

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

Project Update February 2022

RUTGERS

New Jersey Climate Change Alliance

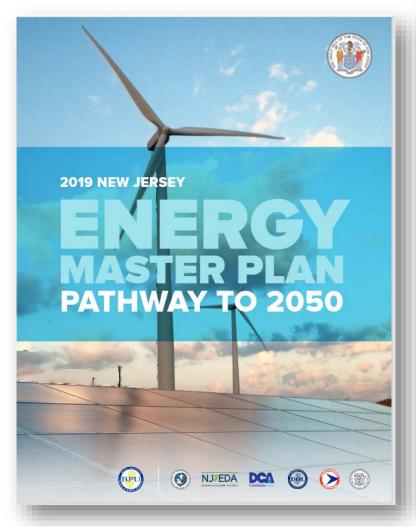
Existing Work Groups

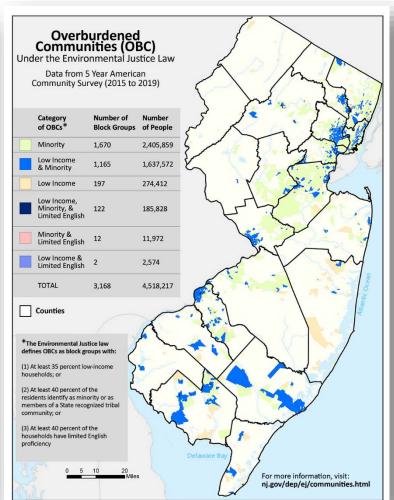
- Long-term Statewide Planning for Climate Change Workgroup
- Natural and Working Lands Workgroup
- Offshore Wind Ecological Monitoring Workgroup
- Public Health Workgroup
- Sustainable Organic Materials Management Workgroup

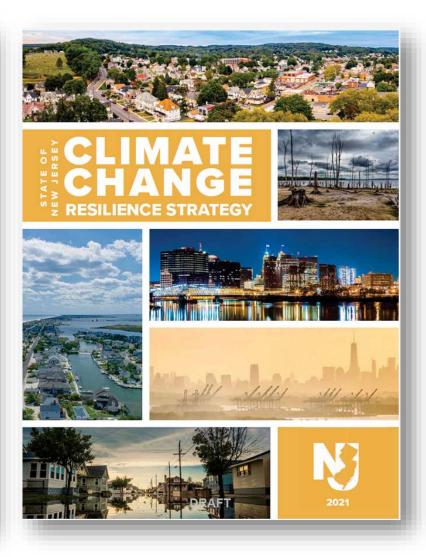
(NEW) Transportation Workgroup



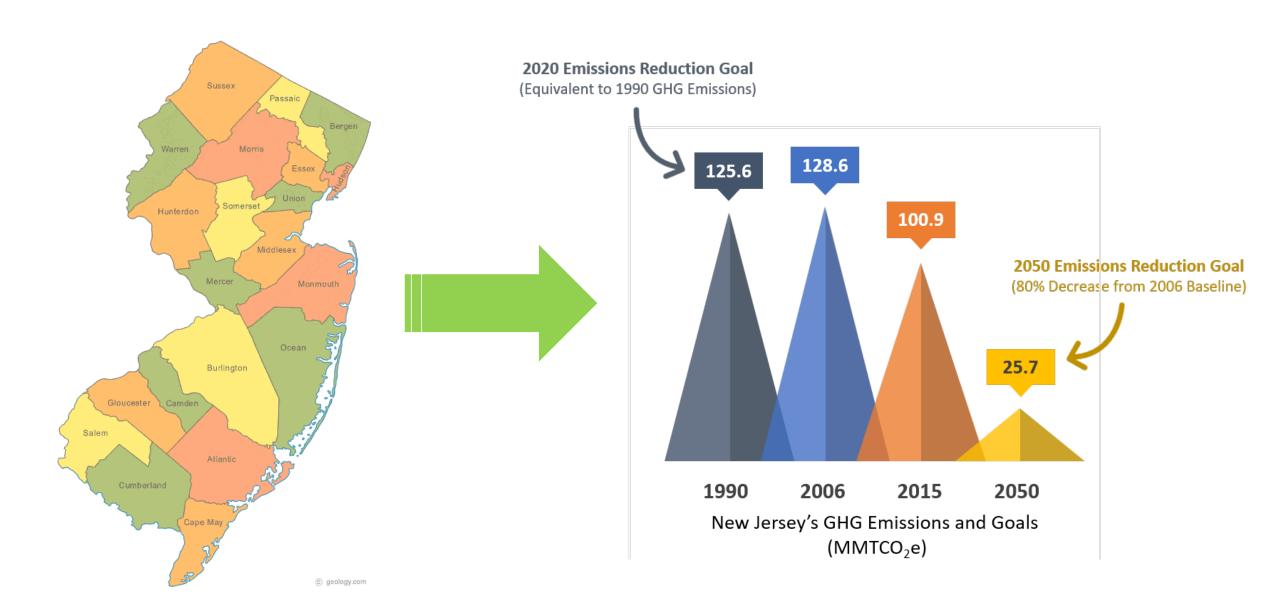
Changing policy dynamics at the State and national levels





