

Environmental Strategies for Disease, Violence, and Injury Prevention in Urban Areas

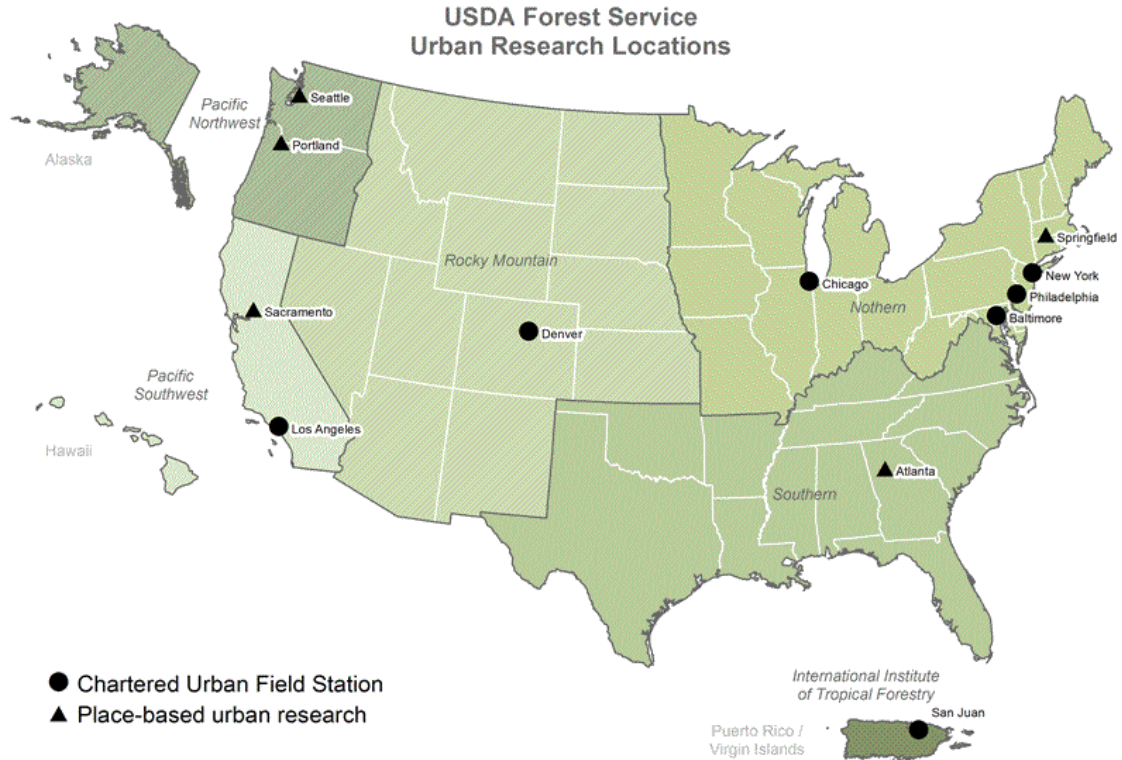
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USDA Forest Service Urban Field Stations





Health Outcomes Tied to Urban Nature Exposure

-
- ▶ Mortality
- ▶ Heart rate
- ▶ Crime & violence
- ▶ Post-operative recovery
- +
- ▶ Attention
- ▶ Mood
- ▶ Mental health
- ▶ Birth weight



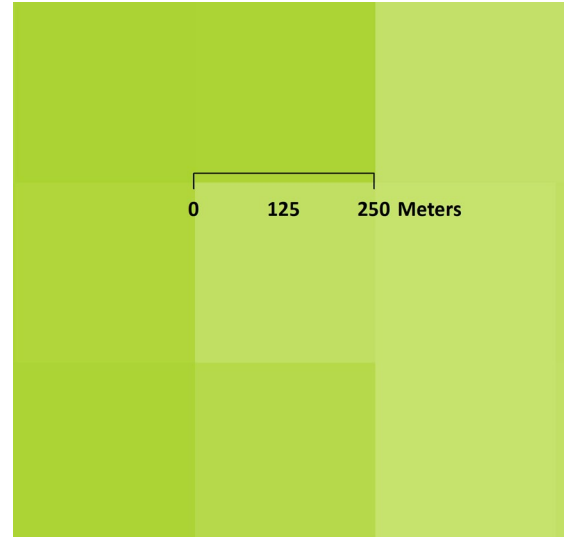
Review

Urban Green Space and Its Impact on Human Health

Michelle C. Kondo ^{1,*}, Jaime M. Fluehr ², Thomas McKeon ² and Charles C. Branas ³

