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# science in ACTION

INNOVATIVE RESEARCH FOR A SUSTAINABLE FUTURE

## CITYSPACE AIR SENSOR NETWORK PROJECT CONDUCTED TO TEST NEW MONITORING CAPABILITIES

### What is the CitySpace project?

The CitySpace project is a new research effort by EPA to field test new, lower-cost air pollution sensors in a mid-sized city. The goal of this project is to understand how this emerging technology can add valuable information on air pollution patterns in neighborhoods.

### When and where will the field study occur?

For the study, researchers plan to build approximately 20 sensor pods for deployment in the Memphis, Tenn. area. Each pod will include a particulate matter (PM) sensor as well as several meteorological sensors that measure temperature, humidity, and wind. The data recordings will occur each minute and be wirelessly transmitted using cellular communication to an EPA server.

Starting in fall 2016, the sensors will be located throughout Memphis to capture local air pollution patterns. The locations are being selected using input from community members and predicted air pollution patterns and by comparing some sensor readings with higher-quality data from air monitors used in regulation.

EPA will also coordinate with the local county and state organizations.

Once located, the sensors will remain in place for approximately six months to collect an extensive amount of data. The project is



anticipated to produce up to 30 million data values for analysis of local-scale air pollution and weather patterns.

The study results will be summarized to provide the Memphis community and scientific community a greater understanding of local air pollutant spatial patterns.

### Why do we need outdoor air monitoring in more locations?

Measuring air quality is an important step toward ensuring public health and welfare. In addition to regulatory air monitoring networks, which are stationary and provide regional data, researchers also use air sensor monitors that are more portable and enable exploration of local patterns in air pollution. For example, many researchers have conducted extensive monitoring to look at local changes in air pollution levels near

sources (e.g., highways, rail yards), sometimes with just a few hundred feet of distance from one monitoring location to another. Research studies are exploring how new technologies can be used to understand how air pollution varies at a small geographic scale in an urban or suburban setting.

### How can I learn more?

The team will reach out to the local community in the Memphis area to guide the selection of sensor locations and will provide several presentations throughout the course of the project.

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