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Edward J. Bloustein School
of Planning and Public Policy

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

Project Update

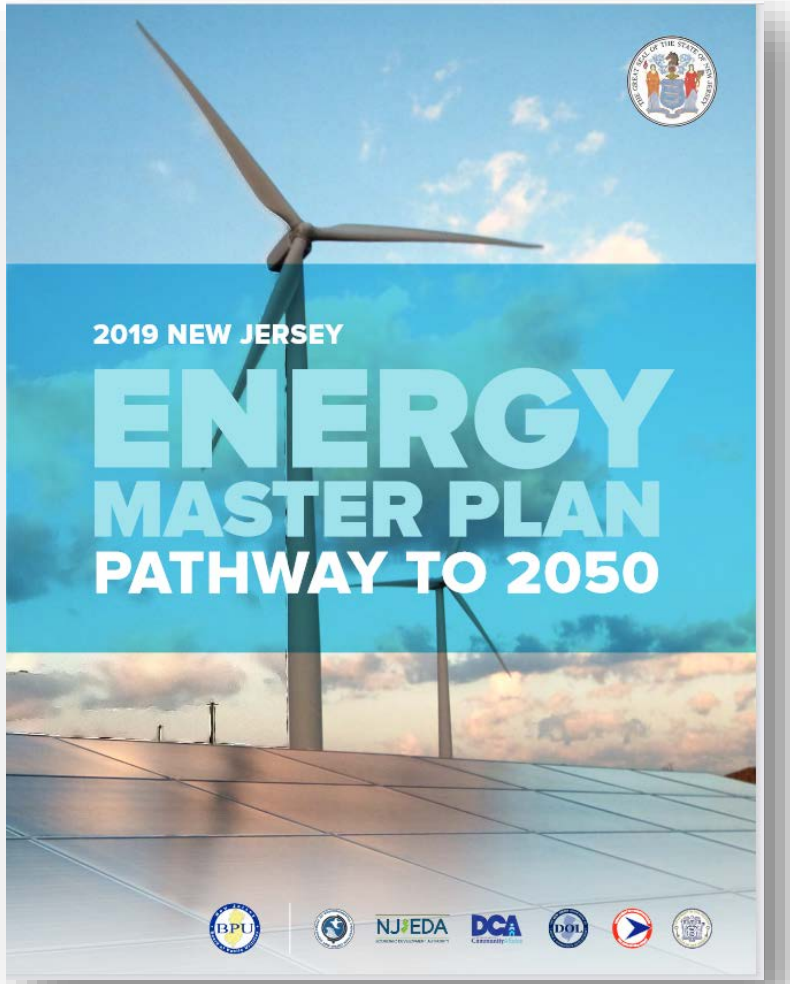
February 2022

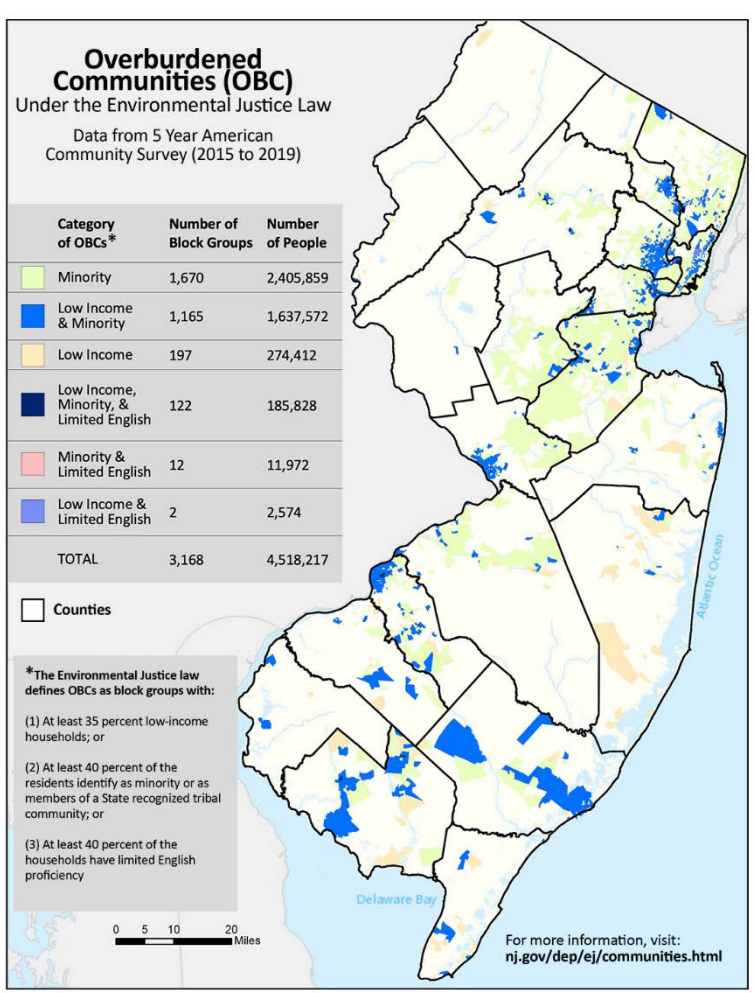
Existing Work Groups

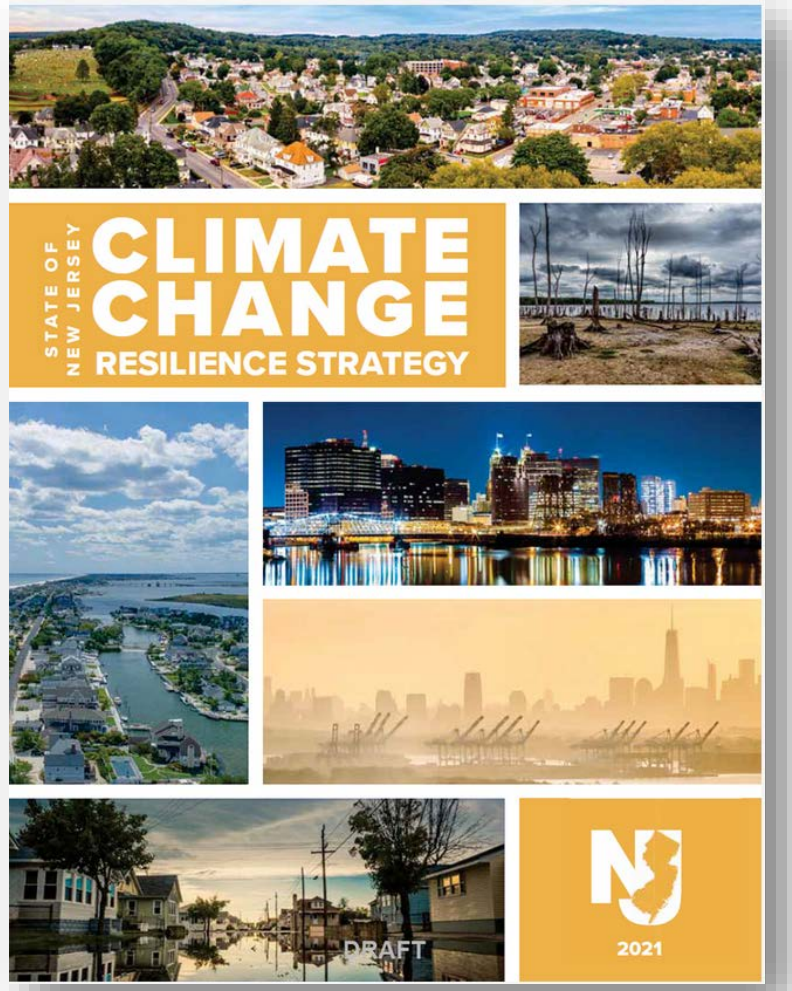
- Long-term Statewide Planning for Climate Change Workgroup
- Natural and Working Lands Workgroup
- Offshore Wind Ecological Monitoring Workgroup
- Public Health Workgroup
- Sustainable Organic Materials Management Workgroup

(NEW) Transportation Workgroup

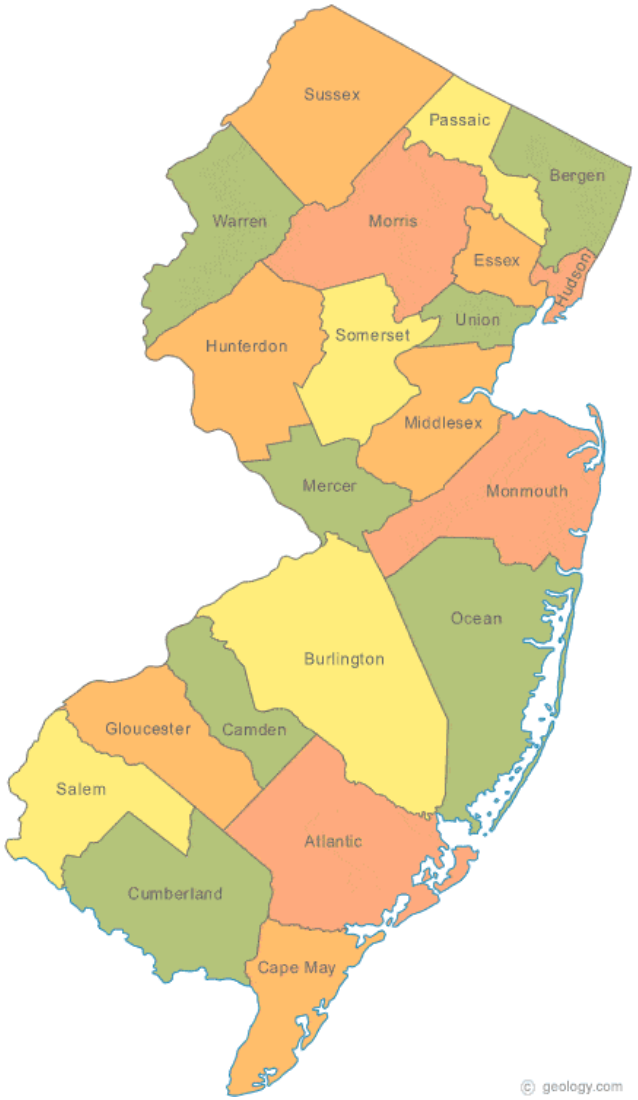
Changing policy dynamics at the State and national levels