Population-Level Nature-Health Study Exposure Estimation Method

Electronic Medical Records +

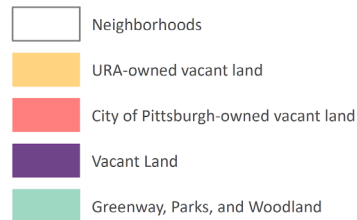


Vacant Properties

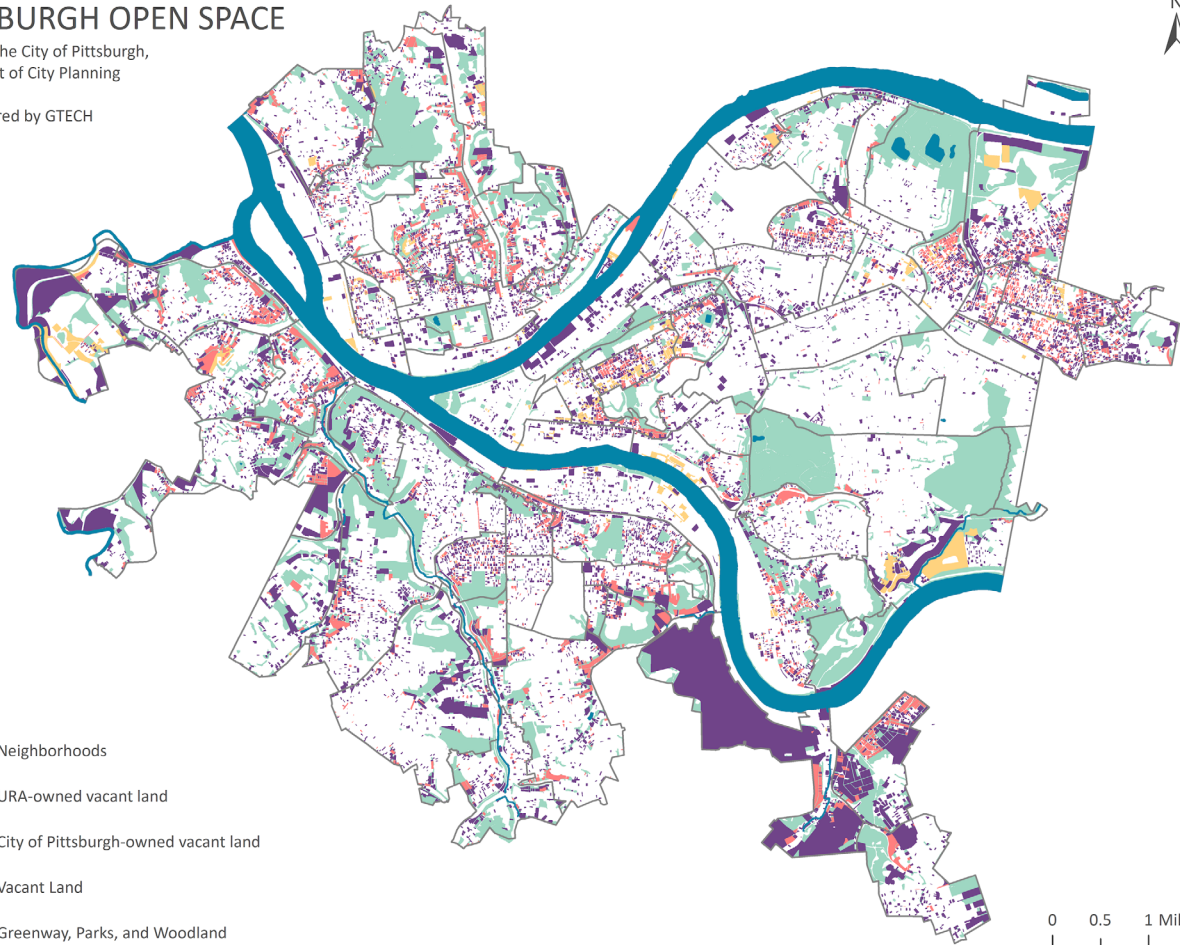
PITTSBURGH OPEN SPACE

Data from the City of Pittsburgh,
Department of City Planning

Map prepared by GTECH



0 0.5 1 Mile



Vacant Properties



- ▶ Trash dumping
- ▶ Rodents
- ▶ Pathogens
- ▶ Illicit activity
- ▶ Fear, anxiety, stress, depression

