



Department of  
Environmental  
Conservation



# Aclima Mobile Screening in NY

## NACAA Monitoring Steering Committee Meeting

RTP, NC  
Feb 1-2, 2023

# Climate Leadership and Community Protection Act (CLCPA)

- The Climate Justice Working Group identified disadvantaged communities (DACs) burdened by environmental and economic stressors
- CLCPA requires DEC to undertake community air monitoring in four DACs with potentially high exposure burdens
- Monitoring expanded to 10 communities (5 Million people)
- Informed by the monitoring, DEC will develop strategies to reduce pollution in communities with high exposure burdens



# Air Pollution Burden Indicators

- Traffic: Proximity to diesel trucks and buses, and overall vehicle density
- Modeling results for particulate matter (PM<sub>2.5</sub>), and benzene
- Proximity to:
  - Remediation Sites
  - Regulated Management (Chemical Sites)
  - Major Oil Storage
  - Active Landfills
  - Power Generation
  - Municipal Waste Combustors
  - Scrap Metal Processors and Vehicle Dismantlers
  - Industrial/Manufacturing/Mining Land use (Zoning)



# Air Pollution Burden Score

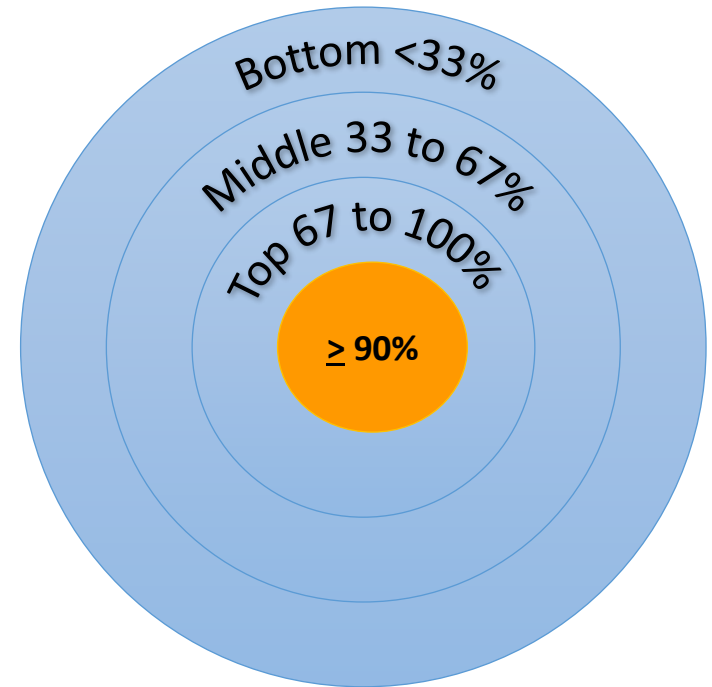
Select DACs with:

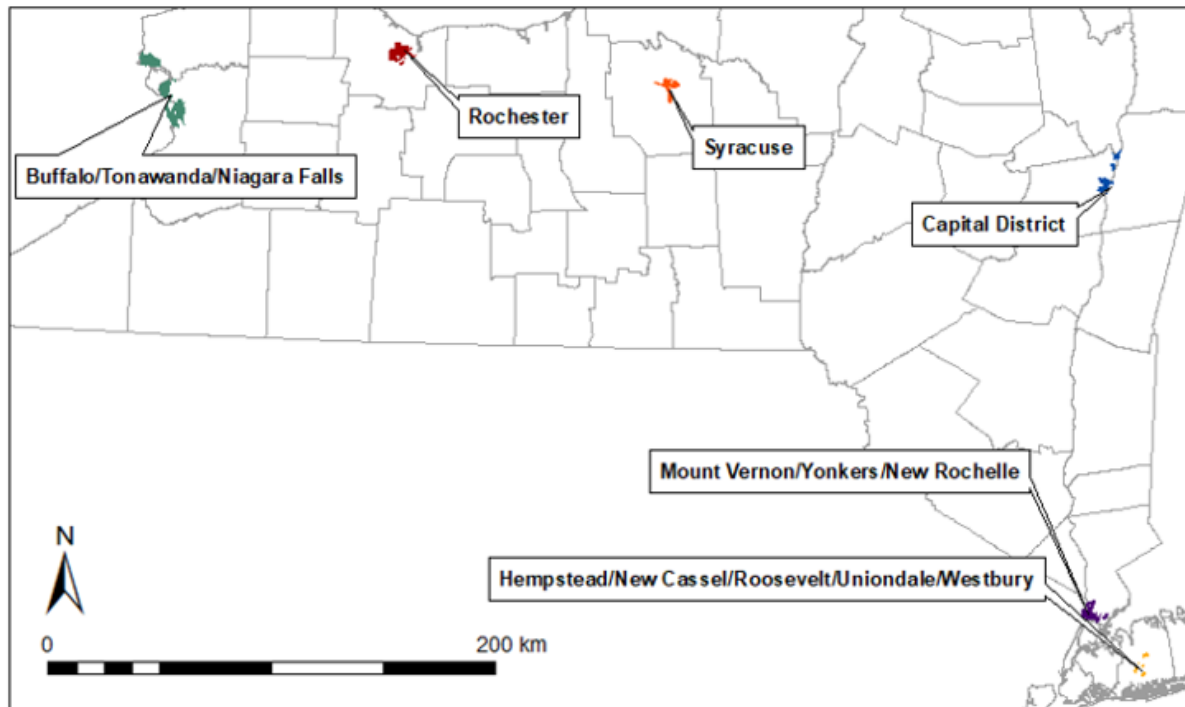
- Air Pollution Burden Scores  $\geq 90\%$ 
  - Four or more Air Pollution Indicators (above 67%)

