air partners

Olin College of Engineering

TDEnviro

(How) should we do this?

Assessing whether to implement air monitoring and Exploring approaches to community partnerships

Tim Dye and Scott Hersey

Roadmap for today

1. Should we do this?
2. How should we do this?
3. How should we do this together?

Should we do this?

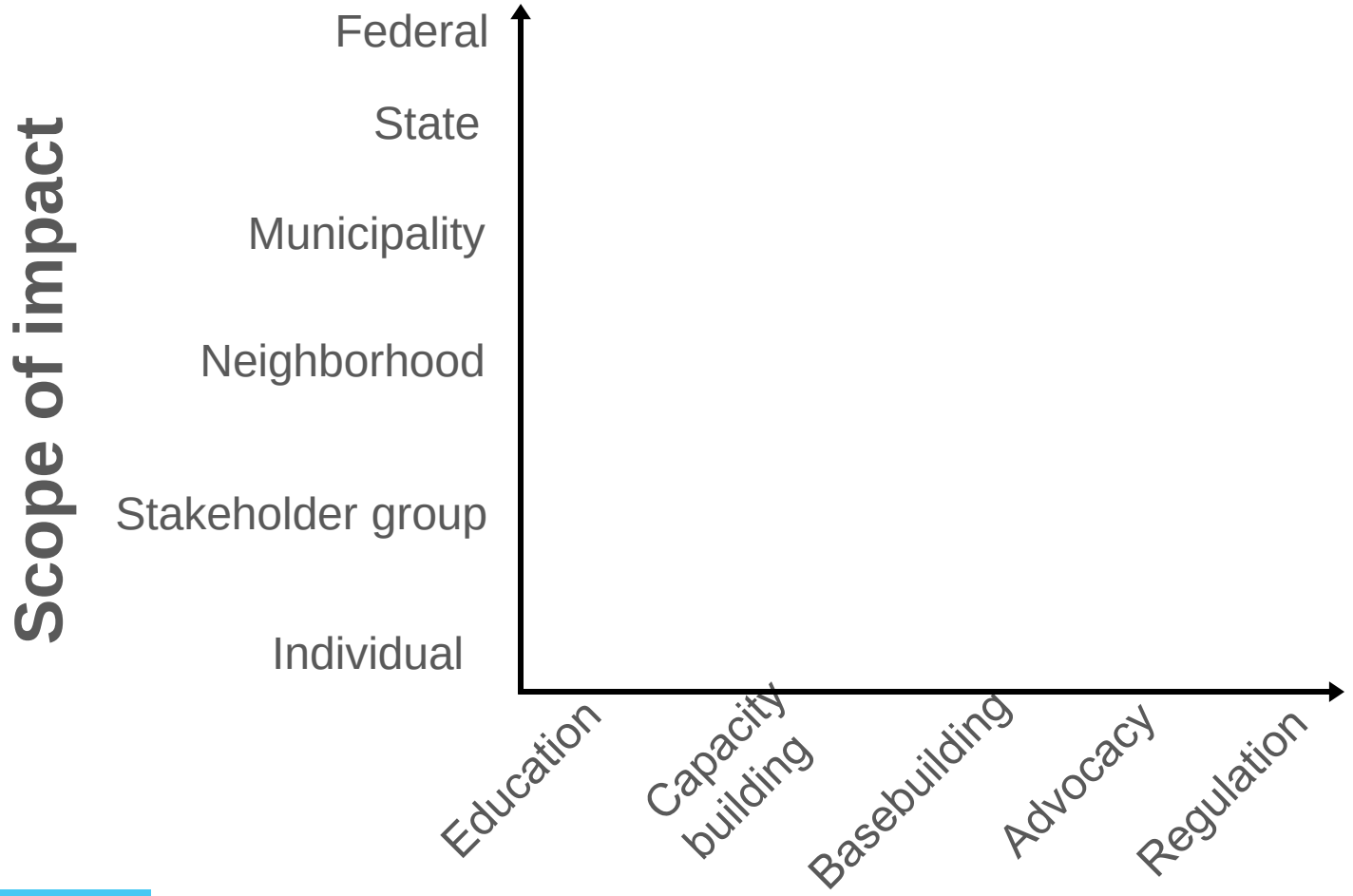
Guiding questions

What are your goals? What are the community's goals? Are they aligned?

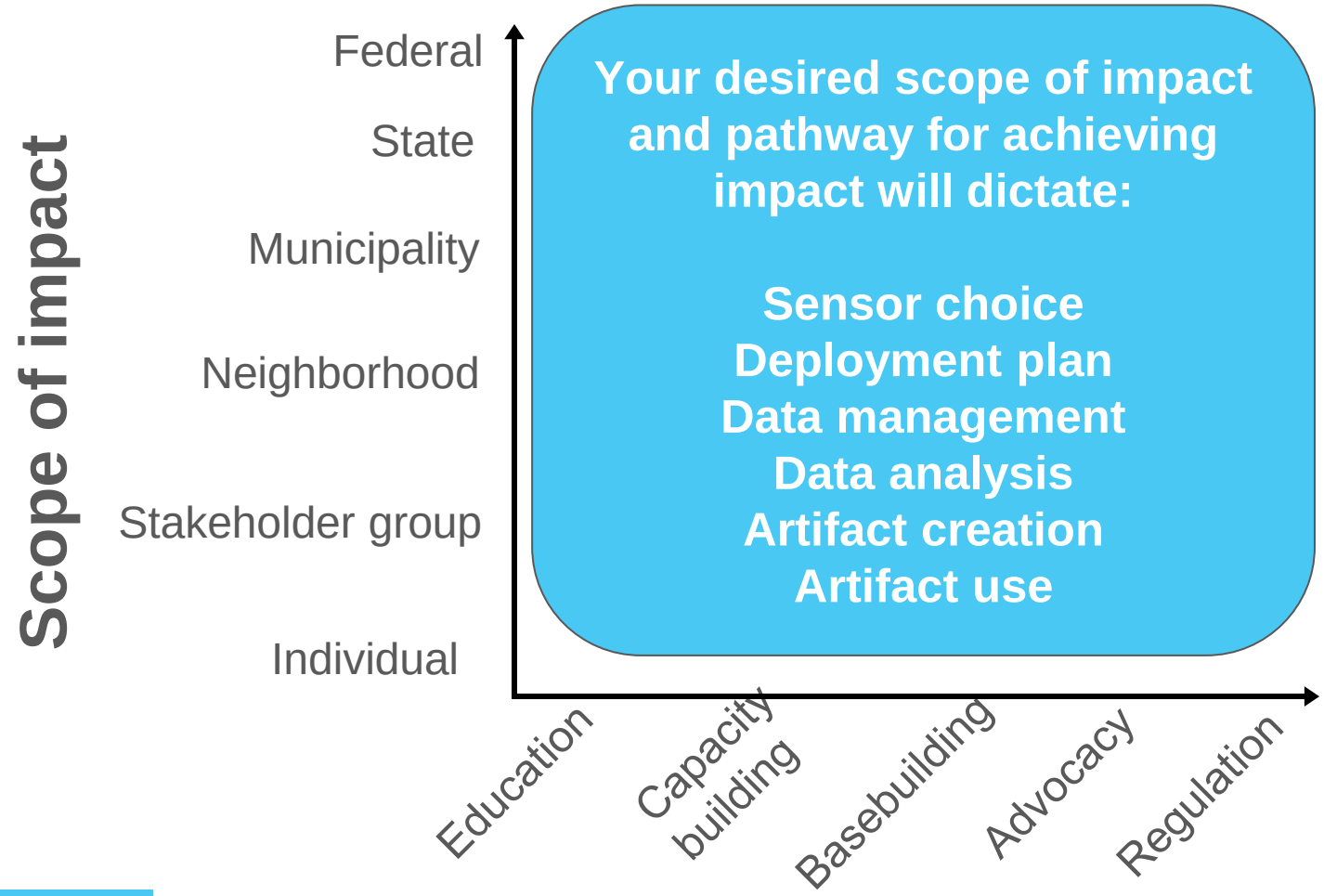
If you magically had perfect data to support your goals, what would the data be? What story would the data tell? And what you do next with that data? *Is this feasible?*

Do you have an engaged community partner?

