

Participatory Action Research in Baltimore

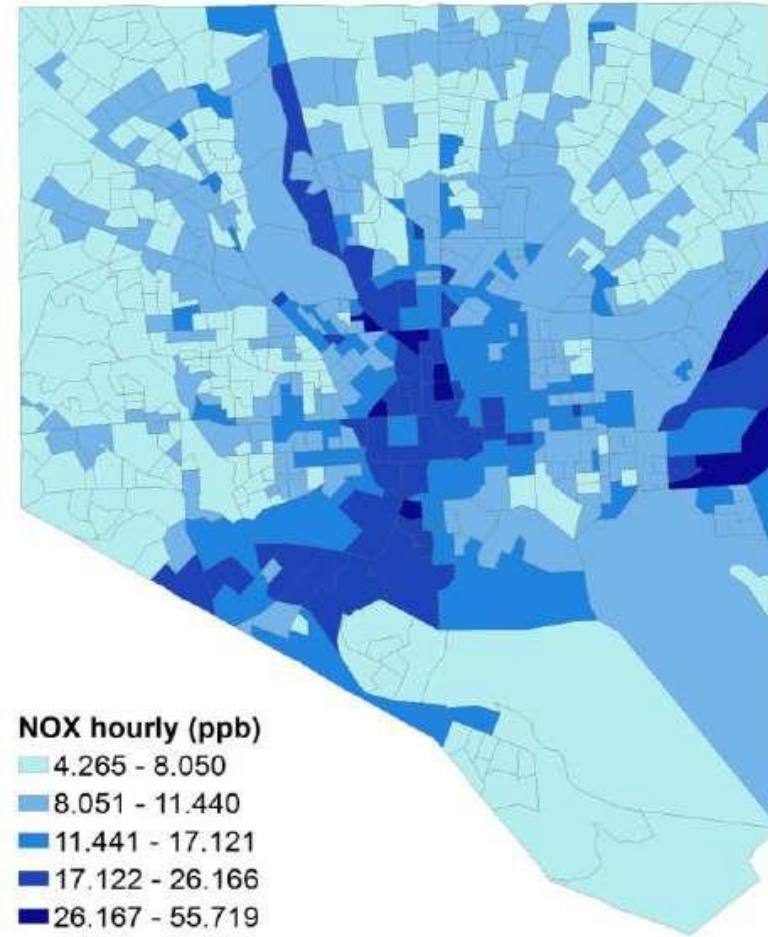
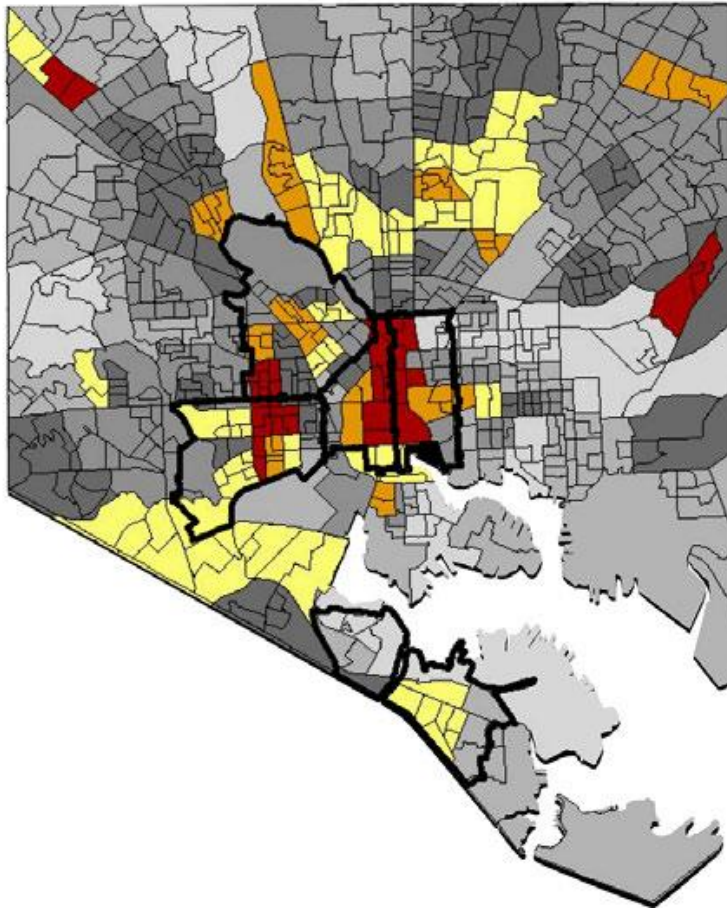
Lawrence Brown, Ph.D. (Associate Professor Morgan State)

Nicole Fabricant, Ph.D. (Associate Professor Towson U)

