

CHRISTINA LEE BROWN ENVIROME INSTITUTE

**CARDIOVASCULAR
INNOVATION
INSTITUTE**



Metro Council Briefing

Dr. Ted Smith

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09/14/22

Who We Are



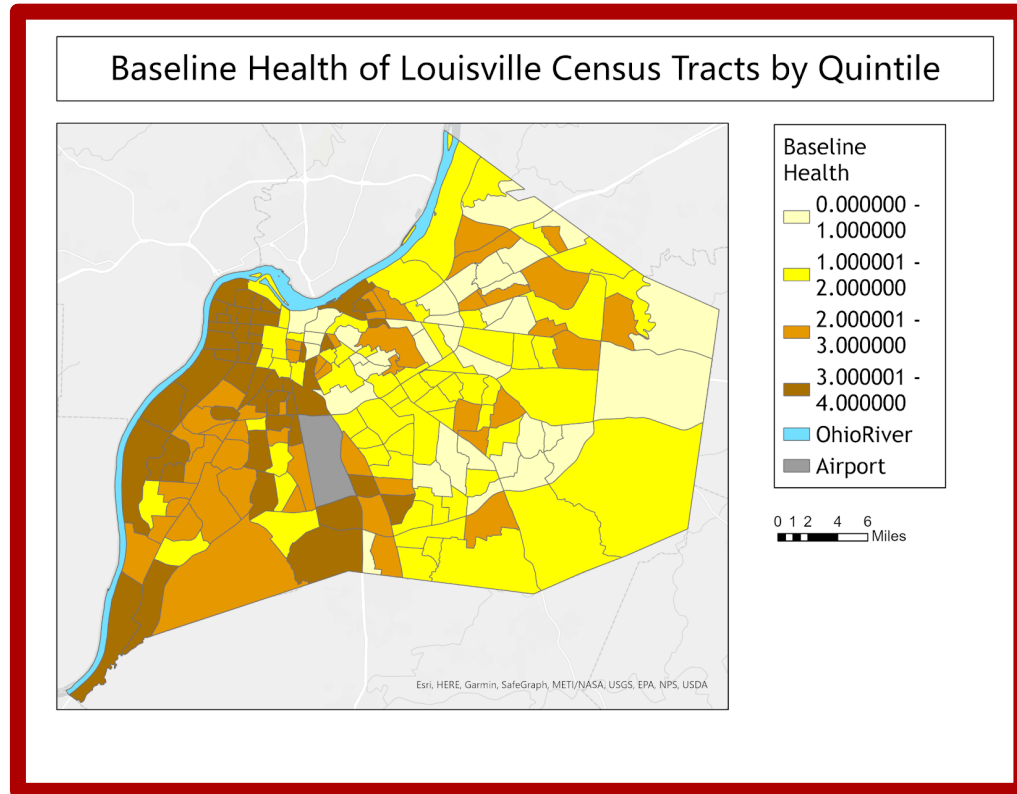
The Christina Lee Brown Envirome Institute is dedicated to forging a **new vision of health where individuals thrive in an environment consisting of unpolluted natural ecosystems, equitable social networks, & sustainable lifestyle patterns.**

Q: What is a new vision of health?



Answering this question requires exploring our landscape, our fundamentals, & our place-based research.

Louisville's Health Landscape



- Per LMPHW, heart disease surpassed cancer in Jefferson County as the leading cause of death in 2018.
- Per LMPHW, the disparity in age adjusted death rates between NH white and NH Black racial groups more than doubled in 2018.
- There are clear health inequities and disparities across census tracts in our city.

This map specifically measures vulnerability via baseline health measures like childhood asthma, proximity to hospitals, life expectancy, and more. Created July 2022.

Our Guiding Questions



Q: *What are the effects of the environment on our health?*

Q: *How do urban environments give rise to health disparities?*

Q: *What disease risks exist when our environment changes?*

Q: *How can we better understand environmental risks in our city?*

Our Fundamentals

Our philosophy is shaped by the core belief that our environment has a tremendous impact on our individual and collective health outcomes.