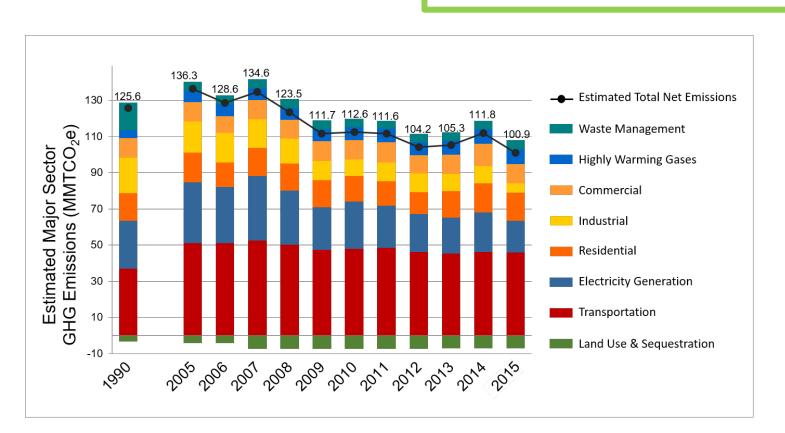


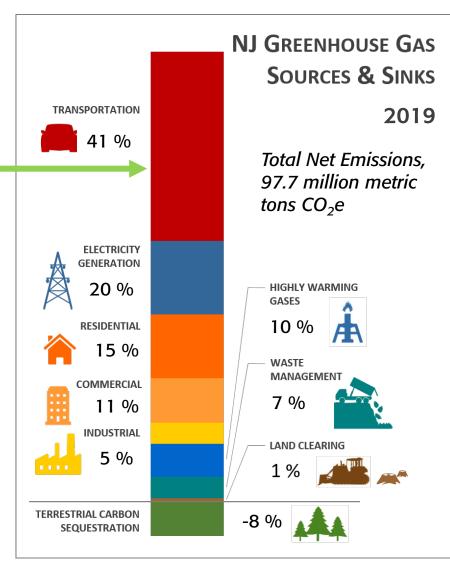
New Jersey Emissions Targets



GHG Emissions in New Jersey

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

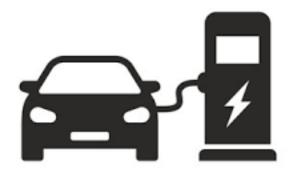


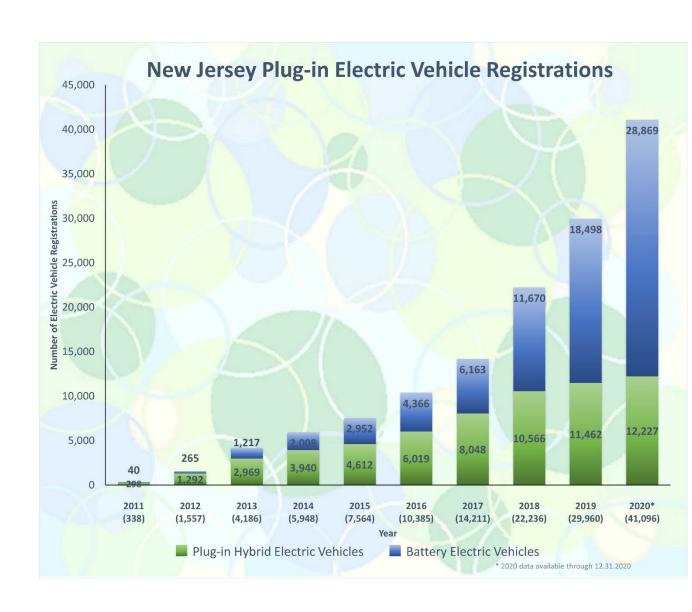


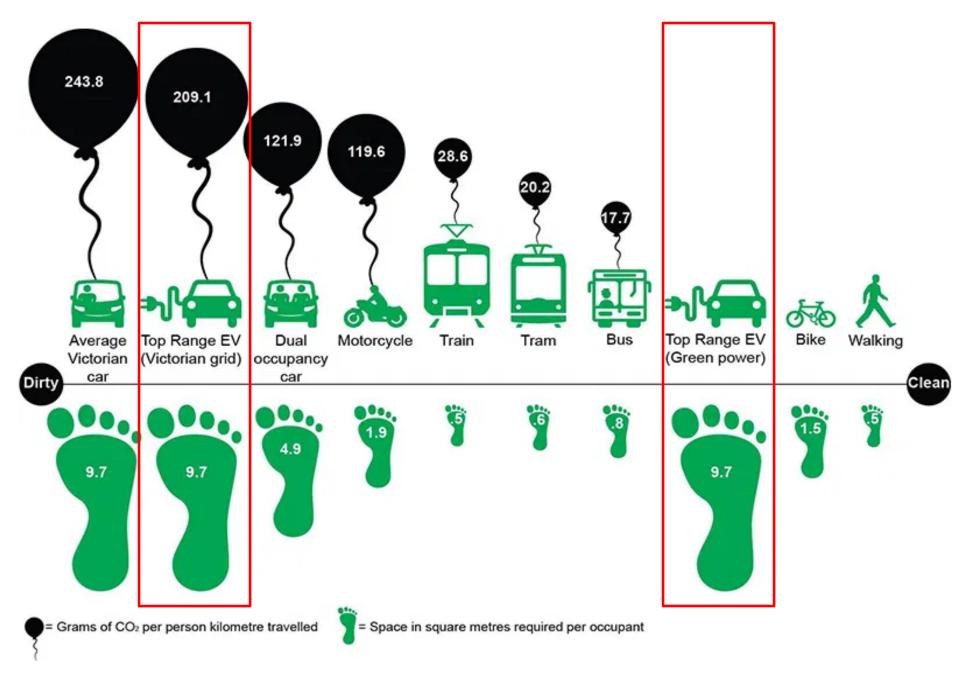
Source: NJDEP

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?



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

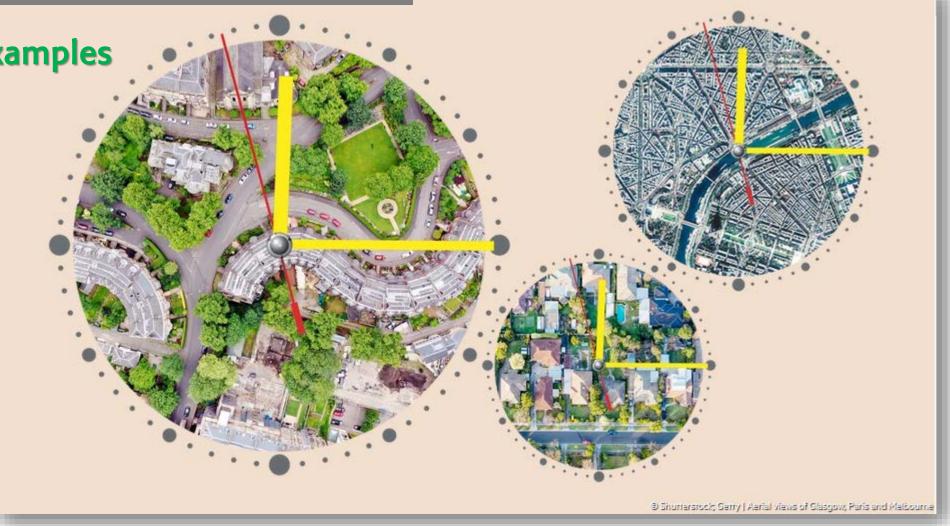
- Decarbonize the transportation sector
- Empower people to drive less
- Create a network of diverse and inclusive neighborhoods that are well connected to each other
- Think of mobility as a service and reimagine public transportation
- Embrace new technologies but ensure they are affordable and accessible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

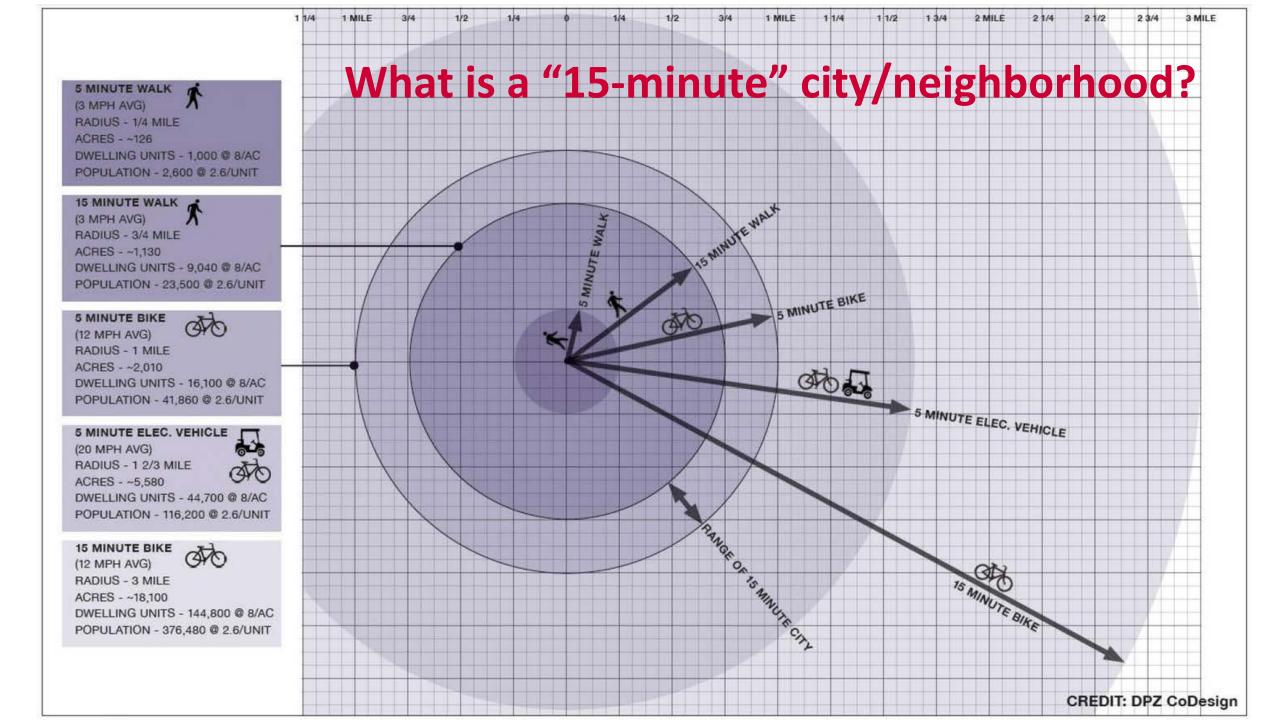
Potential Organizing Framework

"15-minute" City/Neighborhood

Leading Practice Examples

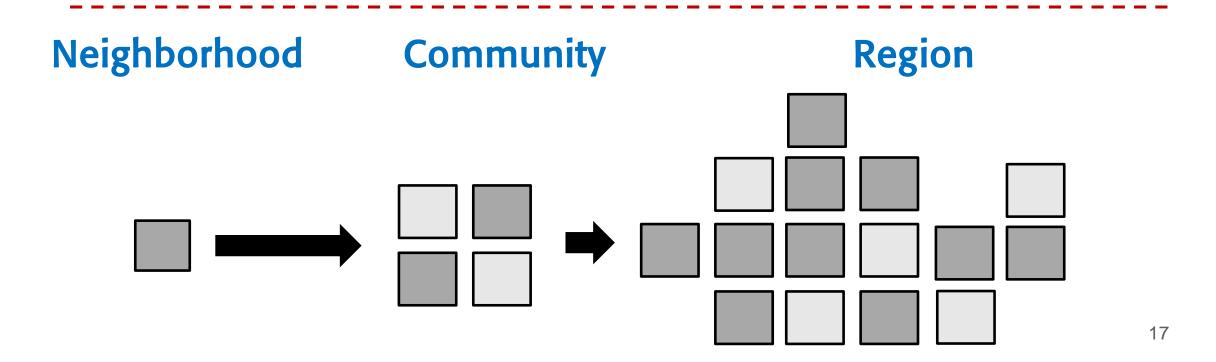
- Singapore
- Paris
- Portland
- Melbourne
- Ottawa
- Barcelona