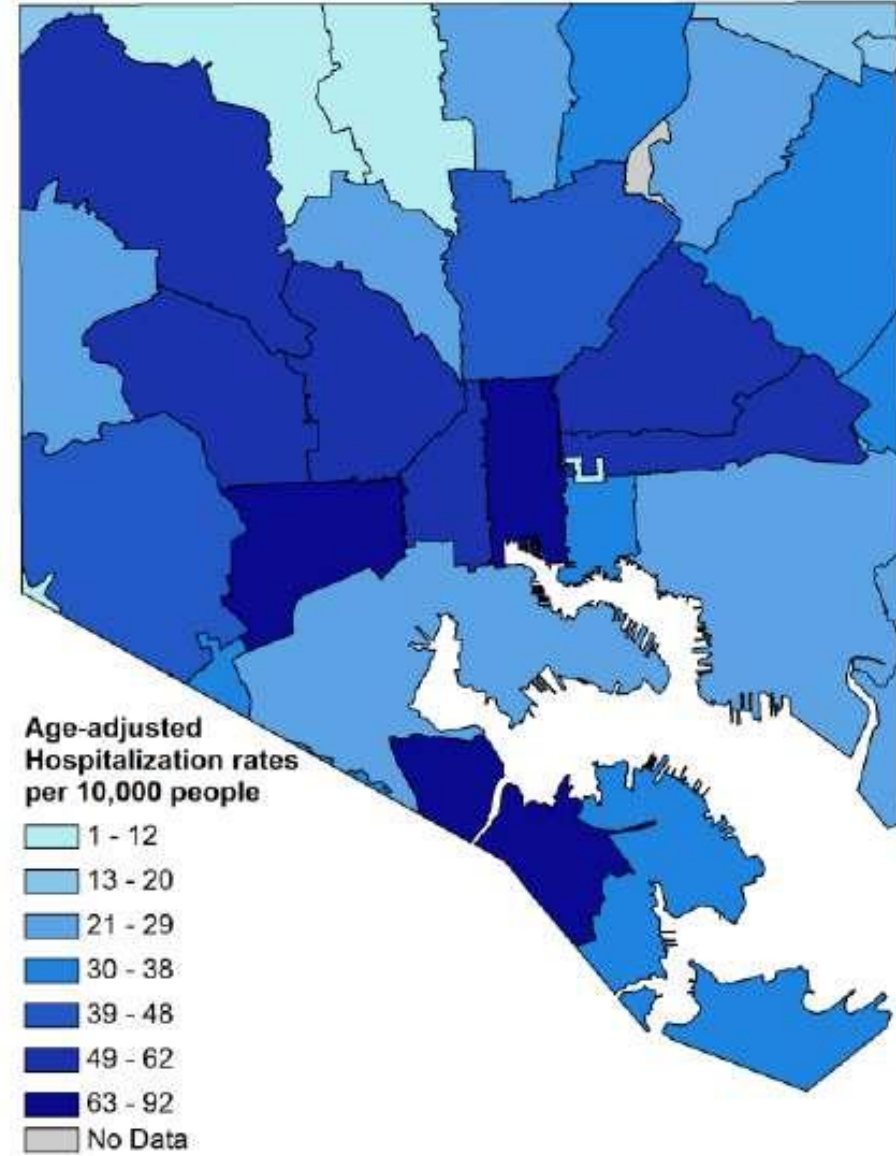
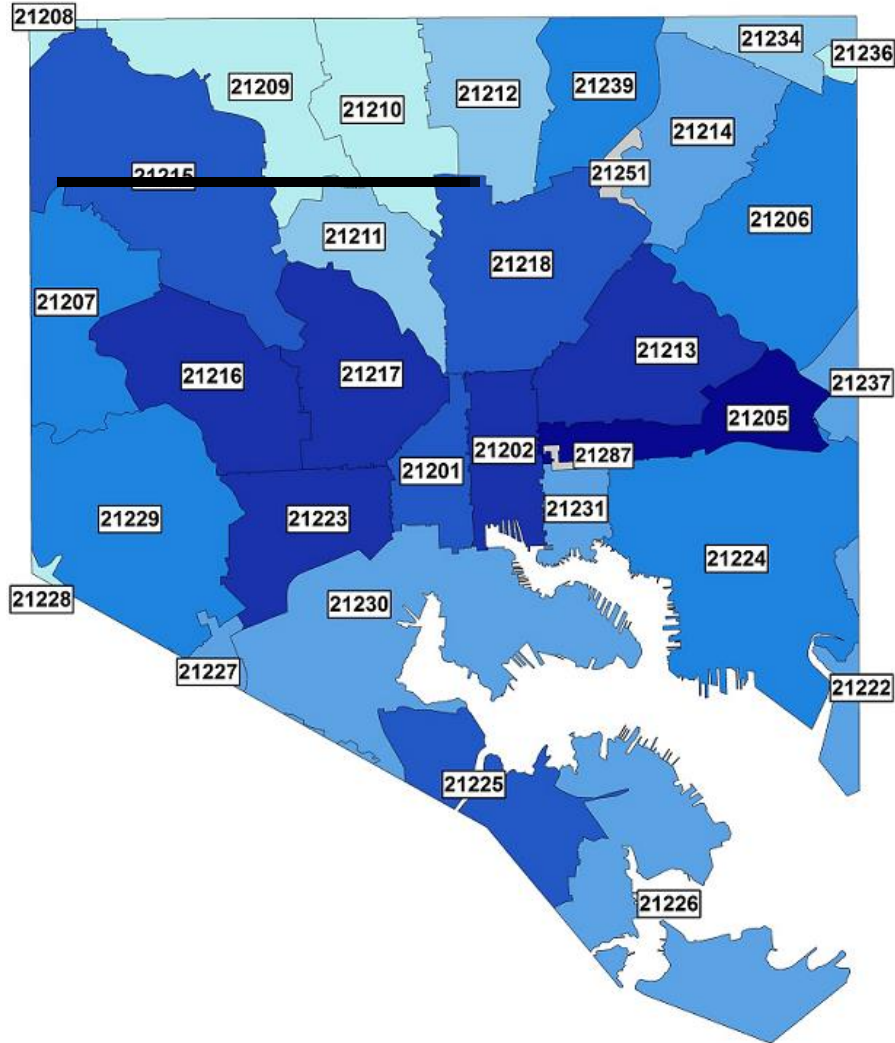
What does it mean when your community is not on a map?



Respiratory Risk Stationary Toxic Emissions



Zip Codes for Asthma Hospitalization Discharge rates



Participatory Action Research

- Oral History Project (youth-based interviewing)
- Photovoice (youth-based photography of environmental justice)
- Videography (youth-edited documentary shorts)
- Citizen Science (youth at forefront of the science, data, analysis and dissemination)
 - Measuring fine particulate matter (PM 2.5 in the air)
 - PM10: particulate matter
 - Coal Ash Sampling (due to largest Coal Export pier on East Coast)

Youth Videography

<https://vimeo.com/74501368>

Youth Photography & Interactive Booth



Interactive Photo Booth



Citizen Science

- Turning Science over to youth (to map locations of sites) and begin to visualize how they want to tell the story with the data they collect
 - Soil Sampling for Heavy Metals
 - Air Quality Monitors Measuring PM 2.5
 - Coal Dust Swabs and heavy metals

Soil Sampling



Air Monitors



Impactors on Tripod in the middle of Filbert Garden, next to power source



Harvard Impactors Zip-tied to window screen at Recreation Center facing Curtis Avenue



