

# Climate-Smart Cities <sup>TM</sup> Boston and Metro Mayors Region

*Research, Data, and Nature-Based  
Solutions for Climate Resiliency*

June 2, 2016 Smart Growth Conference



# The Trust for Public Land

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## Mission

The Trust for Public Land creates parks and protects land for people creating healthy, livable communities for generations to come.

## Vision

An America where every community can connect with nature near and far.



# The Trust for Public Land

5,000+ PLACES

We have created and protected more than 5,000 special places, from a 14,000-foot peak in the Rockies to the Brown vs. Board of Education historic site.

7+ MILLION

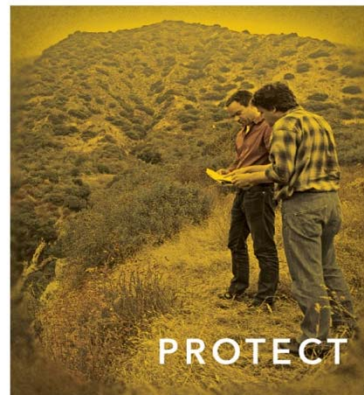
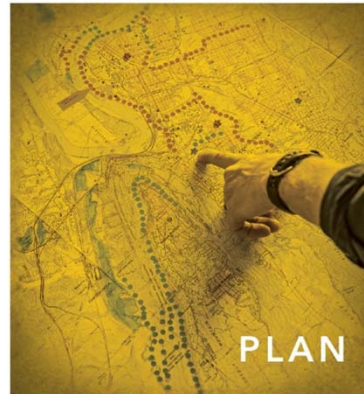
More than 7 million people now live within a 10-minute walk of a place that has been created or protected by The Trust for Public Land.

\$60 BILLION

We have helped generate nearly \$60 billion in public funding for parks and natural areas through ballot measures supported by nearly 100 million voters in 37 states.

EVERY CITY

We are mapping the parks in every major city in America, advocating for the 100 million people who don't live within a 10-minute walk of a park. Yet.