Key relationships





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

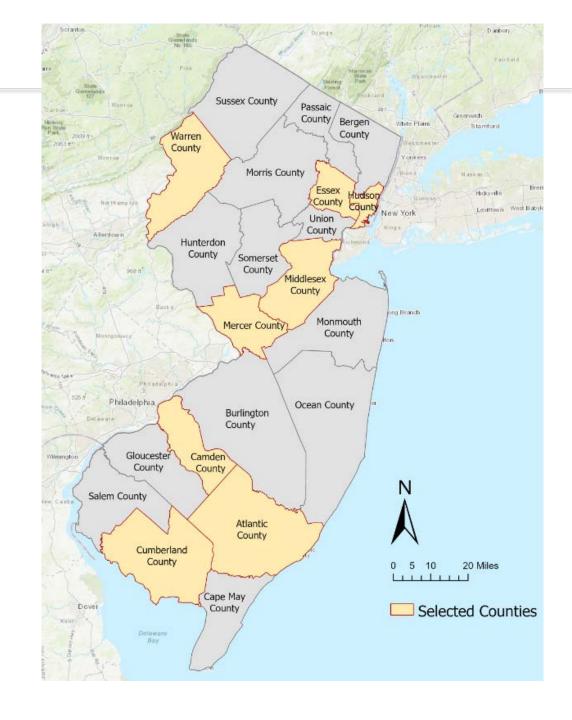
PHASE 2 – Field work, community engagement, and developing recommendations (Mar 2022 to Sep 2022)

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?

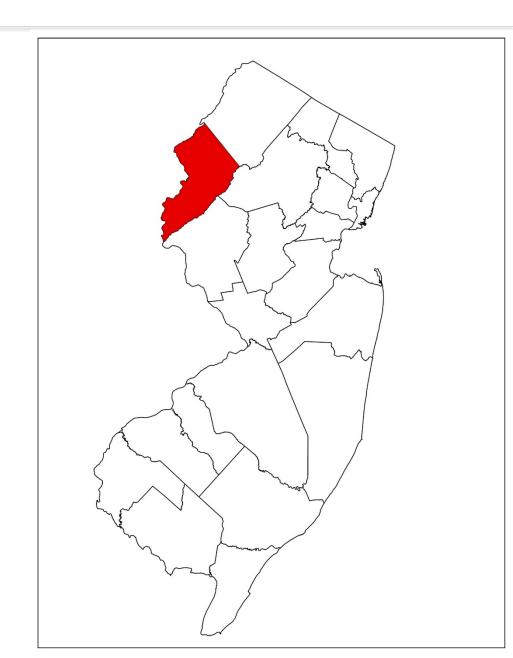
Phase 1 case study locations

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



Exploring the Geography of People, Place, and Connections

WARREN COUNTY



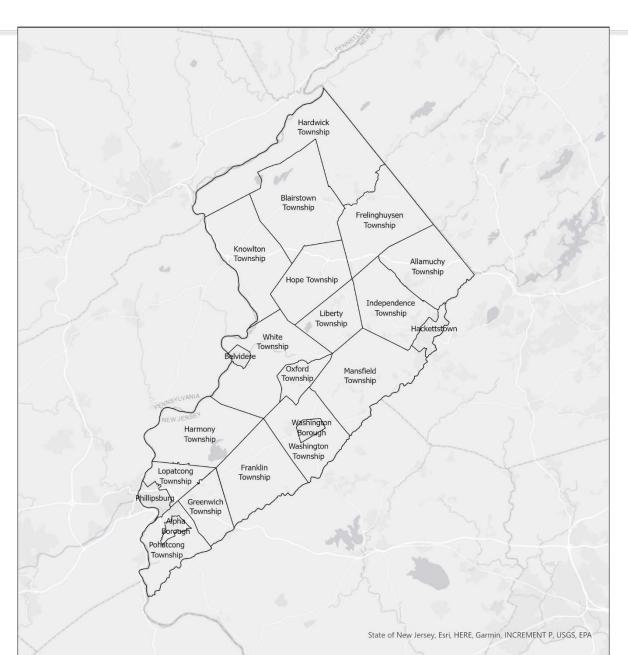
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PEOPLE

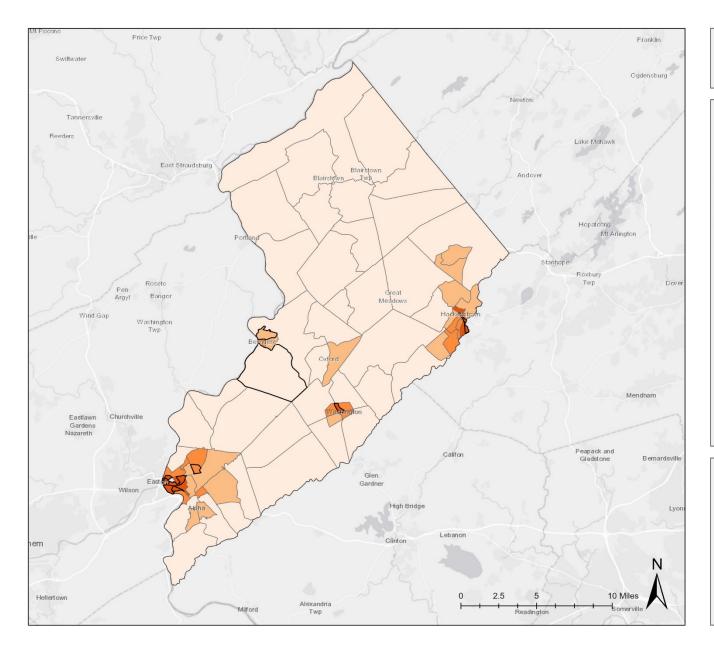
County at a glance

A mix of small towns, urban centers and rural communities

- 362.90 square miles
- 22 Municipalities
- Over 105,862 residents
- County Seat: Belvidere







Population Density

□ County Boundary

□Low Income Block Groups

Population per sq. mile by Block Group

- 53- 500

--500 - 2000

2000 - 4500

4500 - 8500

=8500 - 15655

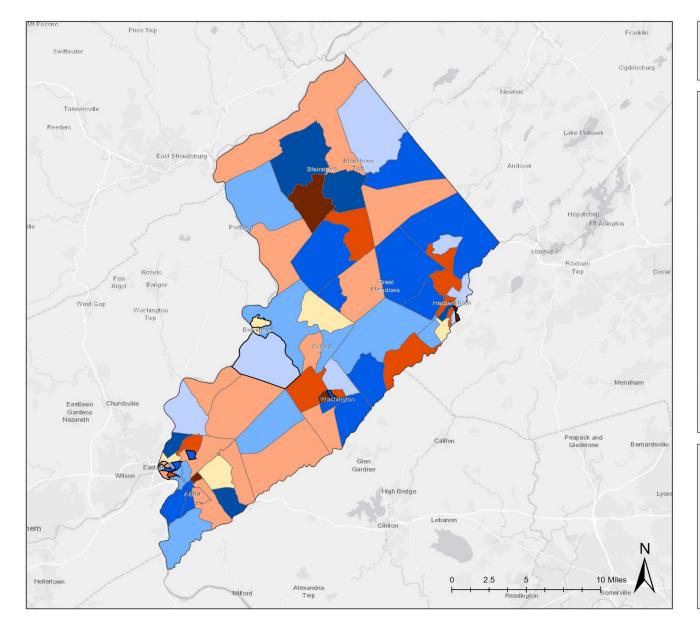
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Prepared: June 17, 2021 by Alan M. Voorhees Transportation Center