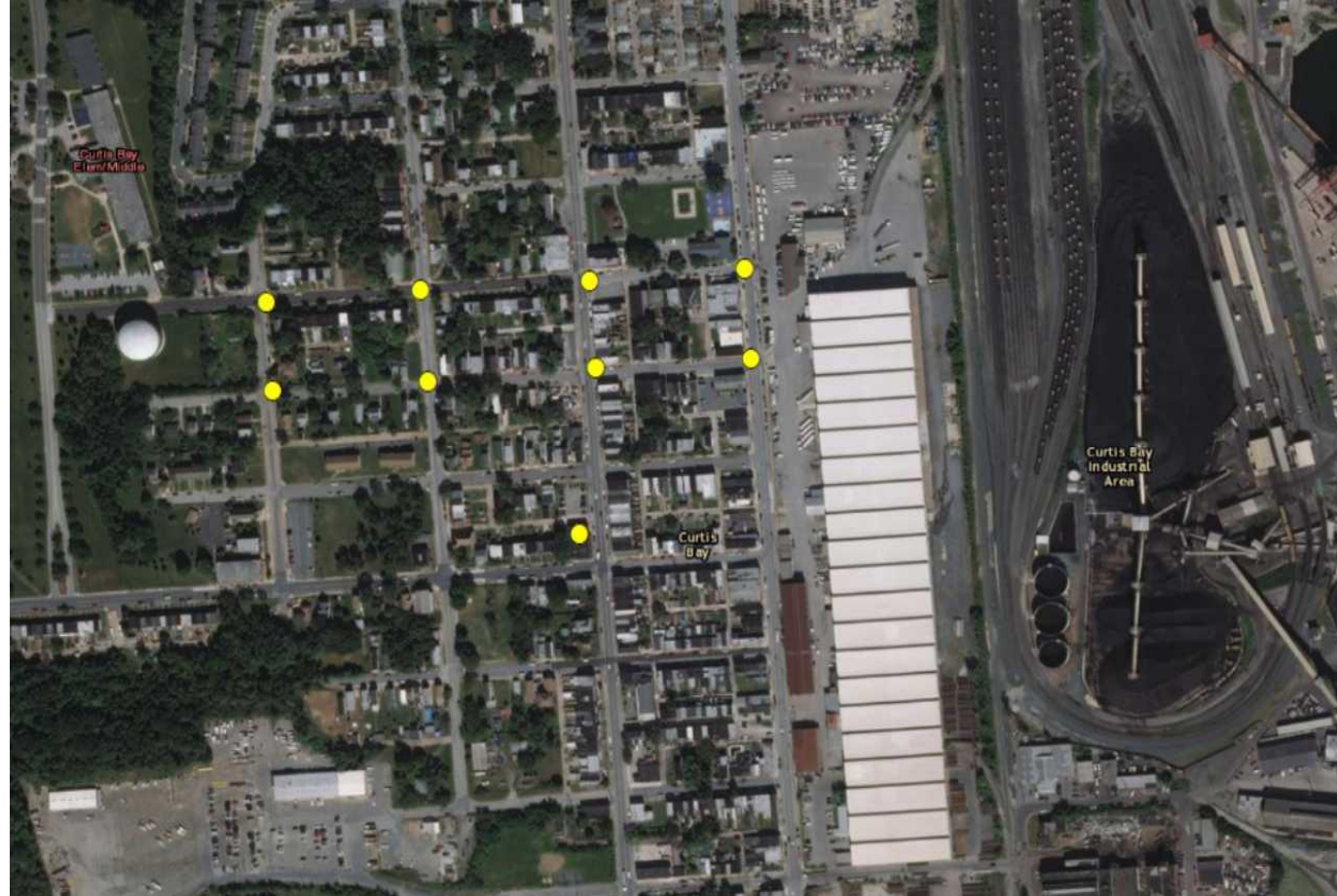
Harvard Impactors zip-tied to chairs on Annapolis Road, 0.7 miles from the trash incinerator



Harvard Impactors on Tripod outside the Well on Pennington Avenue

Testing Sites

1. The Well on Pennington Avenue (with camera)
2. Walking from the Filbert Street Garden to the Coal Ash
3. The Quarantine Road Landfill
4. Wheelabrator Waste-to-Energy Incinerator



Testing Sites

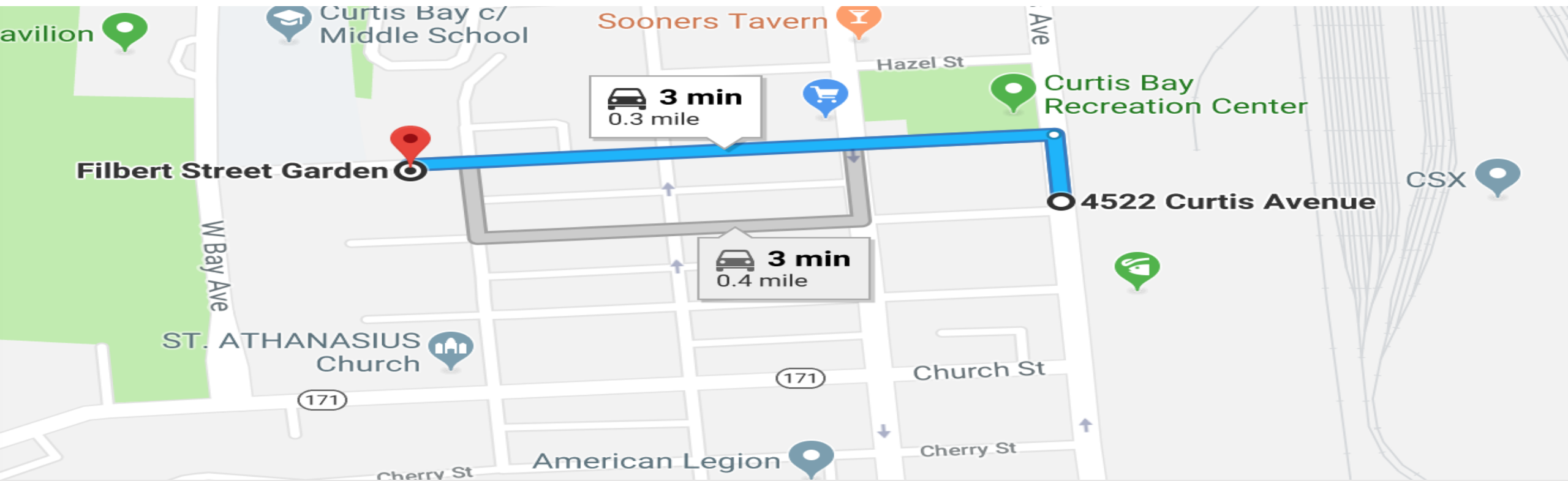
Pennington Avenue (The Well)