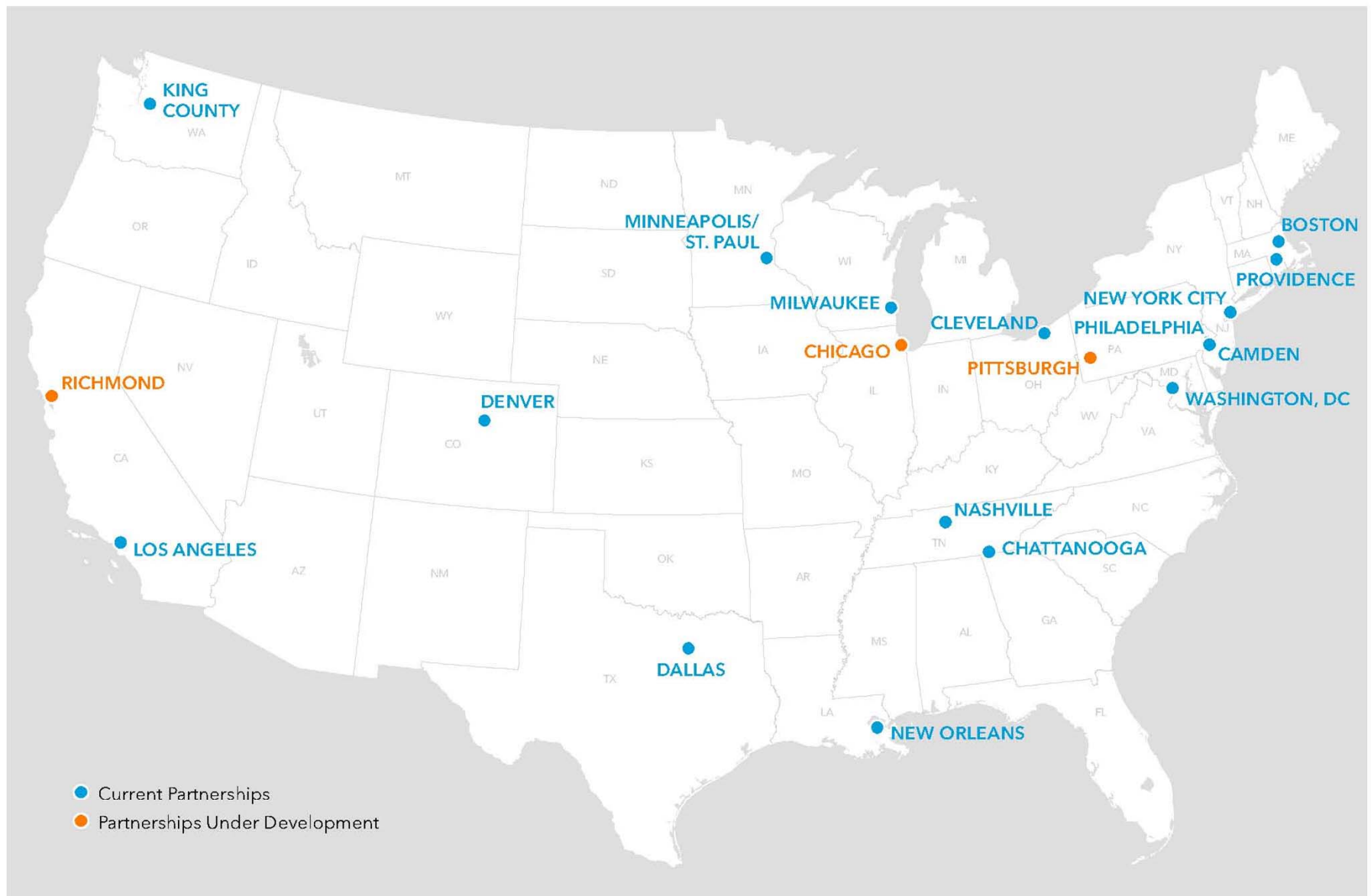


# Climate-Smart Cities = Low-Carbon + Resilient + Climate Justice

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# Climate-Smart Cities Partnerships

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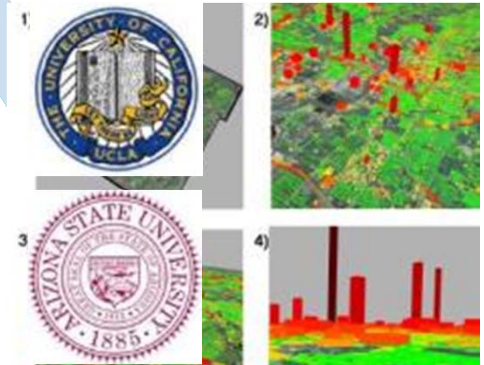
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# Delivering Climate-Smart Cities™ – Our Integrated Approach

Cities  
Partnership  
and  
Stakeholder  
Engagement



Green Infrastructure  
Solutions and Public  
Engagement



Applied Research



GIS Decision Support

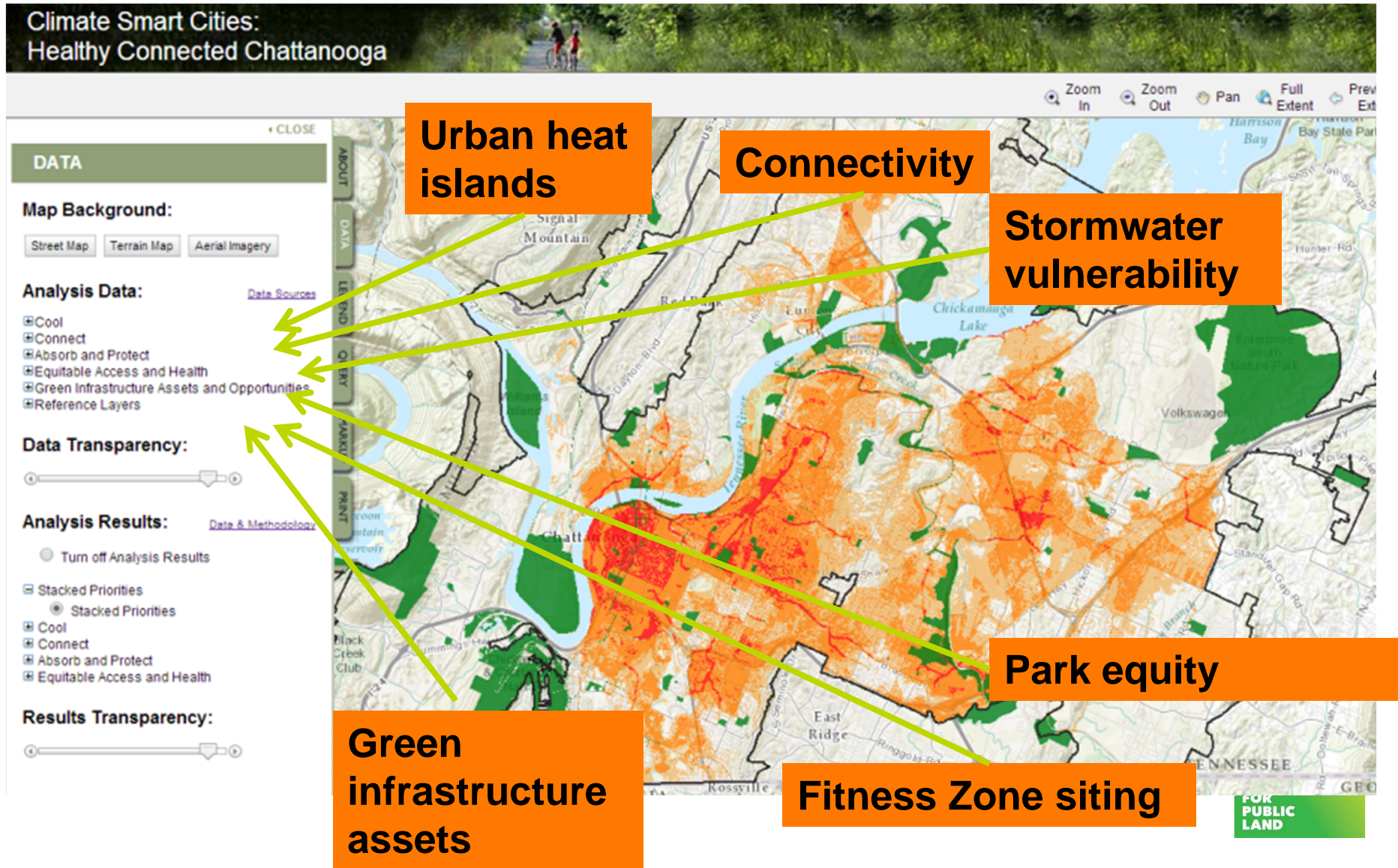
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# Multiple-Benefit Green Infrastructure Solutions

