



RUTGERS

Edward J. Bloustein School
of Planning and Public Policy

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey

Project Update
February 2022

Existing Work Groups

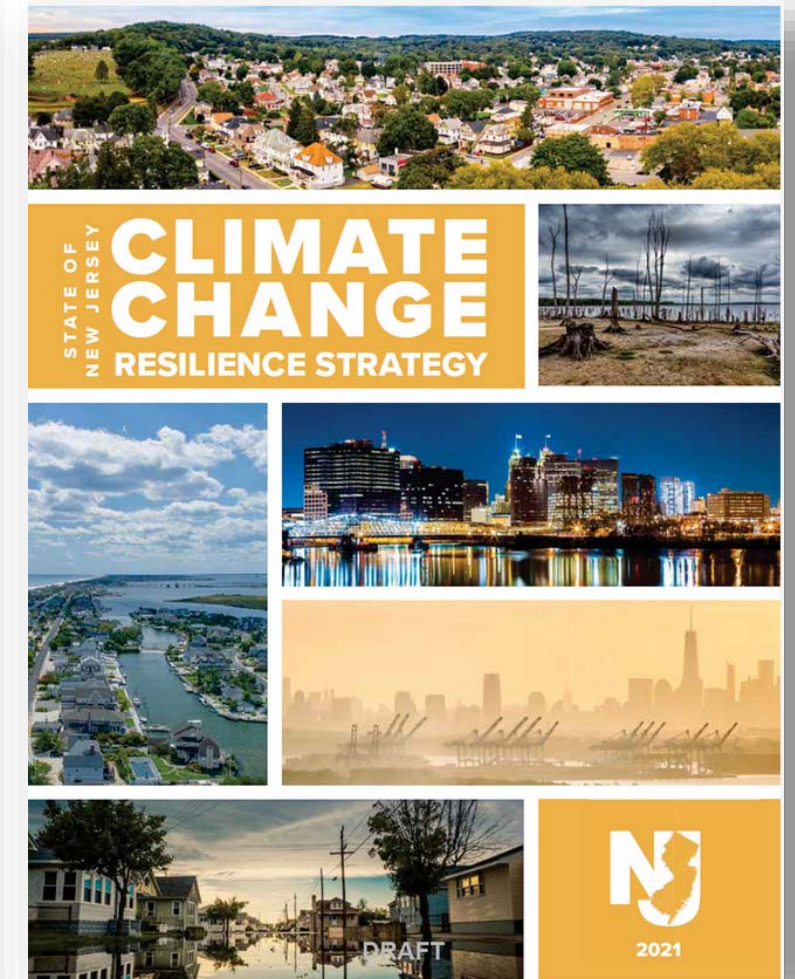
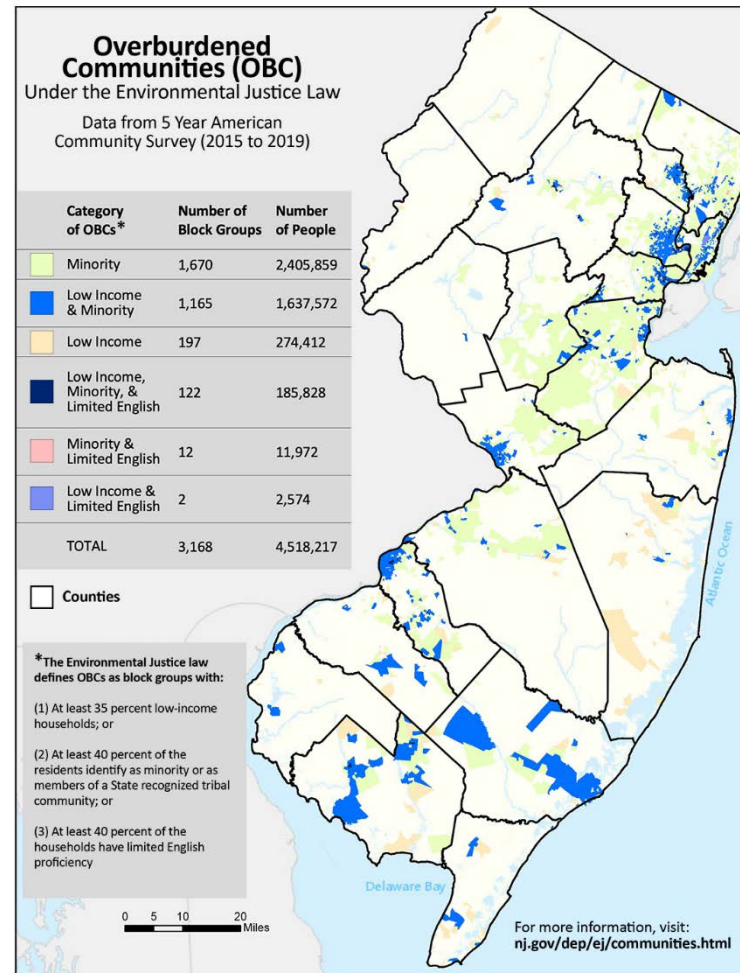
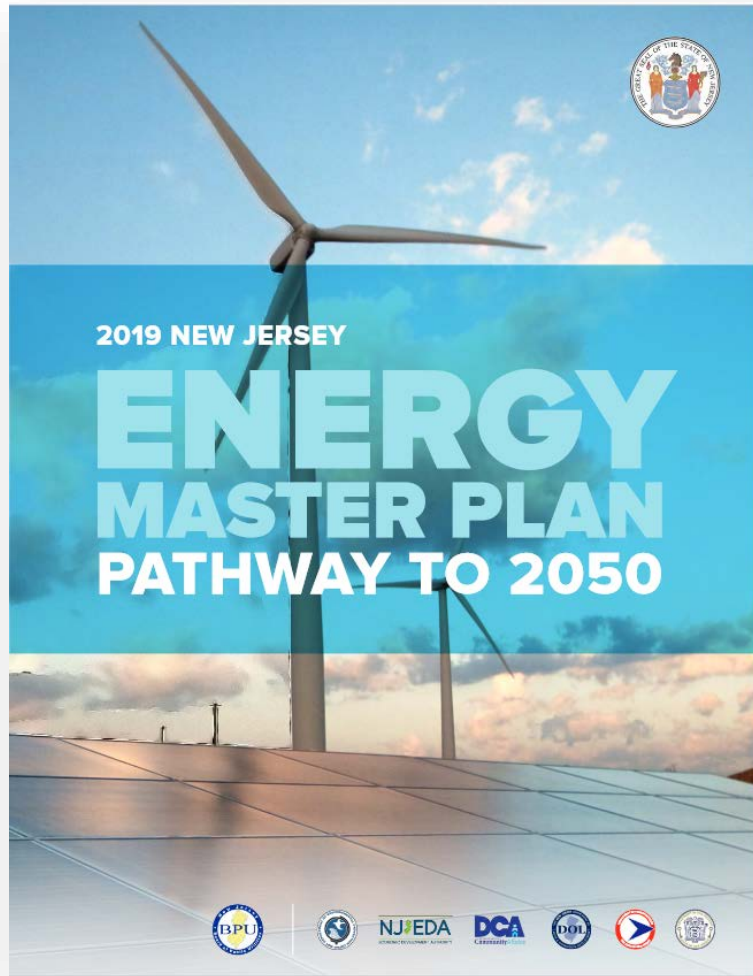
- Long-term Statewide Planning for Climate Change Workgroup
- Natural and Working Lands Workgroup
- Offshore Wind Ecological Monitoring Workgroup
- Public Health Workgroup
- Sustainable Organic Materials Management Workgroup

(NEW)

Transportation Workgroup



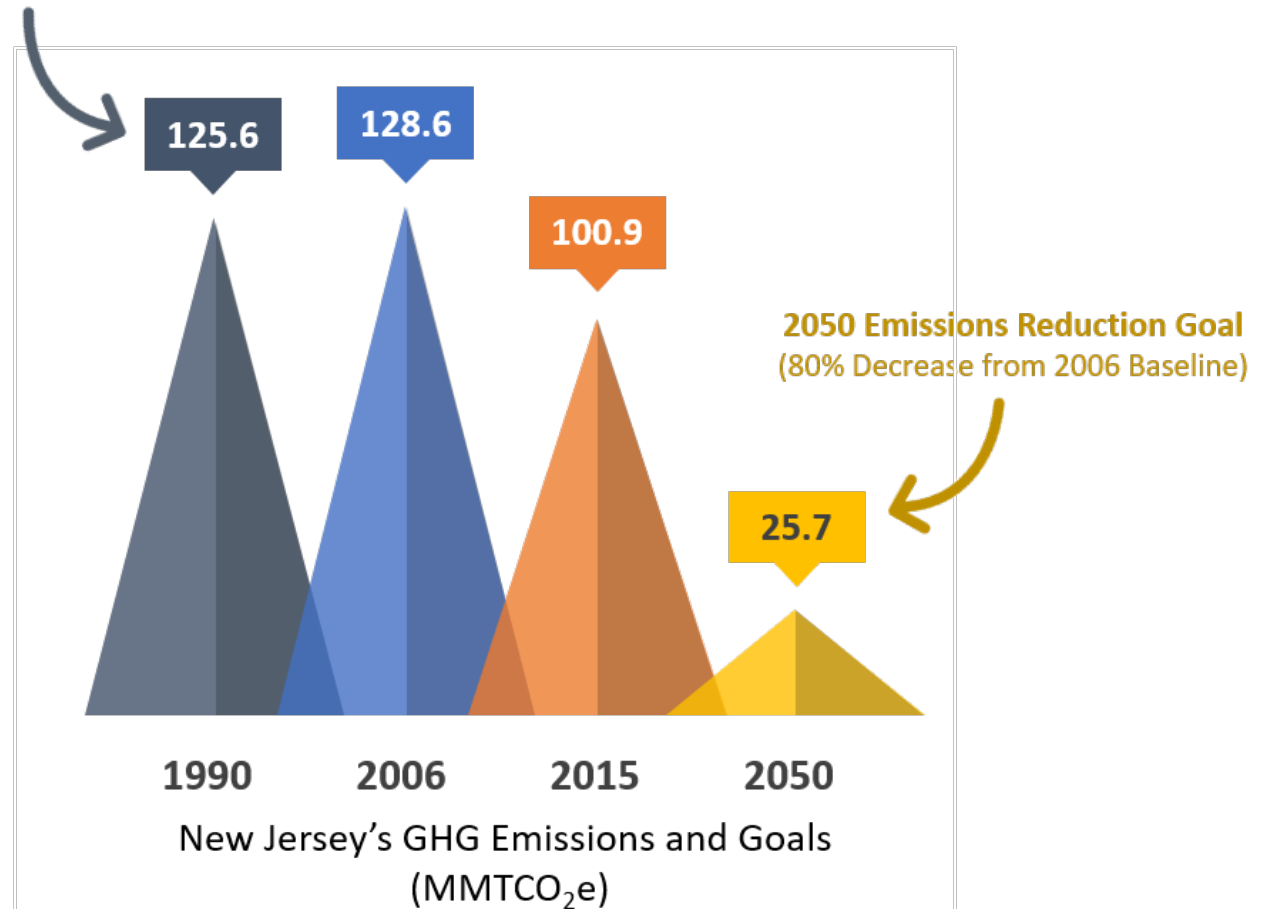
Changing policy dynamics at the State and national levels



New Jersey Emissions Targets

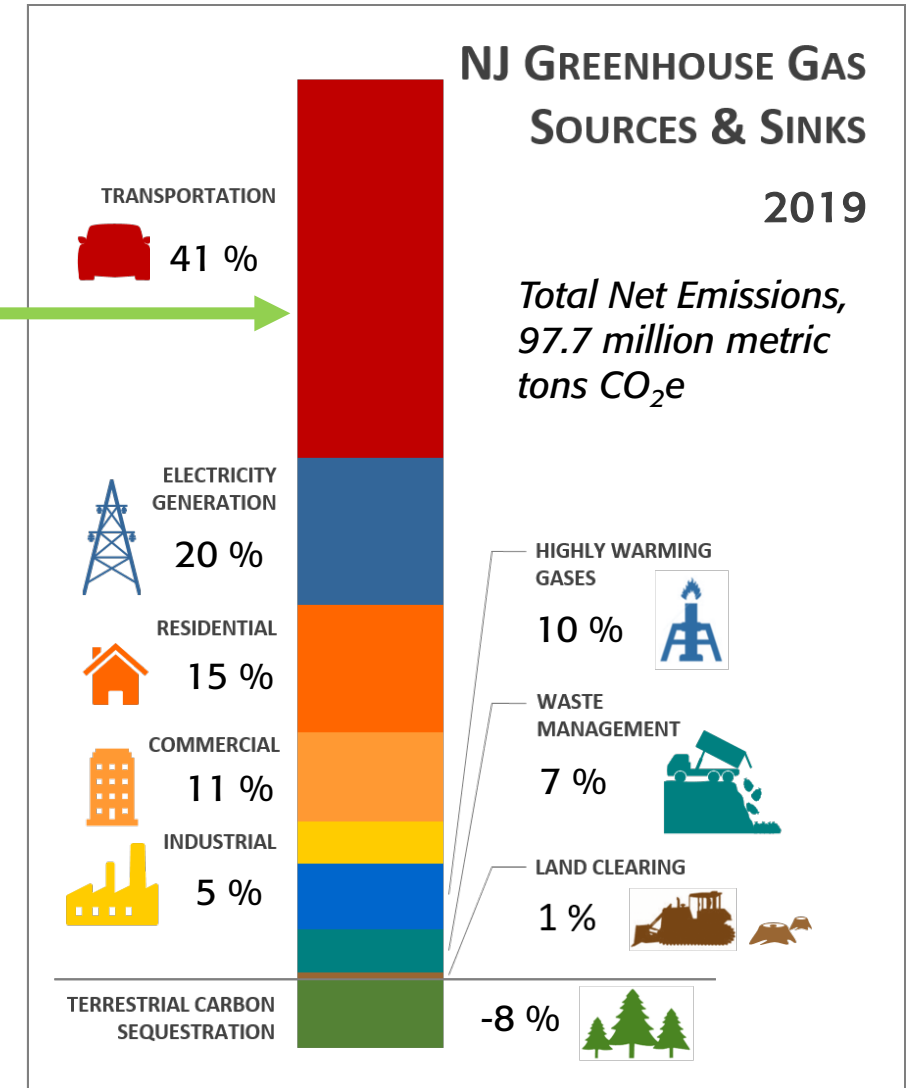
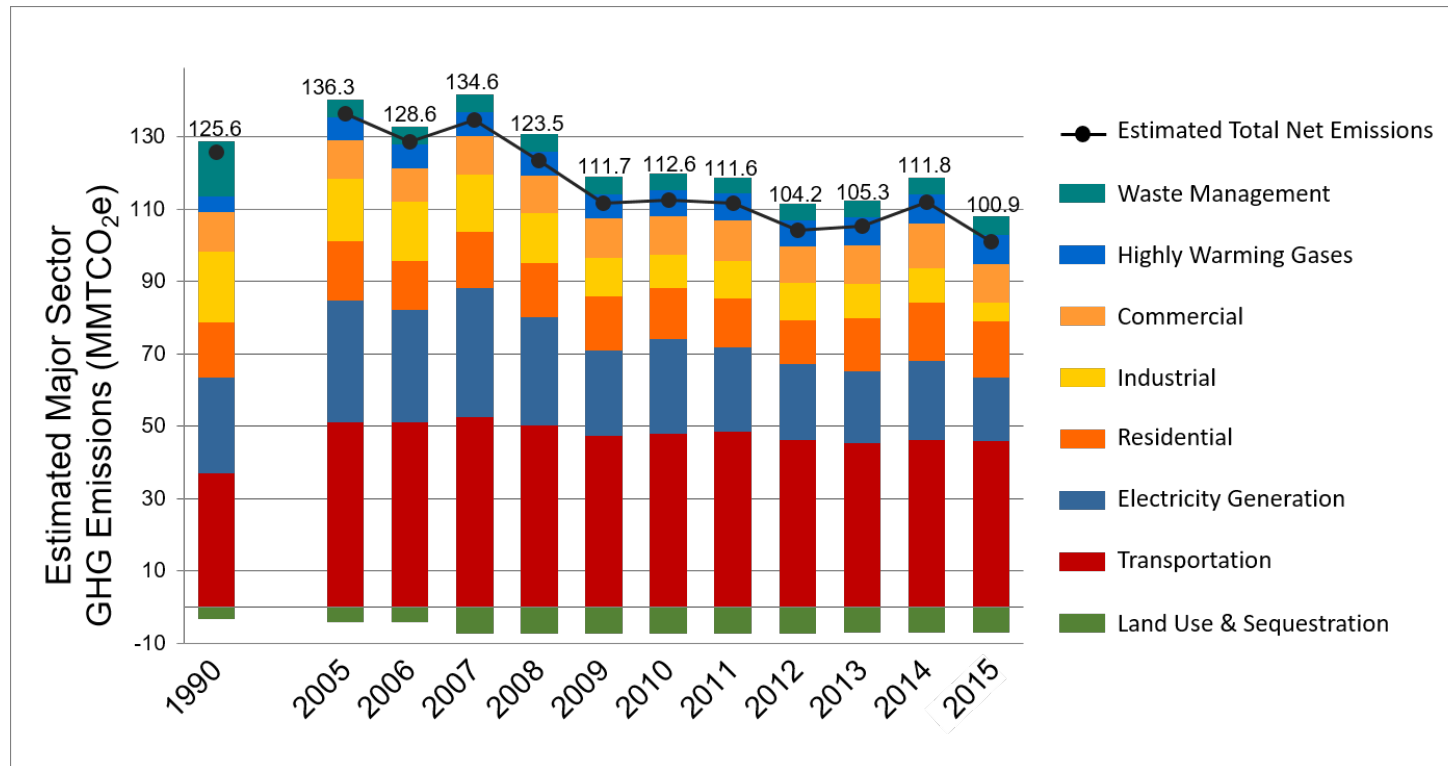


2020 Emissions Reduction Goal
(Equivalent to 1990 GHG Emissions)



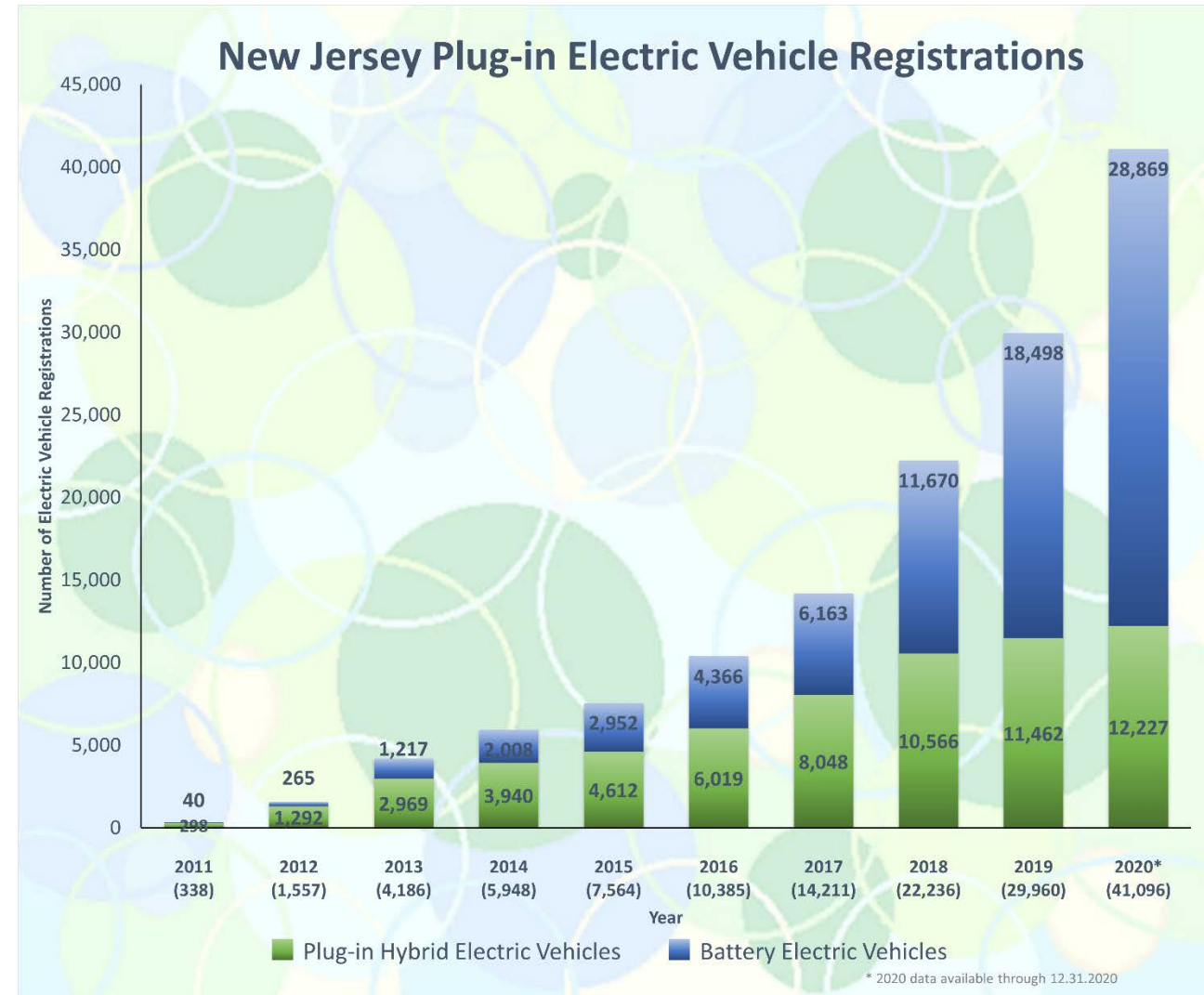
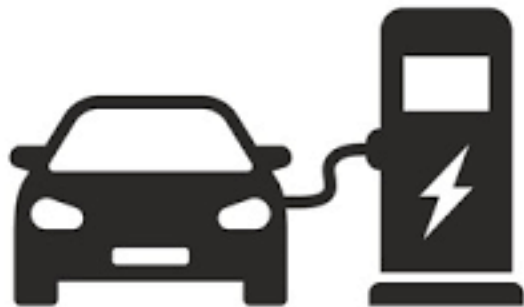
GHG Emissions in New Jersey