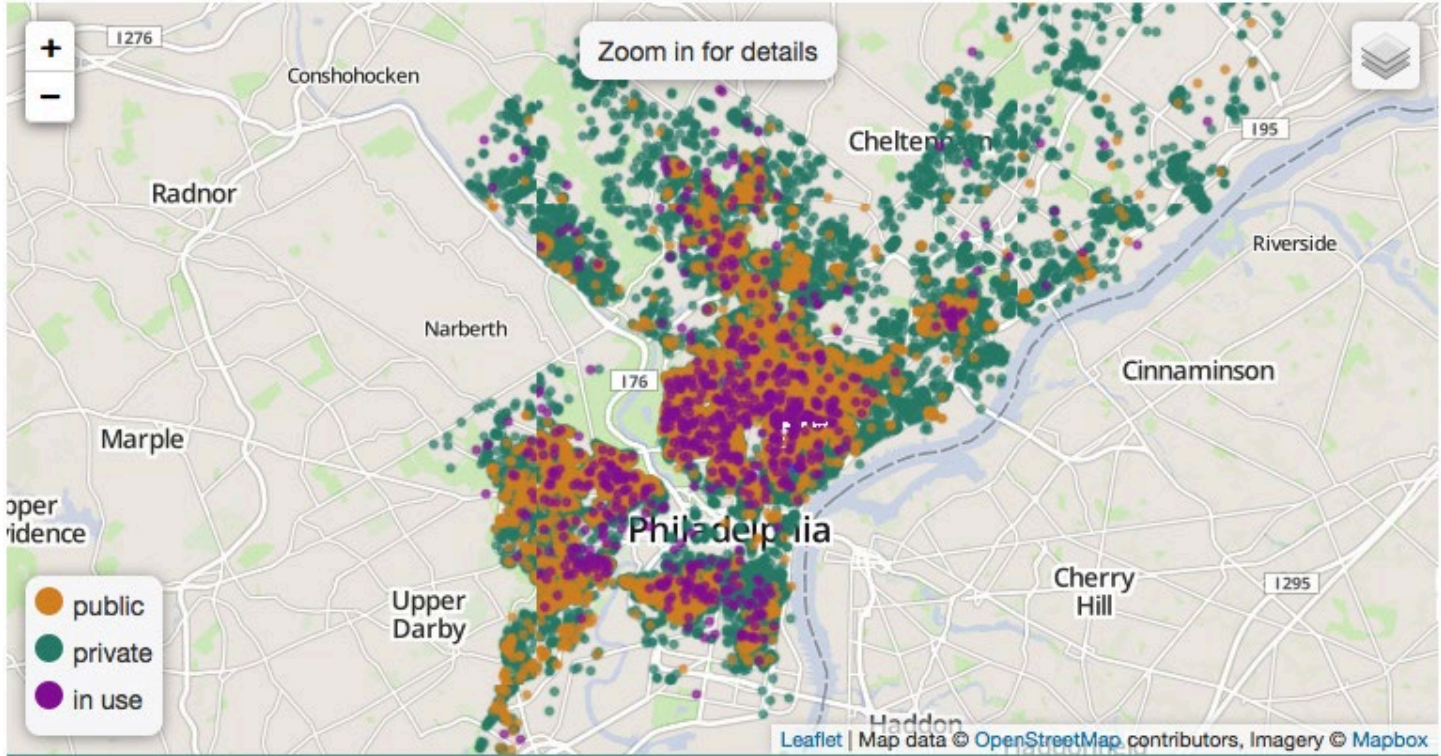
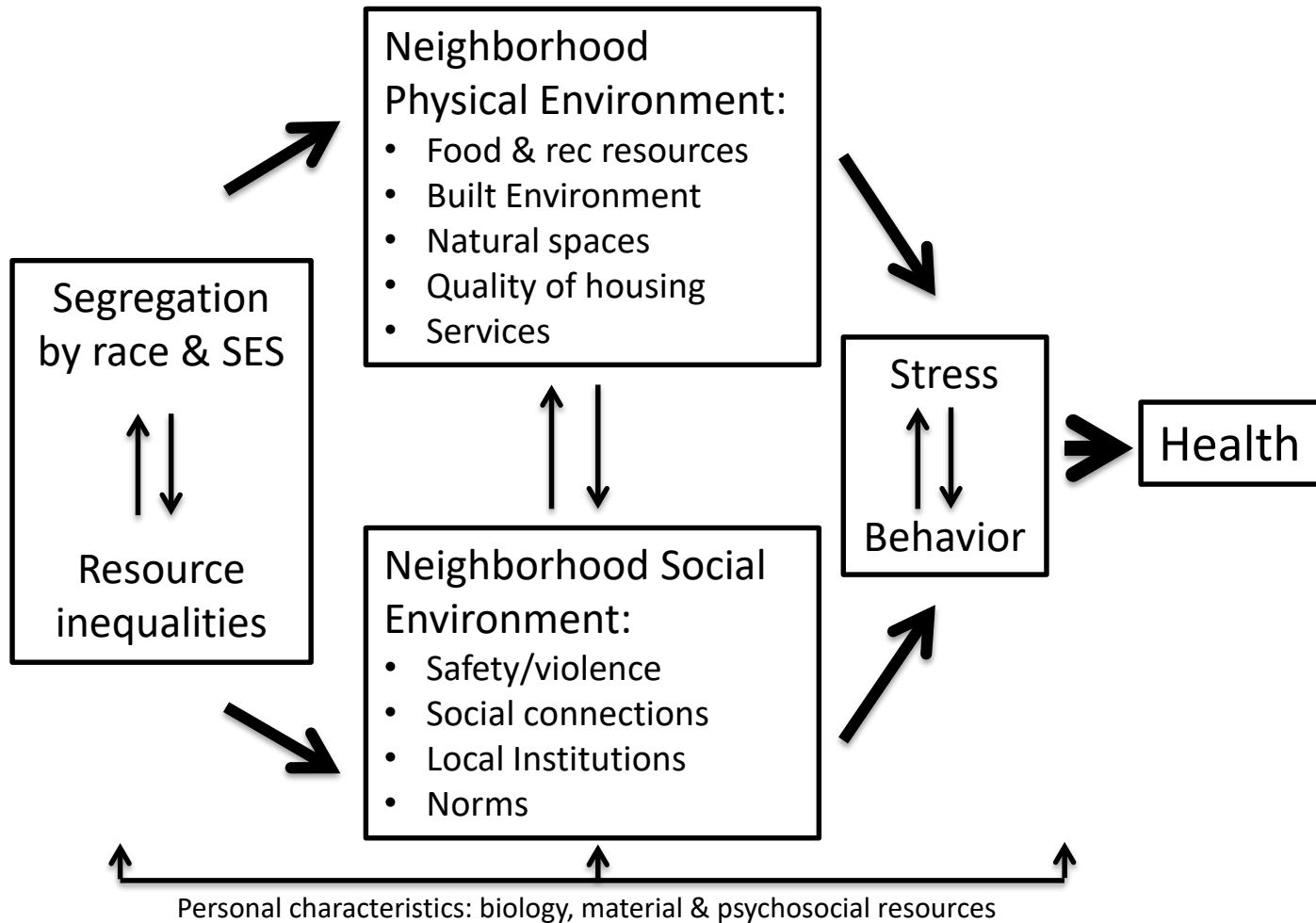


