



EPA Tools and Resources Webinar: Health Impact Assessment: Linking Community Decisions to Public Health

August 17, 2016

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EPA's Office of Research and Development

ORD is the research arm of the EPA, providing scientific methods and technology to safeguard human and environmental health.

Six plans to guide ORD research:

- Human Health Risk Assessment
- Homeland Security
- Air, Climate and Energy
- Safe and Sustainable Water Resources
- Chemical Safety for Sustainability
- Sustainable and Healthy Communities



Sustainable and Healthy Communities (SHC) Program

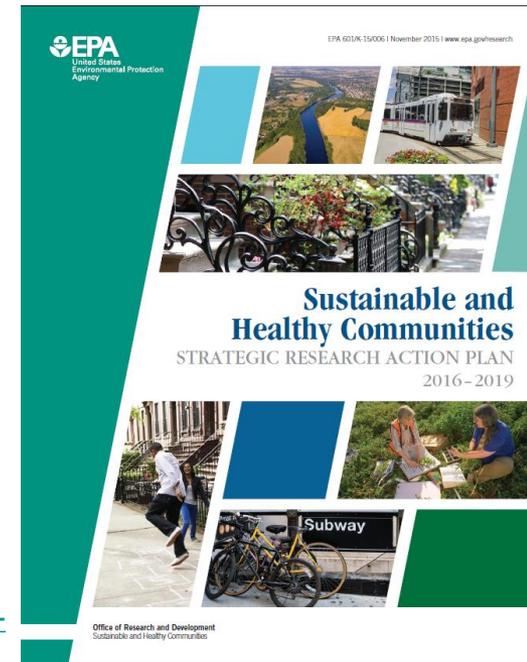
Communities make decisions everyday that affect the environment, public health and well being. For some decisions, the environmental, health and well-being impacts, both positive and negative, are not understood and rarely evaluated from a systems or holistic perspective.



Program Vision

SHC's vision is to develop the science to support EPA's approach to a sustainable environment and to expand community stakeholders' capabilities to consider impacts of decision alternatives.

<http://www.epa.gov/research/sustainable-and-healthy-communities-strategic-research-action-plan-2016-2019>





Health Impact Assessment

HIA is a process that uses

scientific data, health expertise and public input

to factor public health considerations into the decision-making process

- HIAs can give decision makers the information they need to consider public health in pending plans, policies or projects, such as:
 - Mass transit and highway and bridge design
 - Housing and energy assistance programs
 - Comprehensive planning and growth policies
 - Energy programs and natural resource management, including fossil fuel exploration and development , renewable energy and water management policies

Health Impact Assessment

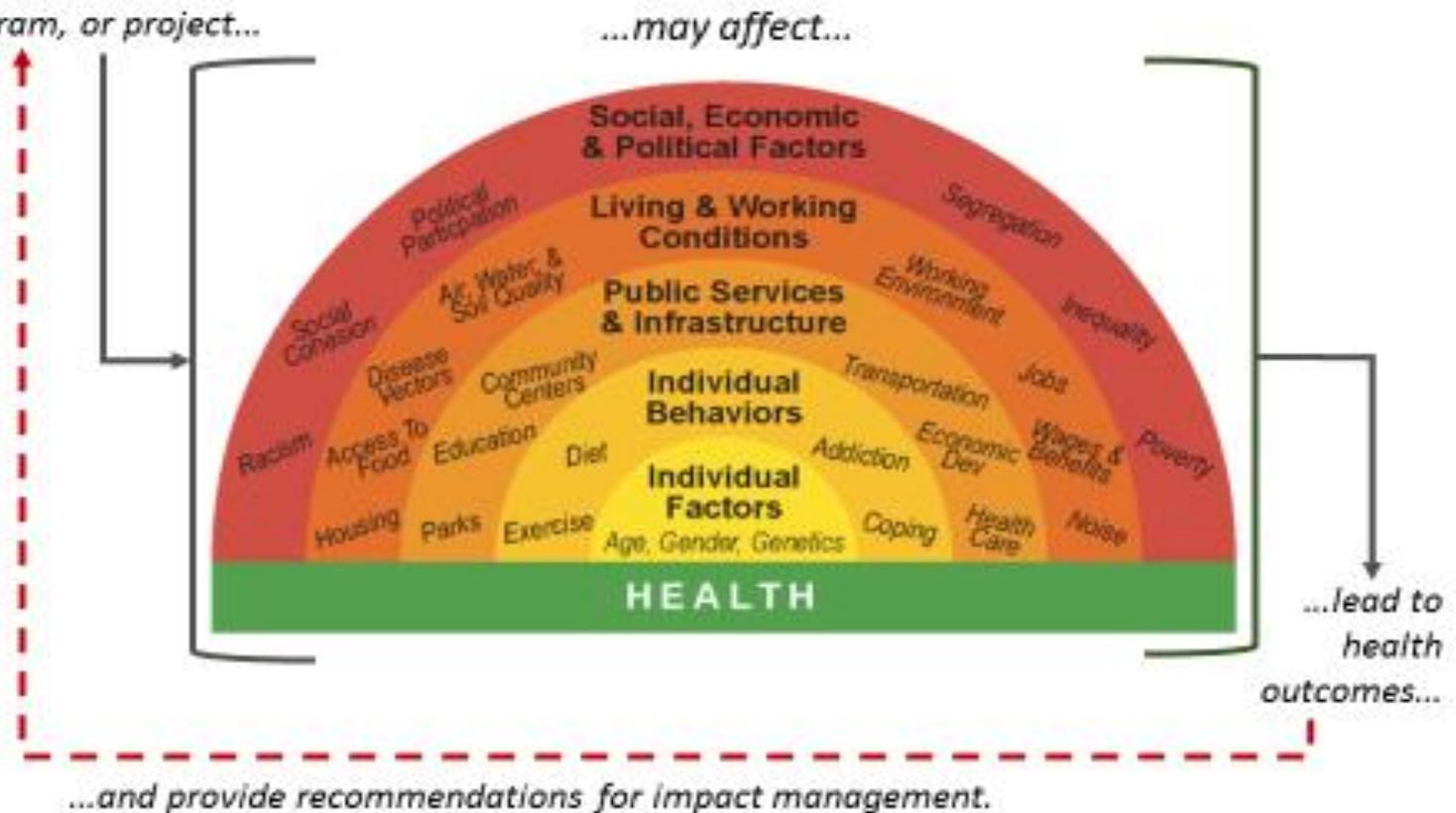
- Both a health protection and health promotion tool
 - *Health Hazards*
 - Exposures to pollutants
 - Air, water, soil
 - *Health Benefits*
 - Access to green space; walkability
 - Local job market



