

Asthma Health through Air Quality Data: Mobilizing Citizen Scientists for Local Change

Summer 2024



Agenda & Goals

- Introductions and JustAir Overview
 - Welcome
 - AQ 101 & Asthma Rates
 - Environmental Justice
- Data Driven Public Health
 - Public Tools - MyJustAir and EPA EJScreen
 - Community Partnerships
 - Mobile Air Quality Monitoring
- Types of Change
 - Workshop activity example
 - Change case studies

**When it comes to air pollution,
not all communities are
created equal.**

4X

**People of color are nearly four times
more likely than white people to live
in a community with unhealthy air.**

**Air pollution can vary
greatly across communities.**

8X

**Levels of pollution can be as much
as eight times higher at one end of
a city block than another.**

What is AQI?

Air Quality Index (AQI) is the Environmental Protection Agency's air quality ranking system from 0 - 500. The higher the AQI, the worse the air.

Air Quality Index Level	Amount
Good	0 - 50 AQI
Moderate	51 - 100 AQI
Unhealthy for Sensitive Groups	101 - 150 AQI
Unhealthy for Everyone	151 - 200 AQI
Very Unhealthy	211 - 300 AQI
Hazardous	301 + AQI

Primary Pollutants

Particulate Matter

PM is tiny solid particles in the air. PM 2.5 means the particles are 2.5 micrometers or smaller (0.00025 cm). **PM comes from vehicle exhaust, industrial emissions, construction, and natural sources like wildfires.**

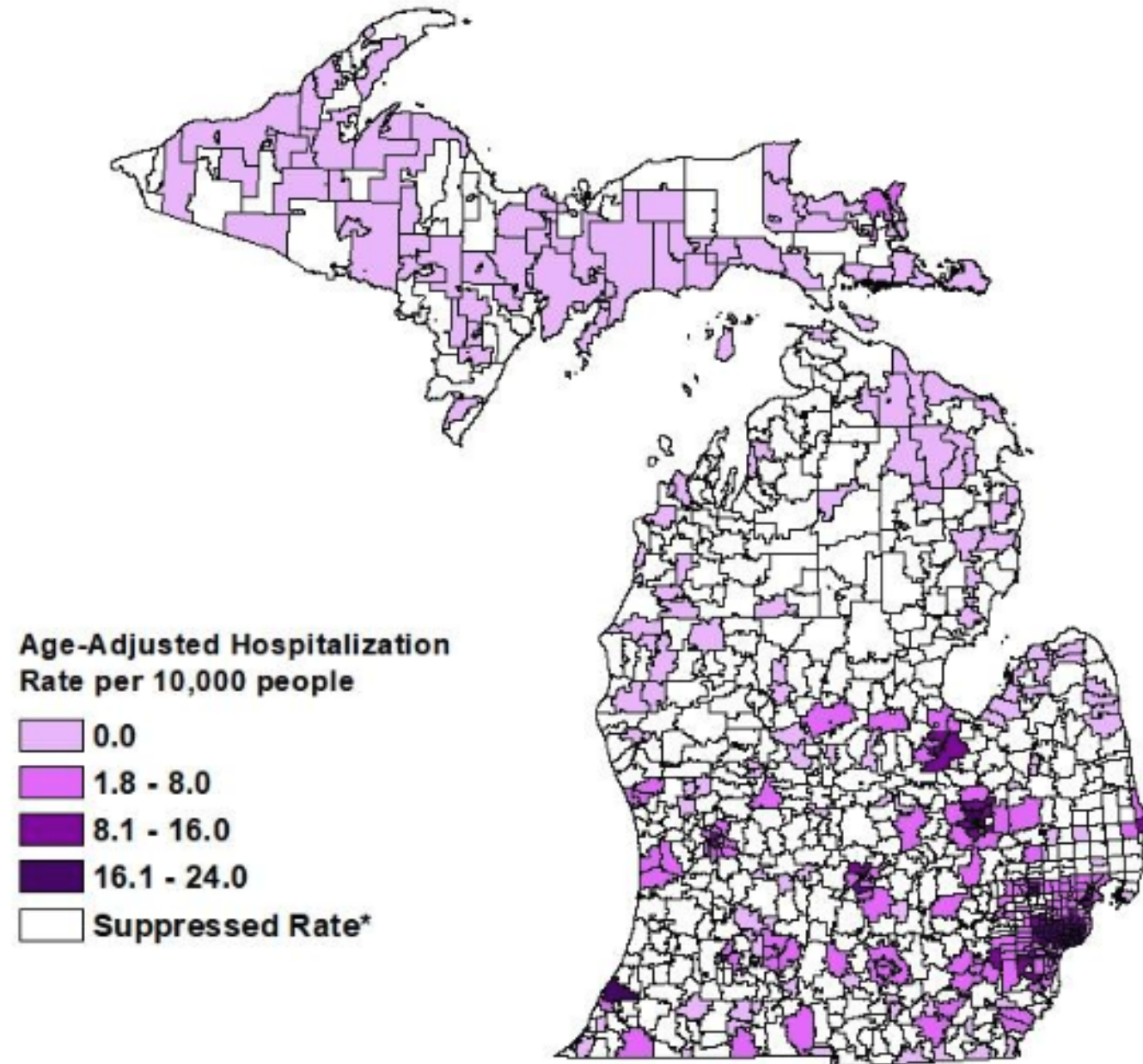
Ozone

Ozone is a gas pollutant resulting from chemical reactions between sunlight and pollutants from **vehicles, industrial processes, and other sources, leading to the formation of ground-level ozone, a key component of smog.**

