AIRNET Workshop 1

May 2025

Agenda

- ► Introductions
- ► Goals for the day
- ► Foundational air quality science & existing data
- ► Project overview
- ► What are our air monitoring interests & concerns?
- ► Where are our interests & concerns? (mapping & ranking activity)
- ► Next steps!

Introductions

Name, org, how you're feeling today and why are you here?

Goals for the Day

1. **Learn about air quality foundations**

2. **Hear from you all:** Document your air quality interests and concerns and prioritize them.

Foundational Air Quality Science

On a scale of 1 to 5:

How much do you know about air quality?

Air Quality

Air quality is a measure of how clean or polluted the air is.

Source: UC Davis

A good air quality day and a poor air quality day in Denali National Park.

Air quality changes with...

Weather

▶ Wind can move pollutants across short and long distances.

▶ Rain and frontal systems can remove pollutants from the air.

▶ Some pollutants require sunlight to be formed in the atmosphere. Sunny days or seasons can increase the amount of these pollutants.

Human Activity

▶ Vehicle pollution

▶ Industry

▶ Construction

▶ Wood & trash burning

Location

▶ Geographic features can act as a barrier or bowl, keeping pollutants from moving.

Where does air pollution come from?

Agriculture
Power plants
Wildfires
Airplanes
Refineries
Industry
Trains
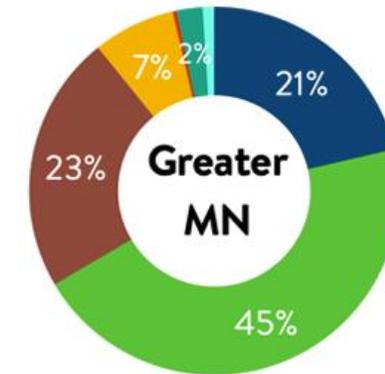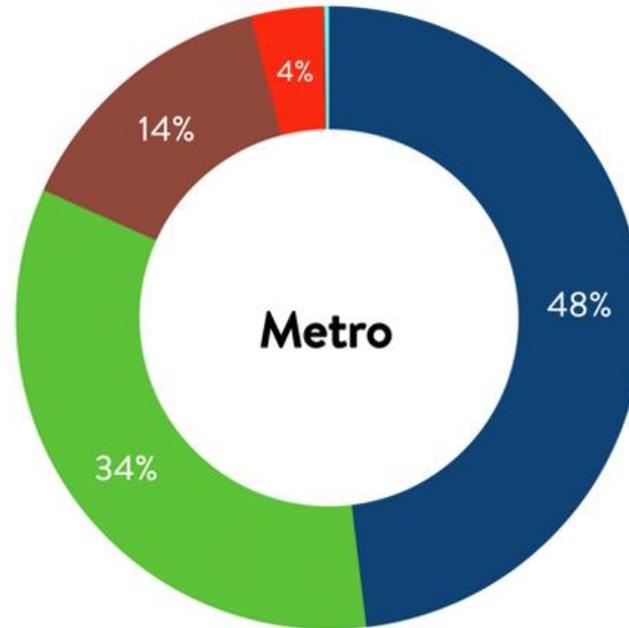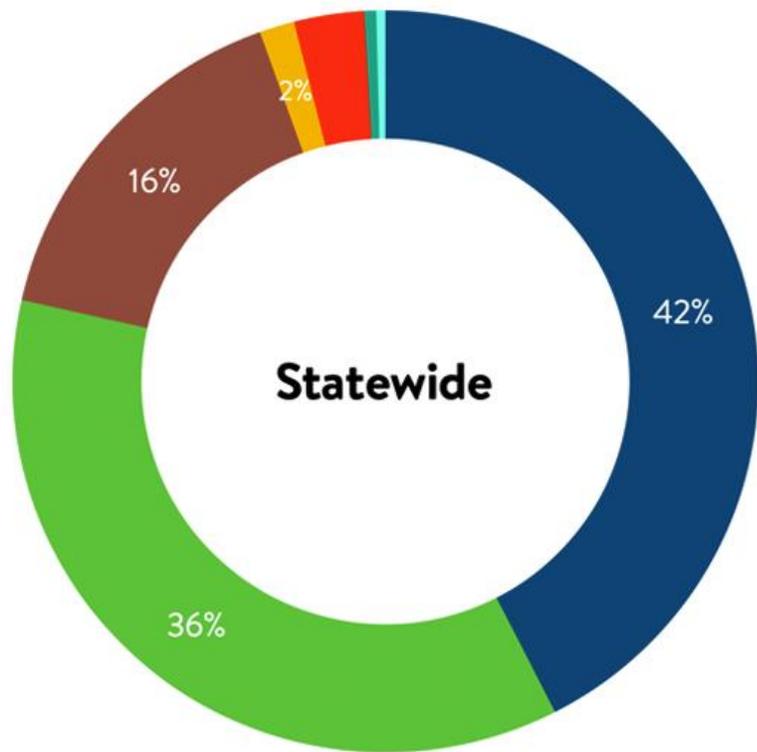Wood burning, stoves, & fireplaces
Construction & road dust
Construction equipment
Ports
Mobile sources