image: <http://groundedinphilly.org/>



“Some residents deal with chronic health [conditions] and violence in our neighborhood causes added stress that can make folks drink more and smoke more and feel major anxiety.”

- male resident, ~45 years

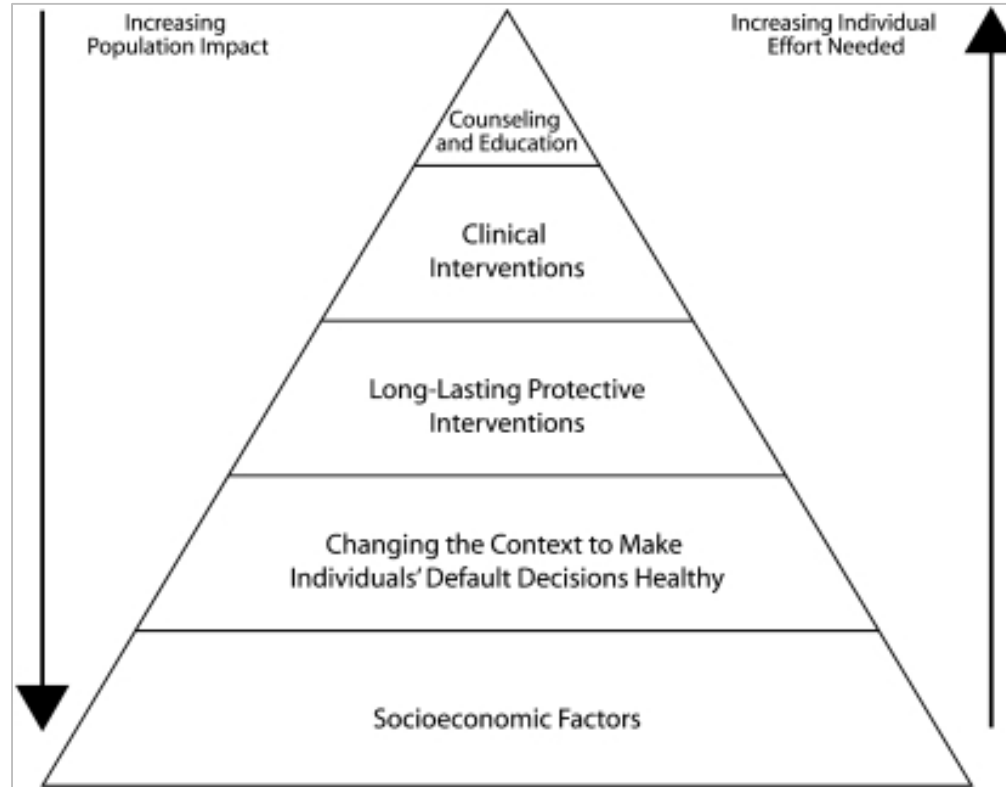
Key Themes from focus groups and interviews:

- ▶ Blight, violence, and substance use are key issues for residents
- ▶ Concern about the lack of affordable housing and about effects of renters
- ▶ Importance of neighborhood conditions on health
- ▶ Need for sustainable, youth engaged solutions to blight

“If the neighborhood was more attractive, we would have less violence. Blight makes me anxious.”

