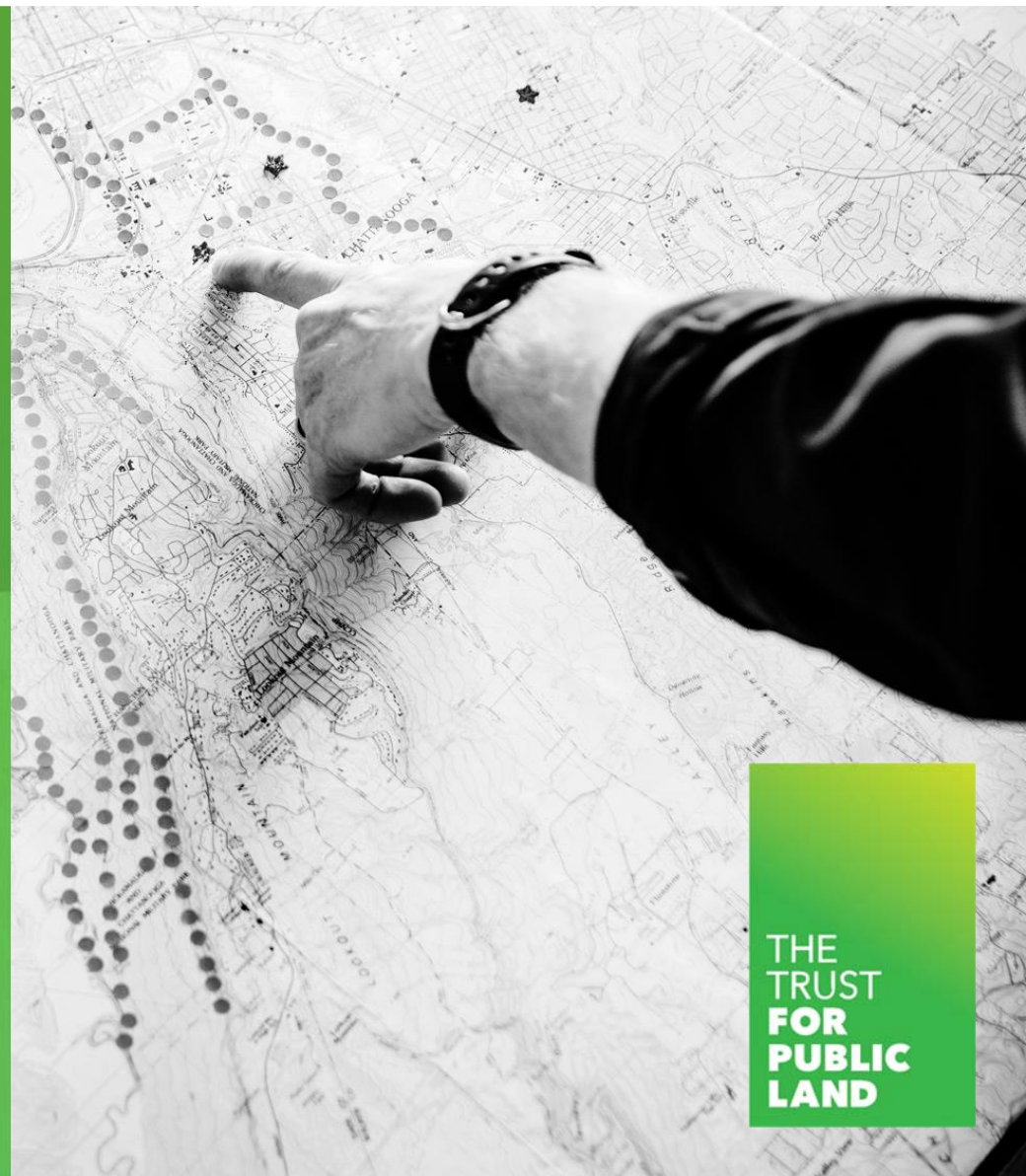


# CLIMATE-SMART CITIES: CLEVELAND

Multi-Benefit Green  
Infrastructure For The  
Great Lakes Region



THE  
TRUST  
**FOR**  
**PUBLIC**  
**LAND**



# OUR MISSION

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

THE  
TRUST  
FOR  
PUBLIC  
LAND



Imagine you were never  
more than a 10-minute walk  
from a place to explore.

To discover.

To wonder.

To play.







In many cities, more than half of children do not have a park or natural area within a 10-minute walk of home.





Instead kids play in streets,  
alleyways, or vacant lots. Or they  
simply stay inside, eyes glued to  
screens—a national crisis that has  
contributed to epidemic levels of:

- obesity
- diabetes
- depression



**What makes a truly  
great park?**



## CREATIVE PLACEMAKING



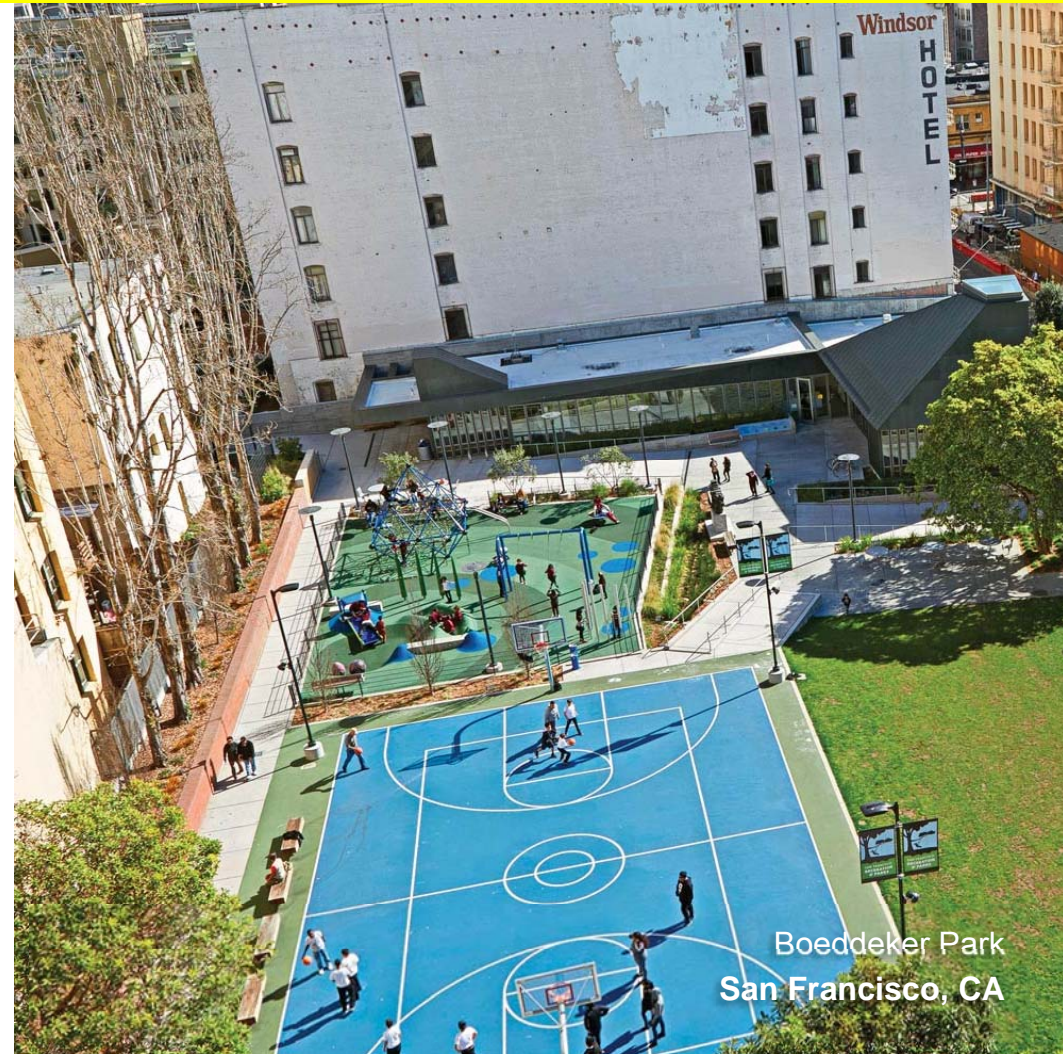
The 606  
Chicago, IL

Parks for the  
community,  
by the community.



## PUBLIC HEALTH

Parks are a  
prescription for  
community health.





## EQUITY

Everyone deserves  
a great park within  
a 10-minute walk.



Benito Juarez Park  
Maywood, CA



## CLIMATE-SMART CITIES

The best parks  
have superpowers.



P.S. 111  
Hell's Kitchen, NY





# before

P.S. 7 community playground in the Bronx



An aerial photograph of a modern community playground in the Bronx. The playground features a large green lawn, a blue and green play structure with slides, and a green gazebo. The surrounding area includes a red brick building on the left, a black fence, and various trees. The word "after" is overlaid in large white text.

# after

P.S. 7 community playground in the Bronx





Hollywood Lake Park  
Los Angeles, CA

At The Trust for Public Land, we're proud to say that we've been connecting communities to the outdoors—and to each other—since 1972.



But today we're  
dreaming even  
bigger.



William Cramp Elementary Schoolyard  
Philadelphia, PA

**How will we do it?**



We're creating great parks  
where they're needed most  
in cities nationwide.





And we're sharing our research, education, and planning tools to inspire more people to advocate for close-to-home parks — wherever they live.