This process allows us to:

- Pinpoint areas with more air pollution indicators, higher burden, and population
- Further evaluate DACs near the area for selection

Air Pollution Burden Score

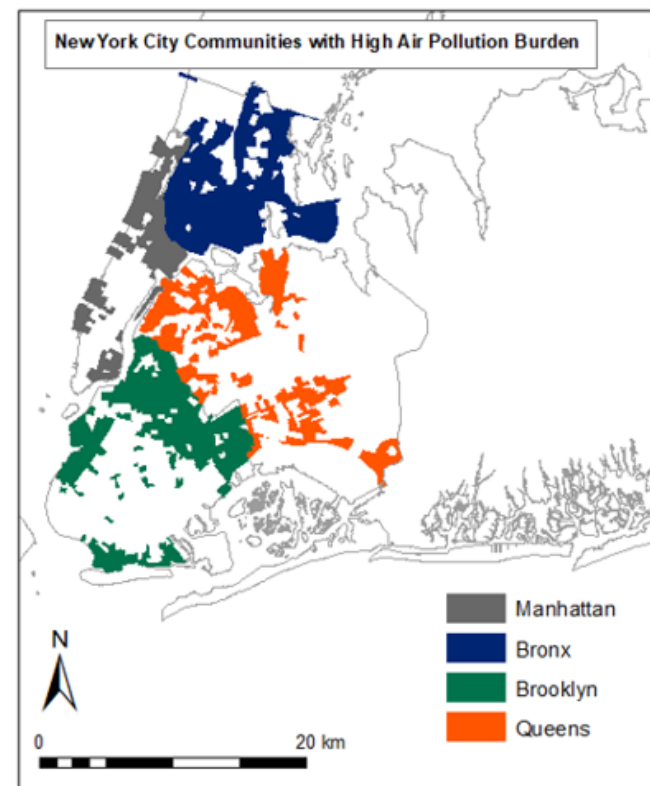




### Study Start Dates:

**July 1:** Buffalo/Tonawanda/Niagara Falls, Capital, Bronx, Manhattan

**Sept 1:** Rochester, Syracuse, Mt Vernon/Yonkers/New Rochelle, Queens, Brooklyn and Hempstead/New Cassel/Roosevelt/Uniondale/Westbury