The **Human Envirome** is made up of three nested domains:

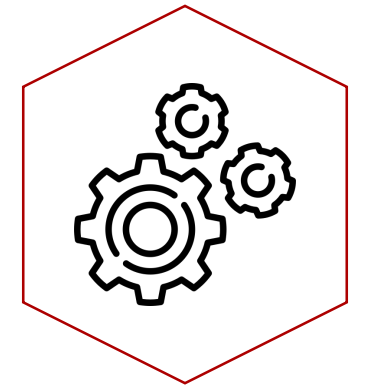
- **Natural**
 - The physical markers of the world around you
- **Social**
 - The built environment around you
- **Personal**
 - Your individual experience of the world

This foundation creates a new framework for understanding the totality of the environment.



A visual model of the Human Envirome.

Our Research

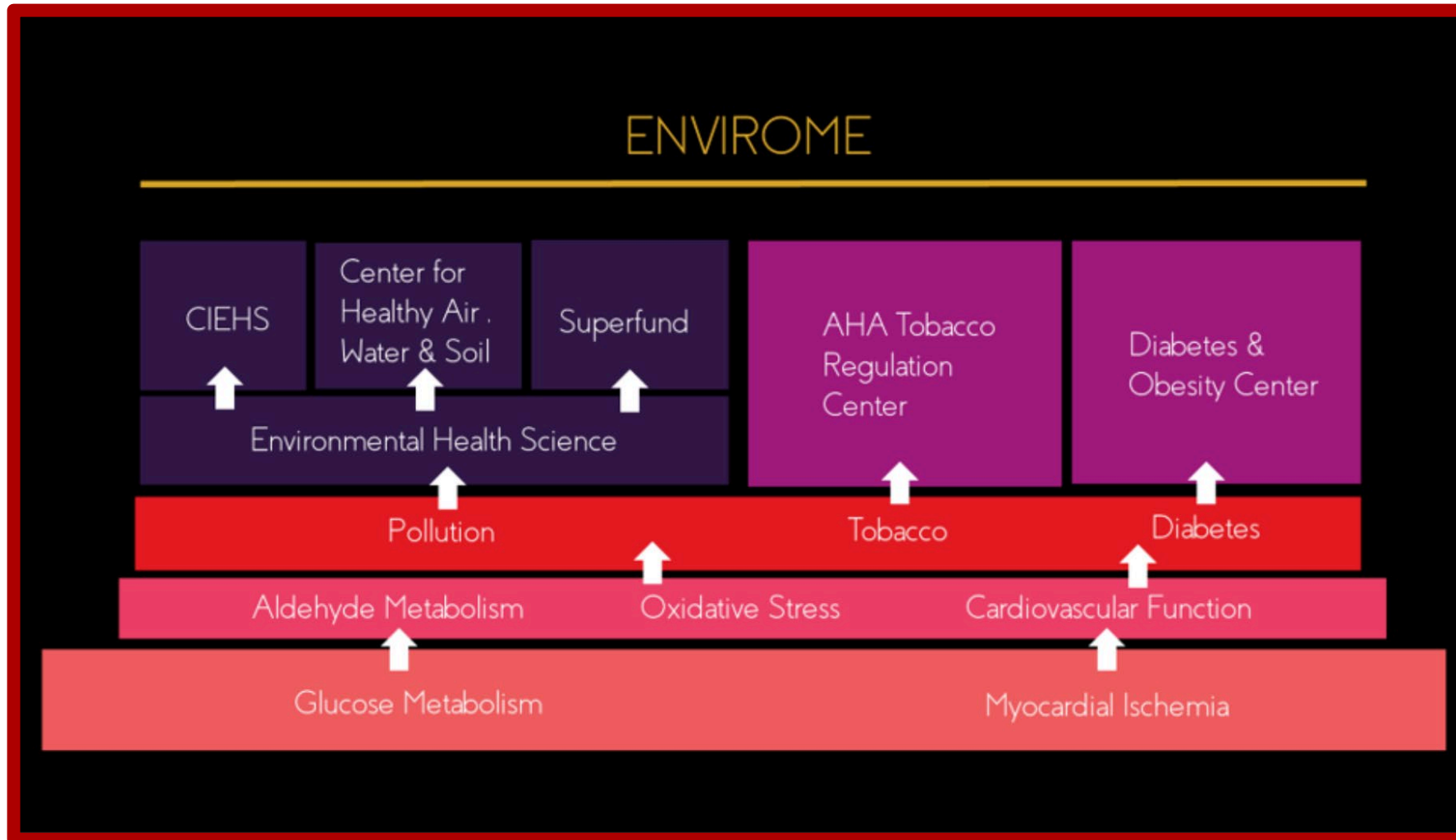
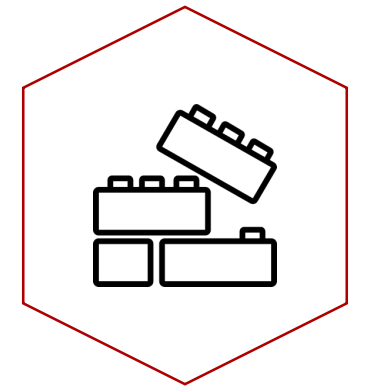