Do you have budget to support the work (engagement, sensors, technical capacity, on the ground work, data and meaning making)?



b) What impact?



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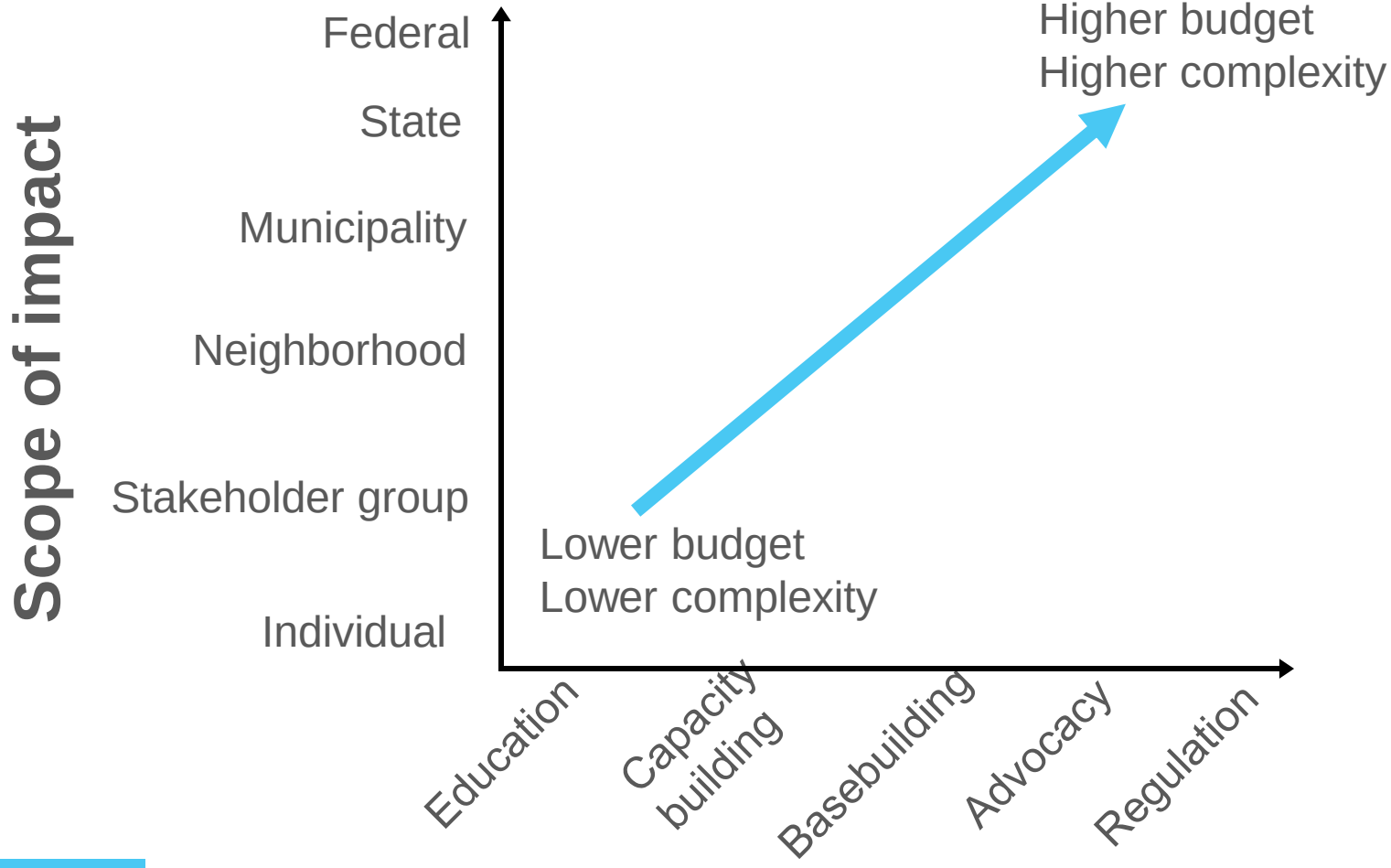

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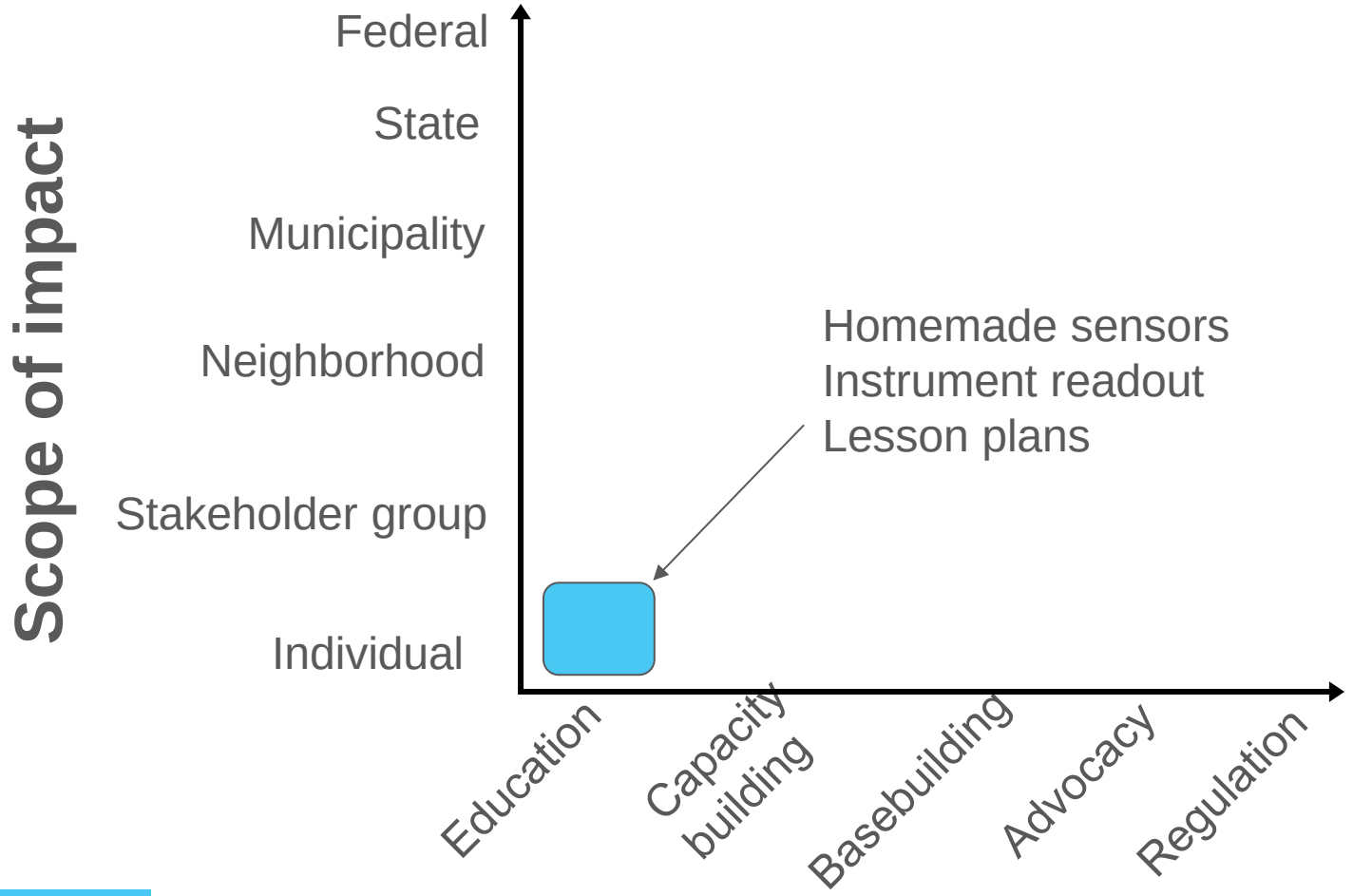