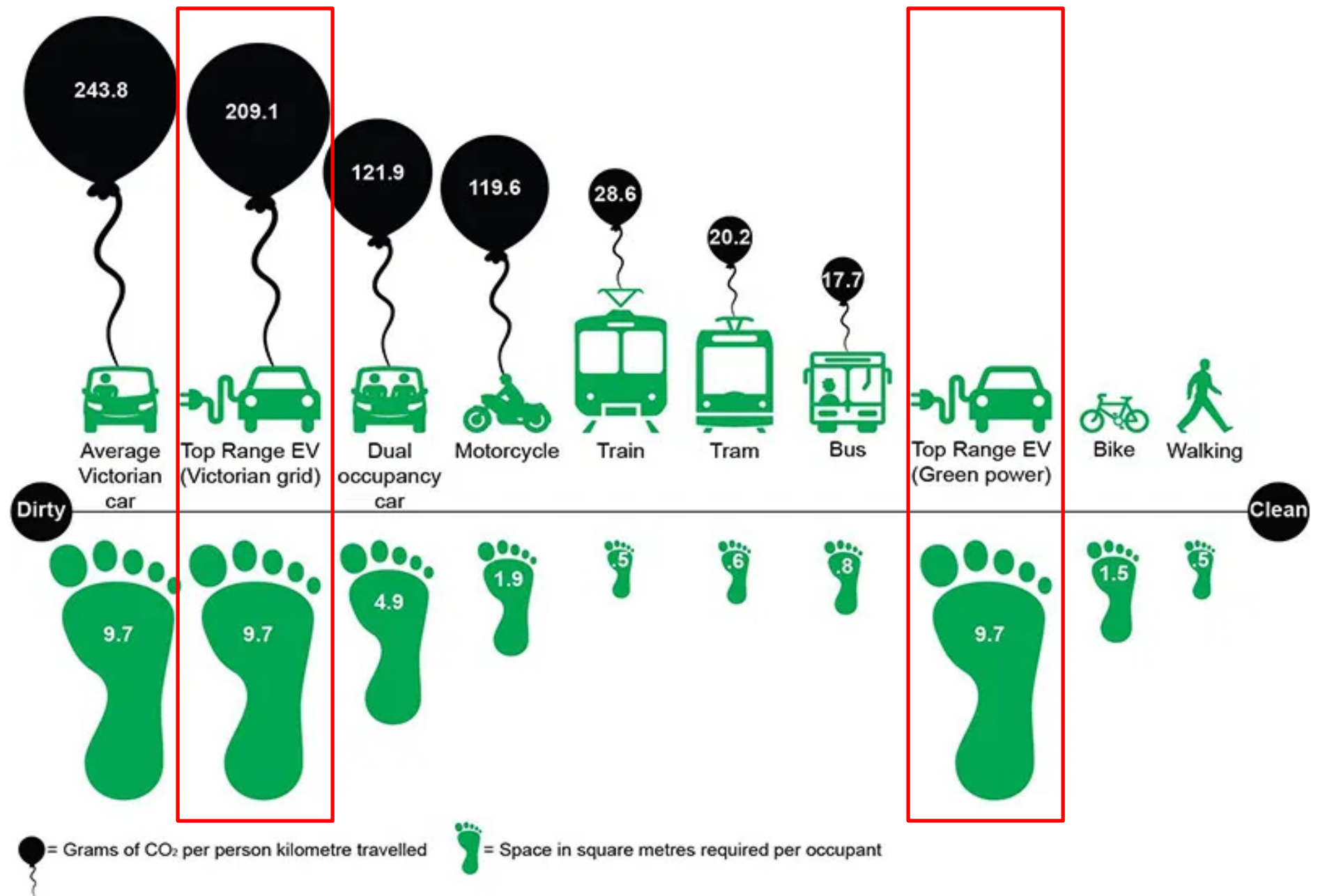
Reductions in the transportation sector will be critical to achieving NJ's emissions target



Significant attention being paid to vehicle electrification

- Charging infrastructure investments
- Rebates and tax credits to encourage EV purchases
- EVs can use HOV lanes





This infographic compares emissions and space consumption for different transport modes. Source: Institute for Sensible Transport

What can the working group do?

Multi-Goal Framework



Healthy. Improve health outcomes for people and communities by improving air quality and making it easier and safer to walk and bike.



Just. Promote **equity** by making travel by transit more reliable and convenient and by enhancing access to opportunity for marginalized groups.



Efficient. Increase transportation system efficiency and effectiveness by integrating advanced and emerging transportation technologies and modes.



Resilient. Enhance the resilience of transportation systems by adapting infrastructure to climate hazards.



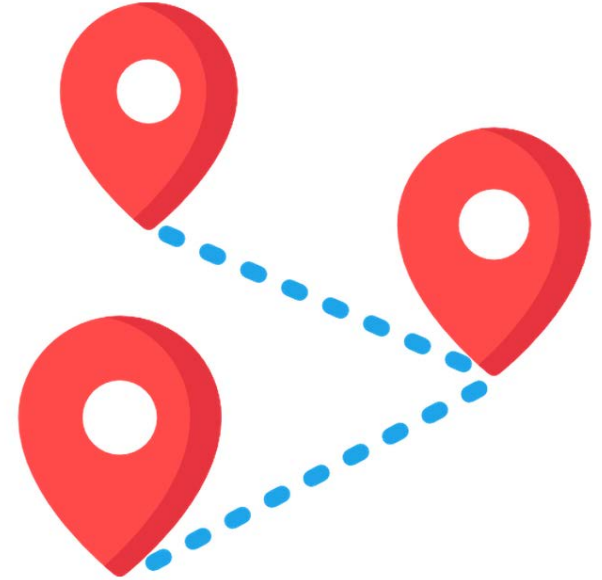
Carbon Neutral. Reduce energy use and emissions of all kinds by facilitating a transition to CO2-neutral transportation.

Toward a healthier, more equitable, and cleaner transport future in New Jersey

HEALTHY, JUST, RESILIENT, AND CO2-NEUTRAL MOBILITY FOR ALL

What is healthy mobility?

- Access
- Safety
- Physical activity
- Mental health
- Air quality
- Noise



What is equitable and just mobility?

An equitable and **just transportation system** provides safe and clean transportation options that are affordable, convenient, and easy to use.

Equitable mobility provides the same opportunity for everyone to move around reliably and sustainably in ways that meet their needs.



Graphic courtesy of Shared-Use Mobility Center

What is resilient mobility?

Robustness

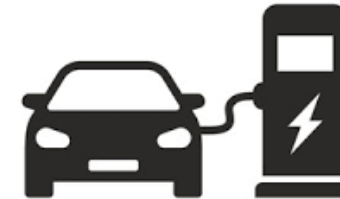
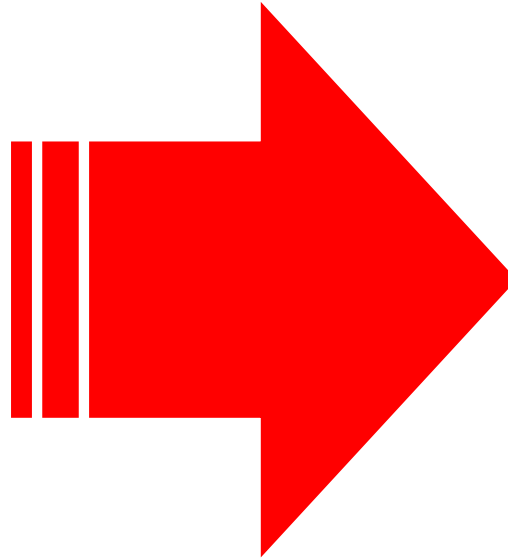
Redundancy

Flexibility

Responsiveness

Coordination

What is carbon-neutral mobility?



Guiding concepts

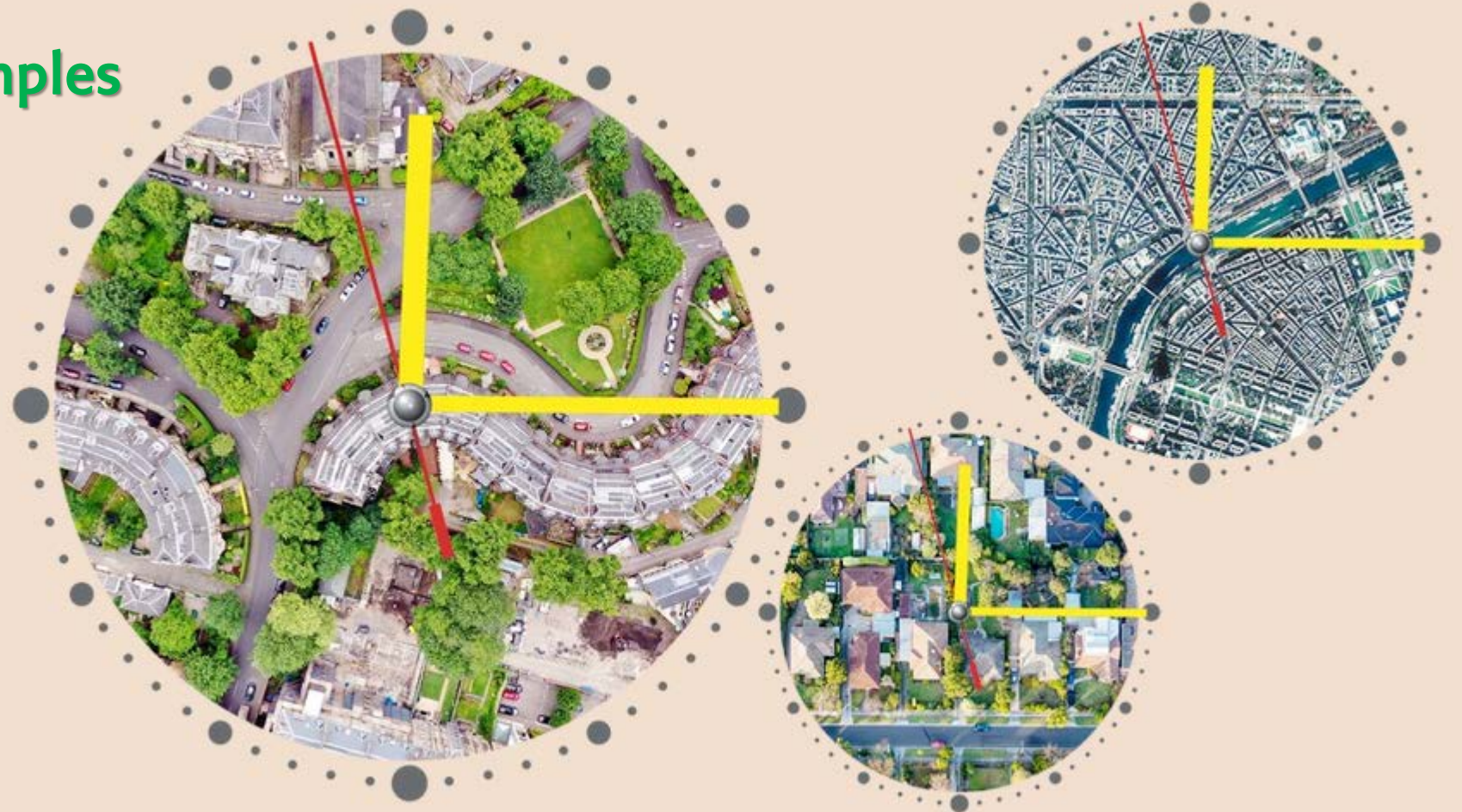
- **Decarbonize** the transportation sector
- Empower people to **drive less**
- Create a network of **diverse and inclusive neighborhoods that** are well connected to each other
- Think of **mobility as a service** and **reimagine** public transportation
- Embrace **new technologies** but ensure they are affordable and accessible to all
- Make **social justice** a key indicator of transportation performance

Potential Organizing Framework

“15-minute” City/Neighborhood

Leading Practice Examples

- Singapore
- Paris
- Portland
- Melbourne
- Ottawa
- Barcelona



© Shutterstock, Getty | Aerial views of Glasgow, Paris and Melbourne

What is a “15-minute” city/neighborhood?

5 MINUTE WALK

(3 MPH AVG)



RADIUS - 1/4 MILE

ACRES - ~126

DWELLING UNITS - 1,000 @ 8/AC

POPULATION - 2,600 @ 2.6/UNIT

15 MINUTE WALK

(3 MPH AVG)



RADIUS - 3/4 MILE

ACRES - ~1,130

DWELLING UNITS - 9,040 @ 8/AC

POPULATION - 23,500 @ 2.6/UNIT

5 MINUTE BIKE

(12 MPH AVG)



RADIUS - 1 MILE

ACRES - ~2,010

DWELLING UNITS - 16,100 @ 8/AC

POPULATION - 41,860 @ 2.6/UNIT

5 MINUTE ELEC. VEHICLE

(20 MPH AVG)



RADIUS - 1 2/3 MILE

ACRES - ~5,580

DWELLING UNITS - 44,700 @ 8/AC

POPULATION - 116,200 @ 2.6/UNIT

15 MINUTE BIKE

(12 MPH AVG)

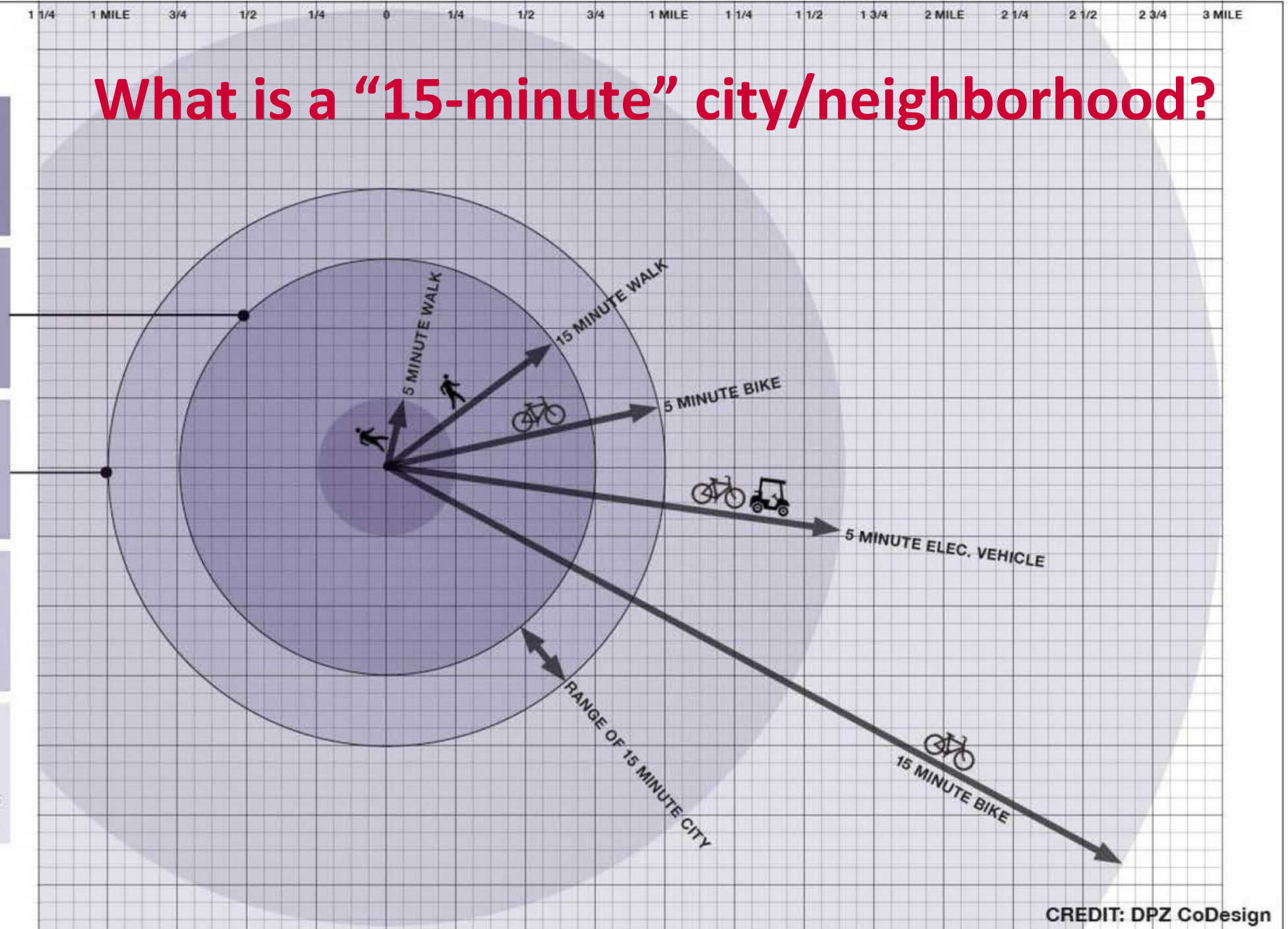


RADIUS - 3 MILE

ACRES - ~18,100

DWELLING UNITS - 144,800 @ 8/AC

POPULATION - 376,480 @ 2.6/UNIT



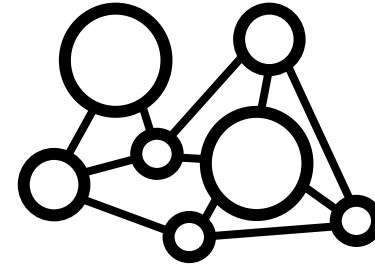
Key relationships



People



Places

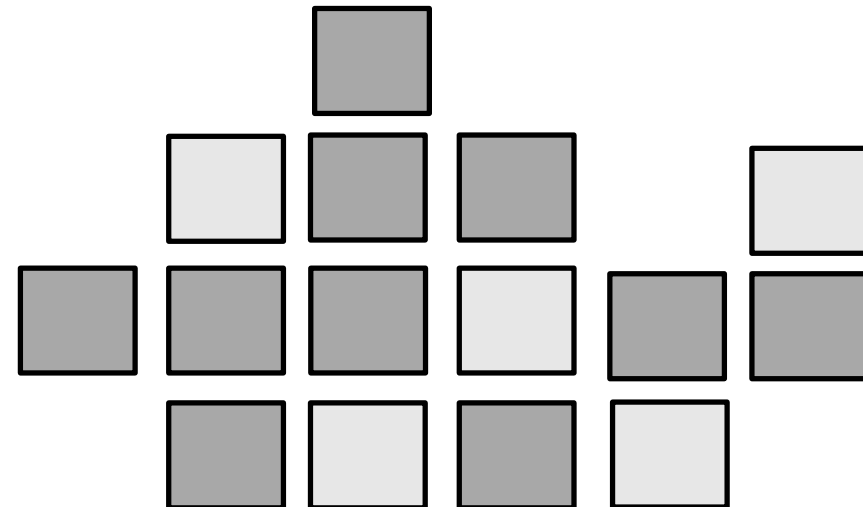
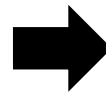
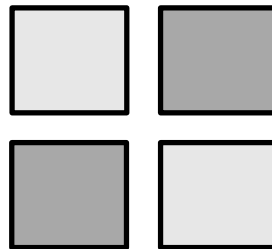
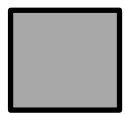


Connections

Neighborhood

Community

Region

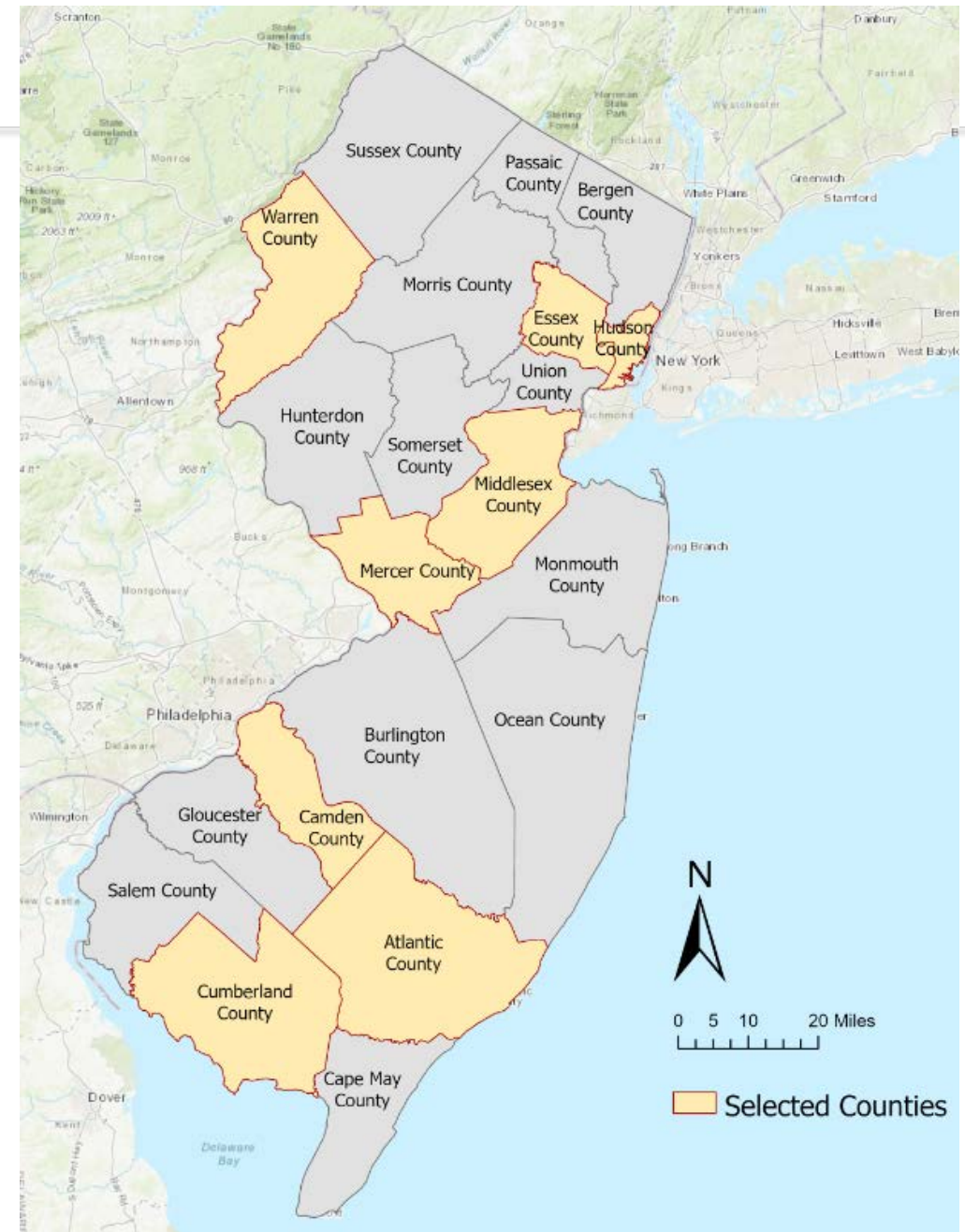


Work Plan

PHASE 1 – Exploring key concepts, desktop analysis, looking toward the future (Mar 2021 to Feb 2022)	<u>Activities:</u> <ul style="list-style-type: none">• Conduct leading practice research• Collect, analyze, and map data• Identify of potential community and equity partners• Convene “Thought Leaders” webinar and visioning workshops• Identify vision components• Select locations for neighborhood-scale analysis
PHASE 2 – Field work, community engagement, and developing recommendations (Mar 2022 to Sep 2022)	<u>Activities:</u> <ul style="list-style-type: none">• Conduct field visits and interviews to get to know the neighborhoods• Develop and implement community engagement plan• Identify local mobility and other community needs and concerns• Prepare concept plans for retrofitting existing neighborhoods• Identify infrastructure needs• Develop planning and policy recommendations• Prepare comprehensive final report• Convene “Thought Leaders” Forum #2 – How do we get there?

