Actionable Science for Communities

Proctor Creek's Boone Boulevard Green Street Project Health Impact Assessment (HIA)

U.S. Environmental Protection Agency, Office of Research and Development and Region 4

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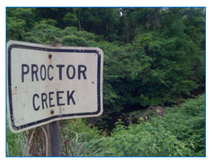
Purpose

EPA Office of Research and Development (ORD) and the Sustainable and Healthy Communities (SHC) Research Program are evaluating HIA as a tool for decision-making.

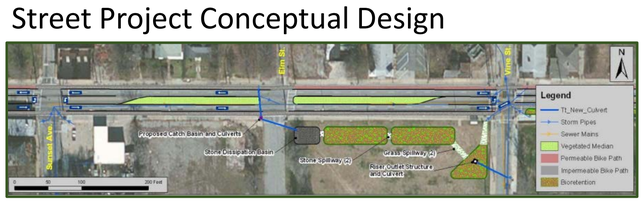
The HIA process was applied to determine how a proposed green street project in the Proctor Creek Watershed – an environmental justice community of concern in Atlanta, GA – could potentially affect public health.



Proctor Creek is on the 303(d) list of impaired waters due to poor water quality and high counts of fecal coliform. The topography, prevalence of impervious surfaces in the watershed, and a strained combined sewer system have contributed to pervasive flooding in the Proctor Creek communities and created environmental, public health, economic, and redevelopment issues.

Scope

Proposed Decision: Boone Boulevard Green Street Project Conceptual Design



Geography: half-mile radius around the proposed project site

Exposure Pathways: evaluated the project's impact on twelve health determinants

ENVIRONMENT	SOCIETY	ECONOMY
• Water Quality • Flood Management • Climate and Temperature • Air Quality • Traffic Safety • Exposure to Greenness • Exposure to Urban Noise	• Access to Goods and Services, Greenspace, and Healthcare • Crime (Perceived and Actual) • Social Capital (Cognitive and Structural)	• Household Economics (Cost of Living and Unemployment) • Community Economics (Business Performance)

Other Considerations: vulnerable populations; problems facing the community

Stakeholders and End Users

The HIA was conducted with input and guidance from community residents and other stakeholder groups representing multiple sectors (environmental protection, housing, land use, emergency planning, public health, transportation, and education):

- City of Atlanta
- Federal, state, county, and city agencies
- Community organizations
- Universities
- Non-profits

This HIA is intended for use by the decision-makers tasked with implementing the proposed green street project (i.e., the City of Atlanta), affected community members and other stakeholders, and the HIA community of practice.

Highlights

- Assessed health determinants in environmental, social, and economic sectors
- Utilized a variety of data sources and analytical methods to determine the potential health impacts of green infrastructure implementation

HIA METHODOLOGY

- Community/Stakeholder Engagement
- Data Mining and Literature Review
  - Pre-existing and publically available data
  - Expertise from local public health professionals, researchers, and other stakeholders
  - Empirical, science-based literature
- Causal Pathways
- Geographic Information Systems (GIS) Mapping and Analysis
- Hydrologic Modeling
- Quantitative and Qualitative Impact Characterization

Community residents prioritizing their interests and/or concerns regarding the proposed project and its potential impact in their community.

Modeling to determine average stormwater runoff from the project site, likely pathways for overland flow, and areas expected to stay wet after a rain event.