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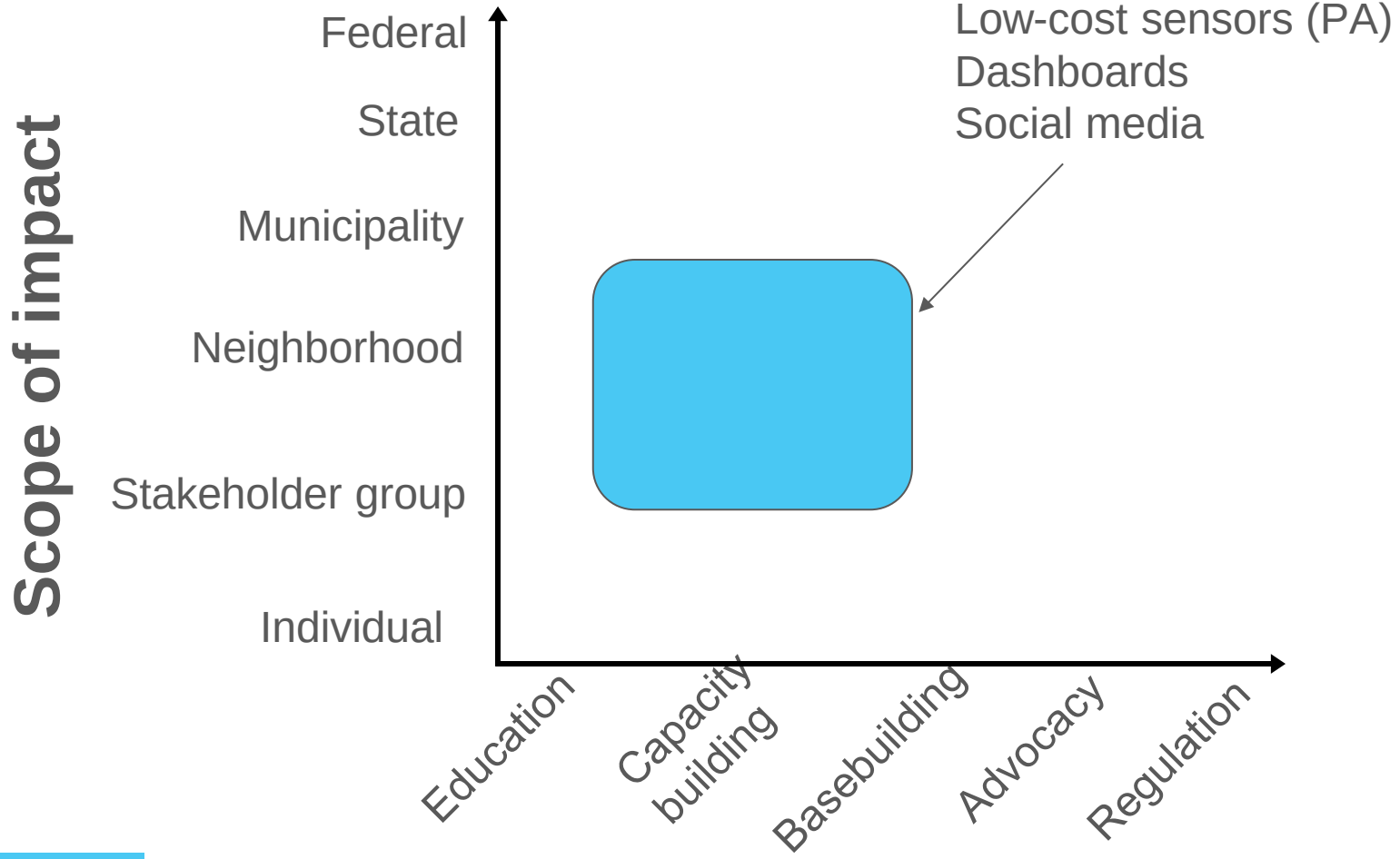