Phase 1 Case Study Locations

1. Atlantic
2. Camden
3. Cumberland
4. Essex
5. Hudson
6. Mercer
7. Middlesex
8. Warren



Exploring the Geography of People, Place, and Connections

MERCER COUNTY



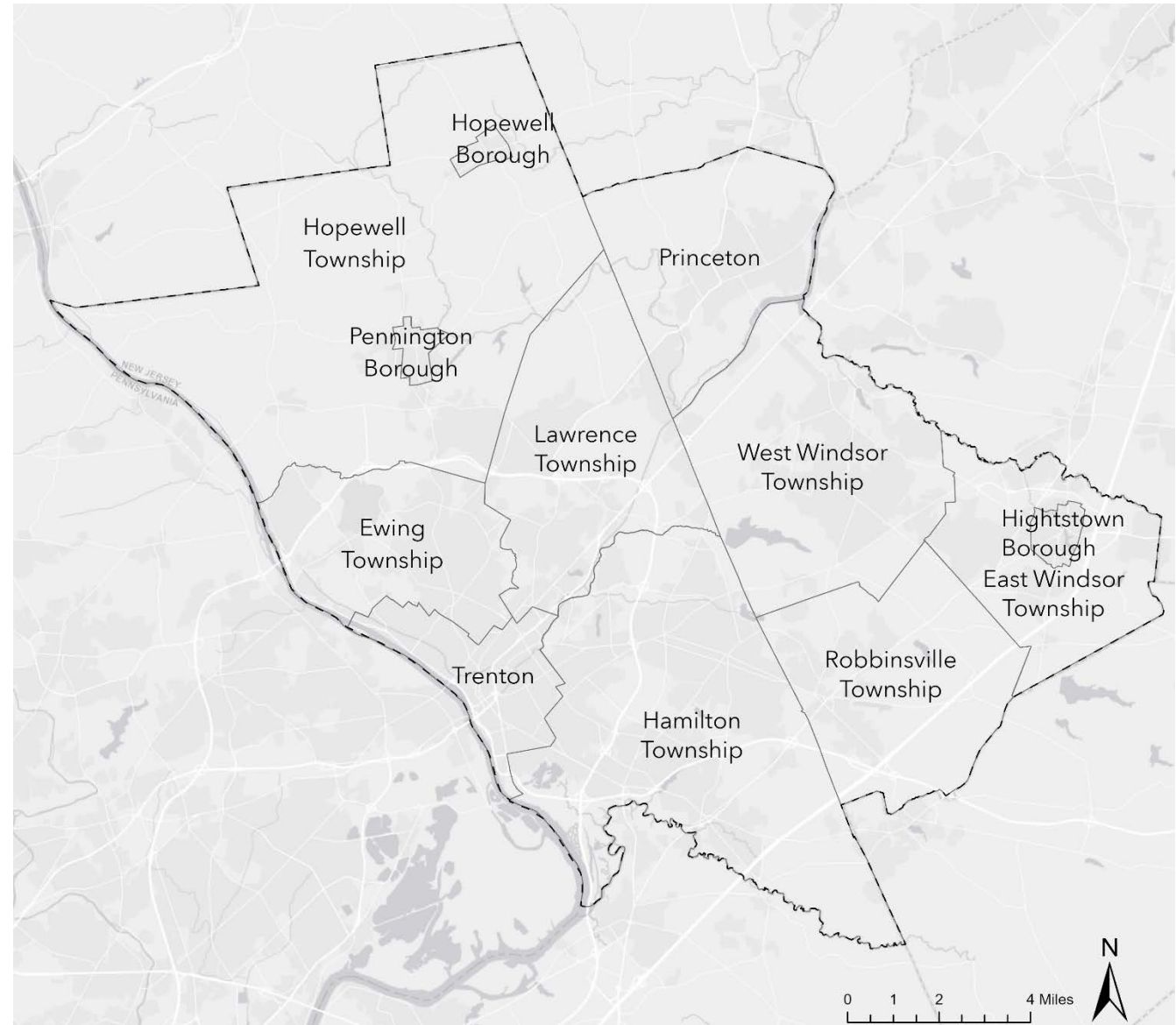
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PEOPLE

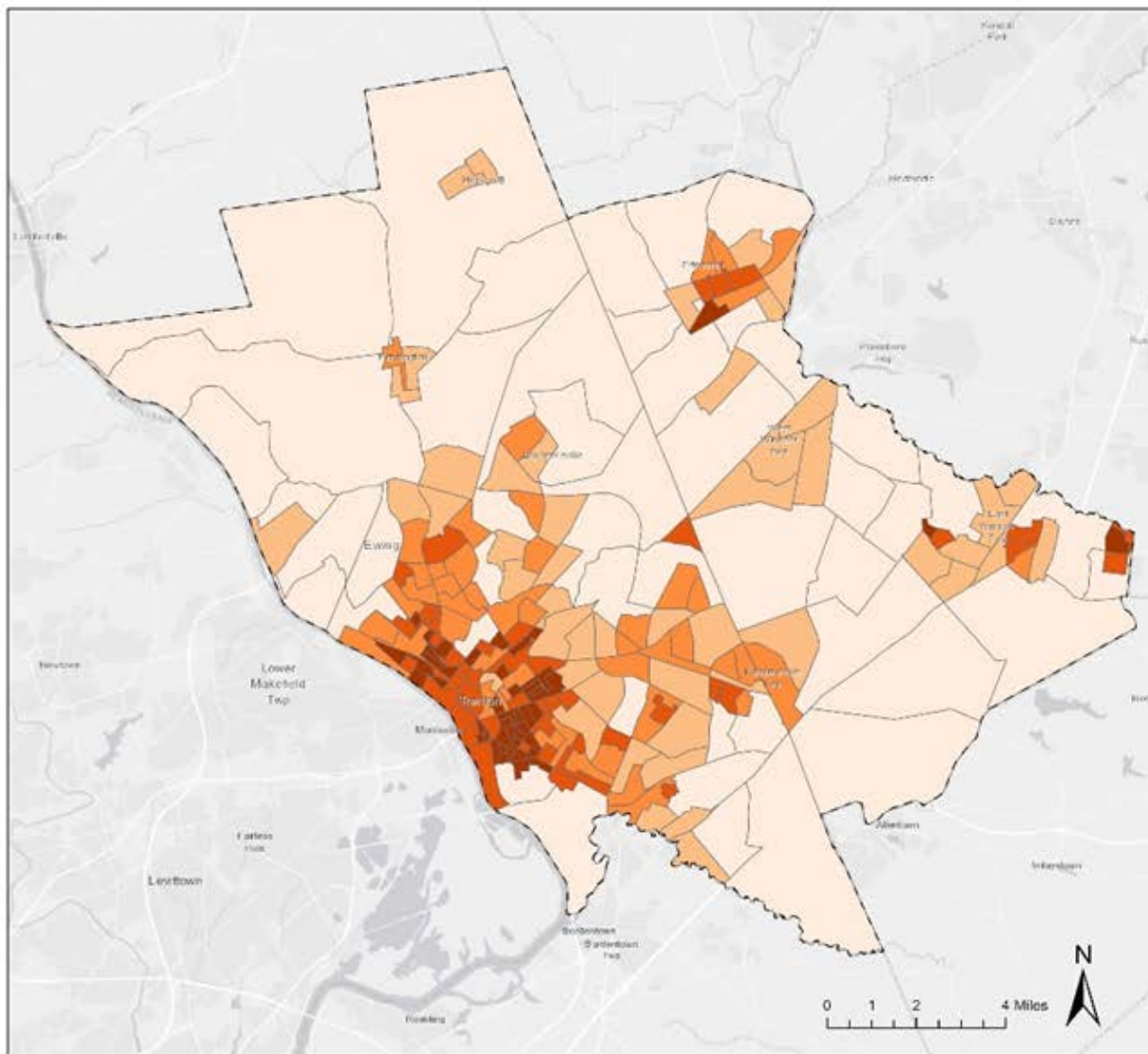
County at a glance

A mix of small towns, urban centers and rural communities

- 229 square miles
- 12 Municipalities
- Over 367,430 residents
- County Seat: Trenton



Population



Population Density

Population per sq mile by block group

- 161 - 1,576
- 1,577 - 3,087
- 3,088 - 5,234
- 5,235 - 10,930
- 10,940 - 37,510

Data Source: ACS 2015-2019 5-year estimates, ESRI base map

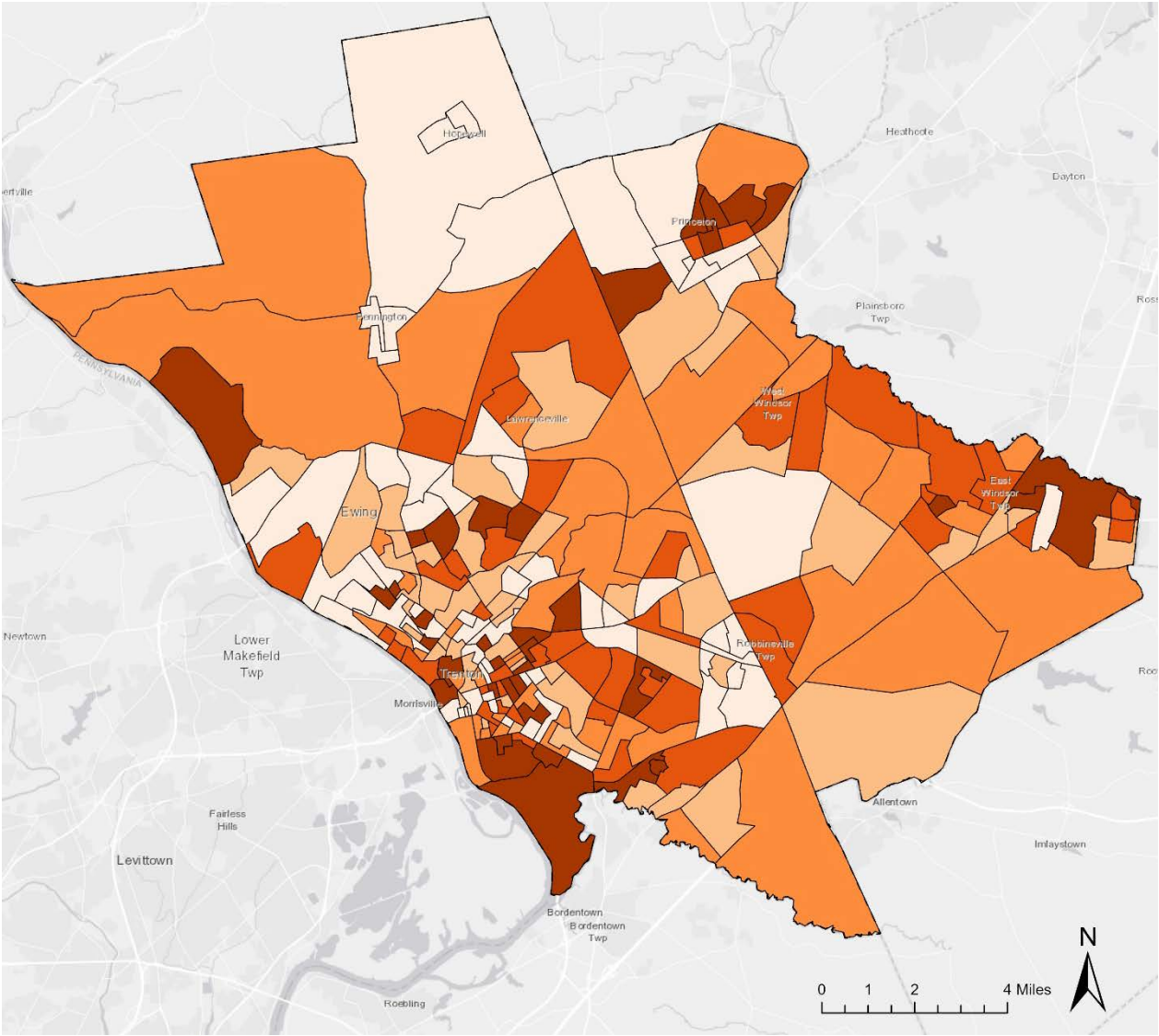
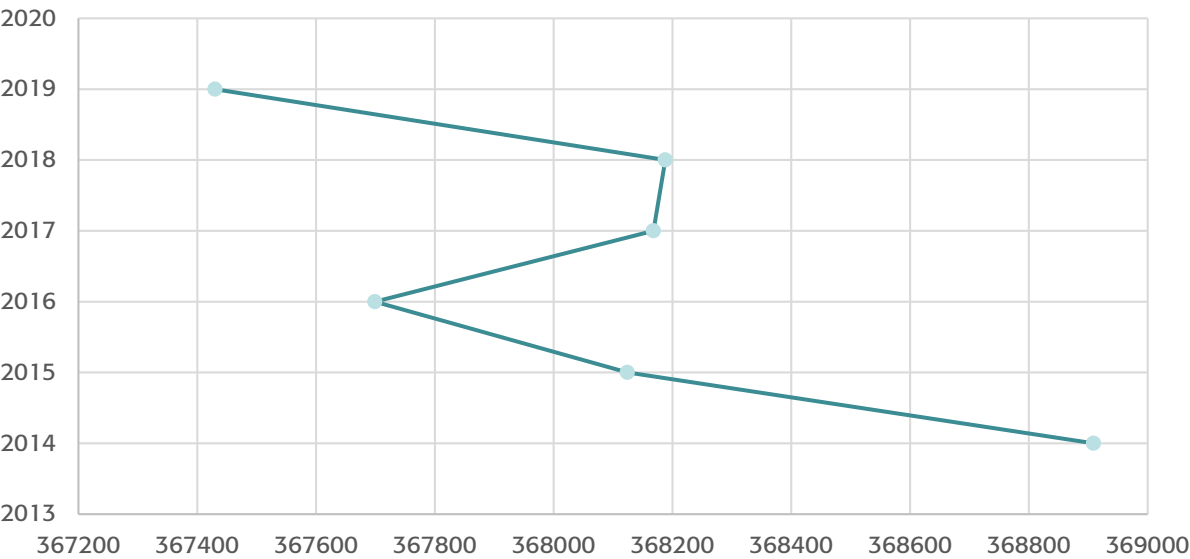
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Prepared : June 16, 2021
by Alan M. Voorhees Transportation Center



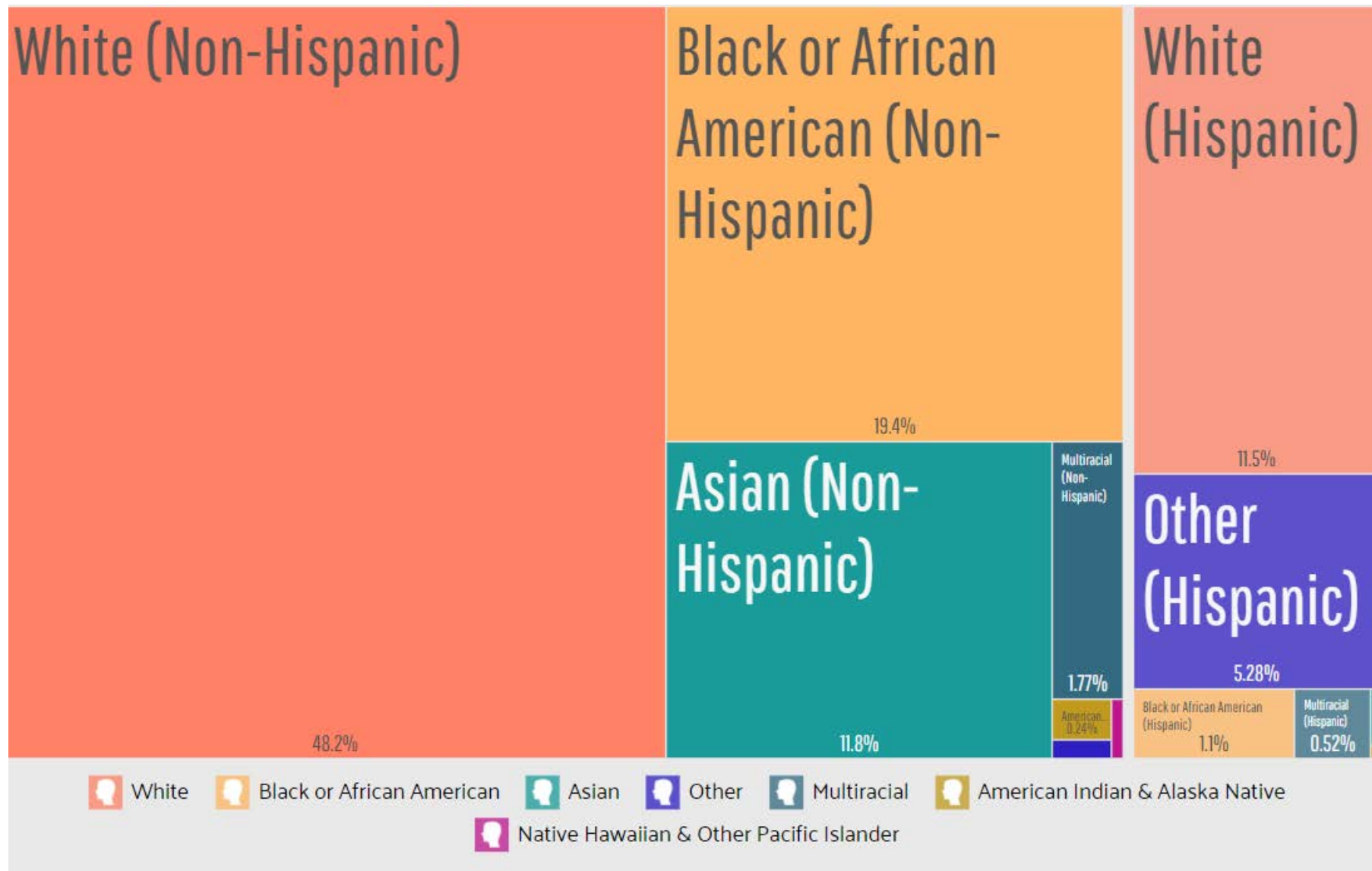
Change in Population : 2014-2019

Population Change (2014-2019)



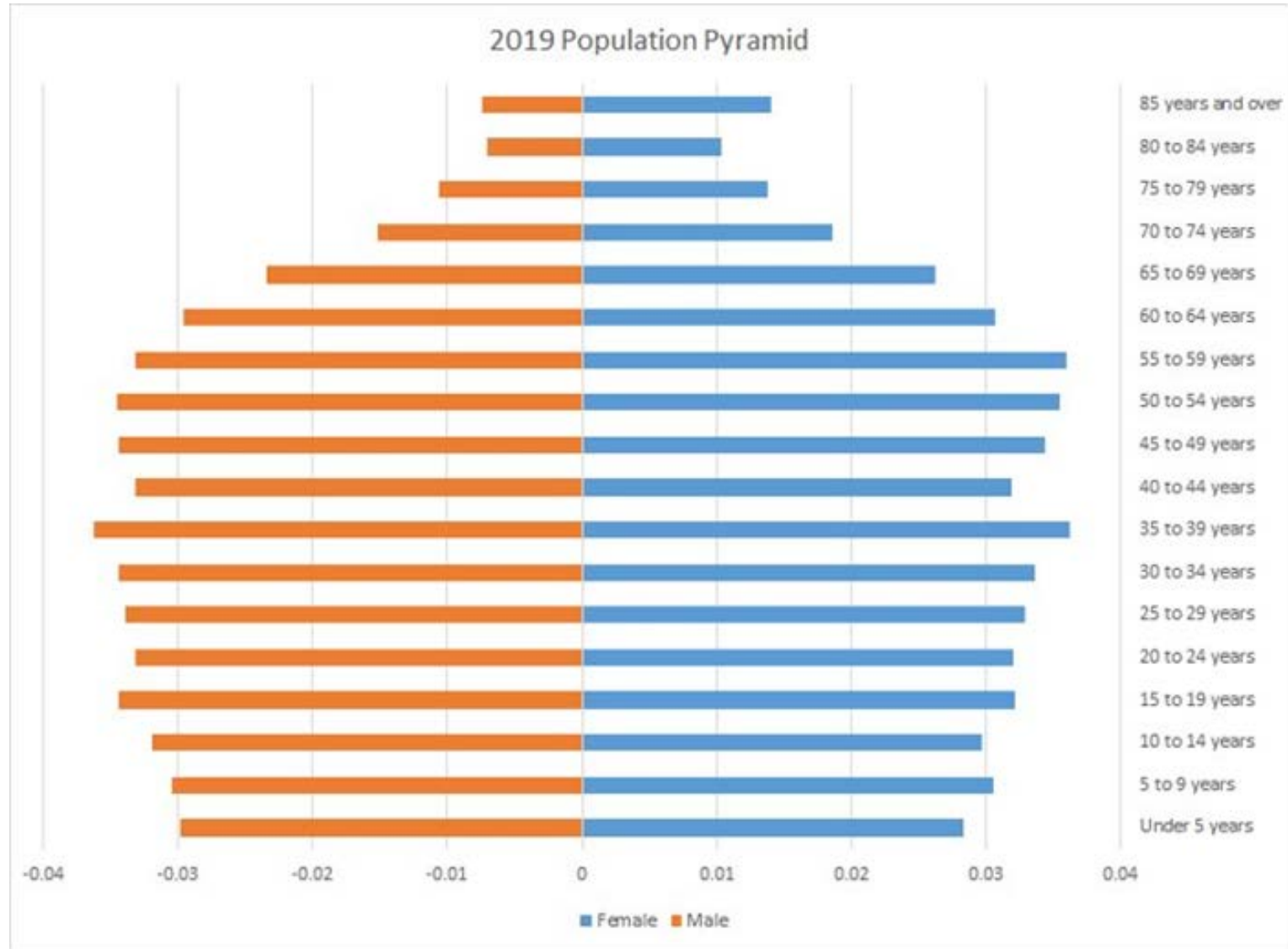
Data Source: NJGIN, ACS 2014 and 2019 estimate