Nitrogen Dioxide NO₂

Nitrogen Dioxide is a gas that comes from the combustion of fossil fuels, **most commonly from vehicles, power generation, manufacturing, and natural sources like wildfires**

Age-Adjusted Hospitalization Rate per 10,000 Residents by Zip Code for Michigan and Detroit, 2018-2020



Environmental Justice

“

”

The just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in decision-making and other activities that affect human health and the environment so that people:

- are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and
- have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.

Data Driven Public Health



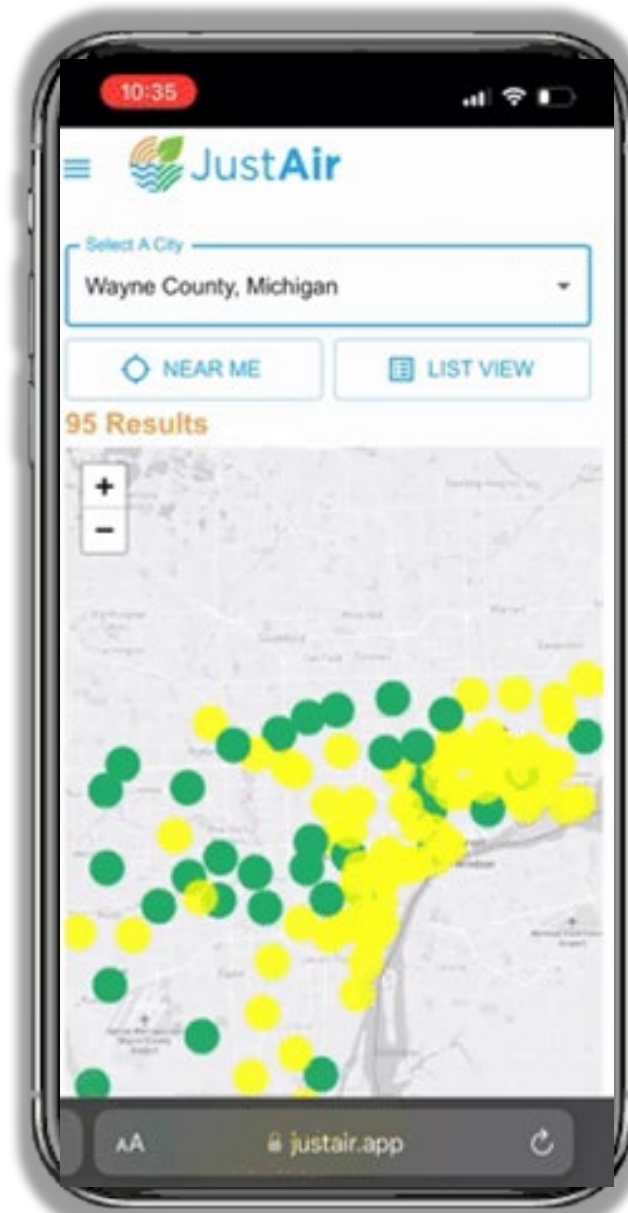
Follow Monitors Near
Where You Live,
Work and Play