What is HIA?

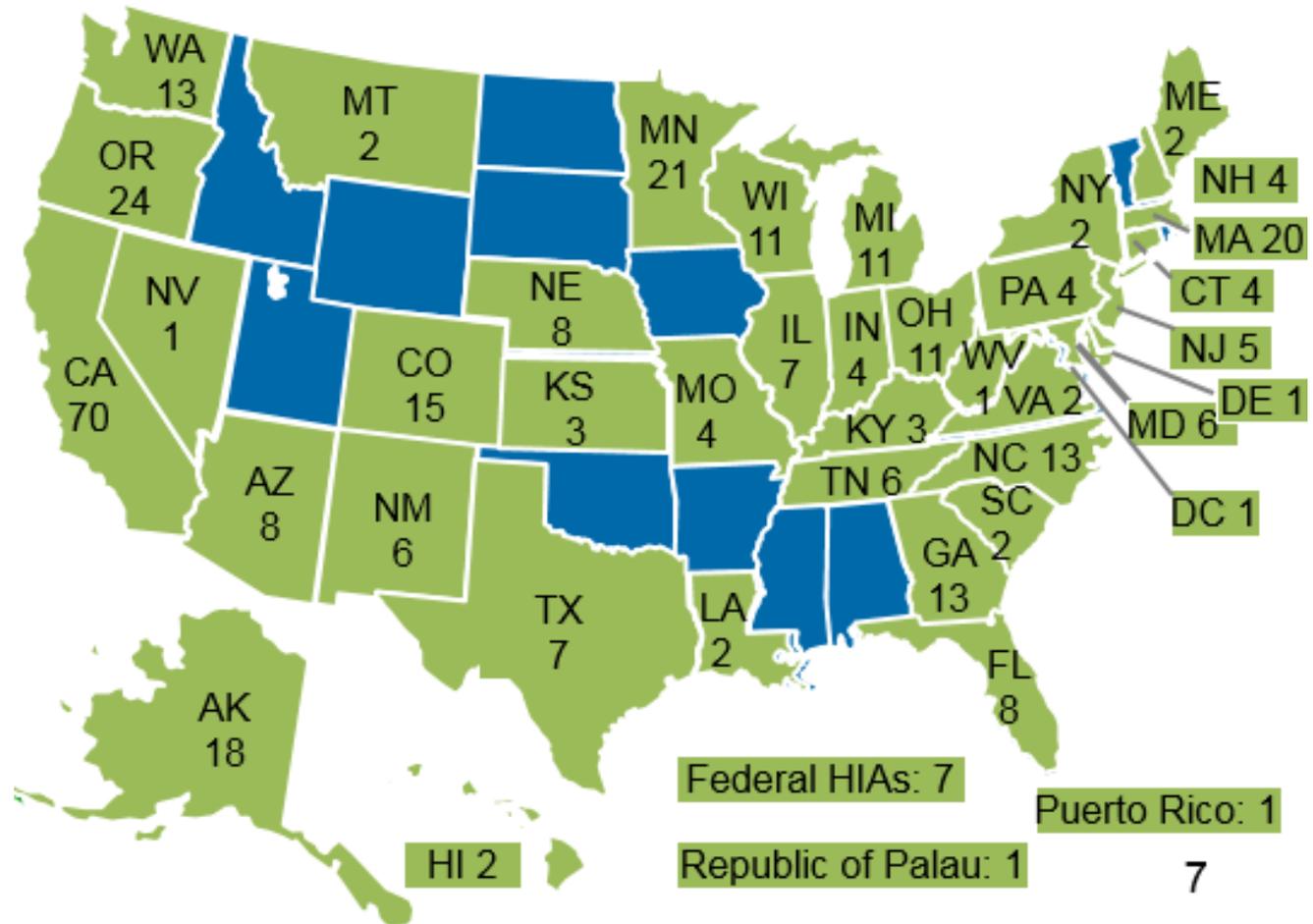
In a nutshell, HIAs:

*Evaluate how a
proposed policy, plan,
program, or project...*



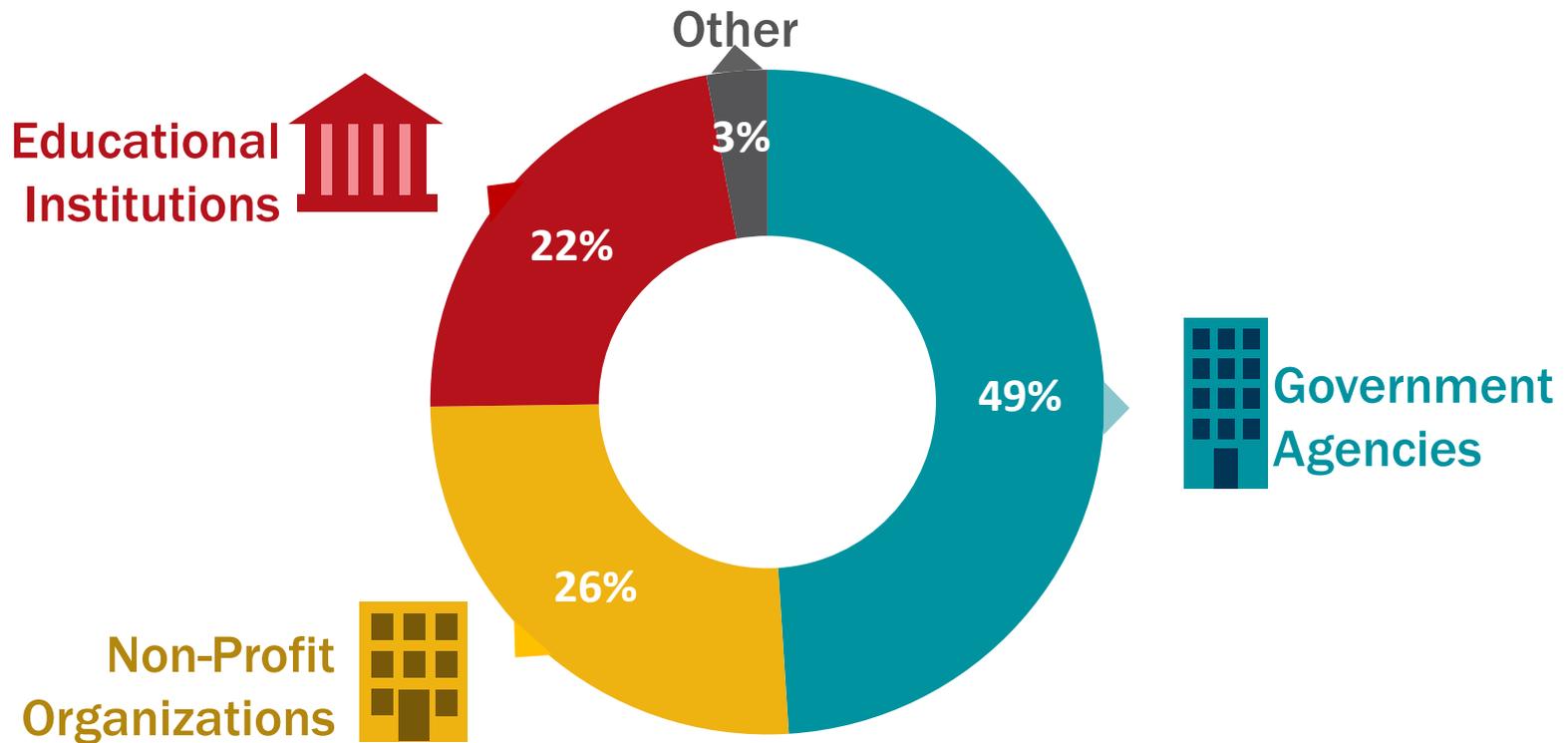
HIA in the U.S.

HIA in the
U.S. mid-2015
Completed and
In Progress HIAs
(N=354+)