# CLIMATE CHALLENGES IN THE GREAT LAKES



# CLIMATE-SMART CITIES OBJECTIVES



**CONNECT**



**COOL**



**ABSORB**



**PROTECT**



# MULTIPLE-BENEFIT **GREEN INFRASTRUCTURE**

for Climate-Smart Cities



# OUR INTEGRATED APPROACH



**PARTNER**



**RESEARCH**



**IMPLEMENT**



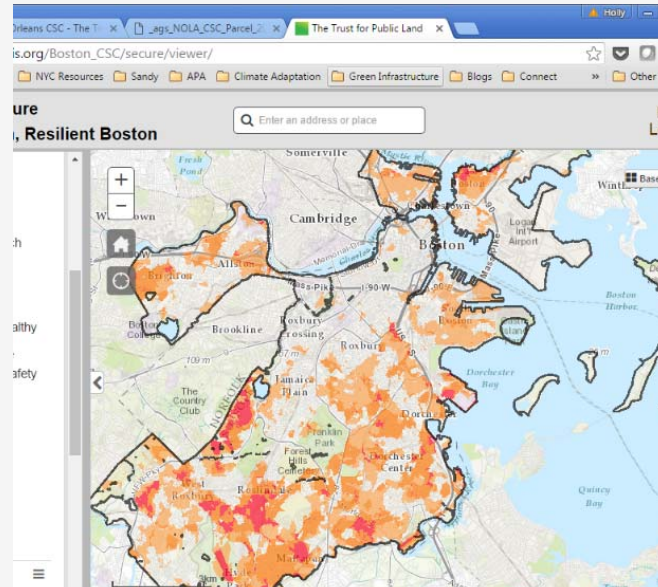
**PLAN**



# RANGE OF IMPLEMENTATION OPPORTUNITIES



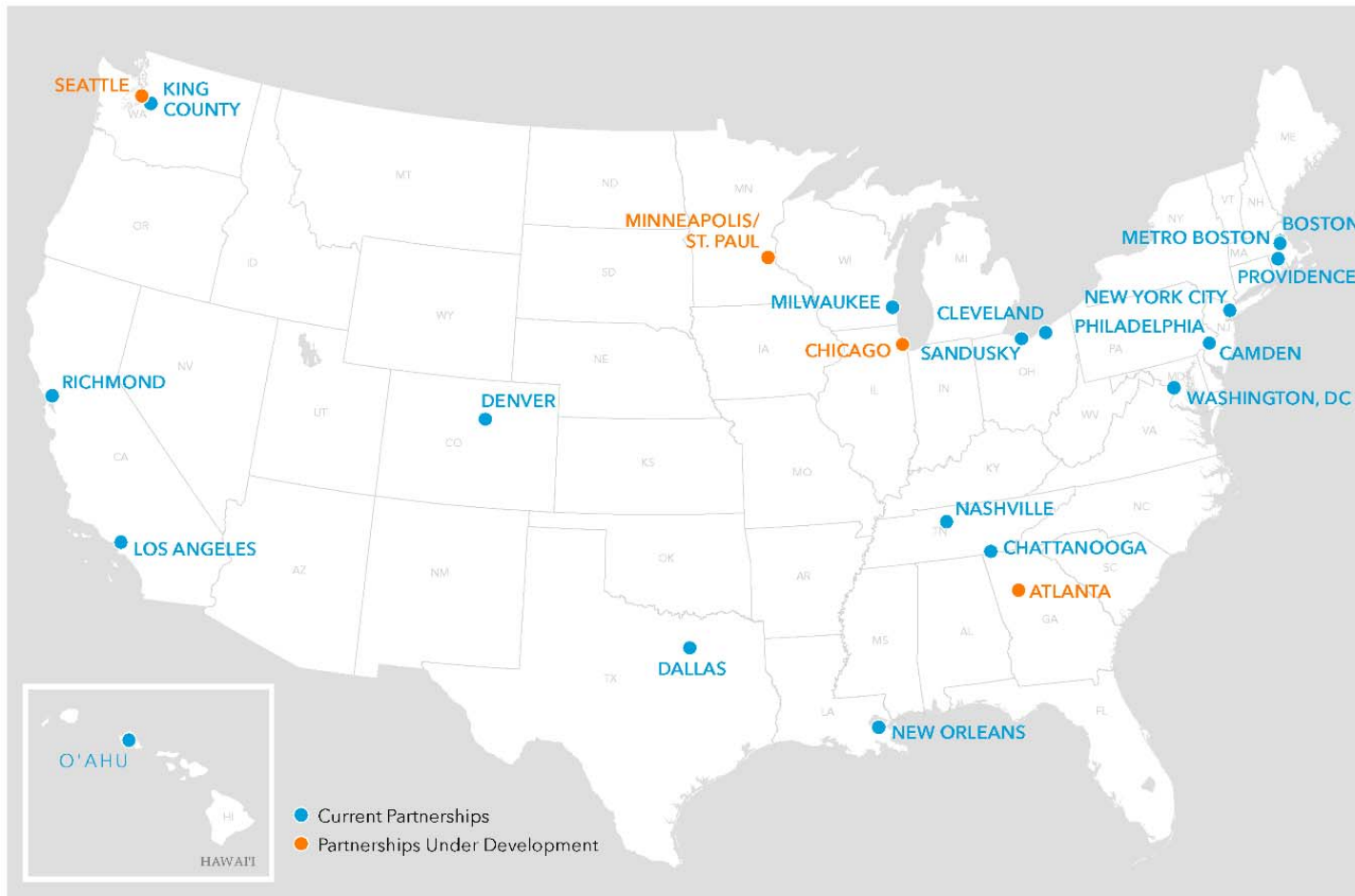
**COALITIONS/LEARNING LABS**



**POLICY/DECISION-MAKING**

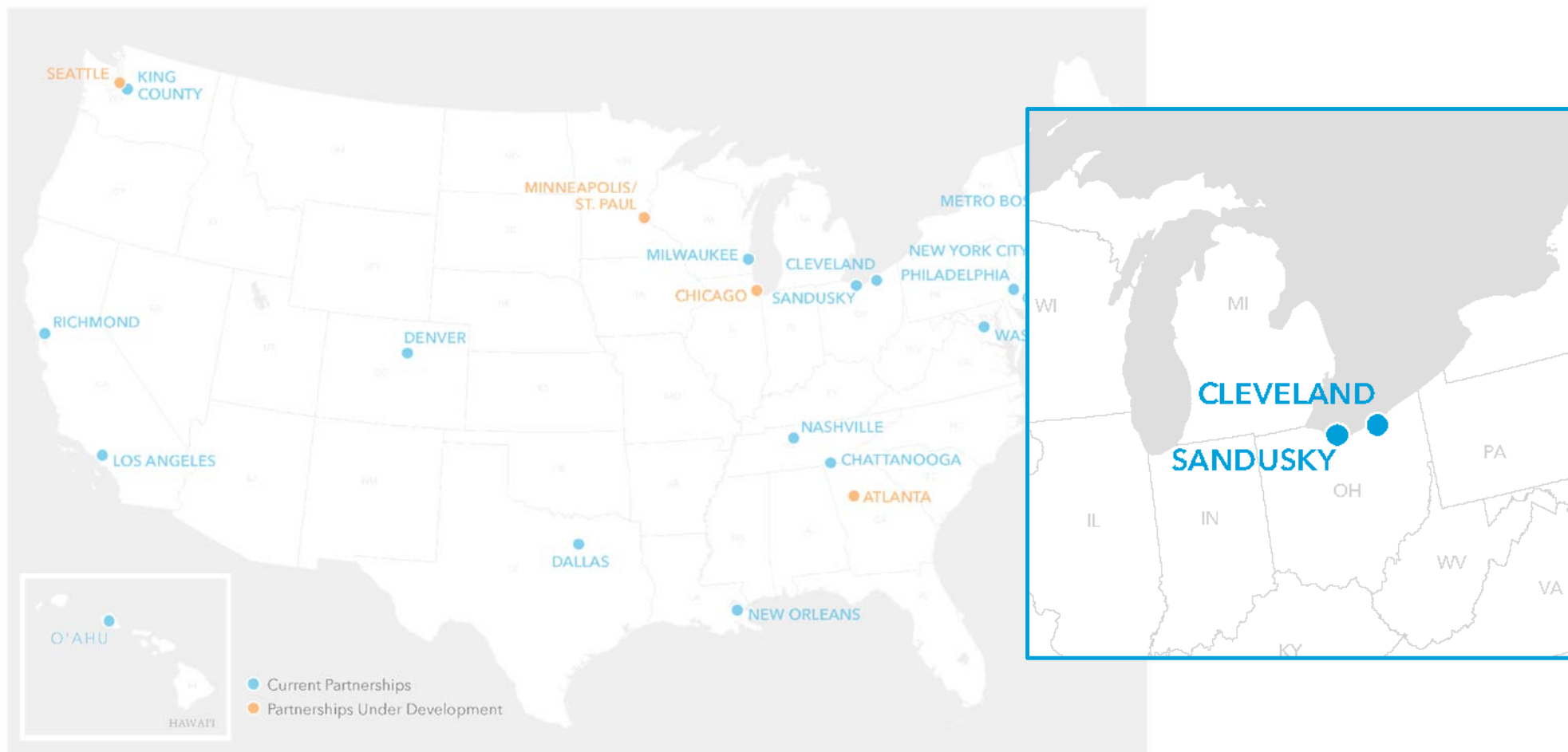


**PROJECT DEVELOPMENT**



## Climate-Smart Cities Partnerships





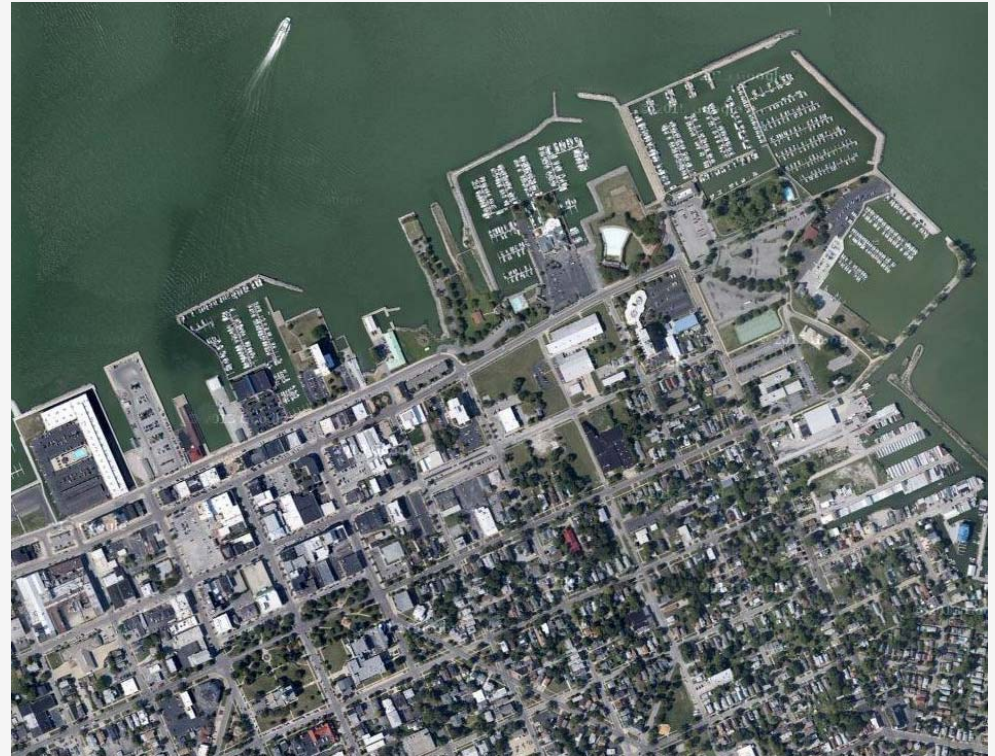
## Climate-Smart Cities Partnerships

# A TALE OF TWO CITIES...

Cleveland



Sandusky





# PARTNERSHIP & NETWORKS

Cleveland

Sandusky



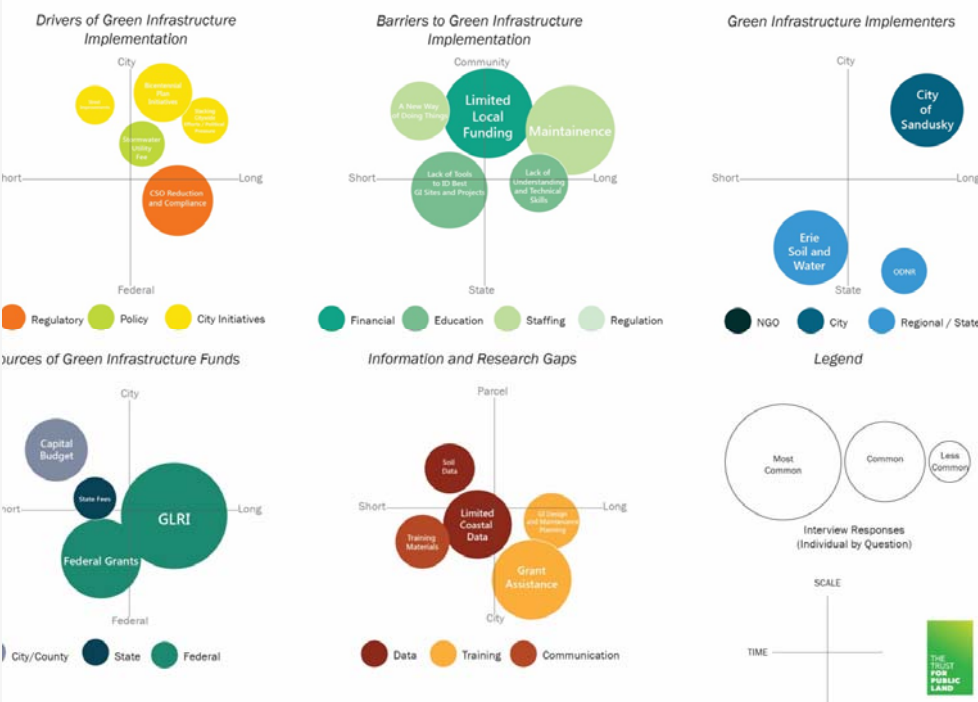
RESEARCH & DATA

Cleveland

Model Criteria July 31, 2017					
Goal Weights	Criteria	Criteria Weights	Methodology	Data (Description, Date, Resolution)	Data Source
20%	Improve Access to Public Transit	19%	This model identifies areas near public transit where connections could be made. One mile walking distance areas from rapid transit stations, and healthline stations were computed. Quarter mile walking distances from existing bicycle routes and trails were computed. Census block groups that are within one mile of public transit but not within a quarter mile of bike facilities were used as the starting points to find the shortest route to a public transit station. The identified routes were buffered by 100 feet and assigned high priority (4). Routes that overlap with currently planned or proposed trails were given very high priority (5).	Health Line Stations Fixed Transit Stations Bike Network Access Points Priority Bikeway Network Trails Leadership Network Existing Trails Cleveland City parks 2017 Block Groups	NOACA (Northeast Ohio A Agency) online data portal  The Trust for Public Land ESRI business analyst 2017
	Create connections to parks and green space	19%	This model identifies areas where connections can be made from existing and proposed trails to parks. Routes are computed from each park to the three closest existing and three closest proposed trails. Larger parks have multiple starting points within them. Routes to proposed trails are given high priority (4) and routes to existing trails are given very high priority (5). Both are buffered by 100 feet.	Existing and Proposed Trails Cleveland City parks 2017 Streets	NOACA TPL Park Score Cuyahoga County