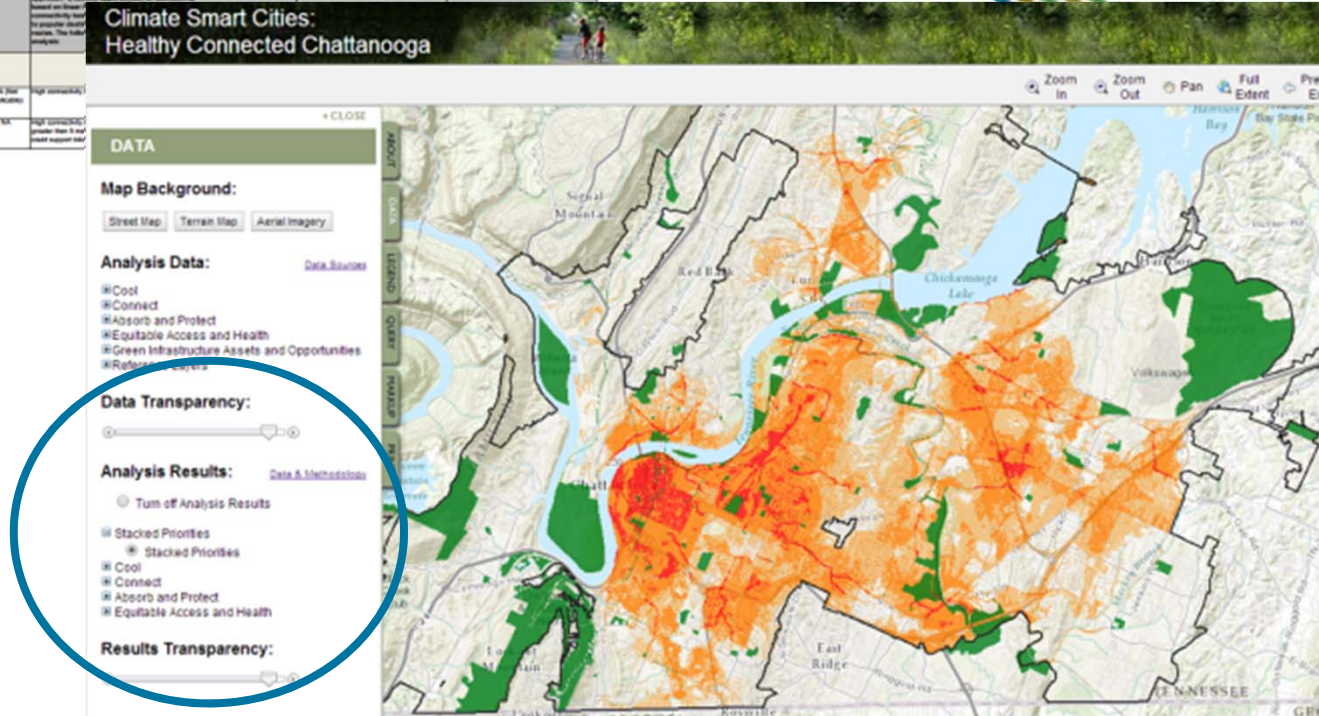
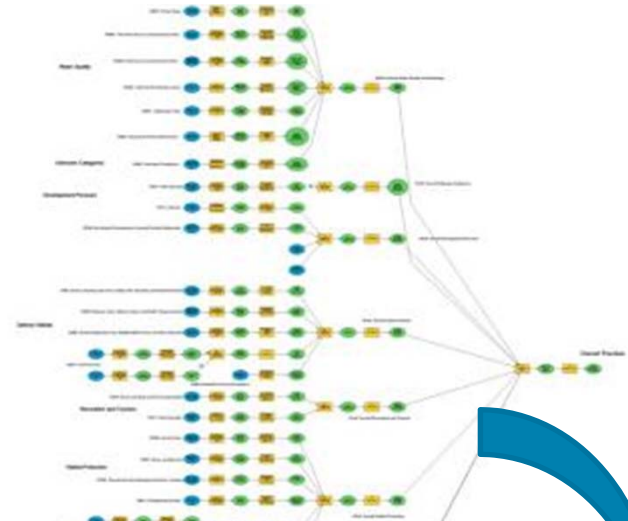




