



The  
**Green  
Heart  
Project**

# A Unique Urban Laboratory

Louisville has one of the highest levels of air pollution in the United States. For six years in a row, the city has received an **"F" from the American Lung Association** for year-round particle pollution.

The city is **losing 54,000 trees each year** due to age, invasive insects and development.

Recent studies connect the city's poor air quality to higher risks of **heart disease, obesity and diabetes**—the leading causes of death in Louisville.

These are all huge challenges, but they also make Louisville **the perfect laboratory** to test the hypothesis that trees and other plants can measurably improve human health and wellbeing.

A lot of cities have programs to plant trees. Green Heart is different—it's **the first project to combine tree planting with a scientific study** of how greening a neighborhood can improve the health of its residents.



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## THE GREEN HEART PROJECT

is a first-of-its-kind partnership to make people's lives better in Louisville using the power of nature. The core team:



**The Nature Conservancy** brings 65 years of conservation expertise and a global network of partners eager to replicate the Green Heart Project



**Hyphae Design Lab** creates innovative ways to implement greening solutions in cities



INSTITUTE FOR HEALTHY AIR, WATER & SOIL

**The Institute for Healthy Air, Water and Soil** serves as a leader in analyzing and understanding the role air pollution plays in human health in Louisville

UNIVERSITY OF LOUISVILLE

**The University of Louisville** conducts pioneering research on the connections between environmental factors and human cardiovascular health

With financial support from the National Institutes of Health and the EPA, and technical assistance from more than 30 additional partners, from Louisville and beyond, the Green Heart Project is an unprecedented effort to demonstrate the real and essential connections between nature and human health.

# Healthy Air = Healthy People

Clean air is not a nice amenity for desirable neighborhoods—it's a right, and it is an **absolute necessity for human health**.

In 2016, we tested the theory that **healthier air makes for healthier people**.

A research team planted trees and shrubs in the front yard of Louisville's St. Margaret Mary School to filter fine particulate air pollution coming from a heavily trafficked roadway nearby.

An initial analysis revealed exciting results: Levels of particulate matter were as much as 60% lower behind the "green buffer" compared to the open portion of the yard. The research team also collected physical data from study participants and found they enjoyed increased immune system function and decreased inflammation.

This was a small study. Now we are **taking it to scale, with increased scientific rigor**.



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# Making Decisions Through the Lens of Health

The University of Louisville's **Dr. Aruni Bhatnagar** (pictured left), a pioneer in the field of environmental cardiology, is leading the charge to connect nature and human health.

Dr. Bhatnagar is working with funding from the National Institutes of Health and the Environmental Protection Agency's Superfund Research Program to launch **a 5-year clinical study of the health effects of neighborhood greening on people**.

While there is a growing body of scientific evidence linking environmental health to the wellbeing of people, especially in urban areas, this study would provide first-of-its-kind evidence that bringing more nature into a neighborhood can directly lower the risk of cardiovascular disease, the leading cause of death worldwide.



# Greening Neighborhoods, Empowering a Community

The Green Heart Project will include parts of four Louisville neighborhoods.

Starting in the fall of 2018, The Nature Conservancy will **plant up to 8,000 trees** in a “greening” study area that is home to roughly 10,000 residents.

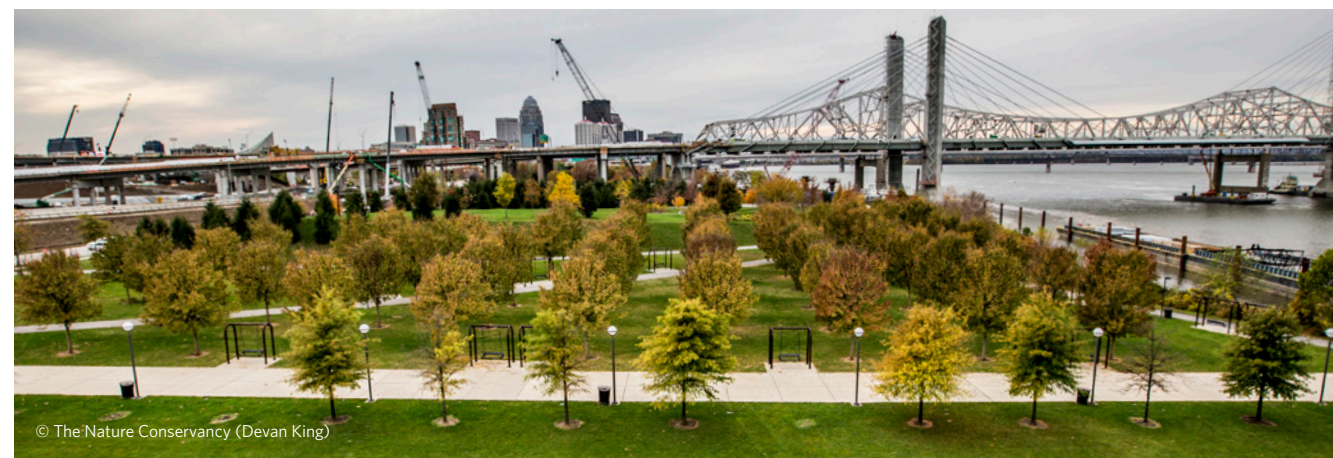
Over the next five years, Green Heart will **compare pollution levels and health outcomes** in the study area to those in the nearby 12,000-resident control area.

The most rigorous part of the project will involve **clinical research on 700 volunteers**, who will be thoroughly and regularly tested for baseline health and stress levels, disease risk and other health factors.



The Green Heart Project will be a “declaration of connectivity,” **empowering local citizens** to:

- deepen their relationships with their environment
- take an active hand in improving their own mental and physical health
- show the world that nature can make people’s lives better!



# A Model for the World

As important as Green Heart is for the people of Louisville, this project is so much more.

This **living urban laboratory** could drive millions in new investment and promote better public policies to elevate nature as a key strategy to improve air quality and enhance human health and wellbeing.

What we learn in Louisville could ultimately **change the lives of millions of people** across the planet.

The road to stronger cities and healthier citizens runs through the **GREEN HEART** of Louisville.





## **CONTACT**

### **Chris L. Chandler**

The Nature Conservancy  
Cities Program Director, Kentucky

[christopher.chandler@tnc.org](mailto:christopher.chandler@tnc.org)

+1 (502) 640-1479 mobile

+1 (502) 742-4521 ext. 3013 office