



# HERCULES

EXPOSOME RESEARCH CENTER

*Learning how the exposome affects health and community well-being and using that knowledge to improve human health*

## The Exposome

is the concept that environmental exposures play a role in our health over a lifetime. These exposures include ***what we eat and drink, the air we breathe, our behaviors and lifestyles, and where we live, work, and play.***



### **Lynne Young, MS**

- Pathways to Sustainability
- Member, HERCULES Stakeholder Advisory Board
- Former member, HERCULES Executive Committee



### **Melanie Pearson, PhD**

- Director of Community Engagement Core, HERCULES Stakeholder Advisory Board Member
- Member of HERCULES Executive Committee



### Stakeholder Advisory Board

Members, including local residents, non-profits, and government agencies, guide CEC activities and ensure community concerns about environmental health issues are incorporated into research.



### Exposome Roadshow and Community Grants

Conduct workshops with local communities to share the exposome concept, identify communities' environmental health priorities, and provide funding for communities to plan, take action, and sustain action over a 3-year period.



### Community-Based Participatory Research (CBPR)

Via pilot grant funds, we facilitate community-academic partnerships to collect scientific data to document and help address community-based environmental health concerns.

# The “Mold” Study

## Proctor Creek Community Health Survey

Community members and Emory HERCULES scientists working together to address community concerns.

### What did we want to know?

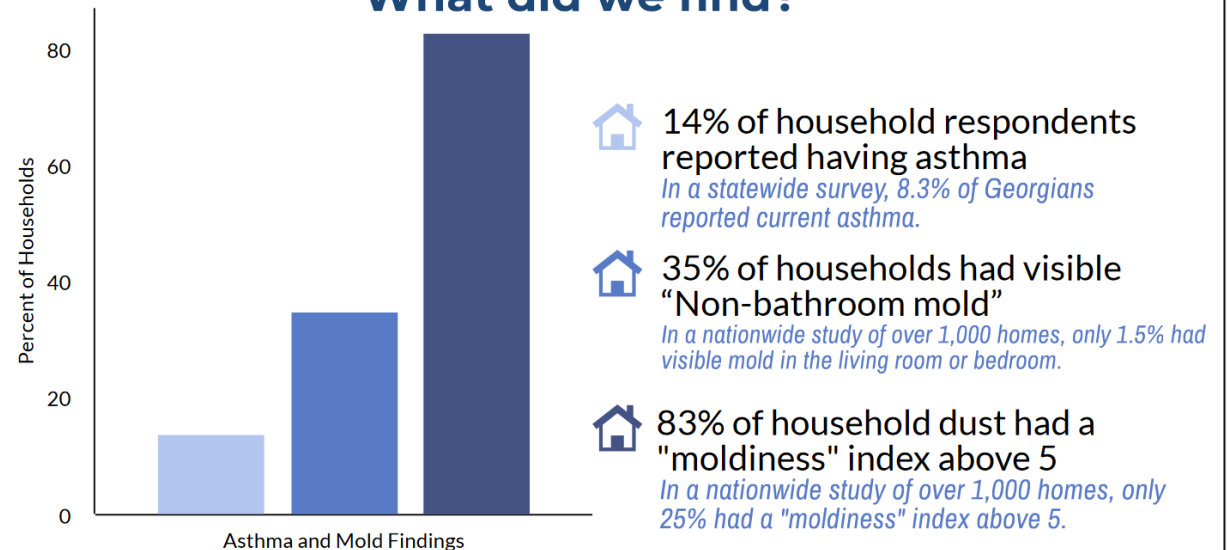


Do residents have health conditions related to dampness, flooding, or mold in their homes?

### What did we do?

- 1 Asked 150 residents questions about conditions inside their home and their health.
- 2 Conducted an environmental observation of the home.
- 3 Collected household dust for mold testing.

### What did we find?



The most important factors predicting presence of mold in the home were water leaks or a basement.

# How did the Mold study “Inpower” the community?

Community members leveraged the mold study to:

- Increase public awareness on relationship between mold and human health
- Obtain additional funding to provide training on mold remediation for residents,
- Gain city support for funding for the repair of indoor water leaks at properties owned by low-income seniors and rental properties within the study area
- Gain city support for anti-gentrification policies that allow relocation of long term residents affected by mold within their neighborhood.