Receive text Alerts
When Air Quality
is Poor



Make More Informed
Health and Safety
Decisions

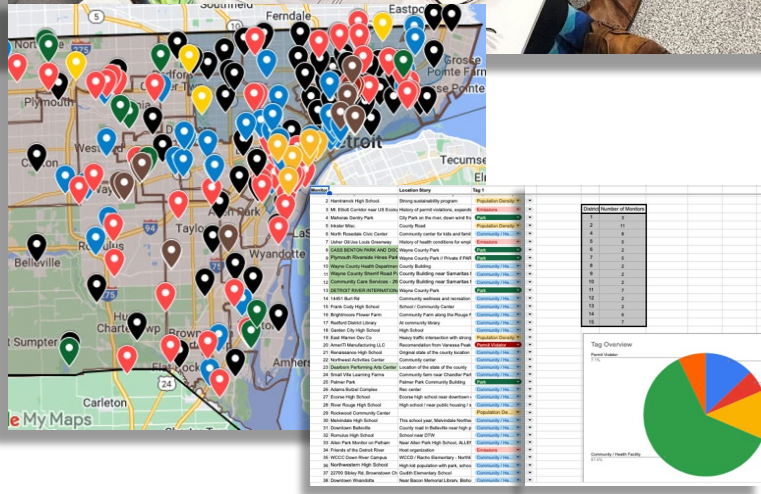


Access the data
you need to
create the
future you
deserve



Sign up at JustAir.app

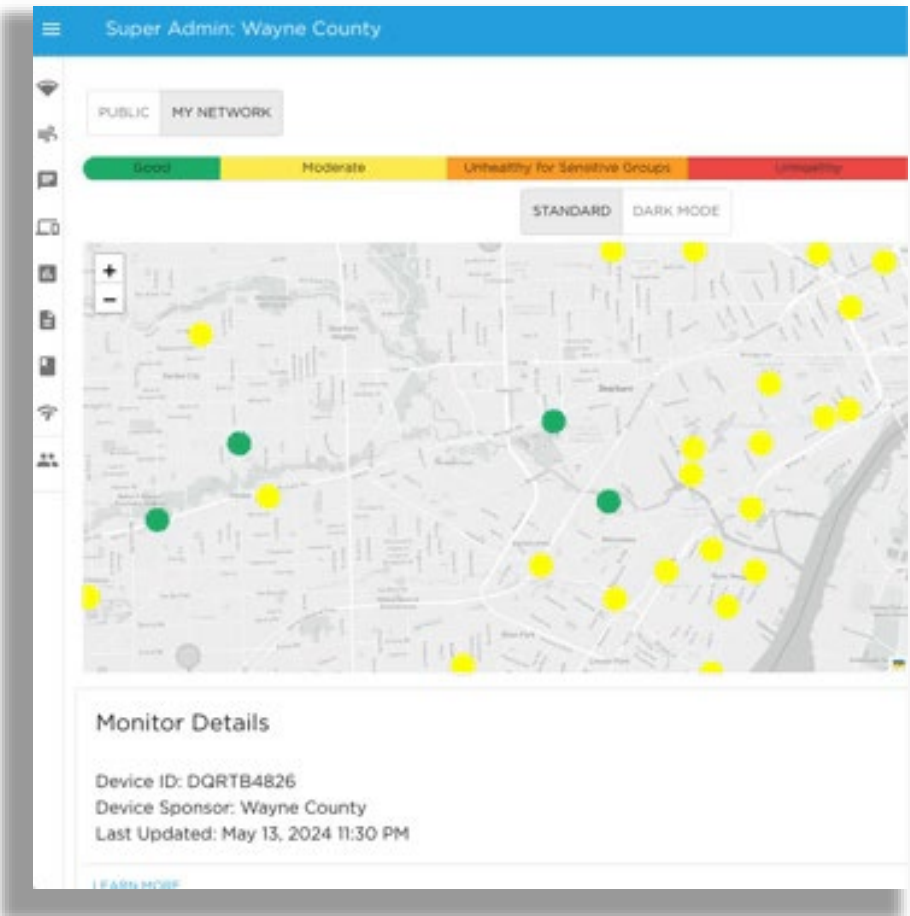
Planning



Deployment



Management



Super Admin: Wayne County

PUBLIC MY NETWORK

Good Moderate Unhealthy for Sensitive Groups Unhealthy

STANDARD DARK MODE

Monitor Details

Device ID: DQRTB4826
 Device Sponsor: Wayne County
 Last Updated: May 13, 2024 11:30 PM