Characterized Health Impacts of Green Street Project

Health Determinant	Likelihood	Direction	Magnitude	Permanence	Distribution	Evidence
Water Quality	Highly Likely	Positive	Low	Quickly and Easily Reversed	Vulnerable Populations Benefit	Limited
Flood Management	Highly Likely	Positive	Moderate	Moderate	Vulnerable Populations Benefit	Limited
Climate and Temperature	Highly Likely	Positive	Moderate	Long Lasting	Vulnerable Populations Benefit	Strong
Air Quality	Highly Likely	Positive	Moderate	Long Lasting	Vulnerable Populations Benefit	Limited
Traffic Safety	Highly Likely	Positive	High	Long Lasting	Vulnerable Populations Benefit	Limited
Exposure to Greenness	Highly Likely	Positive	Moderate	Long Lasting	Vulnerable Populations Benefit	Limited
Exposure to Urban Noise	Plausible	Positive	Moderate	Long Lasting	Vulnerable Populations Benefit	Strong
Access to Goods and Services, Greenspace, and Healthcare	Highly Likely	Positive	Moderate	Moderate	Vulnerable Populations Benefit	Strong
Crime	Plausible	Positive	Moderate	Quickly and Easily Reversed	Vulnerable Populations Benefit	Limited
Social Capital	Plausible	Positive	Moderate	Moderate	Vulnerable Populations Benefit	Limited
Household Economics	Plausible	Both Positive and Negative	Moderate (Positive), Low (Negative)	Quickly and Easily Reversed	Both Benefits and Harms for Vulnerable Populations	Limited
Community Economics	Plausible	Positive	Moderate	Quickly and Easily Reversed	Vulnerable Populations Benefit	Limited

- Made recommendations to mitigate the potential adverse health impacts and promote the potential health benefits of the green street project
- Increased community and stakeholder engagement and buy-in for the decision

Application & Translation

Green infrastructure is being considered by communities across the U.S. This HIA demonstrates that the potential net public health benefits of green infrastructure reach beyond just stormwater management:

- reducing urban runoff and pollutant loading,
- increasing shading and relief from urban heat island effect,
- filtration of air pollutants,
- noise abatement,
- increased exposure to greenness, and
- provide opportunities for employment and increase demand for goods and services.

HIA findings and recommendations were communicated to the City of Atlanta, the community, and other stakeholders to inform implementation of the green street project. The City of Atlanta agreed to expand the length of the green street to maximize its predicted health benefits. Work is also underway on a second HIA to evaluate expansion of green infrastructure in the Proctor Creek watershed, as recommended by this HIA.

Equity and Environmental Justice

Impacted Community:

- Low income, minority population

Problems Facing Community:

- Pervasive Flooding
- Impaired Water Quality
- Heat Stress
- Poverty
- Vacant, Blighted Properties
- Aging Infrastructure
- High Crime, Perceived Insecurity
- Disenfrachised

- ✓ Engaged impacted community members and other stakeholders
- ✓ Examined stakeholder-identified needs in the community (e.g., environment, community engagement, economy)
- ✓ Identified vulnerable populations/distribution of health impacts across the population
- ✓ Developed recommendations to:
  - protect environmental and public health,
  - promote healthy living,
  - encourage collaboration among stakeholders,
  - encourage sustainability, and
  - ensure equitable impact
- ✓ Impacted community acquired knowledge, awareness, and greater capacity to take action

Utility of HIA

- Demonstrated the utility of HIA to inform and empower communities and decision-makers to include human health, socio-economic, environmental, and ecological factors in their decisions to promote health, sustainability, and equity
- Provided decision-makers with the scientific data, health expertise, and public input they need to factor public health considerations into the development of non-health plans, policies, projects, and programs
- Highlighted the importance of collaboration at the local, state, regional, and federal levels to address community needs
- Demonstrated HIA as an approach for integrating and weighing trade-offs in community decision-making

What People Are Saying About This HIA

"The City of Atlanta has committed to consider and incorporate the HIA's recommendations in planning the green street project." – City of Atlanta, Department of Watershed Management

"One of the benefits from using the HIA process is the community engagement process and the opportunity to develop and grow relationships with local partners." – HIA Core Project Team Member

"As a federal Agency, EPA might appear to be removed from the community in which the assessment occurred. Having the HIA co-led by the EPA regional office, with team members from or familiar with the community, helped to alleviate this challenge." – HIA Core Project Team Member