# The “Air Pollution” Study

## Industrial Air Pollution in East Point

Key takeaways from a study done with East Point residents

### What did we want to know?



What chemicals are in the air of East Point neighborhoods near industrial facilities?

What are East Point residents' perspectives and experience with air pollution?



### What did we do?



80 air samples were collected around 3 locations: PPG Industries, William C. Meredith, and Tri-Cities High School.



122 East Point residents responded to a separate survey about community perspectives on air pollution in East Point, health symptoms and diagnoses, and desire for community action.

### What did we find?

Chemical name	Present in most samples	Higher levels when odors reported	Chemical characteristics and common uses
2-butanone ( <i>most frequent</i> )	✓	✓	Solvent, commercial paint strippers, butterscotch smell
Acetone ( <i>2<sup>nd</sup> most frequent</i> )	✓	✓	paint thinner
Toluene	✓	✓	Markers, paint, industrial solvent; Traffic related air pollution
Methylene chloride		✓	Paint stripper
2-hexanone		✓	Paint/solvent
Dichlorodifluoromethane	✓		Refrigerant, “greenhouse gas”
n-hexane	✓		Common industrial solvent
Trichlorofluoromethane	✓		Refrigerant, “greenhouse gas”

#### Air Sampling

- Six chemicals were found in over 50% of the samples.
- Sixteen other chemicals were identified less frequently.
- Certain industrial chemicals were higher when residents smelled odors.

#### Community Survey

A majority of respondents:

Thought air pollution was a problem and reported smelling chemical odors in their neighborhood.



Experienced health symptoms such as headaches, eye irritation, and sleep problems in the past year.



Were interested in working with community members on environmental health issues like air pollution.



# How did the Air Pollution study “Inpower” the community?

Shared Study Results via Zoom town hall, infographic, and report



Photo credit: <https://churchdevinumc.wordpress.com/2020/04/07/smaller-churches-try-zoom-ing-your-worship/>

Research findings translated into action



PPG East Point Manufacturing Facility  
1377 Oakleigh Drive  
East Point, GA 30344  
ppg.com

## ODOR MITIGATION PLAN SUMMARY

PPG | East Point, GA Facility

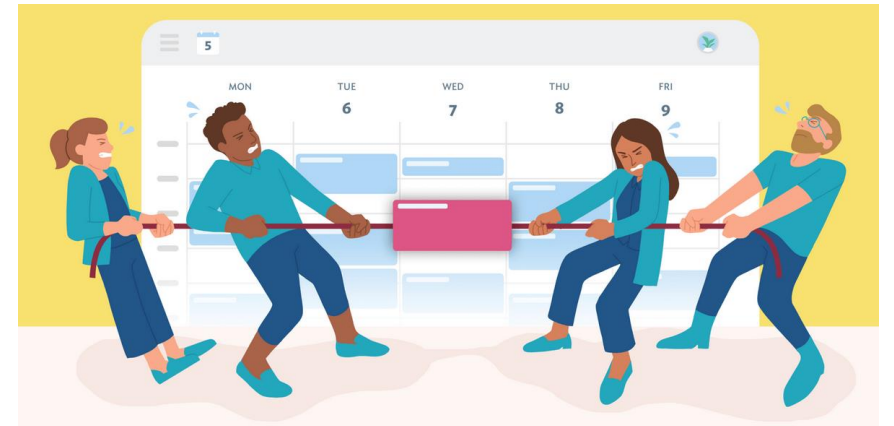
### SUMMARY

PPG manufactures latex and oil-based paints for residential and commercial architectural finishes in its East Point, Georgia coatings manufacturing facility. In 2021, the East Point plant engaged a third-party expert to conduct a study to assess and evaluate potential causes of odors reported by community members. Based on findings from the study, which were reported out to the East Point community, PPG has developed an odor mitigation plan – detailed below – which focuses on target areas at the plant determined to have the highest potential for causing possible off-site odors. Beginning in late 2021 and continuing through 2022, PPG is implementing odor control technologies and management practices, including capital investments and process analysis.