- Home to **six centers** including:
 - Superfund Research Center
 - Diabetes & Obesity Center
 - Tobacco Regulation and Addiction Center
 - Center for Healthy Air, Water and Soil
- Steward of **\$32** million dollars in active federal grants
- **85** peer reviewed publications authored in the last year
- Home to a team of **110** transdisciplinary researchers & support staff



Group photo of the Envirome Institute.

Our Core Expertise



The Science: Pollution

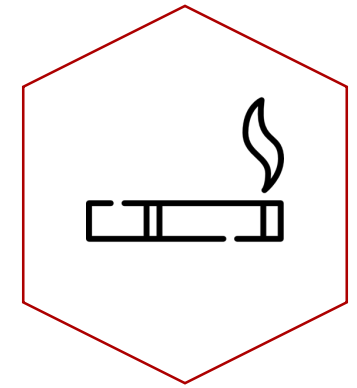


- **Our Hubs**
 - Superfund Research Center
 - Center for Healthy Air, Water, and Soil
 - Center for Integrative Environmental Health Sciences
- **The Numbers**
 - **25+** publications
 - **84+** team members
 - **80+** meetings with civic groups and leaders
- **Ongoing and Recent Projects**
 - The assessment of **1,200** Jefferson County residents' exposure to volatile organic compounds in Lee's Lane, Distler Farm, and Rubbertown
 - Sharing information with community after a chemical spill in south Louisville



A field scientist collecting wastewater samples in Shawnee for the Co-Immunity Project.

The Science: Tobacco



➤ Our Hub

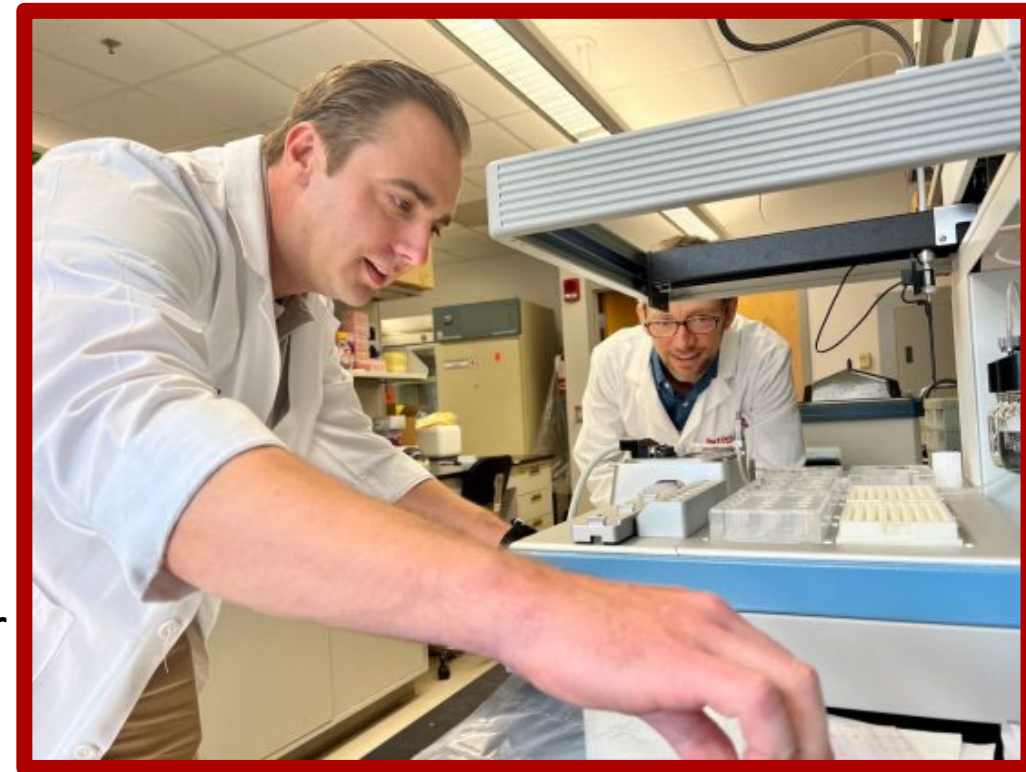
- Tobacco Regulation & Addiction Center (A-TRAC)

