

Minnesota Pollution Control Agency's Metro Community Air Monitoring Pilot Grant Program

Quick Guide (Great Lakes Thriving Communities Technical Assistance Center, Minnesota Technical Assistance Program, Environmental Protection Network, May 23, 2024).

This MPCA grant aims to fund air quality monitoring programs in communities disproportionately impacted by air pollution. Successful applications will use a variety of sensors to gather data on multiple air pollutants to engage communities in outreach and provide data to the Minnesota Pollution Control Agency (MPCA) that can help with decision making. More information can be found on MPCA's [grant webpage](#).

Eligible applicants: Community non-profits and partnering organizations who will develop a network of neighborhood air monitoring in the 7-county metro region (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington). Priority will be given to areas with high illness rates linked to air pollution¹ and projects within one mile of facilities that have had recent air permit enforcement actions, as well as non-profits with someone in the Executive Leadership role that identifies as Black, Indigenous, and/or Person of Color.

Award amount: The minimum grant amount will be \$750,000 per project; \$4.85 million in funding is available and will fund between two and five projects.

Due date: All applications must be received by June 28, 2024 at 4:30 p.m. Central Time. All awarded funds must be spent by June 30, 2027. Instructions for how to apply below.

Resources: MPCA hosted an Informational webinar on 4/25. Links to [Slides](#) and [Recording](#). MPCA will respond to applicant questions submitted to grants.pca@state.mn.us by Friday, June 14th.

Examples of community air monitoring projects

Community air monitoring encompasses a number of activities undertaken by residents to collect information about air quality. Below are some examples of why a community might want to deploy sensors in their neighborhood. The grant is not limited to low-cost sensors. See below for some benefits and limitations of different types of monitors and work with your technical provider to determine the best fit for your project.

Types of low-cost air sensor projects (Source: New Jersey Department of Environmental Protection)		
Purpose	Description	Level of effort
General information and education	Sensors indicate the presence or absence of pollutants, or relative quantities, with indicator lights or color coding.	Low
Personal exposure monitoring	Wearable sensors measure air pollution that individuals are exposed to during their daily routines.	Medium-high
Supplementary network monitoring	Sensors are placed in an area where the regulatory network is lacking to better understand air quality in those locations.	Medium-high
Hotspot identification and characterization	A cluster of sensors is placed downwind of or around a source to identify its potential air pollution impacts.	High

¹ Mapping resources: [Health impacts of air pollution Life and Breath: Metro](#). Minnesota Department of Health. 2022. [Understanding Environmental Justice in Minnesota](#). Minnesota Pollution Control Agency. [EJScreen](#) EPA's Environmental Justice Screening and Mapping Tool. Environmental Protection Agency.

Common types of pollutants to measure and their sources

The six National Ambient Air Quality Standards (NAAQS) pollutants regulated under the Clean Air Act²

- Ozone (O₃): Motor vehicle exhaust and industrial emissions, vapors, and chemical solvents
- Particulate matter (PM_{2.5} and PM₁₀): Dust, industrial emissions, motor vehicles, agriculture
- Nitrogen dioxide (NO₂): Electric utilities, motor vehicles, industrial emissions
- Sulfur dioxide (SO₂): Fossil fuel emissions, refineries, smelters, paper mills, and chemical plants
- Carbon monoxide (CO): Motor vehicles, incinerators, boilers, industrial emissions
- Lead: Smelters, mining operations, waste incinerators, battery recycling

Other important air quality indicators

- Volatile organic compounds (VOCs): chemical manufacturing facilities, dry cleaners, solvents, paint
- Here is an additional [list of urban air toxics](#) and the [Hazardous air pollutants homepage](#) from the EPA.

Types of monitors and sensors

Once you know the purpose of your grant project, consider different types of air monitoring equipment.³

Low-cost sensors

- Benefits: Small, portable, easier to use, frequent data collection down to the minute, automated data visualization, many monitors can be deployed to create dense networks of air quality monitoring.
- Limitations: May not be able to collect data on all pollutants. Not as accurate as “reference monitors” which are used for regulatory action. Can require frequent quality control (cleaning, etc.).

Near-reference monitors

- Benefits: Have comparable performance as federally approved instruments. Portable.
- Limitations: Regulations have not caught up to include these new technologies. More expensive.

Reference monitors

- Benefits: Used for regulatory compliance and enforcement action. Highly accurate.
- Limitations: Fixed location, expensive, requires highly trained staff to take readings.