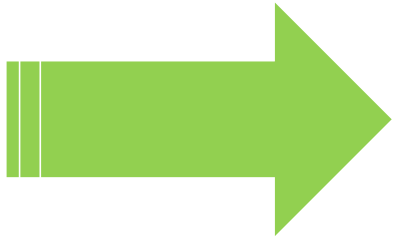


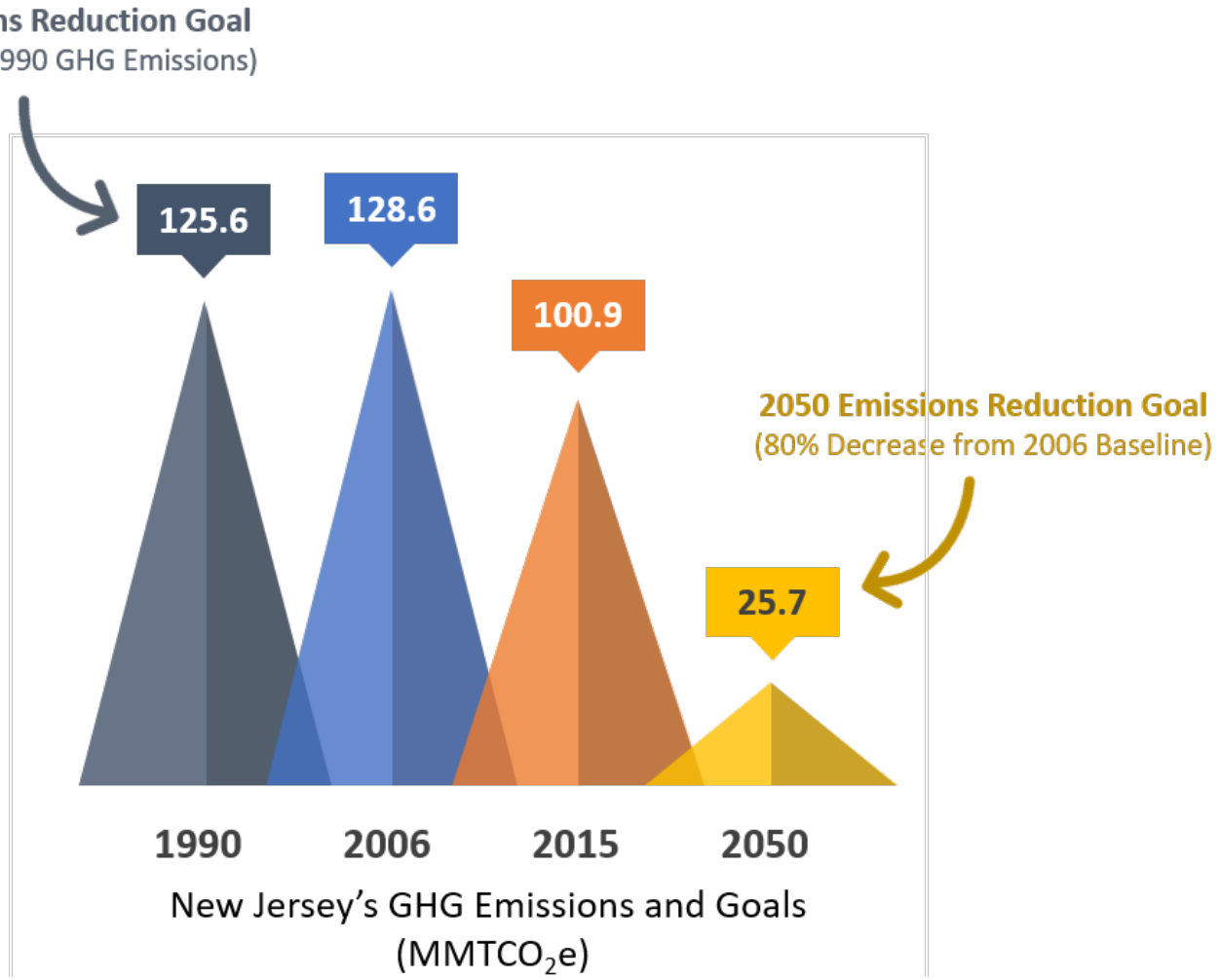




New Jersey Emissions Targets

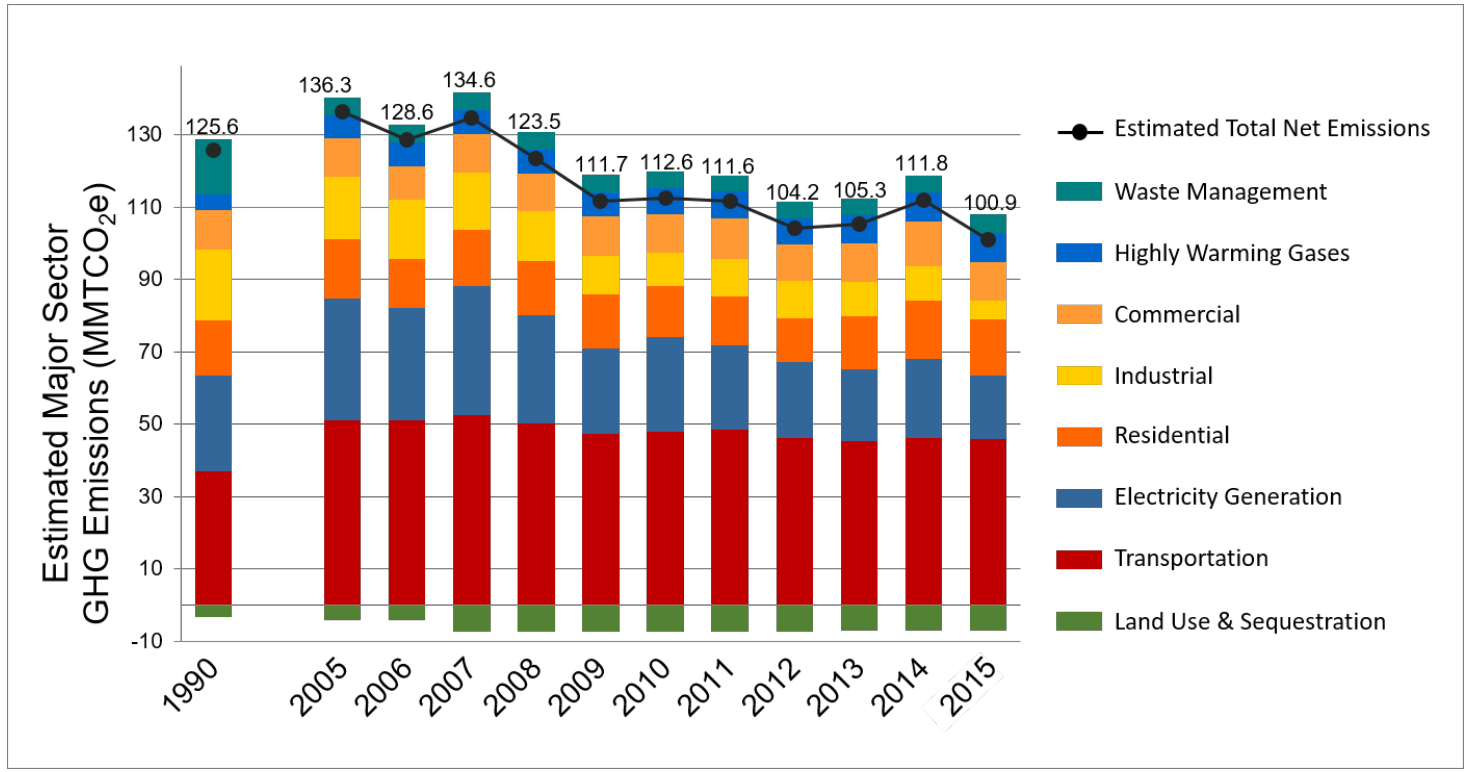


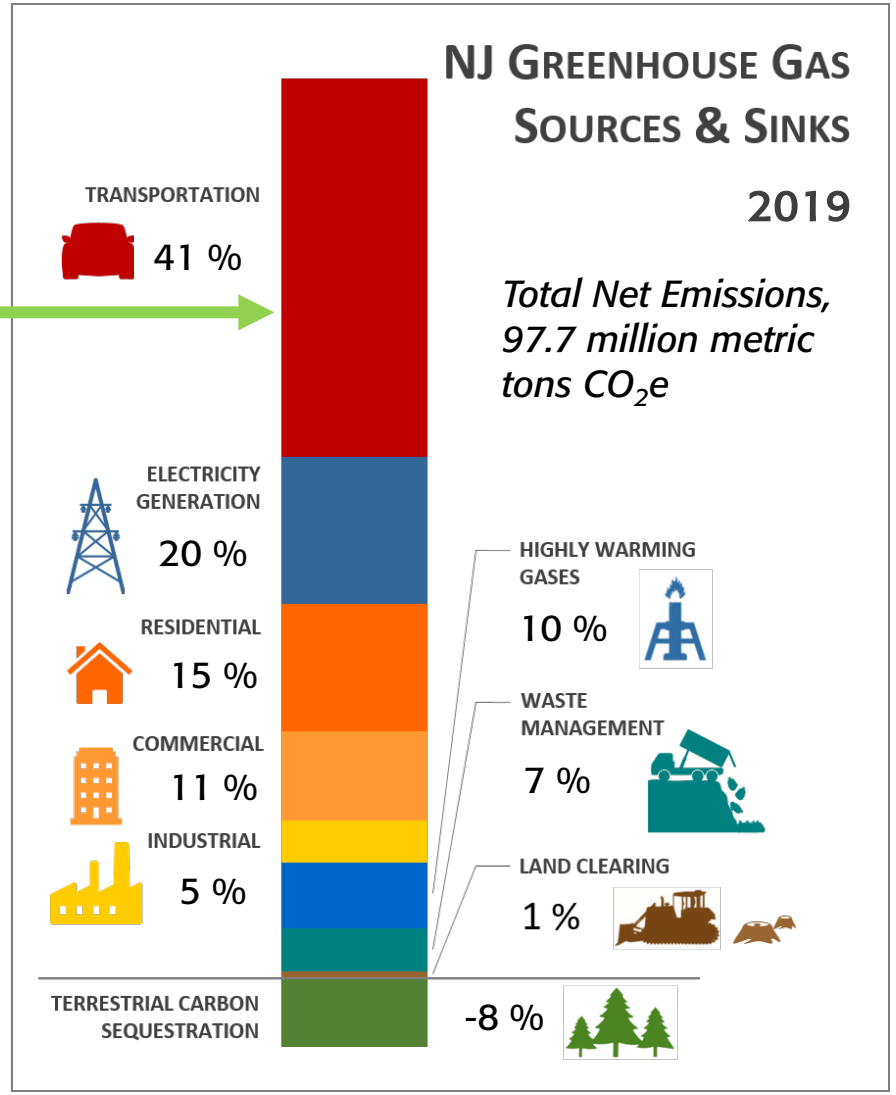




GHG Emissions in New Jersey

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

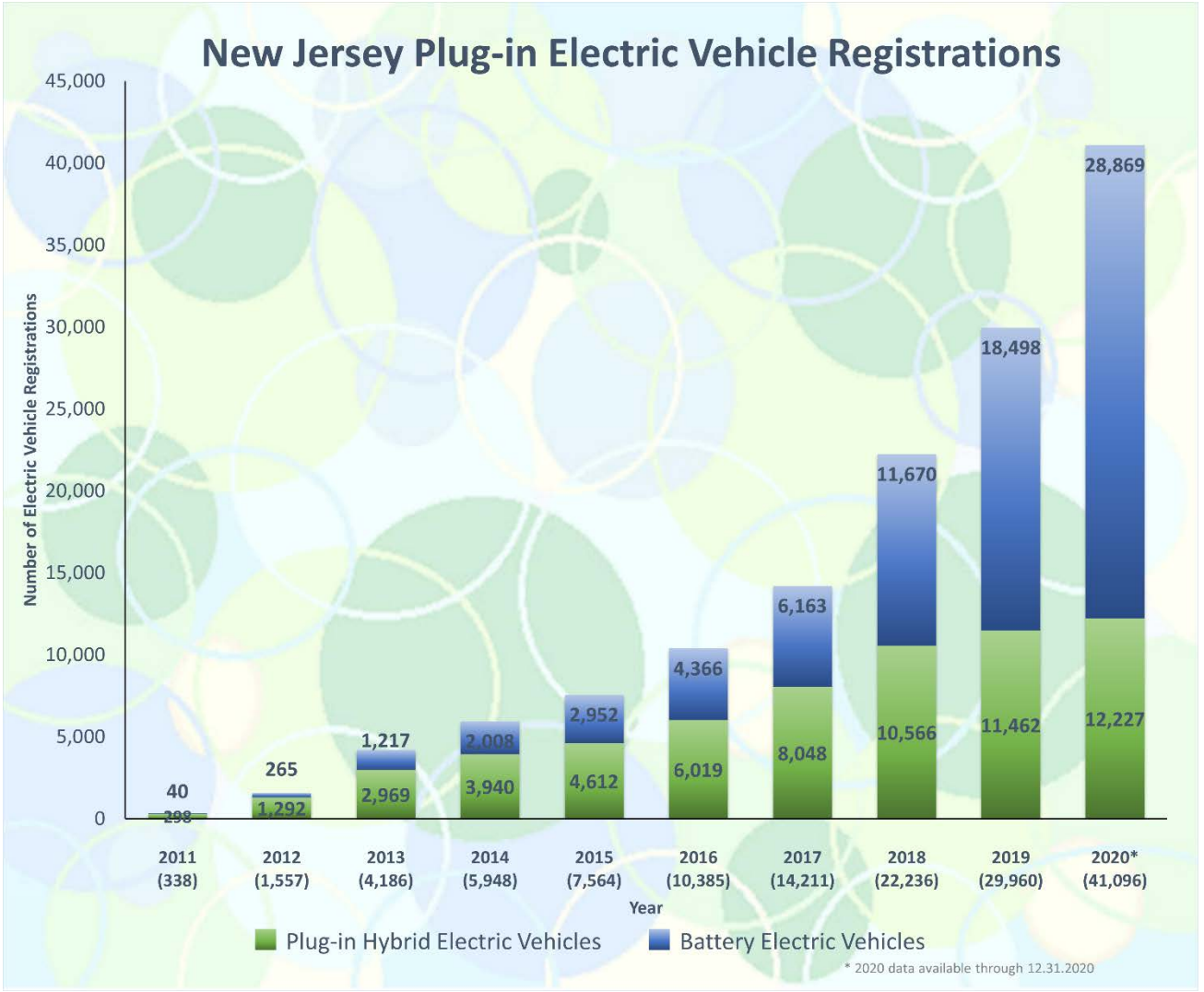


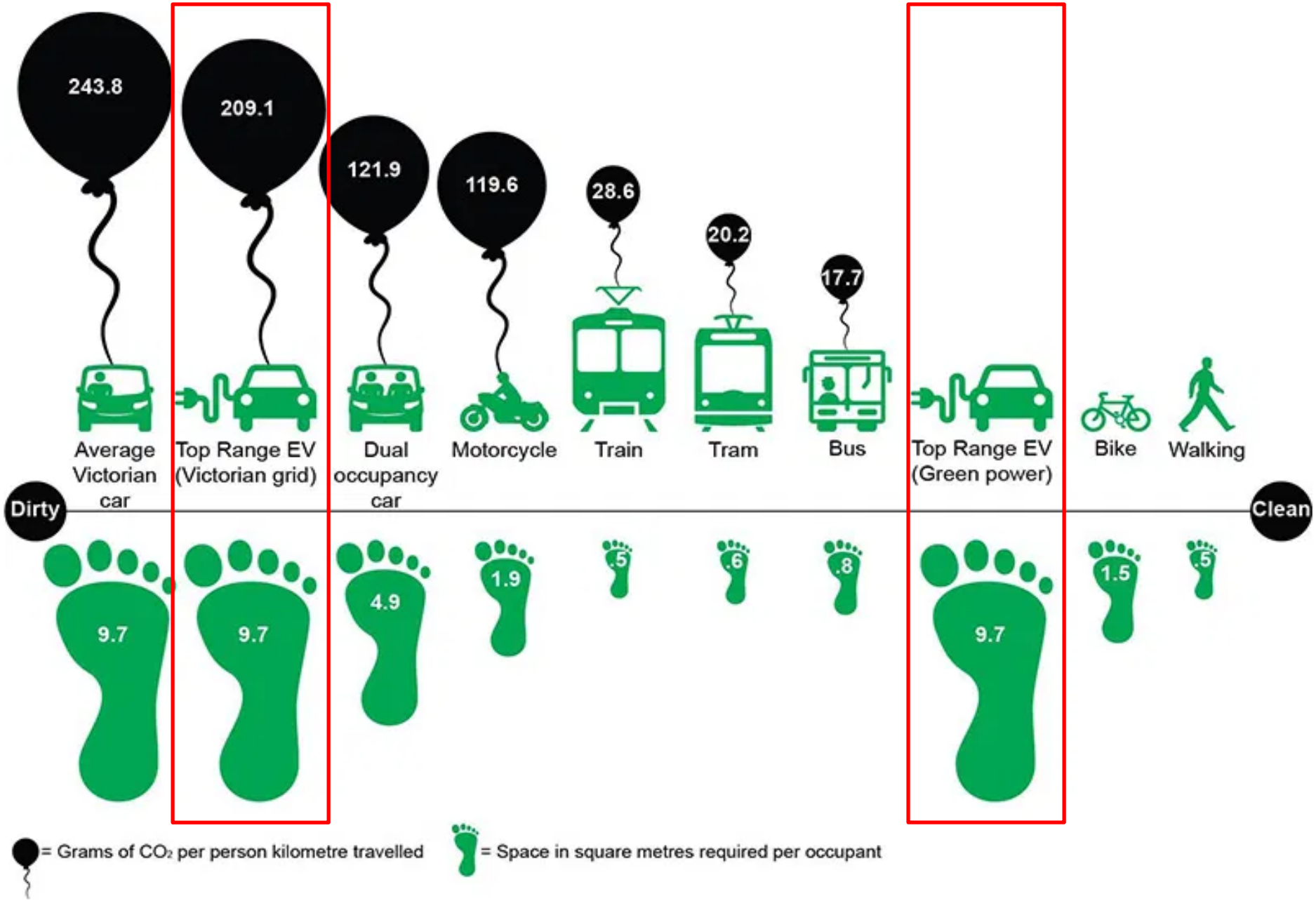


Source: NJDEP

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.

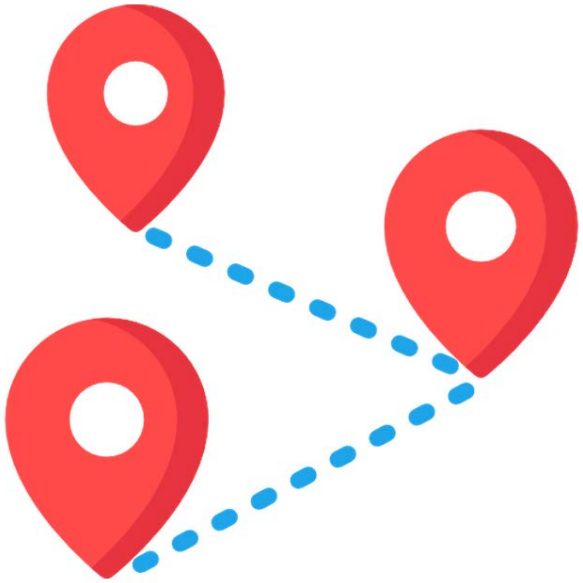
Carbon Neutral. Reduce energy use and emissions of all kinds by facilitating a transition to CO2-neutral transportation.

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

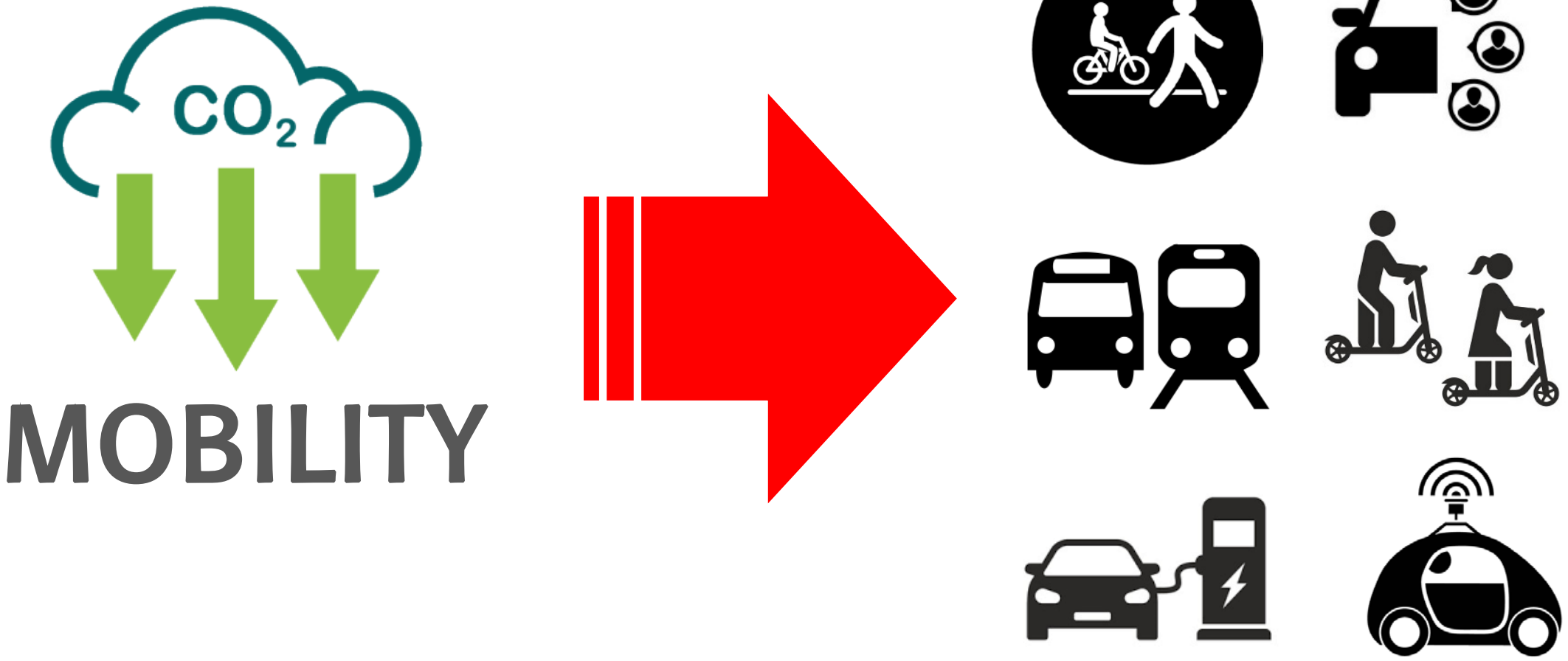
Redundancy

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

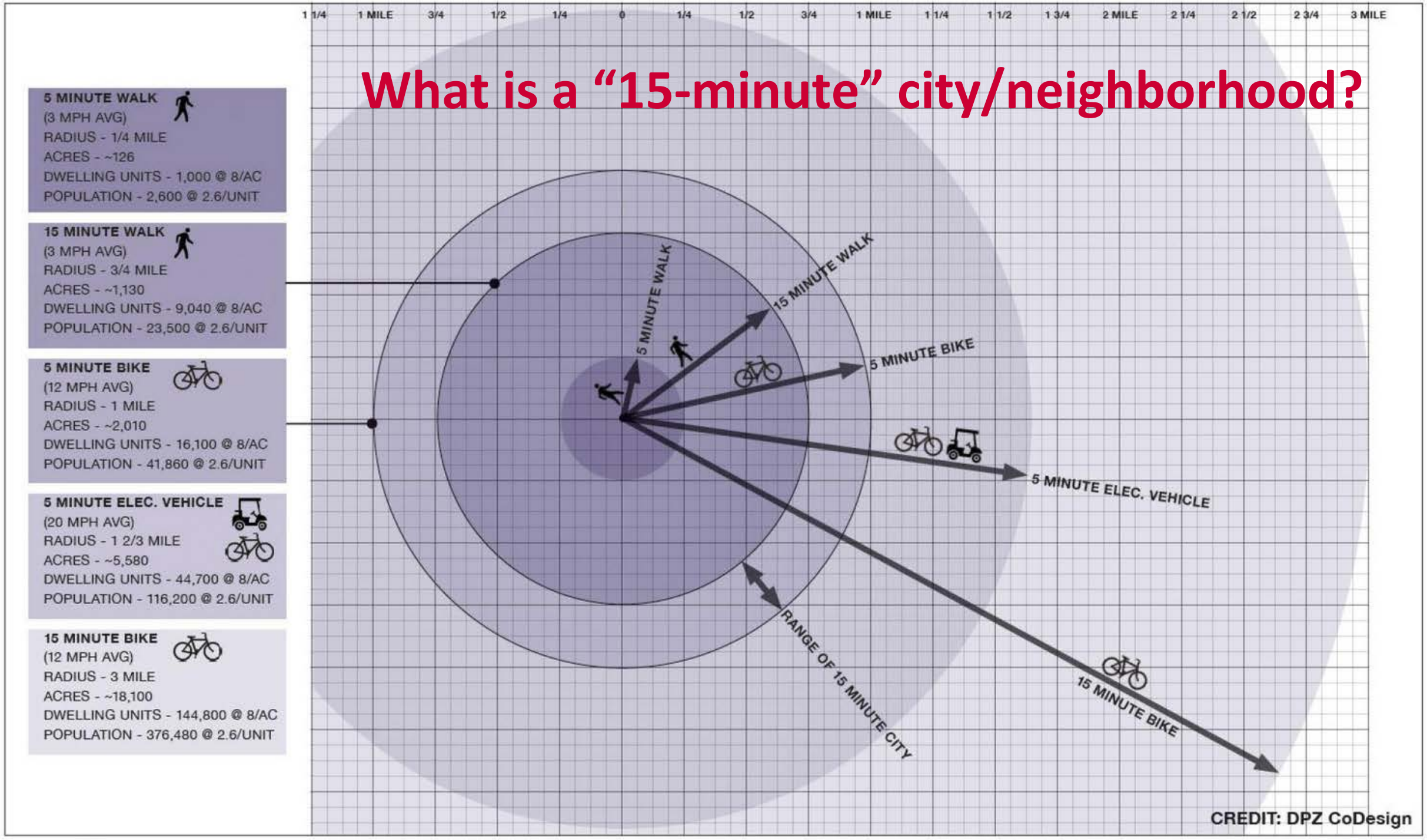
"15-minute" City/Neighborhood

Leading Practice Examples

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

Source: https://www.ft.com/content/c1a53744-90d5-4560-9e3f-17ce06aba69a

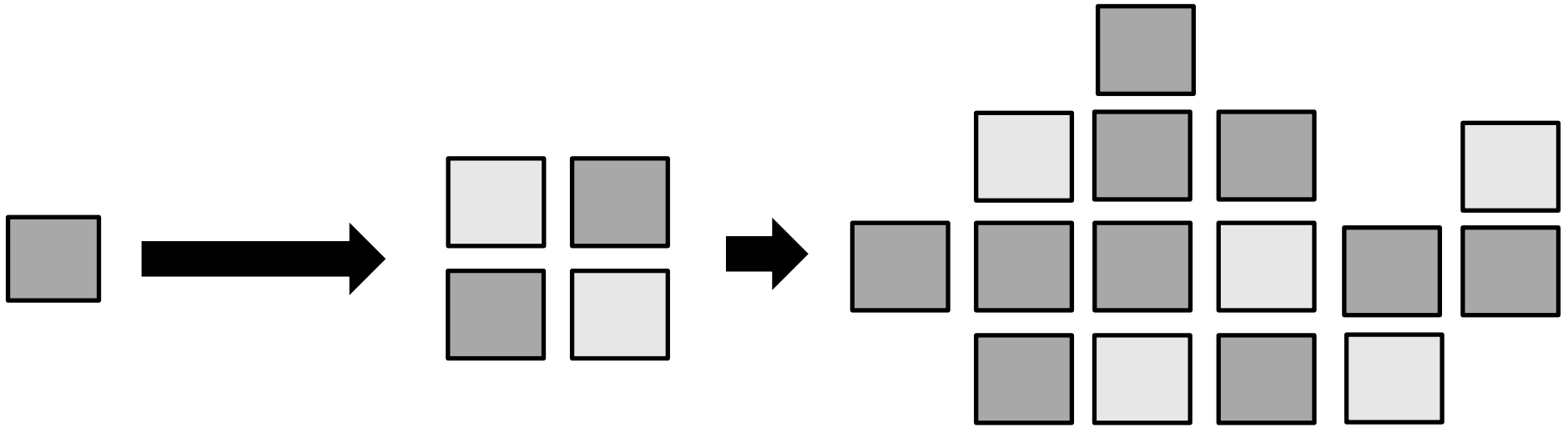
What is a “15-minute” city/neighborhood?



Key relationships

People Places Connections

Neighborhood Community Region

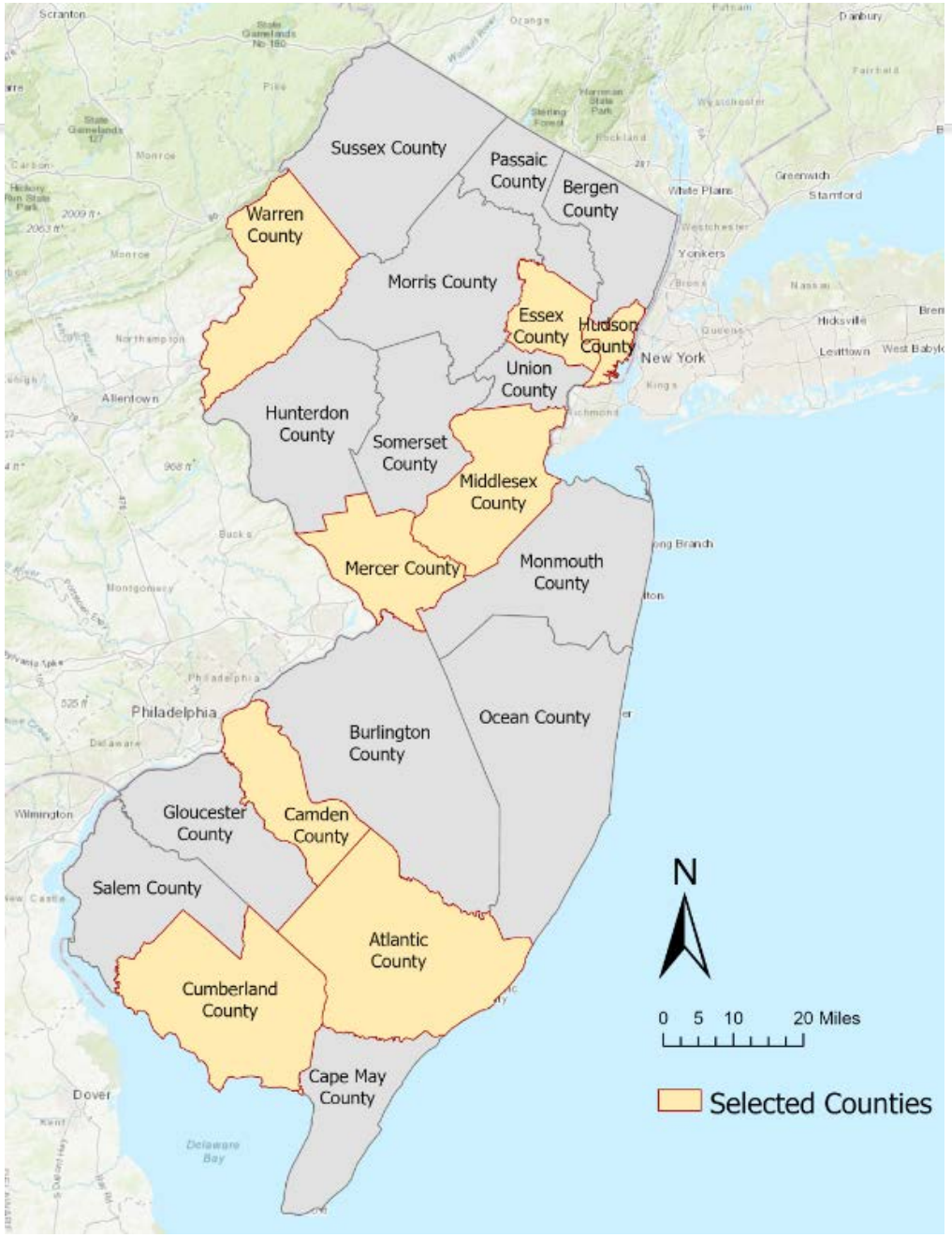


Work Plan

PHASE 1 – Exploring key concepts, desktop analysis, looking toward the future (Mar 2021 to Feb 2022)	Activities: • 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)	Activities: • 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

HUDSON COUNTY

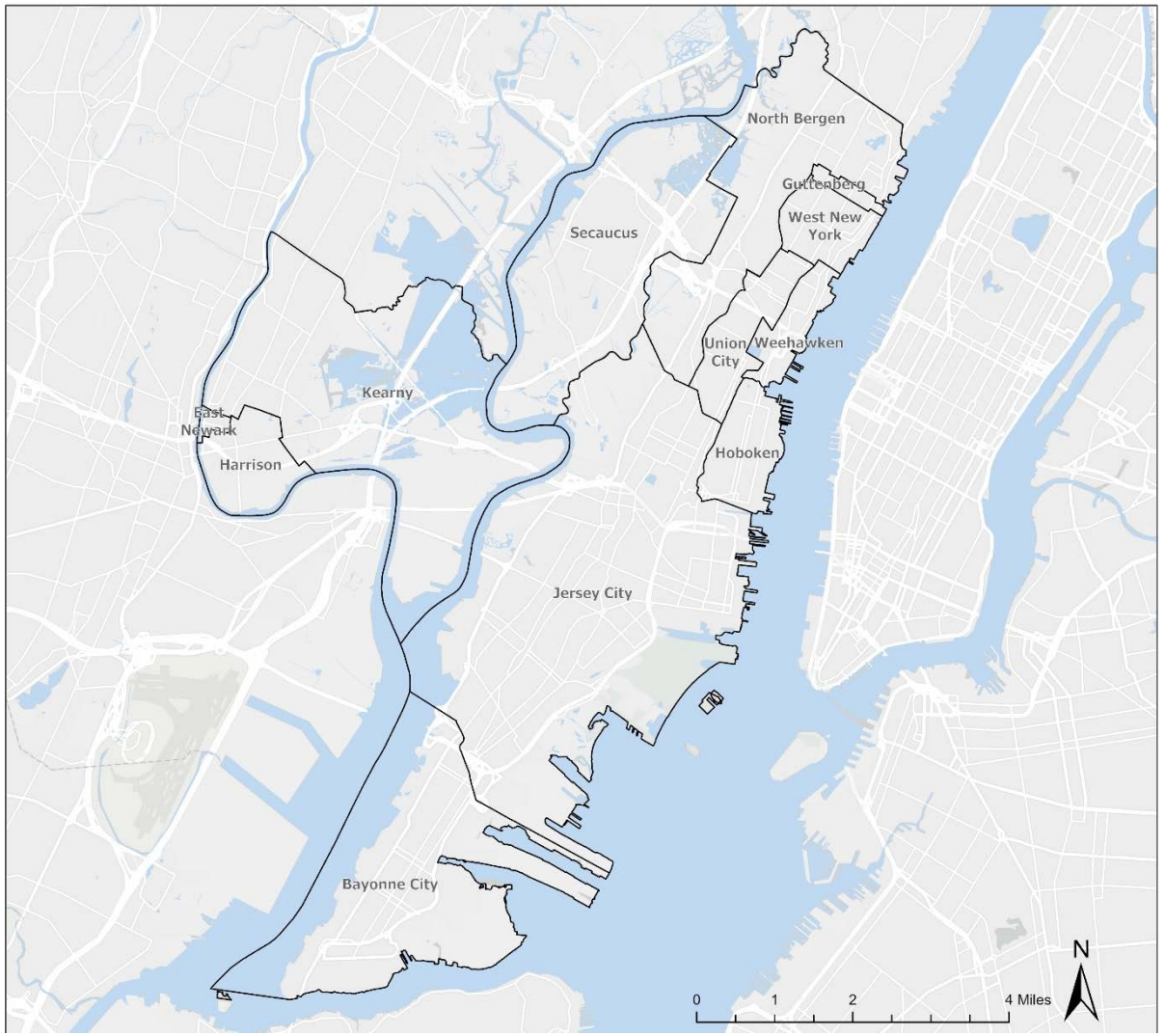
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PEOPLE