- female resident, ~67 years

The Health Impact Pyramid



Can urban place- and nature-based interventions improve public health and safety?



green stormwater
infrastructure



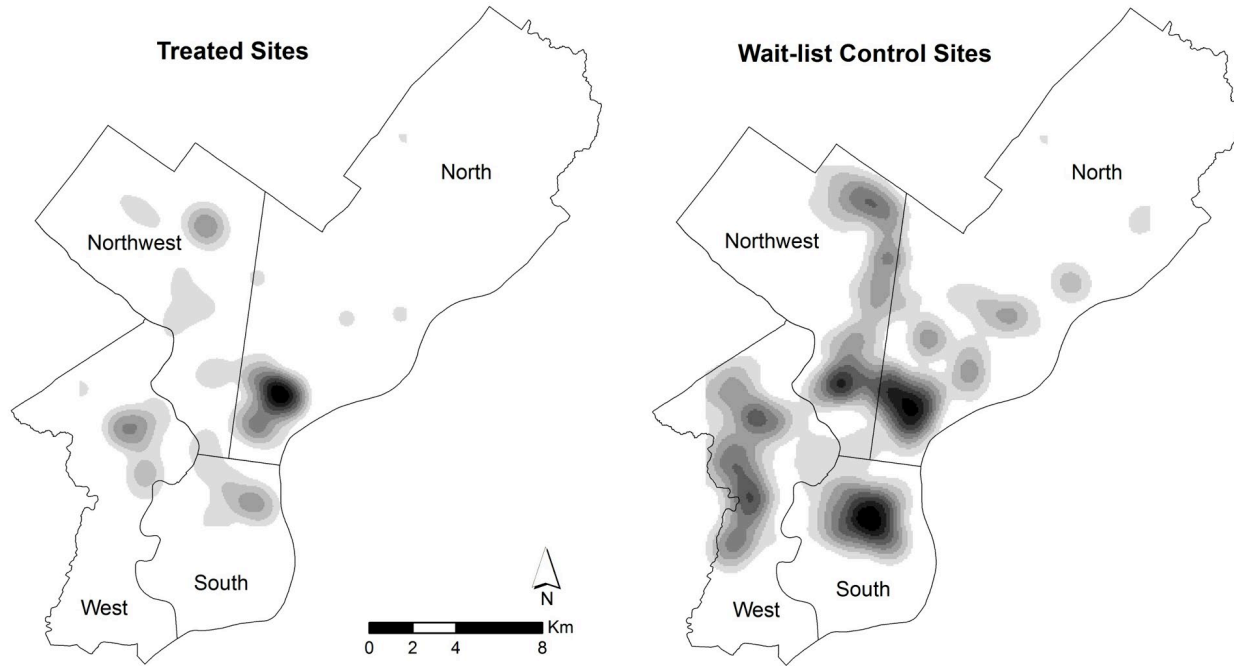
vacant-lot greening

Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012

- ▶ 52 treatment sites: GSI locations
 - ▶ Construction dates: 2000 – 2012
- ▶ 186 “waitlist” control sites
- ▶ Randomly matched 1:3 to 1:6 within 4 city sections
- ▶ Crime locations (14 types)
- ▶ Health data: High stress, blood pressure, cholesterol



Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012



Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012

- ▶ Significant reductions (up to 27%) in narcotics possession around GSI sites
- ▶ No difference in stress, instance of high cholesterol or blood pressure



Contractor vs. Community Greening in Youngstown, OH 2011-2014



v1.0: "contractor clean & green"