Testing Sites: CSX Chesapeake Coal Terminal

Walking from the Filbert Street Garden to the Coal Ash

Walking along Filbert Street & Walking along Elm Tree



Testing Sites



Filbert Street Community Garden

Coal Industry

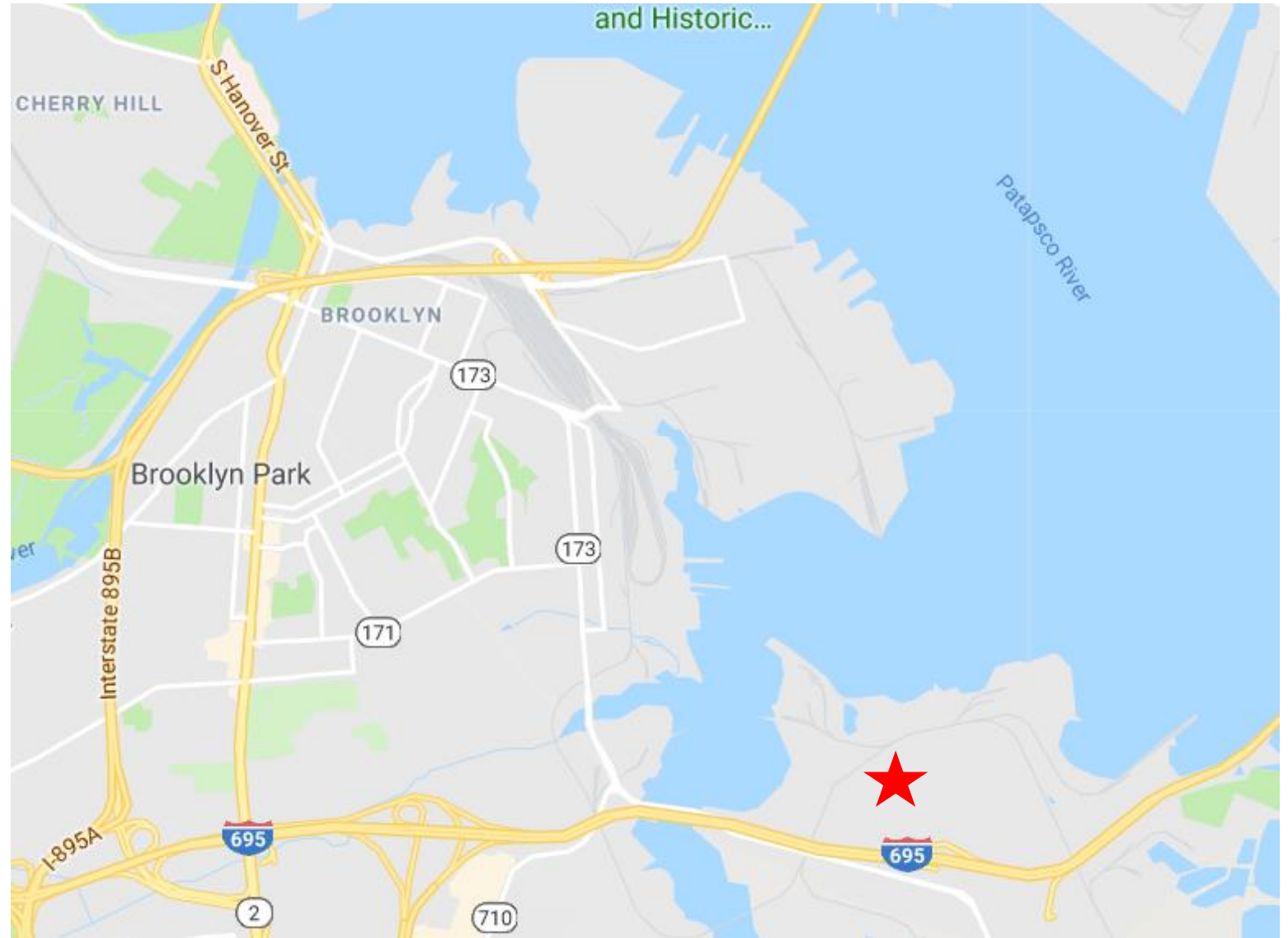


Garden



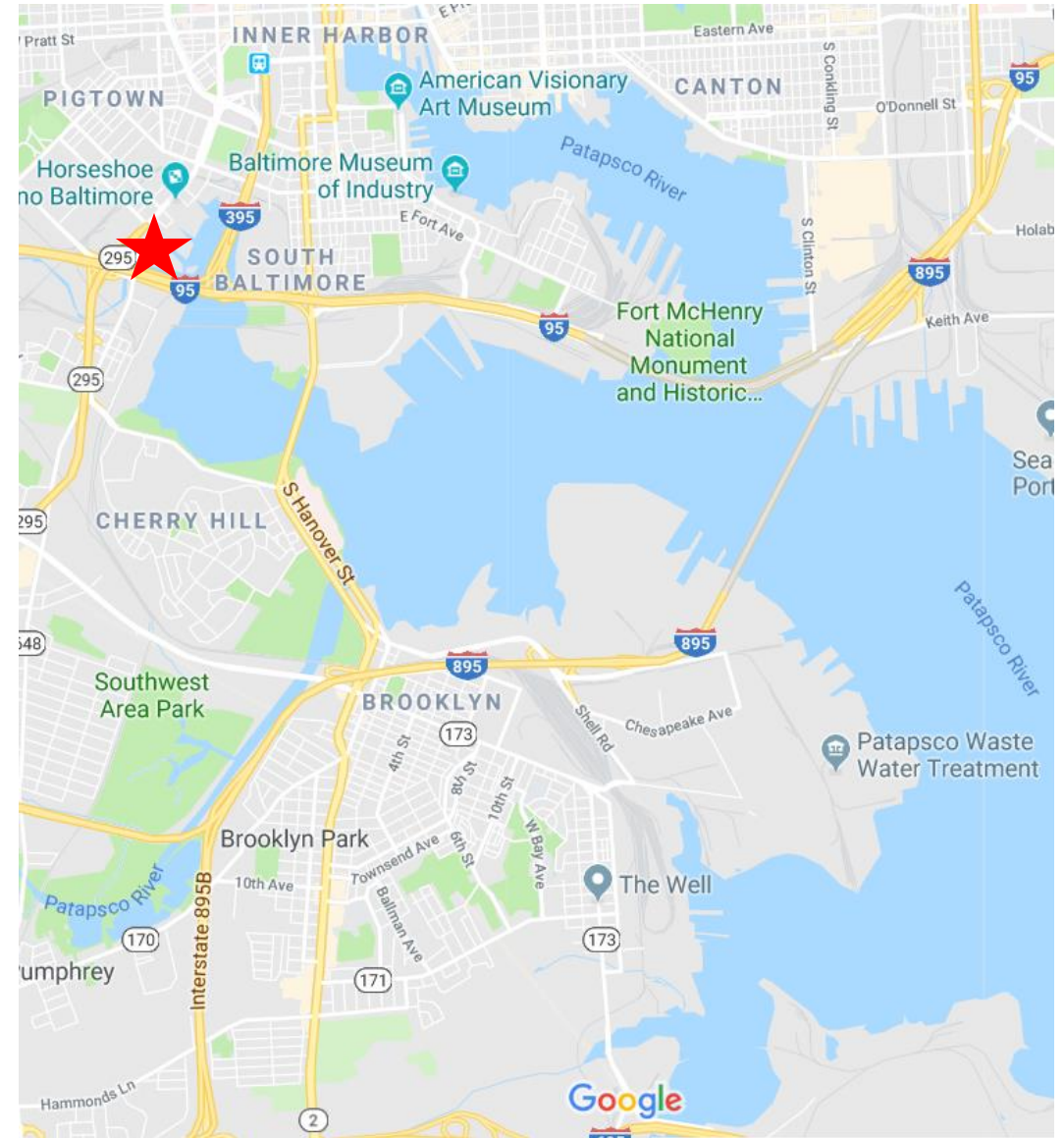
Testing Sites

The Quarantine