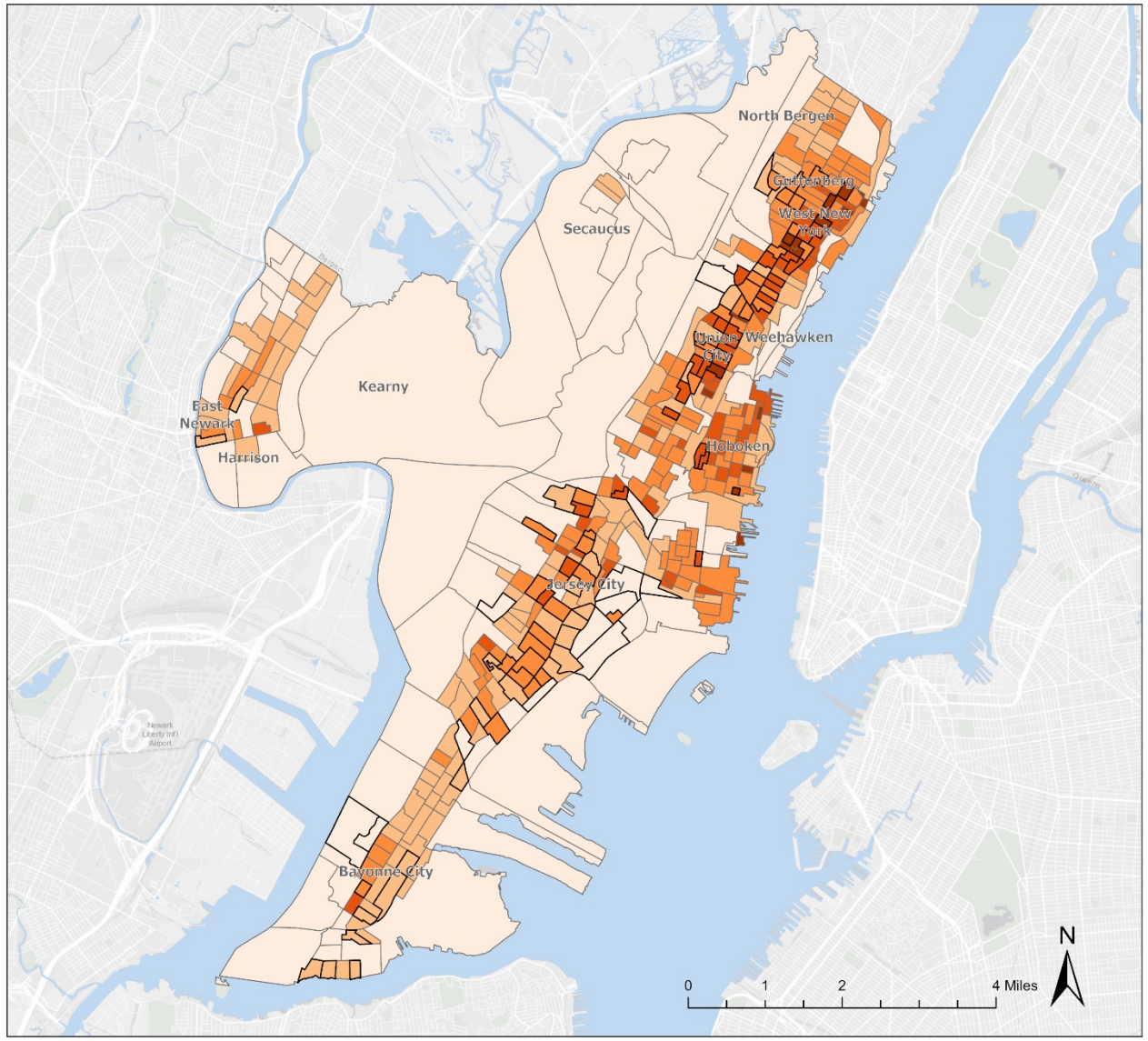
County at a glance

A mix of small towns, urban centers and rural communities

- 46.19 square miles
- 12 Municipalities
- Over 670,000 residents
- County Seat: Jersey City



Population



Population Density

Population per sq mile

- 0 - 16,530
- 16,540 - 34,540
- 34,550 - 54,940
- 54,950 - 88,650
- 88,660 - 133,200
- Low income block group

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

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by Alan M. Voorhees Transportation Center

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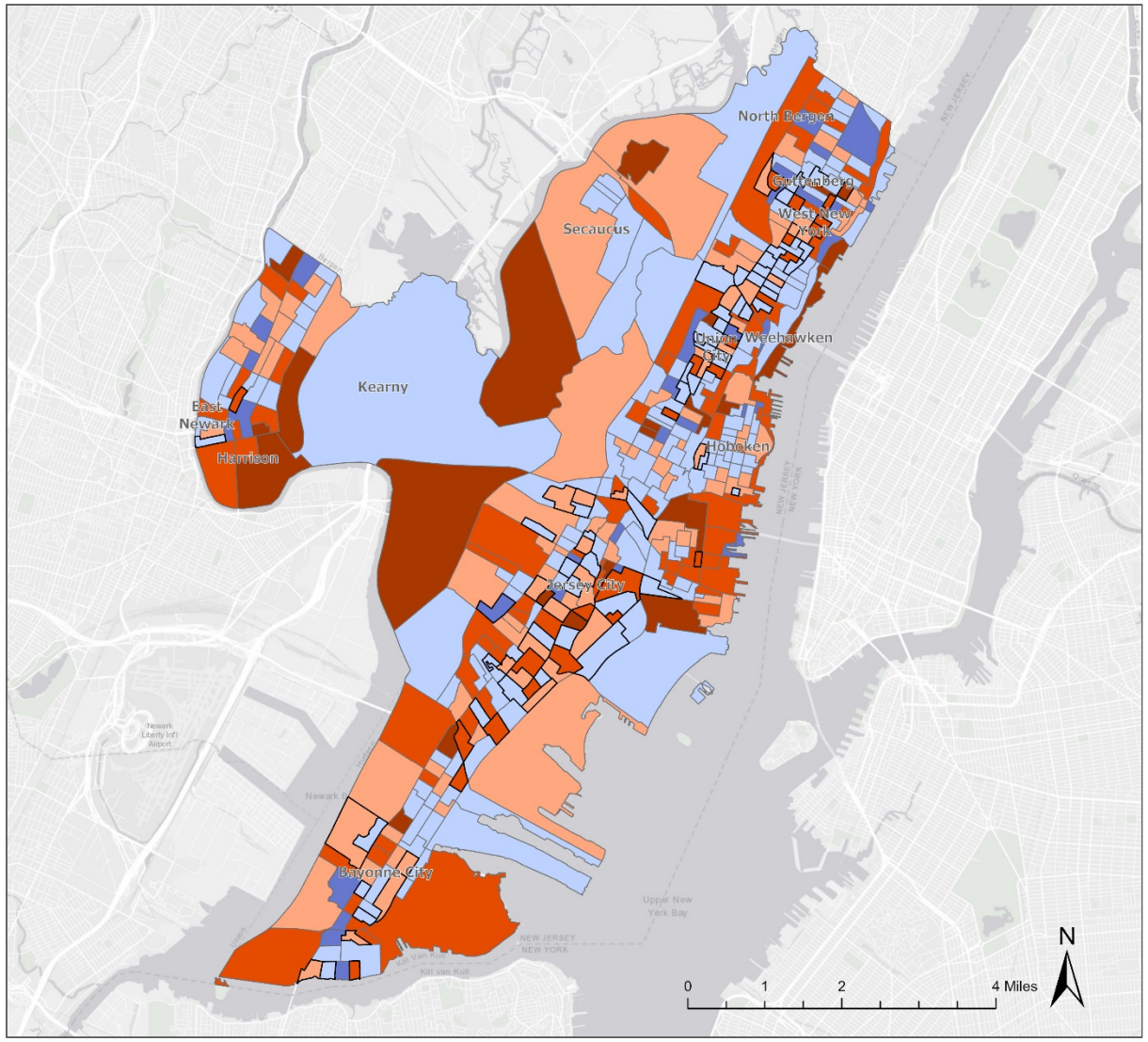
Change in Population : 2014-2019



Population Change

Population change

- -100% - -32.17%
- -32.16% - 0%
- 0.01% - 18.16%
- 18.17% - 67.09%
- 67.1% - 199.57%
- Low income block group

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

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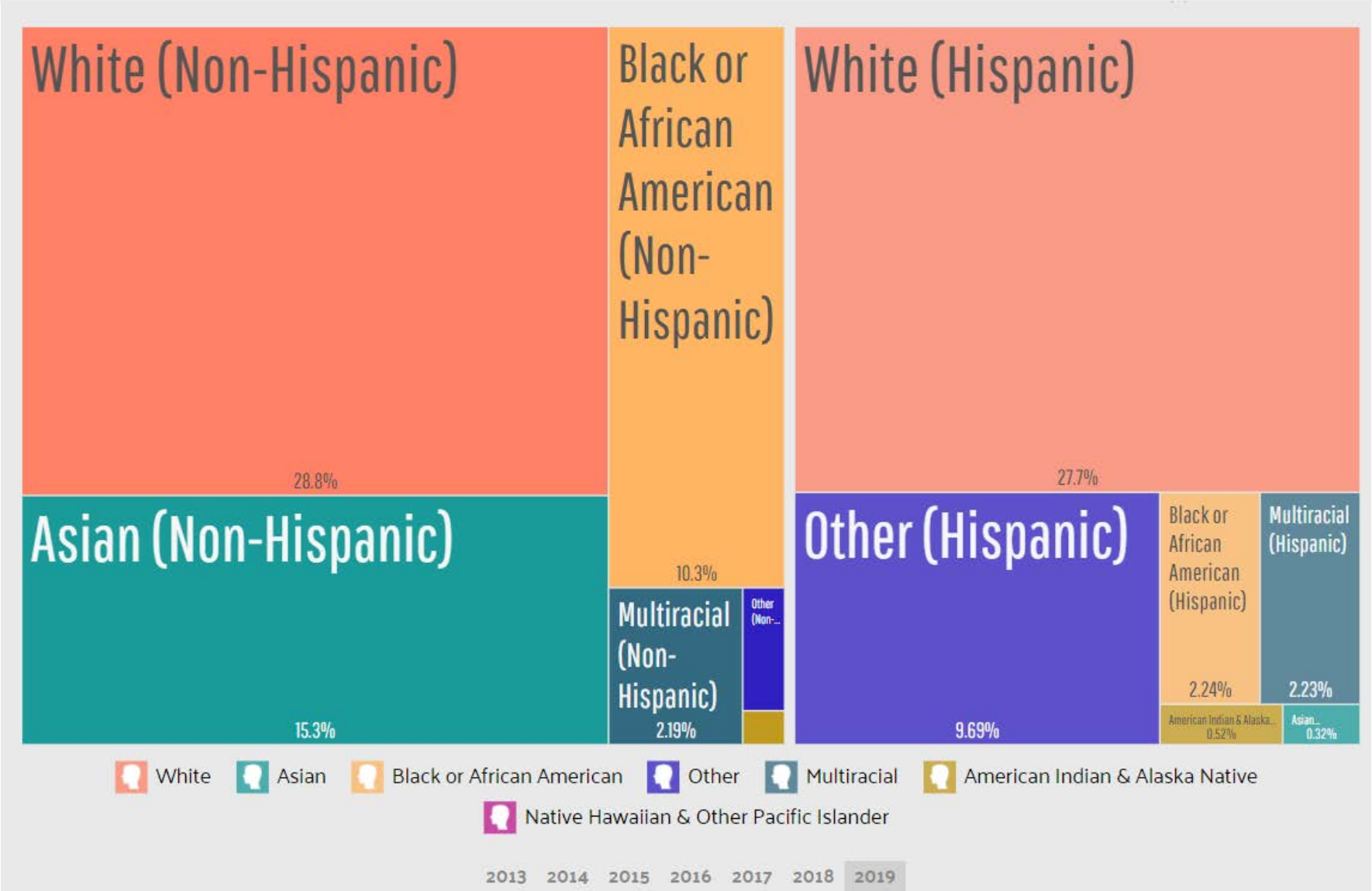
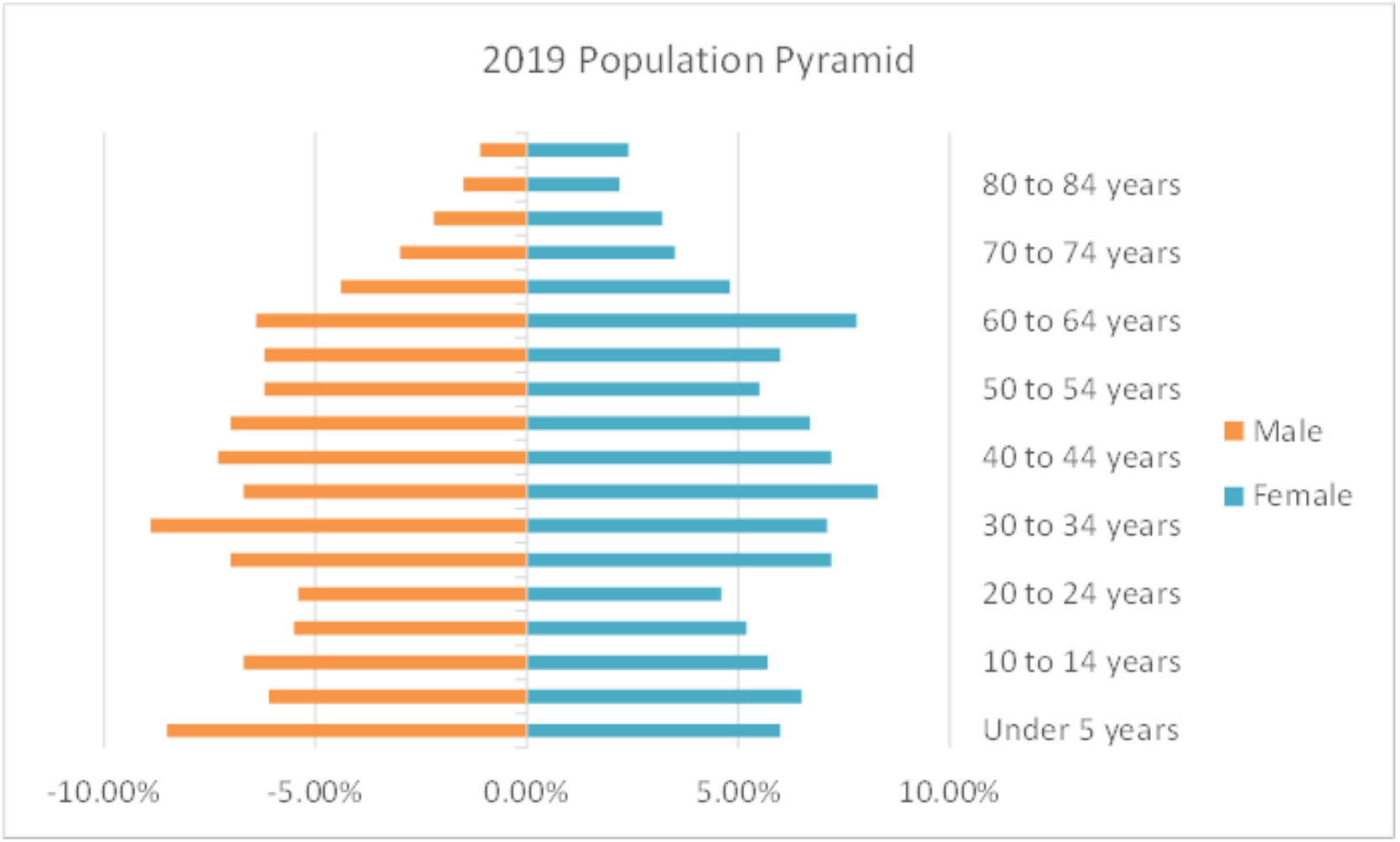
Race and Ethnicity - 2019



Data source: US Census Bureau ACS 1-year Estimate. Graphic credit: Data USA

Age & Gender

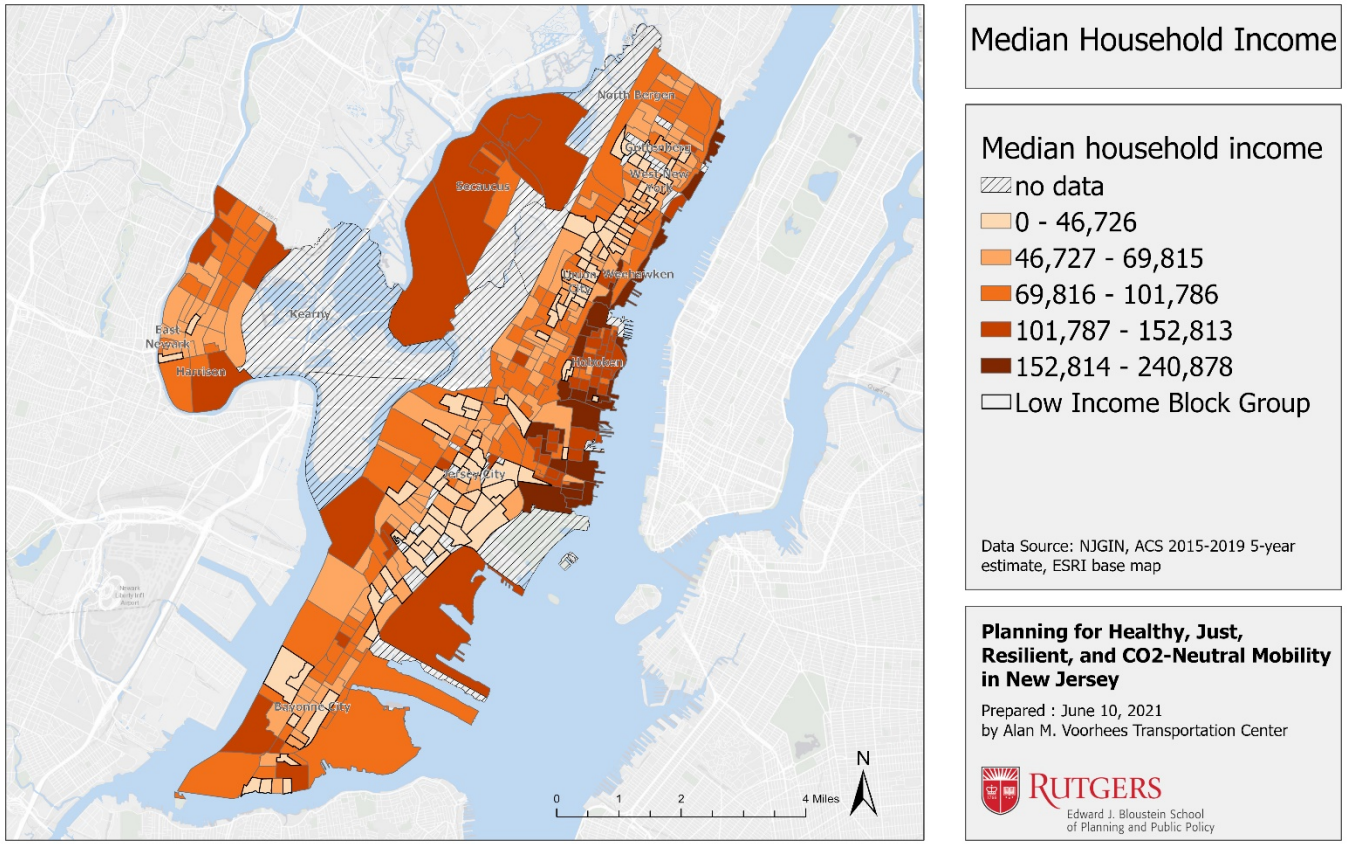


Median Age: 35.5 years old

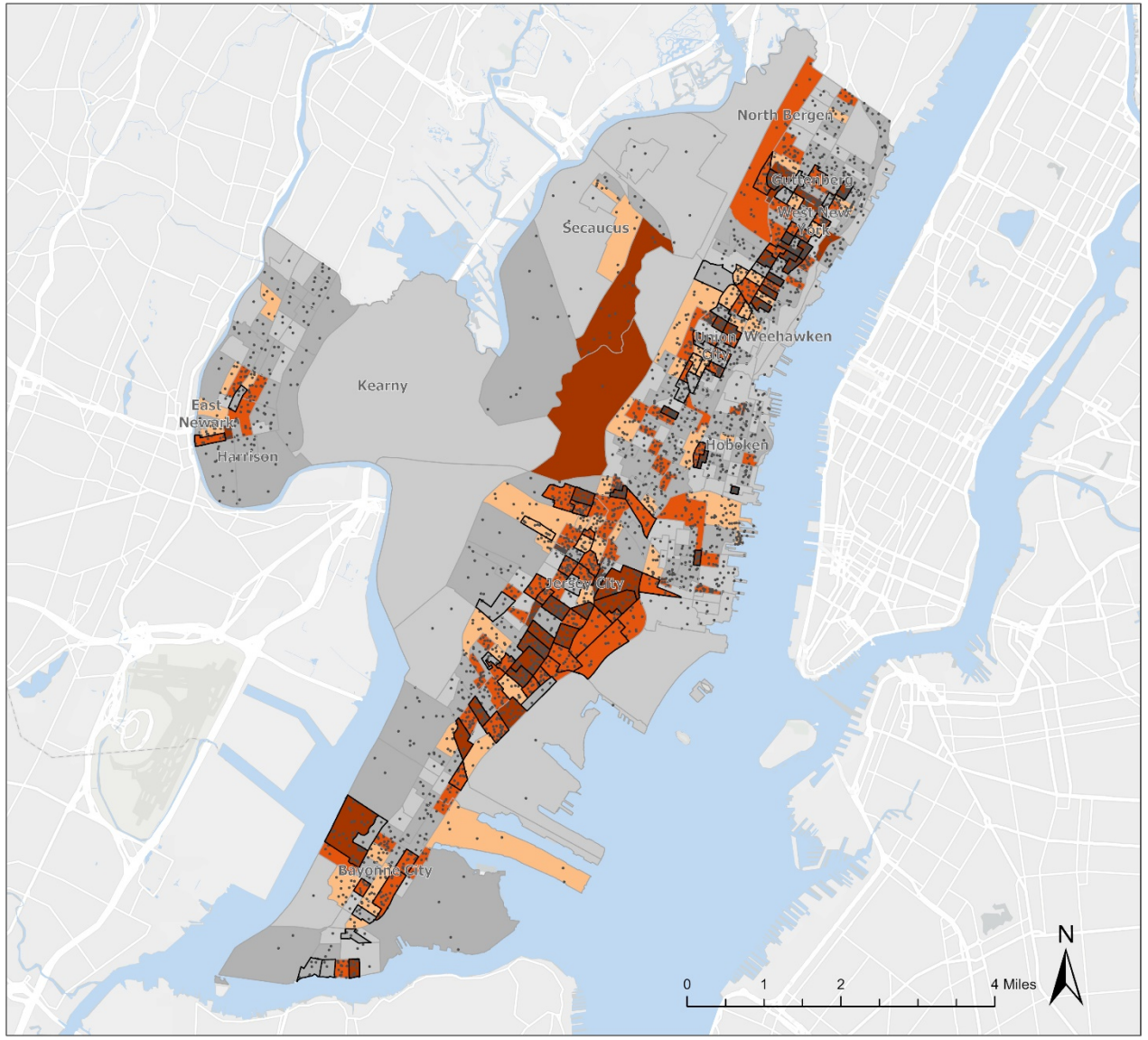
Household Income

County Average Median Household Income: $78,808

AHPNJ Region 1: 2020 Affordable Housing Income Limits. Region 1: Bergen, Hudson, Passaic, and Sussex	Income Limit (4 person Household)	
	Very Low	$28, 786
	Low	$47,976
	Moderate	$76,761
	Median	$95,952