Image Source: Bay Air Center

Air pollution risk sources in Minnesota

Statewide — Transportation 42%, Permitted facilities 36%, Burning wood for heat or recreation 16%, Agricultural and yard waste burning 2%

Metro — Transportation 48%, Permitted facilities 34%, Burning wood for heat or recreation 14%, Lawn and garden equipment 4%

Greater MN — Transportation 21%, Permitted facilities 45%, Burning wood for heat or recreation 23%, Agricultural and yard waste burning 7%, Boilers 2%

Legend:
- Transportation
- Permitted facilities
- Burning wood for heat or recreation
- Agricultural and yard waste burning
- Lawn and garden equipment
- Agricultural and farm equipment
- Boilers (commercial and industrial)

Health Effects

Air pollution harms human and animal health, damages agricultural crops, forests, ornamental and native plants, and creates haze that reduces visibility.
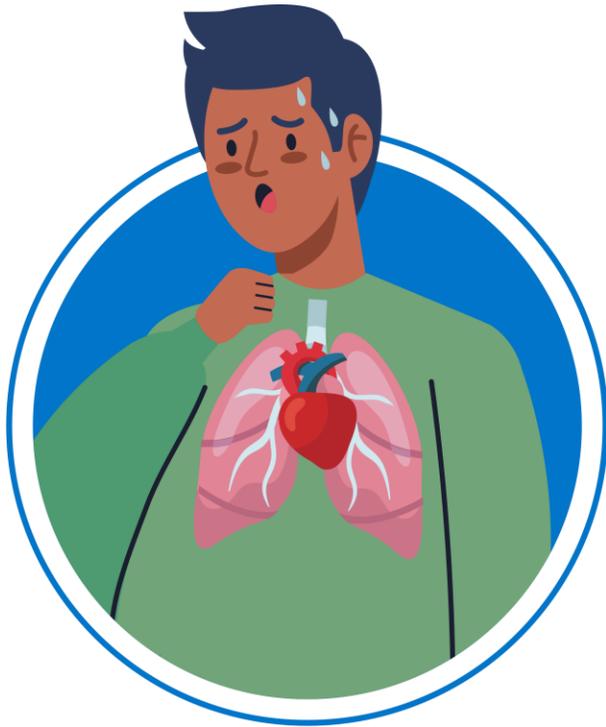

- Cause nausea, dizziness, headaches, chest pain
- Cause eye, nose, and throat irritation
- Make it more difficult to breathe
- Increase the likelihood of heart attacks
- Increase respiratory disease including asthma attacks
- Decrease lung function
- Cause cancer
- Decrease life expectancy

Air Monitoring

Detection of pollutant levels by measuring the quantity and types of certain pollutants in the outdoor air.

What is Air Monitoring?

Equipment (devices)