LEARN MORE

The JustAir Platform

Public & administrator dashboards

Manage all monitor types across a network

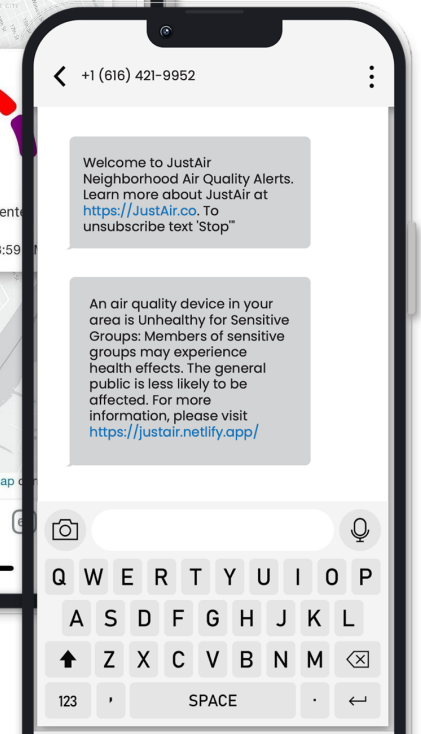
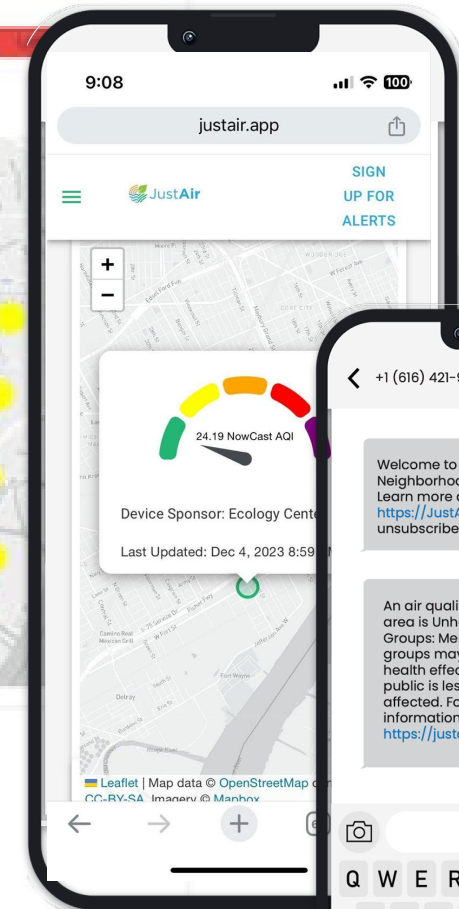
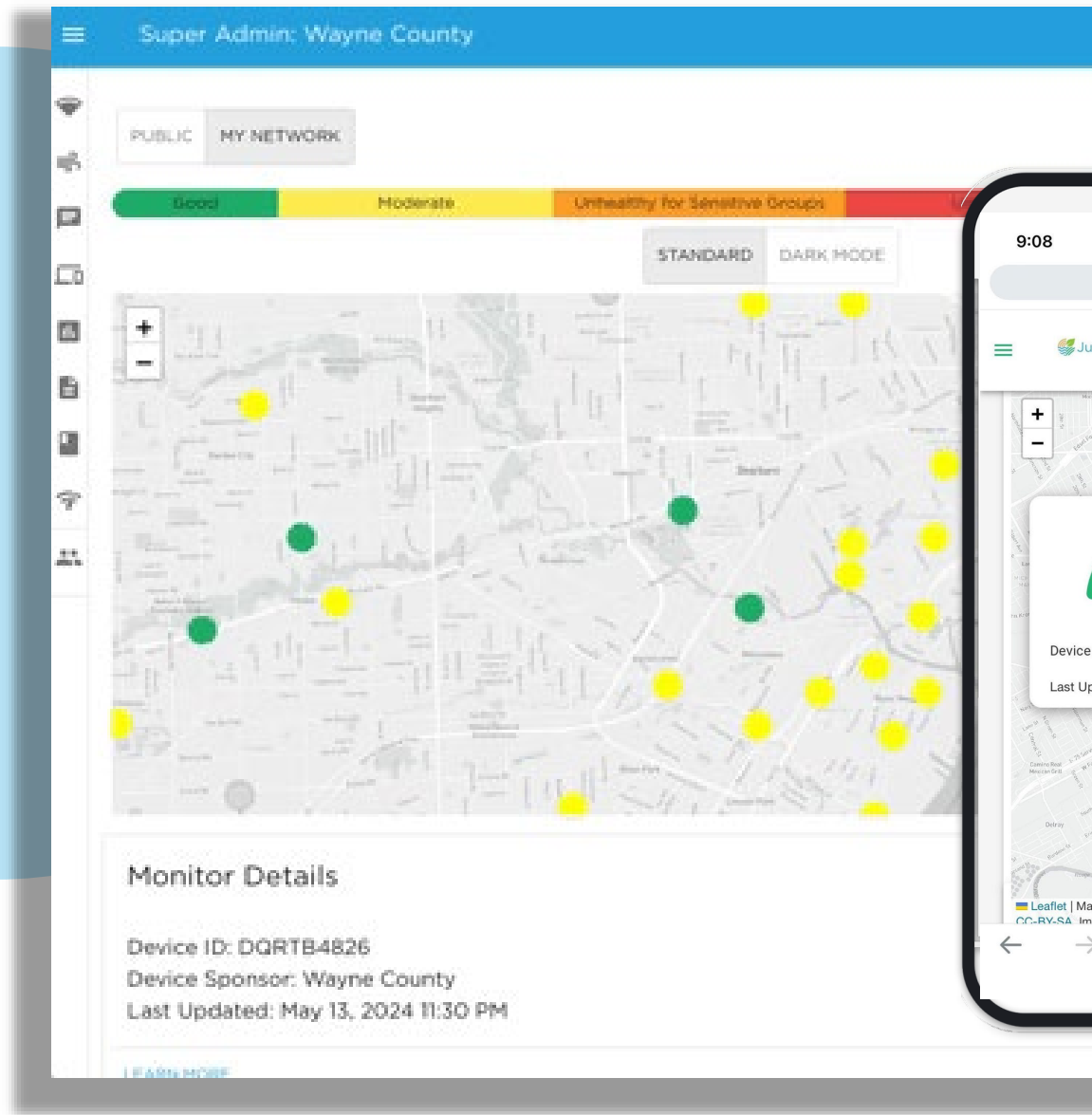
Built-in data quality assurance and quality checks