# Manhattan Community

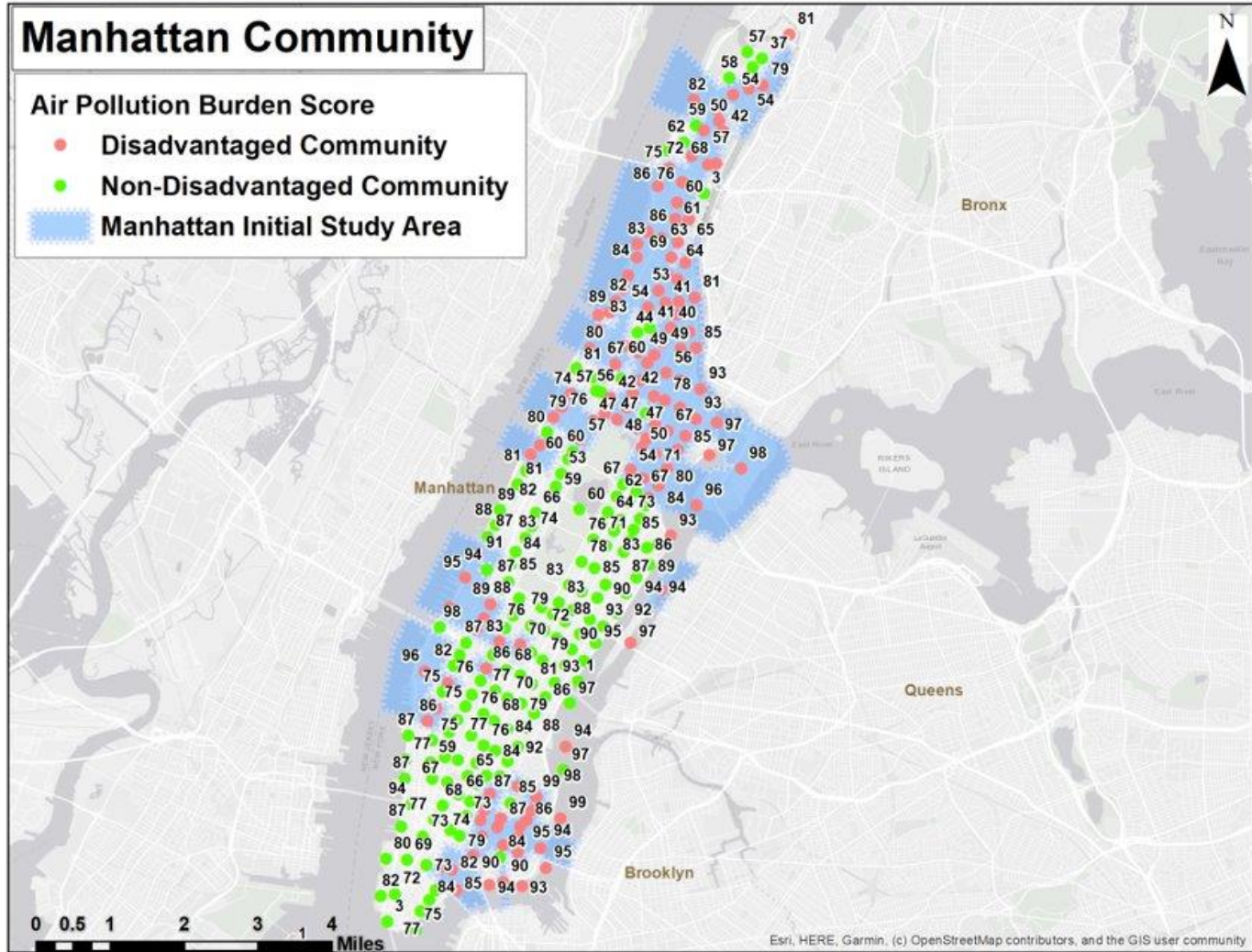
**Air Pollution Burden Score**

- Disadvantaged Community
- Non-Disadvantaged Community
- Manhattan Initial Study Area