	Fill gaps in active transportation network	14%	This model identifies routes that will best increase connectivity in the existing active transportation network. Non-connected trail endpoints were routed to the 5 nearest trails. Planned and proposed active transit facilities were also incorporated. All routes were buffered by 100 feet. Areas where computed routes and planned/proposed trails overlap were assigned as very high priority (5), areas where there is just a route or planned trail were assigned high priority (4).	PriorityBikewayNetwork TrailsLeadershipNetwork	Cuyahoga County
	Connect low-income communities to job-rich districts	14%	This model identifies possible alternative transit connections between low income communities and job rich areas. Low income areas are derived from the results of criteria E1002: Low Income Households. Job rich areas are derived using a density analysis on number of employees in the businesses data. Routes are analyzed from each low income point to the nearest job rich point. Routes are then overlaid to compute how many individual routes were found on each street segment. Areas are ranked based on how many computed routes overlap. A natural breaks classification is used to split the overlap values between 3 and 5 to assign priority scores.	Businesses, 2015 Priority Bikeway Network Streets	ESRI business analyst 2017 Cuyahoga County
	Safe Routes to Schools	19%	This model identifies the safe routes to schools priority routes that were identified by the City of Cleveland planning department. This data shows priority corridors to CMSD schools taken by students walking and biking as well as associated direction and time needed to cover corridor. Safe routes were buffered by 150 feet and given a high priority (5).	Safe Routes To Schools Priority Corridors, 2016 Priority routes for students attending CMSD schools, data collected in 2015 and 2016 by CPC and CMSD, collected via walking audit.	Cleveland City Planning
	Enhance bicyclist and pedestrian safety	14%	This model identifies areas where there is a high concentration of accidents between automobiles and bikes or pedestrians. A hot spot analysis is done to find regions of highest crash spatial concentration. Two kernel density analyses are run on crash points inside and outside the hot spots using a 250 foot radius and using a weighting of Fatal = 3, Injury = 2 and Property Damage = 1. Crash density outputs from the two kernel density analyses are classified from 0-5 using natural breaks and then overlaid, taking the maximum value to get the final results.	Fatal Crashes 2010-2014 Injury Crashes 2010-2014 Property Damage Crashes 2010-2014	NOACA

Sandusky

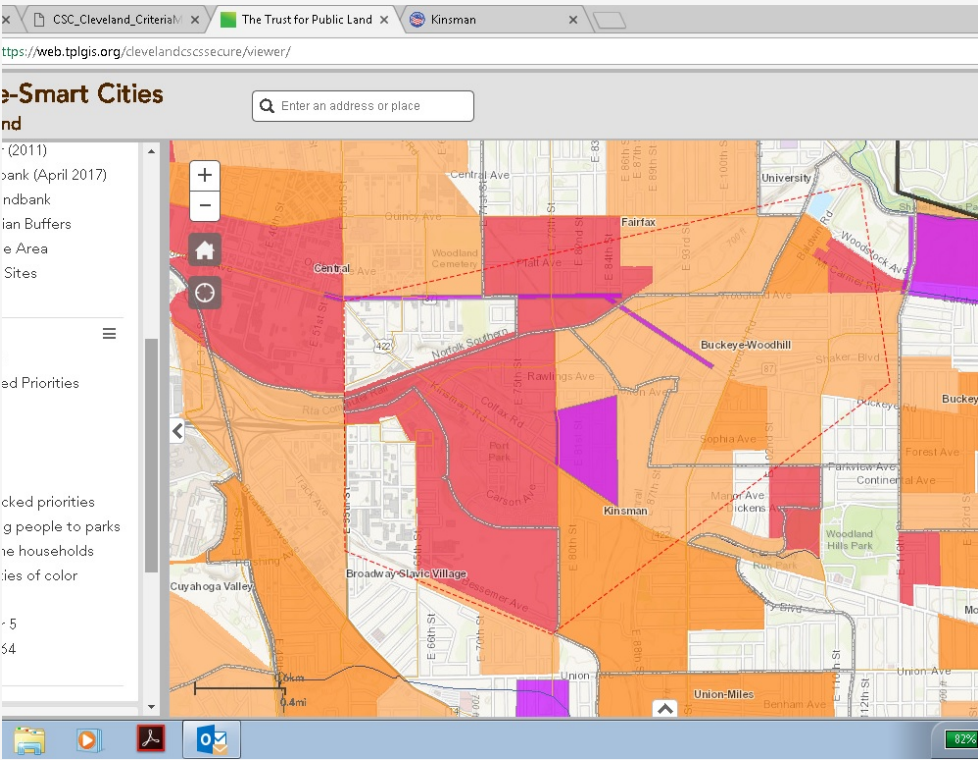
ate-Smart Sandusky  
every Process Findings



