

Episode 47

Monitoring of Particulate Matter PM2.5 emitted from wood stoves is a priority of the City of Madison, WI, aided by Federal Funds of \$429,746 awarded by the Biden Administration for Air Quality Monitoring on a Neighborhood Level

Madison Receives EPA Funding to Improve Air Quality Monitoring and Tackle Health Disparities

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The City of Madison was awarded \$429,746 in funding by the U.S. Environmental Protection Agency's Enhanced Air Quality Monitoring for Communities competitive grant program. This program aims to support community and local efforts to monitor their own air quality and to promote air quality monitoring partnerships between communities and tribal, state and local governments.

With these funds, the City of Madison will lead a collaborative project to install a city-wide network of 68 air quality sensors to monitor particulate matter pollution and support greater awareness, education and action to address air quality and health disparities in our community. To complete this work, the City is partnering with The Foundation for Black Women's Wellness, Latino Health Council of Dane County, The Hmong Institute, University of Wisconsin-Madison (UW-Madison) and Public Health Madison and Dane County.

"The City of Madison is pleased to receive this grant award in support of this partnership to advance local air quality monitoring and education. This sensor network will enable everyone to see, for the first time, which areas of our city are most impacted by particulate matter pollution. This is a critical next step in our ability to keep our air clean and eliminate health inequity," said Mayor Satya Rhodes-Conway.

Particulate matter, or PM, is the term for solid particles or liquid droplets found in the air. Particulate matter pollution comes from a variety of sources. It can be emitted directly into the air from sources like wood stoves, forest fires or blowing dust. It can also be created when other pollutants like nitrogen oxides (NOx), sulfur dioxide (SO2), organic carbon or ammonia chemically react to form fine particles. Sources of these precursor pollutants include fossil fuel combustion in vehicles and power plants, as well as some industrial processes. While Dane County is in compliance with federal air quality standards, even short-term or localized peaks in air pollution can lead to increased health risks, which regional air quality sensors are not designed to measure.

"This new monitoring network will be a game-changer for air quality assessment in Madison," said Tracey Holloway, professor in UW-Madison's Nelson Institute for Environmental Studies. "Particulate matter is the most health-damaging common air pollutant, associated with decreased life expectancy, respiratory disease and more." Dr. Holloway and fellow UW-Madison atmospheric scientist Dr. Timothy Bertram will provide expertise to guide the design of the sensor network and analysis of the air quality data it provides.

Fine particles, those 2.5 microns or less (PM 2.5), are particularly dangerous to our health. When inhaled, these small particles can travel deep into our lungs and some may even enter the bloodstream, where they affect our lungs and heart.

In Wisconsin and across the U.S., BIPOC (Black, Indigenous and People of Color) and low-income communities experience greater exposure to particulate matter pollution, as well as disparities in heart and lung health. Local air quality monitoring and culturally-relevant health communications are critical for improving air quality and eliminating health disparities. The City of Madison will be working with air quality experts at UW-Madison and local community-based organizations focused on the health and wellbeing of Madison's BIPOC communities to both design the sensor network and provide resources, programming and communication about the connections between air quality and health.

"The Latino Health Council of Dane County has been advocating for and promoting the health and wellness of the Latinx community for over 20 years. Environmental justice is a key element of health equity and thus monitoring air quality is critical to the health of our community," said Dr. Patricia Téllez-Girón, co-chair of the Latino Health Council of Dane

County. "We look forward to partnering with the City of Madison on this important project that centers the voices and the health of our Latinx community."

Also focused on community health, The Foundation for Black Women's Wellness is committed to eliminating health disparities and other barriers impacting the lives of Black women, their families and communities. "We are excited to partner with the City of Madison and other community organizations to ensure all Madison residents experience the clean, safe and environmentally just neighborhoods we deserve," explained Lisa Peyton-Caire, CEO and President of The Foundation for Black Women's Wellness. "Together, we will transparently monitor the quality and safety of the air we breathe and engage communities most impacted in efforts to eliminate racial disparities in exposure to pollution and toxins as we work together to protect the health and lives of our children and families."

Mai Zong Vue, board president of The Hmong Institute, is also encouraged by the partnership. "The Hmong Institute is excited to be a partner in this critical project of protecting the health of Madisonians," said Vue. "We are eager to collaborate with the City of Madison and other partners in addressing air pollution in Madison, especially an opportunity to help identify and determine next steps for improving air quality in underserved communities." The Hmong Institute provides education, health, community building and economic and professional development assistance and programming to overcome cultural, language and access barriers for the Southeast Asian and immigrant communities in Dane County.

Once installed, air quality data from the network will help our community understand the locations, magnitudes and potential sources of particulate matter; collaboratively generate short- and long-term strategies to improve air quality and protect community health; and take actions to reduce our exposure at times and places with high particulate matter.

"Accurate measurements of **air quality at the neighborhood scale**, that are accessible to the public in real-time, are essentially unheard of anywhere in the world. This is exactly what the EPA initiative and this project brings to Madison," concludes Dr. Bertram.

The City of Madison was one of three Wisconsin awardees among the 132 projects funded across the country that will receive a total of \$53.4 million. Two other Wisconsin awardees were the Wisconsin Department of Natural Resources and Children's Hospital of Wisconsin, Inc. This funding for air pollution monitoring was made available through the American Rescue Plan of 2021 (ARP) and Inflation Reduction Act of 2022 (IRA).

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