# GIS: Online Portal for Applying Spatial Data to Climate Decisions

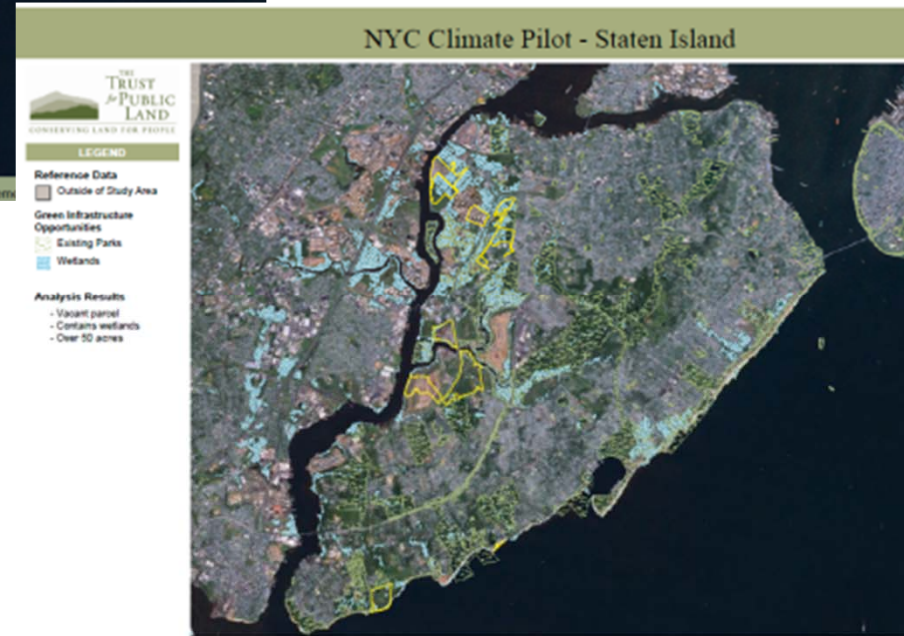
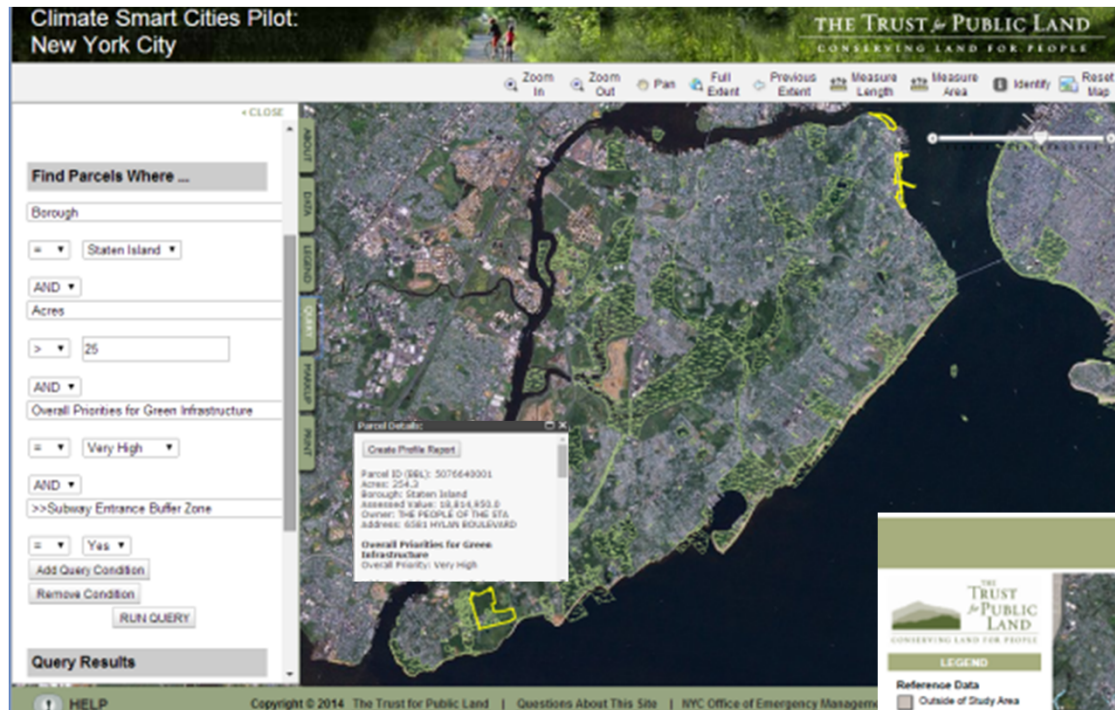