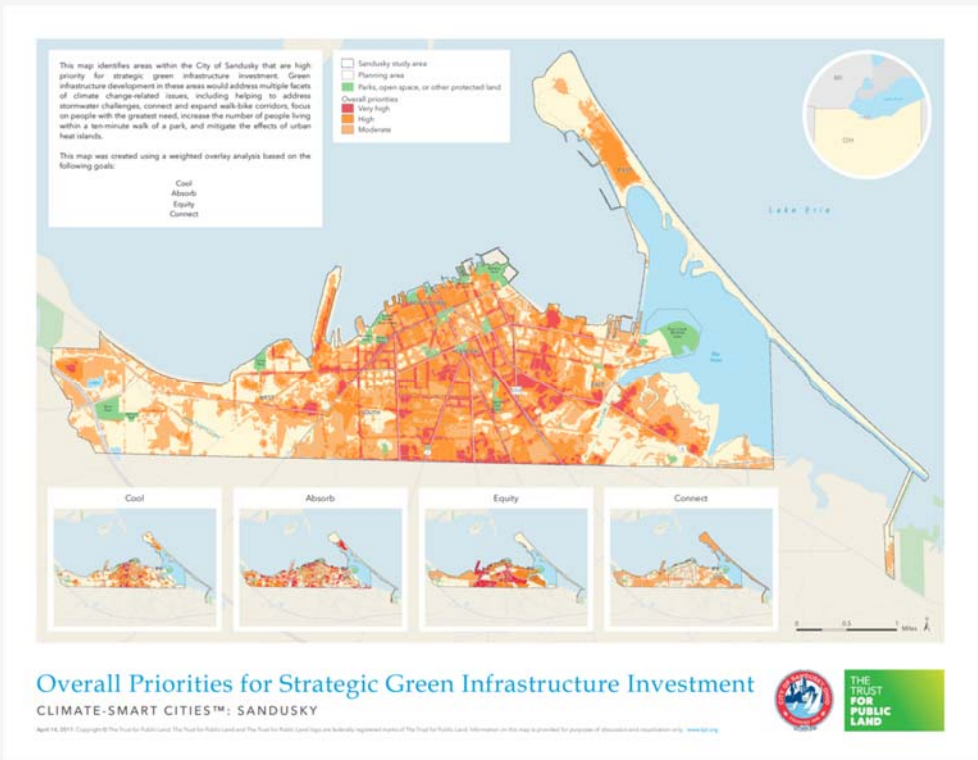


# GIS & PLANNING

## Cleveland



## Sandusky



# COMMUNITY-BASED PLANNING

## Cleveland



## Sandusky







# Trees







**Rain Gardens**





# Living Shorelines





# Urban Farms





Complete  
Streets



# ALIGNING WITH LOCAL INITIATIVES

## Decision Support Tool Uses Cases

Bikeway Master Plan Update

Greenway Connections

Cleveland Tree Plan

Parks and Economic Development

Park Capital Improvement Plans

Neighborhood Resiliency

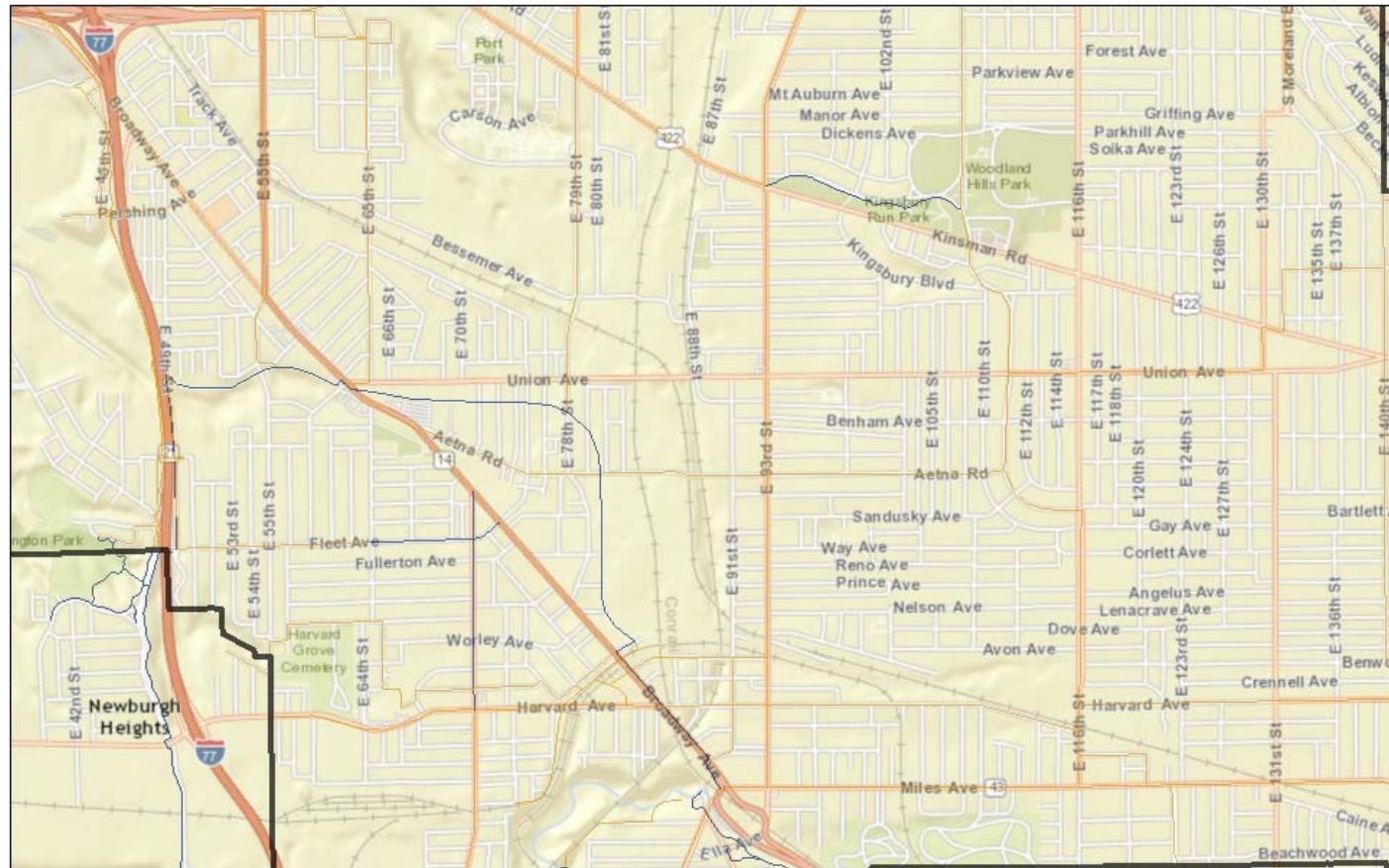