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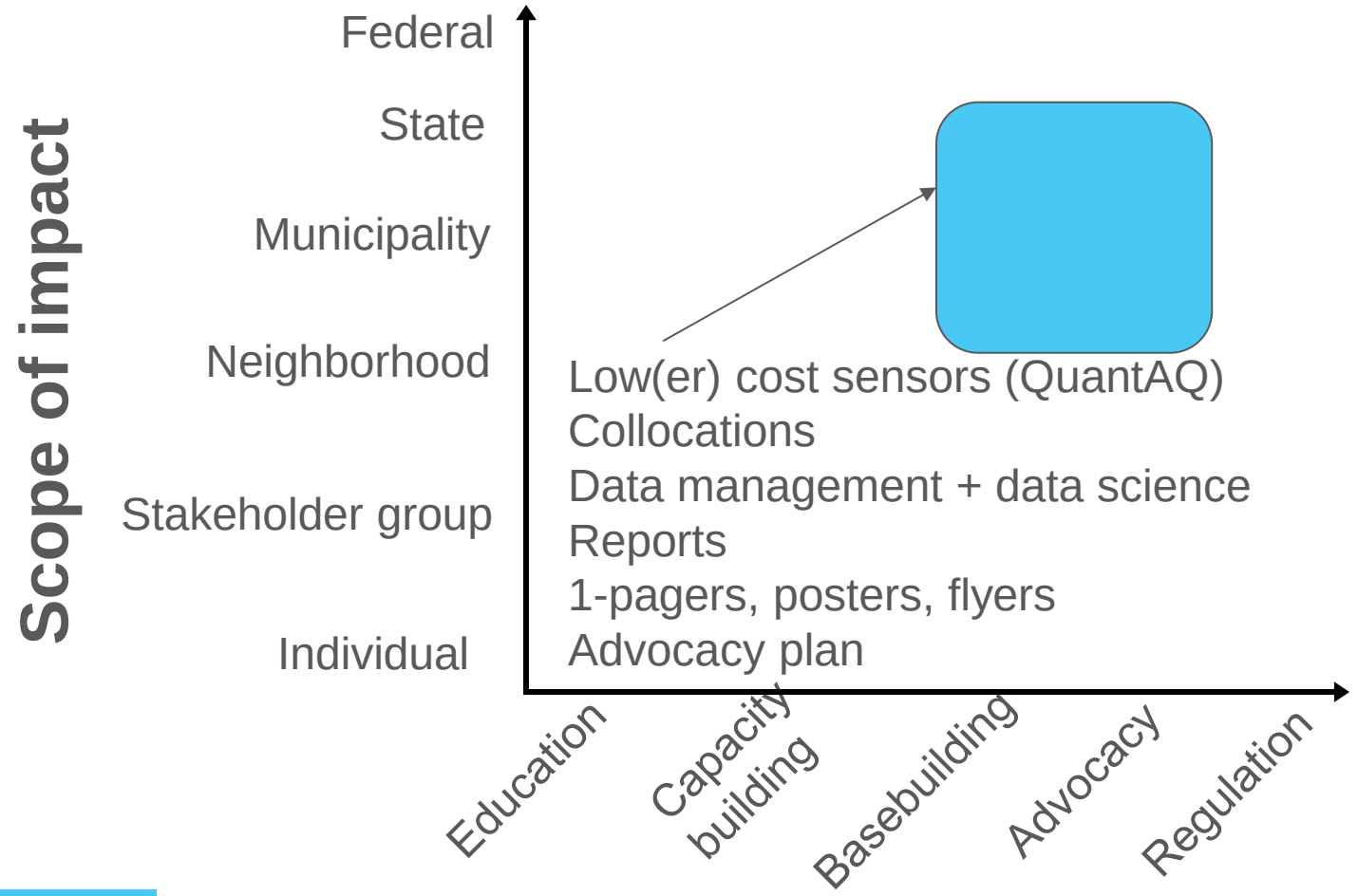

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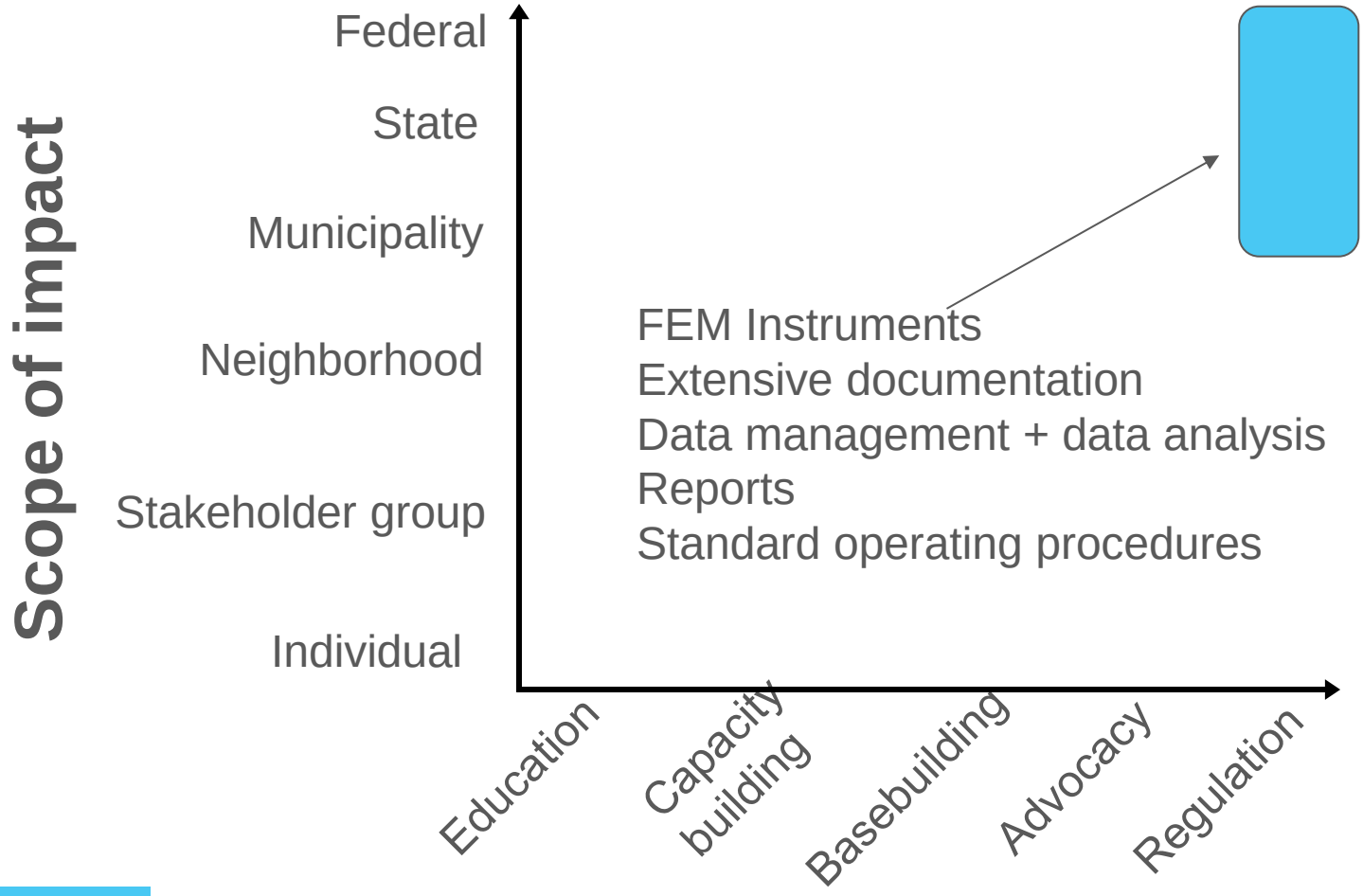


b) What impact?

c) Objectives Worksheet

Step 1: Air Quality Questions

1. What is your air quality concern?
2. What do you already know about the air quality concern?
3. What existing information helped identify these concerns?
4. What information, data, or personal observations already exist?
5. Is there a specific pollutant of concern?
6. Is there a specific pollution source of concern?
7. What is not known about your air quality concern?

Source: https://bayaircenter.org/resource/defining-an-air-monitoring-objective-by-asking-the-right-questions-worksheet/

Available in: English, Spanish, Tagalog, Vietnamese

c) Objectives

Example:

A neighborhood association in a large metro area wants to monitor the air. Residents are concerned about two major highways intersecting in their neighborhood. While criteria air pollutants are measured by the state air agency two miles away, residents want to understand when traffic-related pollutants, including black carbon and NO_2, are high throughout the day. The residents want to increase awareness around traffic pollution in the community and use the data to meet with the city to advocate for ways to protect residents. Instruments will be installed and operated within 200 to 300 feet of the intersection and will collect data for a two-year period. The instruments will measure black carbon and NO_2 and weather parameters, including wind speed and direction.

