



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

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# Department of Environmental Protection

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**MassDEP Official Responses to:  
Questions Regarding the July 20, 2021  
Air Sensor Grant Program  
August 20, 2021**

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: [www.mass.gov/dep](http://www.mass.gov/dep)

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On July 20, 2021, the Massachusetts Department of Environmental Protection (MassDEP) announced the Air Sensor Grant Program Opportunity for all municipalities in the Commonwealth to receive between five and ten PurpleAir sensors (at no cost) to measure levels of fine particulate matter (PM<sub>2.5</sub>) in outdoor air in their local communities for at least one year. MassDEP has allocated \$200,000 to the Air Sensor Grant Program, and this funding will be utilized by MassDEP to purchase PurpleAir sensors (through an authorized state procurement process) for distribution to municipalities that submit a successful application seeking to participate in this Program. MassDEP's goal in offering the Air Sensor Grant Program is to facilitate the agency's collaboration with municipalities to effectively assess outdoor air PM<sub>2.5</sub> levels in local communities, which can be a significant airborne pollutant that affects public health.

The full Grant Opportunity, and all related documents, are available on MassDEP's website at <https://www.mass.gov/how-to/apply-for-a-massdep-air-sensor-grant>

Questions regarding the Air Sensor Grant Opportunity were accepted by email until August 6, 2021 at which time MassDEP further extended the question deadline period until August 12, 2021. The following questions were received by that deadline, and MassDEP's official responses are provided below to each question.

**1. Question:** Can we apply as a group, or must each town apply individually?

**Response:** Applicants cannot apply as a group. Each town is required to apply individually for MassDEP's Air Sensor Grant Program. This requirement is specified in the Eligible Applicants section of the Grant Guidance - Grant opportunity (applicants can apply for between 5-10 sensors which must be installed outdoors within the boundaries of [their] municipality); the Air Sensor Grant application form (where Section I requires the name of an individual municipality, and the certification section requires the person signing the application to "certify that I have authority to apply for MassDEP's grant award on behalf of the municipality named above;") and in the Air Sensor Grant Agreement, which must be executed by MassDEP and the individual city/town (as "grantee").

**2. Question:** Does the grant prefer communities that are urban in nature?

**Response:** The Air Sensor Grant Program does not prefer municipalities that are urban in nature. This grant program is open to all Massachusetts municipalities, although MassDEP is encouraging the placement of outside air sensors in communities with Environmental Justice (EJ) populations by giving preference to grant applicants that propose to place sensors in these areas.

For more information on designated EJ populations please see the Executive Office of Energy & Environmental Affairs (EEA) website: <https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts>.

**3. Question:** Are there recommended placements for sensors?

**Response:** Placement of sensors should be at outdoor locations within the city or town's boundaries that have readily available access to electricity and wi-fi as both are required for deployment and operation of the sensors. As noted in the PurpleAir Installation guide posted on MassDEP's Air Sensor Grant application webpage, (<https://www.mass.gov/how-to/apply-for-a-massdep-air-sensor-grant>), the ideal locations are 7 to 30 feet above ground level, have at least 180° of unrestricted airflow, and are free of obstructions that may block the sensor inlet on the bottom of the unit. As much as possible, sensors should be placed away from vents, BBQs, smoking areas, and foliage. The sensor can be in direct sunlight; however, partially shaded areas are preferred. MassDEP also is encouraging the placement of sensors in communities with Environmental Justice (EJ) populations.

**4. Question:** In choosing the best possible sites for the sensors I am working on identifying locations on each proposed site that are upwind. Are there wind trends for towns or any monitoring data that could help guide me to choosing the best site for our sensors?

**Response:** A useful tool in determining upwind sites and predominant wind patterns in your area is a Wind Rose. A wind rose is a graphical plot that displays how wind speed and direction are distributed using recent (or historic) wind data that has been recorded at a nearby meteorological monitoring site – typically an airport. The Northeast Regional Climate Center provides a user-friendly wind rose program for public use here:

<https://www.nrcc.cornell.edu/wxstation/windroses/windroses.html>

A nearby airport with 24-hour/day measurements should be selected. To determine the nearby Station ID, click on the magnifying glass in the box and type your town name or zip code of interest. A popup screen will generate nearby stations on a map for you to choose. A typical date selection ideally would include the most recent 5 calendar years, but other date ranges may be selected in the case of missing data periods.

**5. Question:** Can sensors be deployed in rural areas downwind of solid waste handling facilities if prone to odors such as landfill gas, ammonia and mercaptans? Can sensors be deployed around childcare settings or schools near high traffic areas (steady car flow but not grid lock)?