Race and Ethnicity - 2019



Age & Gender

Median Age: 37 years old

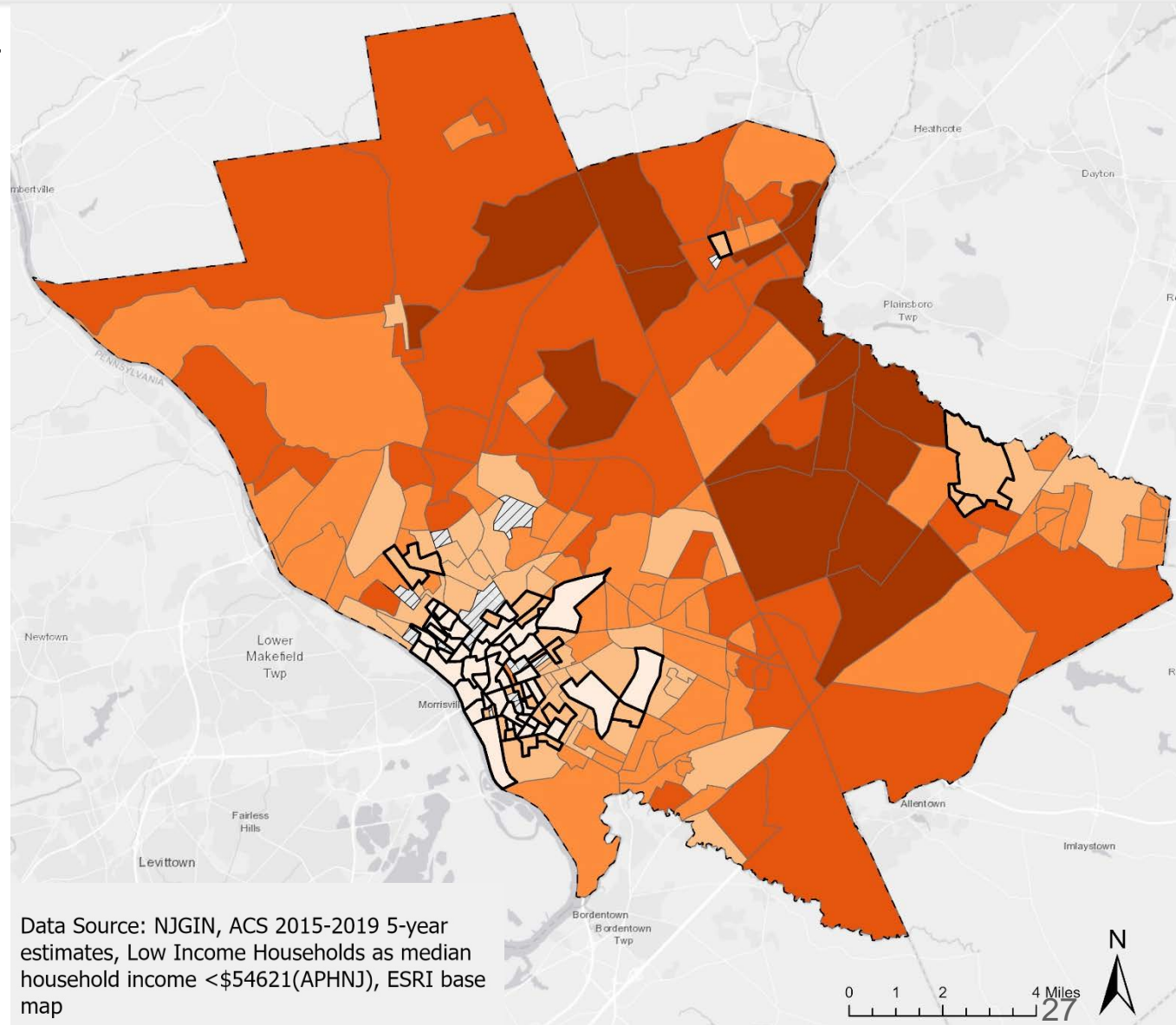


Household Income

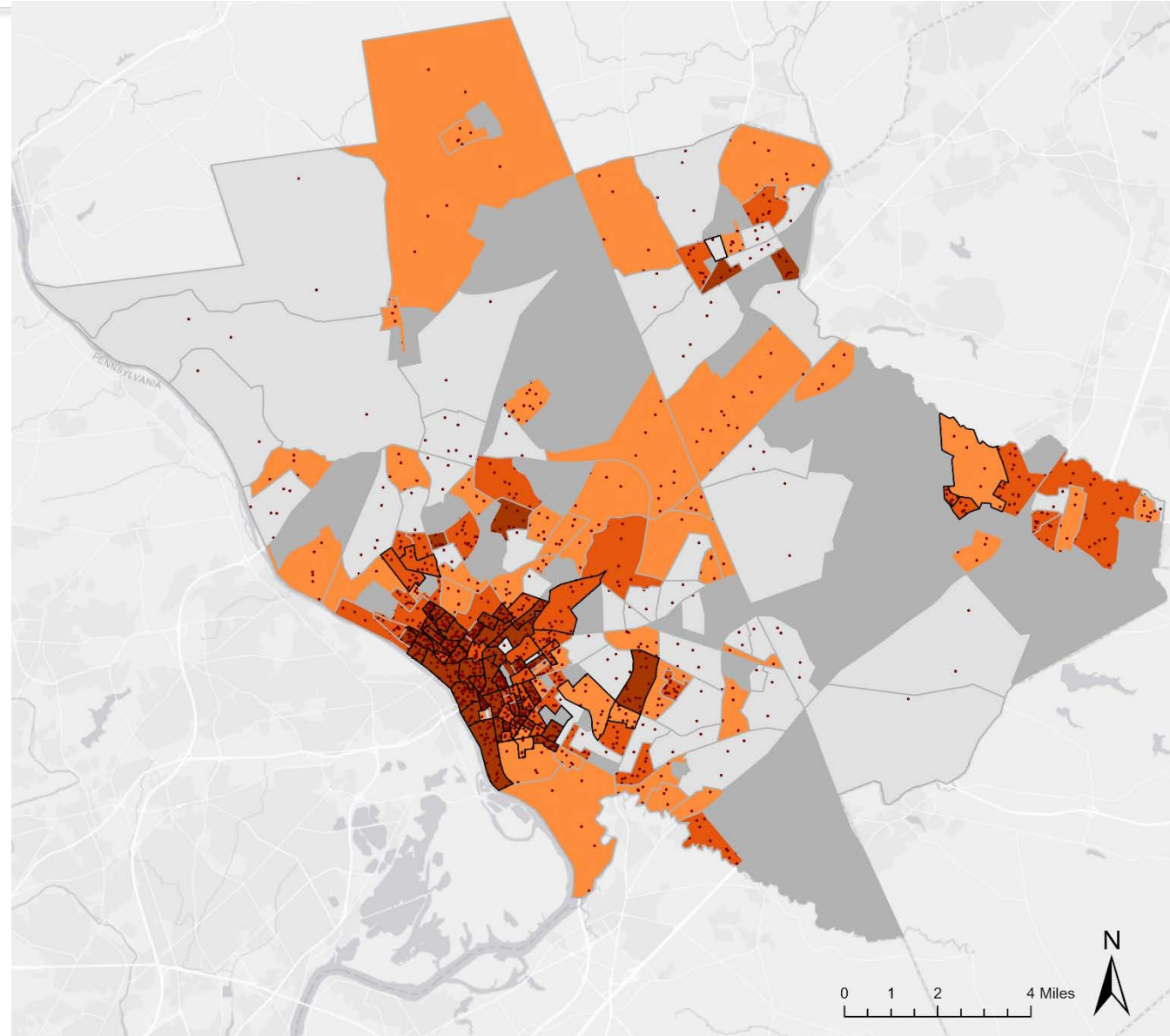
County Average Median Household Income: \$81,057

**AHPNJ Region 4:
2020 Affordable
Housing Income
Limits. Region 4:
Mercer,
Monmouth and
Ocean**

Income Limit (4 person Household)	
Very Low	\$32,772
Low	\$54,621
Moderate	\$87,393
Median	\$109,242



Households living in poverty

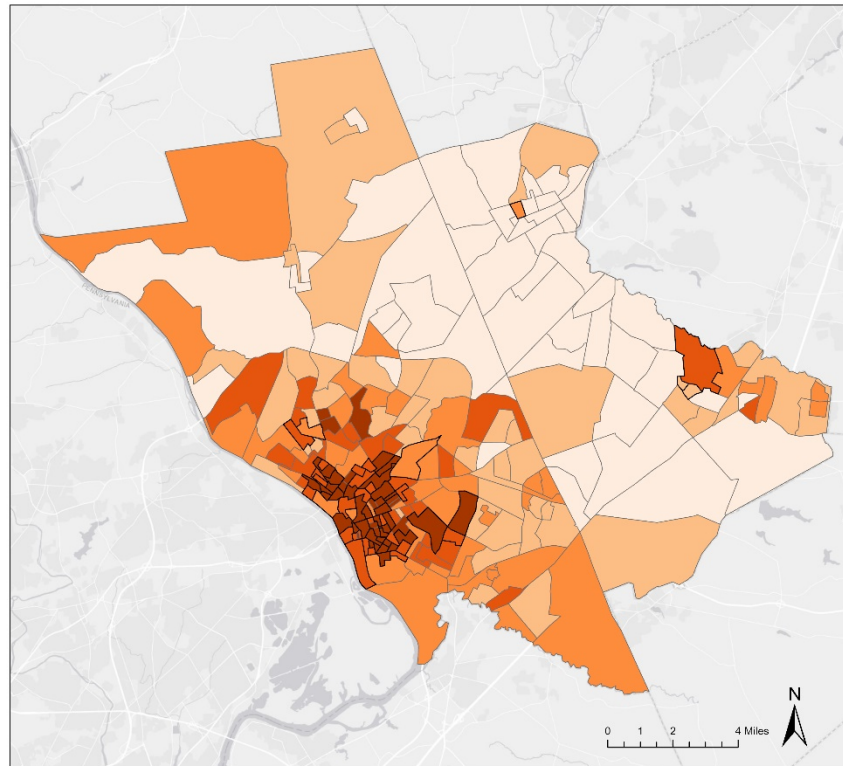


Data Source: NJGIN, ACS 2014 and 2019 estimate

Educational Attainment

25 years and older w/ less than High School Diploma

11%



Educational Attainment (less than high school)

□ Low income block groups
Percent of population with less than a high school degree
0% - 16%
17% - 31%
32% - 46%
47% - 57%
58% - 91%

Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

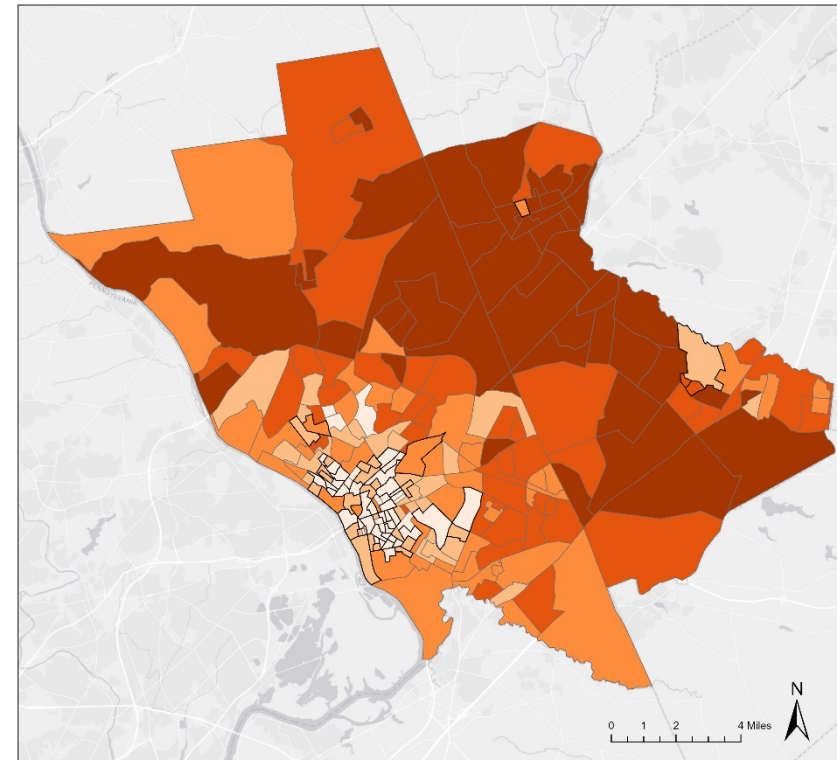
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25 years and older w/ Bachelor's Degree or higher

43%



Educational Attainment (bachelor degree or higher)

□ Low income block groups
Percent of population with a bachelor degree or higher
9% - 43%
44% - 54%
55% - 69%
70% - 84%
85% - 100%

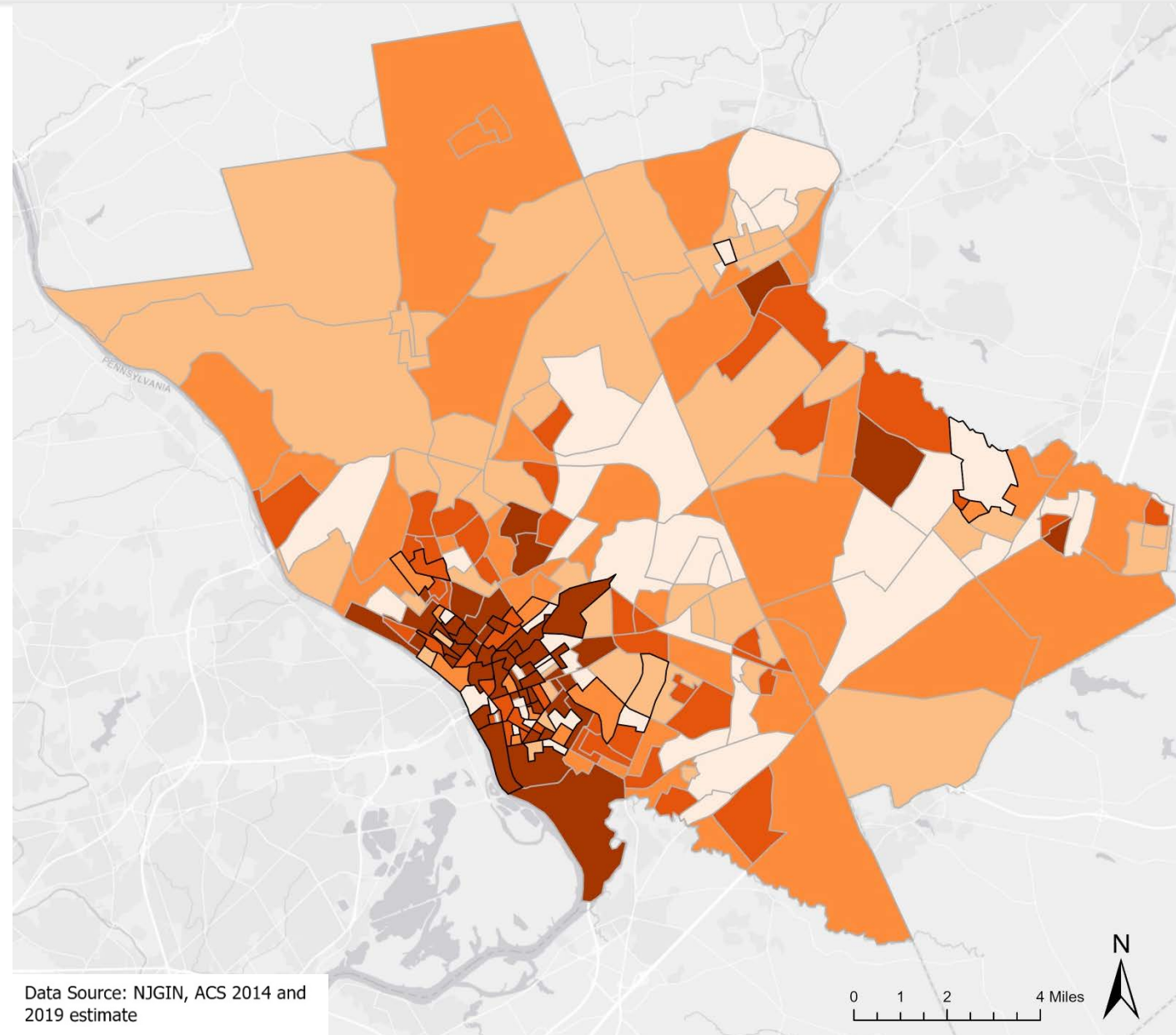
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Unemployment Status

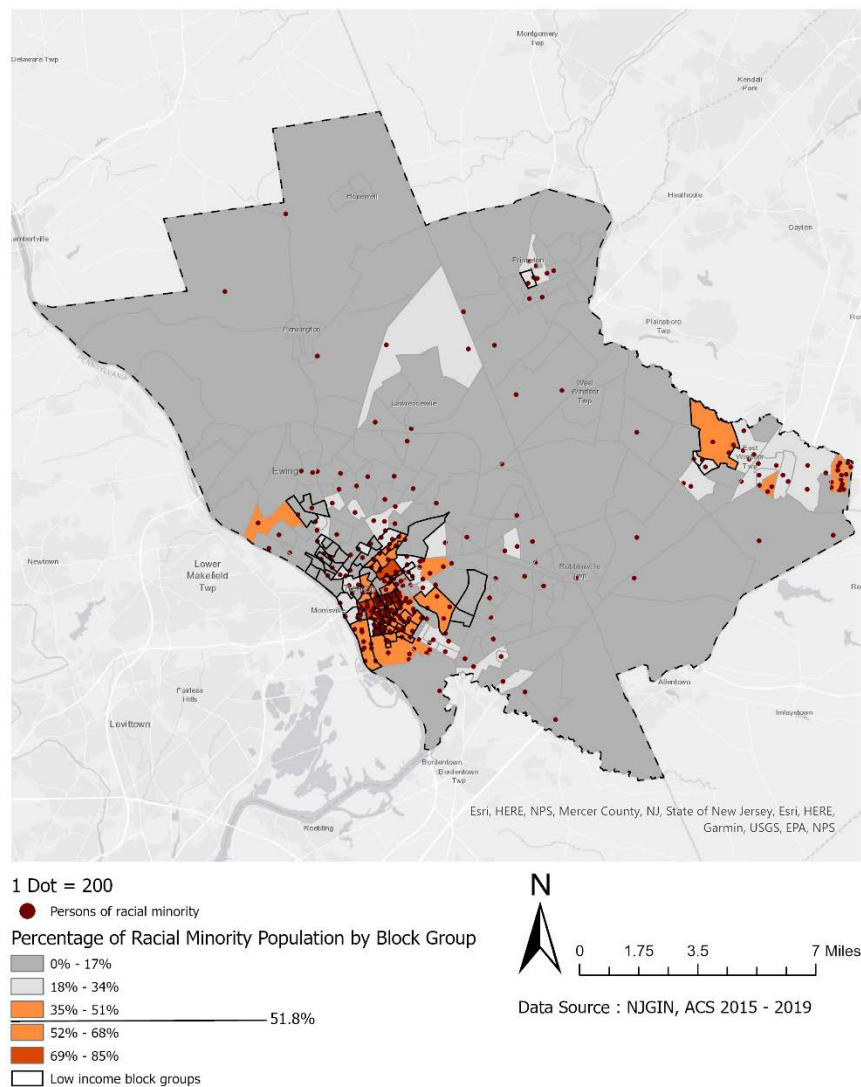


Indicators of Potential Disadvantage

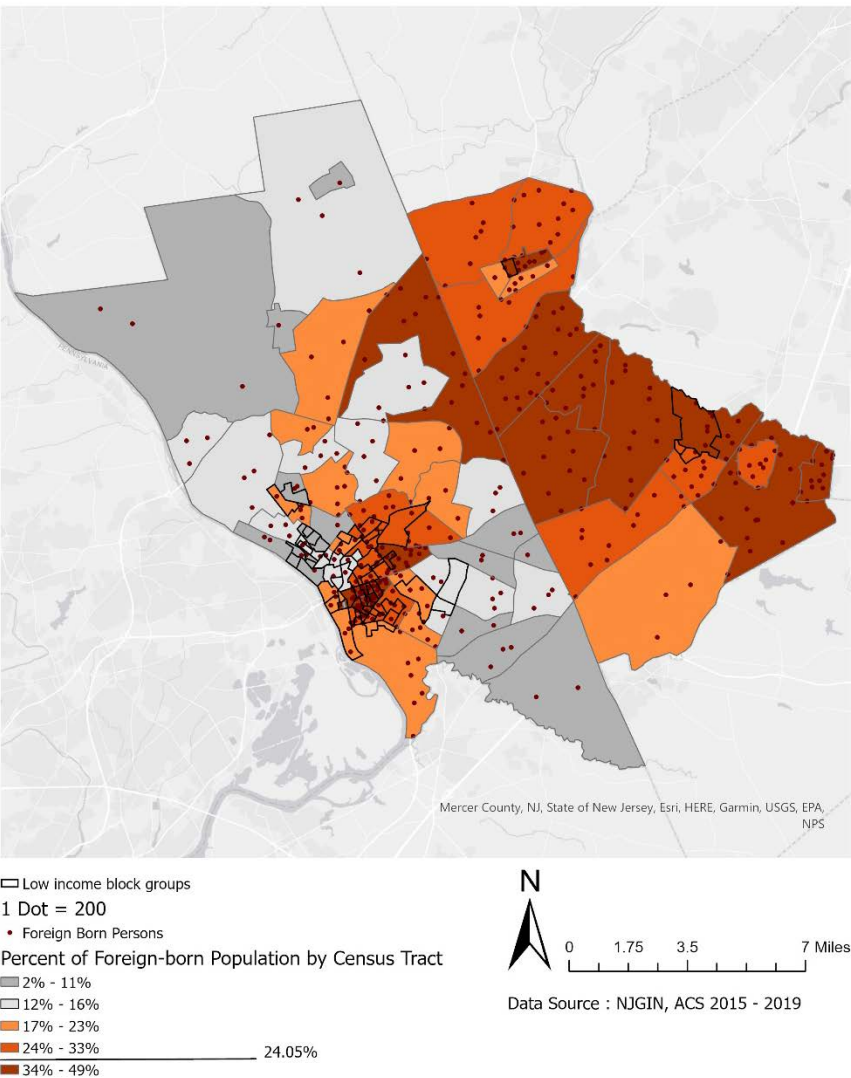
- Racial Minority
- Foreign Born status
- Limited English Proficiency
- Disability status
- Older Adults (75+)
- Single Parent households