Households living in poverty



Low Income Households

Percent of households under poverty by block group

- 0% - 5.27%
- 5.28% - 14.99%
- 15% - 19.06%
- 19.07% - 30.09%
- 30.1% - 59.09%

County average: 14.99%

1 Dot = 10

- Households under poverty
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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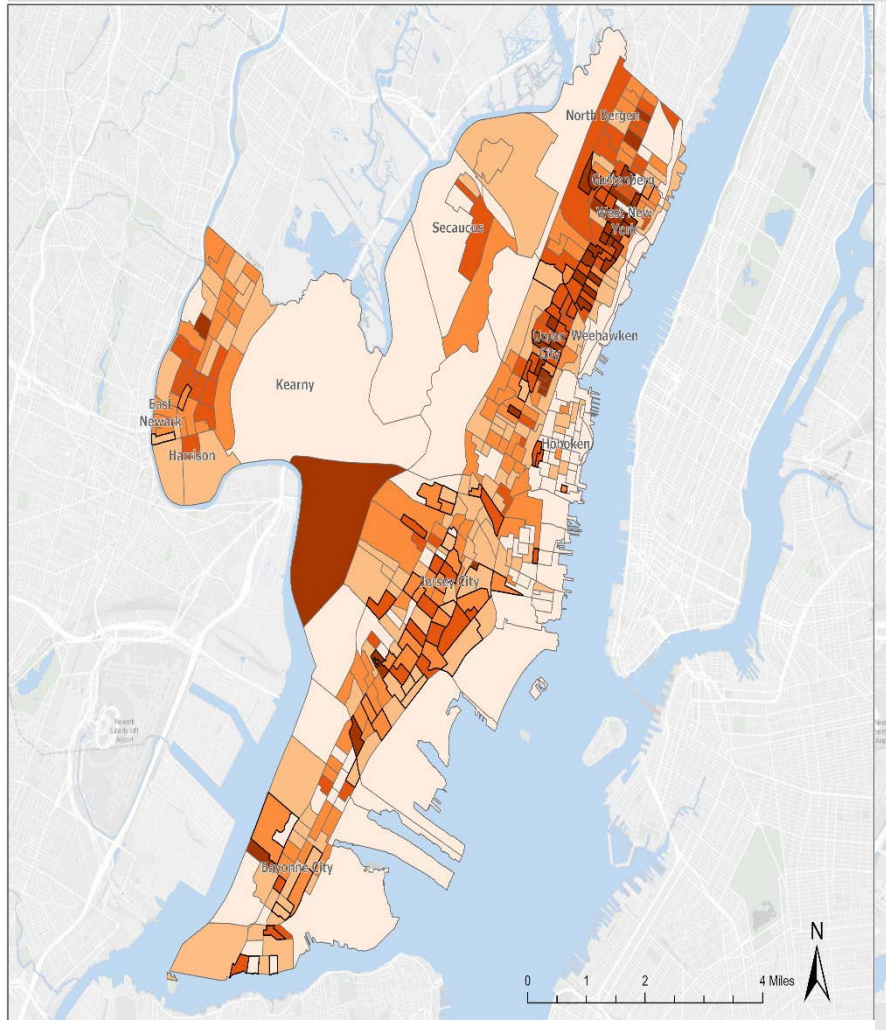
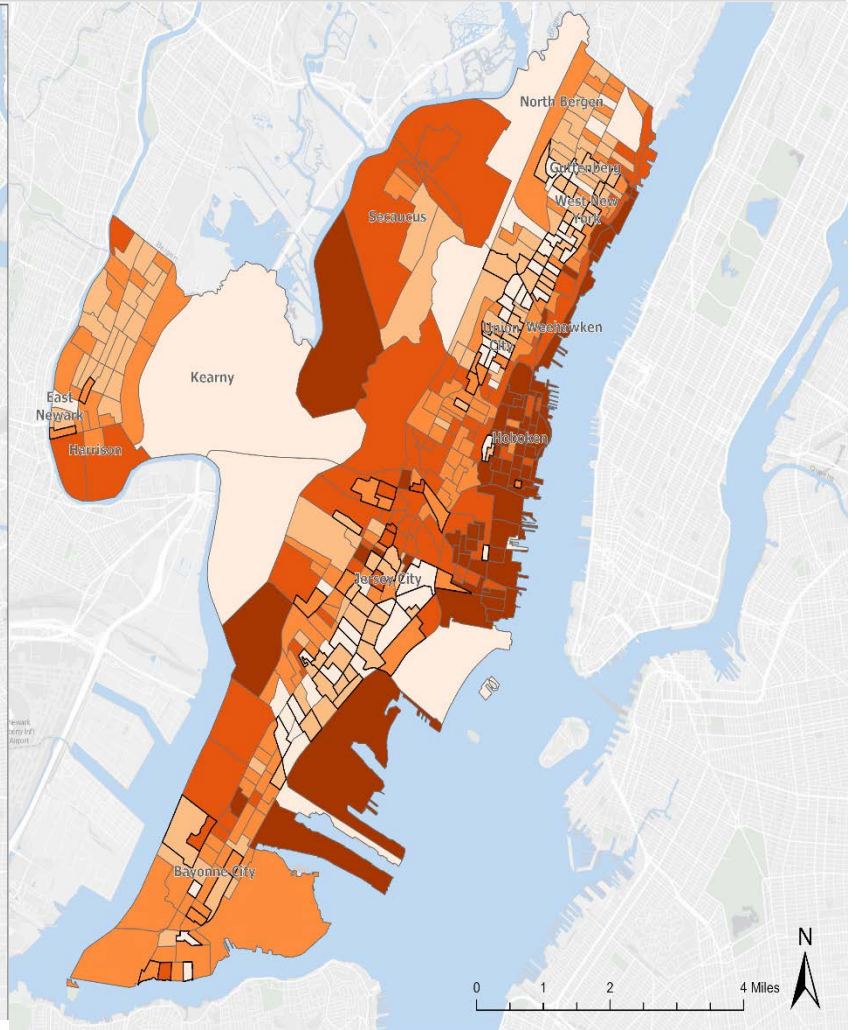
Educational Attainment

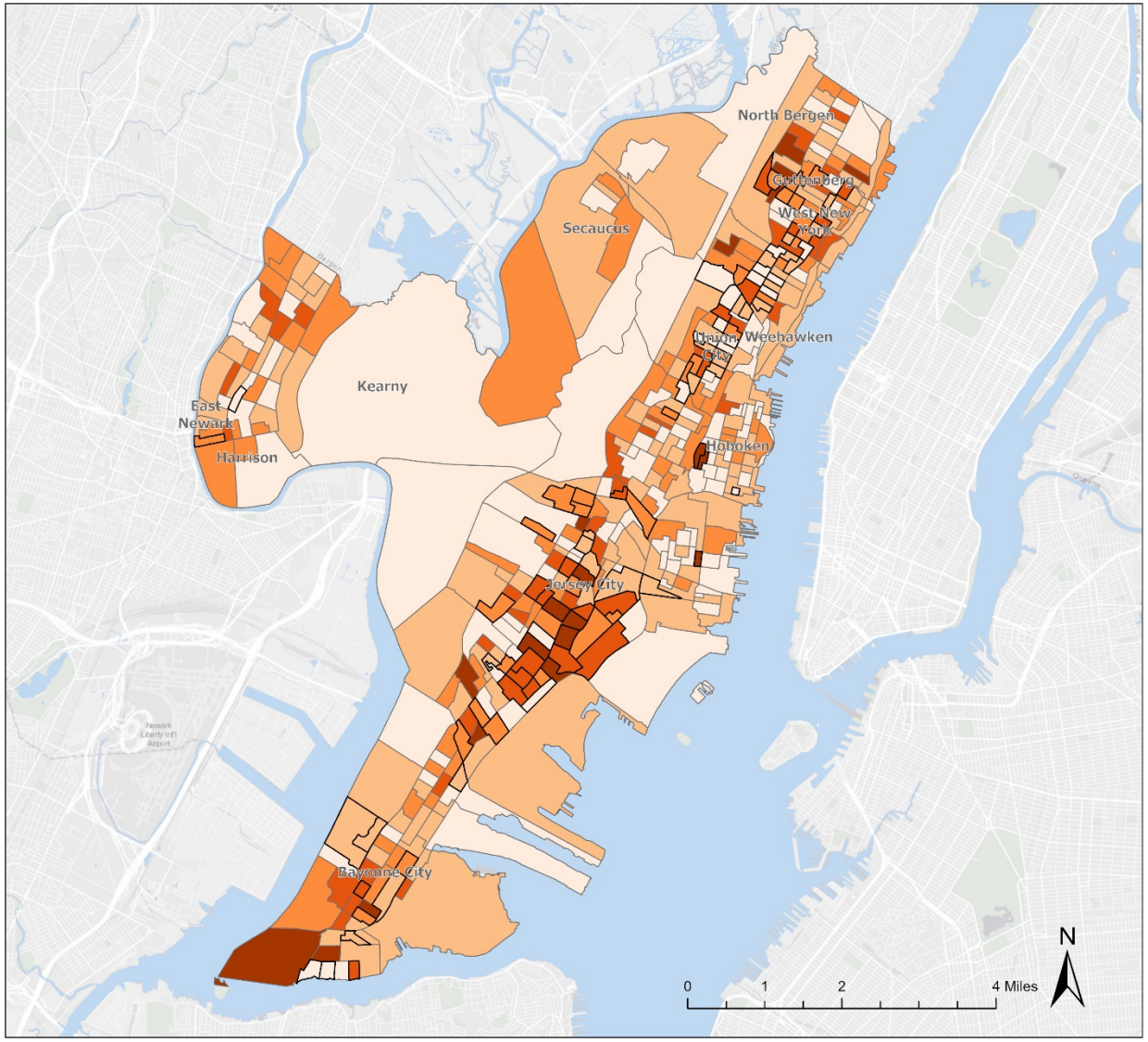
25 years and older w/ less than Bachelor's Degree	25 years and older w/ Bachelor's Degree or higher
57.7%	42%





Educational Attainment	Percentage
Less than H.S Diploma	15.2%
H.S Diploma or equivalent	25.15%
Some College	12.80%
Associates Degree	4.58%
Bachelor's Degree or higher	42%

Unemployment Status



Employment Status

Unemployment rate

- 0% - 2.14%
- 2.15% - 5.42%
- 5.43% - 9.04%
- 9.05% - 14.29%
- 14.3% - 32.38%
- Low income block group

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

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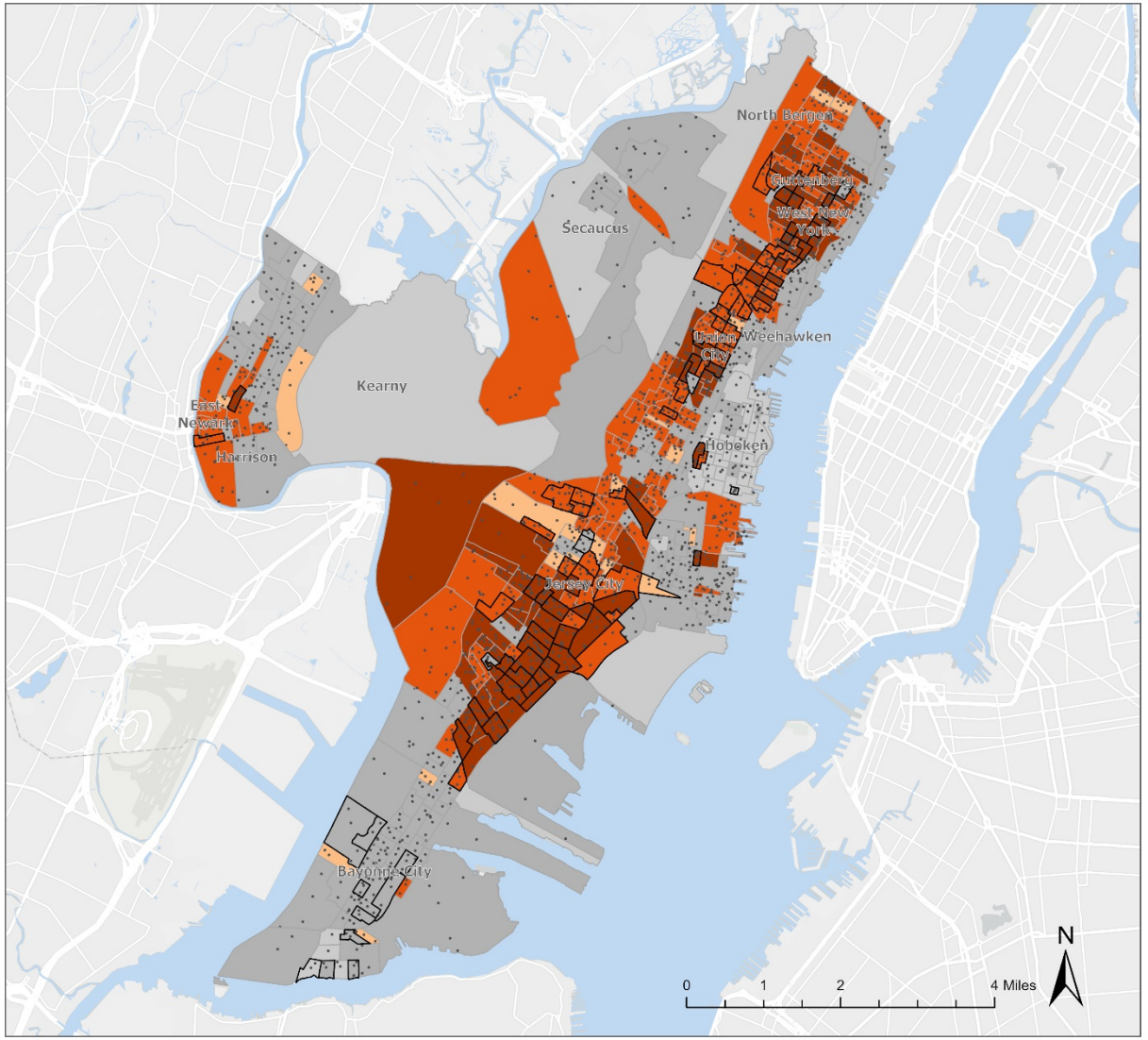
Indicators of Potential Disadvantage

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

Indicators of Potential Disadvantage



Racial Minority

Percent of minority population by block group

- 0% - 34.12%
- 34.13% - 71.21%
- 71.22% - 73.81%
- 73.82% - 86.9%
- 86.91% - 100%

County average: 71.21%

1 Dot = 200 Persons of racial minority

Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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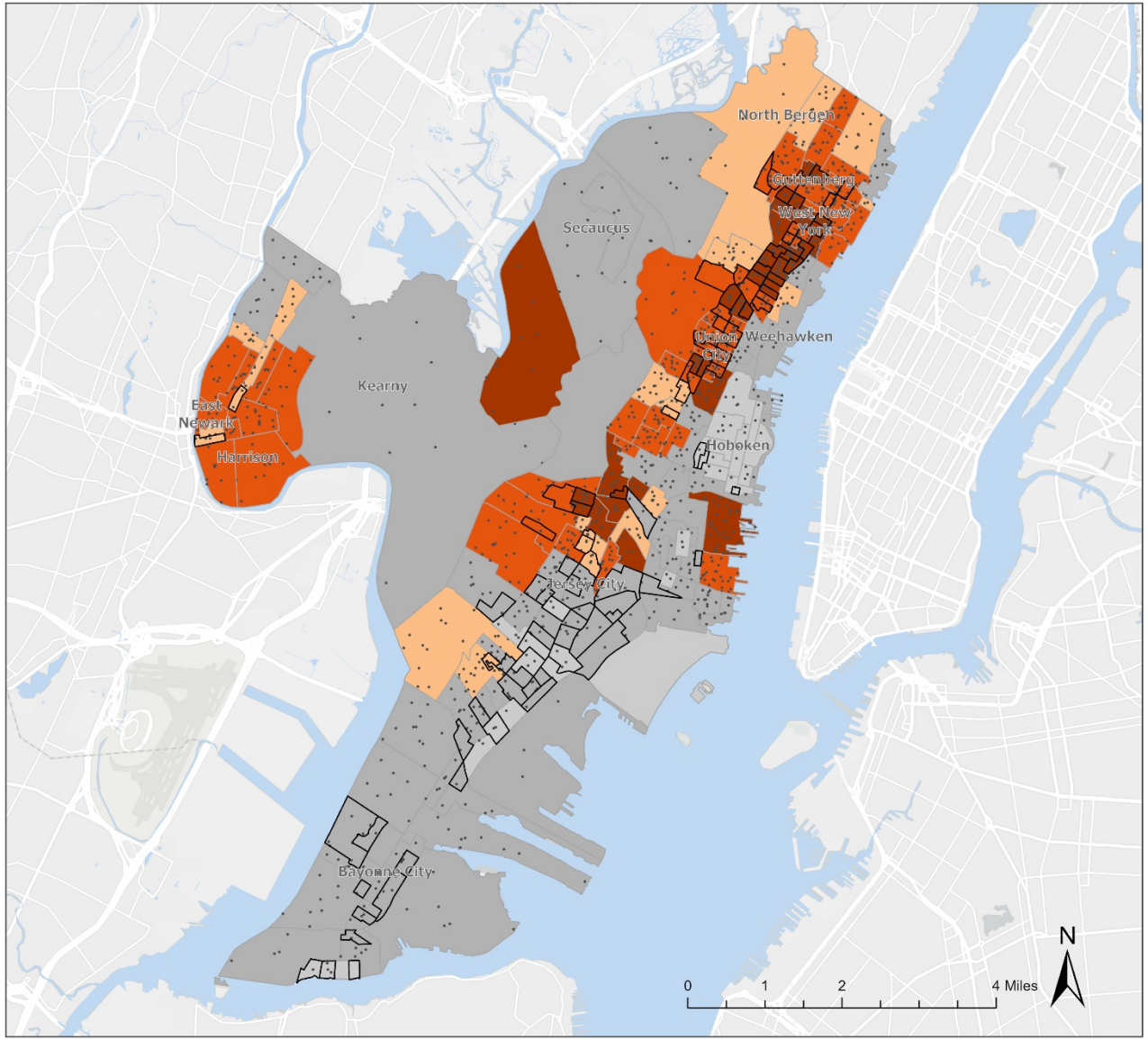

Foreign-born Population

Percent of foreign-born population by census tract

- 0% - 22.97%
- 22.98% - 43.17%
- 43.18% - 48.45%
- 48.46% - 58.89%
- 58.9% - 72.65%

County average: 43.17%

1 Dot = 200

- Foreign-born population
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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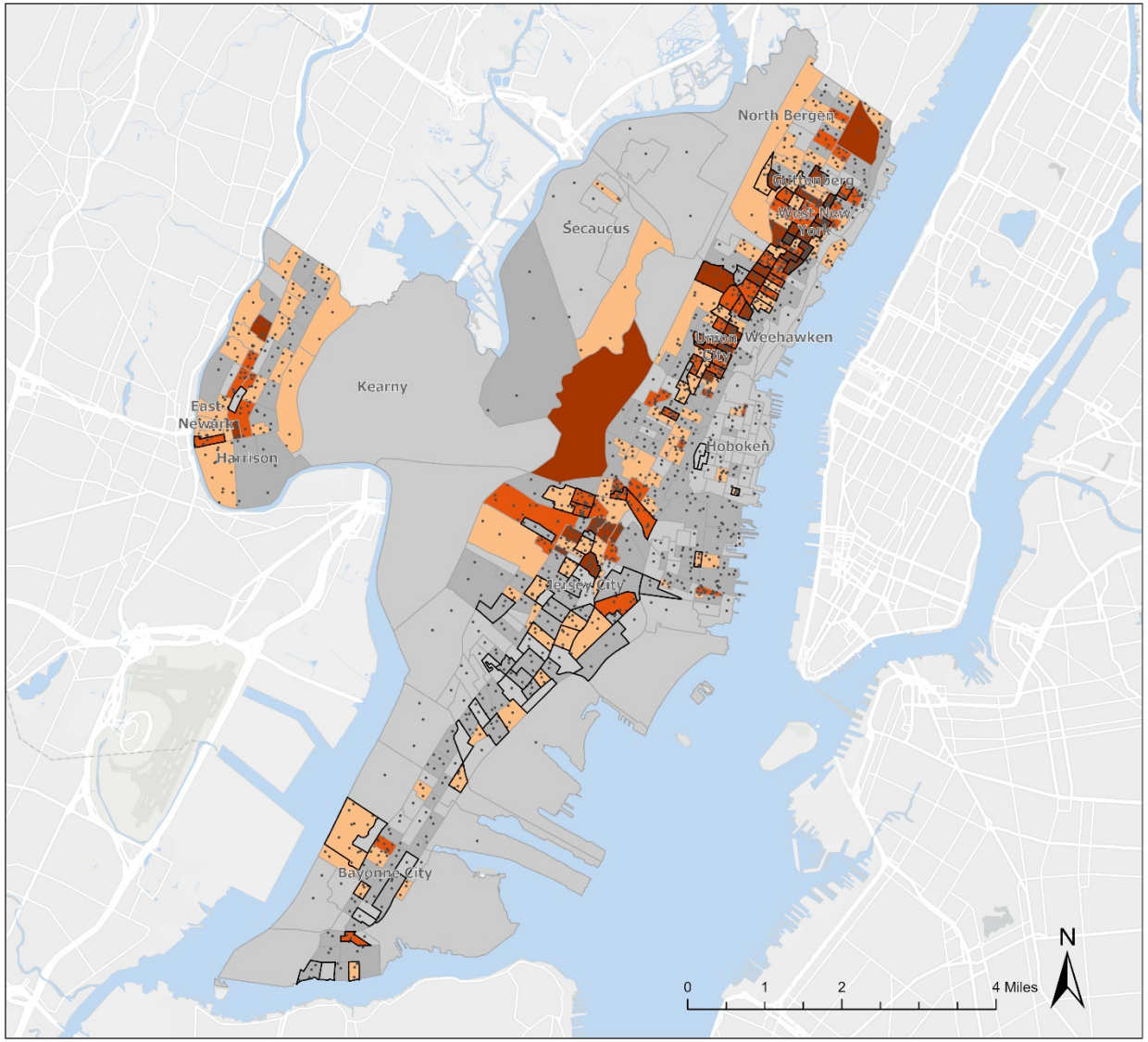

Limited English Proficiency

Percent of households with limited English proficiency

- 0% - 6.55%
- 6.56% - 14.97%
- 14.98% - 24.75%
- 24.76% - 36.91%
- 36.92% - 67.45%

County average: 14.97%

1 Dot = 20

Households with limited English proficiency

Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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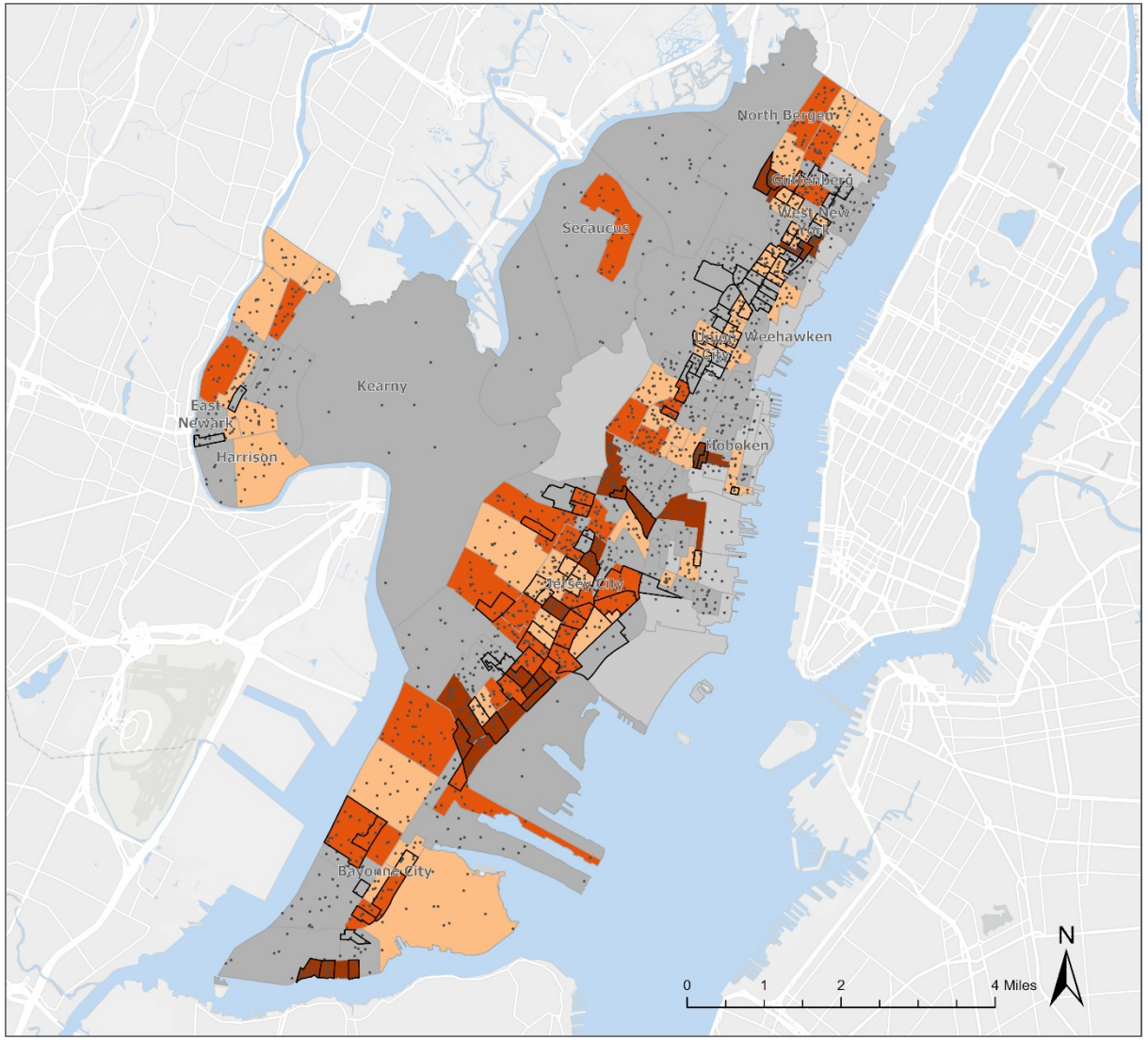
Indicators of Potential Disadvantage