Climate Smart Cities: Healthy Connected Chattanooga Model Criteria June 3, 2014						
Goals	Goal Weights	Criteria	Criteria Ranges	Methodology	Data (Description, Date)	Data Source
Cool	25%					
		Urban Heat Island Mapping				
		Midnight Land Surface Temperature Hot Spots	35.0%	The model identifies urban heat islands within Chattanooga by using air derived nighttime land surface temperatures (LST) averaging at least 1.0 degree Fahrenheit above the mean daily temperature during July and August of 2013.	2013 MODIS (Moderate Resolution Imaging Spectroradiometer) LST Data Temperatures & Clouds (8 Day L3 Global Sin 30s)	USGS Land Processes Distributed Active Archive Center (LP DAAC)
		Nighttime Land Surface Temperature Hot Spots	35.0%	The model identifies urban heat islands within Chattanooga by using air derived nighttime land surface temperatures (LST) averaging at least 1.0 degree Fahrenheit above the mean daily temperature during July and August of 2013.	2013 MODIS (Moderate Resolution Imaging Spectroradiometer) LST Data Temperatures & Clouds (8 Day L3 Global Sin 30s)	USGS Land Processes Distributed Active Archive Center (LP DAAC)
		Impervious Surface Analysis	33.3%	The model identifies areas with impervious cover based on land surface imagery data, including buildings, roads, sidewalks, driveways, parking lots, etc. and other non-vegetative structures within the city limits.	2013 Buildings, Roads, Sidewalks, Driveways, Parking lots, etc. (Chattanooga Impervious) (producing updates for Enterprise Industrial Park)	City of Chattanooga
Connect	10.0%					
		Proximity to Green Infrastructure Assets and Opportunities		The analysis identifies priority locations to create a connected green infrastructure network and existing assets as a greenway system. The analysis incorporates a hierarchy approach: 1. identify existing green infrastructure assets and opportunities; 2. identify potential green infrastructure assets and opportunities; 3. identify potential green infrastructure assets and opportunities.		
		Proximity to Green Infrastructure Assets and Opportunities				
		Proximity to Green Infrastructure Assets and Opportunities				
		Proximity to Green Infrastructure Assets and Opportunities				



The Data in the Portal Can Be Combined to Model Priorities at the City (or Regional for Metro Mayors) Scale





This map was created on April 9, 2014 using the Climate Smart Cities Pilot, New York City Interactive Mapping site. Information on the map is for discussion and visualization purposes only.  
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Portal: Use Query Function to Find High Value Parcels  
and Develop Parcel Priority Maps