Software

Processes

People

Source: EPA
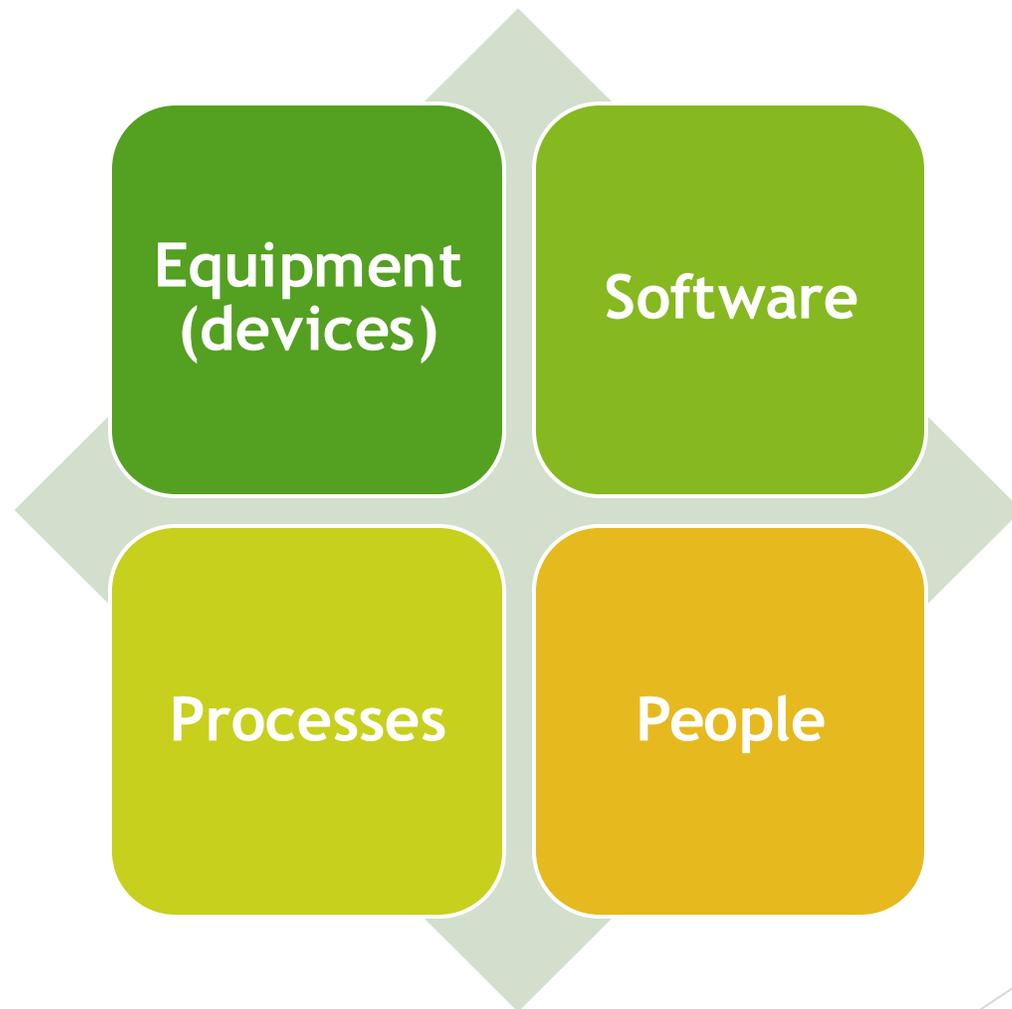
Types of Monitoring: Regulatory

- EPA-certified equipment

- Meet strict operating and performance requirements

- Performed by regulatory air quality agencies

- Very accurate and reliable

- $$$$$

- Data used for policy making and ensuring we meet federal air quality standards

Image and Slide Source: MPCA

Types of Monitoring: Non-Regulatory

- All monitoring that is not done for regulatory reporting purposes
- High to lower-quality devices
- Can be taken by anyone!
- Accuracy varies – depends on how it is run
- Usually lower cost
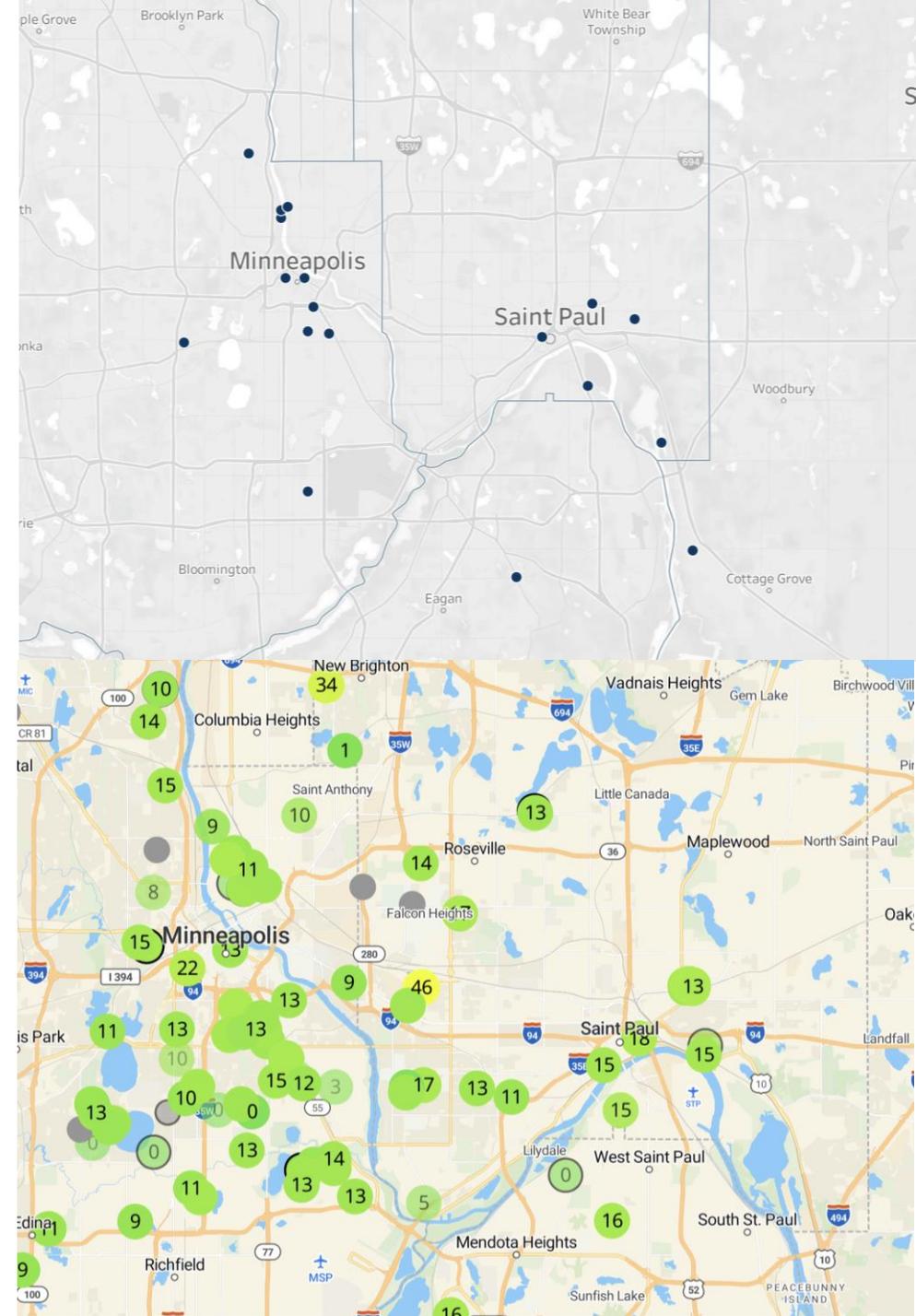- Cannot be used legally by itself