NEORSD Community Investments

Safe Routes to School

Climate Action Plan Update

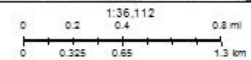


## Slavic Village - Bike Network



August 17, 2017

Study Area
 Bikeways & Trails
— Planned
— Existing

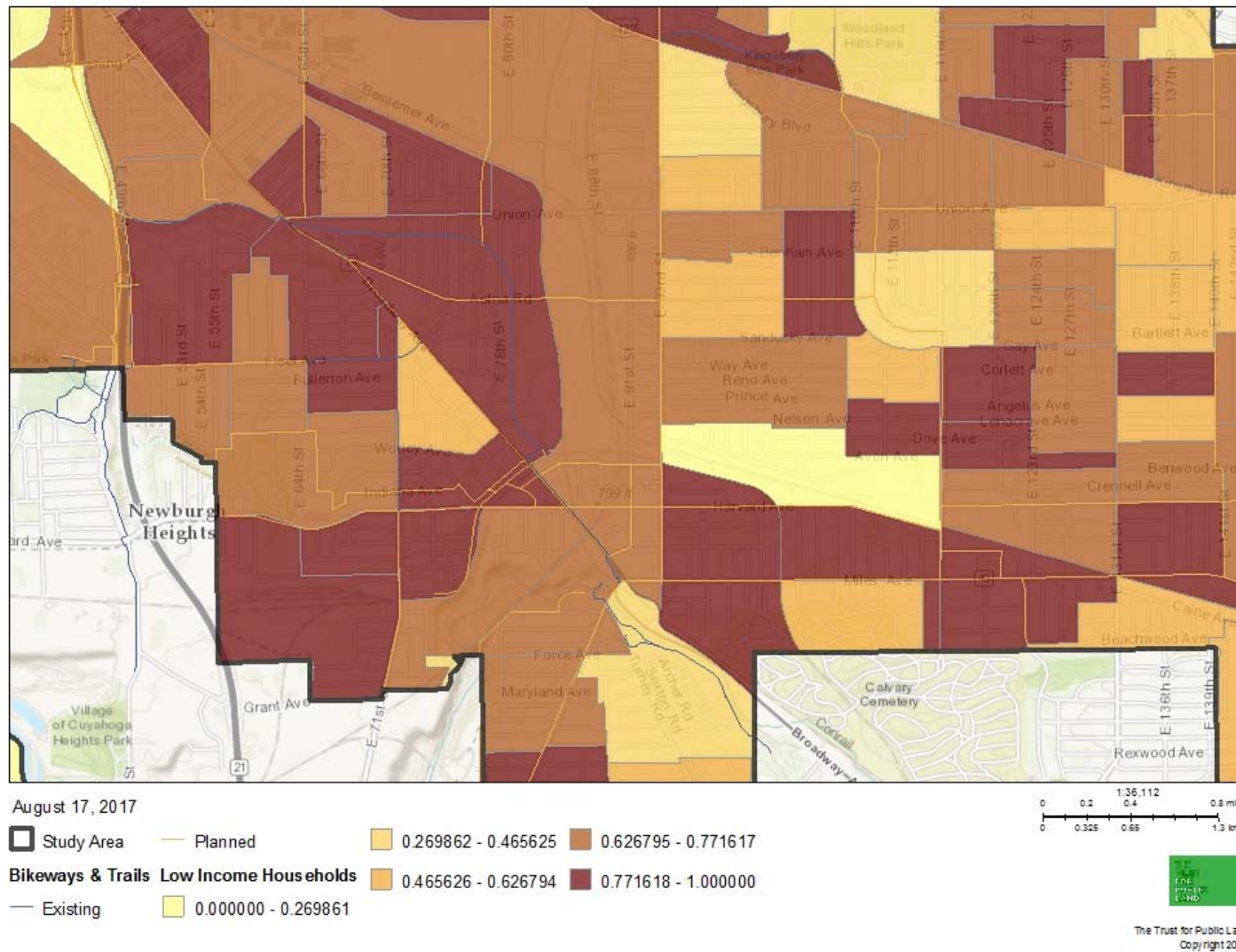


The Trust for Public Land  
Copyright 2017

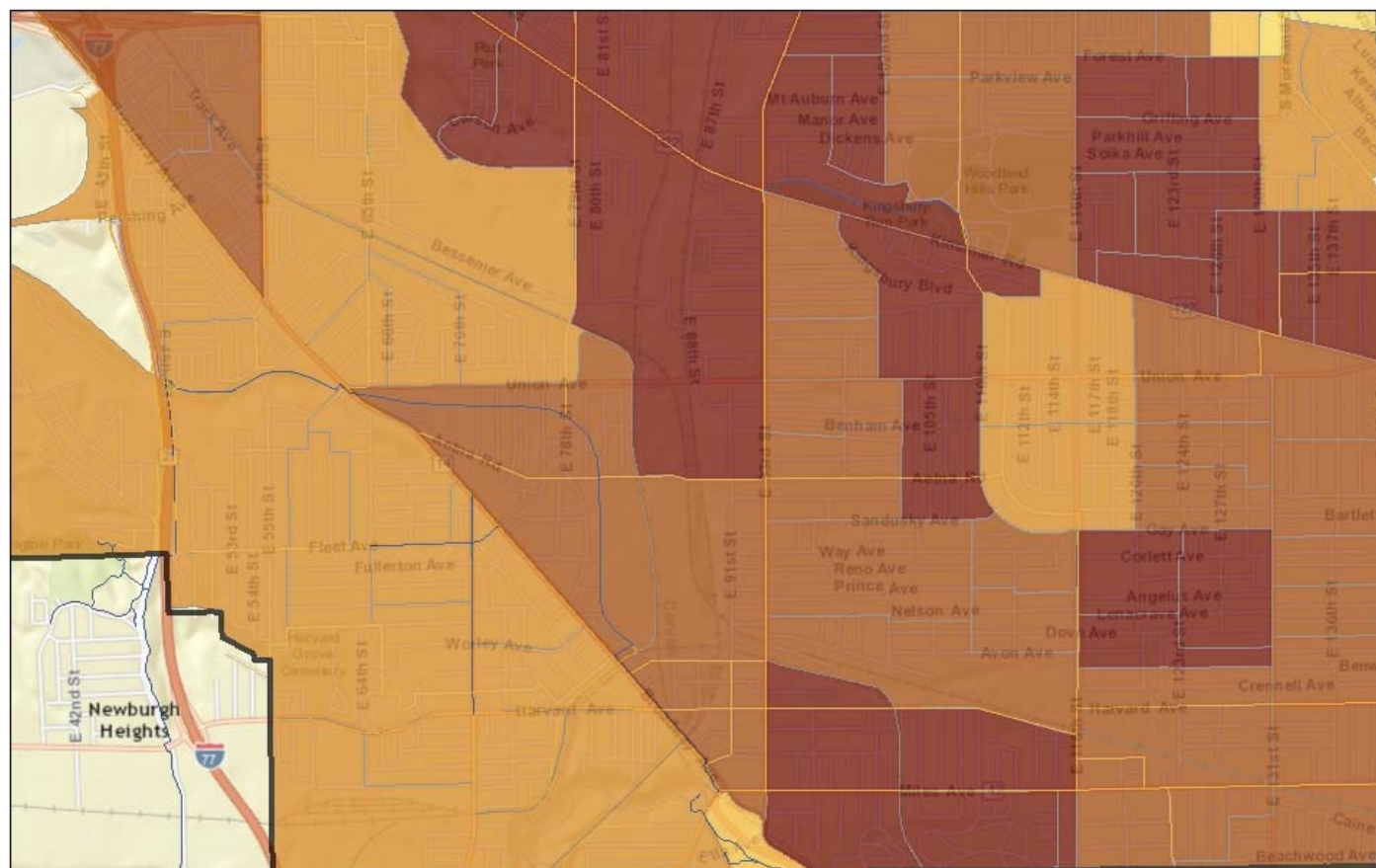


# Equity

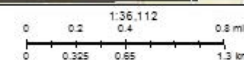
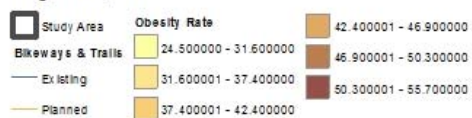
## Slavic Village - Low Income Households