## Climate Smart Cities Pilot: New York City Parcel Report

Parcel ID (BBL): 5052020173

Acres: 1.9

Borough: Staten Island

### Priorities for Green Infrastructure

Overall Priority: Medium

Mitigates Risk of Coastal Flooding: Very High

Protects Critical Infrastructure: Low

Protects Areas of Social Vulnerability: Low

Opportunity for Green Infrastructure: High

#### LEGEND

##### Reference Data

Outside of Study Area

##### Green Infrastructure Opportunities

Existing Parks



## Climate Smart Cities Pilot: New York City Parcel Report

Parcel ID (BBL): 5052020173

Acres: 1.9

Borough: Staten Island

### Mitigate Risk of Coastal Flooding - Priority: Very High

Hurricane Evacuation Zone: 1

Within Hurricane Sandy Storm Surge: Yes

Within Hurricane Irene Storm Surge: Yes

2013 Flood Advisory: High Hazard Zone

2020 Sea-Level Rise: 100-Year Floodplain

2050 Sea-Level Rise: 100-Year Floodplain

Storm Surge Inundation with Hurricane Category: 1

### Protect Critical Infrastructure - Priority: Low

Within Emergency Services Buffer Zone: No

Within Health Care Facilities Buffer Zone: No

Within Subway Entrance Buffer Zone: No

Within Transportation Structures Buffer Zone: Yes

Within Rail Line Buffer Zone: No

Within School Buffer Zone: No

### Protect Areas of Social Vulnerability - Priority: Low

Social Vulnerability Index: Medium Low

Percent Children 19 and Under in Census Blockgroup: 0.0

Percent Adults 65 and Older in Census Blockgroup: 0.0

Percent Low Income Households in Census Blockgroup: 0.0

Population Density (res/sqmi): 0.0

### Identify Opportunities for Green Infrastructure - Priority: High

Vacant Parcel: Yes

Parcel Size in Acres: 1.9

Under Public Ownership: No

Existing Park: No

Adjacent to a Park: Yes

Has Playground: No

Has Community Garden: No

Cemetery: No

Park Under Construction or Remediation: No

Other Publicly Accessible Waterfront: No

Contains Wetlands: Yes

Within Business Improvement District: No

ParkScore Park Equity Analysis: High Park Need

School Property: No

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# Run Data-Driven Parcel Reports

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Green Infrastructure  
Schoolyards