Road Landfill



Testing Sites

Wheelabrator Incinerator

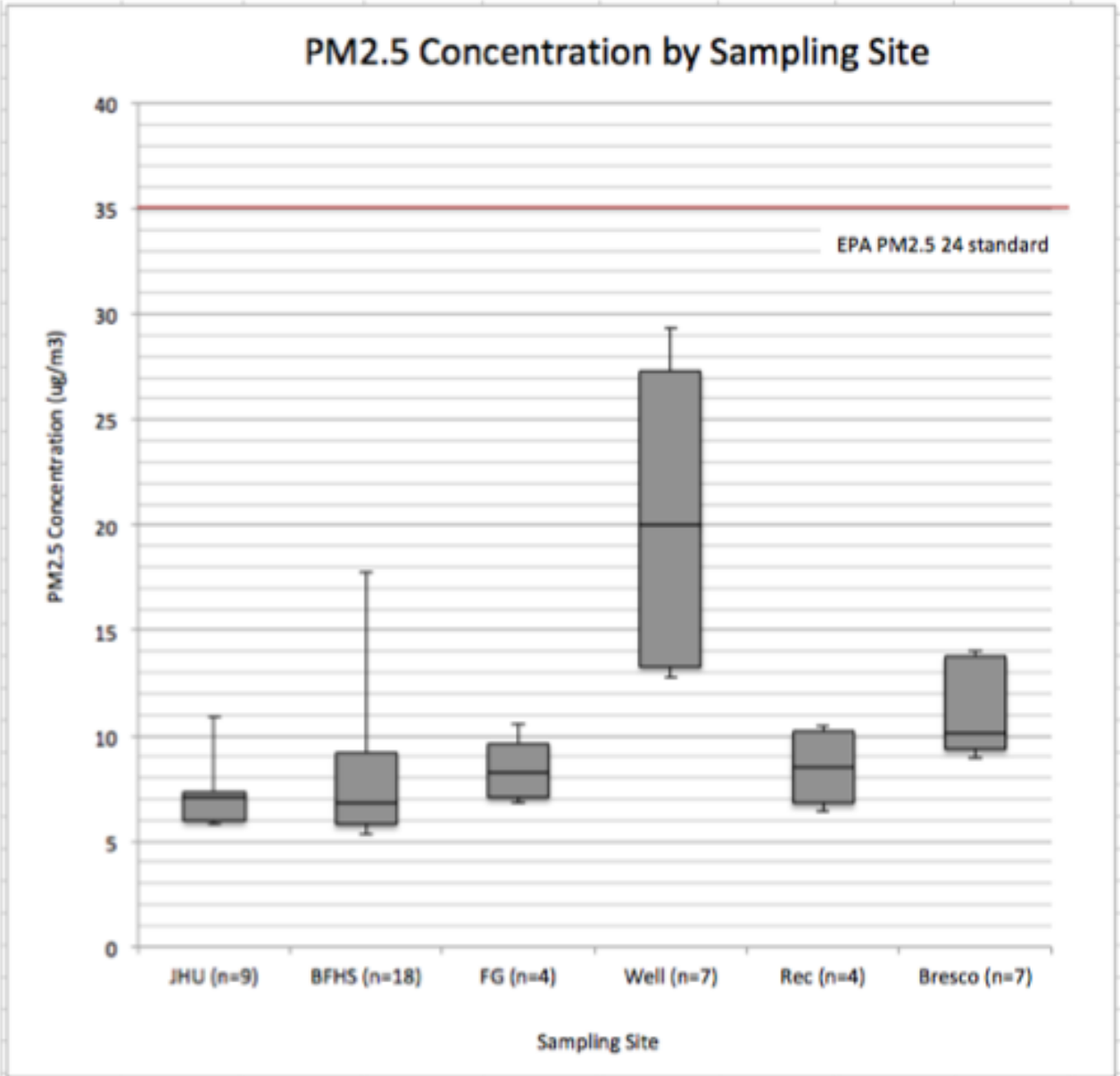


PM 2.5 Quality Measuring



- 📍 JHSPH (Reference Site)
- 📍 Benjamin Franklin High School (Curtis Bay Background)
- 📍 Filbert Garden
- 📍 Curtis Bay Recreation Center
- 📍 The Well on Pennington
- 📍 Private residence Annapolis Rd (0.7 miles from incinerator)