# Study Area

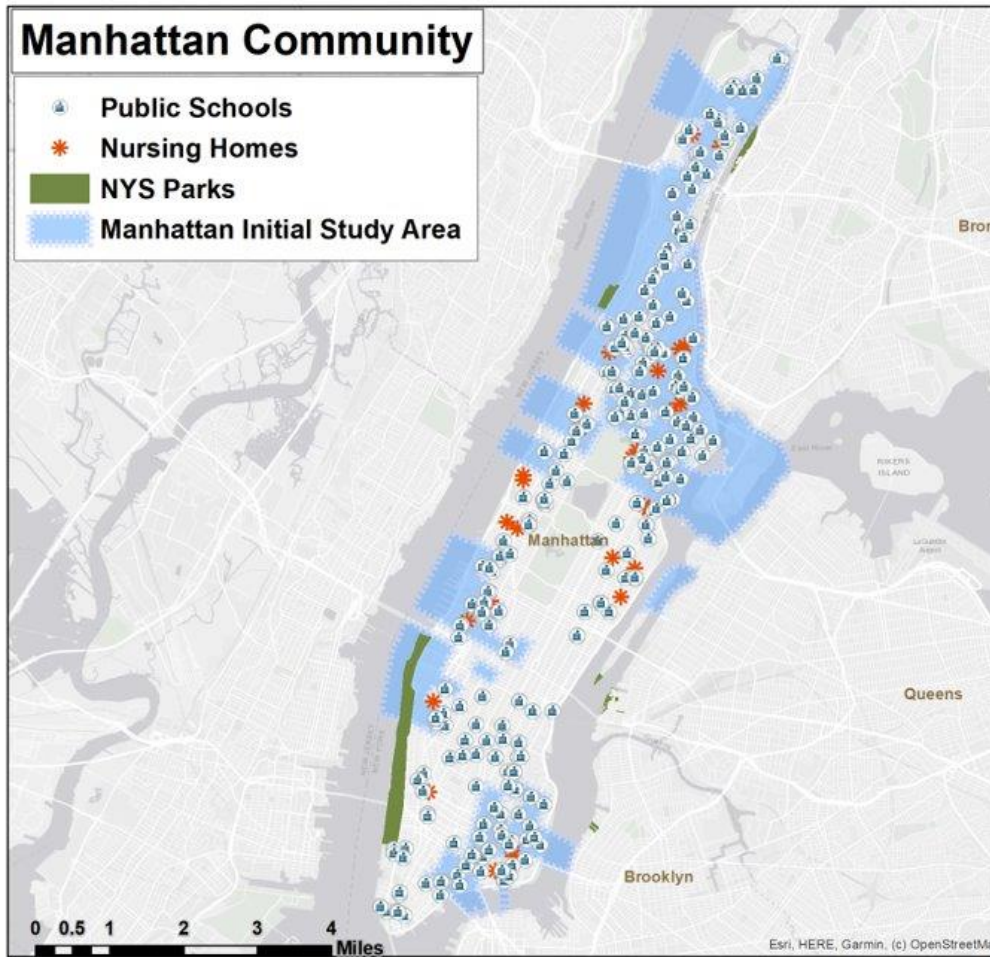
One of ten study areas

Boundaries were adjusted after listening to public comments







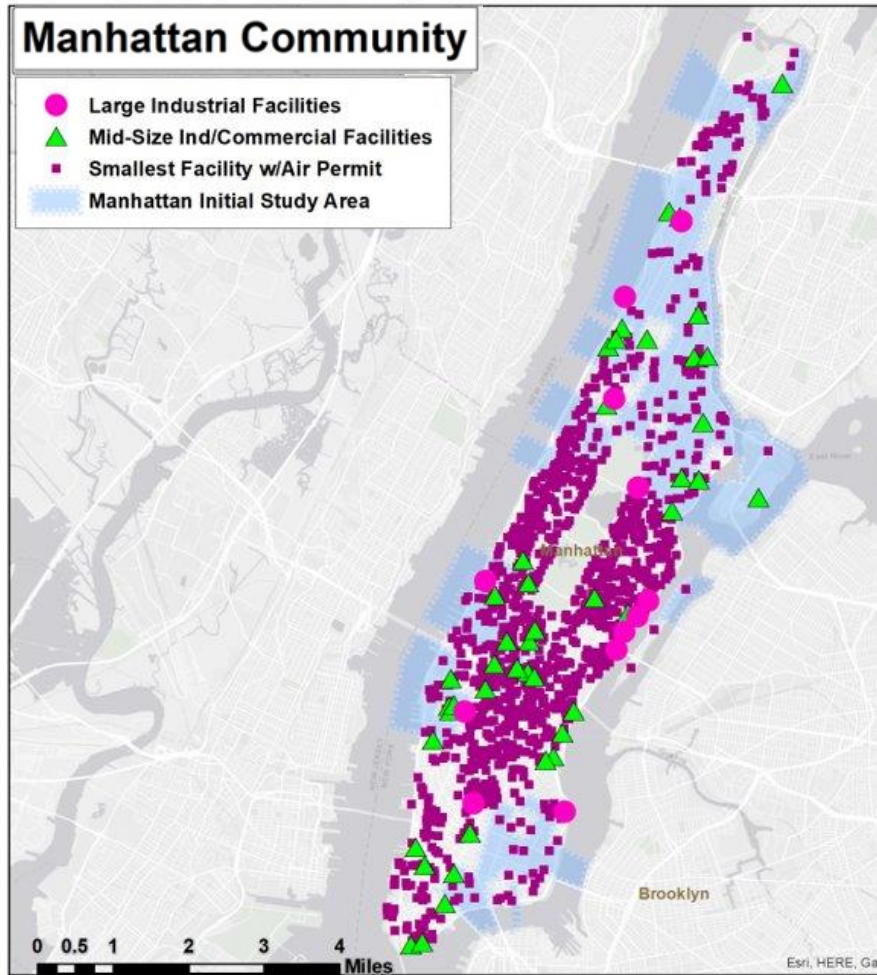
## Manhattan Community

-  Public Schools
-  Nursing Homes
-  NYS Parks
-  Manhattan Initial Study Area



## Manhattan Community

-  Large Industrial Facilities
-  Mid-Size Ind/Commercial Facilities
-  Smallest Facility w/Air Permit
-  Manhattan Initial Study Area



# Sensor Technology

- Aclima calibrates the sensors by comparing to a regulatory monitor (2 weeks) or standard before deploying on the road
- Calibration is checked at the end of the study and a linear correction may be applied to account for drift
- PM and BC are not calibrated