Community air monitoring resources

- EPA's [Air Sensor Toolbox](#)
- EPA's Webinar Series (Slides Available) on [Community Air Monitoring Fundamentals](#)
- [New Jersey EPA Division of Air Quality Monitoring](#)
- Government Accountability Office “[Policy options to help address implementation challenges](#)”
- The Environmental Protection Network (EPN) has a directory of technical assistance volunteers who help people navigate grant applications, please [inquire here](#) for their support.
- [EPN's Community Air Monitoring Network](#) provides monthly calls and [additional resources](#)

Quality assurance resources

Quality assurance is a blueprint for ensuring that the data collected meets the project goals, and that the data is accurate. Quality control involves things like checking, calibrating, and cleaning sensors.

- This grant application requires a 2-page statement on quality assurance. It does not require an official Quality Assurance Project Plan, or QAPP, such as what many EPA monitoring grants require. If awarded the grant, groups will be asked to expand on technical preparedness and procedure plans.
- Quality Assurance Project Plan (QAPP) [resources and templates](#) and some planning/project resources.
- EPA's [Quality Assurance Handbook and Toolkit for Participatory Science Projects](#)
- EPA's [Guide to Writing Quality Assurance Project Plans for Ambient Air Monitoring Networks](#)

² [Missouri Department of Natural Resources](#)

³ [EPA Introduction to Air Sensors](#), 2022.

Community air monitoring case studies

When planning, applicants are encouraged to consider project goals related to output, including intended use, audiences, and tangible outcomes. This will inform project direction, scope, and measurement details that occur in a project's initial phases. Additionally, bringing a technical advisor or academic researcher onto the project is recommended to ensure thorough data collection and interpretation can be sustained throughout the project's duration.

- An overview of [Air Alliance Houston's project](#) for community air monitoring and education.
 - Expands on problem identification, equity, community science for educational purposes.
- This 2019 paper "[The Impact of Citizen Environmental Science in the United States.](#)" identifies potential for impact and common barriers to community science projects.
- This [2022 scoping review published in Environmental Health](#) identifies various approaches and outcomes of community air monitoring projects.
- [This webpage from the EPA](#) describes two community air monitoring projects, one in North Carolina and another in New Jersey.

Frequently Asked Questions

How will applications be evaluated?

MPCA has provided [this rubric](#) to outline evaluation criteria and scoring for this grant.

How is the funding disbursed?

Up to 30% of the total grant amount can be requested to cover initial eligible equipment purchases with vendor quote and MPCA approval. The remainder of the grant operates on a reimbursement model. This means that lead applicants and/or partners would have to provide up-front funding for staffing, and other non-equipment needs, or equipment exceeding the 30% cap set by the MPCA and be reimbursed on a quarterly basis.

Can MPCA take enforcement action with this data?

Data would not be directly used for regulatory/enforcement action. However, data can potentially prompt MPCA to investigate areas indicating high pollutants and demonstrate a need for regulatory monitor installation. Additionally, data can indicate a need for further research and formation of community partnerships.

Would awardees be expected to complete a quality assurance project plan (QAPP) similar to ones required by EPA, or is the requirement not as structured/stringent?

QA/QC plans are required for these projects, but do not have to necessarily follow an EPA QAPP structure. The level of detail necessary for these plans would be based on the goals of each individual project.

What are the requirements around sub-awardee budgeting?

The grant allows for flexible budgeting proportions, though MPCA advises that roughly 80% of the grant goes towards staffing expenses and 20% goes towards expenses related to equipment. Overhead costs are prohibited, but staffing costs are not considered overhead per MPCA.

Are there any restrictions on who can be a sub-awardee on this grant?

No. There are no restrictions on sub-awardees, meaning that lead applicants can partner with for-profit organizations for the provision of equipment and/or monitoring services and expertise.

How will the Grantee Bidding Requirements be interpreted if a community organization develops their proposal in partnership with a for profit organization?

Collaborative technical partnerships are not subject to bidding requirements.

How to apply

The request for proposal (RFP) and application materials can only be viewed through the online SWIFT portal. The RFP is termed an "Event" within the SWIFT system.

1. [Go to the online SWIFT portal.](#)
2. Click on "Bidding opportunities".
3. Find the event by name (MPCA-Metro Community Air Monitoring Pilot Grant Pr) or ID (2000015623).
4. Click "View Bid Package" to see the RFP and forms. (There's no need to log in to see the documents.)

Grant applications are only accepted through SWIFT. Questions? Call (651) 201-8100, option 1.

1. Register as a bidder in the SWIFT Supplier Portal, (Bidding = "applying")
2. Choose "Register for an Account" and then "Register as a Bidder".