➤ The Numbers

- **37** publications
- **11** conference presentations
- **6** ongoing partnerships between governmental agencies

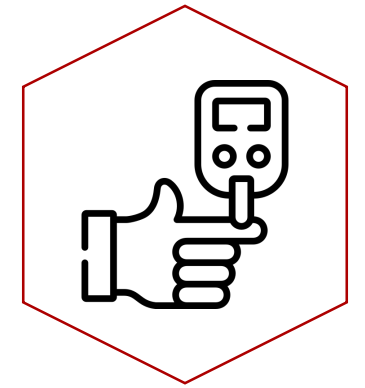
➤ Ongoing and Recent Projects

- Assessing which tobacco-induced biomarkers indicate the extent and progression of cardiovascular disease
- Establishing a Youth Advisory Council to address the vaping epidemic



Scientists in one of the A-TRAC laboratories.

The Science: CardioMetabolic Disease



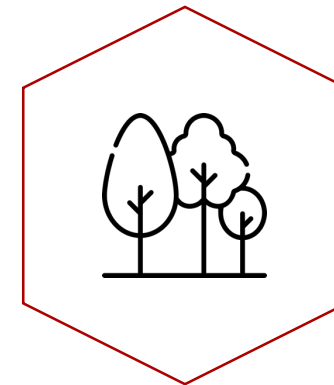
- **Our Hub**
 - Diabetes & Obesity Center
- **The Numbers**
 - **31** publications
 - **61** team members
 - **\$5.8** million in new National Institute of Health funding
- **Ongoing and Recent Projects**
 - Hosted and trained **5** undergraduate students over the summer in partnership with the American Heart Association
 - The advancement of scientific methods to further the study of subjects like metabolism and oxidative stress



Scientist in a DOC laboratory.

Place-Based Research: Green Heart

Green Heart is a longitudinal, interventional research study measuring the impact of green space on air quality and human health.

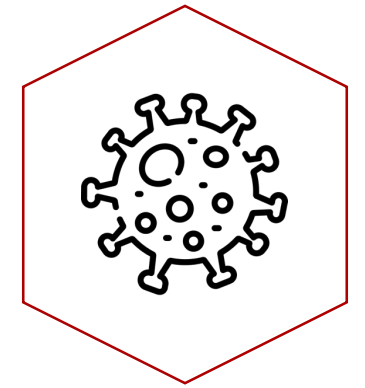


- **Rooted in 6 South Louisville Neighborhoods**
 - Community work strengthened by Councilwoman Nicole George and Councilman Kevin Triplett
- **Why**
 - Louisville has received an **"F"** on air quality from the American Lung Association.
 - Living near greenness is associated with decreased mortality
- **The Last Year**
 - **51** community meetings held
 - **9,000** trees planted
 - **700+** enrolled health study participants