Population Change 2014 to 2019

- □ County Boundary
- □ Low Income Block Groups

Population Change

- -40% to -30%
- -30% to -15%
- -15% to 5%
- ■5% to 0%
- 0% to 5%
- ■5% to 15%
- ■15% to 30%
- **=**30% to 63%

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

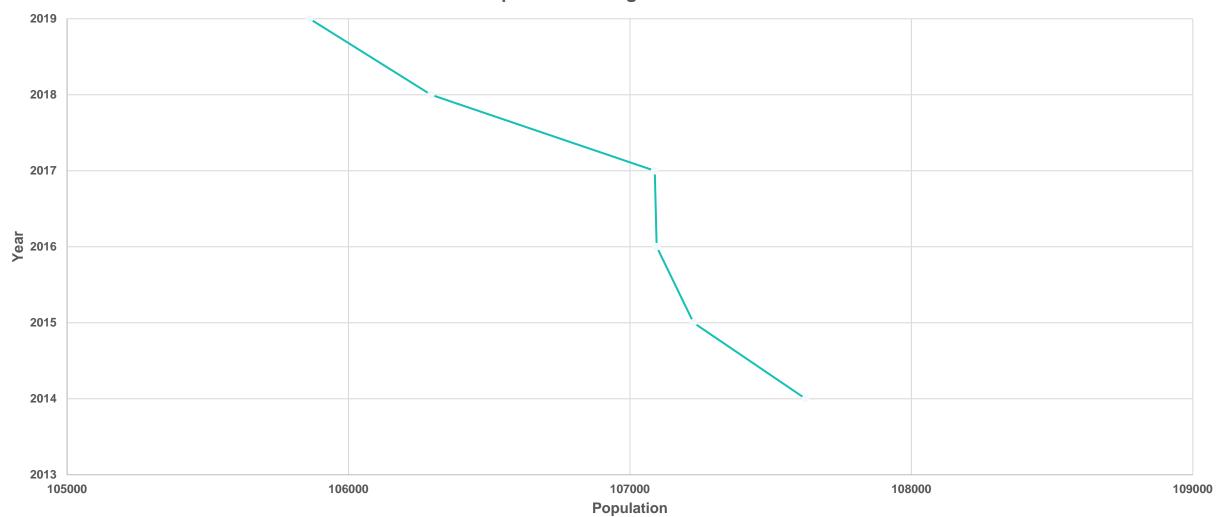
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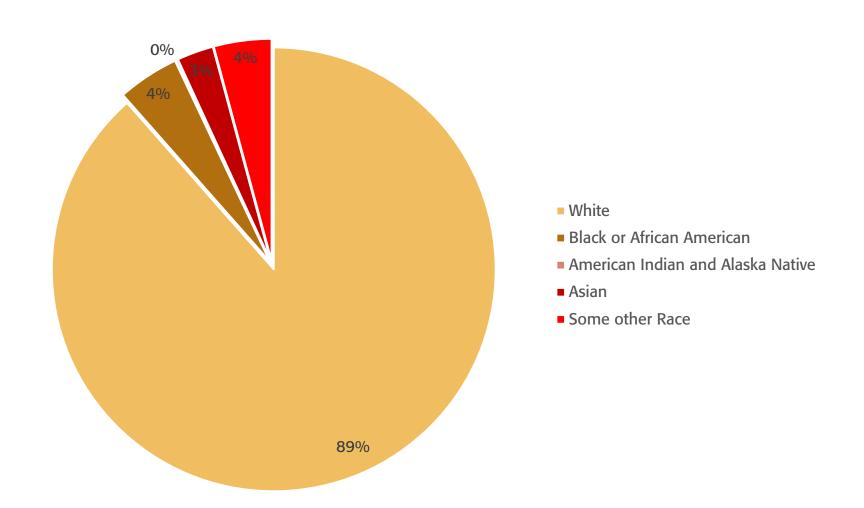




Population Change 2014-2019

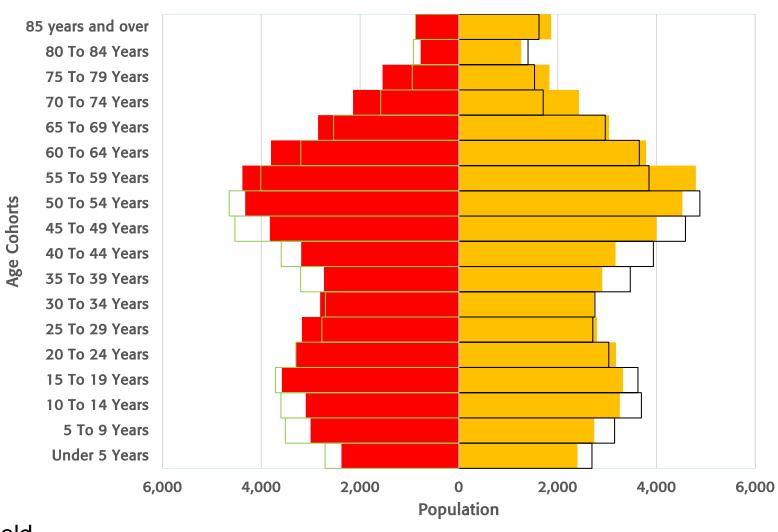


Race and Ethnicity - 2019



Age & Gender

Warren County- Population Pyramid 2014-2019



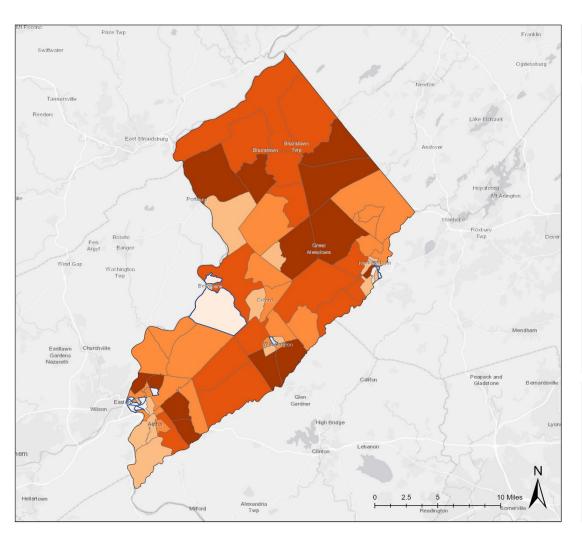
□ Male (2014) Female Male

□ Female (2014)

Household Income

Income Limit AHPNJ 2020 (4 person Household) **Affordable** Housing Income **Very Low** \$28,786 Limits. Region 2: Low \$47,976 Essex, Moderate \$76,761 Morris, Union and Median \$95,952 Warren

County Average Median Household Income: \$81,307



Median Household Income

□ County Boundary

□Low Income Block Groups

Median Household Income by Block Group

- =\$26,250 to \$55,000
- =\$55,000 to \$75,000
- =\$75,000 to \$95,000
- =\$95,000 to \$110,000
- =\$110,000 to \$139,326