Indicators of Potential Disadvantage

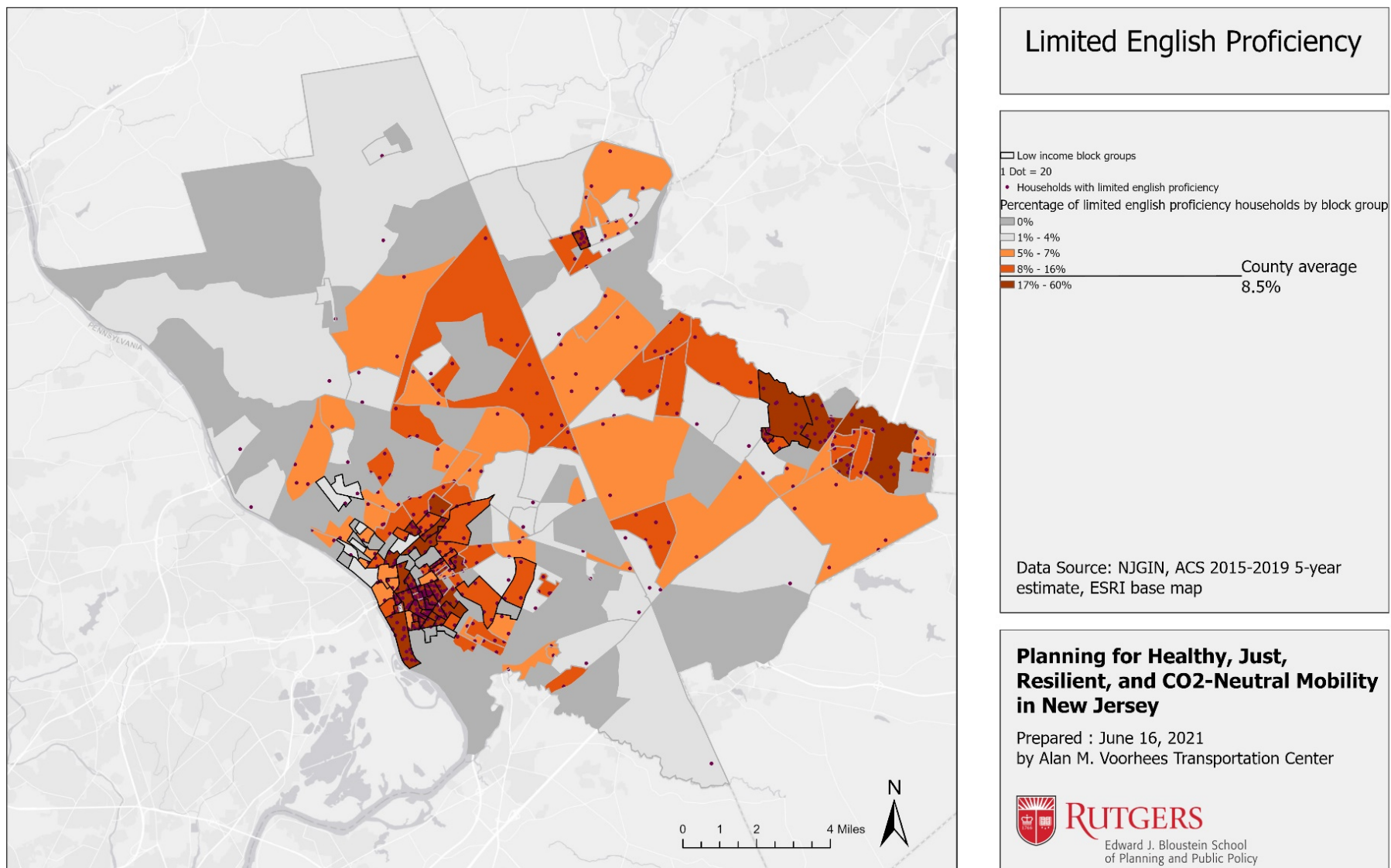
Racial Minority



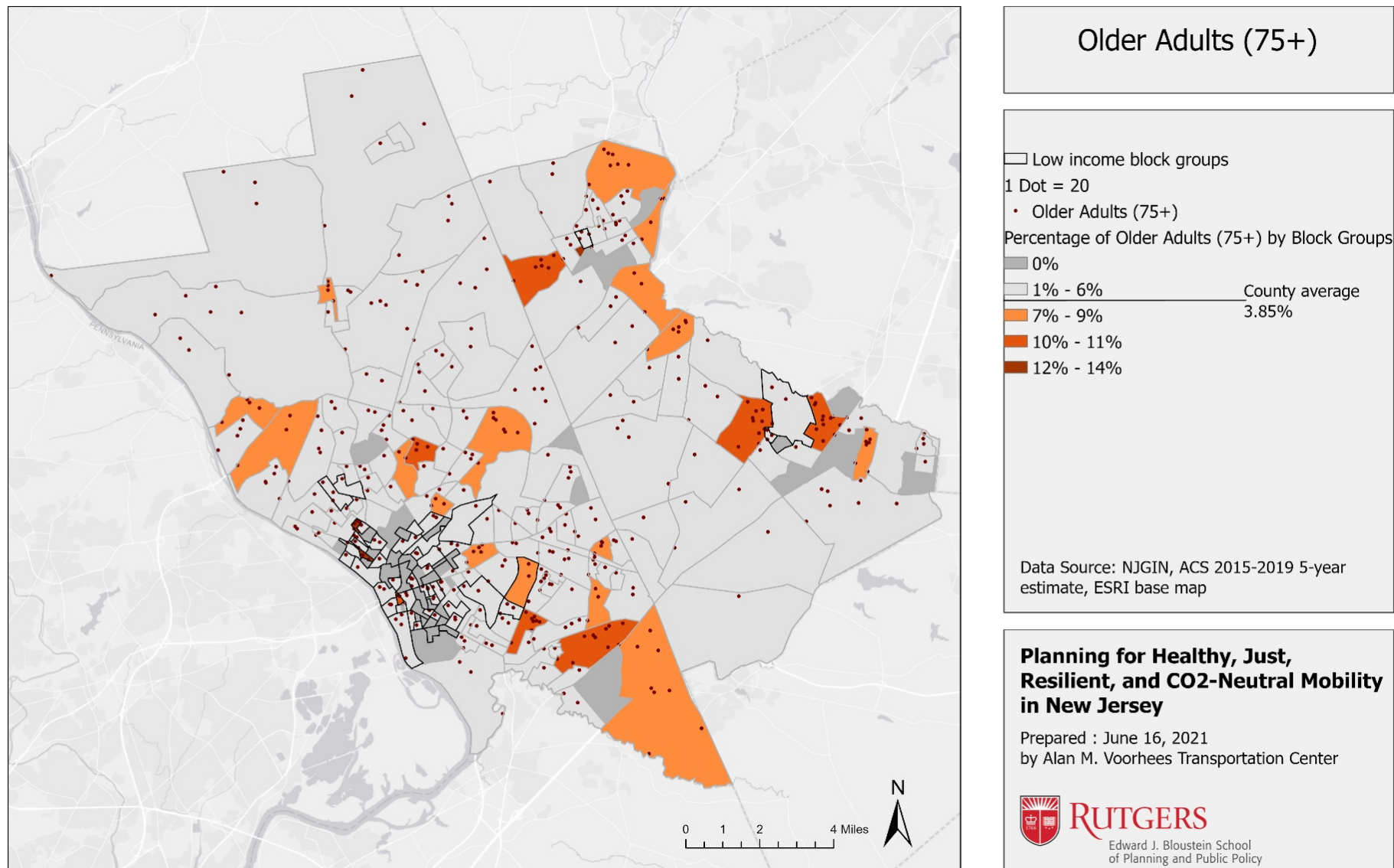
Foreign-Born Population



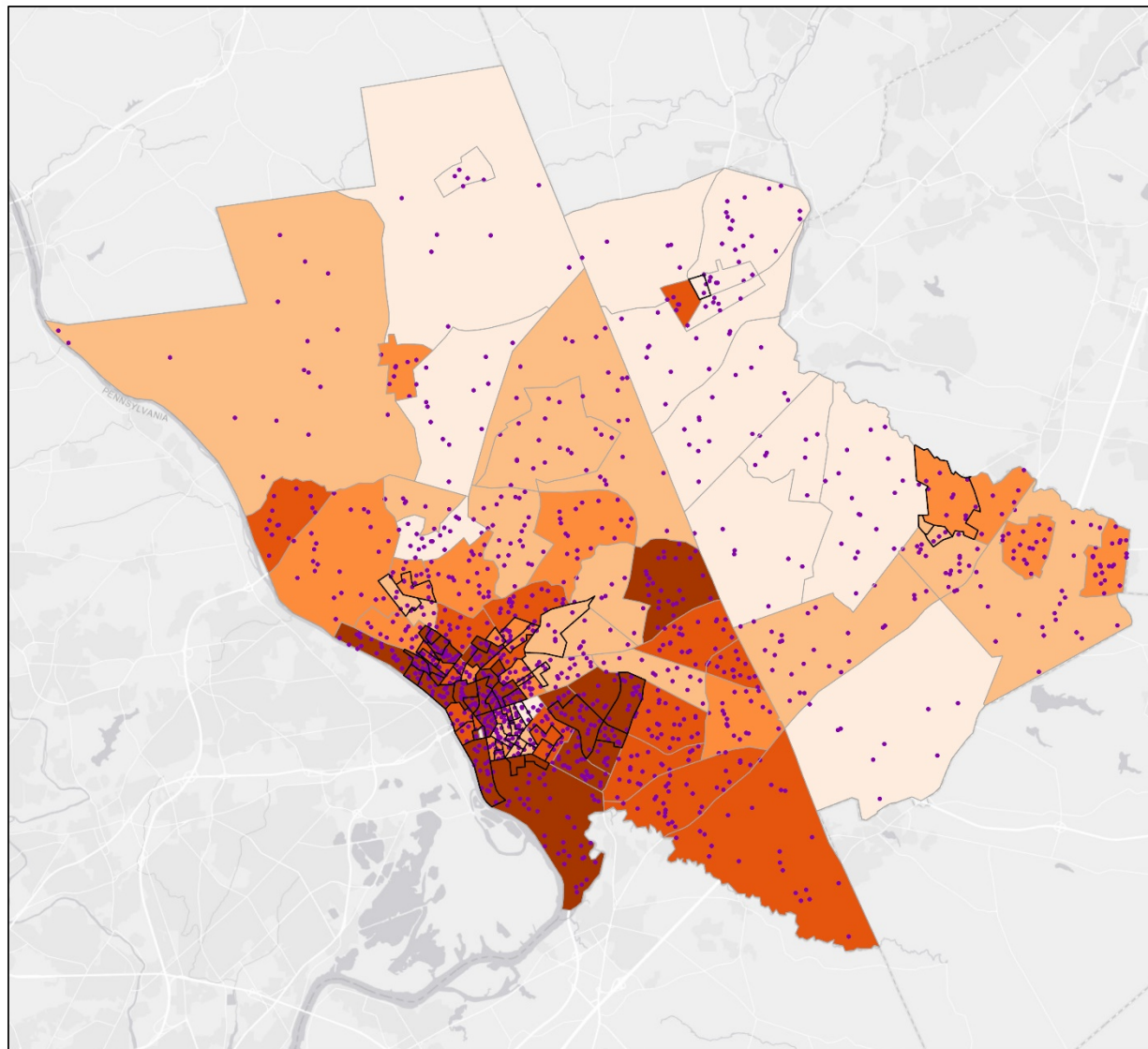
Indicators of Potential Disadvantage



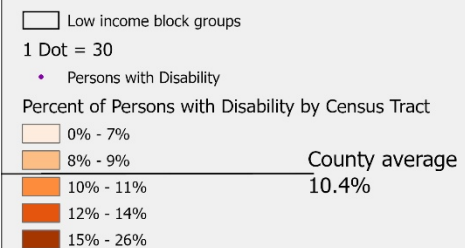
Indicators of Potential Disadvantage



Indicators of Potential Disadvantage



Persons with Disability

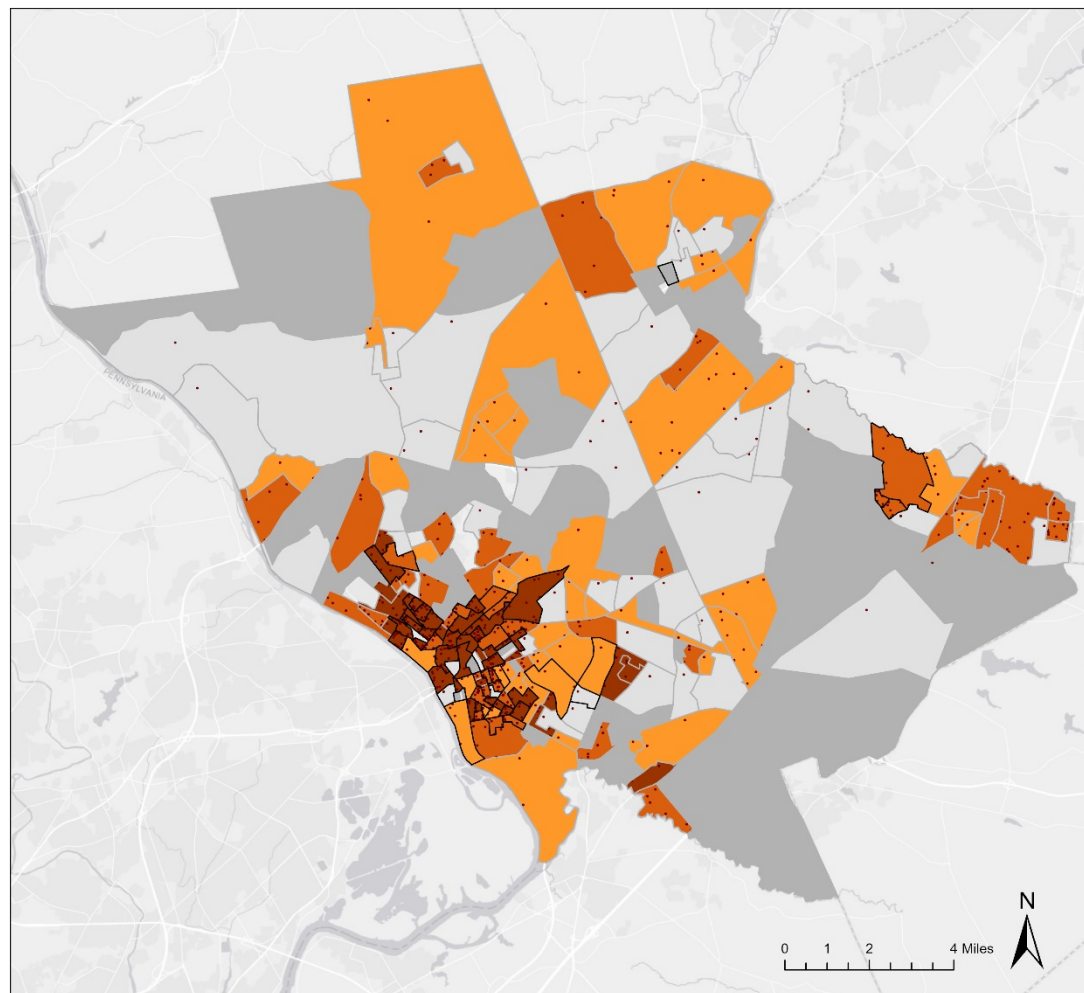


Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Indicators of Potential Disadvantage



Single Parent Family

□ Low income block groups

1 Dot = 30

• Single Parent Family

Percentage of Single Parent Families by Block Group

0% - 3%

4% - 15%

16% - 33%

34% - 62%

63% - 100%

County average

24.5%

Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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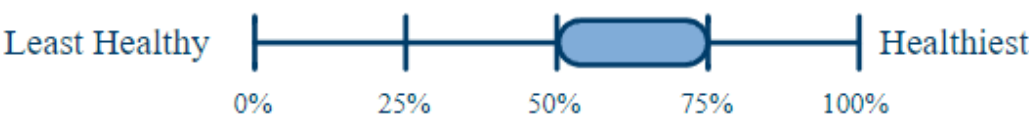


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Health Behaviors

Mercer is ranked in the higher middle range of counties in New Jersey (Higher 50%-75%)



Source: 2020 NJ County Health rankings

Health Behaviors	Mercer County	NJ
Adult Smoking	15%	13%
Adult obesity	28%	27%
Food environment index	8.7	9.4
Physical inactivity	26%	27%
Access to exercise opportunities	99%	95%
Excessive drinking	16%	16%
Alcohol-impaired driving deaths	22%	22%

Physical Environment	Mercer County	NJ
Air pollution-particulate matter	8.6	8.6
Drinking water problems	Yes	-
Severe housing problems	19%	21%
Driving alone to work	71%	71%
Long commute-driving alone	32%	43%

Health Outcomes

Mercer is ranked in the higher middle range of counties in New Jersey (Higher 50%-75%)

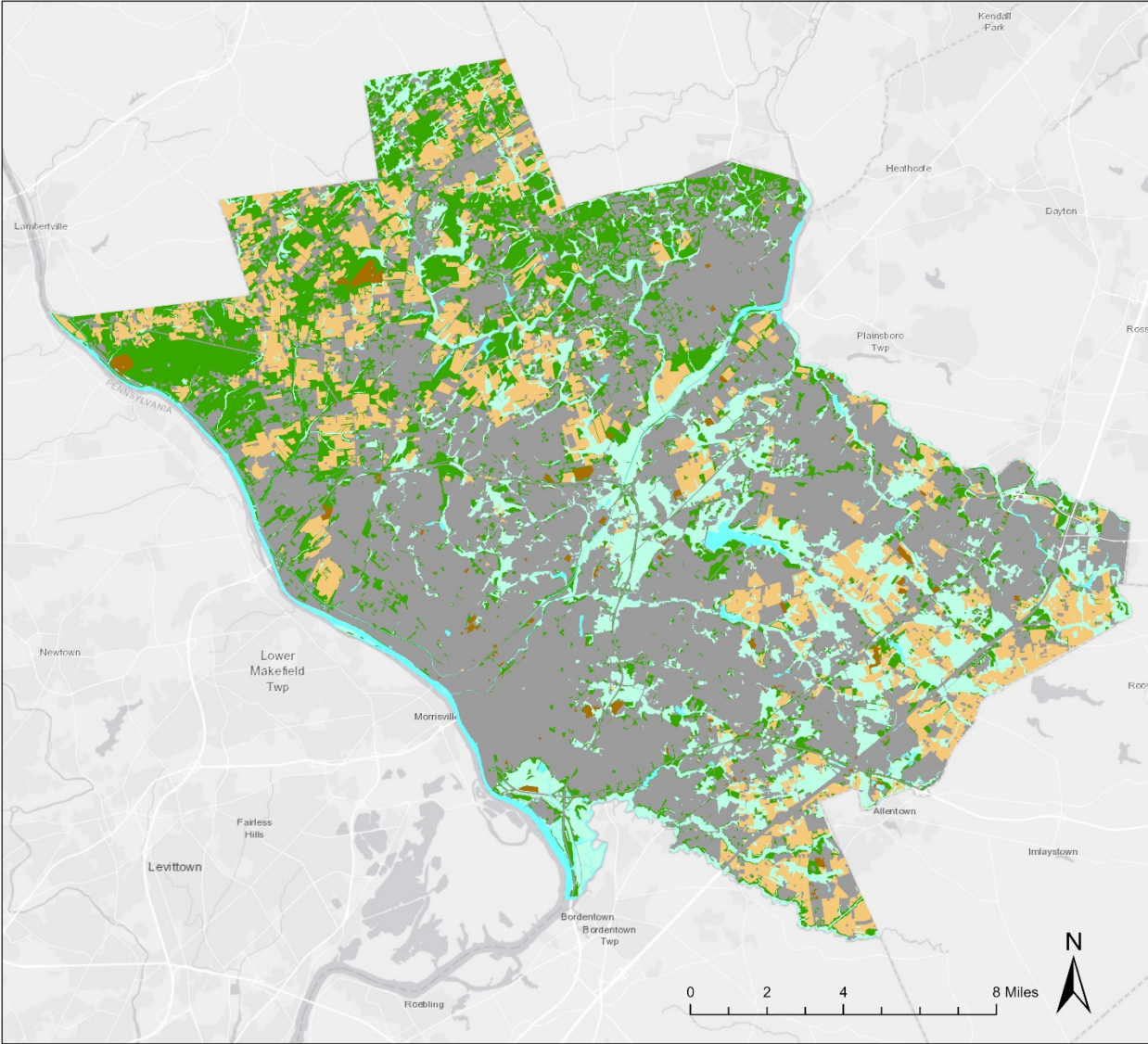


Quality of Life	Mercer County	NJ
Poor or Fair Health	17%	16%
Poor Physical Health Days	3.8	3.7
Poor Mental Health Days	4.3	3.8
Low Birthwieght	9%	8%

Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PLACE

Natural Land Use



Land Use

Land Use

- Agriculture
- Barren Land
- Forest
- Urban
- Water
- Wetlands

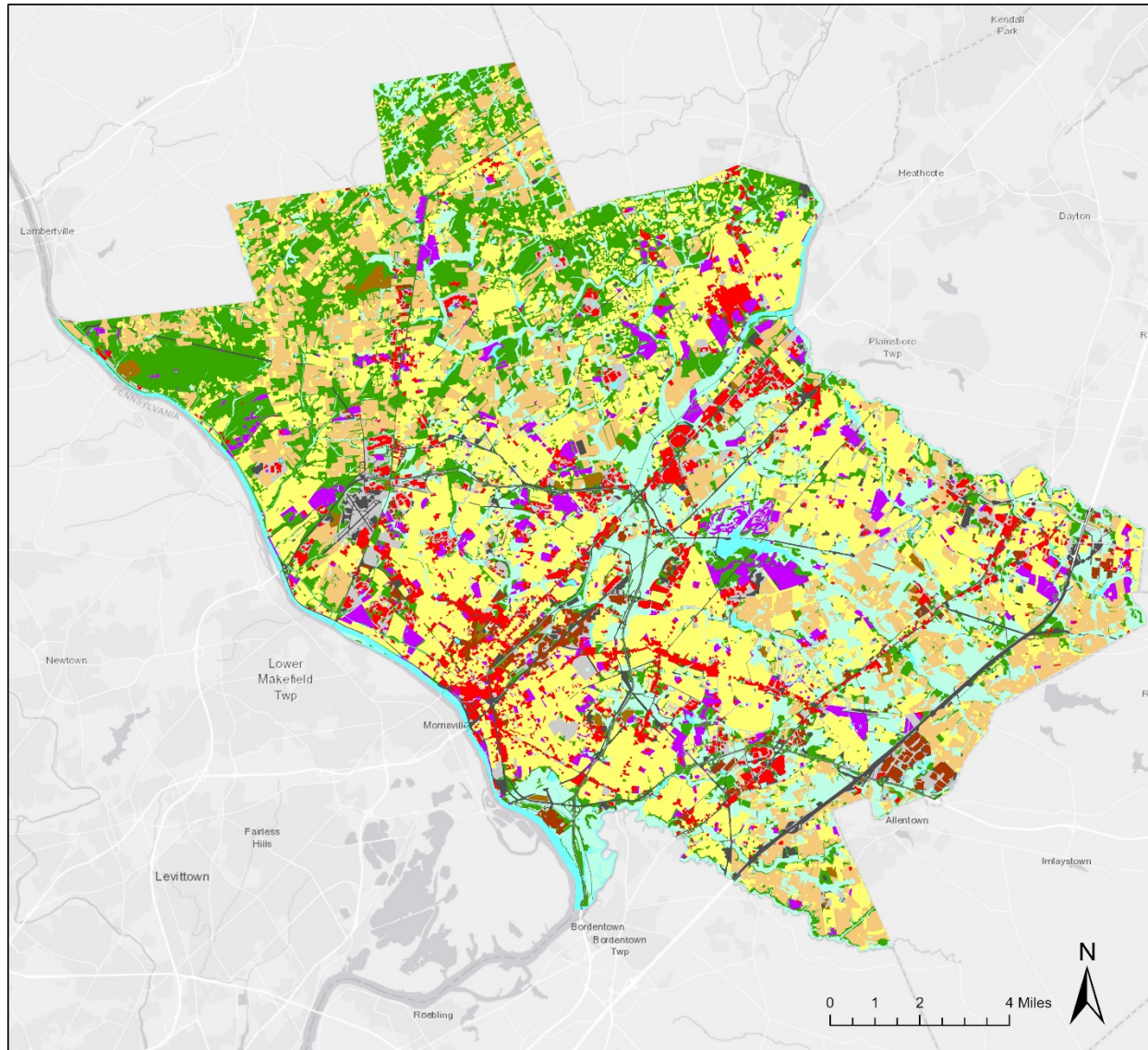
Data Source: NJGIN, ESRI base map

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Urban Land Use



Land Use

Urban Land Use

- Residential
- Commercial and Service
- Industrial
- Transportation/Communication/Utilities
- Other Urban Land
- Recreational land