Gases and PM<sub>2.5</sub>



Volatile Organic  
Compounds

Black Carbon

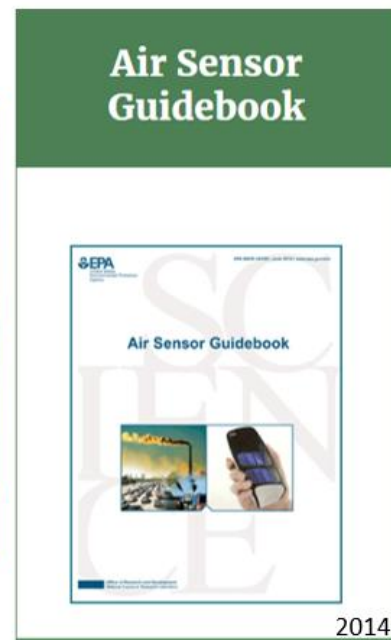
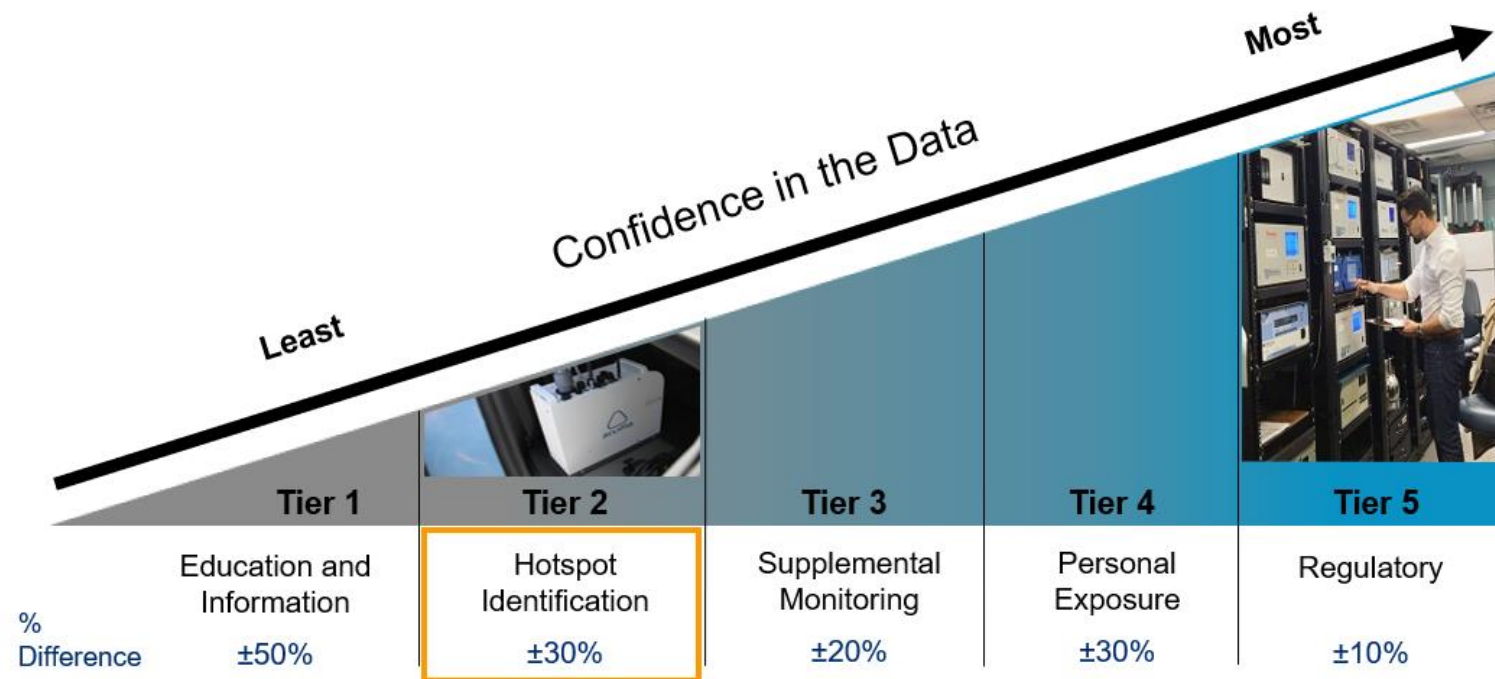


# Sensor Collocation

- Sensors are installed at two DEC monitoring stations
- 'Co-location' will show how sensor results are affected by changes in season and environmental conditions
- Review of this comparison will improve initial sensor calibration to make the annual concentration estimates more accurate



## EPA Sensor Performance Goals



# “In-Flight”

Results based on preliminary sensor calibrations

Quarterly snapshots, limited number of passes, not as representative of time/day

## Data Collection: First Available Data

Bronx (CLCPA) Annual 2022

This view shows the typical pollutant levels measured *so far* at each road segment, colored by percentile.

This is an early indication of which areas have relatively higher or lower pollution levels and may change as Aclima collects and verifies more data.