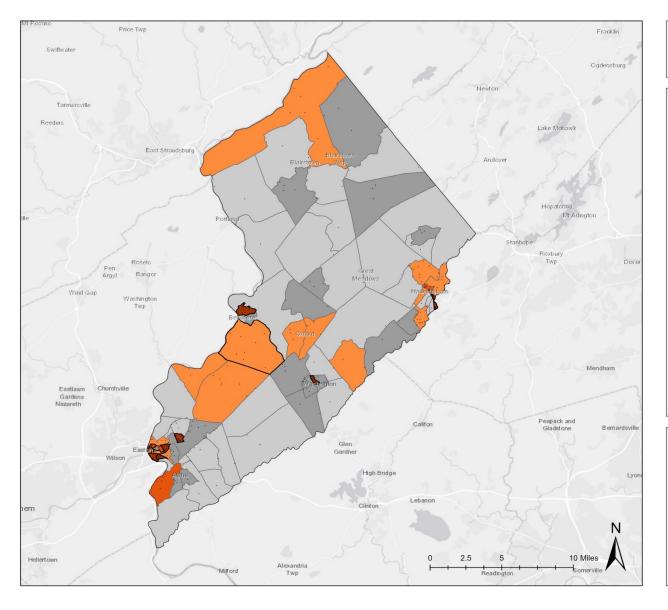
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Households living in poverty



Low Income Households

□ County Boundary

□Low Income Block Groups

1 Dot = 10

Households Under Poverty

Percent of Housholds within the Poverty Level

= 0% to 4%

=4% to 8%

County average

=8% to 15% =15% to 20%

=20% to 37%

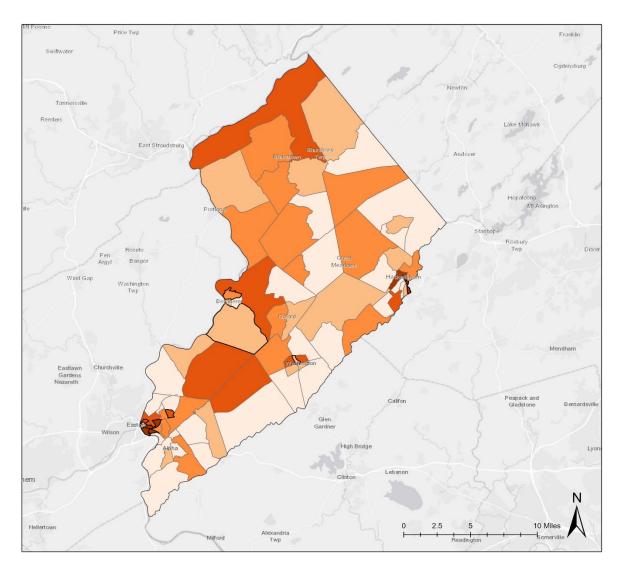
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Educational Attainment-less than H.S Diploma



Educational Attainment Less than High School

□County Boundary

□Low Income Block Groups

Population with Less than a High School Degree

- Less than 1%
- =1% to 2.5%
- =2.5% to 5%
- =5% to 10%
- =10% to 21%

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

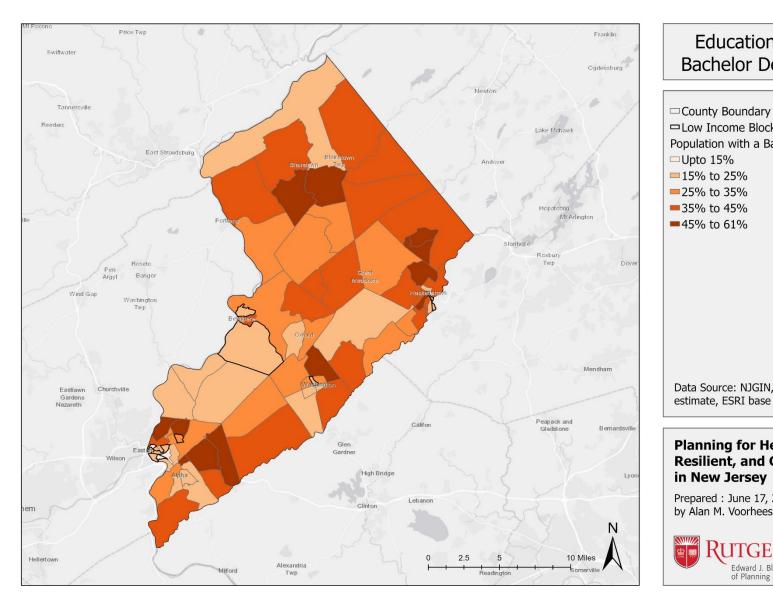
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Educational Attainment	Percentage
Less than H.S Diploma	8.5 %
H.S Diploma or equivalent	30.60 %
Some College	27.90 %
Bachelor's Degree or higher	33 %

Educational Attainment- Bachelor Degree or higher



Educational Attainment Bachelor Degree or Higher

□Low Income Block Groups

Population with a Bachelor's Degree or Higher

- □Upto 15%
- =15% to 25%
- =25% to 35%
- =35% to 45%
- =45% to 61%

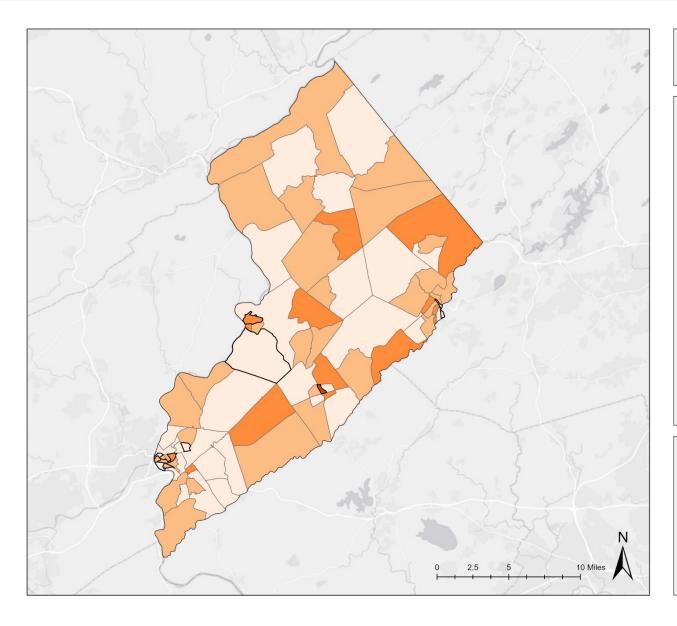
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Unemployment Status



Employment Status

- □ County Boundary
- □ Low Income Block Groups
 Percent of Labor Force Unemployed
- □Upto 3.5%
- =3.5% to 7%
- =7% to 15%
- ■15% to 22%

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

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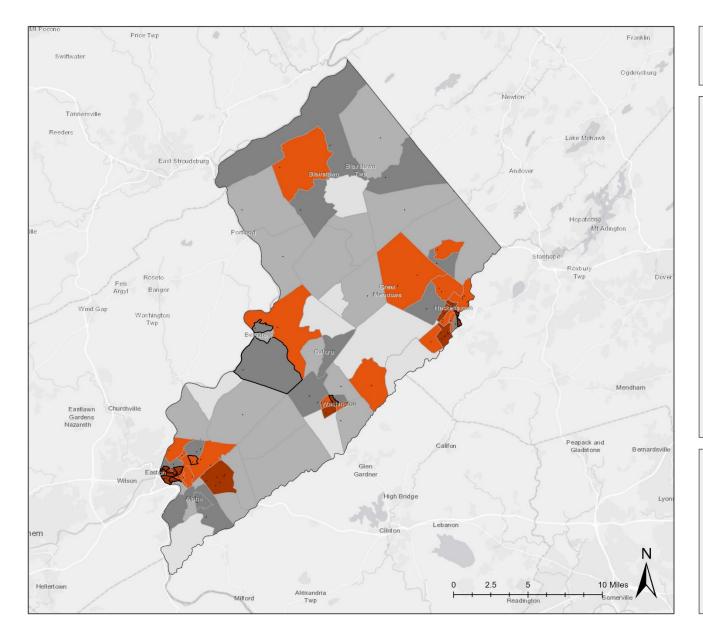
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Indicators of Potential Disadvantage