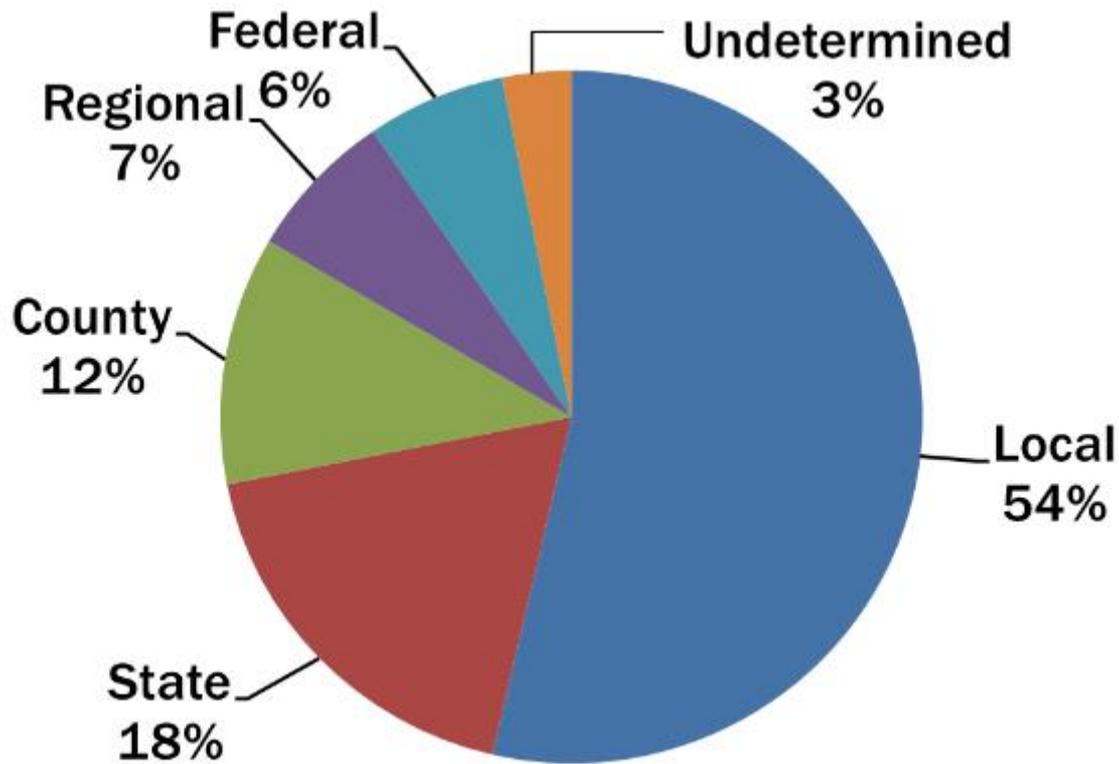
Context of HIA

Who is Performing HIAs in the U.S.?



Context of HIA

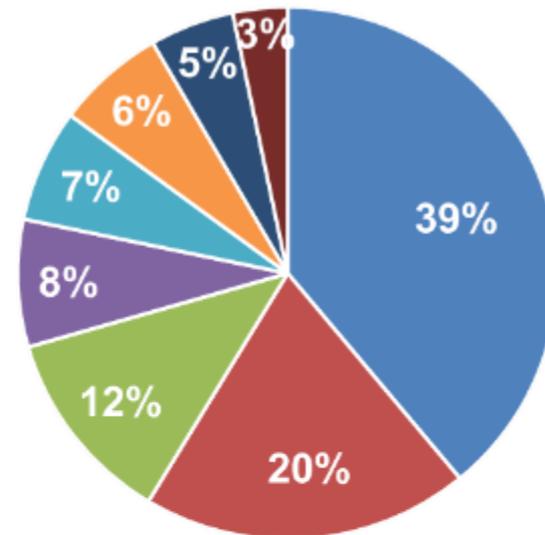
Levels of Decision-Making Informed by HIAs in the U.S.



Context of HIA

Broad Applicability/Flexibility

HIA has been promoted throughout the world as a tool for protecting and promoting public health because of its applicability in a broad range of decision-making contexts



- Built Environment
- Natural Resources and Energy
- Housing
- Education
- Transportation
- Agriculture, Food, and Drug
- Other
- Labor and Employment

Source: Health Impact Project. Data Visualization: HIA in the United States; accessed 7/17/2015

Steps in the HIA Process

Stakeholder and Community Involvement

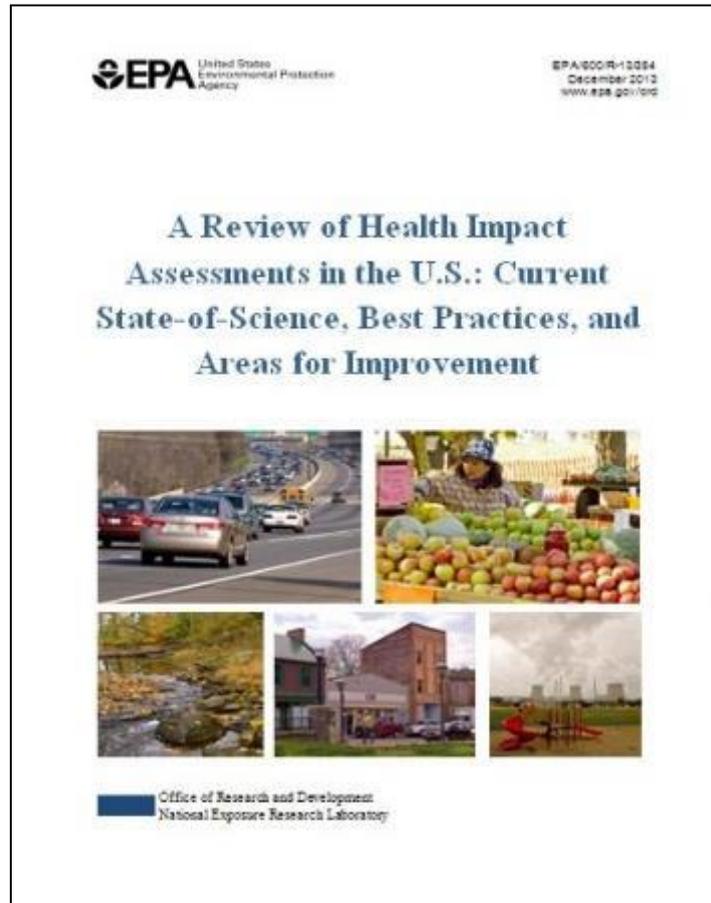
Screening	Determines the need and value of a HIA
Scoping	Determines which health impacts to evaluate, methods for analysis, and a work plan
Assessment	Provides <ol style="list-style-type: none"> 1) A profile of existing health conditions 2) Evaluation of potential health impacts
Recommendations	Provide strategies to manage identified adverse health impacts
Reporting	Includes <ol style="list-style-type: none"> 1) Development of the HIA report 2) Communication of findings & recommendations
Monitoring and Evaluation	Tracks <ol style="list-style-type: none"> 1) Impacts on decision-making processes and the decision 2) Impacts of the decision on health determinants