Opt in text alerts and community messaging

Air quality reports

Data analysis

Data sharing



Public Tools - EPA EJScreen

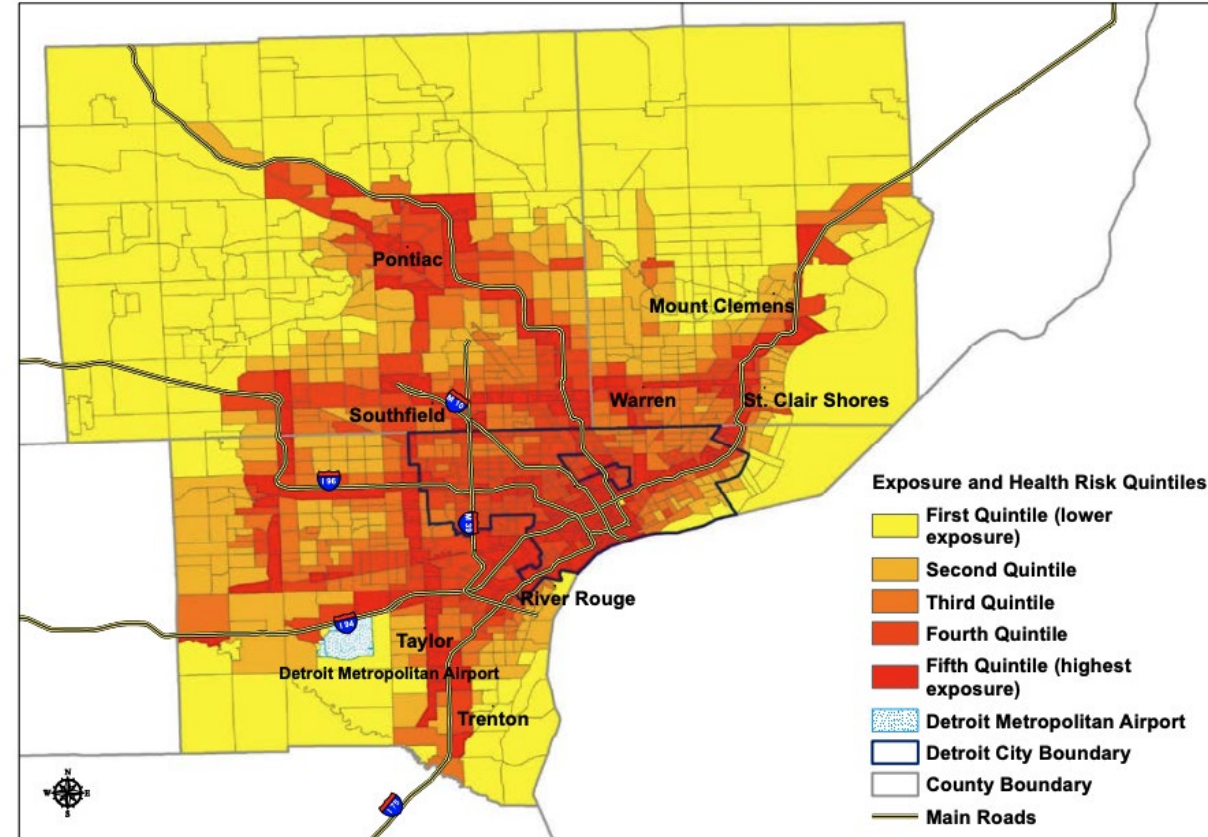
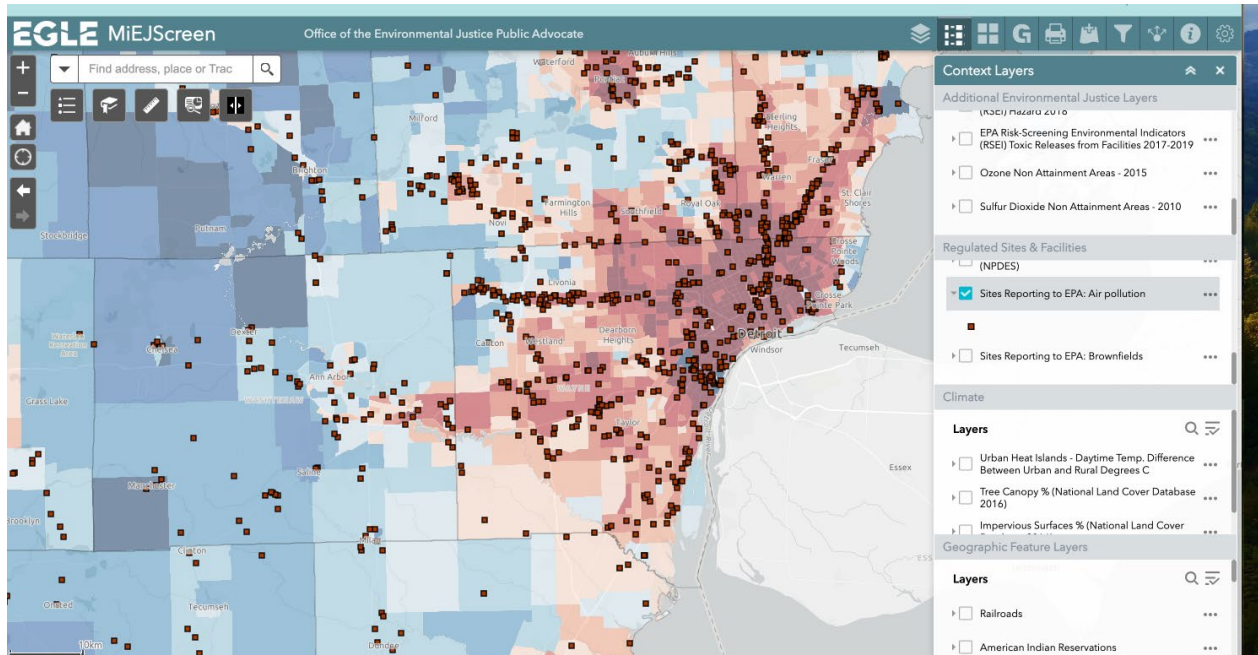