Other Land Uses

- Agriculture
- Barren Land
- Forest
- Water
- Wetlands

Data Source: NJGIN, ESRI base map

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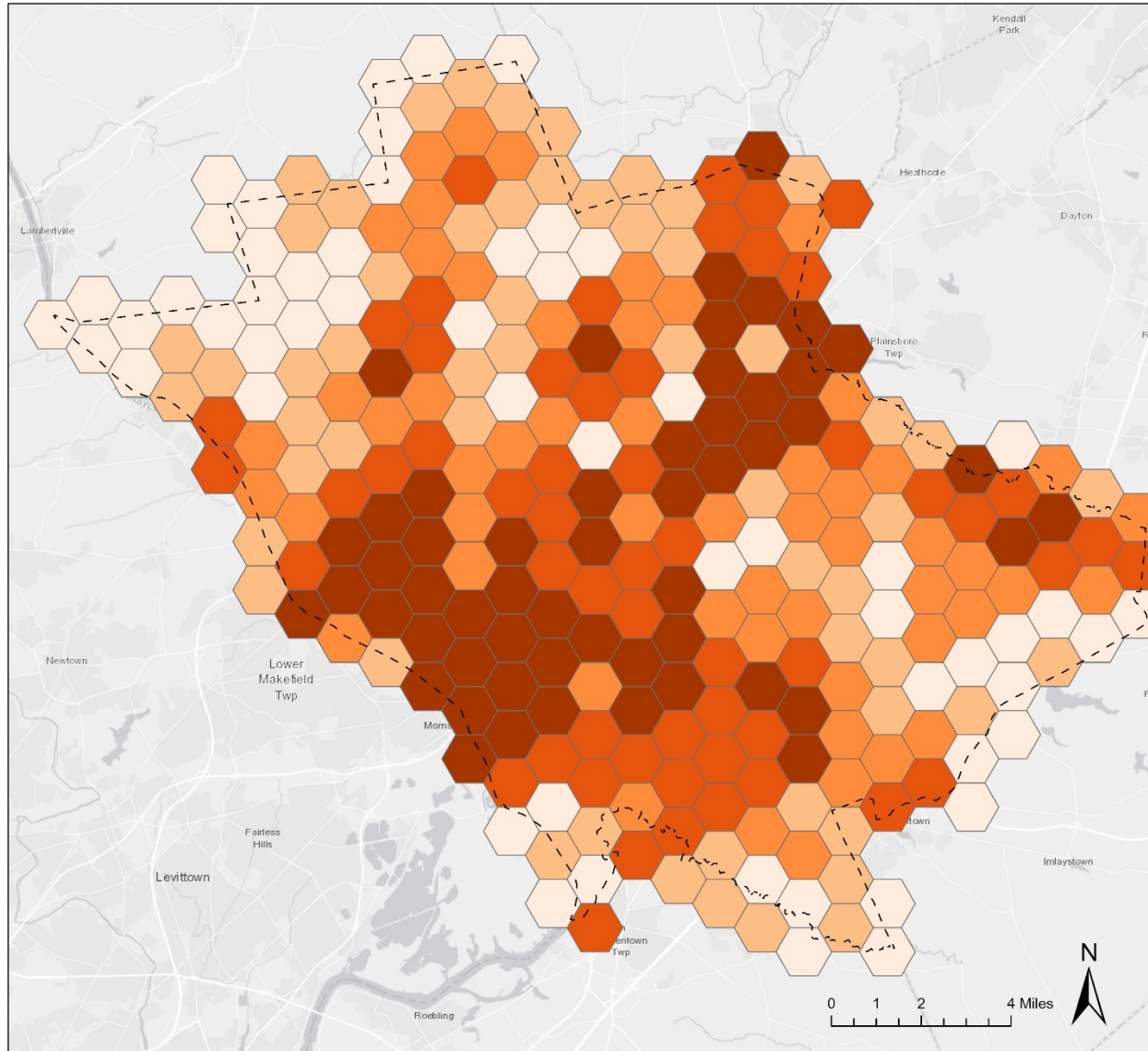
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Employment Density



Employment Density

no of employees per sq mile

- 0 - 50
- 60 - 200
- 300 - 500
- 600 - 1,000
- 2,000 - 40,000

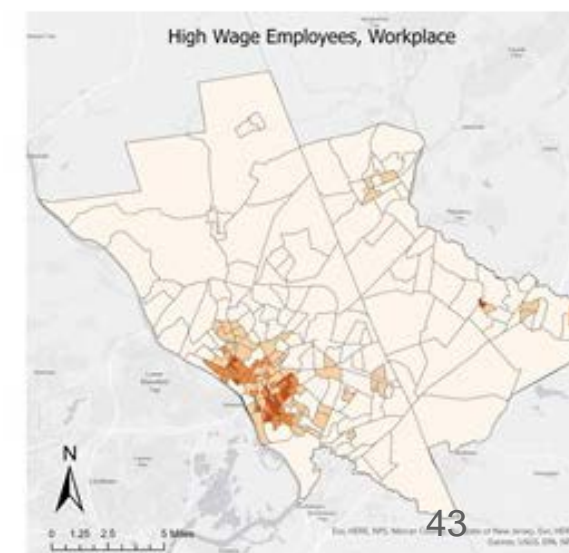
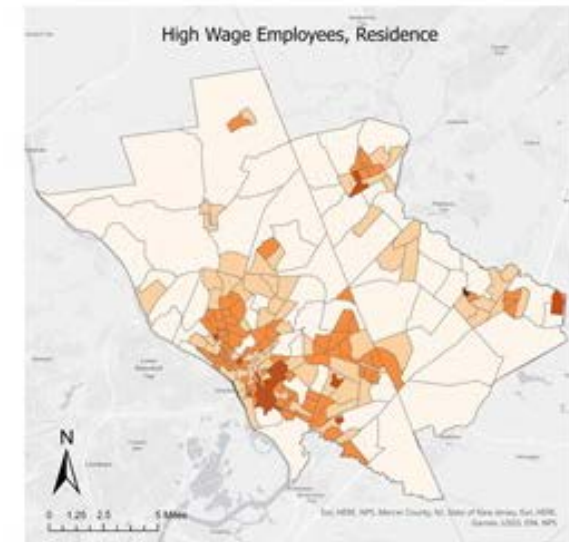
Data Source: NJGIN, ESRI Business Analyst
(2020 Data)
Note: The area of each hexagon is 1 sq. mile

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Employment Density by Wage

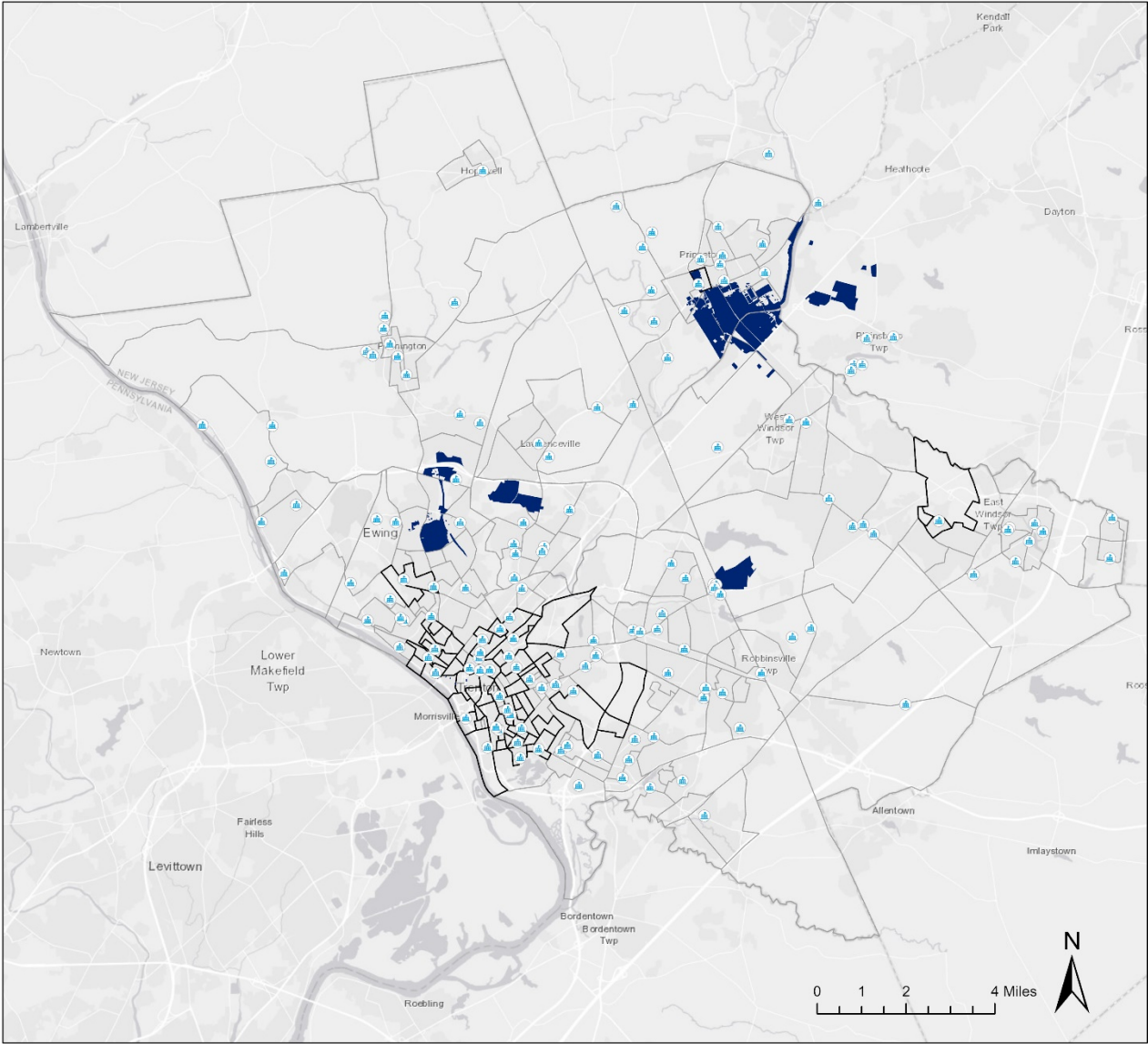
Number of employees per sq. mile by wage category by place of residence and place of work



Data Source : NJGIN, Longitudinal Employer-Household Dynamics (LEHD) 2014-2018 5-year estimate

Note: low wage earnings \$1250/month or less; mid wage earnings \$1251/month to \$3333/month; higher wage earnings greater than \$3333/month

Education Services



Education

- Low income block groups
- K - 12 Public Schools
- Colleges and Universities

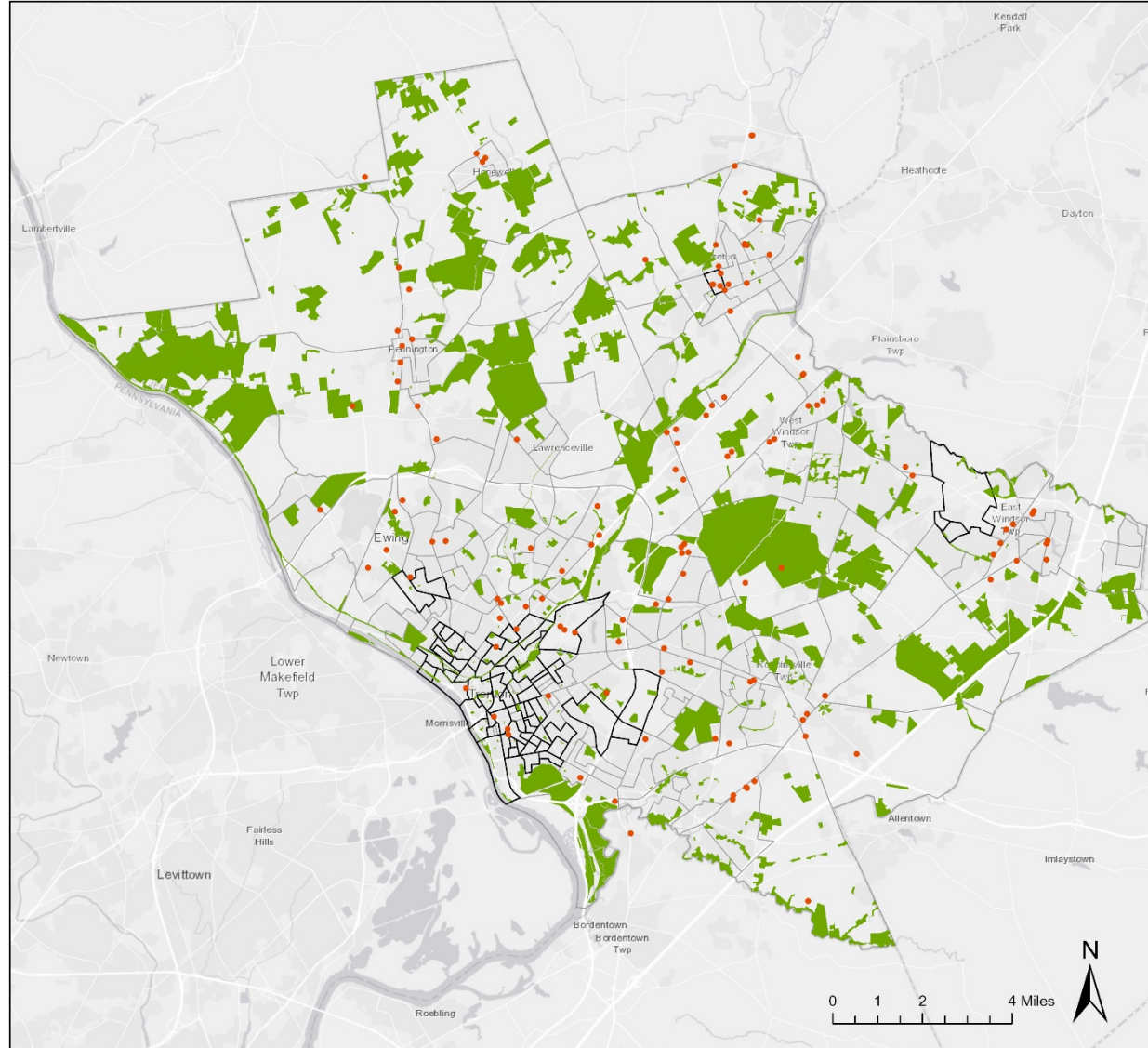
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Recreation



Recreation

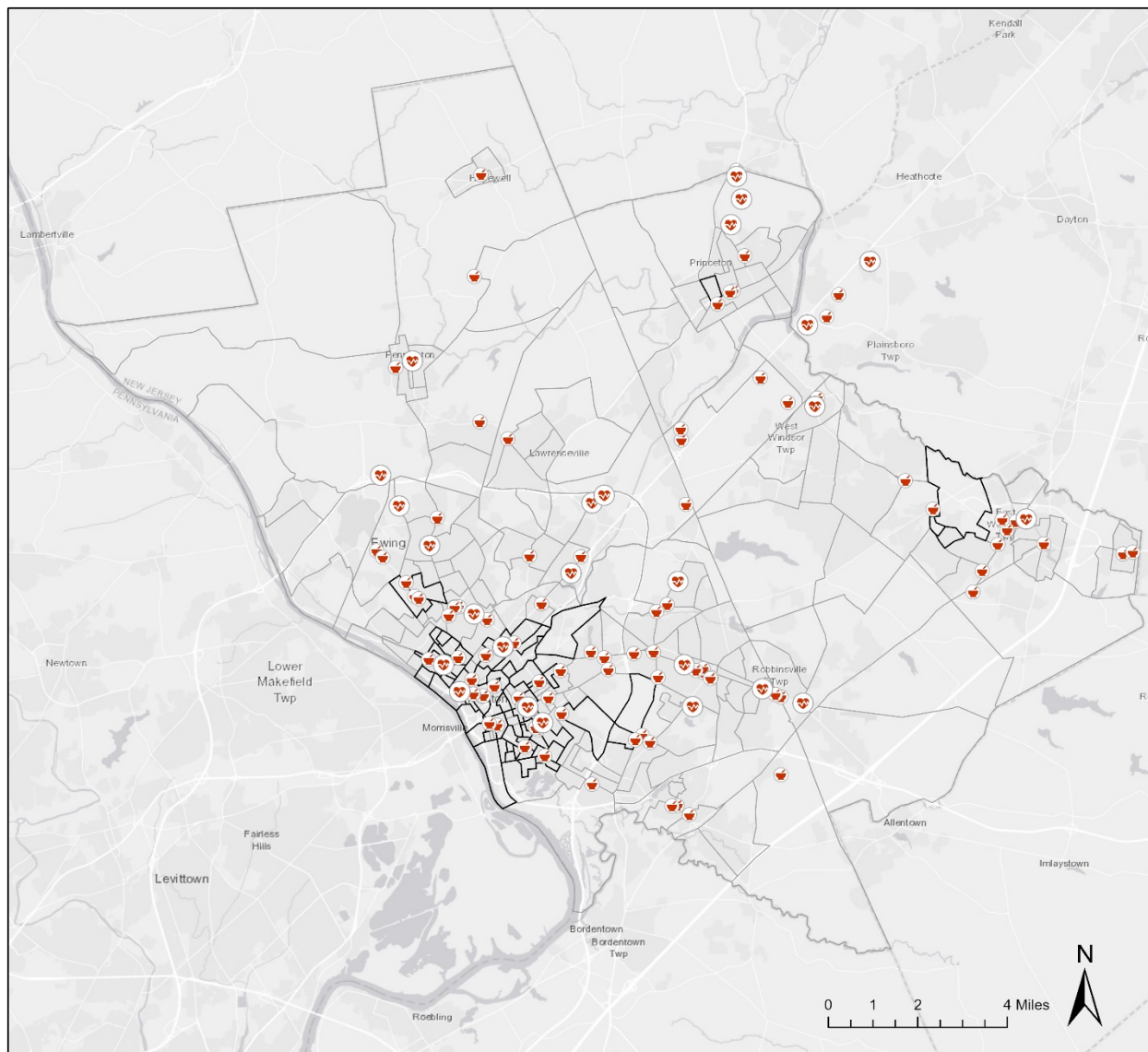
- Low income block groups
- Fitness and Recreational Sports Centers
- State Local and Nonprofit Open Space

Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI Business Search Safegraph

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Medical Services



Medical Services

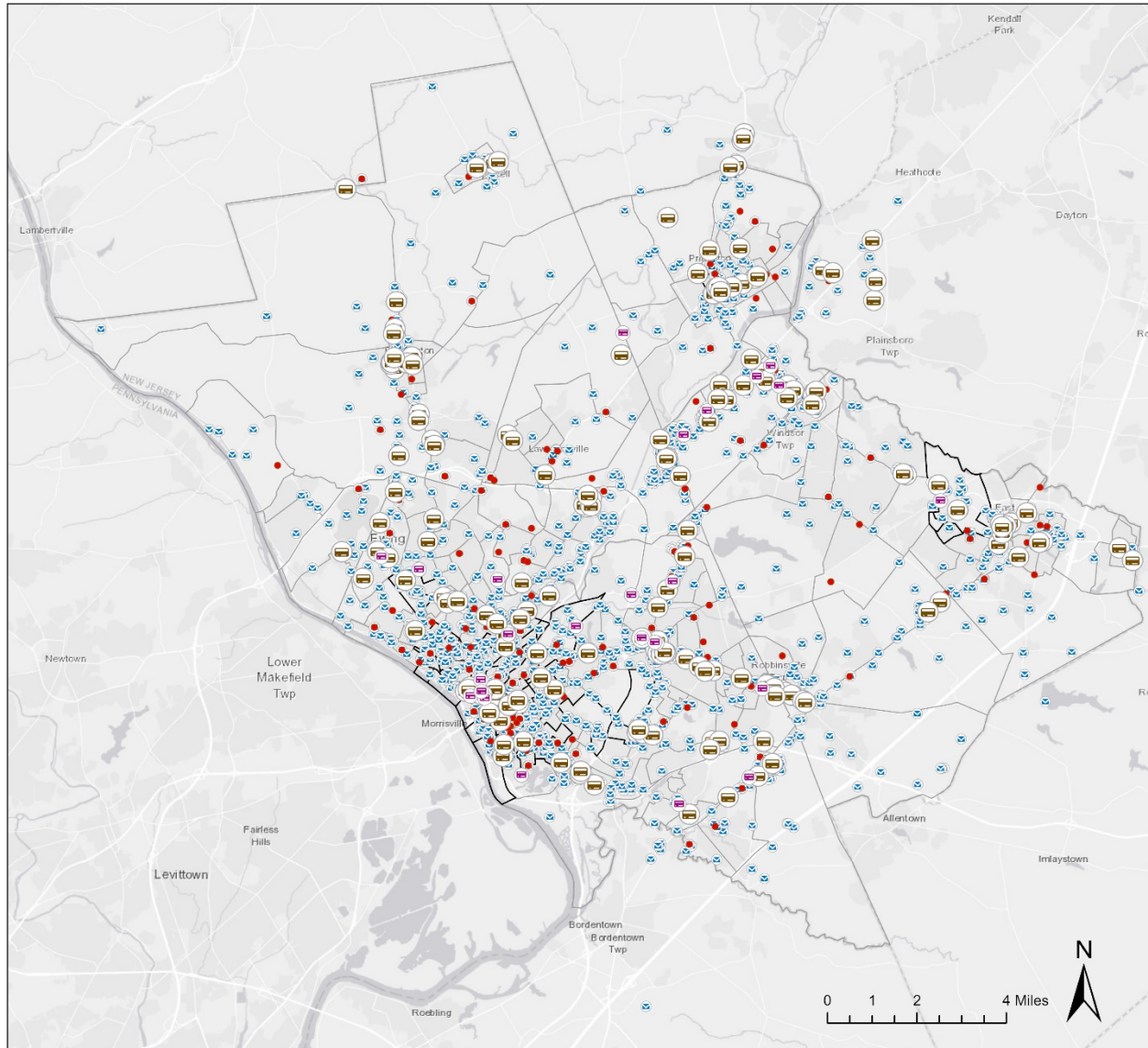
- Low income block groups
- Hospitals & Emergency Centers
- Pharmacy and Drug Store

Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI Business Search Safegraph

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Other Essential Services



Essential Services

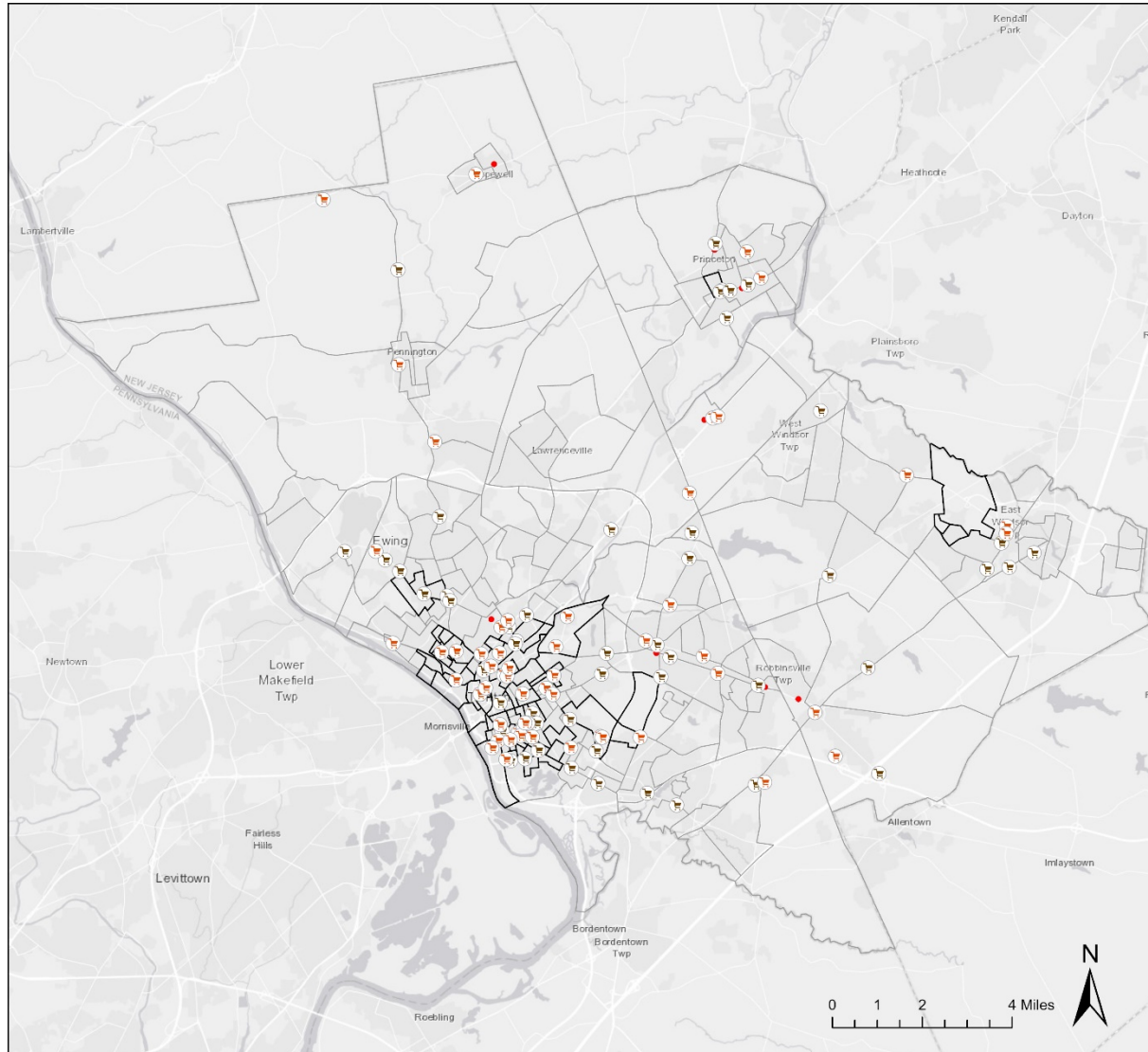
- Low income block groups
- Childcare center
- ✕ Postal Service
- 🏦 Commercial Banking
- 🏦 Credit Unions

Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI Business Search Safegraph




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Commercial Amenities



Commercial Amenities

-  Full Service Grocery Store
-  Convenience/Specialty Store
-  Laundries and Drycleaners

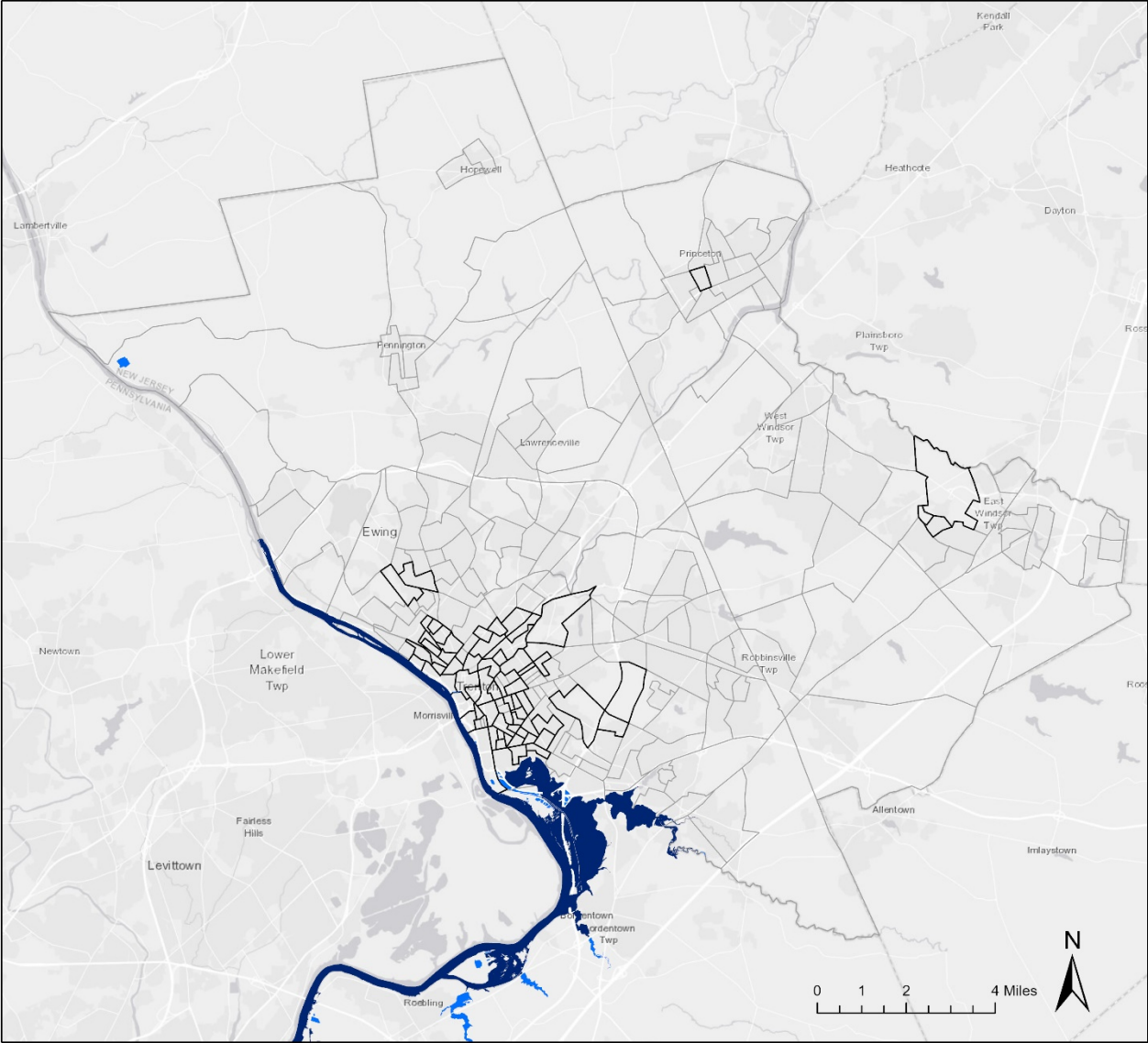
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Climate Vulnerability



Sea Level Rise (5 ft)

- Low income block groups
- Low
- High

Data Source: NJGIN, ACS 2015-2019 5-year estimate, NOAA

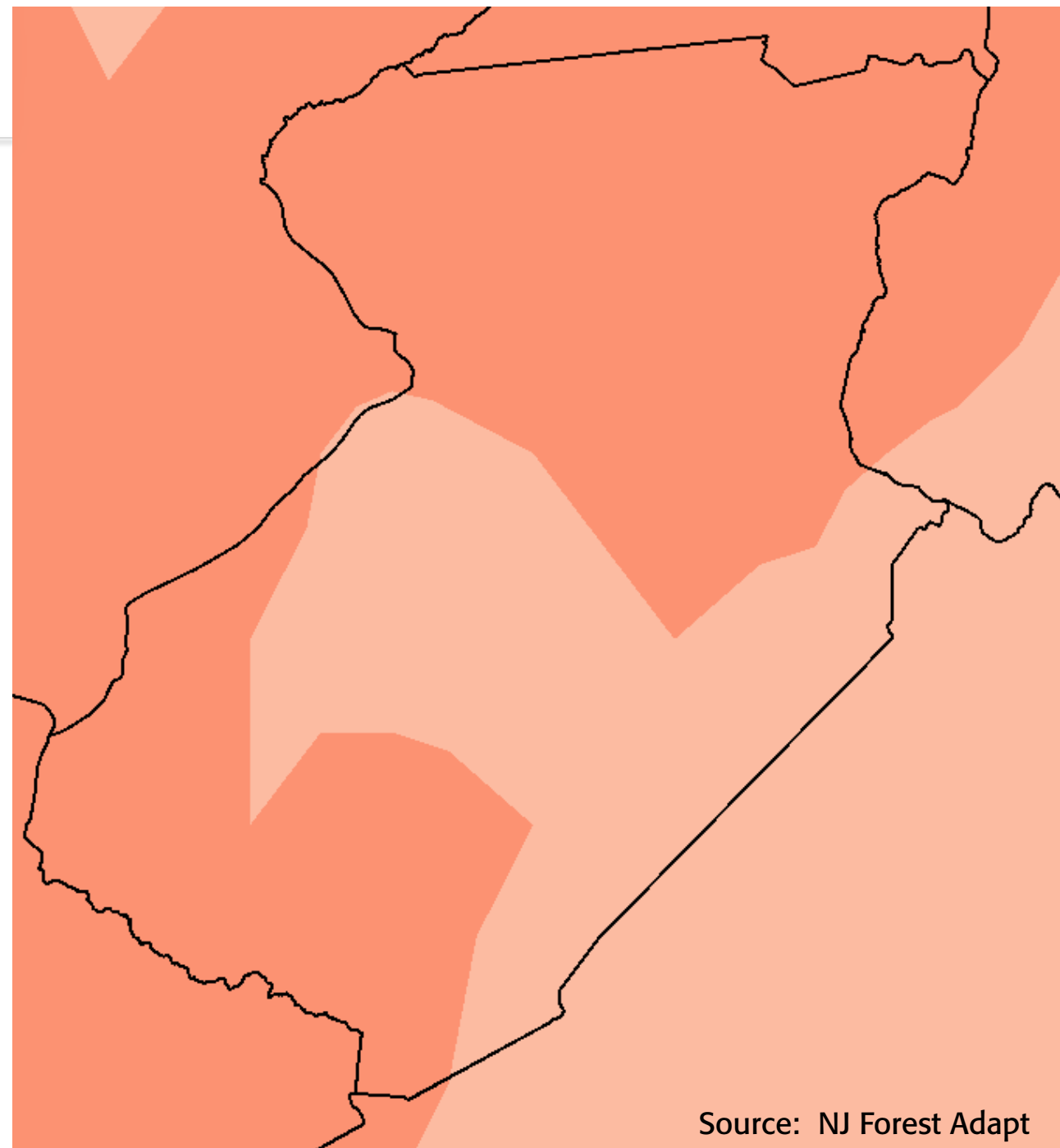
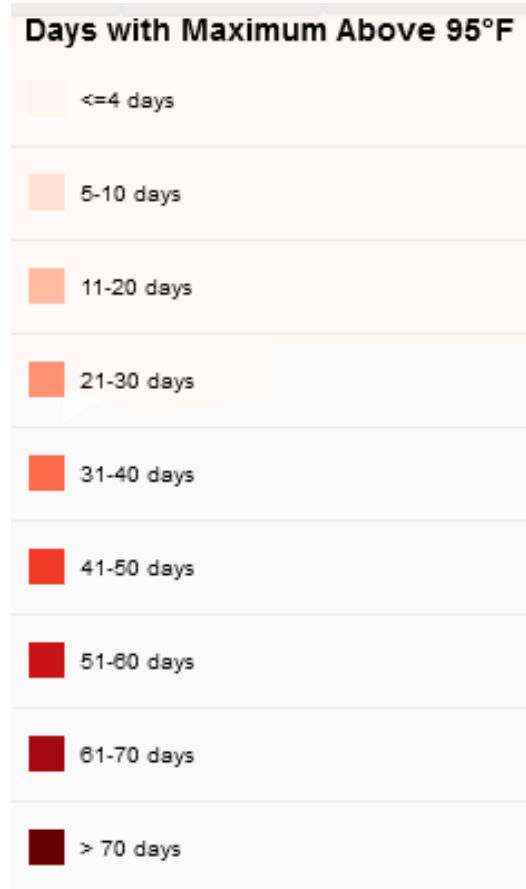
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by Alan M. Voorhees Transportation Center



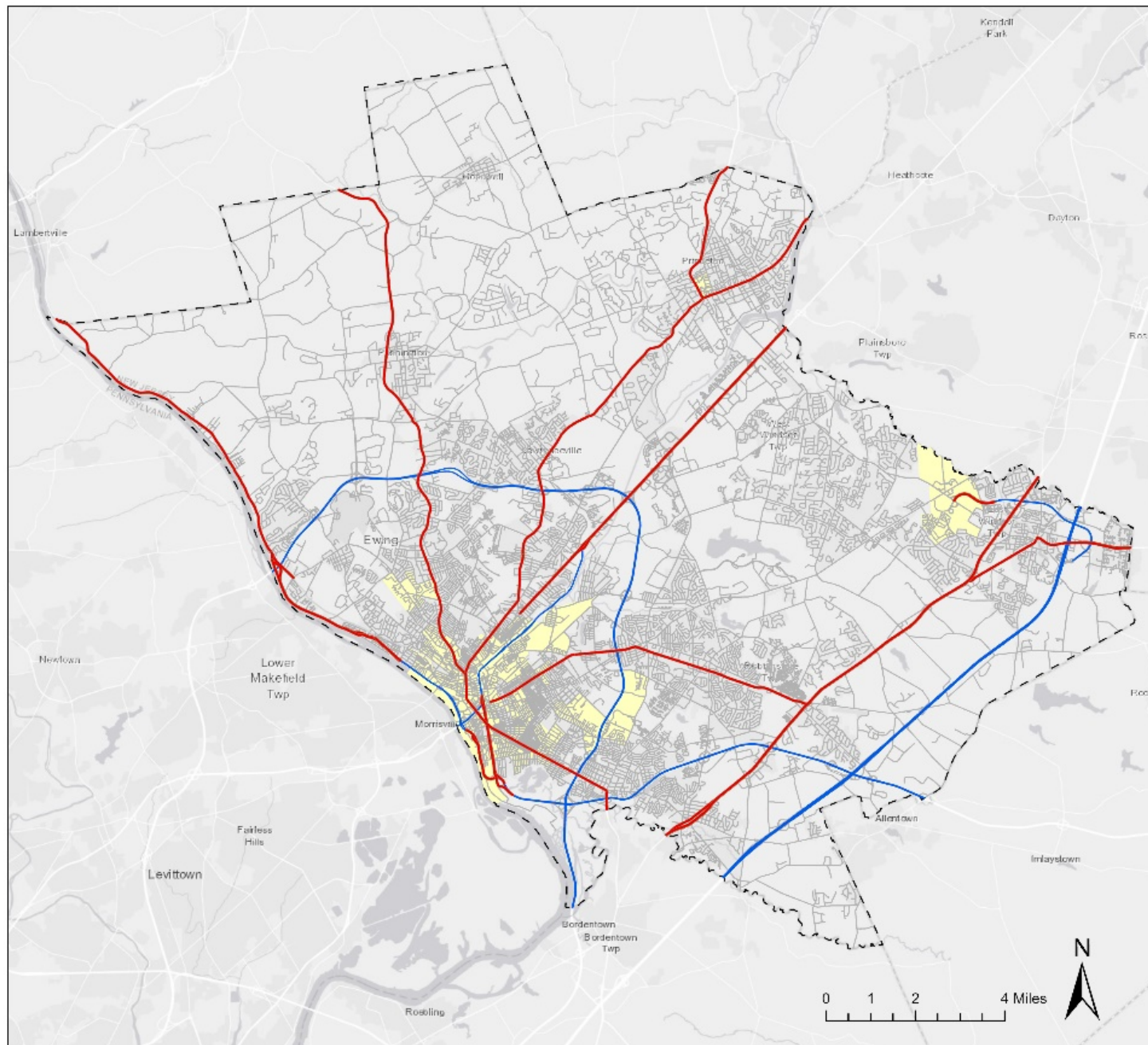
Climate Vulnerability

Exposure to extreme heat (High-emissions scenario)



Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF MOBILITY AND CONNECTIONS



Road Network

- Interstate/US/State Highway
- County Route
- Local Roads
- Low income block groups

Data Source: NJGIN, ESRI base map

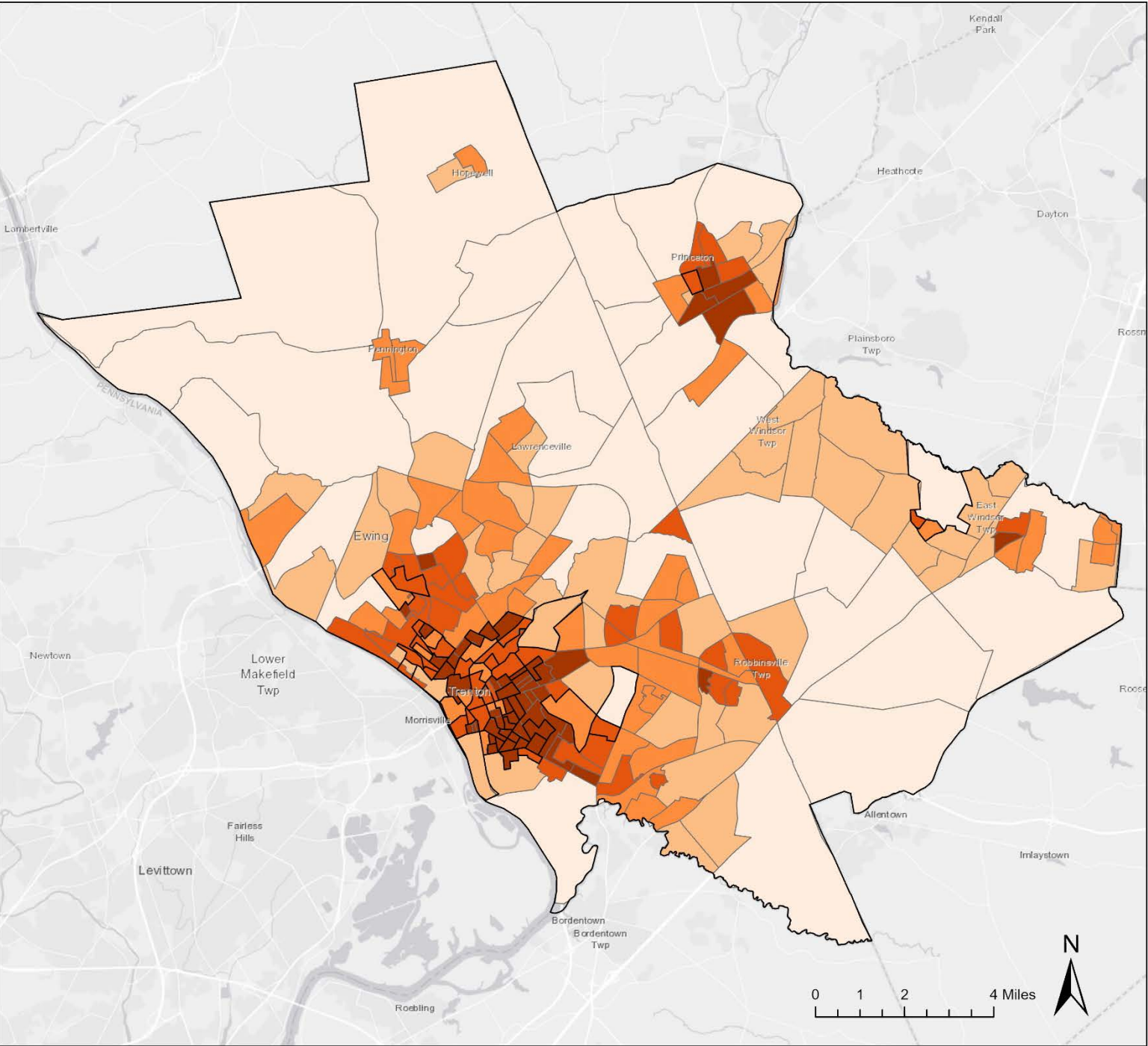
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Intersection Density

