



State of New Jersey

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LOW-COST AIR QUALITY SENSOR ACTION PLAN

BACKGROUND

Monitoring pollutants in the outdoor air we breathe is a vital tool in the effort to protect our health and our environment. As air monitoring technologies have progressed, air monitors have become less expensive and more portable. These advances, along with improvements in data storage and connectivity, are leading to greater use of low-cost air sensors by the general public, and more rapid distribution of air quality data through the internet. Distinct from data gathered from U.S. Environmental Protection Agency (USEPA)-approved air monitors operating in the New Jersey Department of Environmental Protection (DEP) existing ambient air quality monitoring network, data from low-cost sensors are frequently being collected and shared without any quality control or validation.

POLICY STATEMENT

DEP acknowledges the availability and potential usefulness of the data from low-cost air sensors that are now accessible to the general public and deployed throughout the world. However, the quality of the data from low-cost sensors is largely unknown, and varies with the accuracy of these devices and the methodology of the data collection. Currently, data obtained from these low-cost sensors cannot be used for comparison to health standards, or for making air quality decisions. However, with the appropriate oversight, this data could supplement DEP's existing network and help identify areas of concern.

ACTION PLAN

To further the understanding and use of low cost air quality sensors, DEP will take the following short-term steps:

- Establish a website where users of low-cost sensors may obtain the following guidance:
 - Information regarding health standards for common air pollutants, differences between short-term and long-term exposures, and data collection techniques.
 - Descriptions of 4 Tiers of application areas for users of low cost sensors: 1) educational/informative, 2) hotspot identification/characterization, 3) supplementary monitoring, and 4) personal exposure monitoring.
 - Recommendation for users to obtain evaluations of low-cost sensors from California's South Coast Air Quality Management District's (SCAQMD) webpage, <http://www.aqmd.gov/aq-spec/evaluations>, before selecting and purchasing low-cost sensors.
 - Recommendation for users who wish to conduct a Tier 2 or Tier 3 project to follow specific DEP guidance for planning, documenting and implementing such a project.

In the longer term, DEP plans to take the following steps:

- Continue working with USEPA and other stakeholders to explore existing cloud-based database portals to determine if any are appropriate for the storage and distribution of data collected by low-cost sensors.
- Explore the feasibility of accepting data for informational purposes from Tier 2 or Tier 3 projects that are conducted with project plans pre-approved by the DEP.
- Collaborate with established New Jersey volunteer groups to encourage air quality awareness, and to educate students and residents about low cost sensors, the 4 Tiers of application areas, and the DEP guidance for conducting a project using low cost sensors.