## Slavic Village - Obesity Rates



August 17, 2017

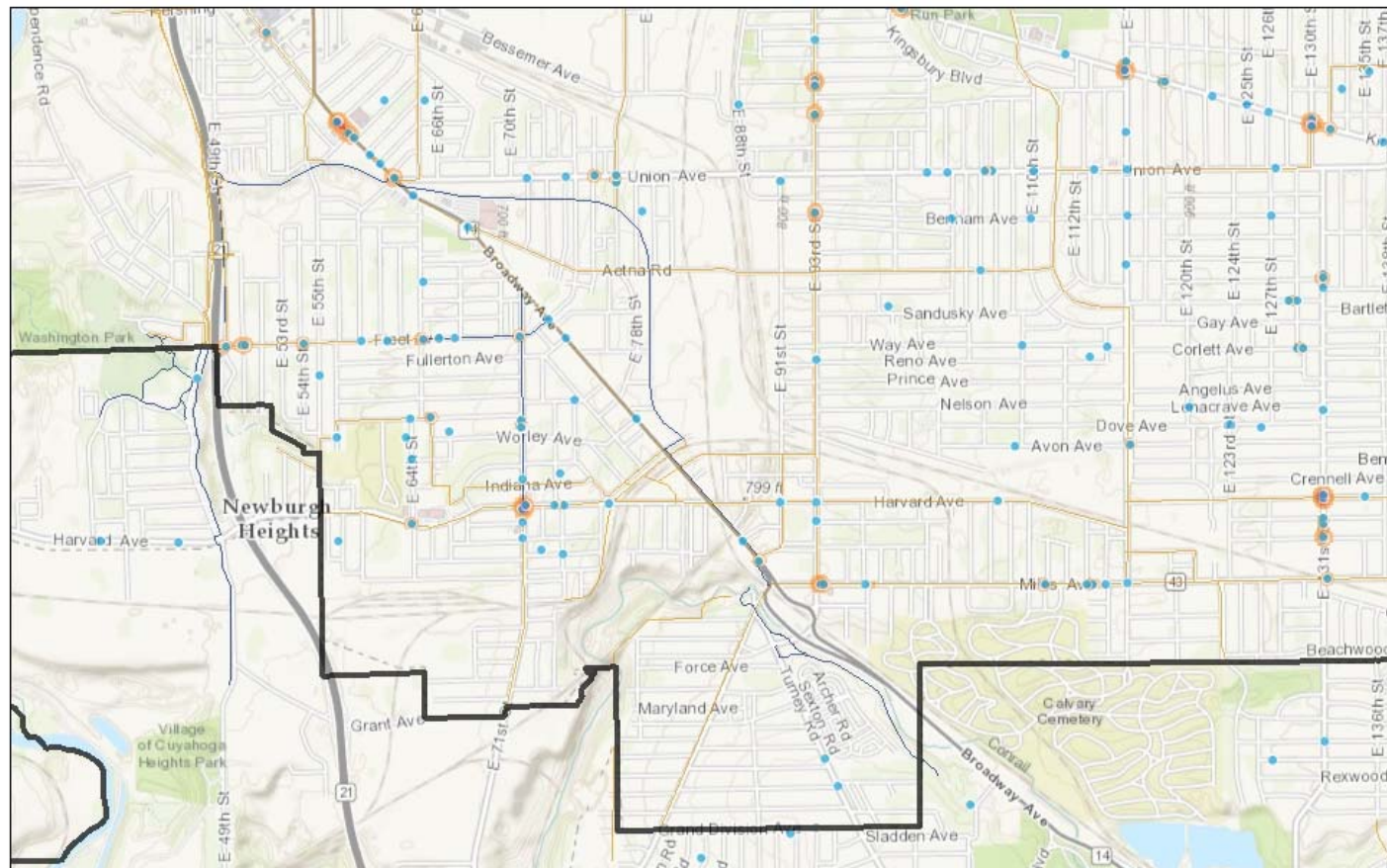


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# Safety

## SV - Bike Ped Safety



August 17, 2017

Study Area

Injury Ped & Bike Crashes 2010-2014

**Bikeways & Trails Enhance bicyclist and pedestrian safety**

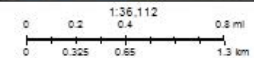
Existing

Planned

Very high

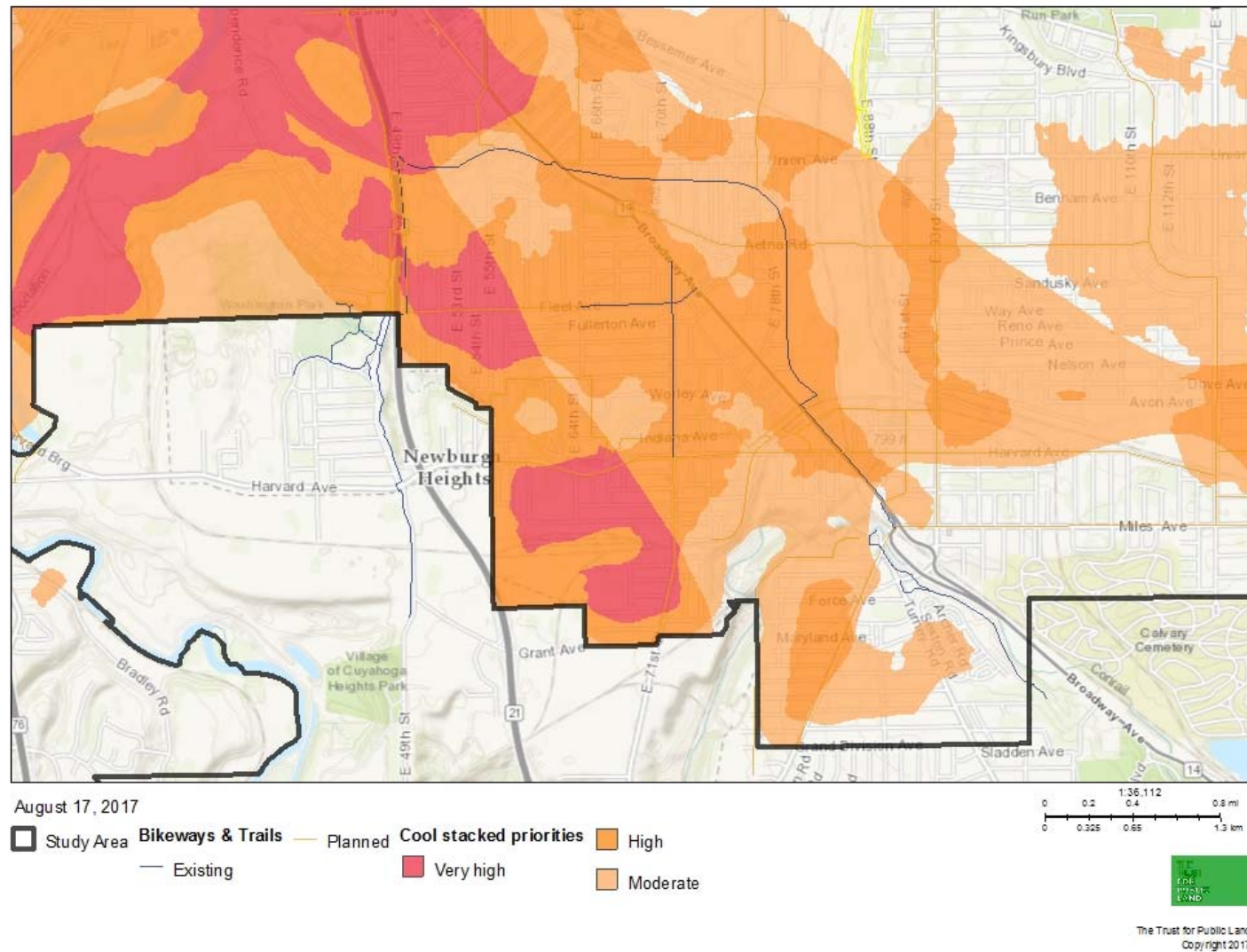
High

Moderate



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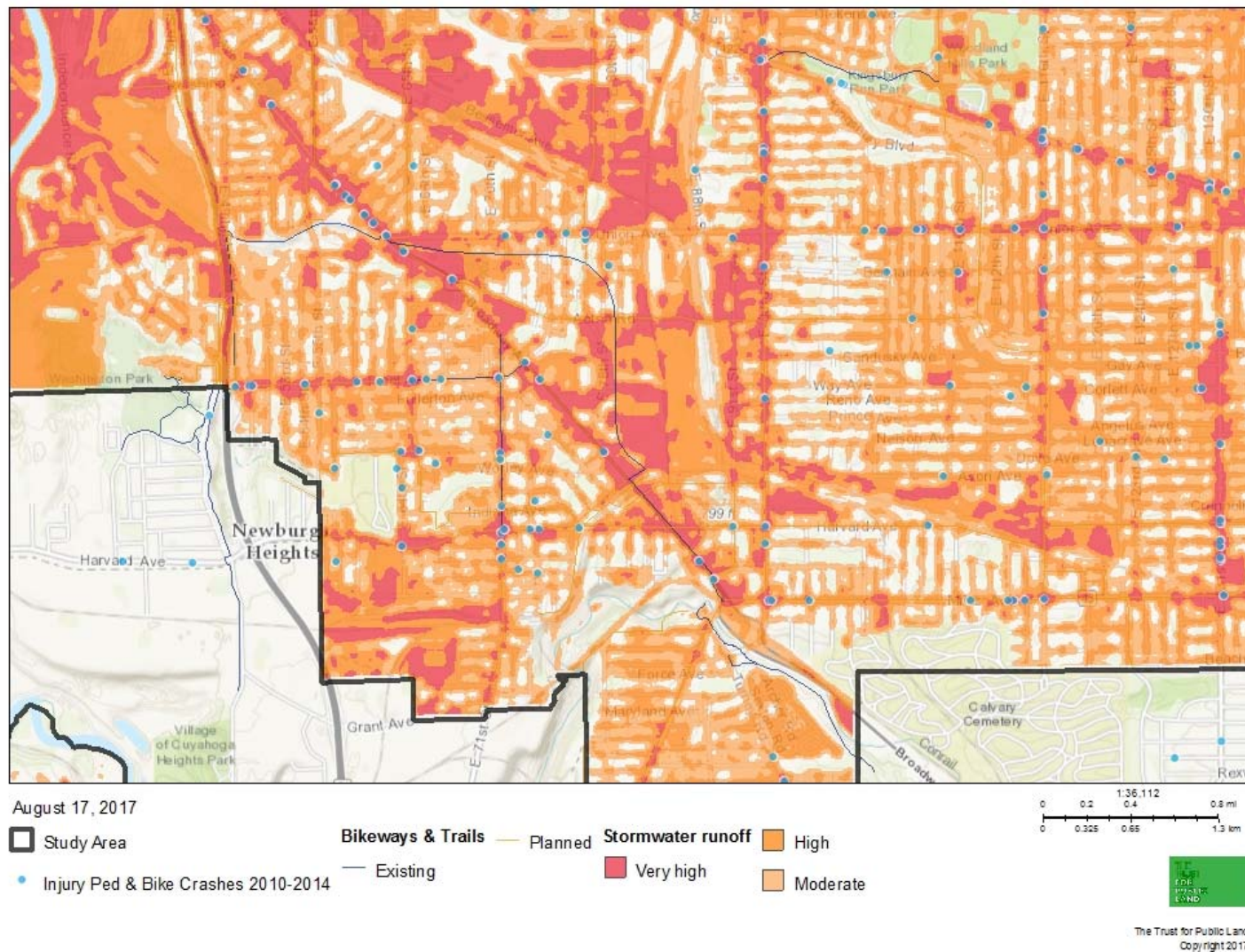
### Slavic Village - Cool (Impervious & Heat Islands)