Department of Environment, Great Lakes, and Energy

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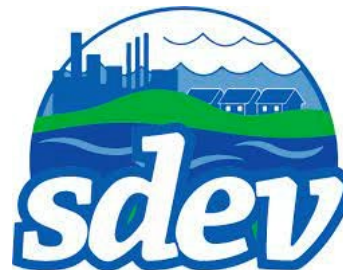
State launches MiEJScreen Version 1.0 to illuminate environmental, health and socioeconomic conditions in communities

August 06, 2024



Cumulative impact polygons (CI) include: residential areas, child care facilities, health care facilities, schools and playgrounds. Exposure and Health risk include: 2011 NATA estimates of respiratory risk, cancer risk and diesel PM (non-cancer) concentration.

Strong Partnerships



Mobile AQ Monitor + Asthma Journal

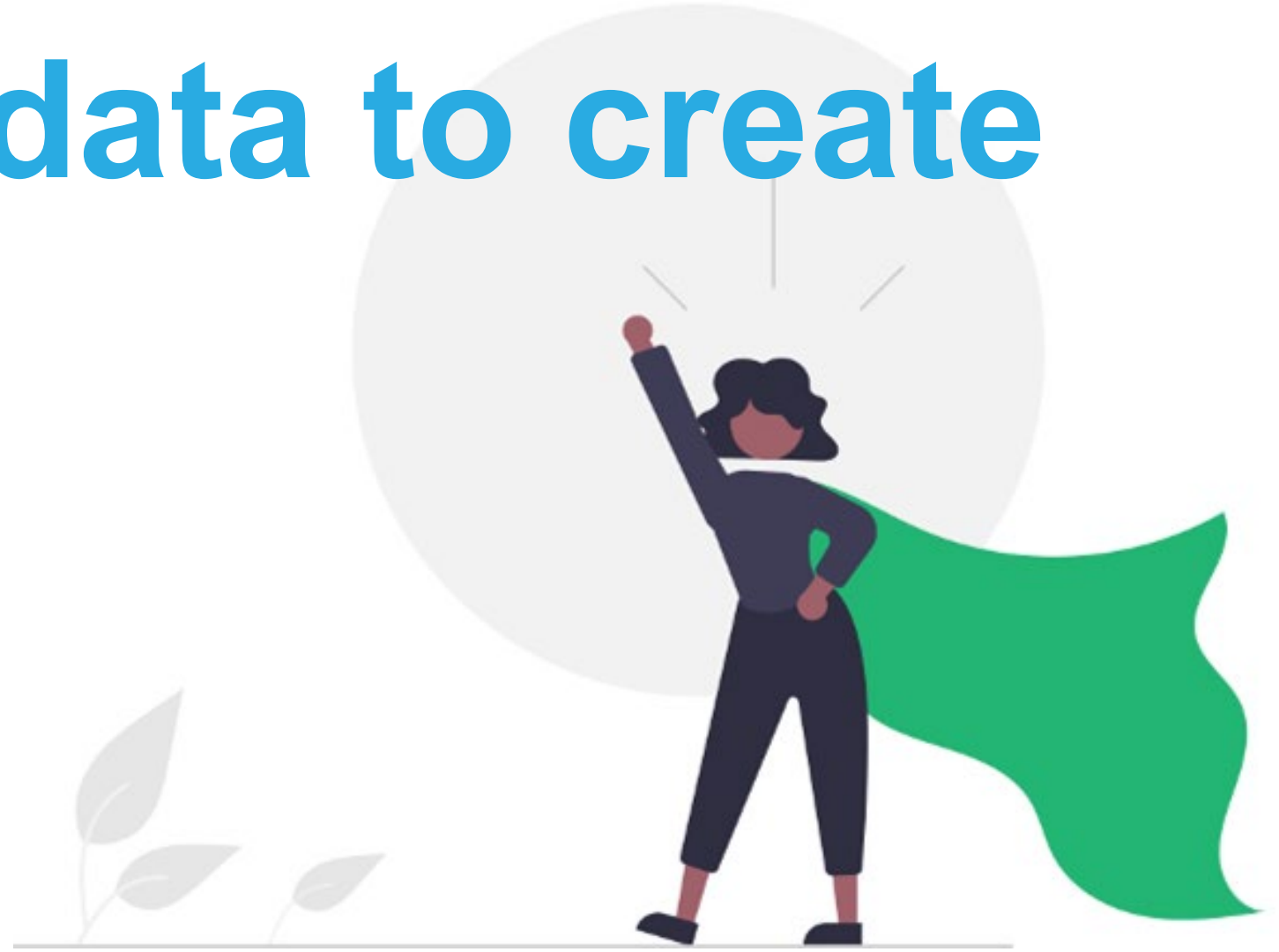
Equipment



AQ Inhaler Platform

The screenshot shows the AQ Inhaler Platform interface. At the top is a navigation bar with links for 'FAQ', 'Dashboard', 'Exacerbations', 'Onboarding', and 'Sign Out'. The main content area is titled 'Exacerbations' and features a map of Detroit, Michigan. The map shows various landmarks such as Henry Ford Hospital, Detroit Institute of Arts, and Comerica Park. Below the map is a line graph showing a sharp peak in the data around 1:30 PM on 02/16/2024. A modal window titled 'Exacerbation' is open, displaying the date and time of the event, a dropdown menu for 'Was this an actual exacerbation', a text input field for 'Please tell us about your experience.', and a 'Send message' button.