Persons with Disability

Percent of persons with disability by census tract

- 0% - 4.01%
- 4.02% - 9.15%

County average: 9.15%

- 9.16% - 11.2%
- 11.21% - 14.64%
- 14.65% - 20.83%

1 Dot = 30

- Persons with disability
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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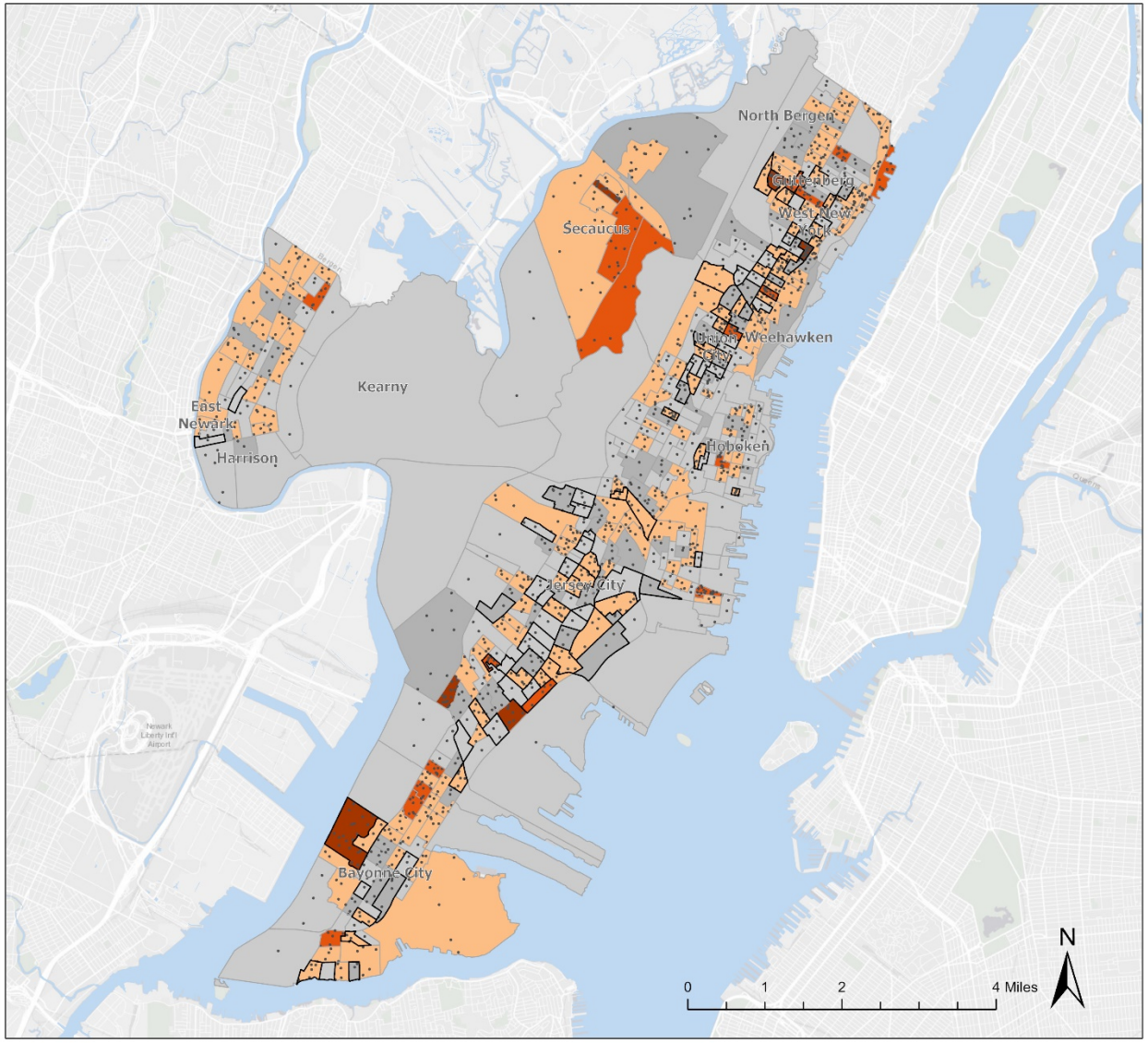
Indicators of Potential Disadvantage



Older Adults

Percent of older adults (75+) by block group

- 0% - 3.22%
- 3.23% - 5.05%
- 5.06% - 13.24%
- 13.25% - 21.13%
- 21.14% - 42.37%

County average: 5.05%

1 Dot = 20 olde radults (75+)

Low income block group

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

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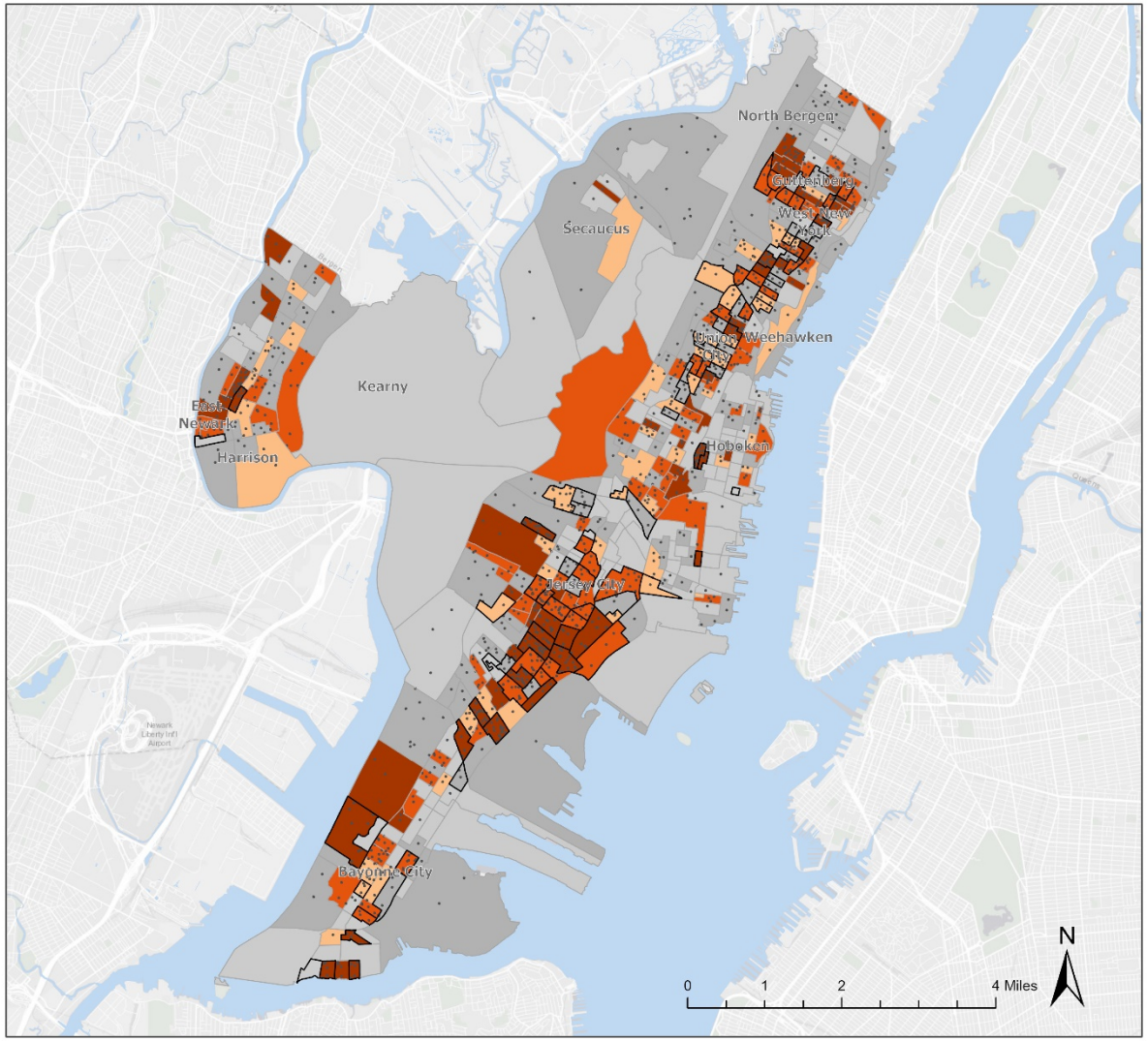
Indicators of Potential Disadvantage



Single Parent Family

Percent of single parent families by block group

- 0% - 11.22%
- 11.23% - 35.02%
- 35.03% - 45.21%
- 45.22% - 67.24%
- 67.25% - 100%

County average: 35.02%

1 Dot = 30

- Single parent family
- Low income block group

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

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Health Behaviors

Hudson is ranked in the lower middle range of counties in New Jersey (Lower 25%-50%)

Source: 2020 NJ County Health rankings

Health Behaviors	Hudson County	NJ
Adult Smoking	15%	13%
Adult obesity	24%	27%
Food environment index	8.7	9.4
Physical inactivity	29%	27%
Access to exercise opportunities	100%	95%
Excessive drinking	18%	16%
Alcohol-impaired driving deaths	15%	22%

Physical Environment	Hudson County	NJ
Air pollution-particulate matter	9.6	98.6
Drinking water problems	No	-
Severe housing problems	28%	21%
Driving alone to work	37%	71%
Long commute-driving alone	53%	43%

Health Outcomes

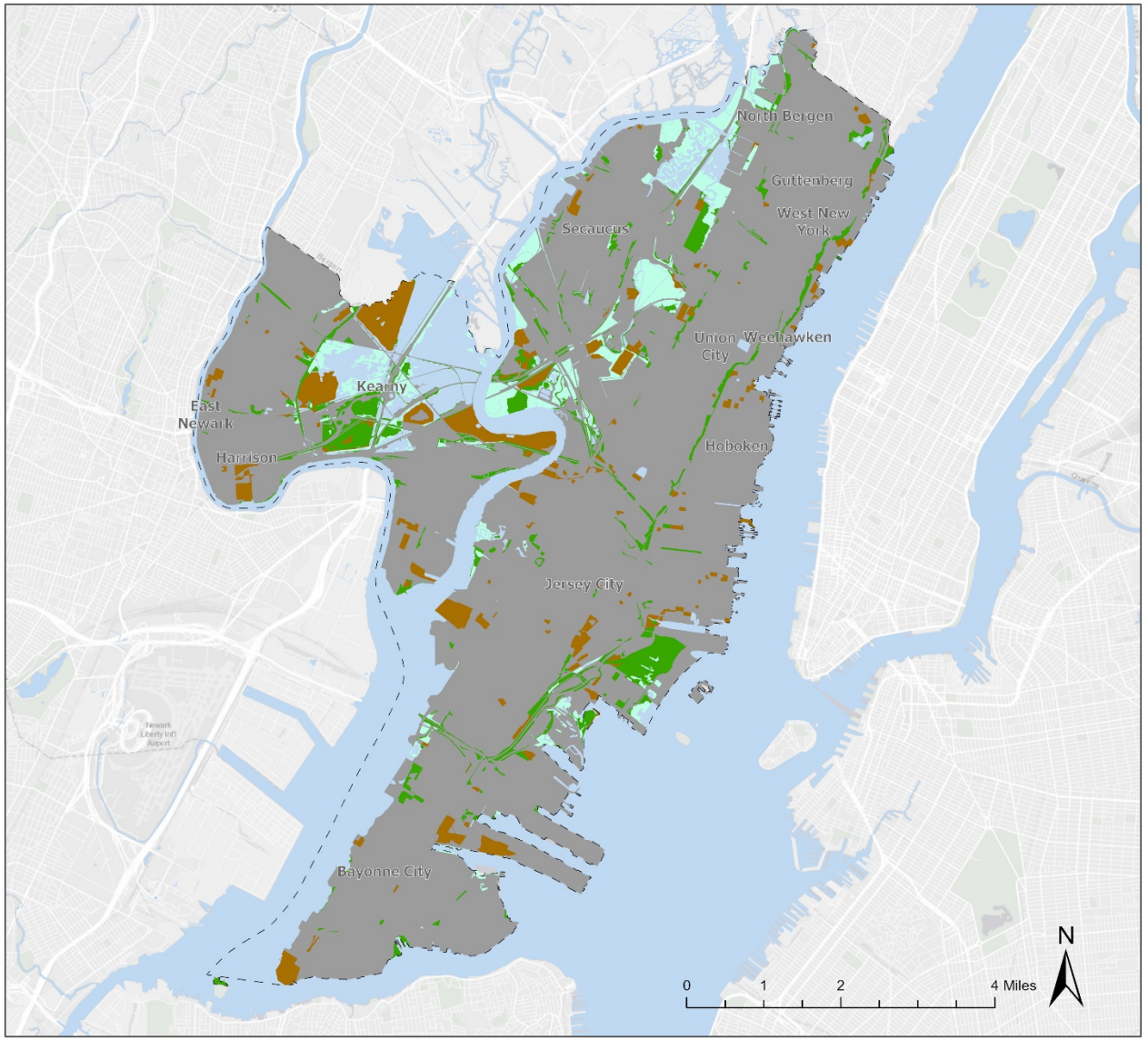
Hudson is ranked in the higher middle range of counties in New Jersey (Higher 50%-75%)

Quality of Life	Hudson County	NJ
Poor or Fair Health	20%	16%
Poor Physical Health Days	4.1	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
- Urban
- Barren Land
- Forest
- Water
- Wetlands

Data Source: NJGIN, ESRI base map

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

Prepared : June 10, 2021
by Alan M. Voorhees Transportation Center

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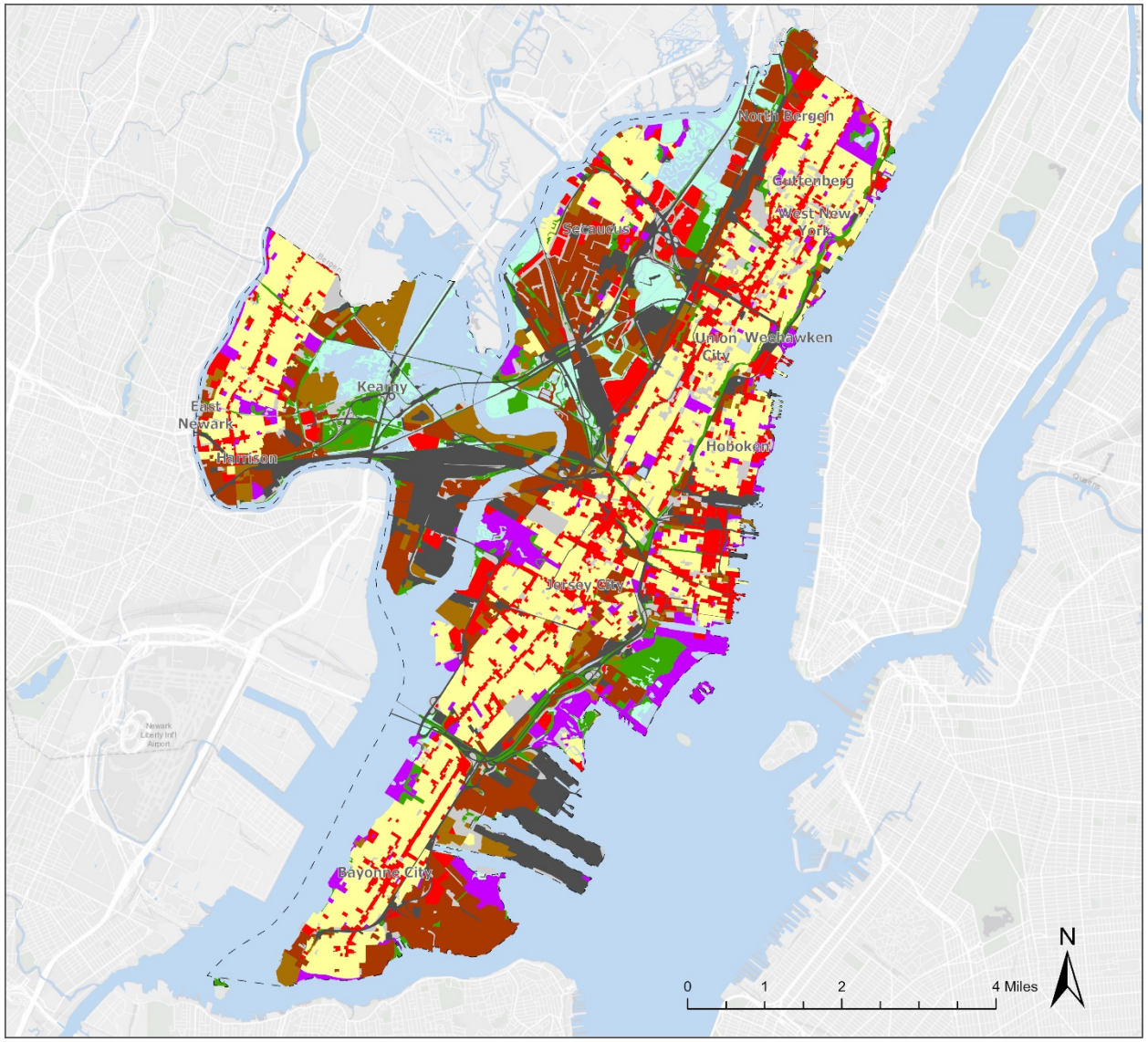
Urban Land Use



Land Use

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

Other Land Uses
- Barren Land
- Forest
- Water
- Wetlands

Data Source: NJGIN, ESRI base map

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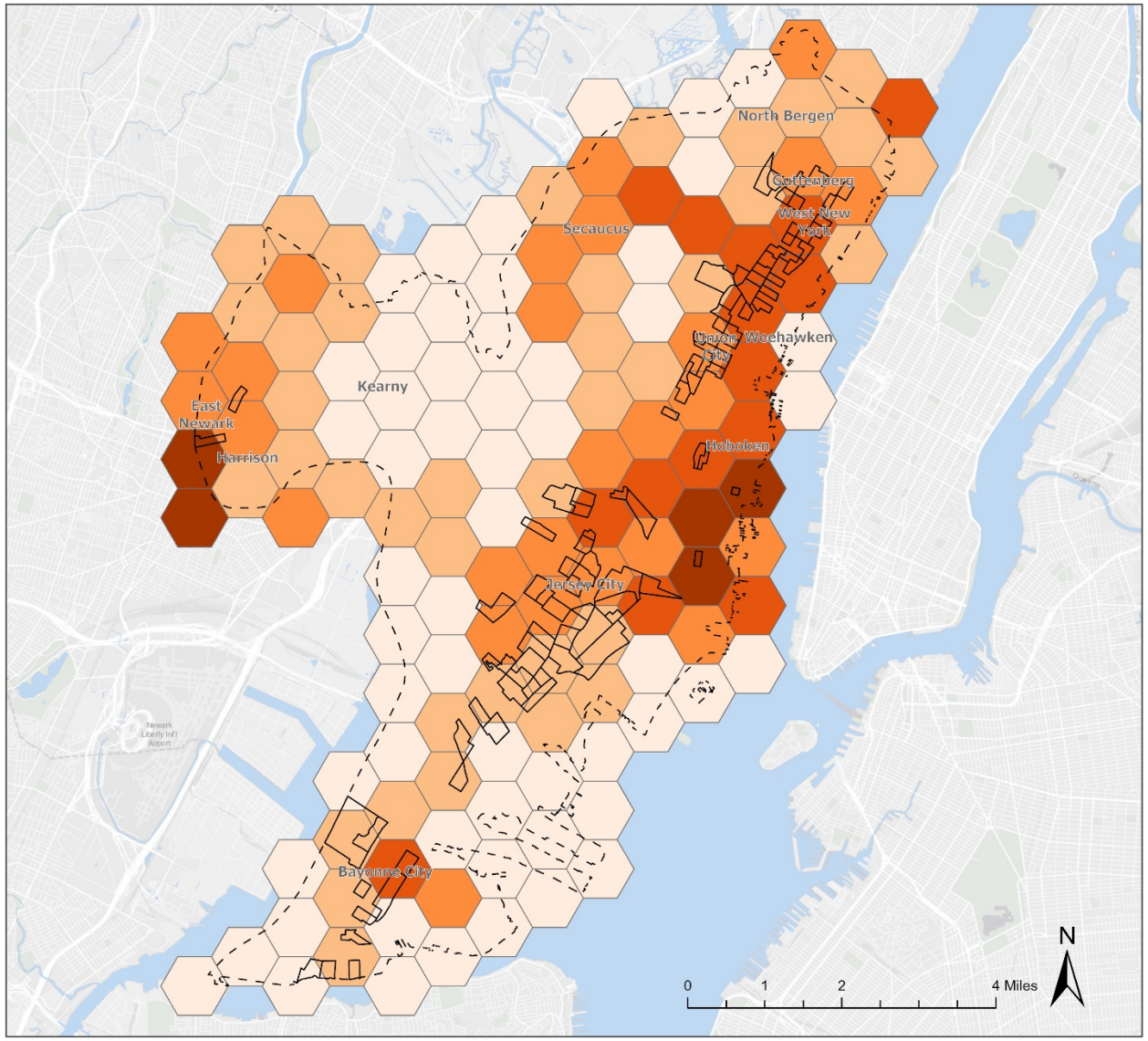
Employment Density



Employment Density

of employees per sq mile

- 0 - 1,398
- 1,399 - 3,862
- 3,863 - 6,944
- 6,945 - 14,960
- 14,961 - 53,542
- Low income block group