HIA Current Areas of Focus in SHC

- *Strengthen the overall rigor of HIA practice*
 - Provide science based tools, data, models and approaches for use in HIA practice
 - Identify and develop HIA best practices
 - Demonstrate new HIA assessment approaches through case studies

- *Advance the use of HIA at higher decision-making levels*
 - Support consideration of HIA and elements of HIA within National Environmental Policy Act's (NEPA) Environmental Impact Assessments (EIA) and Environmental Impact Statements (EIS).

A Review of HIAs in the U.S.



- Reviewed 81 HIAs; 4 involving federal decisions
- Focused on four sectors
 - Transportation
 - Housing/buildings/infrastructure
 - Land use
 - Waste management/site revitalization
- Identified state of the HIA practice in U.S.
 - Areas for improvement
 - Best practices in HIA

HIA Resource and Tool Compilation

- Comprehensive list of resources and tools for HIA practitioners of all levels
 - *Identified through workshops, reviews of HIAs, inventory of EPA tools, databases and resources, general online search*
- Organized into primary categories and subcategories for ease of use
- Includes case examples for using the compilation
- Available online – projected release September 2016





Advance the Use of HIA at Higher Decision-making Levels



- National Environmental Policy Act
- Memorandum between EPA's Office of Federal Activities Director and SHC National Program Director to consider the use of HIA as part of EPA's NEPA/Section 309 reviews
- Three areas of focus:
 - *Develop screening and scoping tools* for use by Regional NEPA/Section 309 reviewers to identify proposals that would benefit from an HIA or HIA elements
 - *Develop web-based training* to educate Regional NEPA/Section 309 reviewers on HIA, the HIA process, and the role HIA can play in the NEPA process
 - *Partner with a federal agency* (or agencies) to conduct a pilot project integrating HIA into an environmental impact statement and/or assessment



HIA of Proctor Creek Boone Boulevard Green Street Project

Decision: Implementation of a green infrastructure project along Joseph E. Boone Boulevard, NW (in concert with road diet project)

Decision-Makers: City of Atlanta, Georgia

Role of HIA: Evaluate potential positive and negative health impacts of the green street project design and inform stakeholder decisions

HIA Lead:  Region 4 – Office of Environmental Justice
Office of Research and Development

HIA Partners:



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EPA Office of Research and Development

HIA of Proctor Creek Boone Boulevard Green Street Project

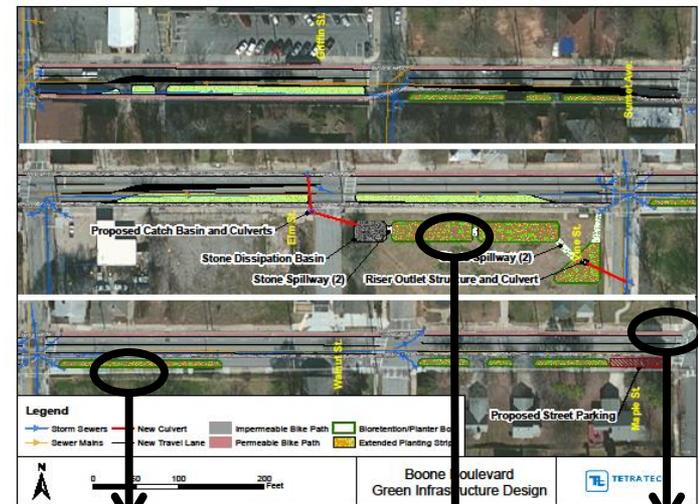
Issues Facing the Community:

- Pervasive flooding
- Impaired water quality
- Poverty
- Derelict properties
- Aging infrastructure



Potential Solution:

Boone Boulevard Green Street Project



Planter box

Bioretention cell

Permeable pavement

October 16, 2014

What is Green Infrastructure?

- A non-traditional approach
- Purpose: To maintain healthy waters, protect the environment, promote health, and support sustainability
- Uses natural processes:
 - ❖ Vegetation
 - ❖ Soil Filtration
 - ❖ Shading
 - ❖ Water Conservation
 - ❖ Carbon Sequestration
 - ❖ Stormwater Management