Technical Partnerships

The Minnesota Technical Assistance Program has gathered a list of potential technical partnerships for this grant opportunity. Note that this is not a complete list of potential service providers, and inclusion on this list is not an endorsement of these companies by MnTAP or any other organization. Below is a list of providers who can do one or more technical services.

- Application advice: Guidance on technical requirements of the application like quality assurance.
- Partnership: Full partner on the grant, such as program design, data monitoring and analysis, and community engagement.
- Post-award contract services: Specific contracts for the program, such as installation of monitors or data analysis and visualization.

Apex Instruments

- Entity type: For profit company
- Contact: Kathleen Masse | kmasse@apexinst.com | 919-342-1410 | <https://apexambientair.com/>
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: Provide technical support in the advising experimental design and planning from an instrument performance perspective. Help with instrument procurement, data collection, monitoring, and analysis.

Beacon Project – University of California, Berkeley

- Entity type: Research institution
- Contact: Ron Cohen | rccohen@berkeley.edu | 510-499-1213 |
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: BEACO2N is interested in partnering with colleagues who are pursuing plans to assess effects of reductions in Greenhouse gases or air pollutants. We support projects with a mix of observations and analyses of observations.

City of Minneapolis

- Entity type: Municipality
- Contact: Jenni Lansing | Jenni.Lansing@minneapolismn.gov | 612-709-9977
- Assistance: Pre-application advice, grant partnership.
- Description: Currently manages a Community Air Monitoring program in Minneapolis. Would be open sharing info on this and/or partnering on proposals to expand the program. City staff could offer data analysis, visualizations, and display.

Eastern Research Group

- Entity type: For profit company
- Contact: Regi Oommen | Regi.Oommen@erg.com | 919-468-7829 | (cell) 919-349-4774
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: ERG manages EPA's National Monitoring Programs for Air Toxics and supports air toxics data analysis for EPA and other public sector clients. ERG can partner with applicants to provide laboratory air toxics monitoring and data analysis.

JustAir

- Entity type: For profit company
- Contact: Sarah Craft | | sarah@justair.co | www.justair.co/
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- JustAir is a monitor-agnostic air quality data transparency platform that can support applicants through a broad range of services and technical assistance throughout the grant cycle, from project development to implementation, to change-making. This includes: ongoing public engagement; air quality sensor selection, purchasing, deployment, and maintenance; training local deployment and maintenance partners; air quality monitor management software with data quality assurance and documentation; opt-in community air text alerts; data analysis, reporting and visualization tools; project and data reporting; and using data to inform behavioral, environmental, and structural change.

Minnesota State University, Mankato (Bloomington)

- Entity type: Research institution
- Contact: Jake Swanson | jacob.swanson@mnsu.edu | 952-288-1393
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: Aerosol scientist w/ 15 yrs experience using instrumentation to characterize pollution, often in the context of combustion sources. Affiliated with MSU Mankato but located in the Twin Cities. Has experience with community air monitoring. Can provide technical leadership in small or large roles.

Robert Hendrickson

- Entity type: Individual
- Contact: Robert Hendrickson | robwhendrickson@proton.me | <https://spikealerts.github.io/Website/>
- Assistance: Pre-application advice, limited grant partnership, post-award contract services.
- Description: Spatial data management, accessibility, and interpretation. Created and implemented an open source air alert website

TD Environmental

- Entity type: For profit company
- Contact: Story Schwantes | Story.Schwantes@TDEnviro.com | (651) 491-7226 | www.tdenviro.com/
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: Our services include developing effective air monitoring networks, managing data, performing in-depth analytics, working with and supporting communities, providing clear insights, and staff/volunteer training and capacity building. We designed and conducted EPA's Community Air Monitoring Training, co-authored EPA's Enhanced Air Sensor Guidebook, and operate a technical support center for community and environmental justice groups in the San Francisco Bay area.

University of Minnesota

- Entity type: Research institution
- Contact: Brent Williams | will-b@umn.edu
- Secondary contacts: Heidi Roop (hroop@umn.edu), Dylan Millet (dbm@umn.edu), Tracy Twine (twine@umn.edu), Nathan Meyer (meyer179@umn.edu), Qisheng Ou (qou@umn.edu), David Pu (dyhpui@umn.edu)
- Assistance: Pre-application advice, grant partnership, post-award contract services.
- Description: The University of Minnesota has a wide range of expertise - from mobile air monitoring with specialized gas and particle pollution equipment, to sensor network planning and operation, air quality modeling, and data collection-processing-sharing. We are connected with UMN experts on the public health and environmental justice components as well, and we'd be happy to help bridge those connections. Our MN Climate Adaptation Partnership (MCAP) team has extensive experience with fostering productive and successful Community/University relationships.