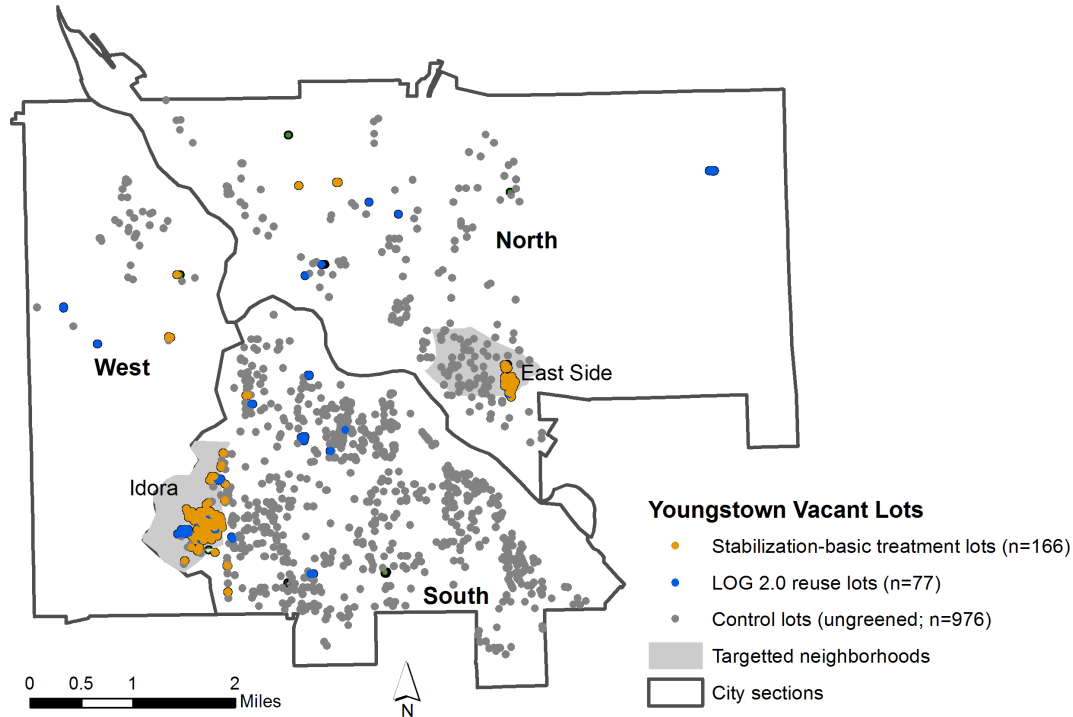


v2.0: "community reuse"

Contractor vs. Community Greening in Youngstown, OH 2011-2014



244 greened lots randomly matched with 959 control vacant lots

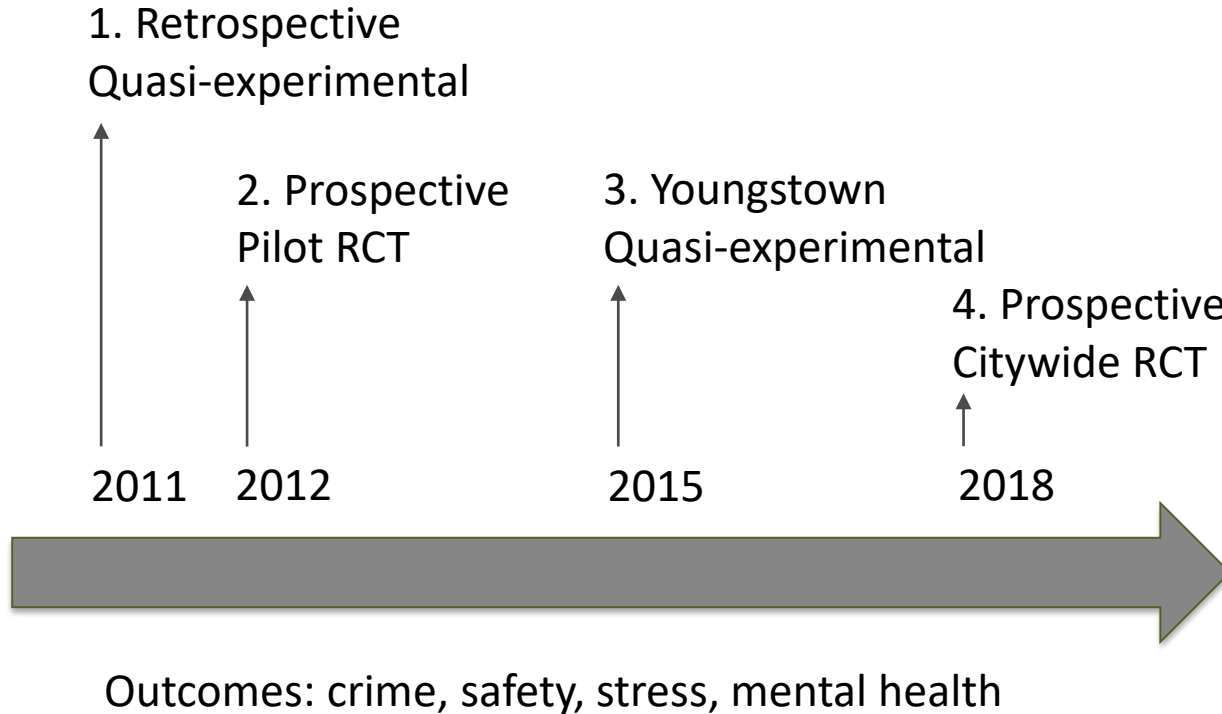


Contractor vs. Community Greening in Youngstown, OH 2011-2014

- ▶ Reductions in burglaries and robberies (all lots & contractor clean-and-green lots)
- ▶ Reductions in assaults and violent felonies (community reuse lots)
- ▶ Spill-over crime-reduction effects into neighboring areas, especially with community reuse lots