Planter Boxes



Urban Tree Canopy

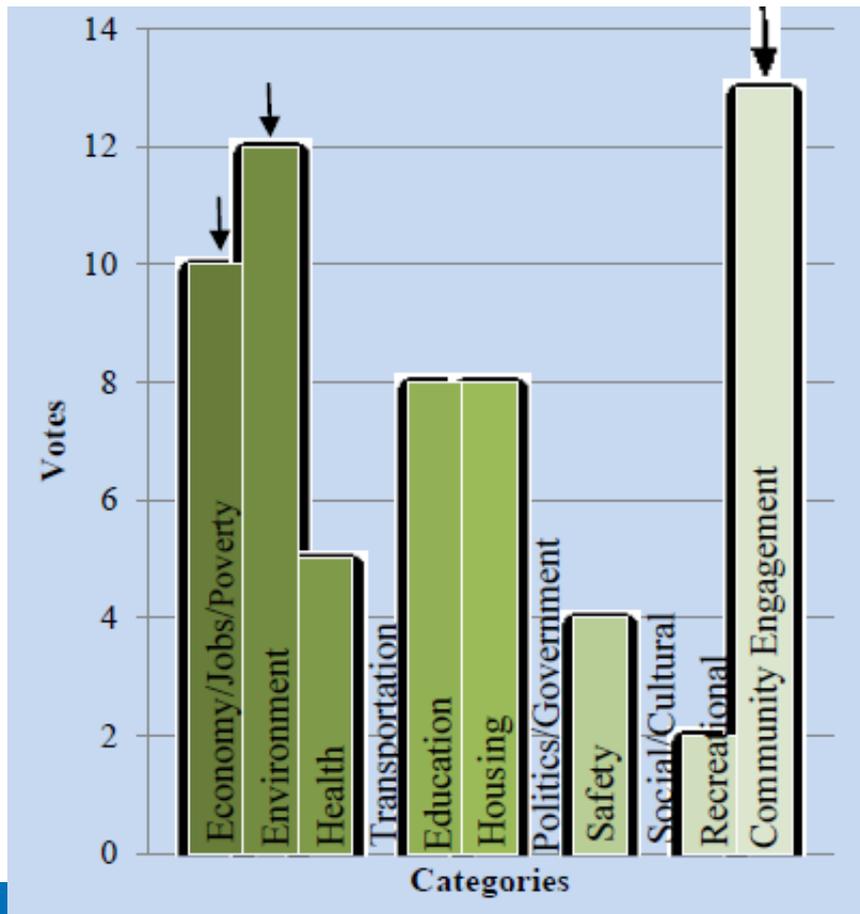
Setting the Scope of the HIA

- Community Group and the Advisory Committee identified issues of interest and areas of concern in the community.
- Community Group and Advisory Committee voted on which categories the HIA should focus the assessment.
- The results of this exercise set the scope (i.e., assessment plan) of the HIA.

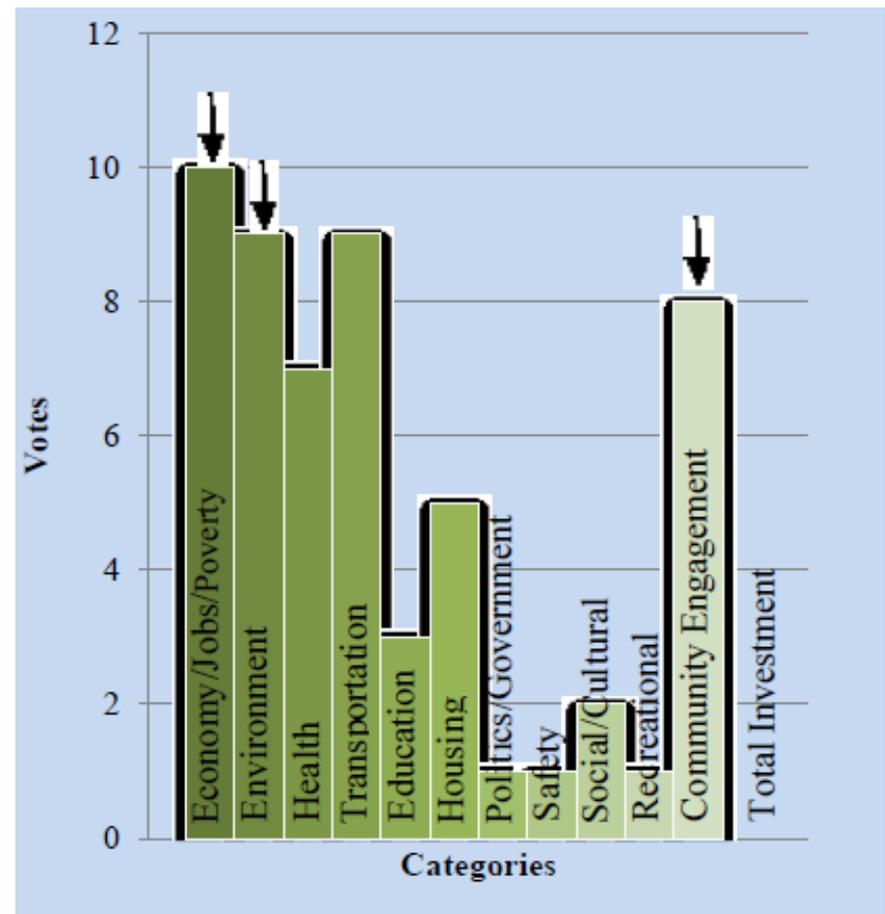


Setting the Scope of the HIA

Community Priorities



Advisory Group Priorities



Health Determinants and Health Outcomes

Sustainability	Health Determinant	Health Outcomes
Environment	<ul style="list-style-type: none"> • Water Quality • Flood Management (Exposure to Injury, Housing Quality, and Vector Control) • Climate and Temperature (Exposure to Extreme Heat Events) • Air Quality • Traffic Safety • Exposure to Urban Noise • Exposure to Greenness 	<ul style="list-style-type: none"> • Respiratory Disease (e.g., asthma, allergies, lung cancer) • Heat-related Illness • High-Blood Pressure (i.e., hypertension) • Cardiovascular Disease • Cancer • Water-borne Disease • Vector-borne Disease (e.g., West Nile Virus) • Overweight/Obesity • Hearing (noise-induced hearing threshold shifts) • Motor-Vehicle-related Injury • Crime-related Injury • Mental and/or Behavioral Disorders (e.g., anxiety, depression) • Stress (acute and chronic) • Perceived Overall Health and Wellness • Morbidity/Mortality Risk
Society	<ul style="list-style-type: none"> • Access to Goods, Services, Greenspace, and Healthcare (Active Transport) • Crime • Social Capital 	
Economy	<ul style="list-style-type: none"> • Cost of Living • Employment • Business Performance 	