Report 2 of 4: 7/1/2022 - 12/31/2022

Annual Measurement Period: 7/1/2022 - 6/30/2023

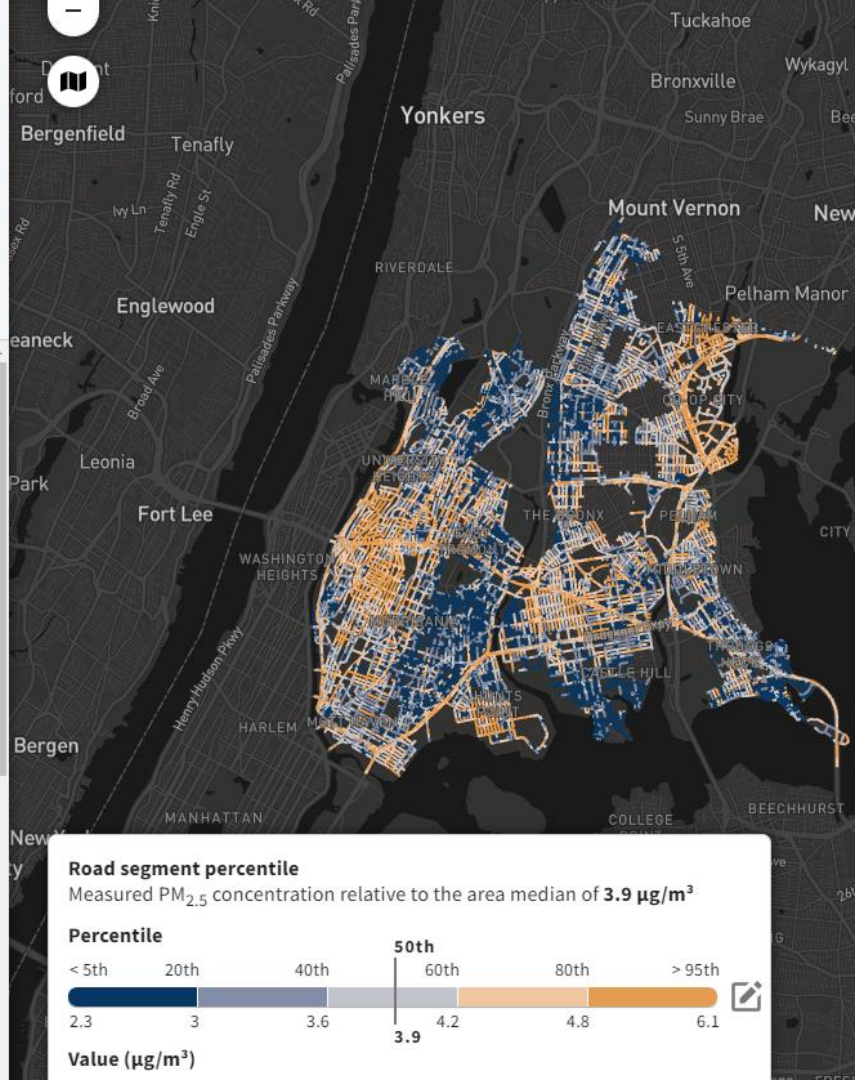
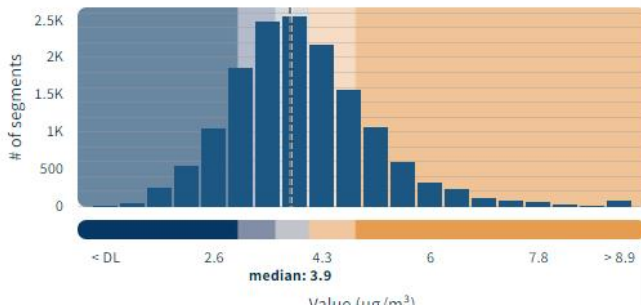


### Measured Pollutants

PM<sub>2.5</sub> O<sub>3</sub> NO<sub>2</sub> NO CO CO<sub>2</sub> BC CH<sub>4</sub>