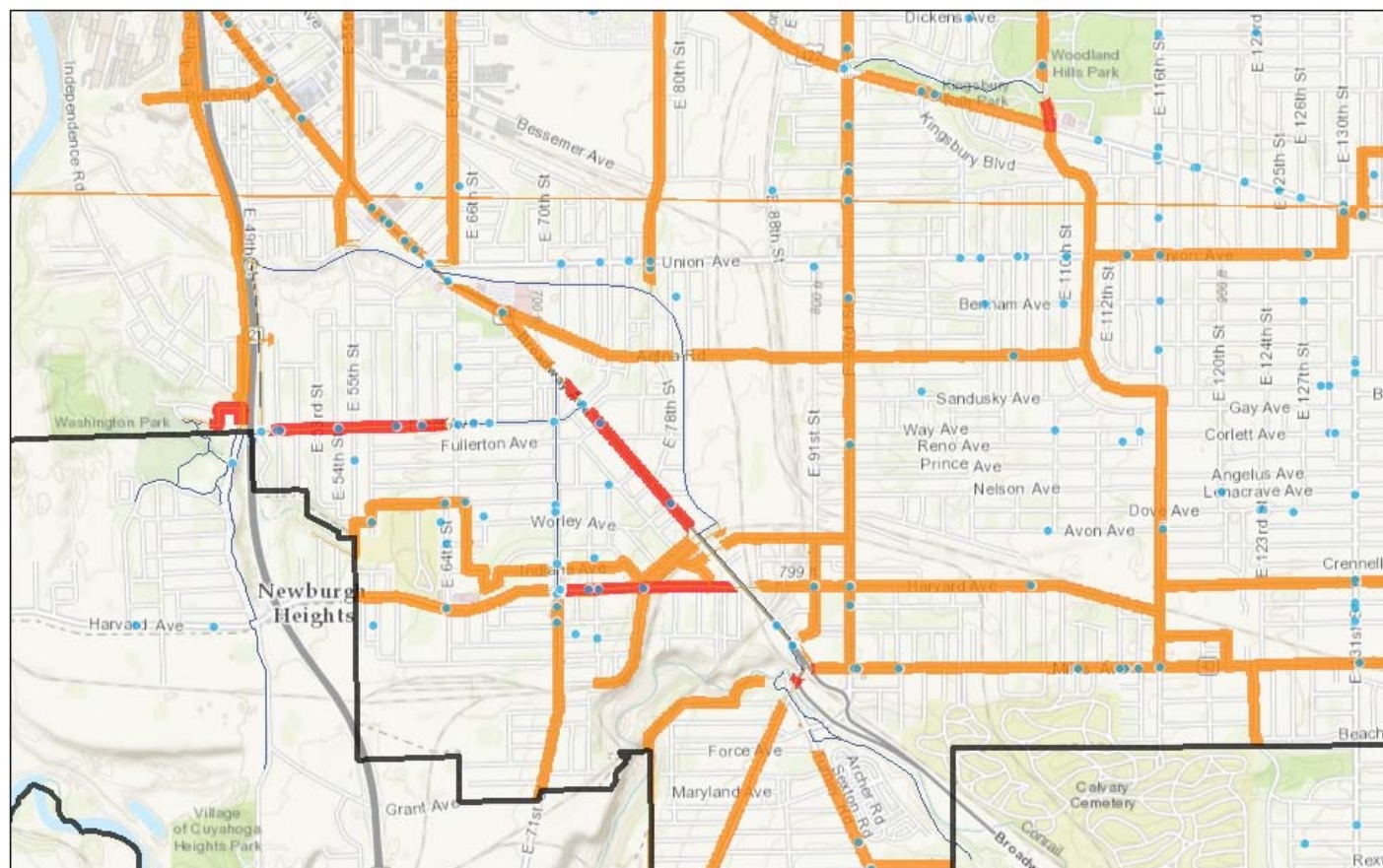


# Absorb

## Slavic Village - Stormwater Runoff



## Slavic Village - Gaps in Active Trans Network



August 17, 2017

Study Area

Injury Ped & Bike Crashes 2010-2014

Bikeways & Trails Fill gaps in active transportation network

Existing  
Planned  
Very High  
High

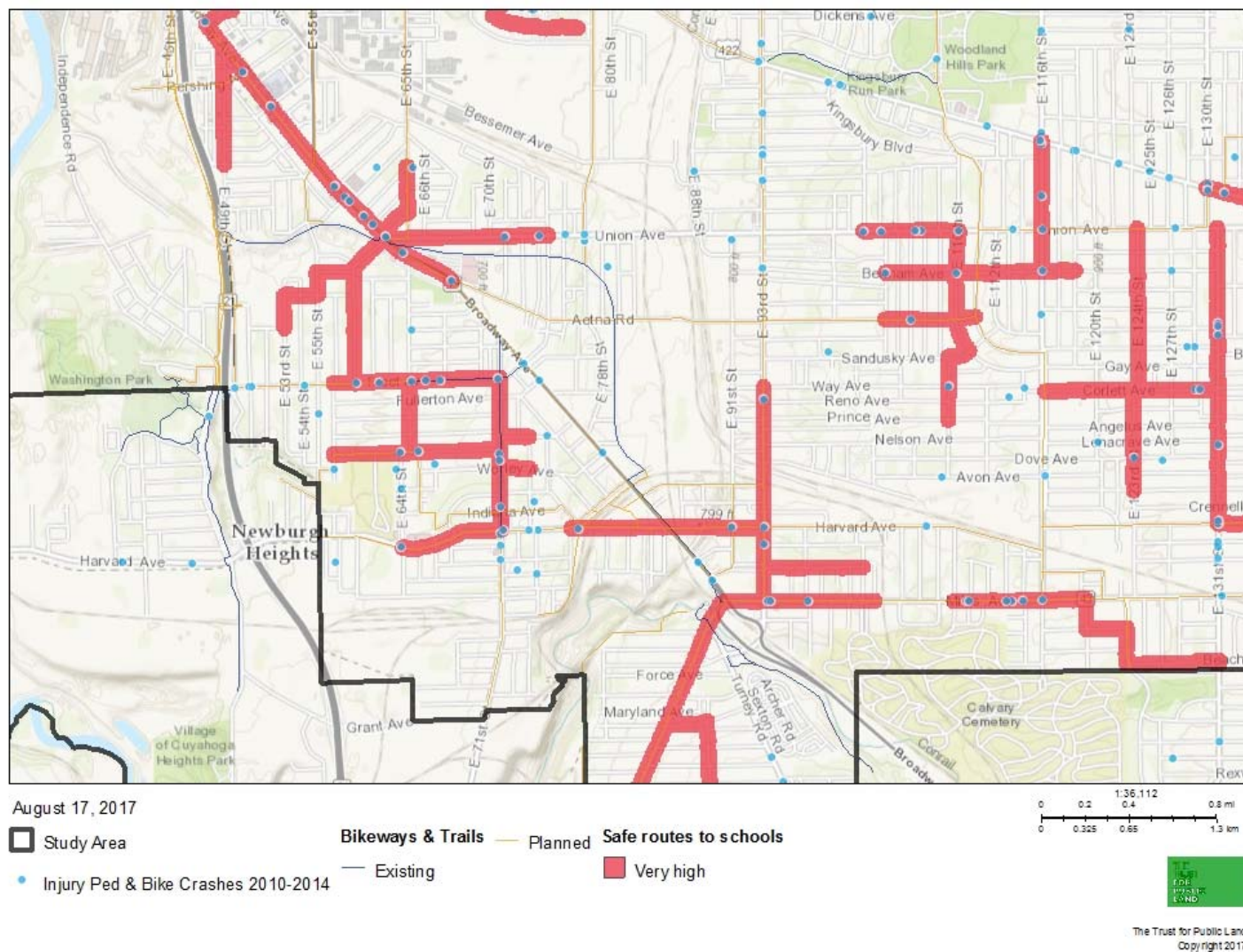
1:36,112  
0 0.2 0.4 0.8 mi  
0 0.325 0.65 1.3 km



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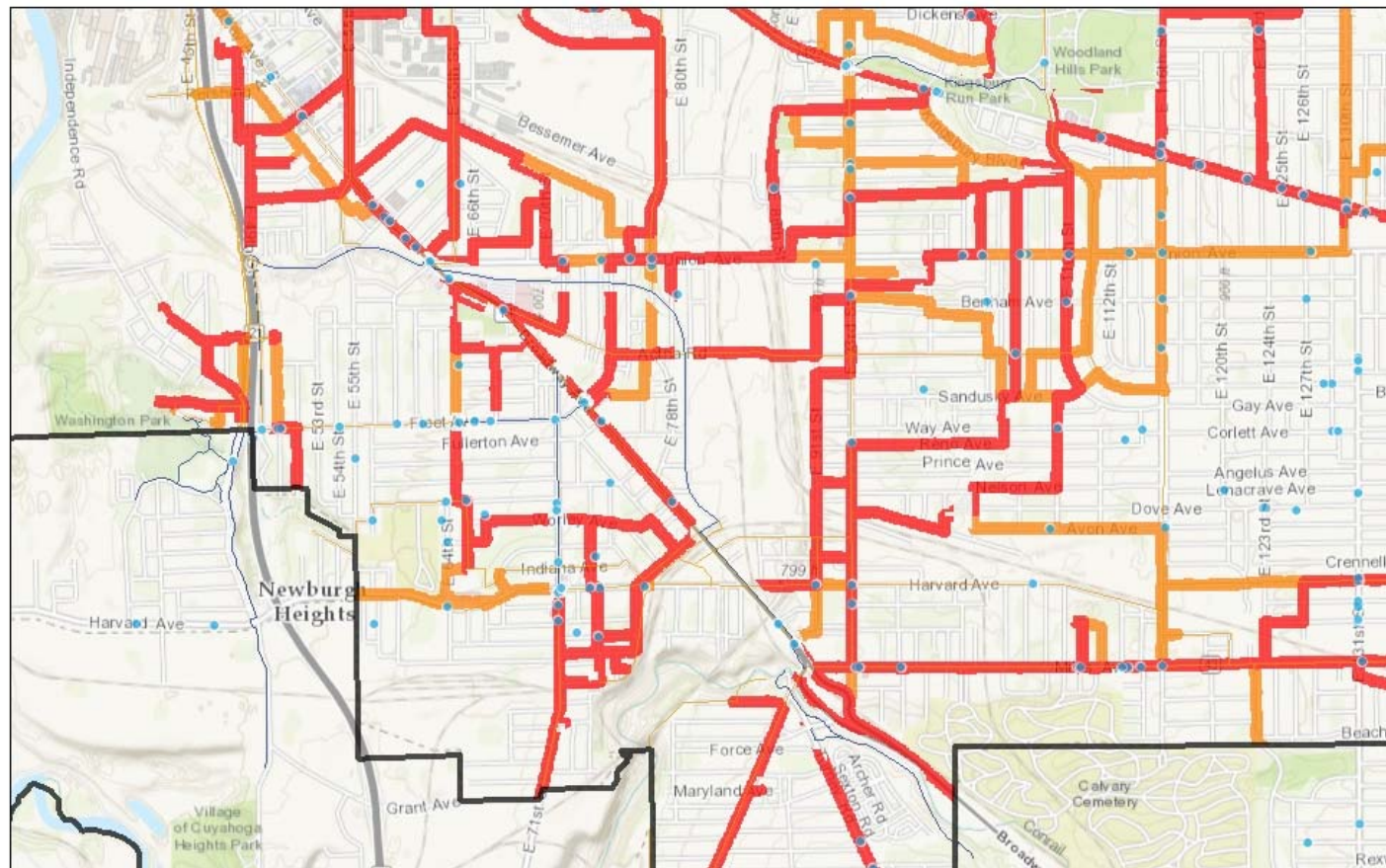