Assessment Step: The Basics

- Based on outputs from Scoping, gather data and evidence to:
 - **Profile** the current conditions in the study area
 - **Verify** the pathways between the decision, health determinants and health outcomes
 - **Characterize** the potential impact of the decision on health determinants and health outcomes
 - Quantitative or qualitative





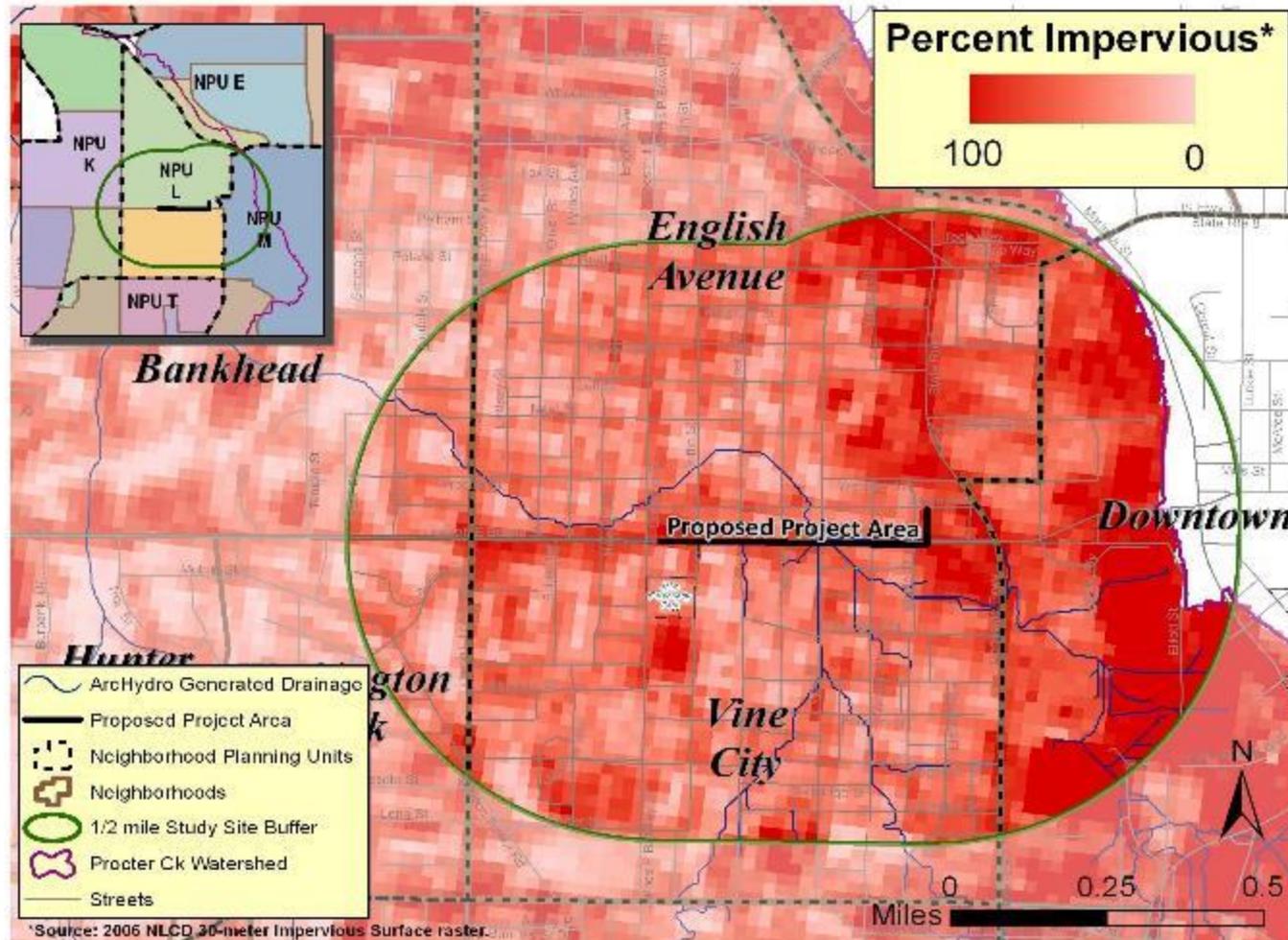
How does stormwater runoff impact health?

Health Indicators Evaluated	Pathways Found
Exposure to Injury from Flooding	Flooding can lead to injury through slips / falls or floating debris.
Exposure to Vector-borne Disease	Pooling runoff promotes a reproductive habitat for disease carrying insects (mosquitoes with WNV).
Exposure to Waterborne Disease	Stormwater runoff can affect exposure through the transmission of pollution and pathogens in surface water.
Exposure to stress from loss / damage of property and self	Damage to the home, land, or self can lead to increased stress from lowered perceived safety and security, which can lead to other health outcomes (anxiety, high blood pressure, etc).