PM2.5 Concentration



Surface Sampling for Coal Dust Pollutants



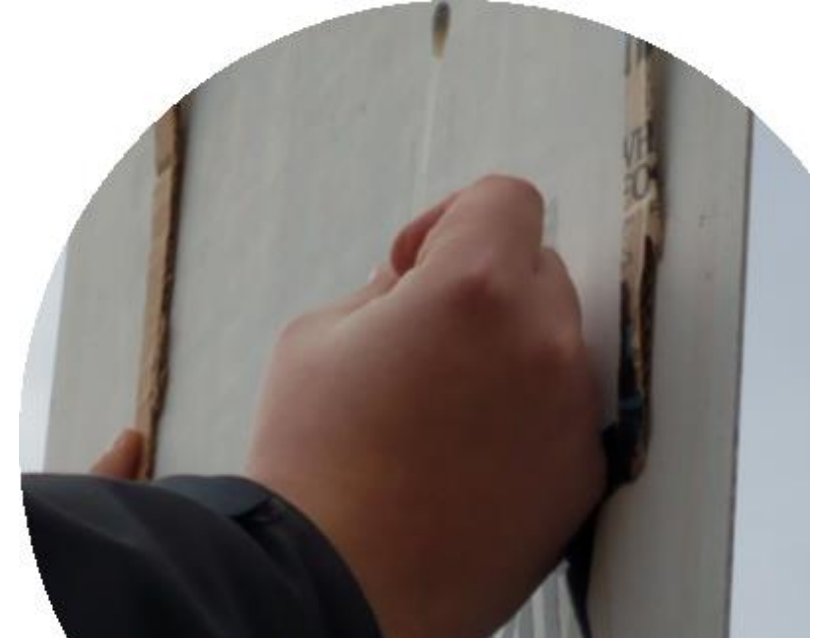
Coal Dust Sampling

- Coal Dust Sampling
 - Aluminum, Chromium, Calcium
 - Hand to mouth ingestion

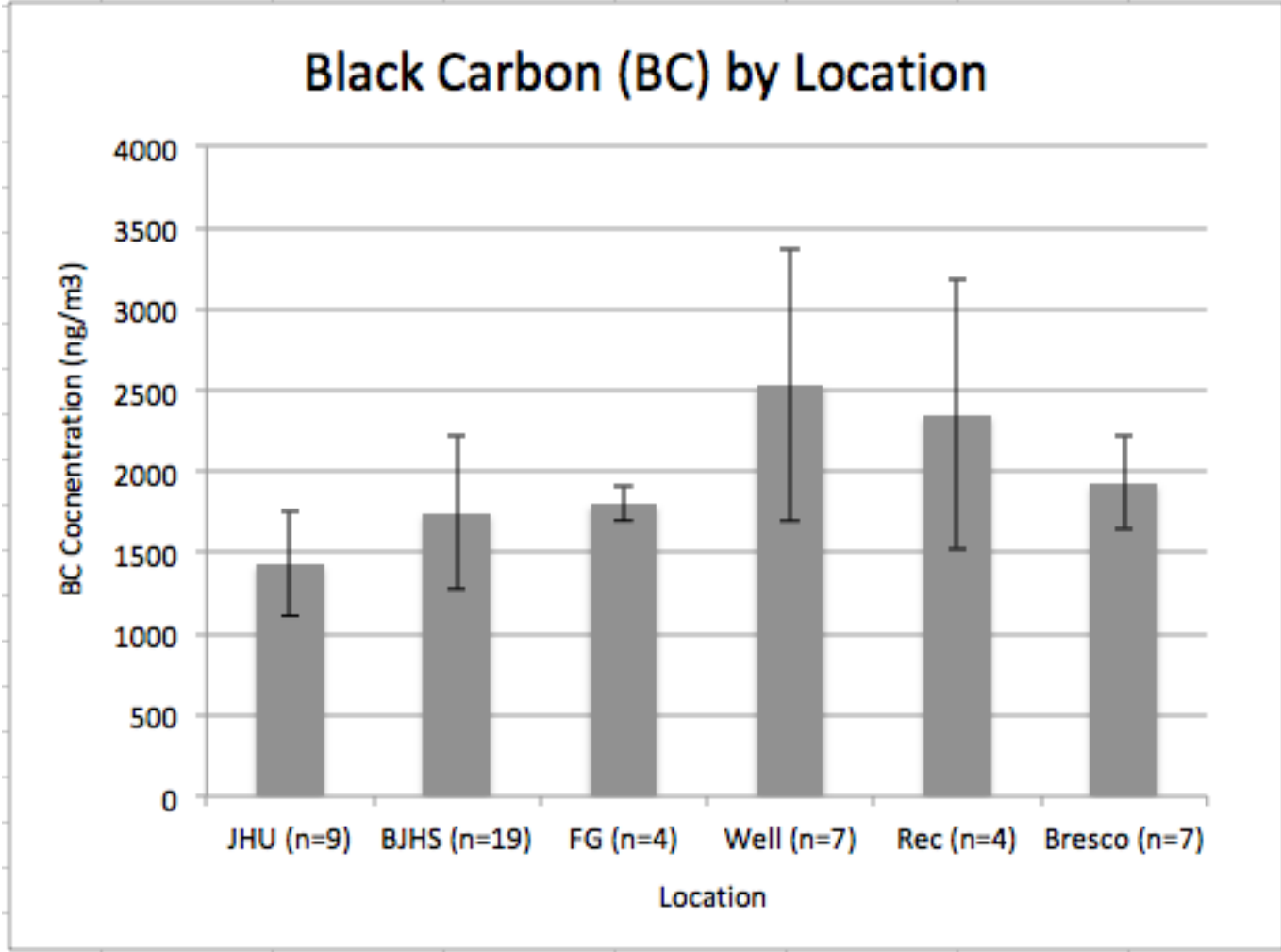


Sampling Protocol and Analysis

- Protocol Development
 - Adaptation
 - COPAN Website
 - Previous study using Copan swabs to identify bacteria
- Analysis
 - Coal dust composition
 - Background dust accumulation

