Manchester. A live feed of these 10 stations is available on the Clean Air GM website’s Data Hub.[[2]](#footnote-3) Additional monitoring, which is the subject of this PIN, will therefore present us with a much more detailed understanding of PM2.5 emissions across the city-region.

1. **Air Quality Monitoring focus**

*Scope*

The monitoring is to be undertaken by TfGM through the use of roughly 40 lower cost sensor units positioned in key locations across Greater Manchester, including those that have been found to contain a high density of households with domestic wood-burning appliances.

Specifically, the monitoring regime will be designed to gain insight into the following:

* PM2.5 concentrations in a variety of area types (e.g. roadside, urban, rural, etc.);
* Concentration trends over time across area types;
* Comparisons between locations, e.g. comparing locations with low densities and high densities of solid-fuel burning;
* Impacts of a targeted behaviour change campaign on PM2.5 concentrations undertaken during winter 2023/2024.

The scope of focus may expand during the course of the project, in line with findings from the concurrent qualitative research programme.

*Types of Data*

The primary requirement of air quality monitoring will be:

* The provision of high quality, accurate PM2.5 data in near real time to TfGM.
* The ability to analyse 30 minute, hourly, monthly, and annual mean concentrations.

Although not a requirement of the project, TfGM are interested in any additional benefits offered by the low cost sensor units that would complement the existing Air Quality Monitoring Network in Greater Manchester. As such, we are also interested in the following:

* The provision of high quality, accurate PM10, NO2, or other pollutant data in near real time to TfGM.
* The ability to analyse intervals of the above pollutants.

*Data provision/format*

TfGM will need data from low cost sensor units to be transmitted automatically to an online data platform with the ability to develop an interface with 3rd party data analysis and traffic management systems (e.g. API).

1. **Air Quality Monitoring Elements**

It is to be decided whether the supplier of low cost sensor units will also be required to provide the online data platform, including any interface needed to consume data.

A part of this PIN exercise involves gaining insight into the benefits and risks associated with separating this procurement activity into two lots, involving:

Equipment supply and installation, including data capture, equipment management and maintenance and ongoing sensor calibration;

Data quality control/ quality assurance, and data provisioning;

*Equipment-related considerations*

Equipment related requirements include:

* Ability to install non-intrusively onto street furniture operating under road safety guidelines across Greater Manchester, and liaising with Local Authority contacts for access;
* Ability to be powered over 110v - 240v AC and 48v DC to allow for installation on lighting columns and low voltage traffic signal poles;

**Annex 1 – PIN Questionnaire**

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| **Question** | **Response** |
| Name of Organisation |  |
| Would you be willing to discuss your response in more detail if required? | YES/NO |

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| --- | --- |
| Q1 | Please provide information regarding the solution/solutions you have available to meet the needs outlined in this PIN. In particular, TfGM would like to understand:   * The product/products that make up your proposed solution; * Whether it meets all of the technical requirements outlined in the description; * Lead time * Functionality; and * Accuracy of monitoring, including in differing conditions.   Please attach any material/collateral/website links you believe will be useful. |
| Response: | |
| Q2 | Are you able to provide a turnkey solution that encompasses equipment supply & installation, data capture and ongoing quality control/ quality assurance, equipment management & maintenance of the product? Please describe in more detail, including indicative costs. |
| Response: | |
| Q3 | Are there existing organisations that have used the proposed product/solution for similar requirements to TfGM? |
| Response: | |
| Q4 | Do you perceive any risks with TfGM’s requirements, and if so, do you have any recommendations to mitigate or reduce these risks? |
| Response: | |

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| Q5 | Do you perceive any risks or benefits in the splitting of the tender into multiple Lots:  E.g. (1) Equipment supply and installation, including data capture, equipment management and maintenance and ongoing sensor calibration;  (2) Data quality control/ quality assurance, and data provisioning; |
| Response: | |
| Q6 | Do you perceive any risks or benefits in combining all elements into a single Lot?  i.e., Equipment supply and installation, including data capture, equipment management and maintenance and ongoing sensor calibration; Data quality control/ quality assurance,and data provisioning; |
| Response: | |
| Q7 | Are you able to provide all of the Air Quality Monitoring elements described in Section 5, or would you need to work with additional partners? |
| Response: | |
| Q8 | Please estimate the timescale for delivery of low cost sensors from receipt of order, including anything that may affect these timescales. |
| Response: | |
| Q9 | Please provide any further comments that you feel would help shape the procurement of this project. |
| Response: | |

1. <https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-particulate-matter-pm10-and-pm25> [↑](#footnote-ref-2)
2. <https://cleanairgm.com/data-hub/monitoring-stations> [↑](#footnote-ref-3)