Pollutant: Fine Particulate Matter

### # of road segments by PM<sub>2.5</sub> value

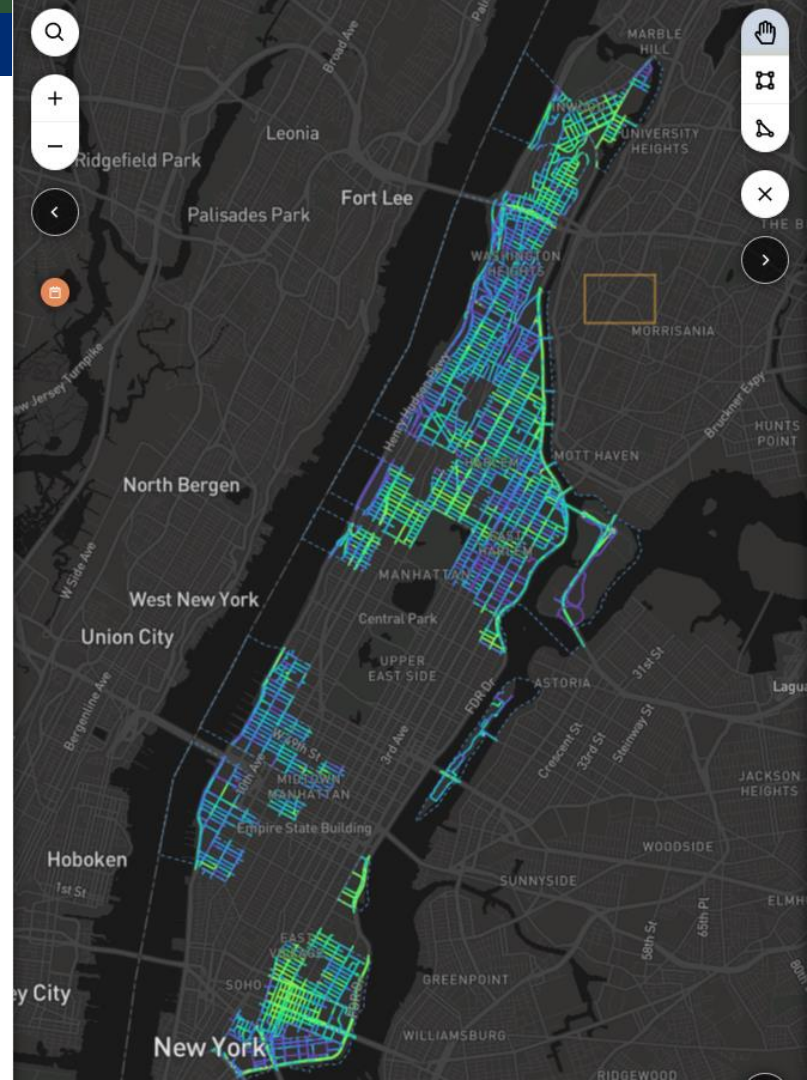


# Final Data Product: Public

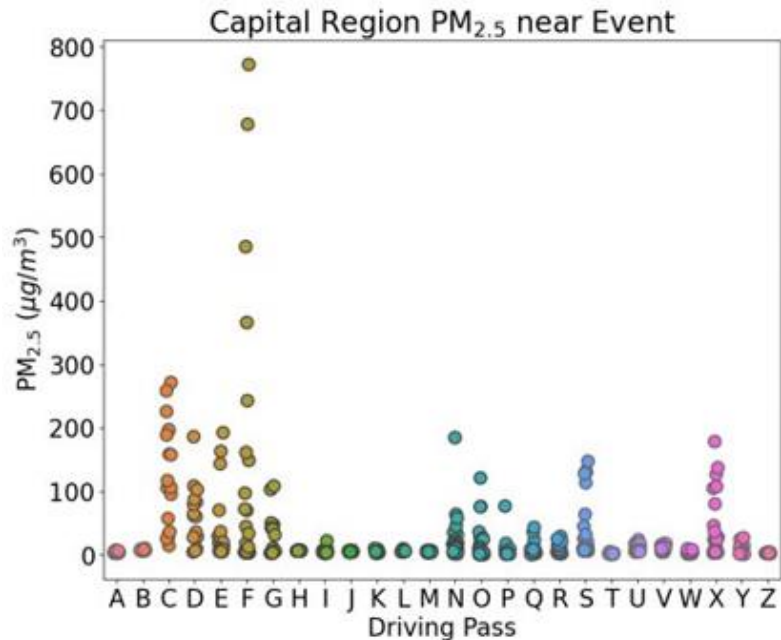
Web accessible map of each pollutant based on an estimate of the annual average for every 100m road segment

Annual averages determined from  
20 or more passes  
regulatory data  
models

Not yet sure how some low concentration pollutants will be displayed: NO, Ethane, BTEX



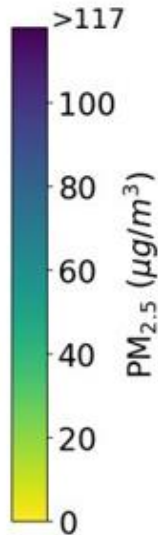
# In-house Interim Source Identification



Elevated Capital Region PM<sub>2.5</sub>



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# Capital District (North of Albany)