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





Racial Minority

□ County Boundary

□Low Income Block Groups

1 Dot = 200

Persons of Racial Minority

Racial Minority Population by Block Group

□Upto 5%

■5% to 10%

■10% to 17%

County average 17%

=17% to 30%

=30% to 64%

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

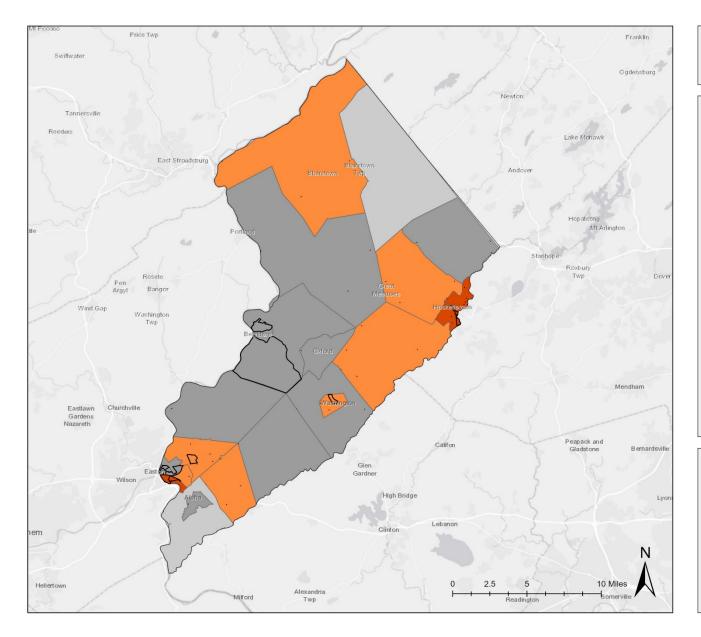
estimate, ESRI base map

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Foreign-Born Population

- □ County Boundary
- □ Low Income Block Groups

Foreign Born Dot

- 1 Dot = 200
- Foreign Born Persons

Percent of Foreign Born Population

- = 3.1% to 4%
- ■4% to 9%

County average

■9% to 14%

14% to 19%

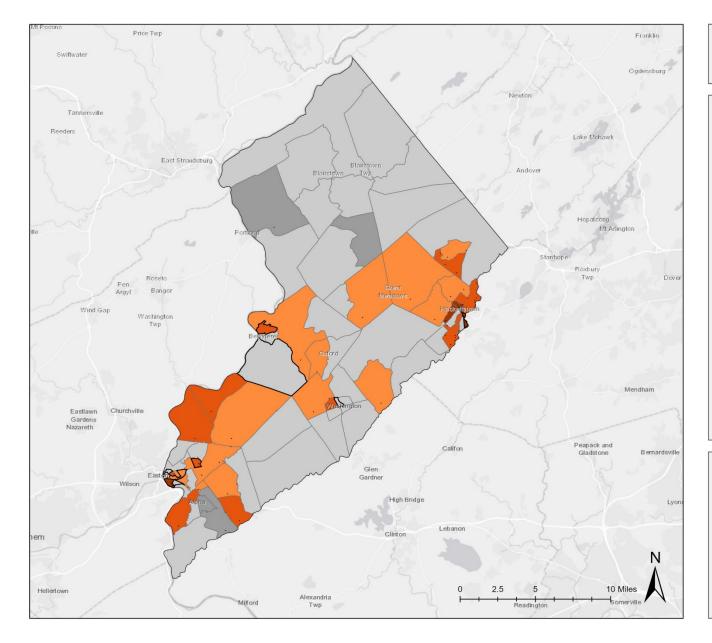
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Limited English proficiency

□County Boundary

□Low Income Block Groups

Language Dot

1 Dot = 20

Households with Limited English Proficiency

Percent of Families with Limited English Proficiency

□Less than 1.5%

■1.5% to 3%

County average =3% to 6% 3%

■6% to 12%

=12% to 24%

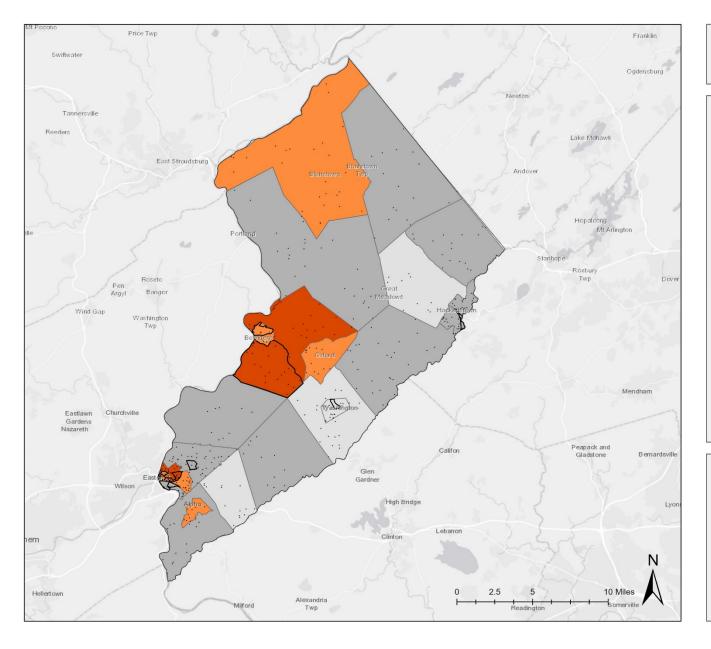
Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Person with Disability

- □ County Boundary
- □Low Income Block Groups
- 1 Dot = 30
- Person with Disability
- □Less than 10%
- = 10% to 14%

County average 14%

- = 14% to 20%
- **=**20% to 27%

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

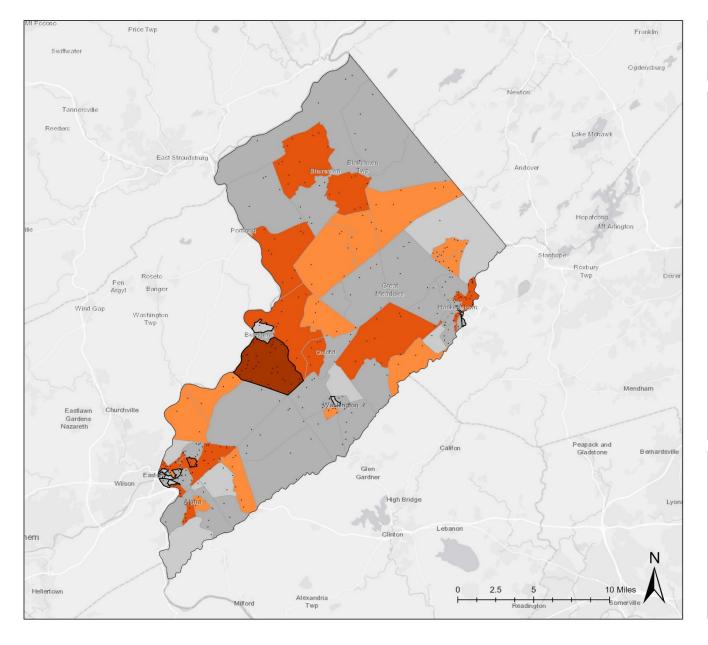
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Older Adults (75+)

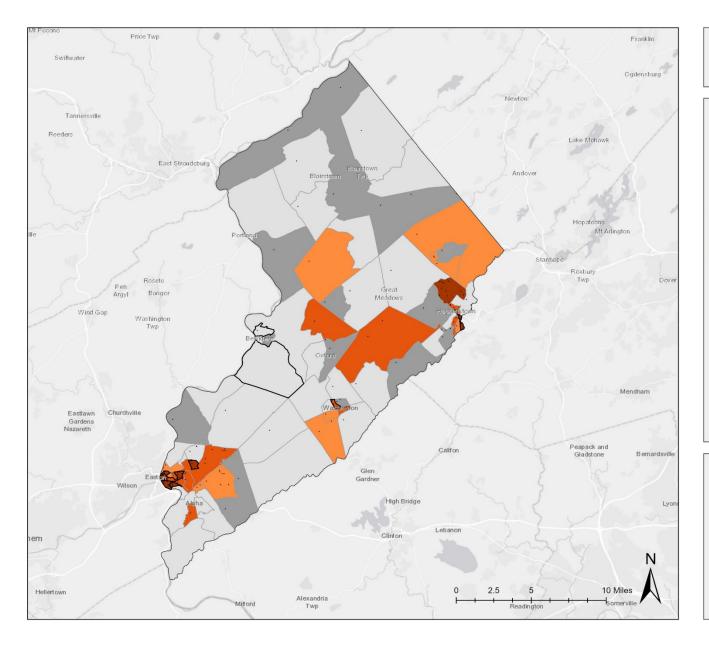
□ County Boundary
□ Low Income Block Groups
1 Dot = 20
· Older Adults (75+)
Percent of Population Over 75 Years Old
□ Less than 2.5%
□ 2.5% to 8%
□ 2.5% to 12%
□ 12% to 19%
□ 12% to 19%
□ 19% to 32%