## Slavic Village - Safe Routes to School



# Connect

## Slavic Village - Greenspace Connections



August 17, 2017

Study Area

Injury Ped & Bike Crashes 2010-2014

Bikeways & Trails Create connections to parks and open space

Existing Very High  
Planned High

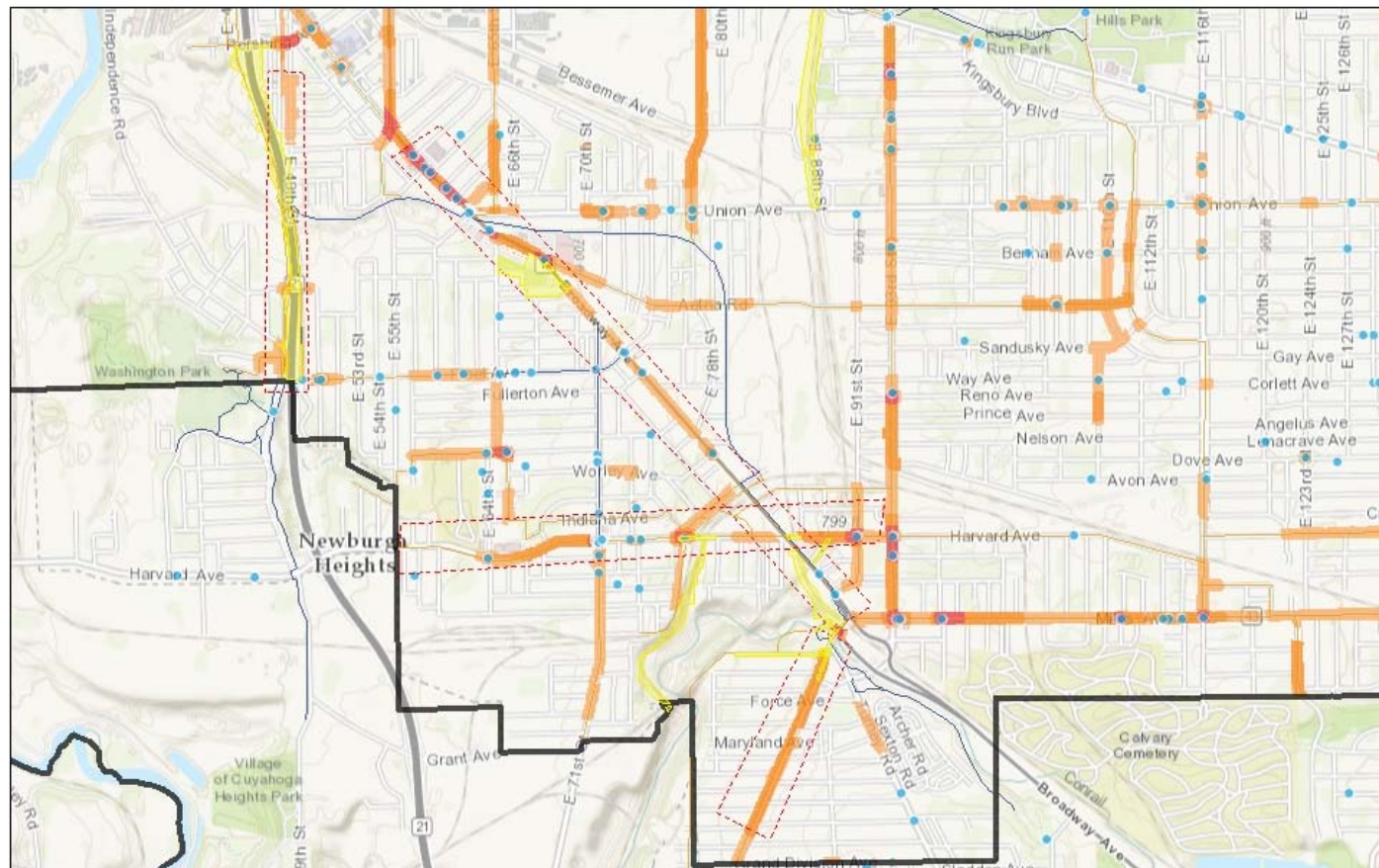
1:36,112  
0 0.2 0.4 0.8 mi  
0 0.325 0.65 1.3 km



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# SV - Query (Cool, Absorb, Income, Obesity w/ Connect Priorities)



August 17, 2017

Study Area

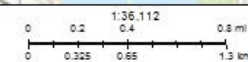
Injury Ped & Bike Crashes 2010-2014

Bikeways & Trails Connect stacked priorities

Existing Very high

Planned High

Moderate

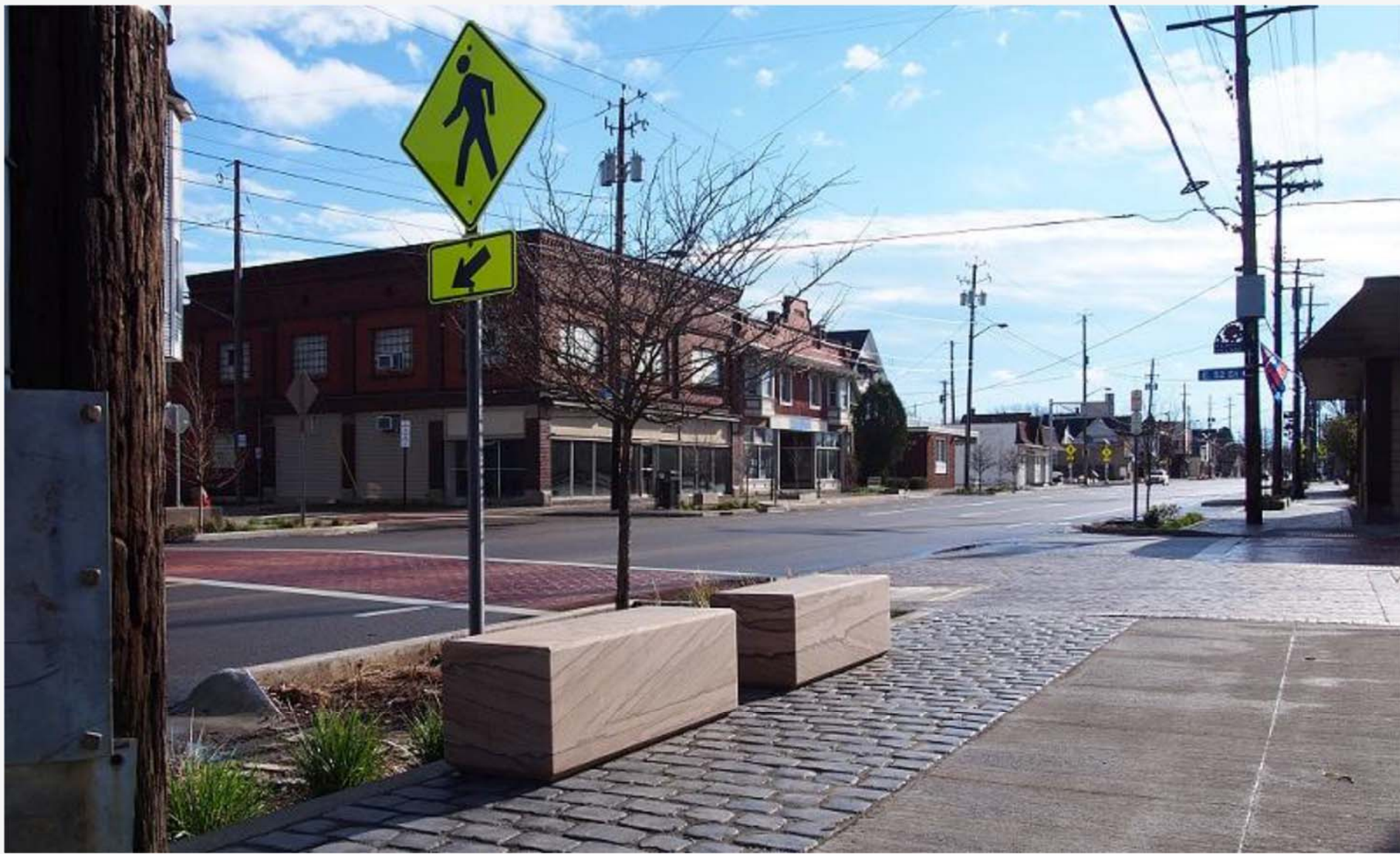


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COOL







- Infiltration basin designed to fully infiltrate stormwater runoff from Fleet Ave
- Controls 4.8 million gallons of stormwater in a typical year, resulting in a 500,000-gallon reduction of CSO annually



ABSORB IN ACTION





## Getting Started

---

- **Landing Page:**  
[http://web.tplgis.org/cleveland\\_csc/](http://web.tplgis.org/cleveland_csc/)
- Click "Data Description" to open the tool metadata table
- Click "Mapping Portal" to open the tool
  - generate a username and password, or...