# What worked and didn't work?



[This Photo](#) by Unknown Author is licensed under [CC BY-NC](#)



# How do you manage the tension between research and the community's desire to get movement?

- Low-income communities face a myriad of problems with minimal resources to address them individually
- Problems are longstanding;
- Often there has been a systematic underinvestment with toxic facilities purposefully sited in their neighborhoods
- Regulators will not act without research that provides proof of contamination, but it can take years to obtain the appropriate data. Even after obtaining the data, there can be failure to take action.
- Research focuses more on air, water soil contamination which is relatively quick to obtain and less on health or public health impacts
- Separate studies can be conducted at the local, state and federal level with no coordination of results
- Leaders often will only act after public confrontation but it can be challenging to organize



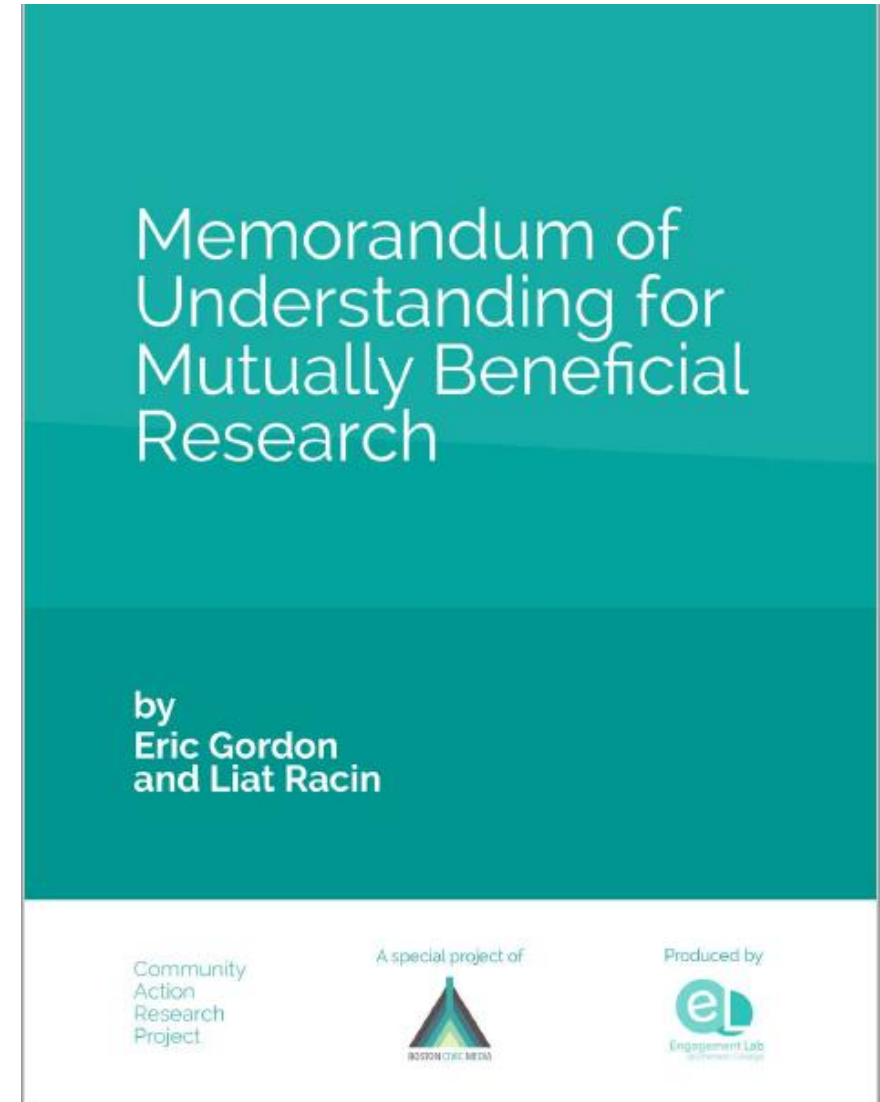
Lunch and Learn at Atlanta City Hall to share results of the Mold Study

**Communities are interested in research that can lead to actionable results!**



# Recommendations to funding agencies and other research organizations

- Engage community members as early as possible.
- The best researcher listens to understand rather than to respond.
- Have a flexible research design to accommodate community needs and ideas.
- Bring resources/benefits to the community
- Require a plan for translating research results to action
- Identify potential unintended impacts and develop plan to address them
- Plans to handle “undesirable” or unexpected results
- Have a shared leadership plan between academic & non-academic partners
- Provide sufficient and equitable funding for each partner
- Require dissemination of research results to larger community



<https://www.aspeninstitute.org/wp-content/uploads/2018/03/MOU-TEMPLATE.pdf>