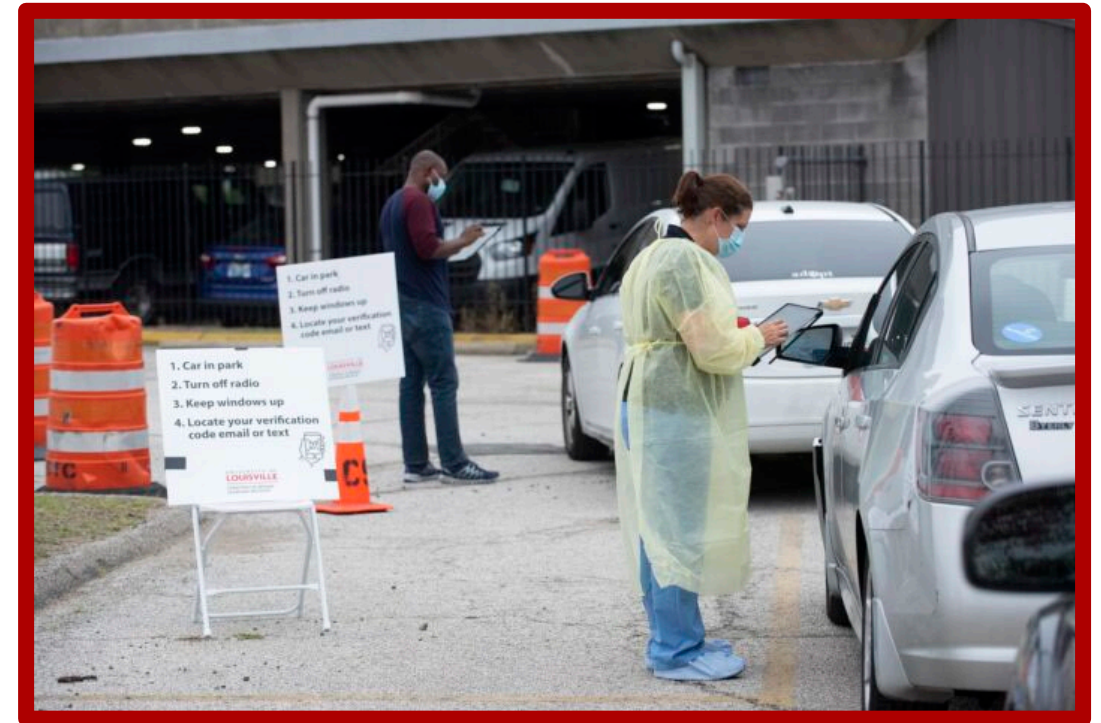
Dr. Bhatnagar speaking at a community event for Green Heart.

Co-Immunity Project



The Co-Immunity Study tracked the movement of SARS-CoV-2 in the Louisville Metro-Jefferson County community.

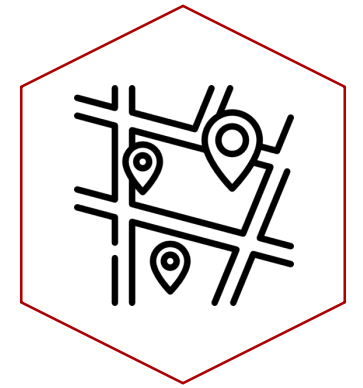
- **A Trusted Testing Partner for LMPHW**
 - Healthcare workers, individual community testing, and sewer monitoring
- **Key Partnerships**
 - Louisville Metro Public Health and Wellness
 - Metropolitan Sewer District
- **The Last Two Years**
 - **15,300** individuals tested throughout the project's duration
 - **9** waves of testing in different phases of the pandemic across **36** testing sites