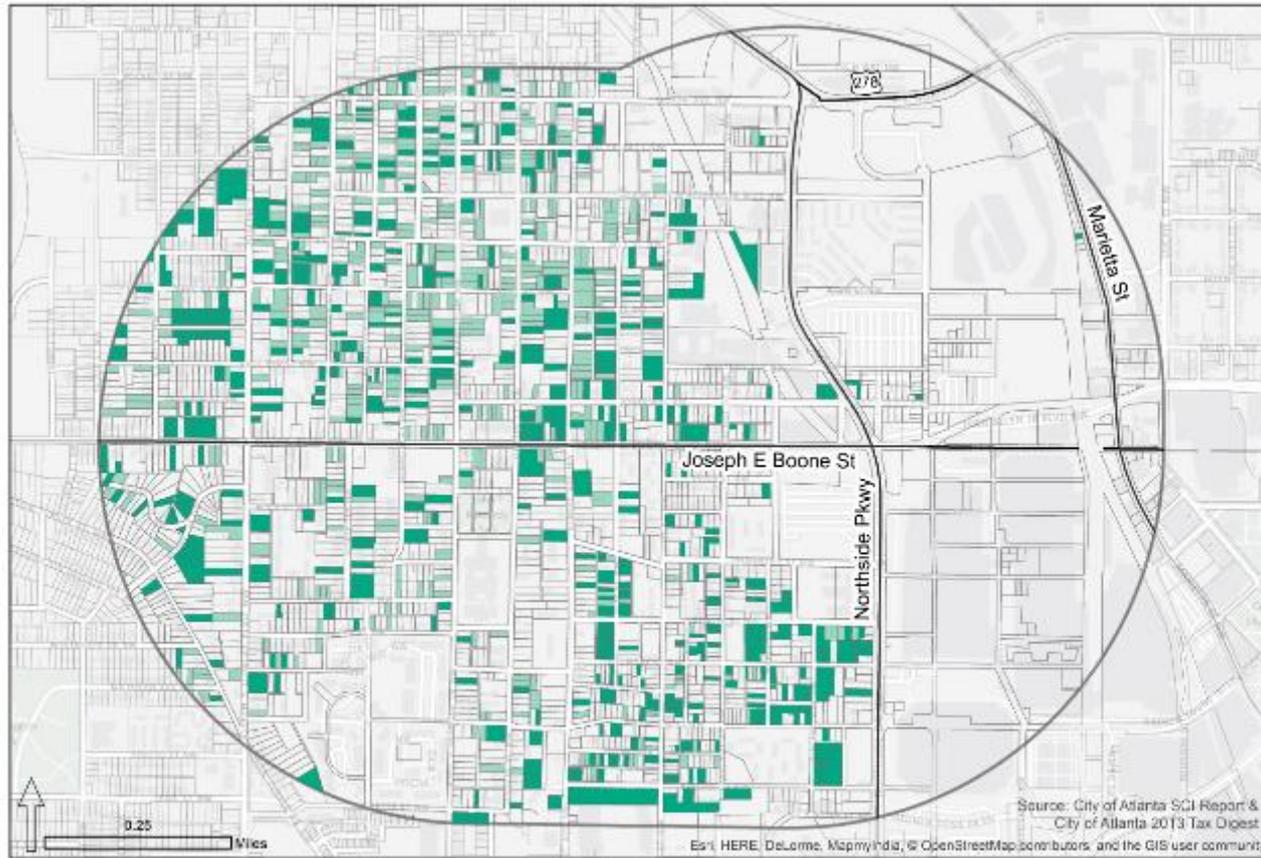
Where does flooding occur in the study area?



How impermeable is the surface in the study area?



Do the areas in the community more prone to flooding, also have more derelict and abandoned properties?



**Boone Blvd Green Street
Residential Property Conditions**

Parcel Vacant Property Derelict Property



Will the Green Street Project Impact Health?

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

Example Recommendations for Climate and Temperature

- **Before construction:**

- Select native tree species that have tall, broad canopies that could increase the shading of surface area (especially over impervious surfaces).

- **During construction:**

- Place trees with larger canopies near bus stops or other areas where people may congregate.

- **After construction:**

- No recommendations identified for this phase.



HIA: Benefits and Outcomes for Proctor Creek

- Demonstration project to address flooding and stormwater issues in the Proctor Creek Watershed
- Extensive stakeholder and community engagement
- Assessed health determinants in environmental, social and economic sectors
- Recommendations were prioritized by pre-construction, during construction, post-construction and long term phases
- New Local, State, Federal, and Community partnerships were developed
- Met with City of Atlanta to deliver final peer-reviewed HIA
- *City decided to double the length of the green street*



Co-Leads for BBGS HIA

- Tami Thomas-Burton – US EPA Region 4
- David Egetter – US EPA Region 4
- Lauren Adkins – Pegasus



HIA Process

HIA Guidance Documents

A number of guides and handbooks have been developed to inform and direct the HIA practice in the U.S. Two of those are highlighted below



-Available at:

<http://hiasociety.org/wp-content/uploads/2013/11/HIA-Practice-Standards-September-2014.pdf>



-Available at:

http://www.nap.edu/openbook.php?record_id=13229&page=1