**Response:** Sensors can be deployed in rural areas downwind of solid waste handling facilities. However, the sensors to be provided under the Air Sensor Grant Program are PurpleAir sensors that only measure particulate matter (PM). Therefore, these sensors would not measure ammonia, methane, or mercaptans. In a landfill environment, PM emissions may be generated through fossil fuel combustion from landfill equipment, or from other general sources of PM (e.g., dust). Sensors may also be deployed around childcare settings, or schools near high traffic areas. In all cases, the sensors must have access to electricity and wi-fi.

**6. Question:** We have had a lot of roadwork in town recently. Would that be picked up by the sensors?

**Response:** The sensors to be provided under the Air Sensor Grant Program are PurpleAir sensors that only measure particulate matter (PM). Depending on a variety of factors, roadway construction activities have the potential to generate PM.

**7. Question:** Would we be able to request help with installation or setup?

**Response:** MassDEP posted a PurpleAir Sensor Installation guide on the grant website at: <https://www.mass.gov/doc/instructions-purpleair-sensor-installation/download> and Installation and Set-up Instructional Video available at: <https://www.youtube.com/watch?v=GnW63BvCn4U> After Grant awards are finalized and grant recipients have received the sensors, MassDEP personnel will also be available to provide some additional assistance upon request as necessary.

**8. Question:** Do the sensors give a breakdown of the materials it senses?

**Response:** The sensors measure particulate matter (PM). On the PurpleAir webpage at <https://www2.purpleair.com/> if you click on a sensor, you can select PM10, PM2.5, and smaller fractions of PM. Note that EPA's Fire and Smoke map at <https://fire.airnow.gov/> which only displays Air Quality Index (AQI) values for PM2.5. The AQI uses different colors to represent different levels of air pollution and health concern.

**9. Question:** From our experience, it is important to measure both particles and gases like NOx, CO, and O3. The current PurpleAir sensors don't measure gases. While there is value in gathering the data that the PurpleAir sensors collect, is it possible/feasible to build a more robust approach that measures both particles and gases?

**Response:** At this time, the Air Sensor Grant Program only provides sensors that monitor particulate matter (PM).

**10. Question:** For communities that have built an air quality monitoring network with sensors other than PurpleAir (QuantAQ), is it possible/feasible to merge the live data with PurpleAir's monitoring network and dashboard or vice versa?

**Response:** MassDEP is not aware of any way to merge the live data from other types of sensors with PurpleAir's map.

**11. Question:** What will be done with the data upon completion of monitoring in terms of analysis and comparison to PM standards?

**Response:** The data from the sensors will be displayed on the PurpleAir map and EPA's Fire and Smoke map and is available to the public. PurpleAir also allows for downloading of sensor data for analysis. However, note that because PurpleAir sensors are not regulatory monitors they cannot be used to determine compliance with particulate matter (PM) air quality standards. However, the sensors can provide useful local PM air quality information.

**12. Question:** What can the data be used for?

**Response:** With sensors provided through this grant program, municipalities can work with residents, schools, and community groups to measure particulate matter (PM) levels in the outdoor air; increase understanding of air quality and local awareness of PM pollution; and identify sources of particle pollution so that emissions reduction and mitigation strategies can be taken to protect residents' health.

**13. Question:** What mitigation measures can be implemented in areas that are shown to have high PM levels?

**Response:** There are many measures local officials and community organizations can implement to address PM pollution, ranging from increased education to pollution reduction measures such as anti-idling measures or requirements, re-routing of traffic, deployment of low emission or zero emission vehicles, vegetative buffers, and air filters on buildings. There are many ideas and resources available on publicly available websites, such as the EPA (<https://www3.epa.gov/region1/airquality/reducepollution.html>) and the California Air Resources Board ([https://ww2.arb.ca.gov/index.php/ocap\\_resource\\_center](https://ww2.arb.ca.gov/index.php/ocap_resource_center)).

**14. Question:** After one year’s worth of data collection, does data continue to populate the online platform? Would there be a subscription fee?

**Response:** The data collected by each sensor is maintained by PurpleAir and PurpleAir provides data download instructions under the heading “DATA ACCESS” on the [FAQ webpage](#), or the [sensor data download tool webpage](#).

Currently there are no fees for data storage, and PurpleAir does not have immediate plans to charge a fee for sensors set to “public mode” as required by the terms of the Air Sensor Grant Program. Sensors set to “private mode” may be charged a fee depending on the frequency of data queries.

**15. Question:** We have residential neighbors of a sand and gravel operation in our town complain about silica dust. The dust is quite obvious when one sees it on hard surfaces. Will the Air Sensor Grant Program be appropriate for measuring whether there are hazards that might be involved in this situation?

**Response:** PurpleAir sensors measure particulate matter (PM) but do not provide data on the composition of the PM and would not indicate silica vs. non-silica components of the PM. The sensors could provide an overall sense of the total amount of PM (less than 10 micrometers) in the air.