Why do we do non-regulatory monitoring?

▶ Supporting research on the health effects of air pollution

▶ Estimating health-related exposure risks

▶ Characterizing air quality and trends

▶ Measuring overall progress

▶ Providing data for public air quality alerts and air quality forecasting

▶ Understanding hyper local air pollution to help guide community planning

Image Source: MPCA

Who Is Monitoring Air Quality in the Twin Cities?

▶ MPCA

  ▶ Multiple pollutants across the state (over 50 sites)

  ▶ Monitor more than they are required to by EPA

▶ EPA – supporting some of MPCA's and Tribal agency monitoring

▶ Individuals and community groups (PurpleAir)

▶ Other data?

Questions?

Project Overview

AIRNET Project

▶ Minnesota Pollution Control Agency Community Air Monitoring Grant Pilot Program

  ▶ *Designed to monitor air quality on a neighborhood scale in communities disproportionately impacted by air pollution, to engage those communities in outreach and cooperation, and to provide data to the MPCA that can help with decision making.*

▶ AIRNET brings together six community partners and a support team

  ▶ Develop relevant air monitoring projects in each community

  ▶ Deploy air monitoring devices and run them for ~two years

  ▶ Have data available on a public data dashboard/website & shared with MPCA

  ▶ Conduct outreach and education around the data and air quality generally

  ▶ Analyze the data to determine trends and draw conclusions

Timeline

2025

Apr | May | June | July | Aug | Sept | Oct | Nov | Dec

Workgroup Sessions

Approve monitoring plan

**Purchase equipment
Begin monitoring**

**Air monitoring!
Education and outreach**

2026 | **2027**

June: Project end

What happens after today?

Design	To the drawing board! Design a few draft monitoring project plans
Review	Next session: review them, gather feedback, move things around, ensure that we have a project that you all feel makes sense
Develop	Develop a final monitoring plan (3-5 pages): Send out for comment & review

Questions?
& Break

Air Quality Interests and Concerns

Interests & Concerns

- What local air quality issues are you and others in your area concerned about or interested in?
  - This could be sources of pollution, specific pollutants, specific health concerns, or geographic/weather influences.
- What are you interested in achieving with air quality monitoring?

What are your top 1-3 air quality concerns or interests?

Vote for your top 2 main concerns/interests

Can we place these on a map?

What are we interested in achieving?

1	Increase public's awareness of local air quality and issues
2	Engage community members in air quality monitoring and science
3	Identify possible sources of pollution
4	Educate community to help them reduce their exposure to air pollution
5	Alert community members about poor air quality conditions
6	Understanding the spatial distribution of air pollution
7	Provide additional monitoring to supplement an existing network
8	Provide MPCA with data around our concerns
9	Validate lived experience
10	Other

Next Steps

- Take information from today & draft air monitoring options
- Meet in June – review these options & give feedback
- Develop final monitoring plan & send out for review!
- Late summer/early fall: begin monitoring!

Story Schwantes

Story.Schwantes@tdenviro.com

Dr. Monika Vadali

mvadali@gpisd.net