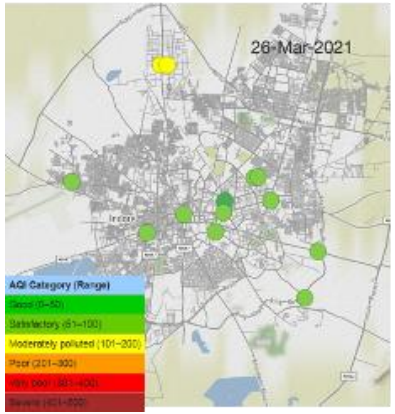
Let's work through the questions together:

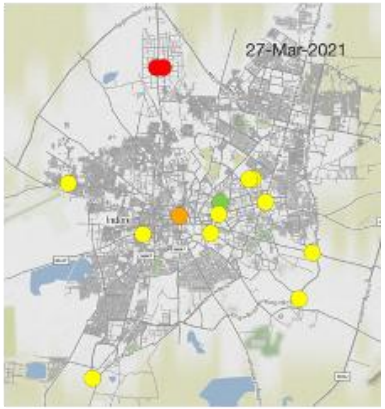
Summarize and define an objective:

1. Why are you monitoring?
2. What do you plan to monitor and do?
3. Where will you do this?
4. How long do you plan to monitor?
5. What equipment will you use?

Source: U.S. EPA Webinar #3
https://www.epa.gov/amtic/CommunityAirMonitoringWebinars

Tim examples

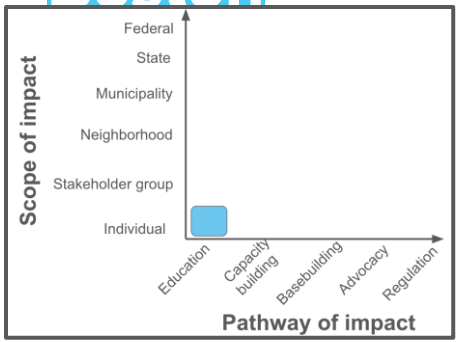




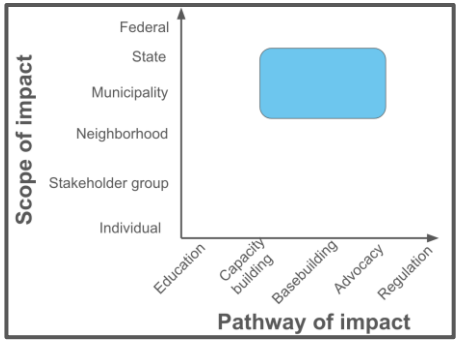
Community-Led Study on Air Quality in Indore, India
https://www.tdenviro.com/news/indore-building-healthy-cities

Bay Air Center (www.BayAirCenter.org)

East Boston



Roxbury



What resonates?

2. How should we do this?

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	01 Identify Stakeholder Priorities	02 Plan Project	03 Collect Data	04 Generate Insights	05 Create Artifacts	06 Leverage Artifacts	07 Conclude Project
GOALS	Find alignment and create trust Identify questions that need answering	Translate stakeholder priorities into a project plan that can answer key questions	Collect the right data to answer key questions	Analyze data to draw conclusions	Display and package insights to tell stories that support stakeholder priorities	Sharing artifacts to create change	Develop a plan to either sustain or end project
ACTIVITIES Community Partner Technical/academic partner Collaborative role	Understand partner expectation Establish roles and define team Understand project endpoints establish goals site (virtual) visits	Write a plan (to include maps, timelines, tech specs, budget, etc...) Identify and purchase equipment develop deployment strategy for equipment (locations, duration) provide feedback iterate plans based on feedback	Deploy instruments in the field Access, download, organize, backup data	Create or obtain existing analysis code Use analysis code to generate statistics and figures Interpret statistics and figures	Identify key figures and statistics Incorporate key figures and statistics into formats that community partners can understand and use Provide feedback Iterate	Identify avenues for sharing insights and artifacts Create a dissemination plan Implement dissemination plan	Decide the future trajectory of project, physical resources and human resources Develop and implement project conclusion plan
PRODUCTS	Curated list of each stakeholder's priorities Clearly articulated list of key questions for the project Stakeholder map(s)	Project planning document, including roles, timeline, budget, risk mitigation, and data management Maps of proposed equipment deployment locations	Network of deployed hardware Organized, backed up raw data that are accessible to the team	Analysis software and algorithms List of insights that answer key questions Curated set of figures, tables, and statistics that support insights	Artifacts that have been packaged for stakeholders	Theory of change for how artifacts lead to impact Plan for using artifacts in change-making work, including roles, timeline, budget, and risk mitigation	Plan for hardware and artifacts will: a. continue to be used and sustained in the community, or b. re- deployed in other communities or meet their end of life

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01 Identify Stakeholder Priorities

Find alignment and create trust

Identify questions that need answering

02 Plan Project

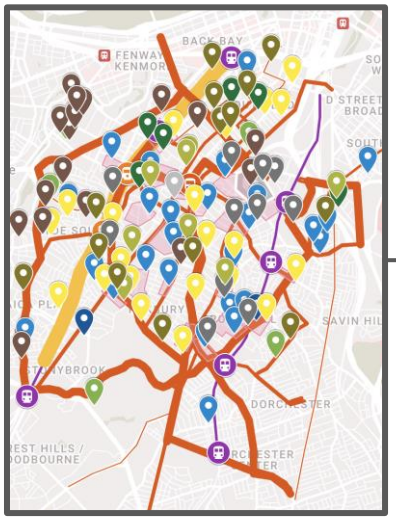
Translate stakeholder priorities into a project plan that can answer key questions

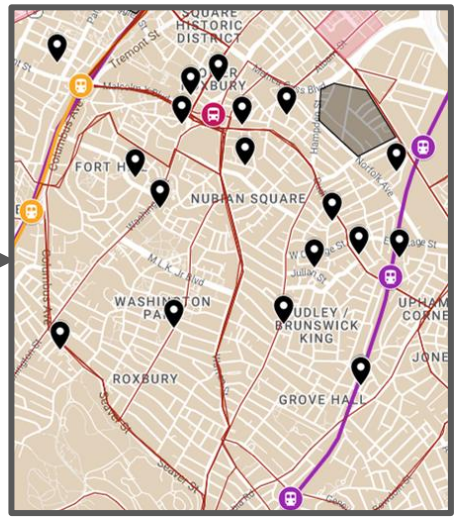
What are the primary sources of air pollution exposure in Roxbury?

What is the air quality impact of:

- Nubian Station?
- Fairmount Line?
- MBTA diesel bus lines and bus stops?
- Diesel school bus idling?
- Construction?
- Indoor and building-related pollutant sources?

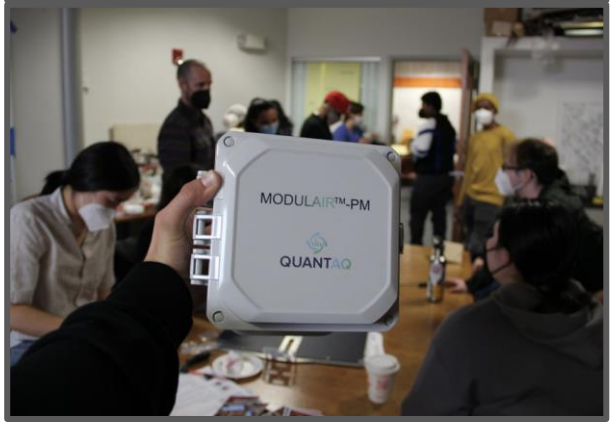
To what extent are HEPA purifiers able to reduce PM exposure indoors?