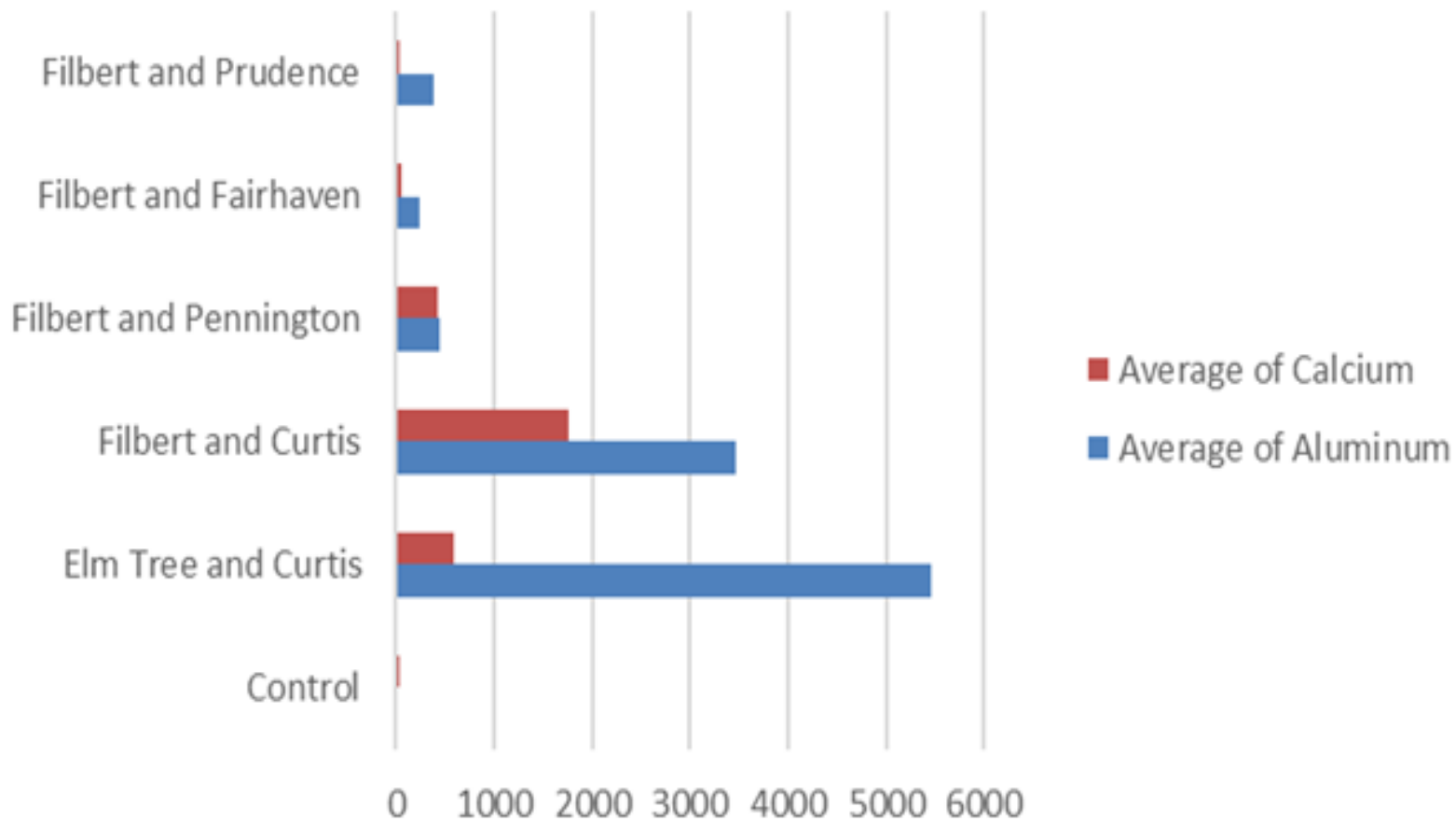


Black Carbon

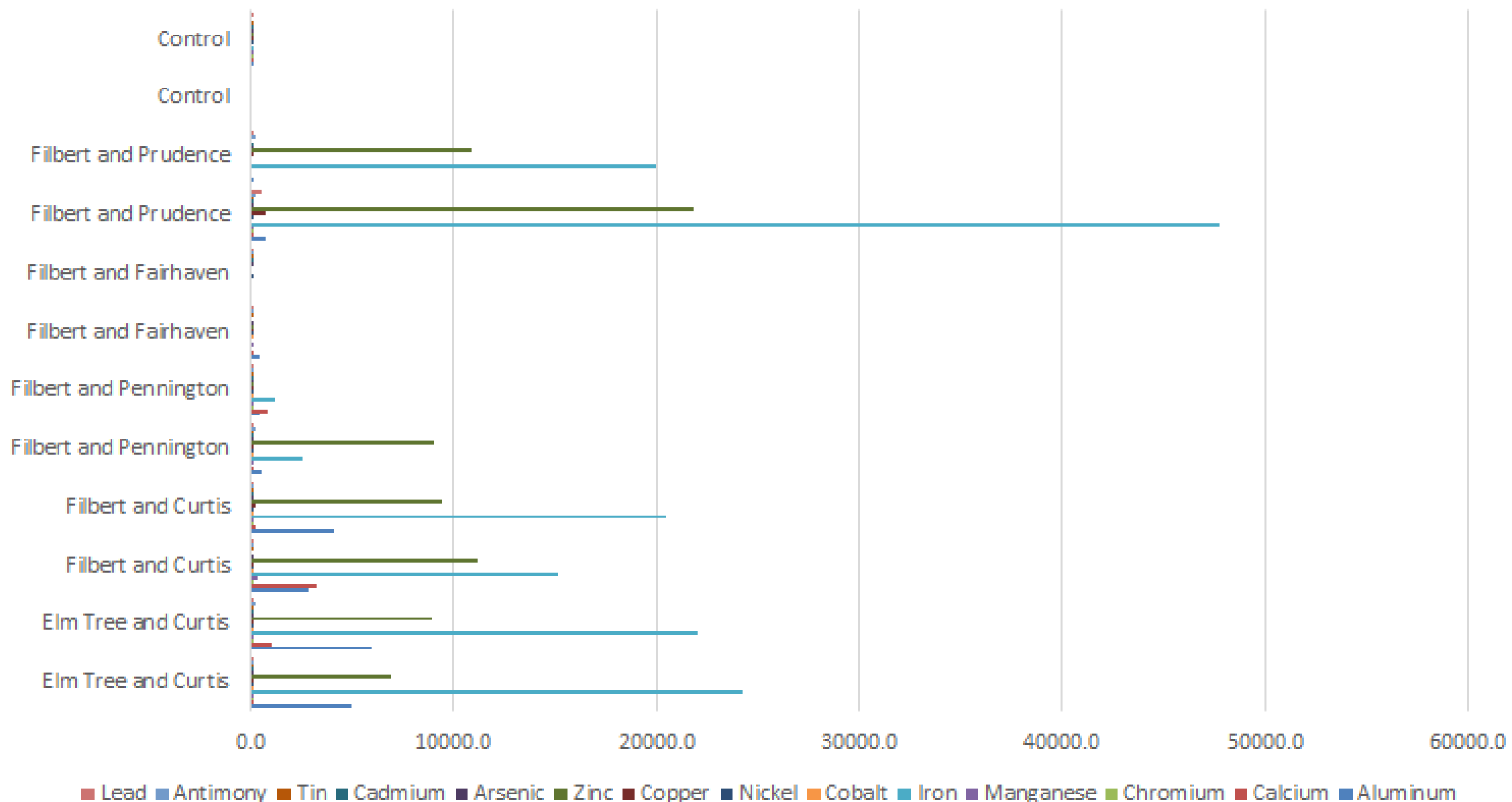


Surface swab levels of metals at different distances from the Curtis Bay Coal Pile