Green Alleys



Connective Corridors/  
Linear Parks



Community Agriculture



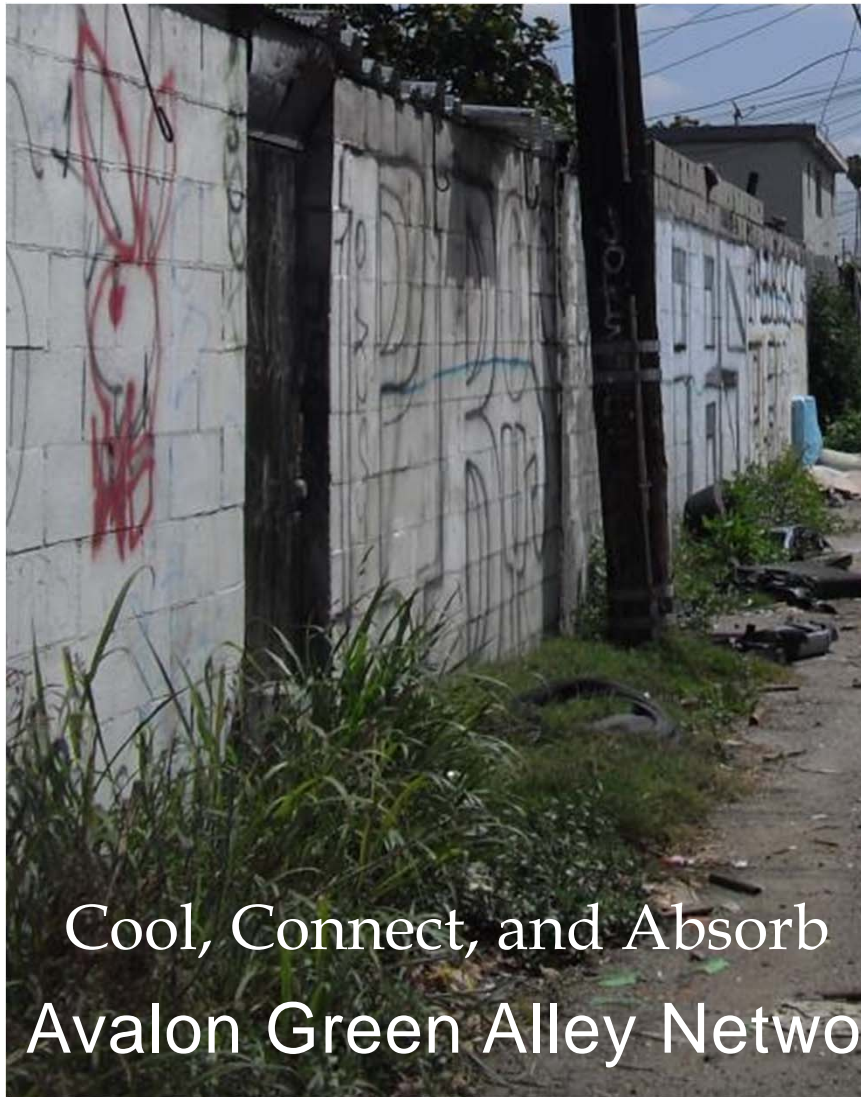
Water-Smart Parks

# TPL Green Infrastructure Project Typologies





# Climate Smart Cities Implementation Los Angeles, CA

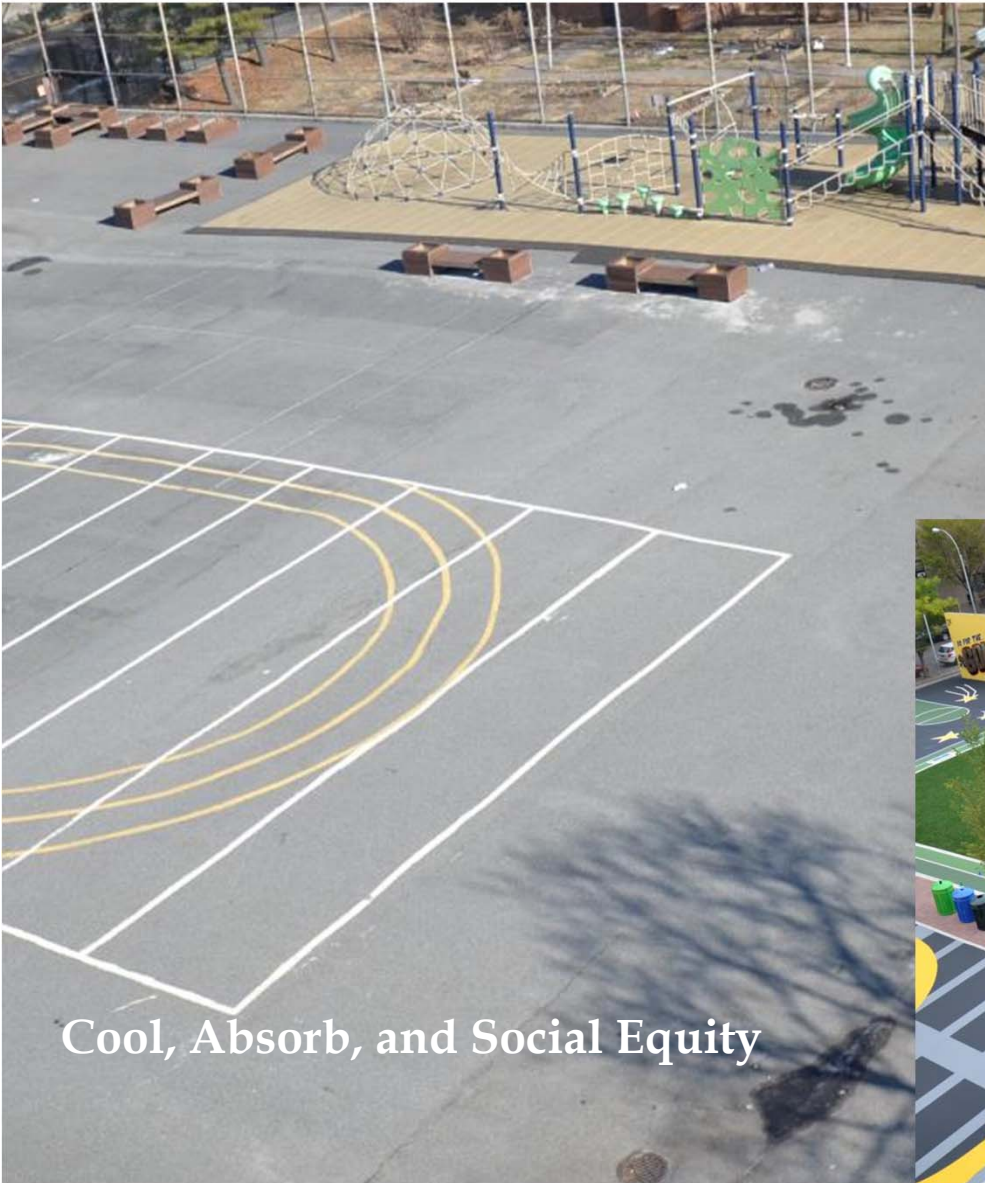


Cool, Connect, and Absorb  
Avalon Green Alley Network



# Climate Smart Cities Implementation

## New York, New York



Cool, Absorb, and Social Equity



# Cool, Connect, Absorb, Protect, Social Equity



## Adventure Park Master Plan



0' 20' 40' 80' MAY 17, 2016





# Climate Smart Cities Implementation Boston, MA

## Garrison Trotter Farm

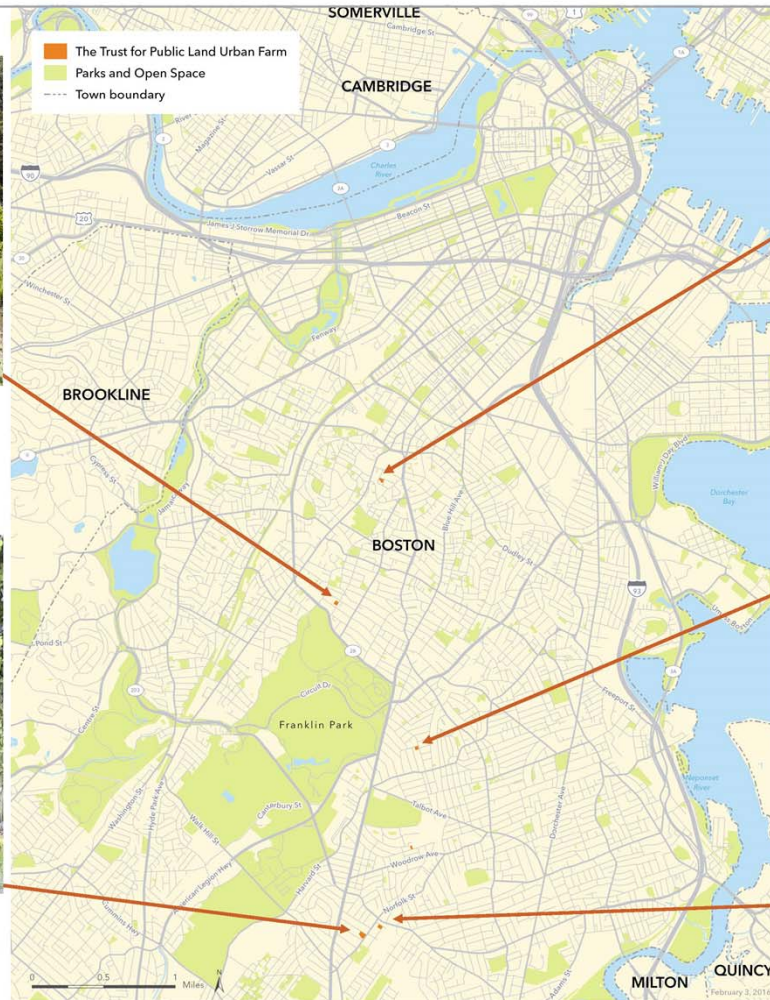


Garlic, onions, lettuce, arugula, mustard greens, and carrots are thriving on this once vacant and blighted lot. Garrison Trotter is the first by-right farm in Boston under Article 89 and includes a neighborhood community garden plot.

## Fowler Clark Farm



This historic 18<sup>th</sup> century farmhouse and 19<sup>th</sup> century barn are being reclaimed to bring 21<sup>st</sup> century urban farming to Mattapan. The project will restore the buildings to their former glory, create a commercial learning farm, and connect the community to local food.



## Tommy's Rock Farm



Roxbury residents have long awaited the transformation of Tommy's Rock from gravel and weeds to soil and crops. Farmers will sow their seeds in fertile beds and a greenhouse and neighbors will have access through a small park at the entrance. Farm design is underway and agricultural production is anticipated to begin in spring 2016.