Data Source: NJGIN, ESRI base map

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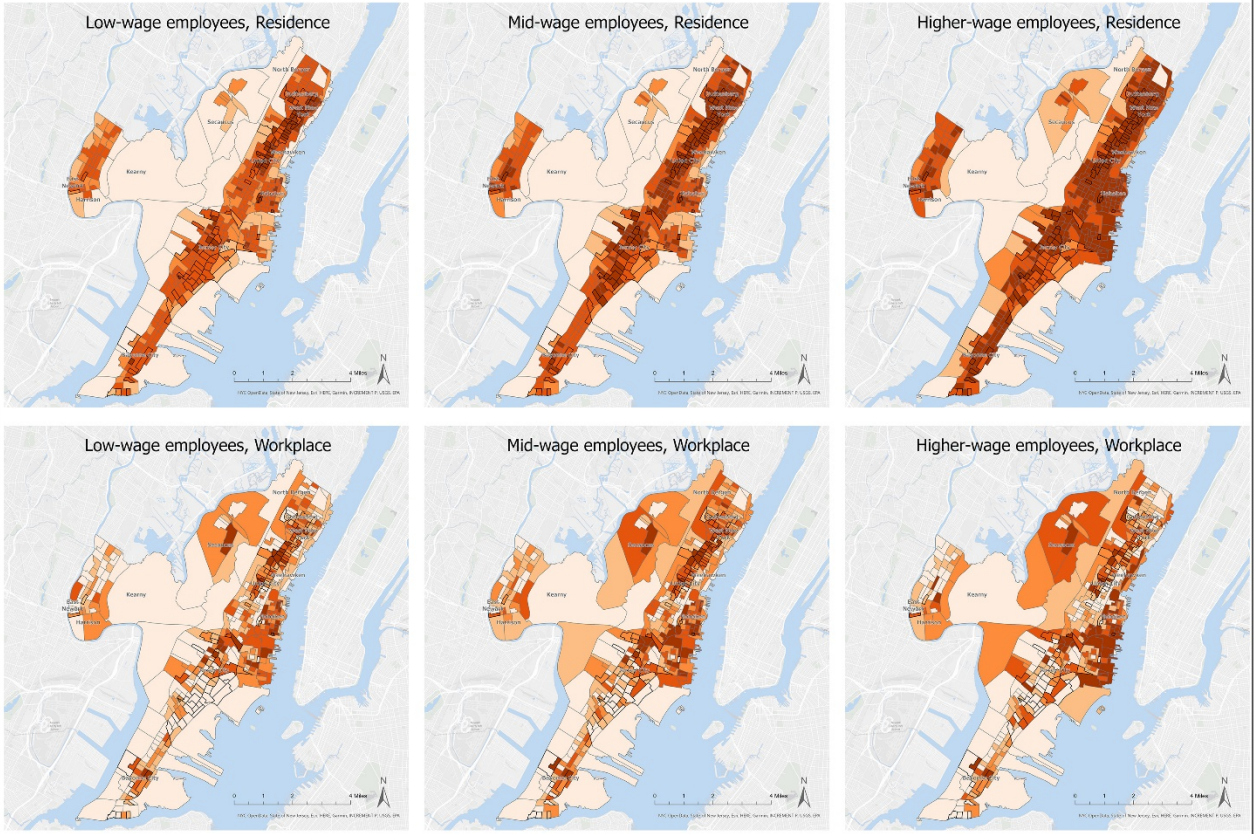
Employment Density by Wage



Employment Density by Wage

Number of low/mid/higher wage employees per sq mile by workplace/residence block group

- < 500
- 501 - 1,000
- 1,001 - 2,000
- 2,001 - 5,000
- >5000

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

Note: low wage (earnings<$1250/month), mid wage ($1250/month<=earnings <=$3333/month), higher wage (earnings >$3333/month)

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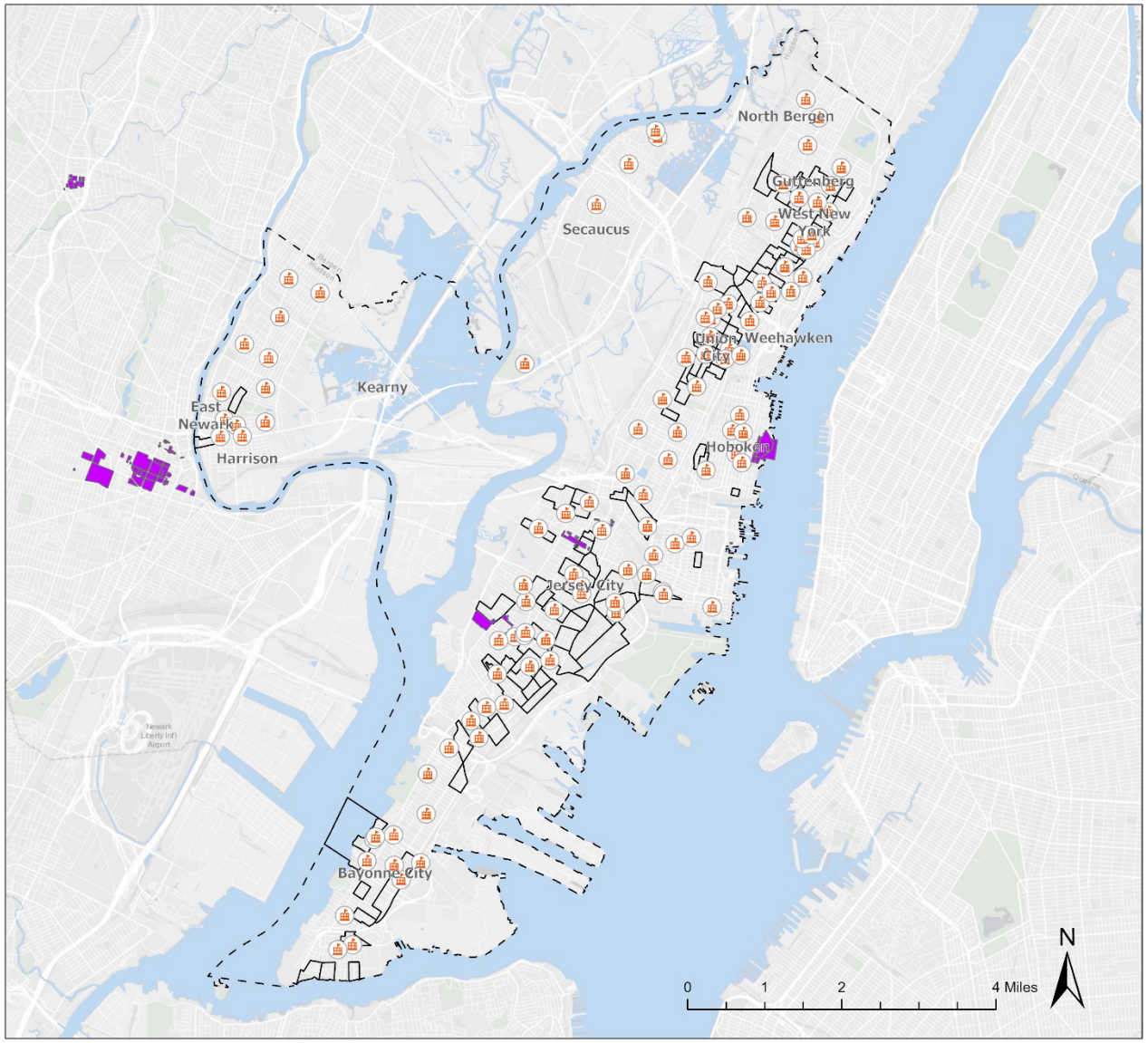
Education Services



Education Facilities

College and university
K-12 public school
Low income block group

Data Source: NJGIN, ESRI base map

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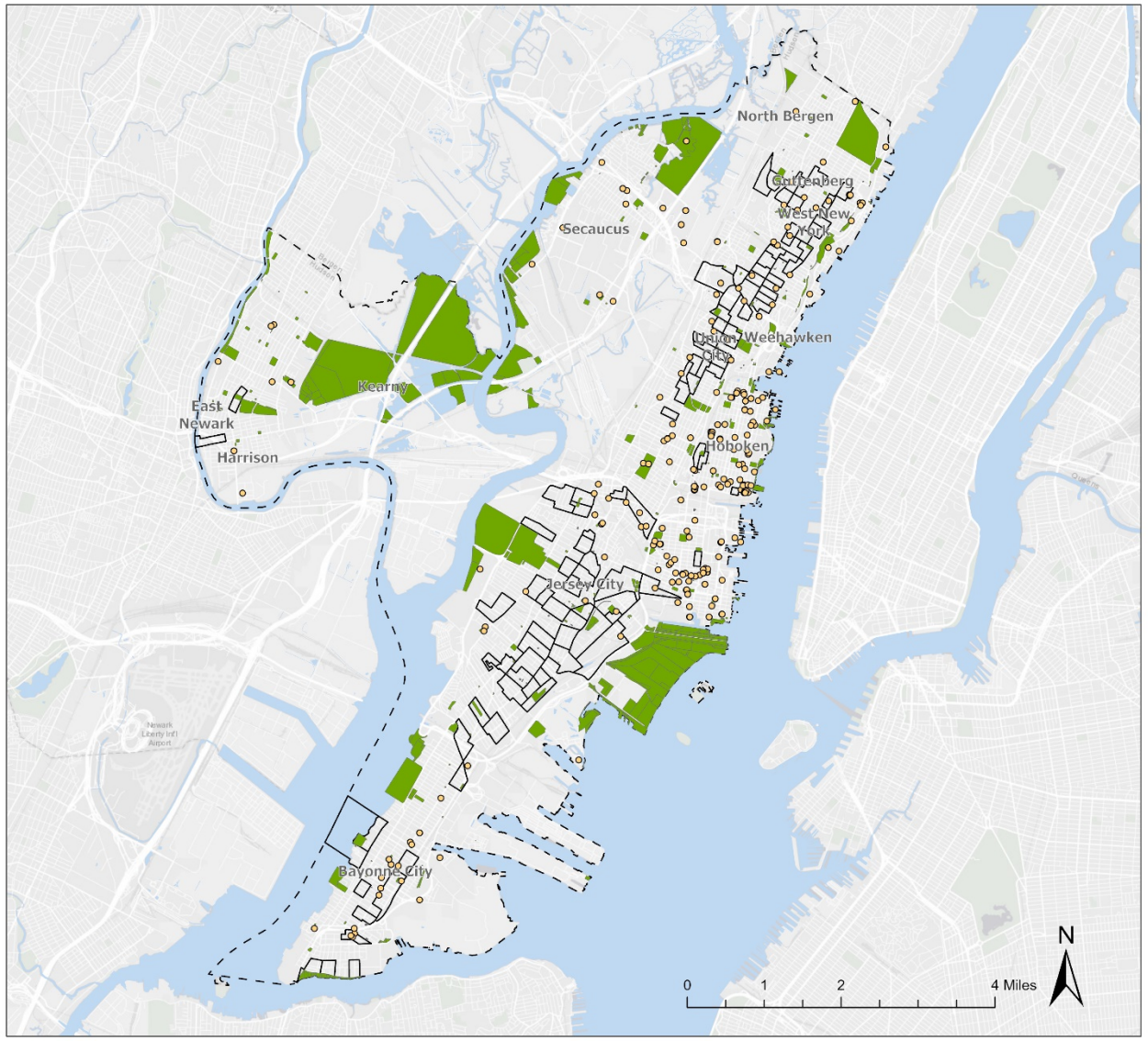
Recreation



Recreation

- Open space
- Fitness center
- Low income block group

Data Source: NJGIN, ESRI base map

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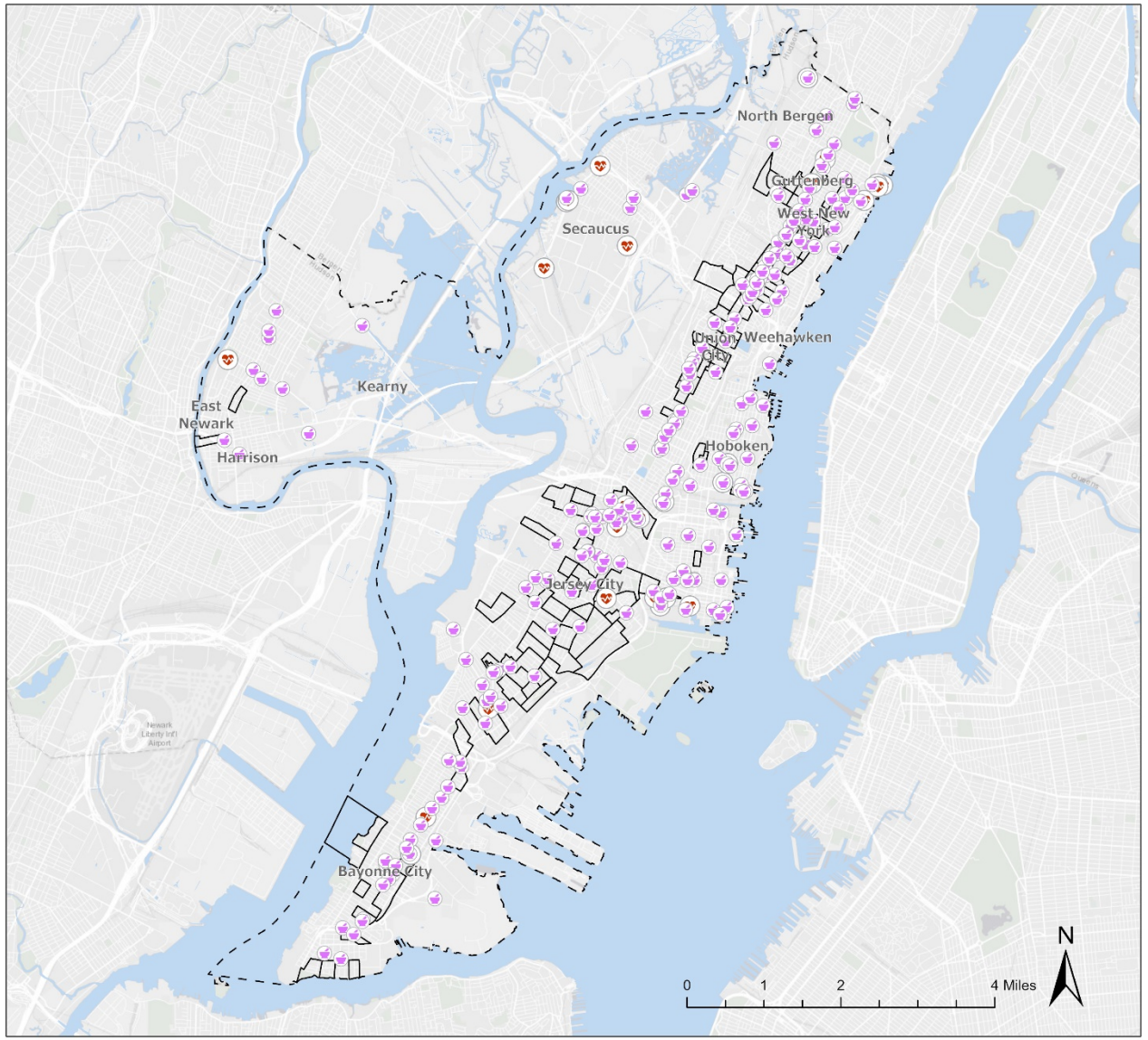
Medical Services



Medical Services

- Hospital and emergency center
- Pharmacy and drug store
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst Safegraph Search

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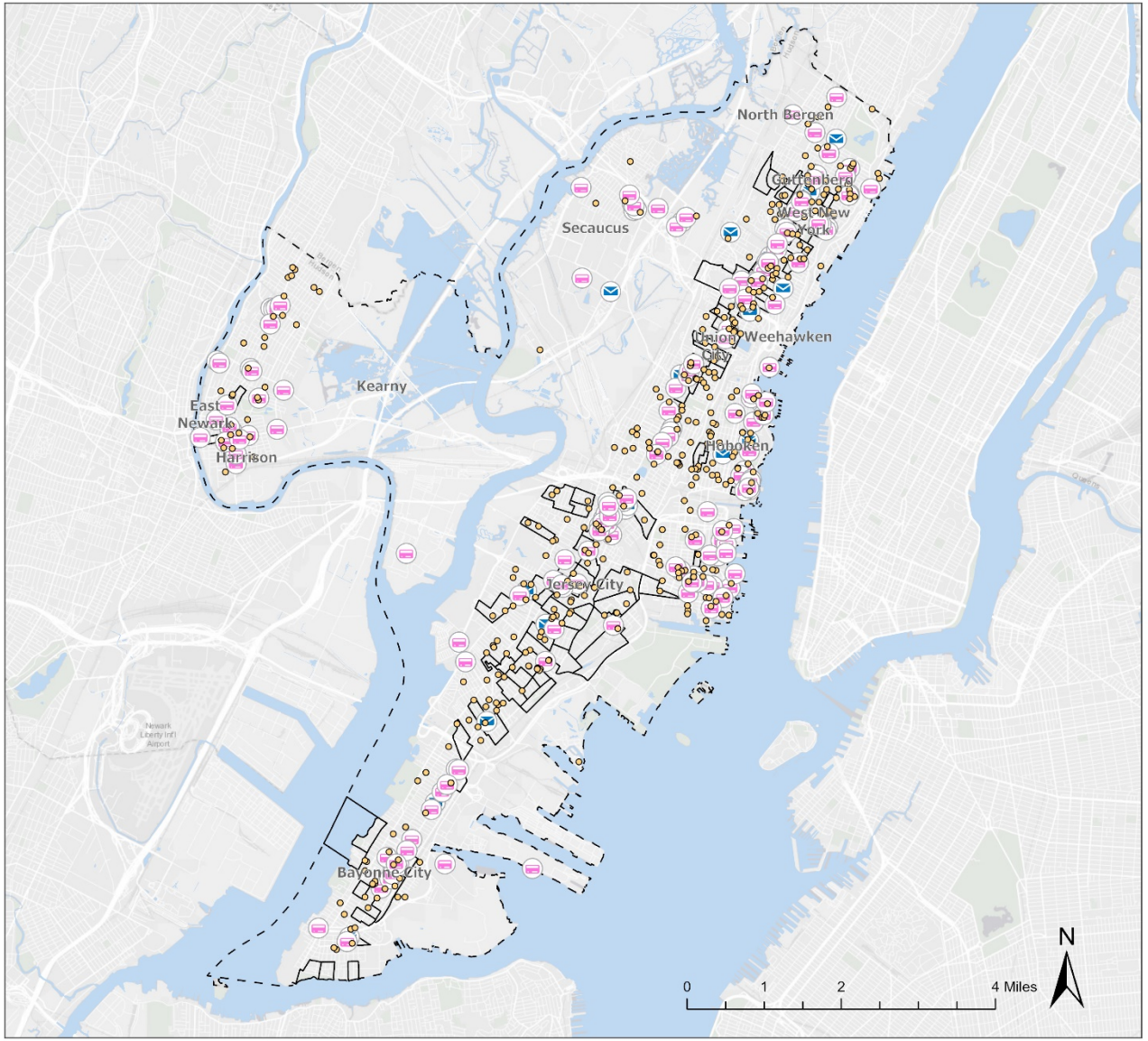
Other Essential Services



Essential Services

- Postal services
- Commercial Banking & Credit Unions
- Childcare center
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst Safegraph Search

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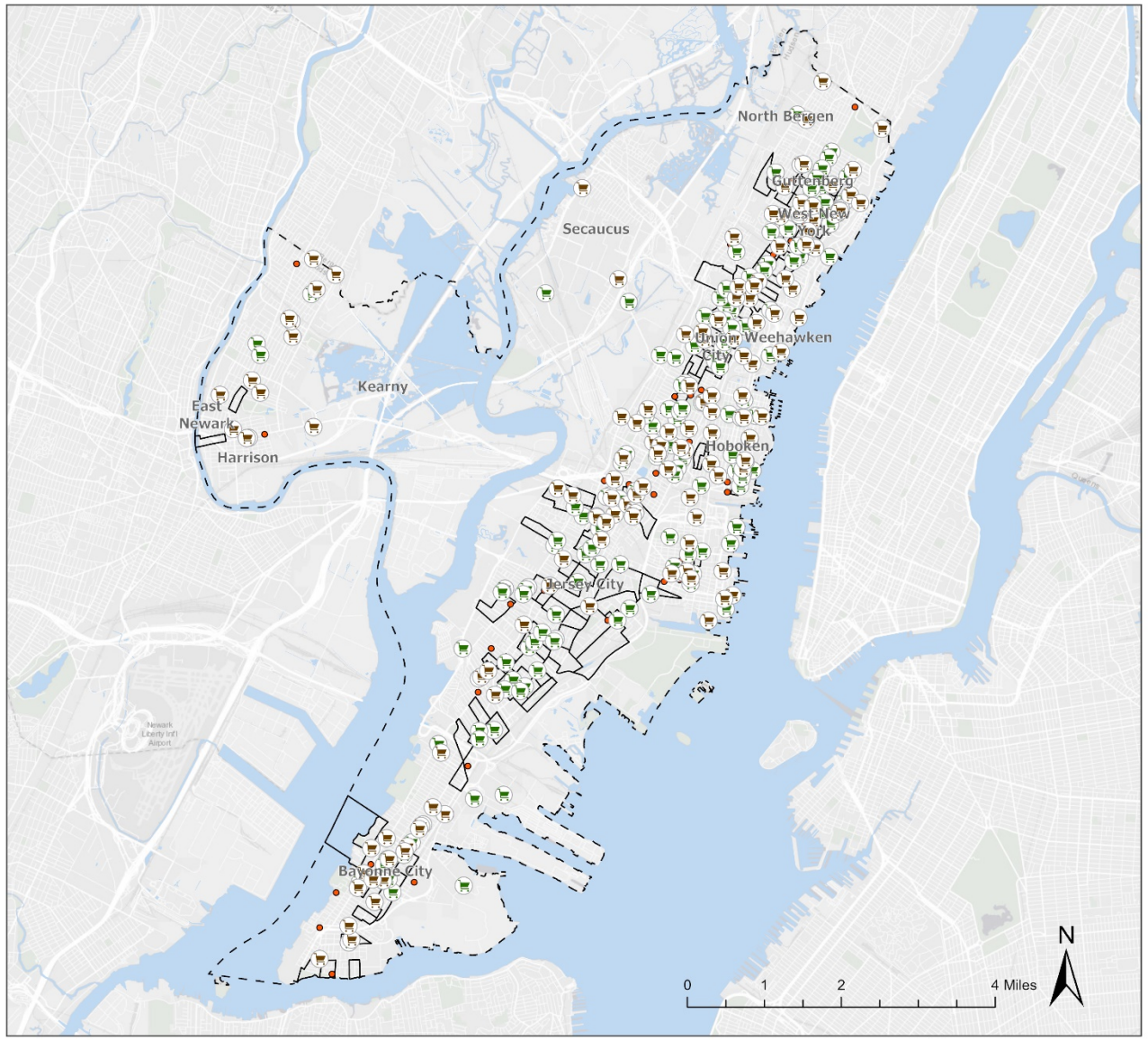
Commercial Amenities