Mean Aluminum & Calcium Concentration by Location

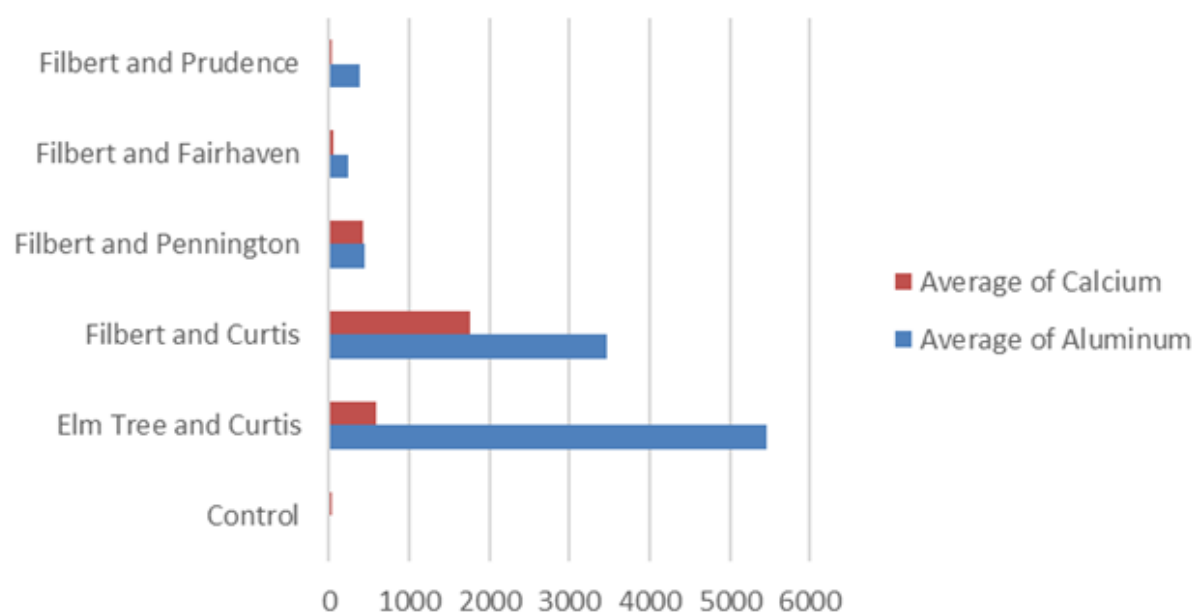


Metal Concentration by Location

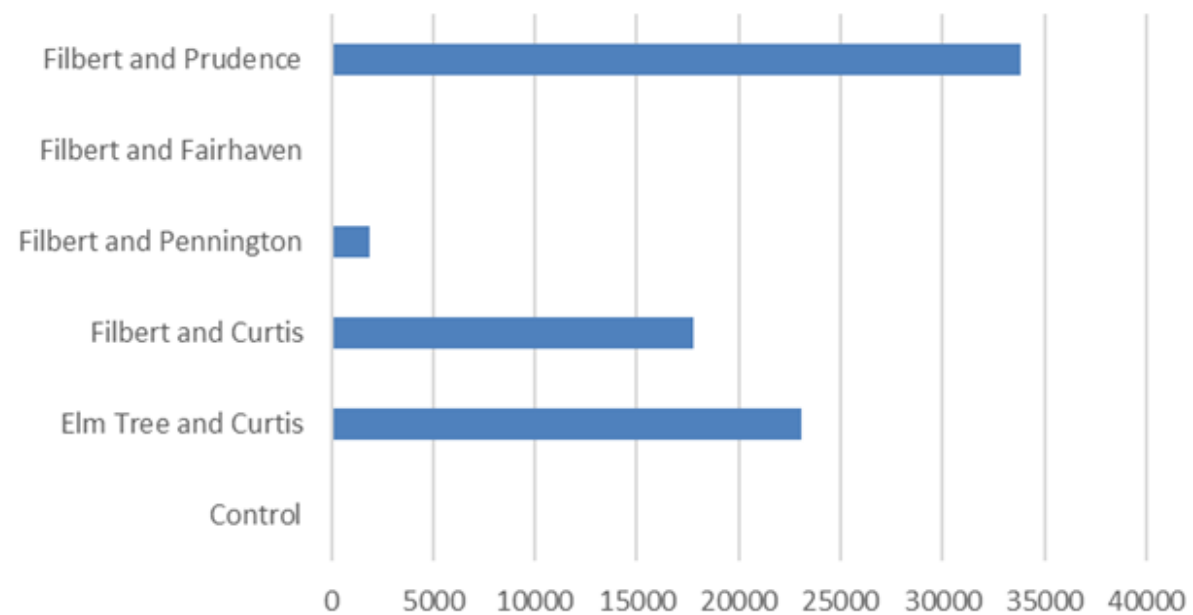


Coal Dust Metals

Mean Aluminum & Calcium Concentration by Location



Mean Iron Concentration by Location



Initial Trends and Lessons Learned

- Trends
 - Results are relatively consistent between samples
 - Aluminum and Calcium
 - Concentrations highest at Curtis Ave., decline as collection sites move away from the pile
 - SLR (Aluminum concentration decreases as distance from CSX coal pier increases $p = 0.053$)
 - Iron
 - Very high concentrations at Prudence
- Lessons Learned
 - Quantity of deionized water used to collect samples



Final Questions for thought?

- What does it mean to turn research over to youth?
 - Lack of communities of color in citizen science projects. What are our or rather what are their political goals and how do we achieve these goals?
 - How can maps can intervene? To what extent can youth-led, youth-run research provide “counter-data?”
- What does it mean to collectively produce knowledge? To Use our spaces/places of privilege (the academy to redistribute resources?)
- What does it mean to arm youth with data for political struggles? Building alternatives?