## Glenway Farm



Located in the Four Corners neighborhood of Dorchester, passers-by enjoy sunflowers lining the fence and sidewalk along the border of Glenway Farm. Within is a bounty of salad greens, sunflowers, and other healthful produce sold to local restaurants.

## Flint Street Farm



We are working with the City to acquire a 0.3-acre vacant lot at the corner of Flint Street to be transformed into a productive working farm and—due to its proximity to the Fowler Clark Farm just a block away—will aggregate Boston's urban farms for efficiency and maximum productivity.



January 29, 2016

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## Boston Urban Agriculture Partnership



# Climate Smart Cities Implementation

## Boston, MA

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### Boston Climate Story Map- The people's stories on climate.



*Vivian Ortiz notes the importance of healthy food and an active lifestyle in her neighborhood, "because we [Mattapan] have higher health disparity rates and she advocates for "more access to walking and biking opportunities," not just for transportation, but also "for fitness, for opportunity, for your wellbeing."*



*When Noam Rifkind moved to Boston, he settled in East Boston because "I take it as a birthright that I should have access to the water and sea breezes." Conscious of future sea level rise, Noam states that "we are effectively an island so if sea level rises enough that the Blue Line is flooded, we are cut off from the City for months."*



[Darci.Schofield@tpl.org](mailto:Darci.Schofield@tpl.org), 617-371-0514

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