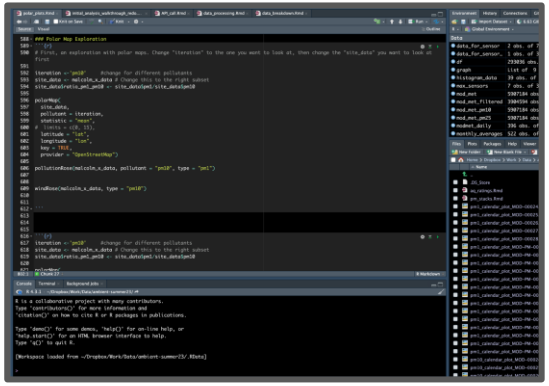
03 Collect Data

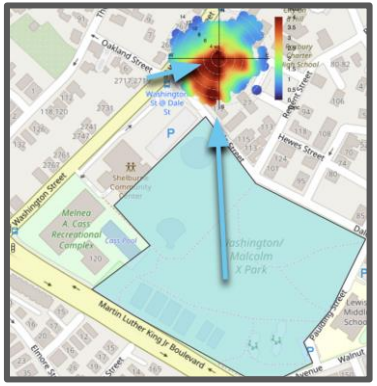
Collect the right data to answer key questions

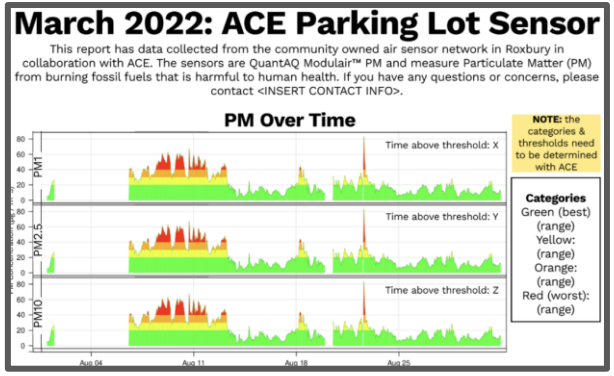


04 Generate Insights

Analyze data to draw conclusions







05 Create Artifacts

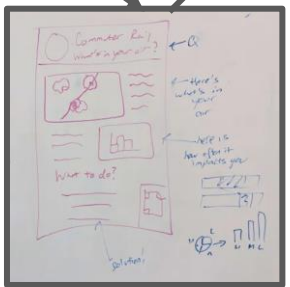
Display and package insights to tell stories that support stakeholder priorities

1. Determine requirements
(look, ask, try, why)

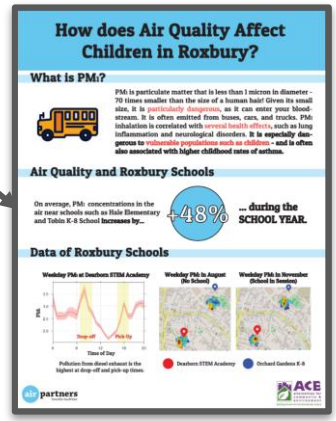
2. Generate first drafts
(undergraduate Env. Analysis)

3. Seek feedback on drafts
(Env. Analysis guest visit from ACE)

4. Wireframe final versions

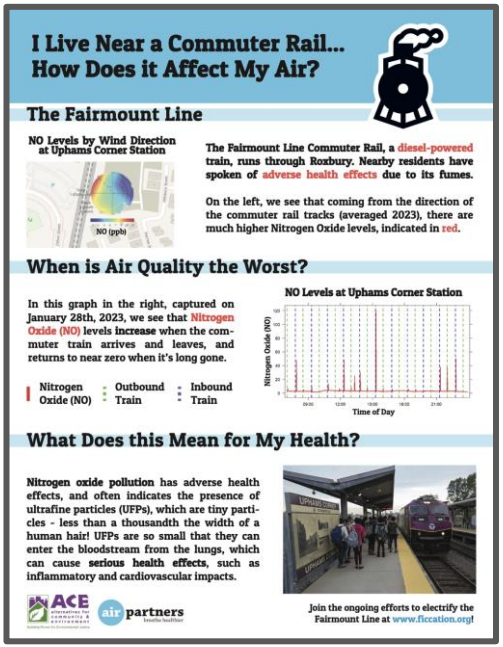


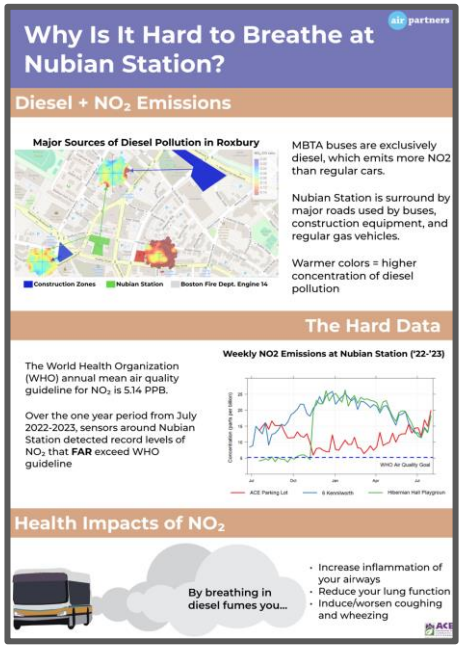
5. Seek feedback on wireframes (Zoom)