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

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Single Parent Family

□County Boundary

□Low Income Block Groups

1 Dot = 30

· Single Parent Families

Percent of Single Parent Families by Block Group

□Less than 11%

=11% to 22%

County average

=22% to 33% 22%

=33% to 54%

=54% to 87%

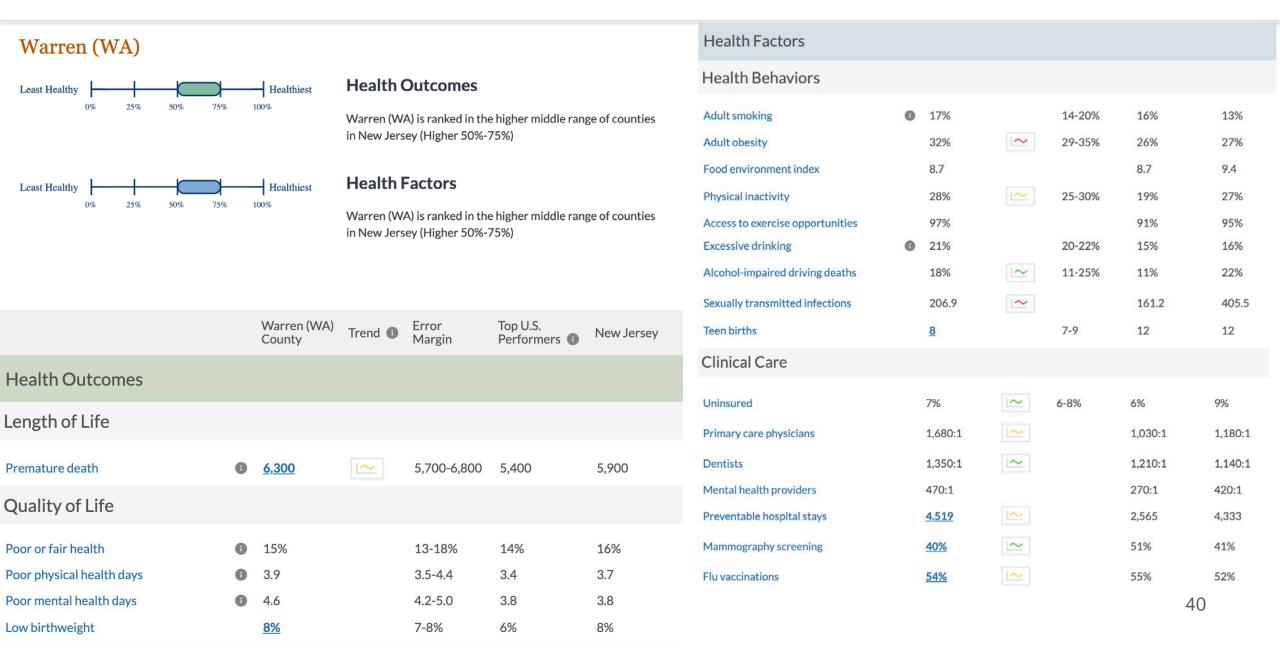
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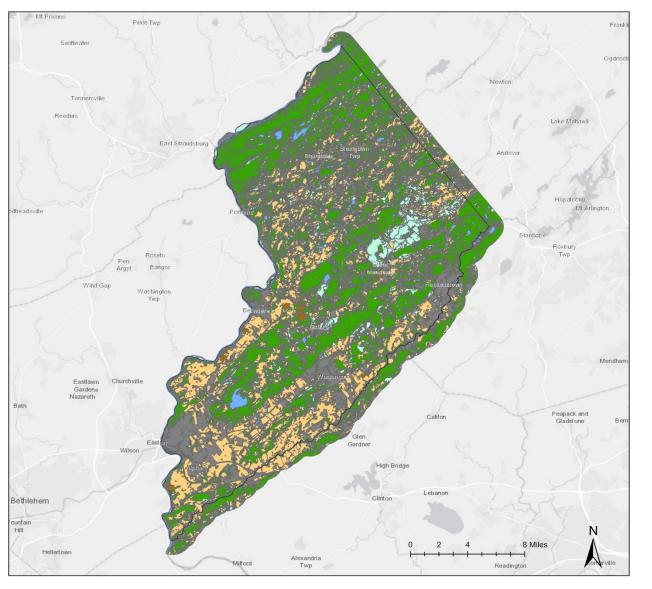
Health Behaviors



Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PLACE

Natural Land Use



Land Use County Boundary Other Land Use Agriculture ■ Barren Land Urban Forest Water Wetlands Data Source: NJGIN

Planning for Healthy, Just,

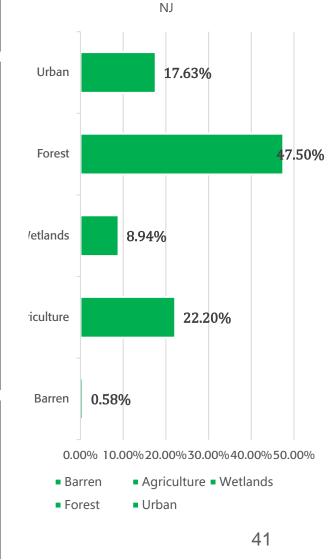
in New Jersey

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Resilient, and CO2-Neutral Mobility

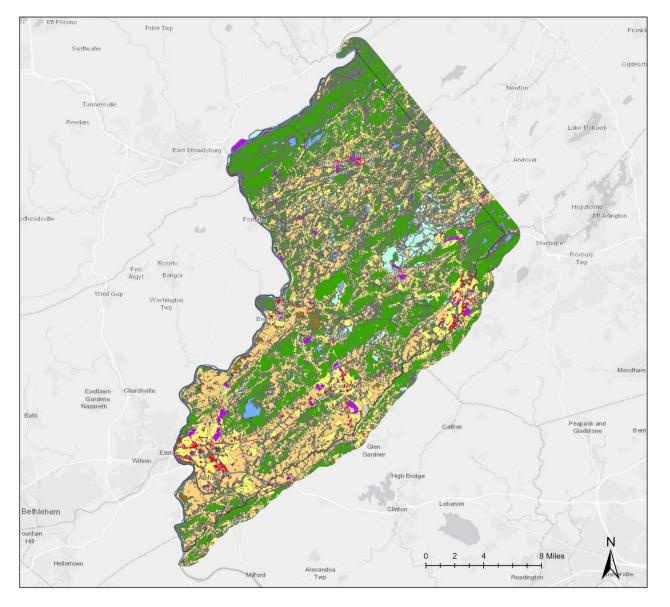
by Alan M. Voorhees Transportation Center

