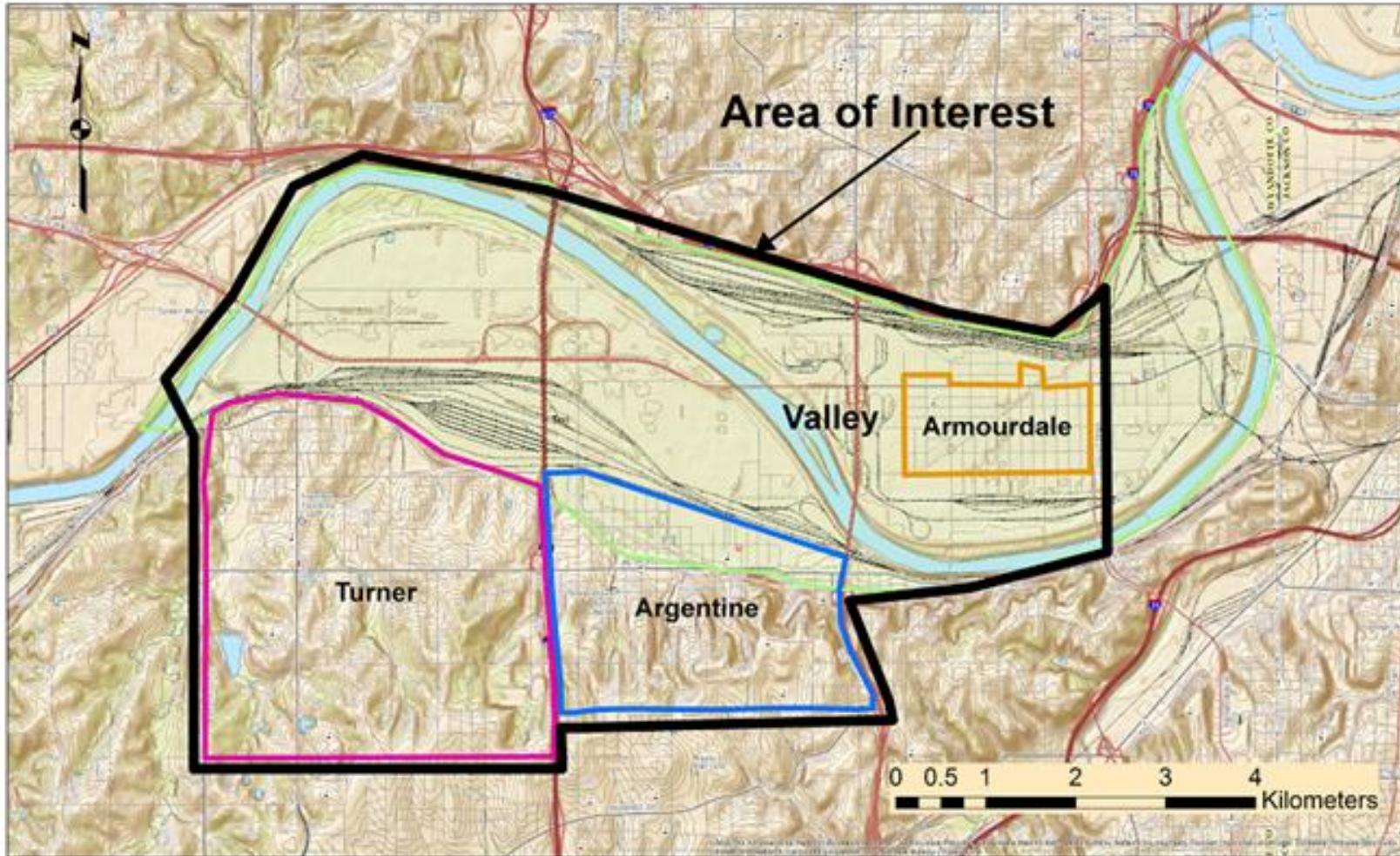




Kansas City Transportation Local-Scale Air Quality Study (KC-TRAQS): Application of Citizen Science for Examining Local Air Quality

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The study aims to answer these three big questions:

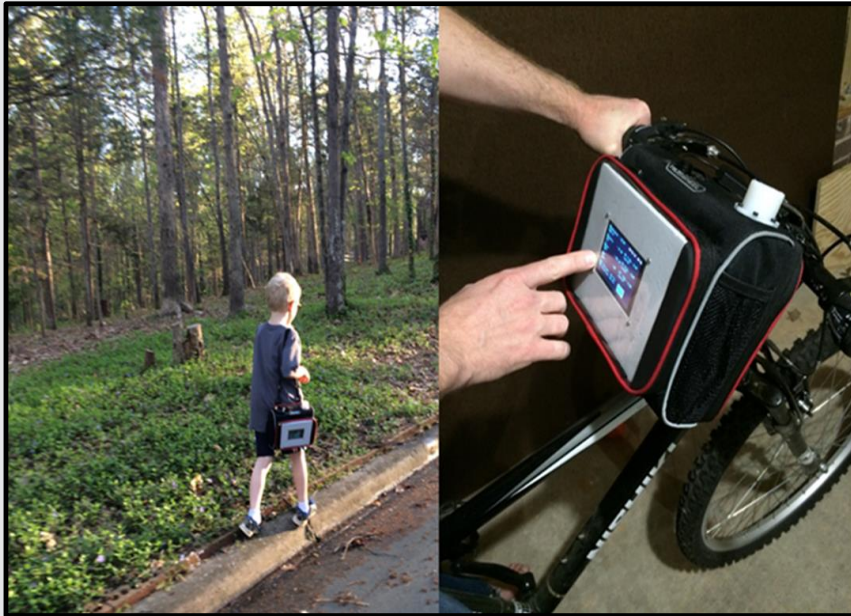
- What is the extent of air pollution in the Argentine (KS) neighborhood and the broader SE Kansas City, KS area?
- Can the impact of local air pollution sources on Argentine (KS) neighborhood and the broader SE Kansas City, KS area air quality be identified and quantified?
- What is the variability of the rail-yard air pollution impacts, under different meteorological conditions and source activities?

- What is the spatial and temporal extent of local air pollution sources in and around the Argentine (KS) neighborhood?
- Can the impact of local air pollution sources on the Argentine and surrounding neighborhoods' air quality be identified and quantified?
 - ✓ What is the spatial and temporal variability of rail-yard air pollution impacts and other nearby sources, under different meteorological conditions and source activities?
 - ✓ Can the effectiveness of a self-driven community measurement project be quantified? What is the suitability of a sensor instrument package (e.g., AirMapper) to support real-time mapping of particulate matter by citizens?
 - ✓ What is the added value of citizen science in the research process and can this value added be quantified?
 - ✓ What is the suitability and effectiveness of modeling tools to support citizen science in the research process and can this value added be quantified?

KC TRAQS RESEARCH PROJECT

Three monitoring approaches:

Citizen Science Monitoring



Stationary Monitoring



Mobile Monitoring (GMAP Vehicle)





Citizen Science for KC TRAQS

Collect Air Pollutant Data with:

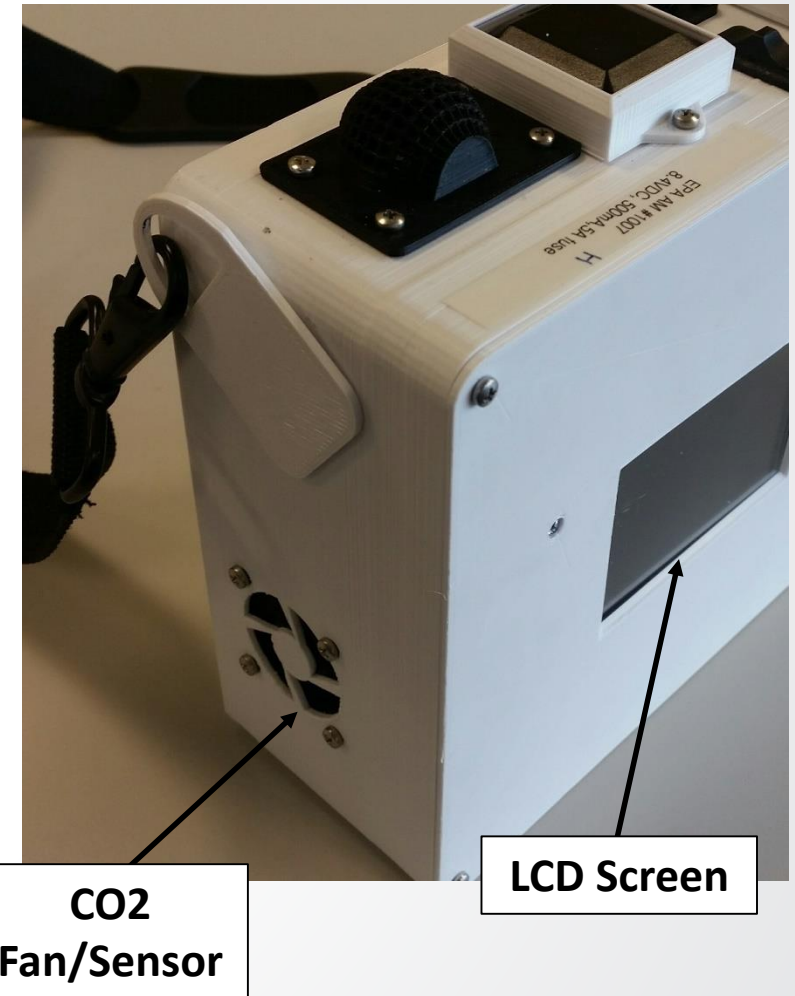
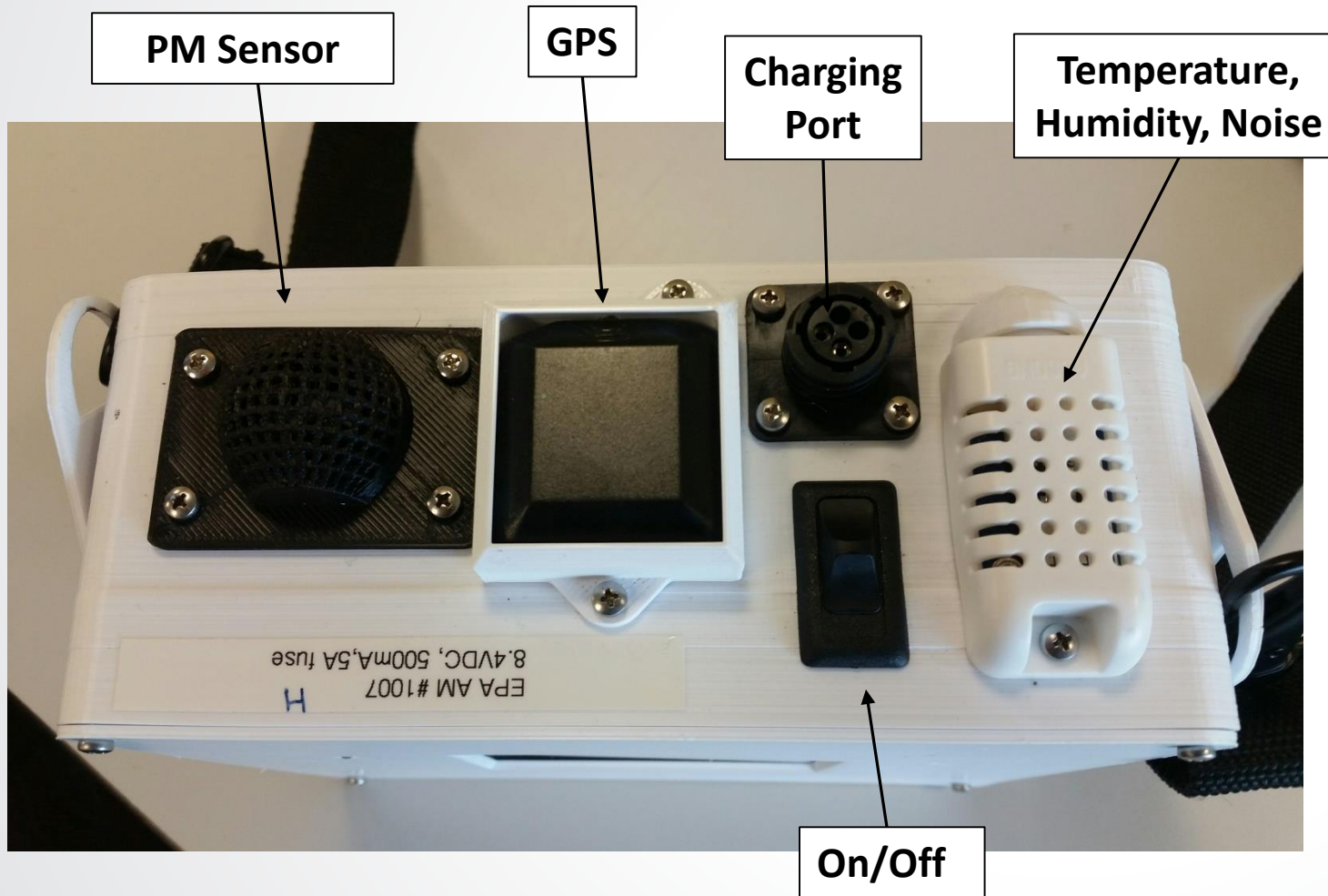
- AirMapper, a low-cost sensor package
- Little Training
- Quick demo of AirMapper
- Allowing Citizen Scientist to decide where and when to sample
- EPA collects data from units



Citizen Science Monitoring



Note: Data results are for research purposes only and not for regulatory purposes.



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- **AirMapper Deployment**

- Scheduled type
teachers/instructors
community groups

- Nonscheduled type
library check-out



Schools

- The Plan:
 - Lend AirMappers to schools, provide a training presentation on air quality/AirMapper
 - They do their own science research/lessons while collecting data for KC TRAQS
 - Project does not require where and when to sample
 - Only asks for outdoor data in our study area
- The Lessons:
 - If it's not required, few will do
 - Teachers are awesome! And like a break from teaching.



Community Groups / Libraries

- The Plan:
 - Loan AirMappers to community groups and libraries for check-out
 - They agree to collect data in project area
 - They can also use them to collect their own data
 - We will collect data from the unit and send to them if requested
 - We will protect PII
- The Lessons:
 - Must get involved with community
 - Interest is low in general, but some are very interested
 - Must get the word out. Often. This is ongoing and challenging.



[http://www.mdpi.com/journal/ijerph/special issues/near source air pollution](http://www.mdpi.com/journal/ijerph/special%20issues/near%20source%20air%20pollution)



International Journal of
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Invitation to submit

Near-Source Air Pollution

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Special Issue