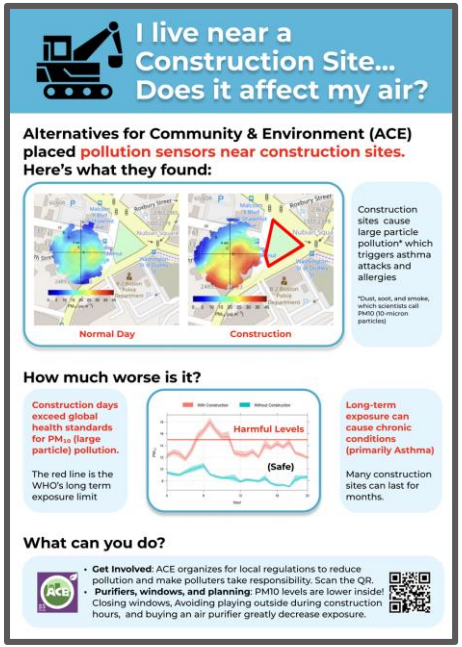


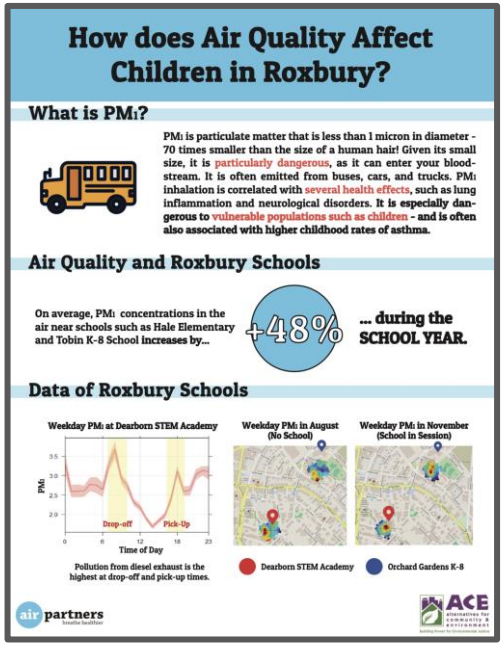
6. Create Final One Pager

One-pagers and Posters

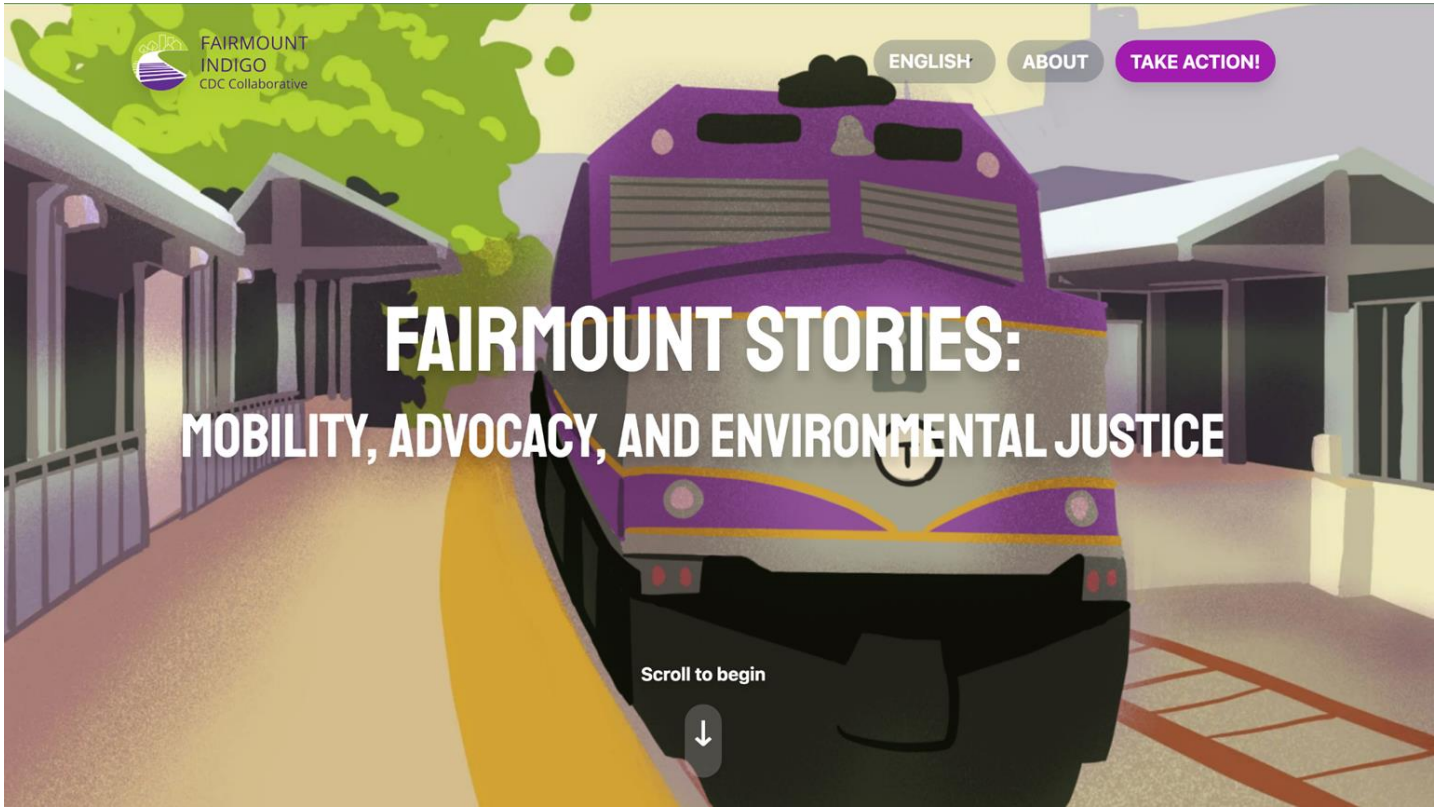




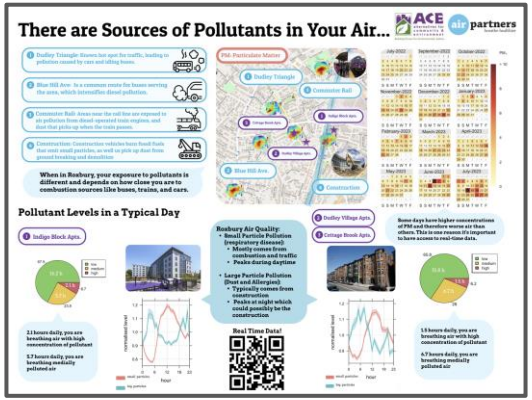




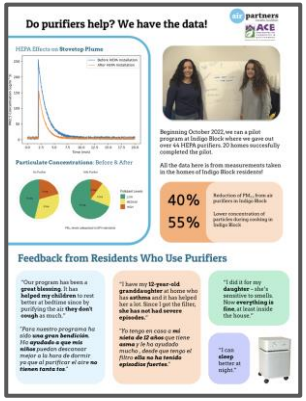
Web story


FAIRMOUNT
INDIGO
CDC Collaborative
ENGLISH
ABOUT
TAKE ACTION!
FAIRMOUNT STORIES:
MOBILITY, ADVOCACY, AND ENVIRONMENTAL JUSTICE
Scroll to begin

Data Walks


There are Sources of Pollutants in Your Air...
Pollutant Levels in a Typical Day
When in Roxbury, your exposure to pollutants is different and depends on how close you are to combustion sources like buses, trains, and cars.
Roxbury Air Quality:
Real Time Data!

Conclusiones del Data Walk
1 La contaminación del aire puede tener un impacto negativo en su salud.
2 Hay fuentes de contaminación del aire en su comunidad.
3 Cuando son usados correctamente, los purificadores de aire ayudan a reducir su exposición a la contaminación.


Do purifiers help? We have the data!
Feedback from Residents Who Use Purifiers

There is more you can do
ACE: Alternatives for Communities and Environment
FICC : The Fairmount Indigo CDC Collaborative
Takeaway
What is Next?