Vacant Lot Greening Studies



Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime, and fear

Charles C. Branas^{a,b,1}, Eugenia South^c, Michelle C. Kondo^d, Bernadette C. Hohl^{e,f}, Philippe Bourgois^g, Douglas J. Wiebe^b, and John M. MacDonald^h

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Methods:

- ▶ 541 vacant lots randomly assigned to treatment and control
- ▶ Outcomes: crime/violence data; health outcomes from 445 participants; ethnographic observations
- ▶ 38-month study period
- ▶ Intention to Treat Analysis (ITT)

Funders:

- ▶ National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- ▶ National Institute on Drug Abuse (NIDA)
- ▶ CDC

BEFORE



AFTER



BEFORE



AFTER

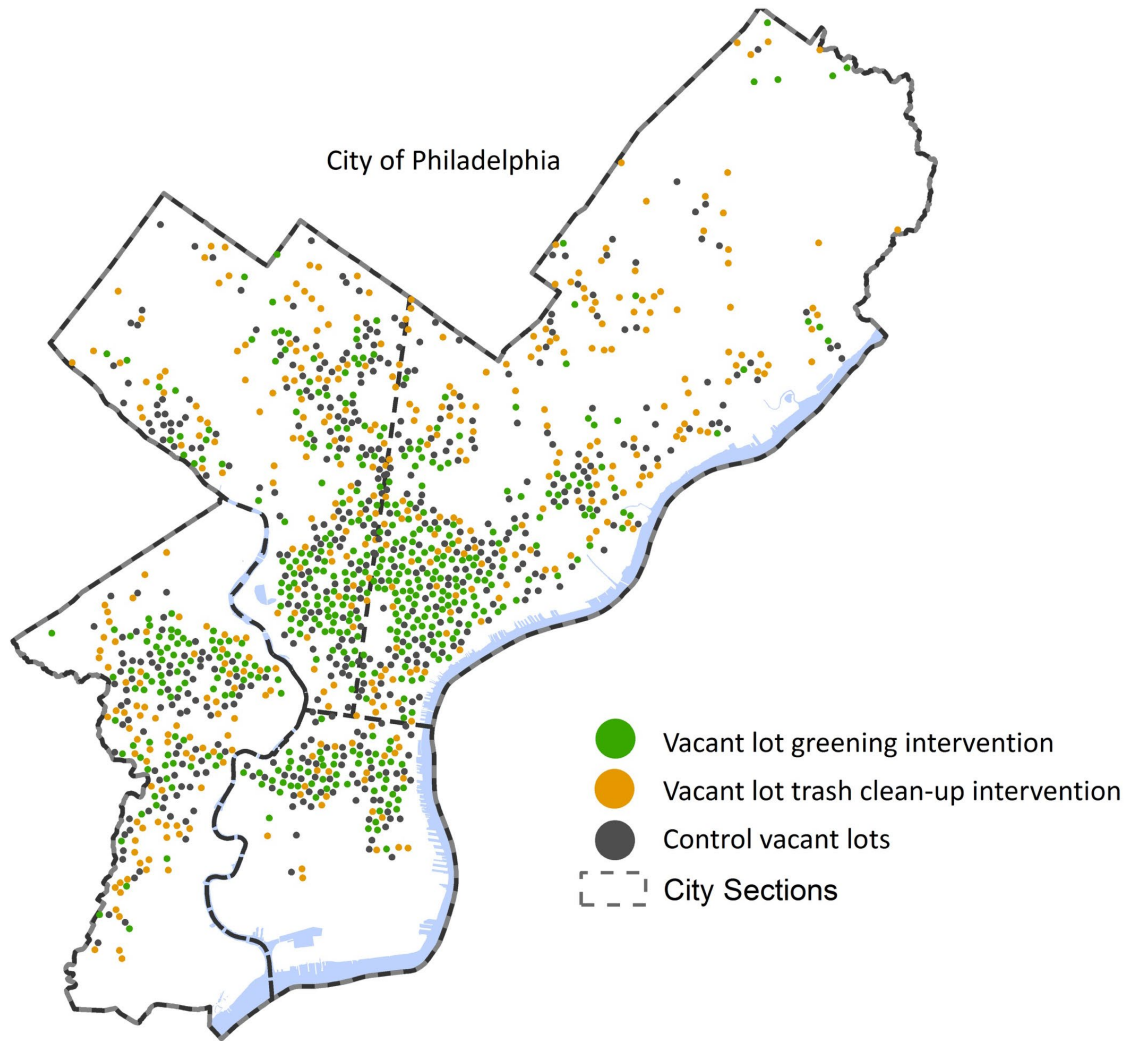


BEFORE



AFTER





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Findings:

- ▶ Significant reductions in crime overall (−13%), gun violence (−29%), burglary (−22%), and nuisances (−30%) in neighborhoods below the poverty line
- ▶ Significantly reduced perceptions of crime, vandalism, and safety concerns; and significantly increased use of outside spaces for relaxing and socializing



Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime, and fear

Ethnographic case studies of reactions by neighbors to greening interventions in two neighborhoods:

1) Rapid economic development

- ▶ Racialized tension
- ▶ Hostility to greening
- ▶ “Pretty” vacant blocks up to \$5k rent

2) No signs of development

- ▶ Positive response to greening
- ▶ Mostly vacant blocks, more raids

3) Both neighborhoods

- ▶ Drug sellers use vacant lot faces
- ▶ Overgrown vacant lots concealed routine drug use, escape routes during police raids
- ▶ Weapons stashed in cars parked in front of vacant lots

Effect of Greening Vacant Land on Mental Health of Community-Dwelling Adults

A Cluster Randomized Trial

Eugenia C. South, MD, MS; Bernadette C. Hohl, PhD; Michelle C. Kondo, PhD; John M. MacDonald, PhD; Charles C. Branas, PhD

- ▶ 442 participants surveyed before and after intervention
- ▶ Significant decrease in depression and feeling of worthlessness for participants living near treatment lots
- ▶ No change in feeling nervous, hopeless, restless, that everything is an effort, or poor mental health

How do we think it works?

Theories:

- ▶ Busy streets
- ▶ Broken windows
- ▶ Routine activities
- ▶ Situational crime prevention
- ▶ Crime prevention through environmental design (CPTED)



How do we think it works?

“Just as a broken window left untended in a building is a sign that nobody cares, leading typically to more broken windows—more damage—so disorderly conditions...left untended in a community are signs that nobody cares and lead to fear of crime, more serious crime, and urban decay.”

- James Q. Wilson and George Kelling, 1982



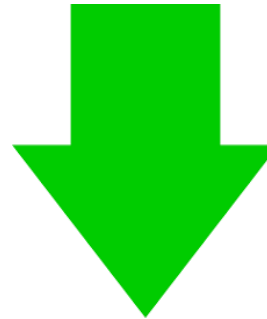


- ▶ **Busy Streets:** Where youth can grow up in a safe and healthy context where they observe positive behaviors such as neighborliness, experience trust among neighbors, and develop a sense of community where neighbors work together to achieve common goals.
- ▶ Is community engagement in neighborhood improvements a vital ingredient toward building busy streets?

- ▶ Multisite, quasi-experimental, non-equivalent control group design
- ▶ The three groups of parcels:
 1. Community and Youth Engaged Parcel Improvement & Mowing (Lots of Green, Clean & Green programs)
 2. Professional Mowing
 3. No (Organized) Mowing
- ▶ Outcomes
 - ▶ Parcel assessments (1x per year)
 - ▶ Systematic Social Observations (3-5x per year)
 - ▶ Neighborhood Life Survey (1 Pre & 2 Post)
 - ▶ Crime Incidents (Pre & Post)
 - ▶ Assault Injuries (Pre & Post)



Community-Engaged Care of Vacant Lots



40%

Fewer
Assaults &
Violent Crimes

Gentrification?

“innovative economic growth in cities will inevitably have a destructive impact on poor residents...”

- ▶ Connecting local residents to nearby employers is critical
- ▶ Growing local businesses (particularly minority-owned firms)
- ▶ Improving neighborhood schools
- ▶ Working with residents to create quality places in which a diversity of people feel a sense of pride and attachment

Insights & Challenges

“the positive I see with youth being involved is that they feel like the space that previously was not inviting to them and that they were oftentimes told to stay away from, it feels different now. It feels welcoming. They were involved with cleaning it up, so it feels like it's for them, so I think the advantage is having more clean, green spaces for kids to play outside of the street...”

- ▶ Resources
- ▶ Political Will
- ▶ Planning
- ▶ Sustainability
- ▶ Engagement
- ▶ Partnership
- ▶ Context

“The biggest thing is to make sure to always talk with the community. A lot of time organizations come in with all the right intentions, but they may quickly forget who they are working for. Especially in cities (where) conditions are a product of poor policy and racism. Obviously residents did not choose this.”



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