**Taking Action: how do we
use this data to create
change?**



Types of Change for Clean Air

Behavioral

doing what you can to stay safe

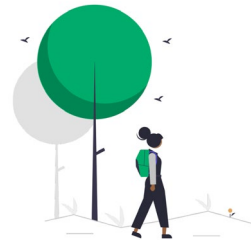
checking air quality regularly or staying inside when air quality is poor



Environmental

improving the environment for AQ

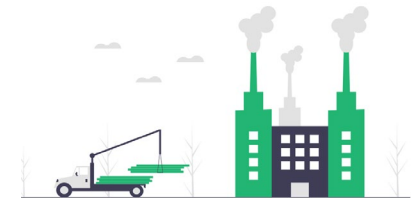
creating or preserving green spaces to reduce pollution to our lungs



Structural

long-term, policy changes for safety

updating zoning to keep heavy trucking or industry pollution away from residences



Example - Air Quality Action Planning



With your table, reflect on your

- Vision for air quality in your community
- Collaborators you could see getting involved
- Challenges & Solutions
 - Public art?
 - Green spaces?
 - Air filters?
 - Technology?
 - Community engagement?
 - Education?

Policy and Public Art

[Home](#) > [MassDEP](#)

 OFFERED BY [Massachusetts Department of Environmental Protection](#)

PRESS RELEASE

Massachusetts Becomes First State to Require Analysis of Cumulative Impacts for Air Quality Permits near Environmental Justice Populations

The Department of Environmental Protection will require key air permit applicants to assess 33 environmental, health, and socioeconomic indicators



The New York Times

A Crowning Achievement in a Neighborhood's Fight Against Air Pollution

The artist Jordan Weber's queenly sculpture in a Detroit park does double duty as an air quality monitor.

 Listen to this article · 9:49 min [Learn more](#)


 Share full article  



Technology and Wayfinding

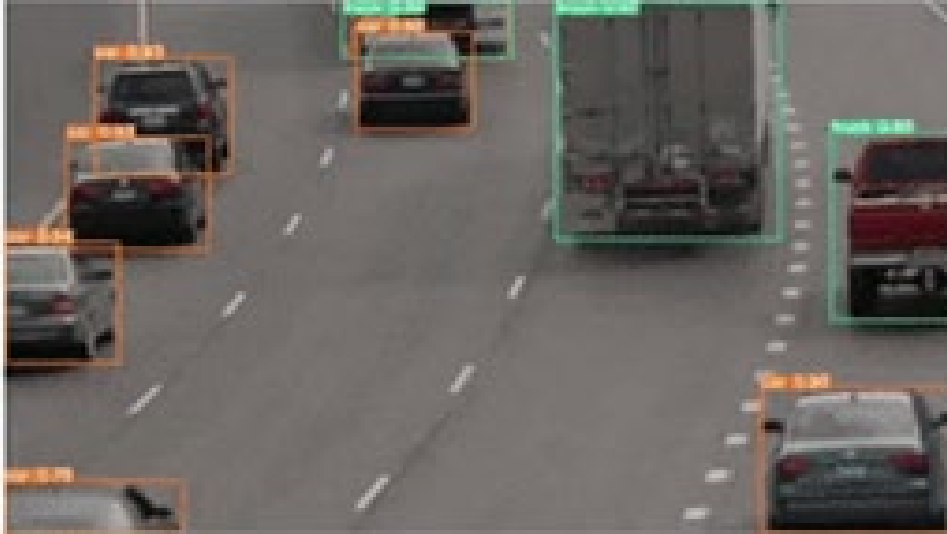
Asthma & Air Quality Research





Please Upload Relevant Traffic Video

Name Your File
test2



<http://localhost:8080/videoclip2>

Truck Count: 8

ID	Truck Appears	Duration
BDDAB453-1C5A-476A-8440-D66EB9184AA6	0s	0s
54FF0760-7098-4188-9876-0119098A1970F	1s	0s



Infrastructure and Mobility

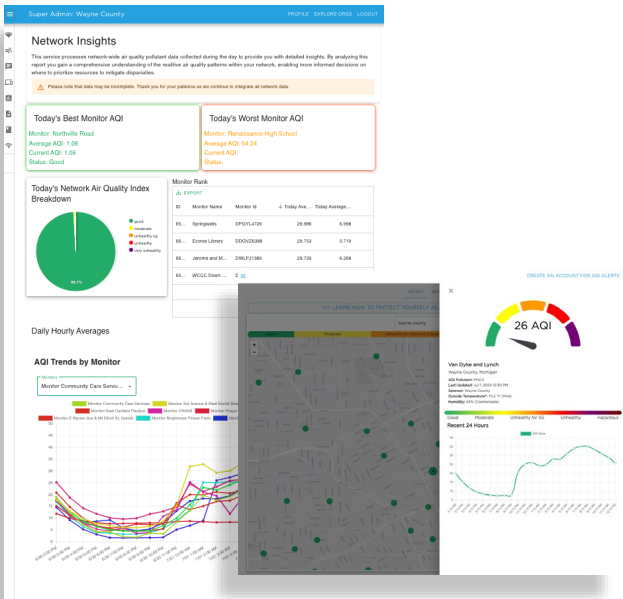
The Electric School Bus Series: How North Carolina's Eastern Band of Cherokee Indians is Planning for Seven Generations of Sustainability