5 Usted puede participar en la mejora de la calidad del aire de su comunidad.
Enlaces útiles
Contáctenos!

Kappa
NOT AN EXIT
DO NOT ENTER

06 Leverage Artifacts

Sharing artifacts to create change

Canvassing and organizing

Community Meetings

Informing, engaging, and supporting elected officials

Resources for Planning and Conducting Air Monitoring

A couple of resources for planning and conducting air monitoring studies:

U.S. EPA

- Air Sensor Guidebook and Air Sensor Toolbox
- Webinar Series: Community Air Monitoring Fundamentals (Five 2-hr videos)

Bay Air Center

- Designing a Community Scale Air Monitoring Project
- Placement of air monitoring devices

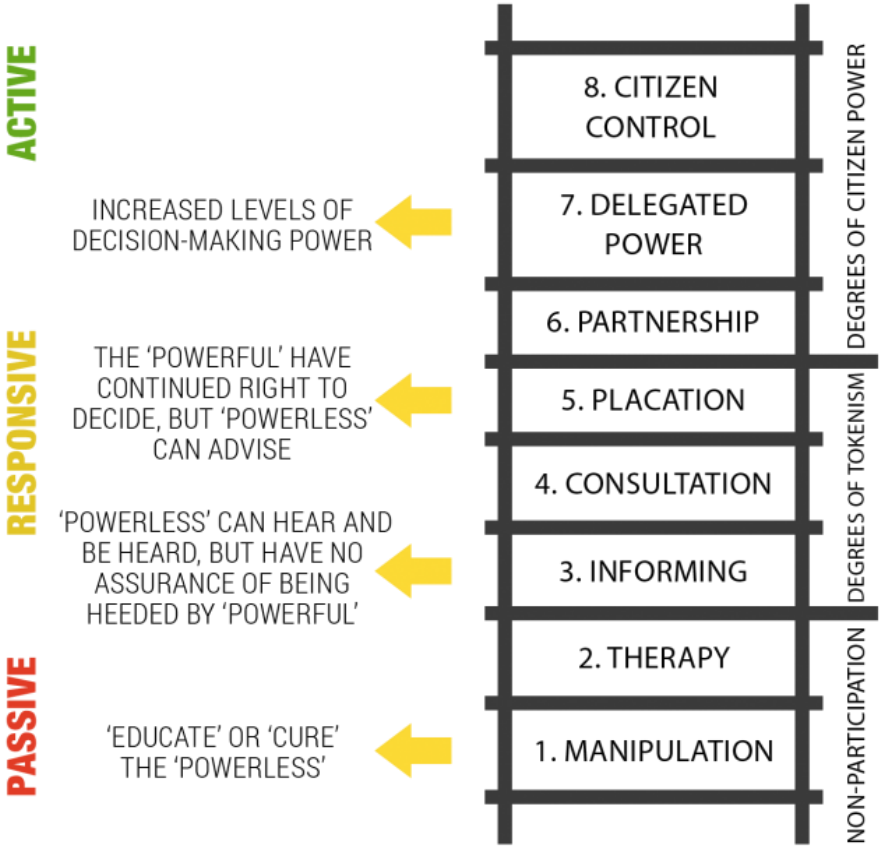
Georgetown's Community Air Monitoring Working Group

- Framework for Designing and Conducting an Air Monitoring Project

What resonates?

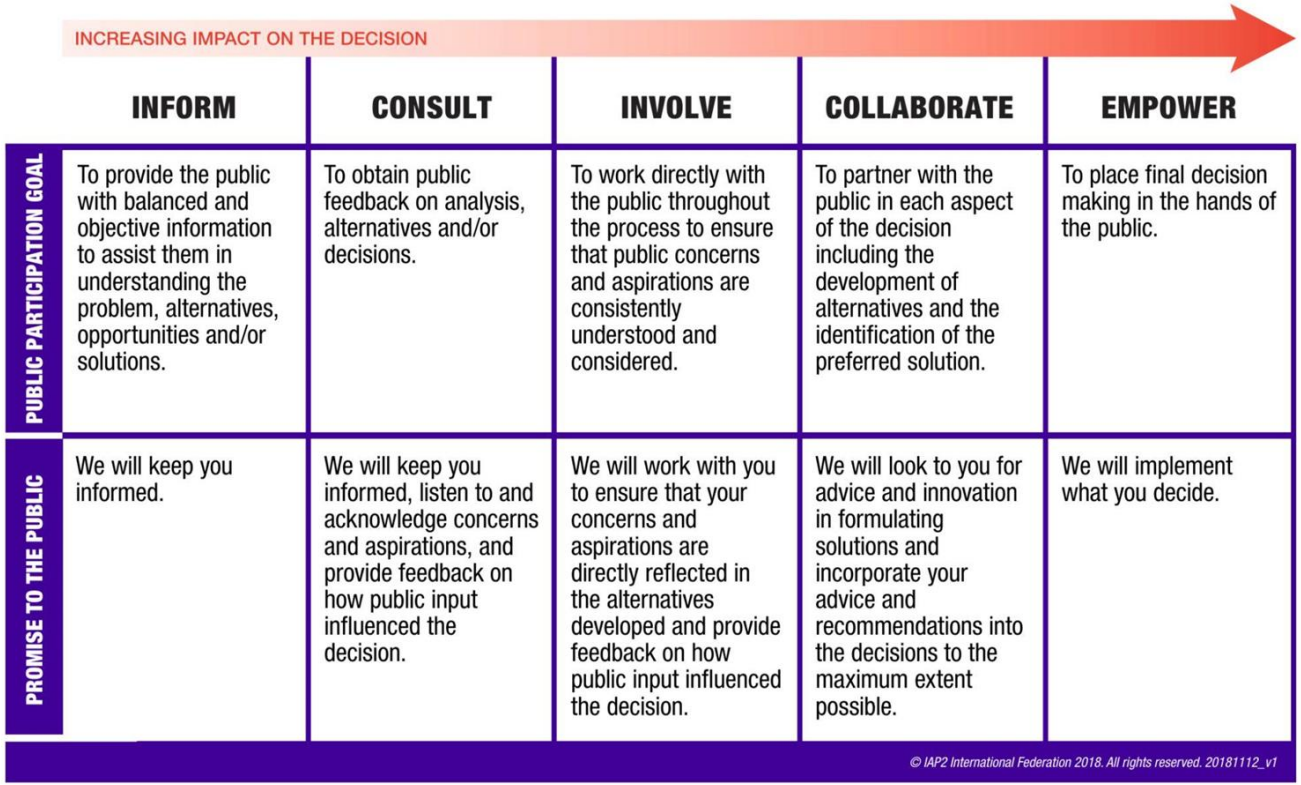
3. How should we do this together?

Sherry Arnstein's Ladder of Citizen Participation



Increased responsibility
Increased accountability
Decreased control of outcomes
Decreased control of process

IAP2 Spectrum of Public Participation



Source: https://cdn.ymaws.com/www.iap2.org/resource/resmgr/pillars/Spectrum_8.5x11_Print.pdf

Principles of partnering with integrity

- Relationship first
- Take your time (4X+)
- Transparency (this will happen either proactively or reactively)
- Make “deposits” into the community
- Listen
- Show up
- Meaningfully share decision-making power
- Name and decenter power dynamics

Community Health Aligning Revitalization Resilience & Sustainability - CHARRS

AQEarth Project (NIEHS)

Plan or Fail

Revere

8. CITIZEN CONTROL
7. DELEGATED POWER
6. PARTNERSHIP
5. PLACATION
4. CONSULTATION
3. INFORMING
2. THERAPY
1. MANIPULATION

DEGREES OF CITIZEN POWER
DEGREES OF TOKENISM
NON-PARTICIPATION

Roxbury

Conclusions

Clearly define goals

Choose sensors and project plans to support goals

Develop a collaboration plan

Questions

Follow-up

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