Commercial Amenities

- Grocery store
- Convenience store
- Laundromats
- Low income block group

Data Source: NJGIN, ESRI base map, ESRI Business Analyst Safegraph Search

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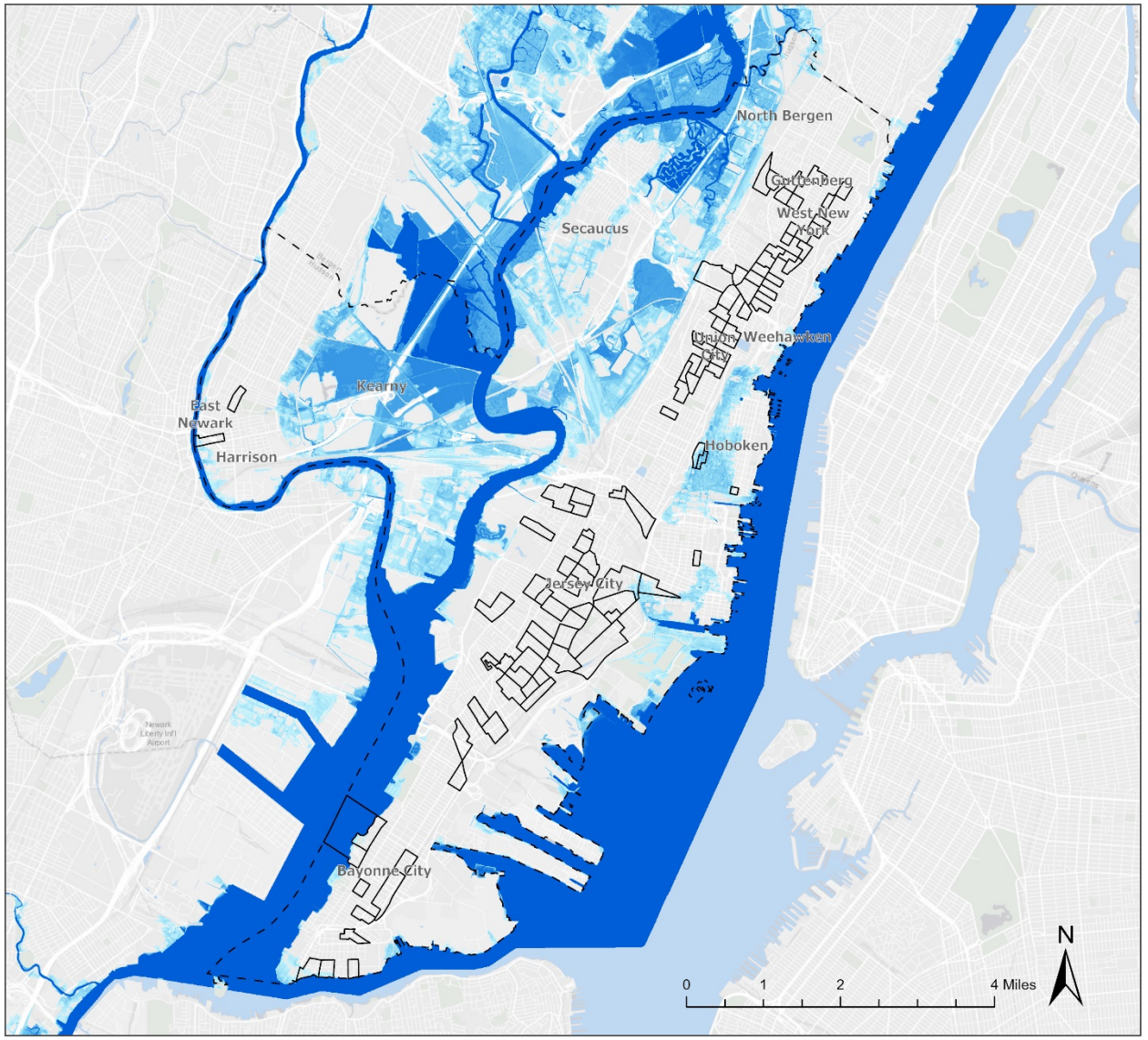
Climate Vulnerability



Sea Level Rise

5 ft sea level rise depth Value

High

Low

Low income block group

Data Source: NJGIN, ESRI base map, NOAA

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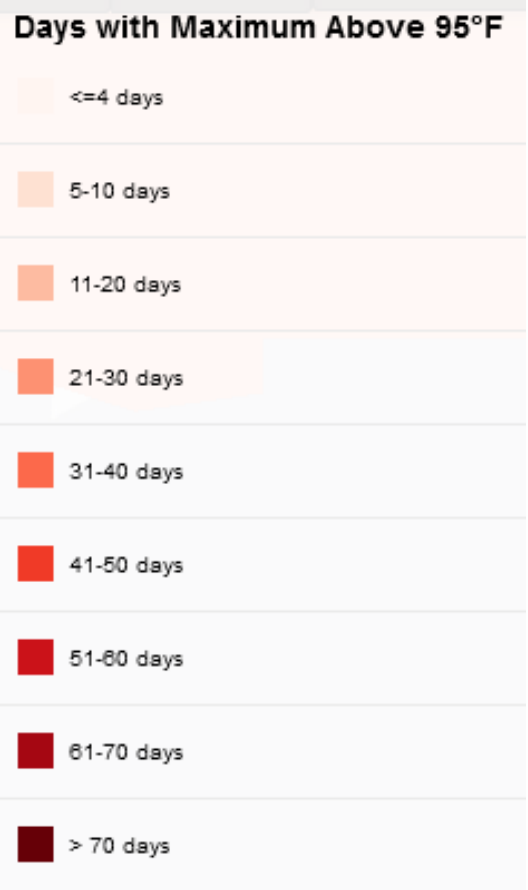
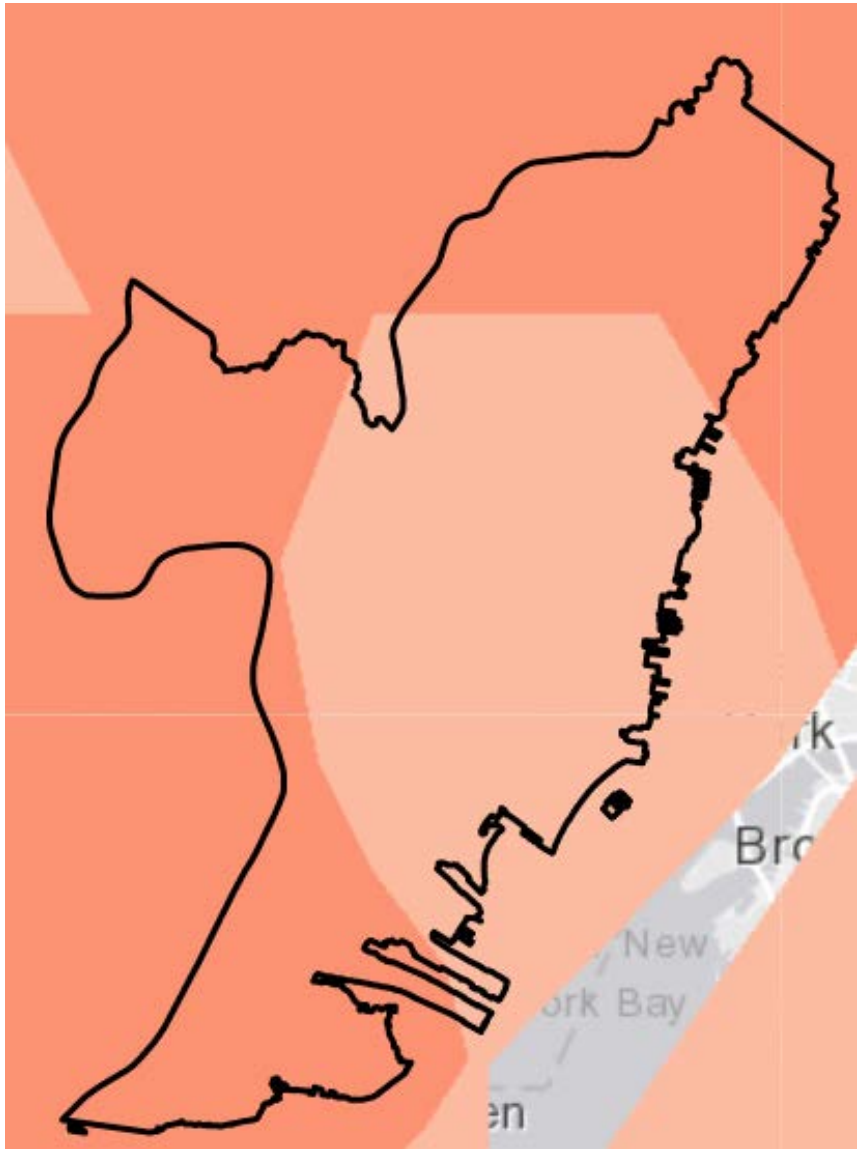
Climate Vulnerability

Exposure to extreme heat
(High-emissions scenario)

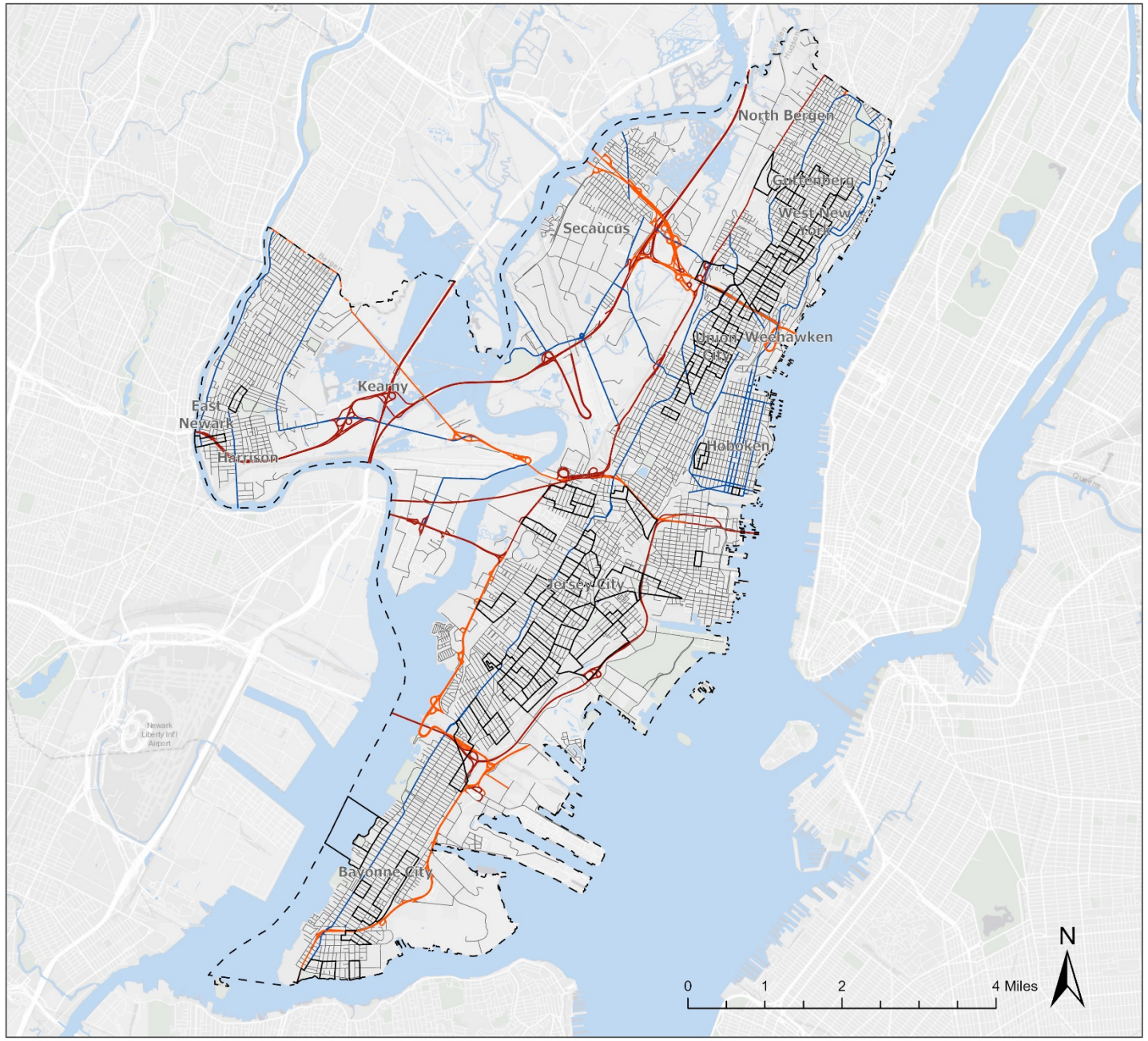




Source: NJ Forest Adapt

Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF MOBILITY AND CONNECTIONS



Road Network

Road Type

- Interstate and US Highway
- State Highway
- County Road
- Local Road
- Low income block group

Data Source: NJGIN, ESRI base map

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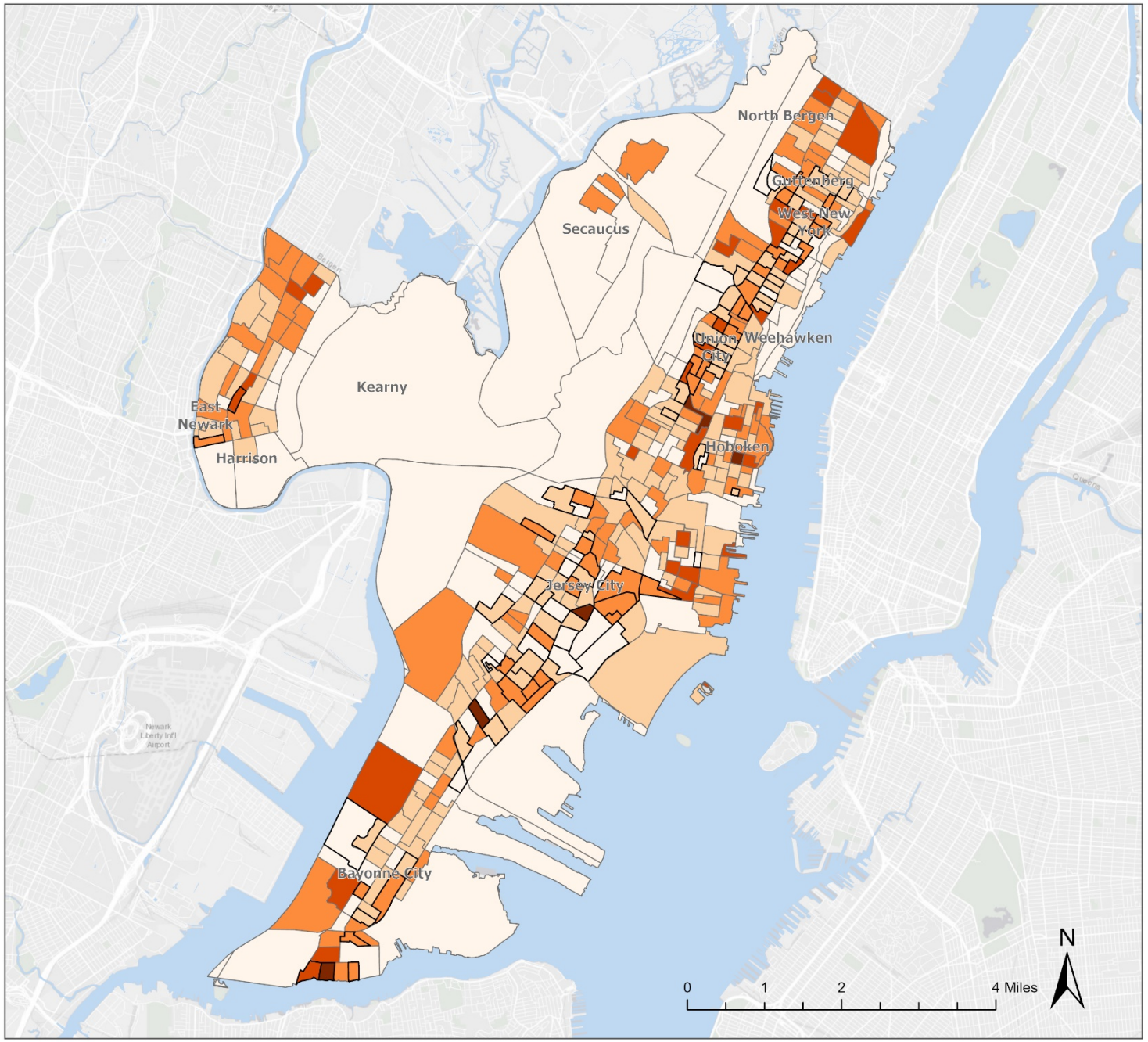

Intersection Density

Number of intersections per acre by block group

- 0 - 65
- 66 - 118
- 119 - 193
- 194 - 367
- 368 - 692
- Low income block group

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

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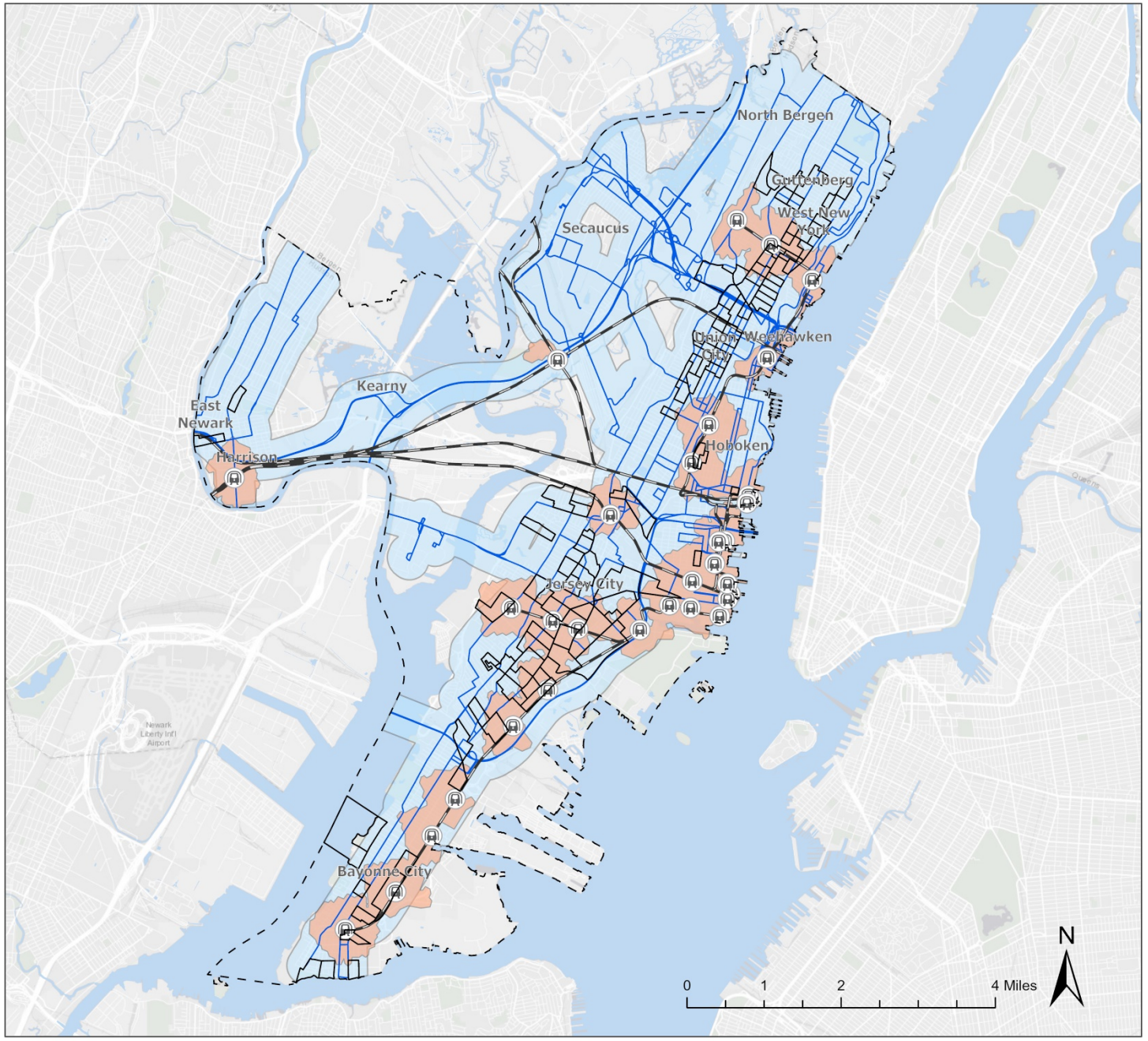

Transit Service Area

- Railroad station
- Railroad line
- Bus route
- Rail station service area
- Bus route buffer
- Low income block group

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

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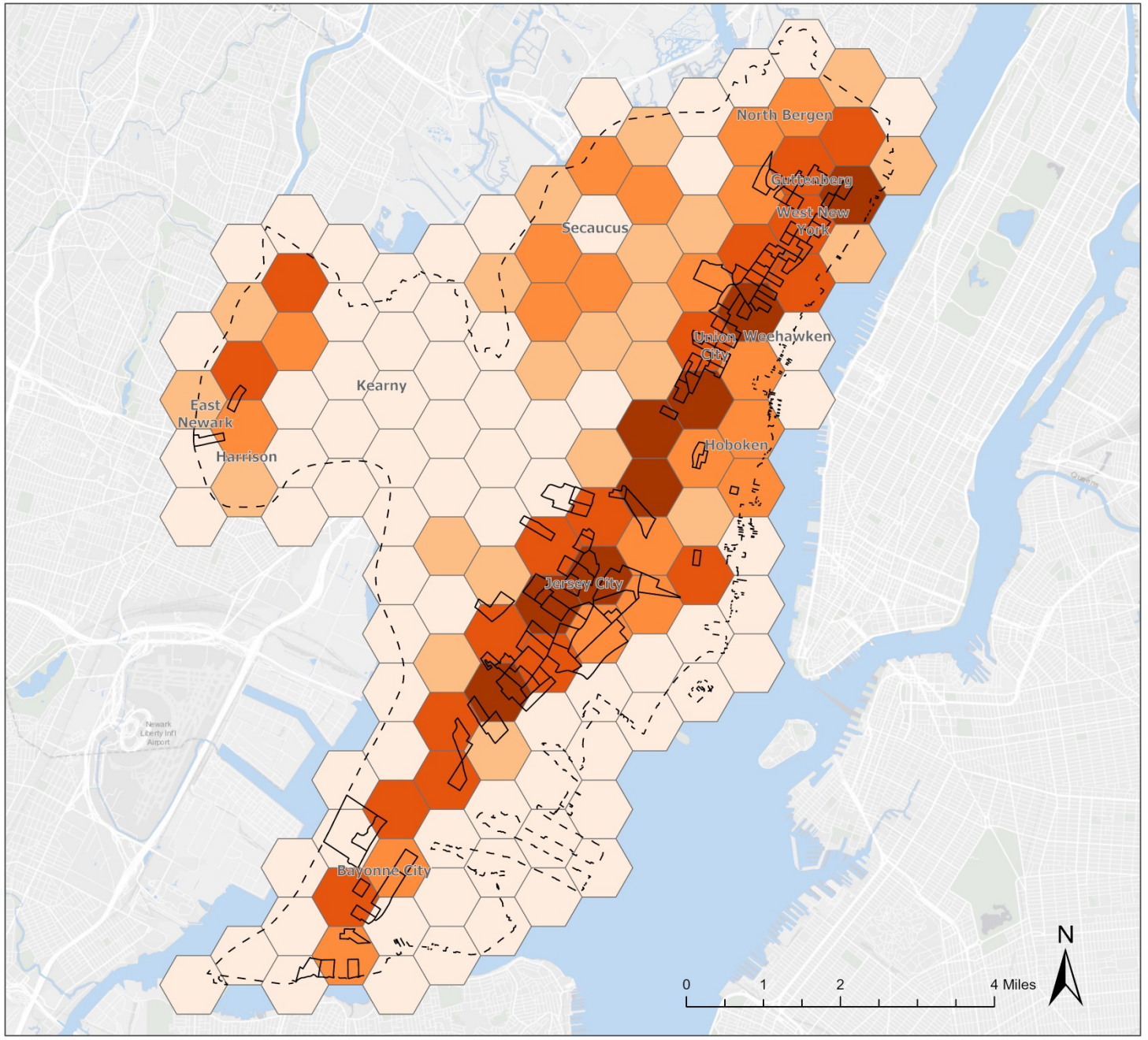