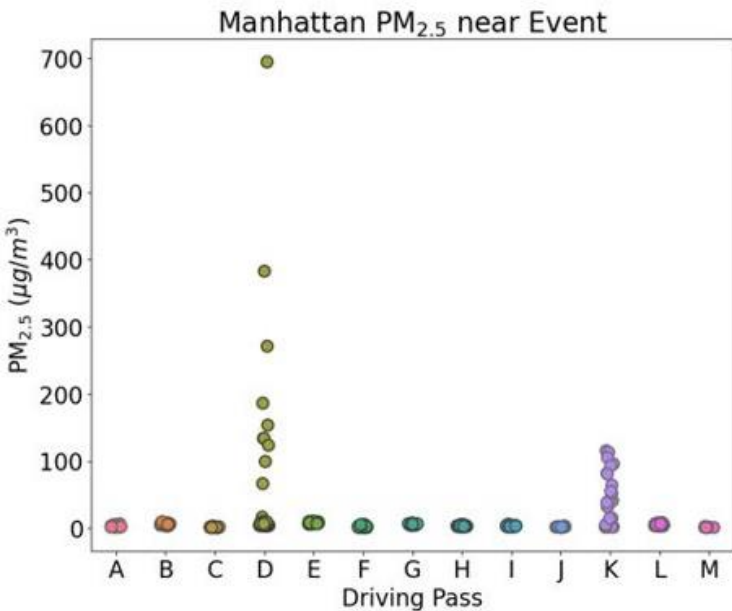


Habitat for Humanity built low-income housing along the block

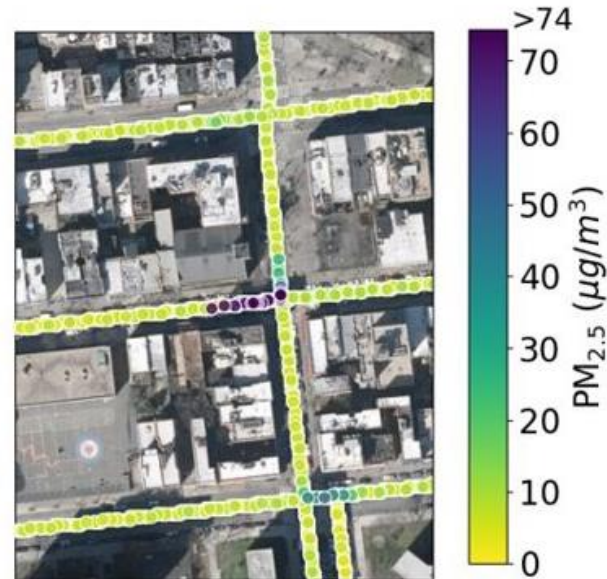


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# In-house Interim Source Identification



Elevated Manhattan PM<sub>2.5</sub>



# Manhattan

June 2019

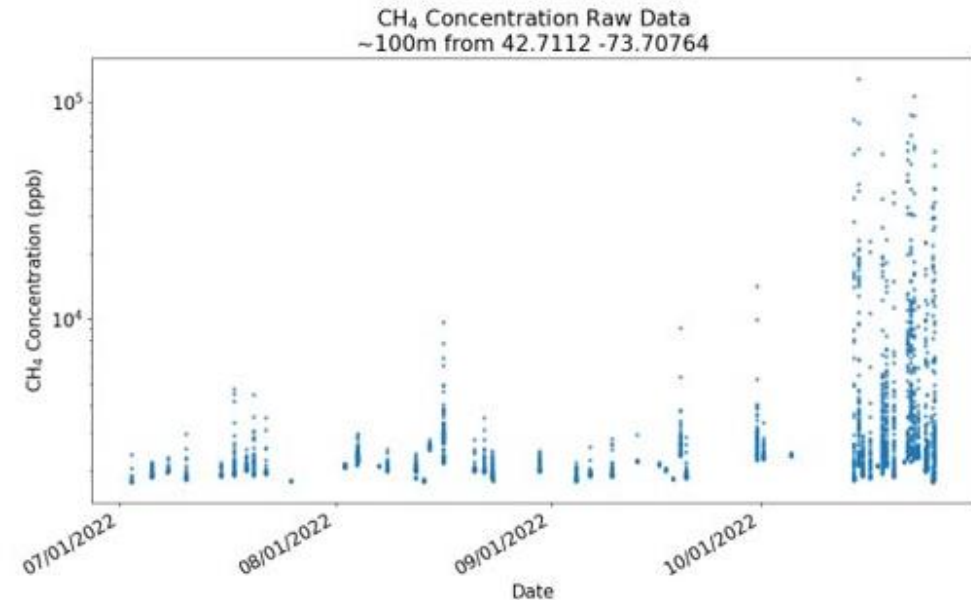
July 2022



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# Interim Source Identification: Methane

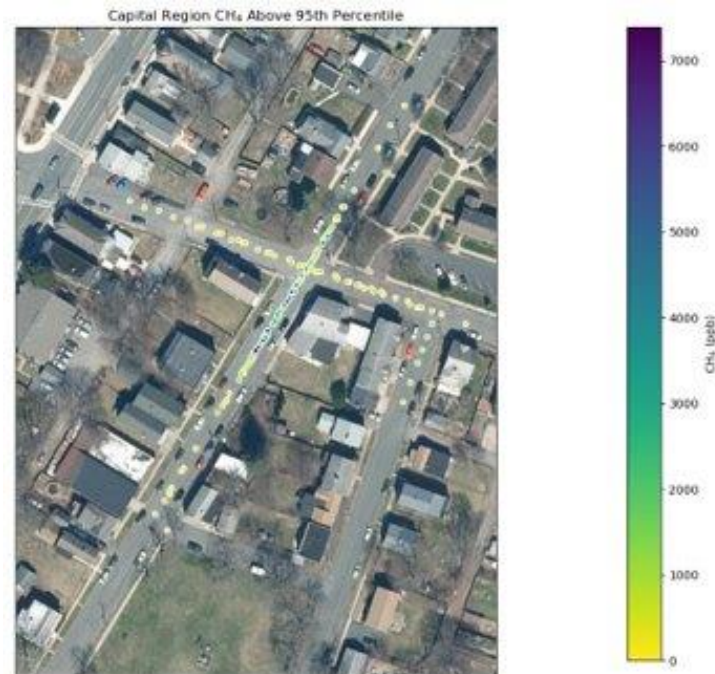


One of two methane peaks above 100,000 observed in the region

CH<sub>4</sub> above 2809.0 ppb near 42.7112 -73.70764



# Capital District (North of Albany)



# Discussion

DEC in charge of all messaging to the public

DEC required QAPP and documented QA

1-sec and median road segment data can be difficult to explain to someone not versed on technical issues. BC on I95 in the Bronx can be twice PM-2.5.

Pollutants with an average < background can't be mapped effectively and may end up being a series of peaks: NO, Ethane, BTEX

# Thank You

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