Next Steps (WIP)

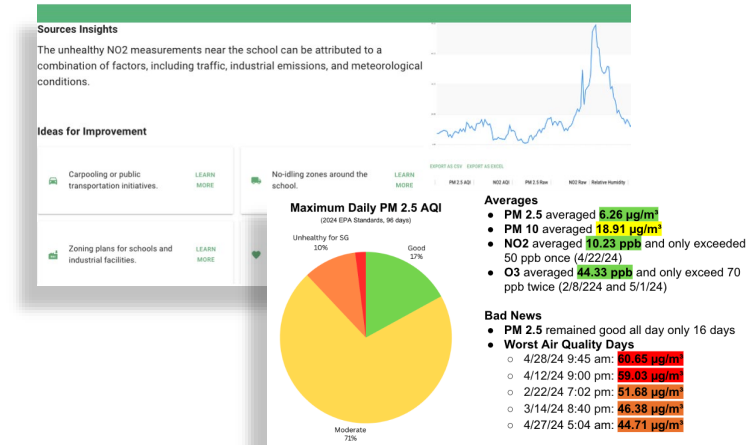
1. Reporting

- Network Disparity Flags
- Concentration Time Analysis
- Cumulative Pollutant Detection



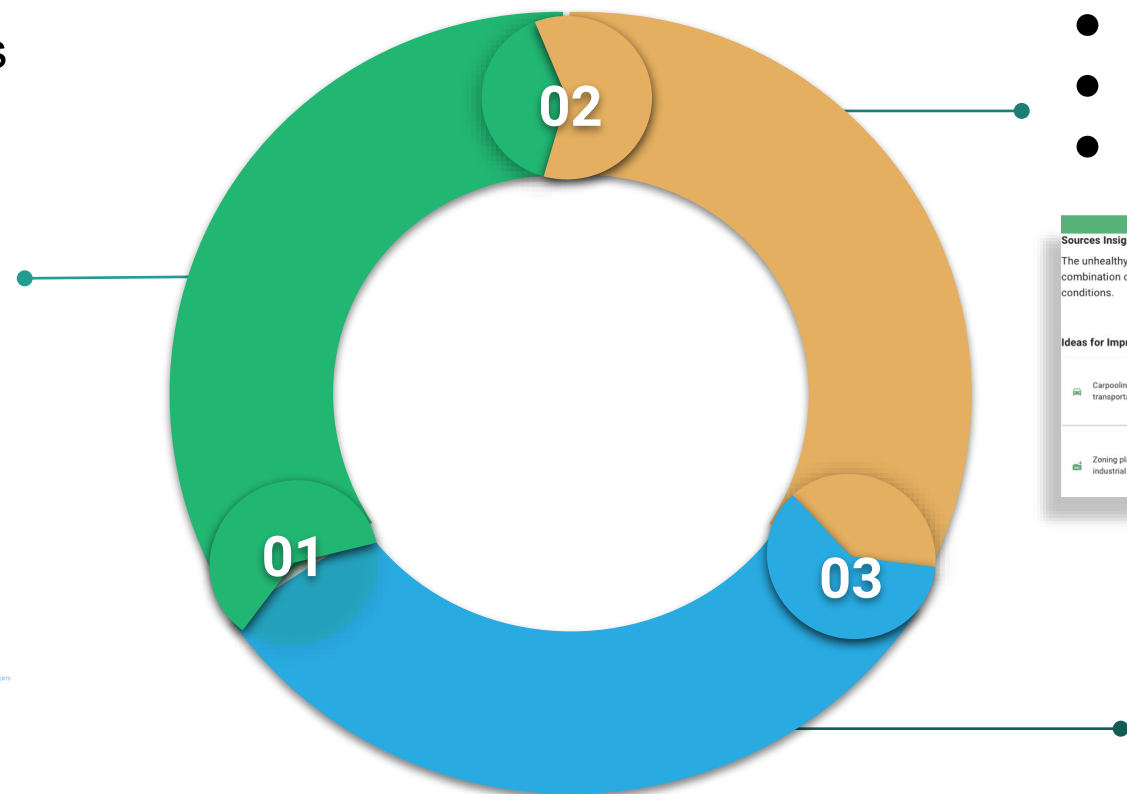
2. Source Identification

- Context Analysis
- Predictive Modeling
- Source Analysis



3. Intervention

- Source Mitigation Analysis
- Intervention Deployment and Execution
- Intervention Results





Thank you!

Clean air power is in our hands



Email us at info@justair.co

Air Quality Mobile Monitor Interest Form