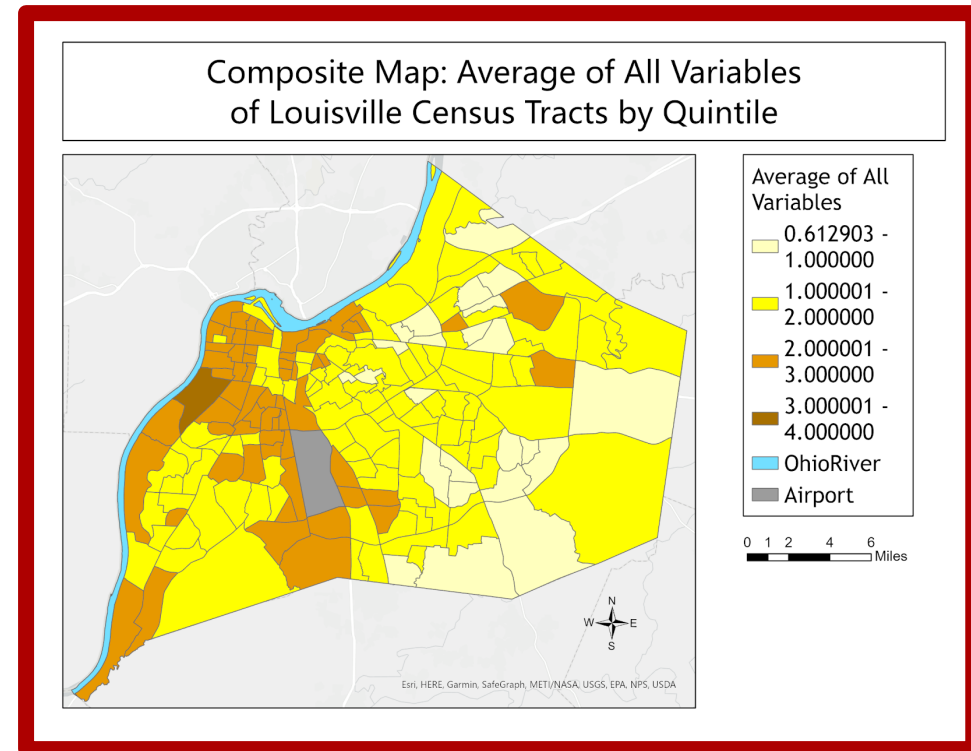
Drive-thru testing taking place during the Co-Immunity Project.

Environmental Vulnerability Index

The EVI is a visual representation of our city's social and environmental risk profile.



- **Designed as a Tool for Civic Leaders in Louisville**
 - The EVI gives scores for each census tract in **6** distinct realms of vulnerability.
- **Why**
 - Vulnerabilities can not be viewed in silos within our city.
 - A better understanding of risk can improve emergency and community planning.
- **Last Summer**
 - **25+** variables analyzed from socioeconomic status to proximity to hospitals
 - **7** maps generated, refined, and finalized through ArcGIS
 - **1** report on our work being prepared for the community



A composite map of social and environmental vulnerability across census tracts in Louisville. Created July 2022.

Where We're Going



The New Vision of Health campus will focus on health as a shared community resource, incorporating environmental and cultural factors. Located in the heart of downtown, this space will host world-class research and hubs for community engagement.

- Ground broken on May 25th
- New pillars of inquiry
 - **Nutrition**
 - **Sleep**
 - **Exercise**



A rendering of the New Vision of Health Campus.

Consider Us a Partner

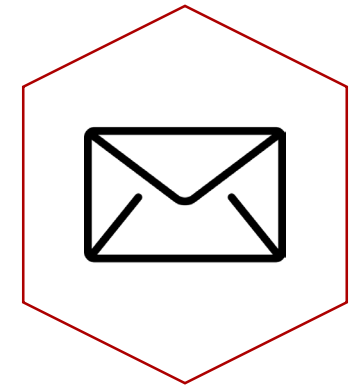


*The Christina Lee Brown Envirome Institute is dedicated to using our research to **reduce disease and improve health outcomes.***

- Louisville has profound health inequities that derive from a wide range of environmental circumstances.
- We are committed to improving understanding and outcomes in our city by applying our tools, evidence and expertise from the research we conduct.
- We can work together to improve understanding and outcomes in our city.

Consider us your partner in current work & future conversations on environmental health.

Contact Us



In April 2022, the Envirome hired a civic research aide to facilitate partnerships & collaborations with community stakeholders.

- **Since joining the Envirome**
 - Assisted with place-based research and community requests from civic leaders and organizations
- **Ideas for potential collaboration**
 - Conduct research on environmental health topics
 - Peer city models, literature reviews, legislative history
 - Attend, speak, or table at aligned community events
 - Collaborate with local stakeholders on solutions to improve health outcomes

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Laney Taylor, Civic Research Aide



**Let's continue to improve the
health of our city, **together.****