Bus Stop Density

of bus stops per sq mile

- 0 - 6
- 7 - 24
- 25 - 44
- 45 - 72
- 73 - 112
- Low income block group

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

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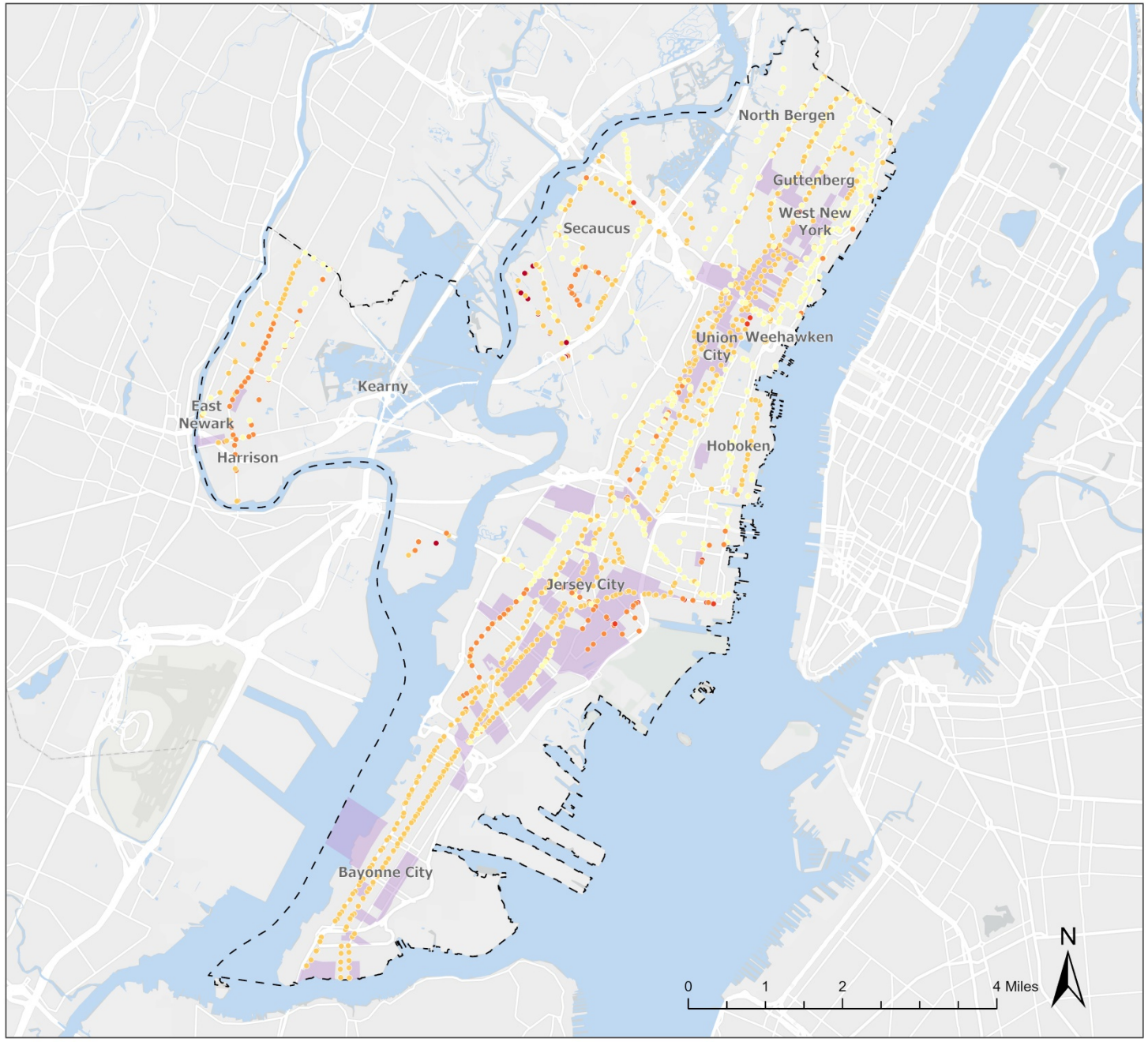

Bus Service Frequency

Bus stop

Max wait time (min)

- 0 - 15
- 16 - 40
- 41 - 60
- 61 - 80
- > 80

Low income block group

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

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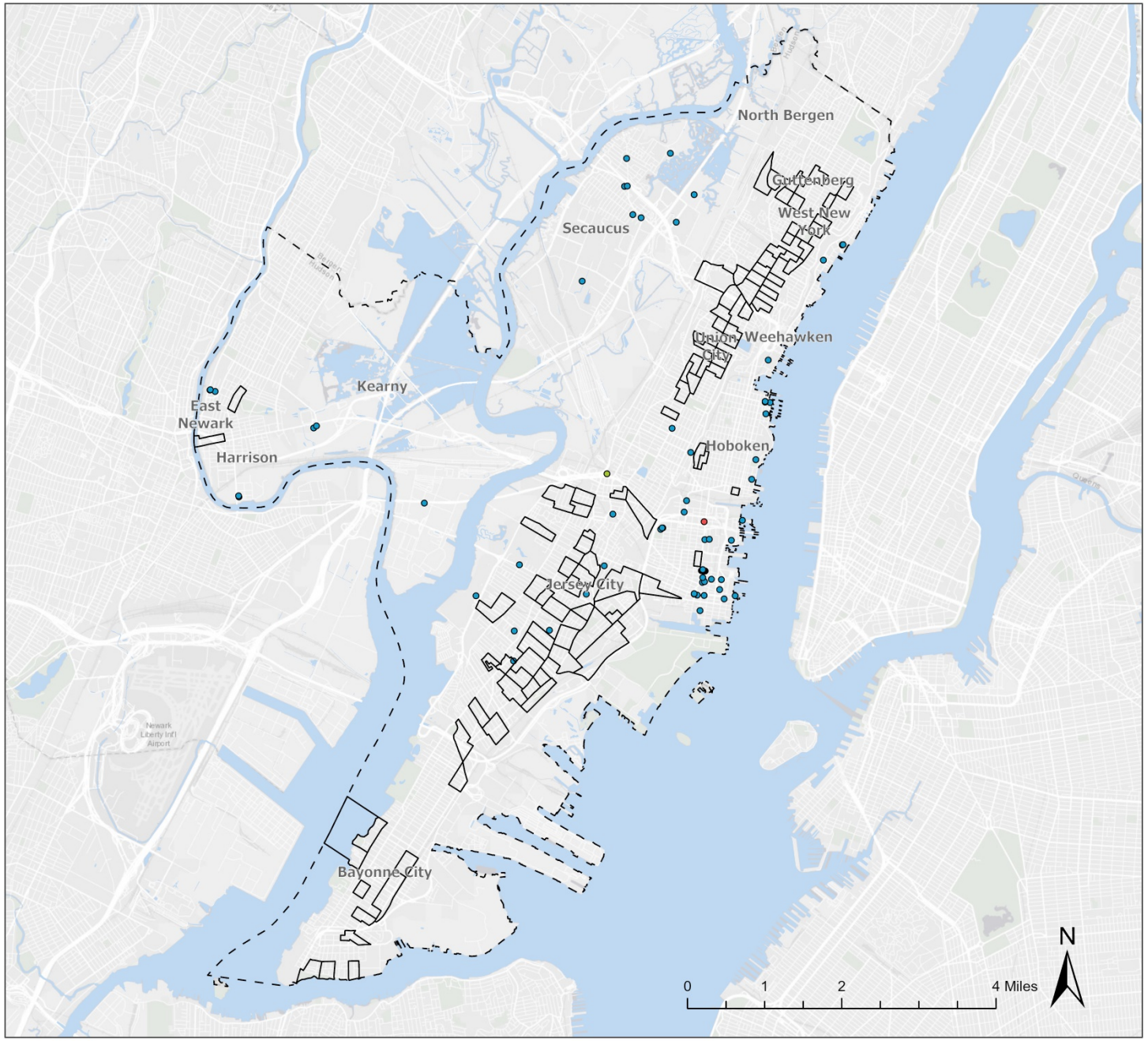

Alt. Fueling Station

Fuel Type

- Compressed Natural Gas
- Electric
- Liquefied Petroleum Gas
- Low income block group

Data Source: NJGIN, ESRI base map, US Department of Energy's Alternative Fuels Data Center

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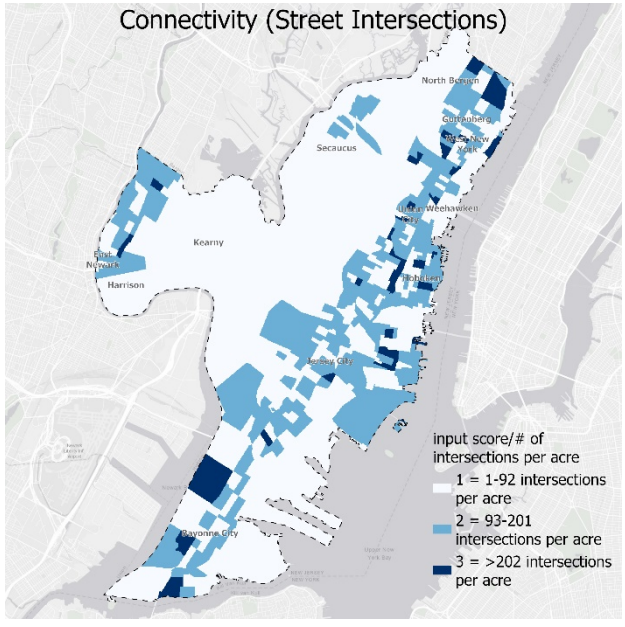
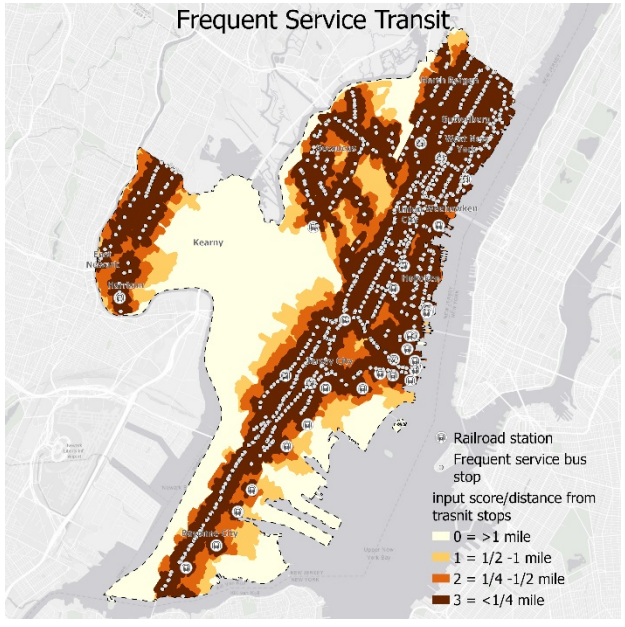
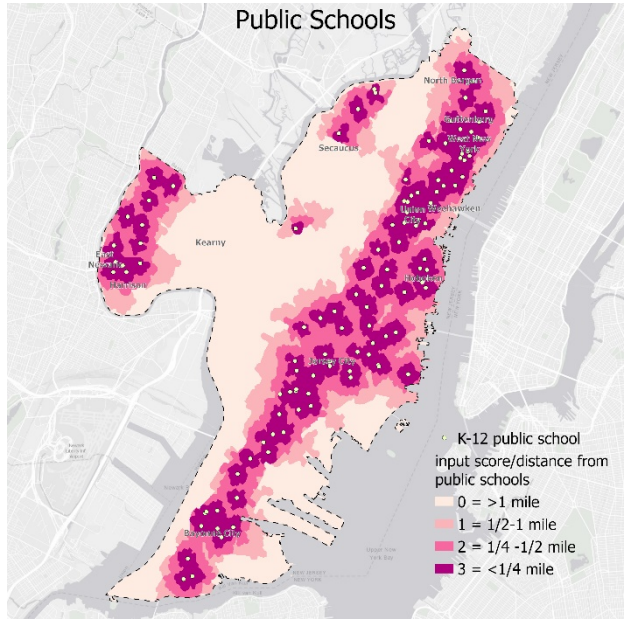
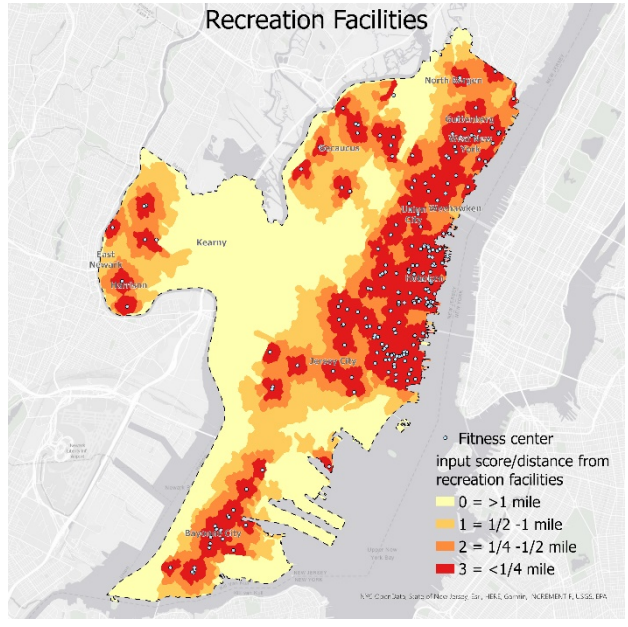
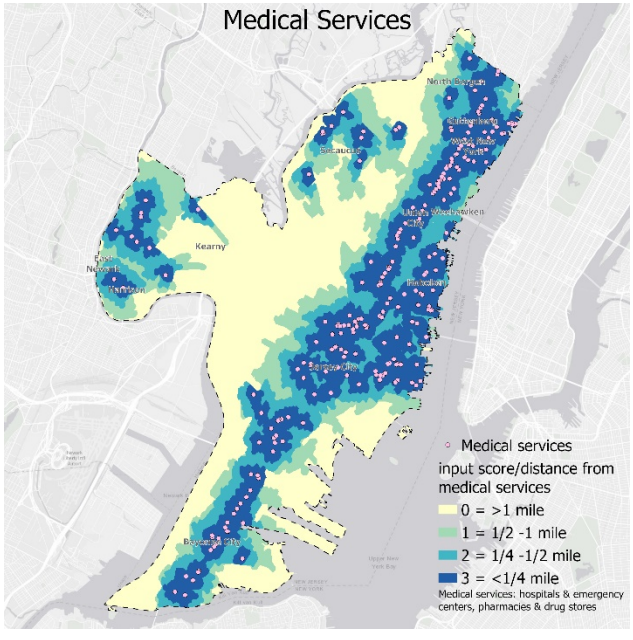
Measured Accessibility Analysis

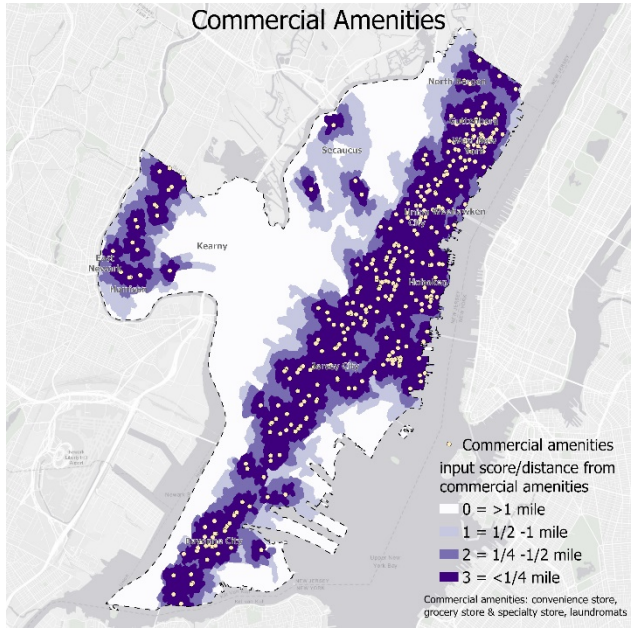


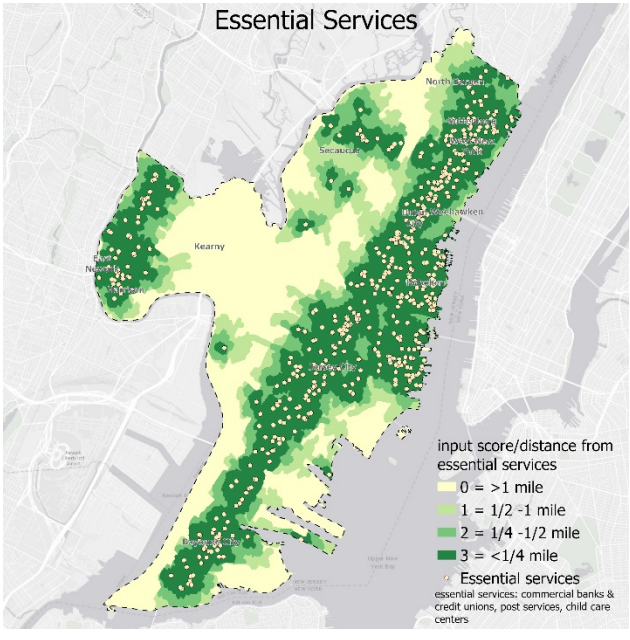


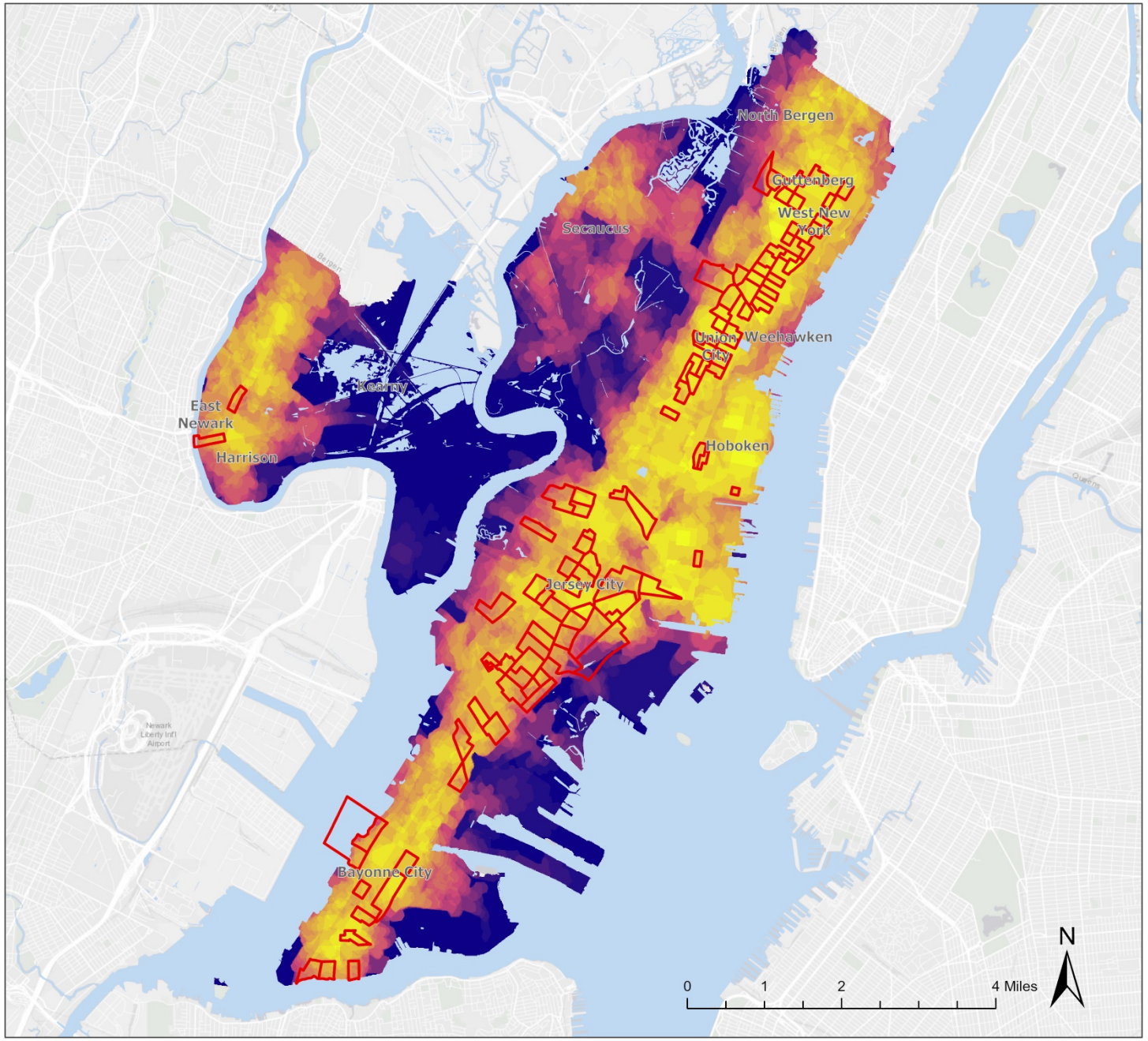












"15-min." Accessibility

Low income block group

Accessibility

Best Access

Moderate Access

Limited Access

Data Source: NJGIN, ESRI base map, ESRI Business Analyst

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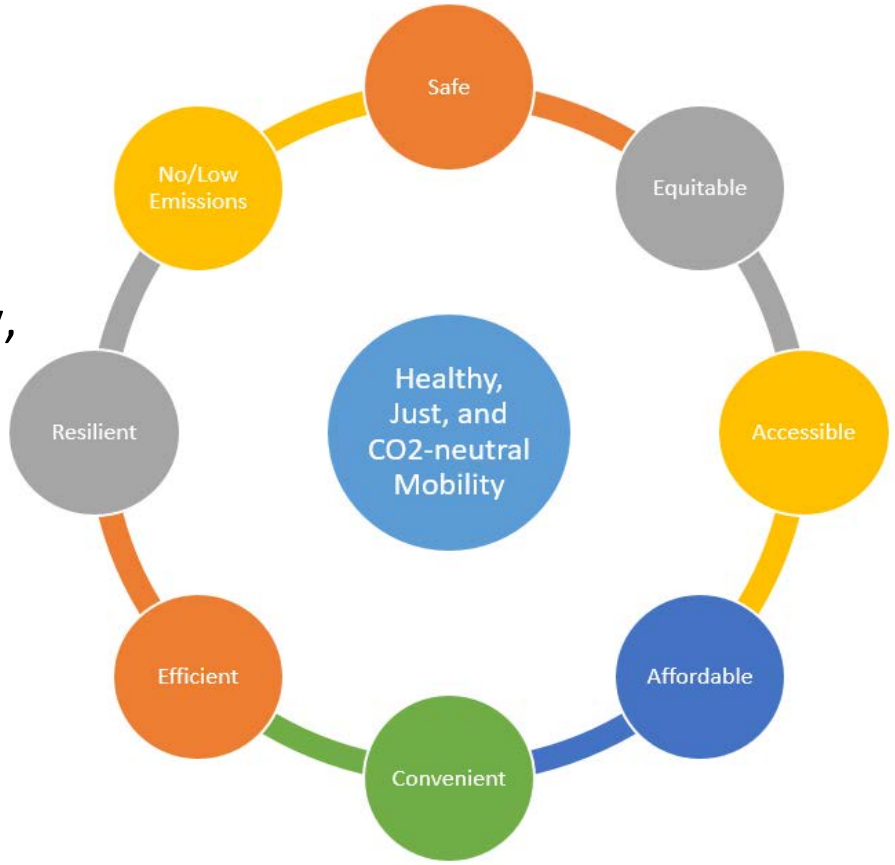
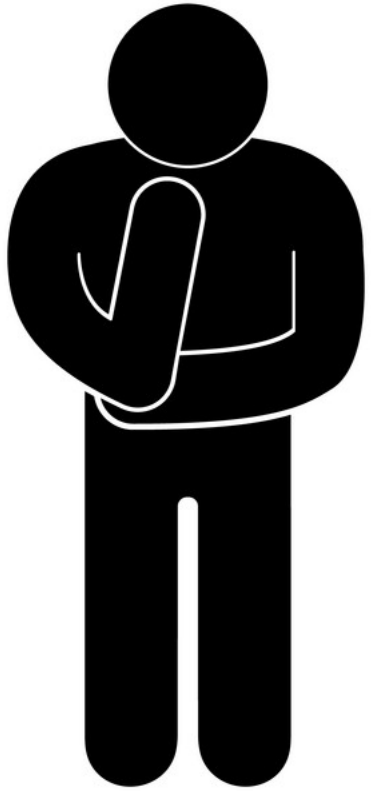
Issues Forum #1

- **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** – Dec 2021- March 2022





Thoughts?
Questions?
Discussion?