Number of Intersections per acre

1 - 20

21 - 44

45 - 73

74 - 116

117 - 835

Low income block groups

Data Source: NJGIN, ESRI base map, EPA National Walkability Index

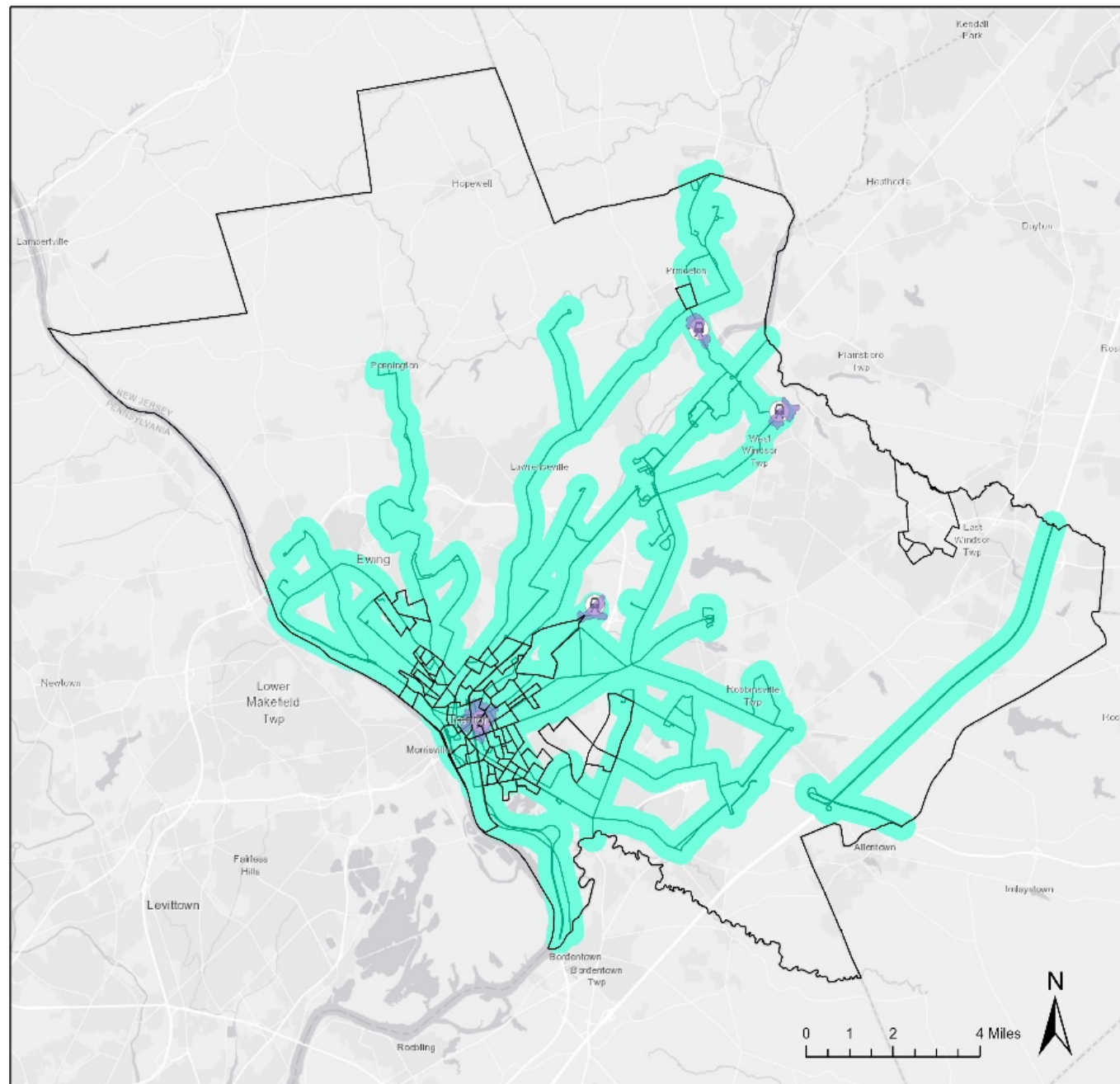
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


Transit Service Area


 Rail Stations

Rail Station Service Area



 Bus Routes

 Bus Service Area

 Low income block groups

Data Source: NJGIN, ESRI base map, NJ Transit GTFS Data

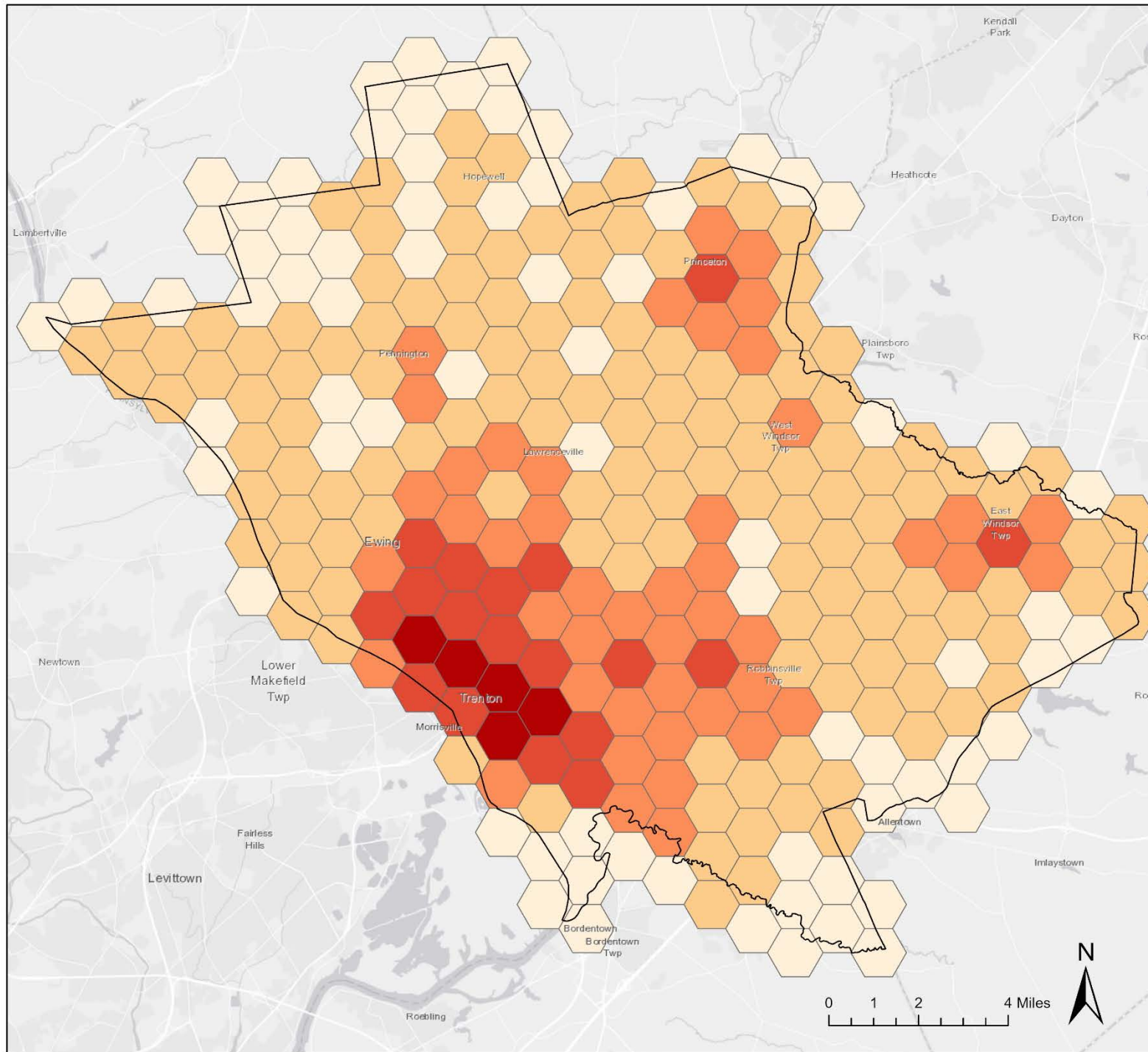
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Bus Stop Density

number of bus stops per sq mile

0 - 1

2 - 4

5 - 7

8 - 14

15 - 25

Data Source: NJGIN, ESRI base map

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Bus Service Frequency

Max Wait Time

- 0 - 27 min
- 28 - 55 min
- 56 - 84 min
- 85 - 110 min
- 120 - 140 min

— Bus Routes

■ Low income block groups

Data Source: NJGIN, ESRI base map, NJ Transit GTFA Data

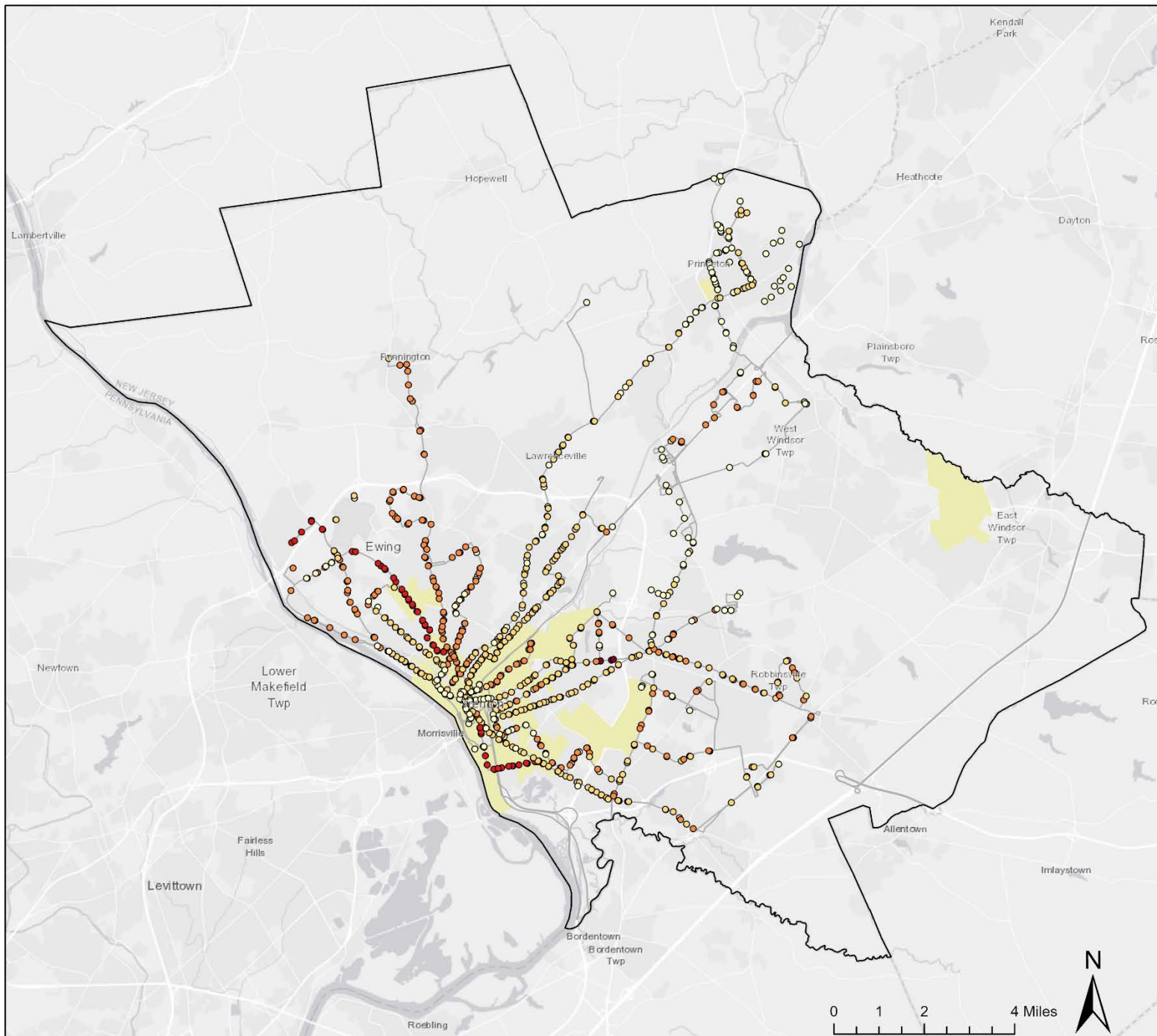
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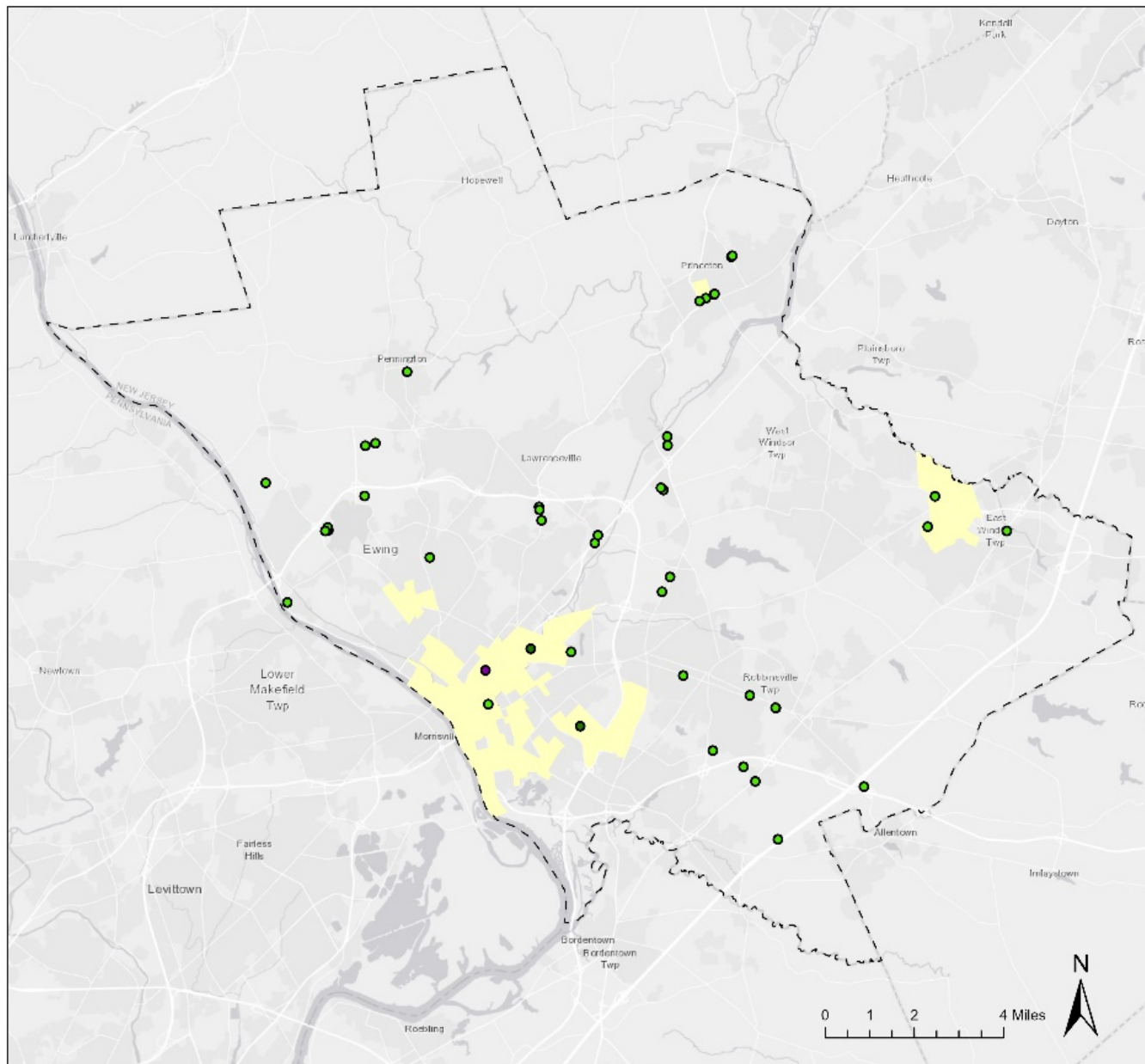
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Alt. Fueling Station

Fuel Type

- Compressed Natural Gas
- Electric
- Liquefied Petroleum Gas

Data Source: NJGIN, US Department of Energy, ESRI base map

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"15-min." Accessibility

Accessibility

- Best Access
- Moderate Access
- Limited Access
- Low income block groups

Data Source: NJGIN, ESRI base map

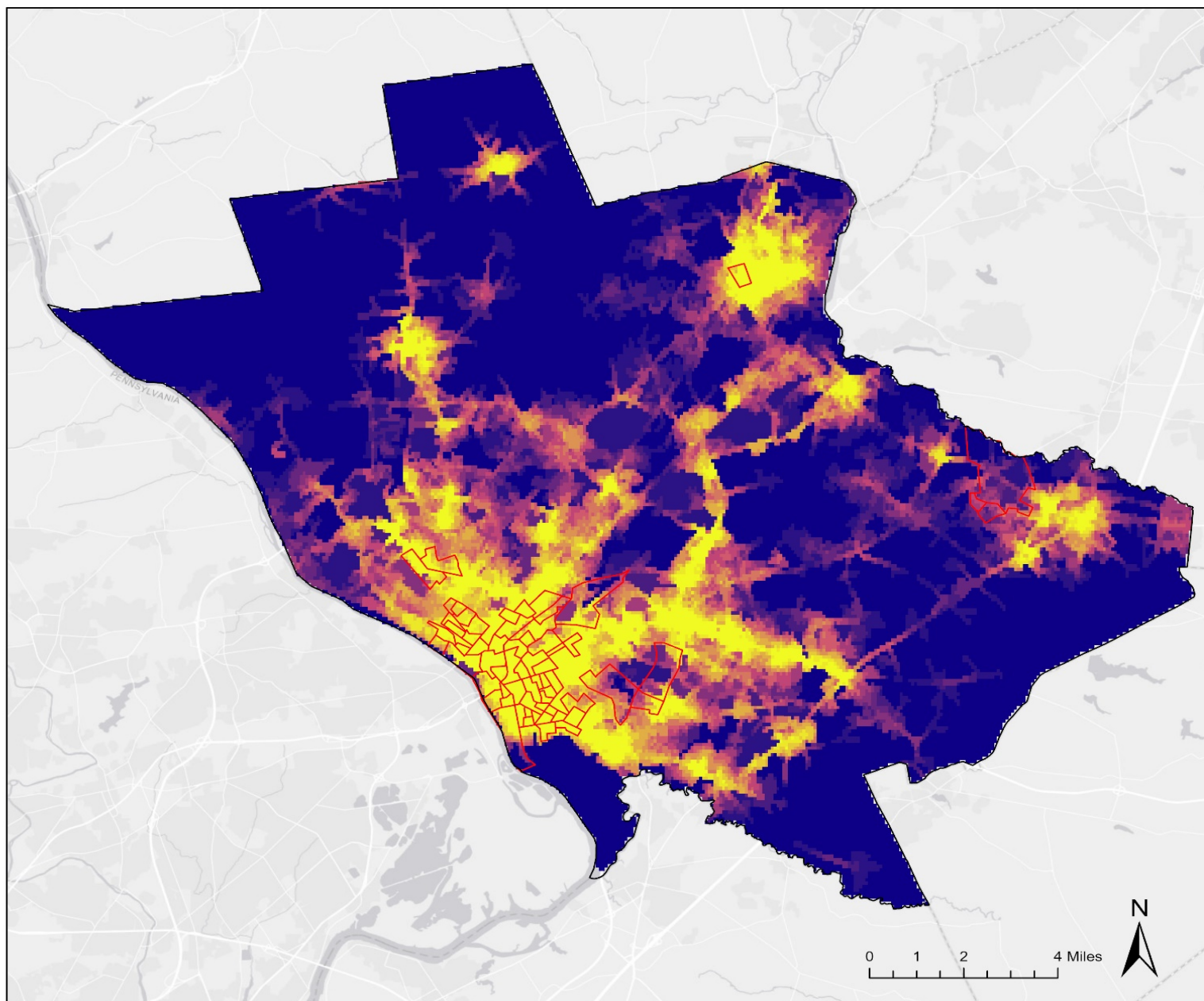
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Issues Forum #1

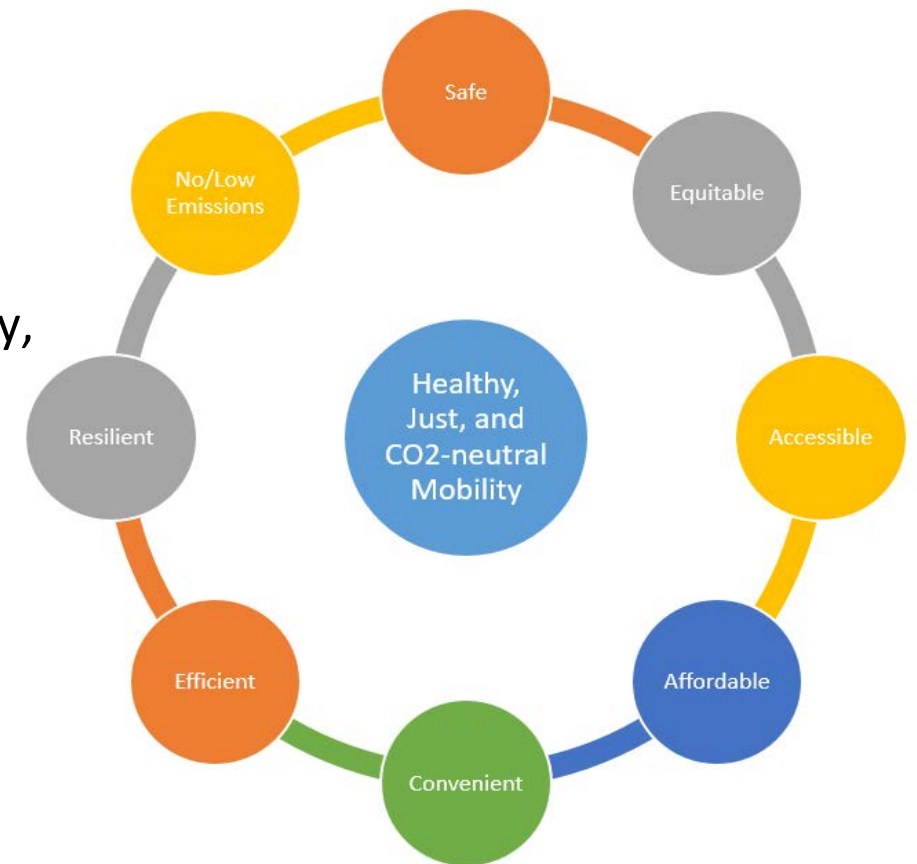
- **Objectives**

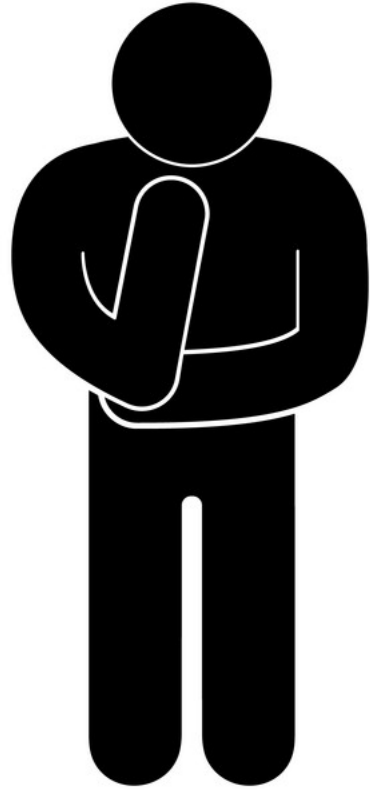
- Explore the components of the multi-goal framework
- Identify
 - Needs, concerns, and desired long-term outcomes
 - Performance measures
 - What needs to change
 - Potential obstacles and impediments to achieving healthy, just, resilient, and carbon-neutral mobility for all

- **Format**

- Plenary + breakouts
- Virtual or in-person depending on conditions

- **Timing** – December 2021-March 2022





Thoughts?
Questions?
Discussion?