of Planning and Public Policy



LAND USE PERCENTAGE, MERCER COUNTY,

Urban Land Use



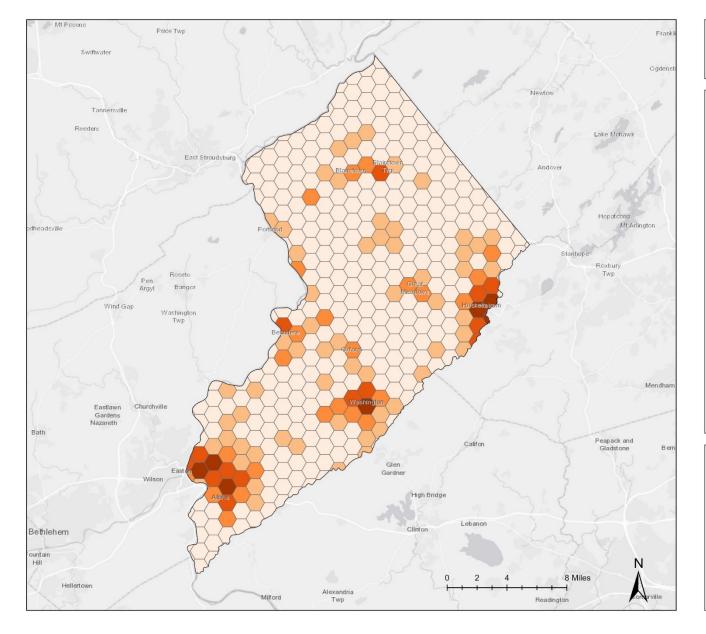
Land Use



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







Employee Density

☐ County Boundary
Total Employees- 2020

Less than 50

= 50 to 150

= 150 to 450

450 to 1000

1000 to 2868

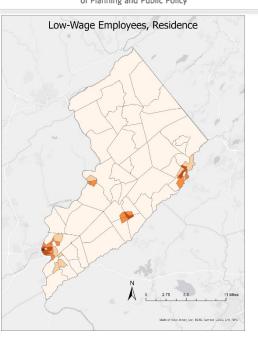
Data Source: NJGIN and ESRI Business Search Safegraph

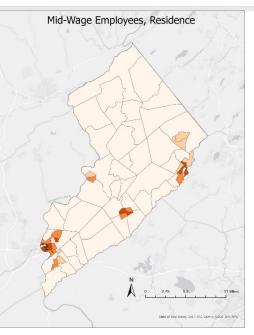
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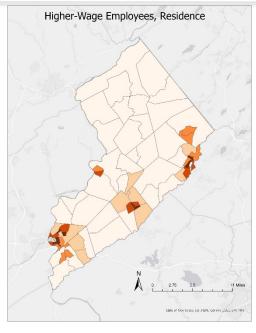
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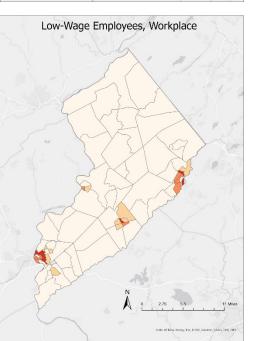


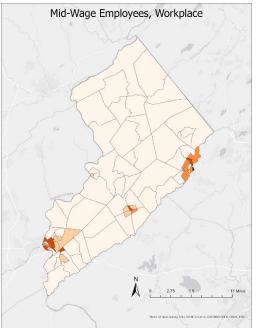


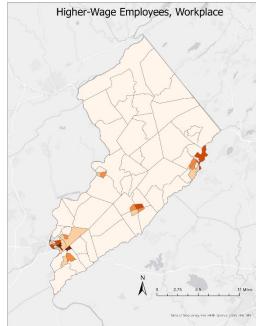


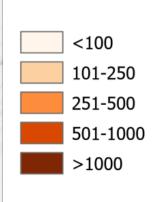


Number of employees per sq. mile by wage category by place of residence and place of work





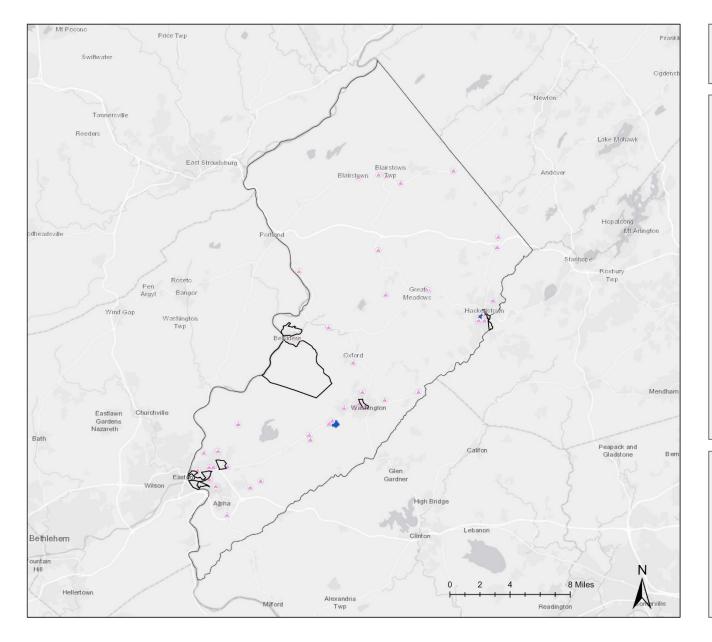




Data source: NJGIN, Longitudinal Employer-Household Dynamics (LEHD) 2014-2018 5-year estimate

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





Education

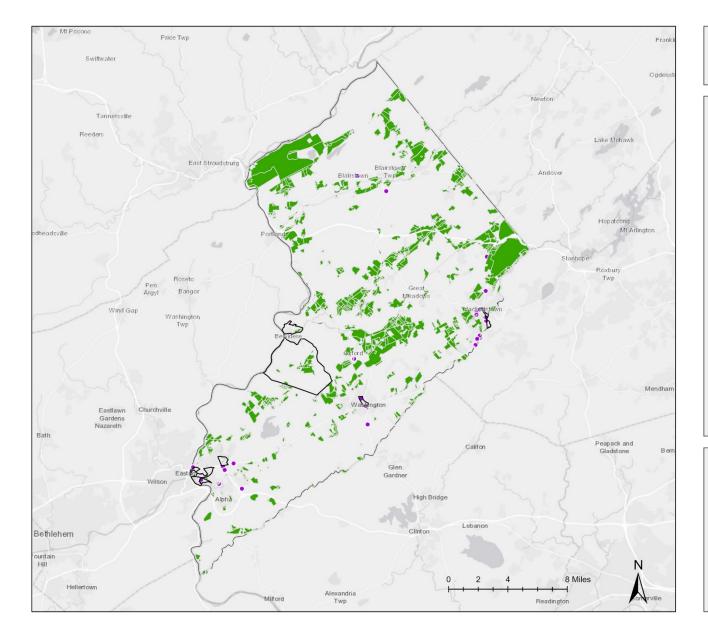
- ☐ County Boundary
- ☐ Low Income Block Group
- K-12 Schools
- College and University

Data Source: NJGIN and ESRI Business Search Safegraph

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Recreation

☐ County Boundary

□ Low Income Block Group

Fitness Centers

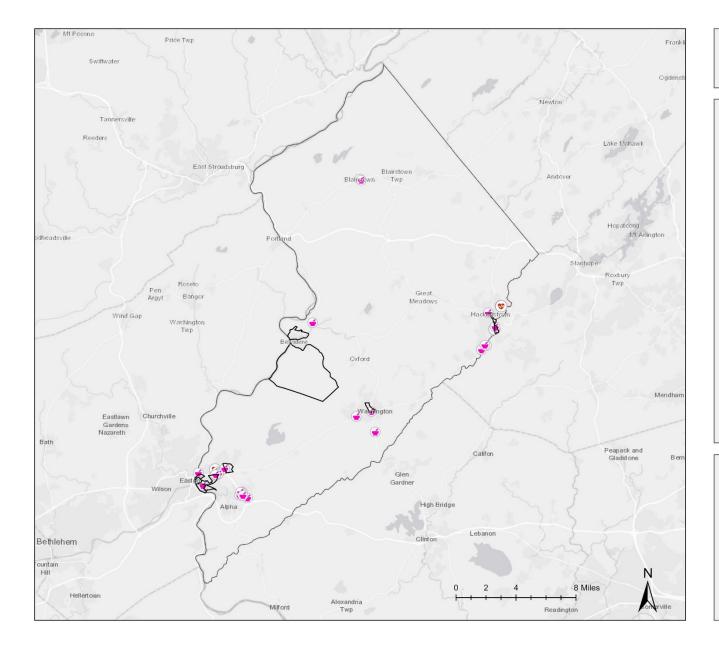
■ State, Local and Non-profit Open Space

Data Source: NJGIN and ESRI Business Search Safegraph

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Medical Services

- ☐ County Boundary
- ☐ Low Income Block Group
- Pharmacy and Drug Store
- Hospitals and Emergency centers

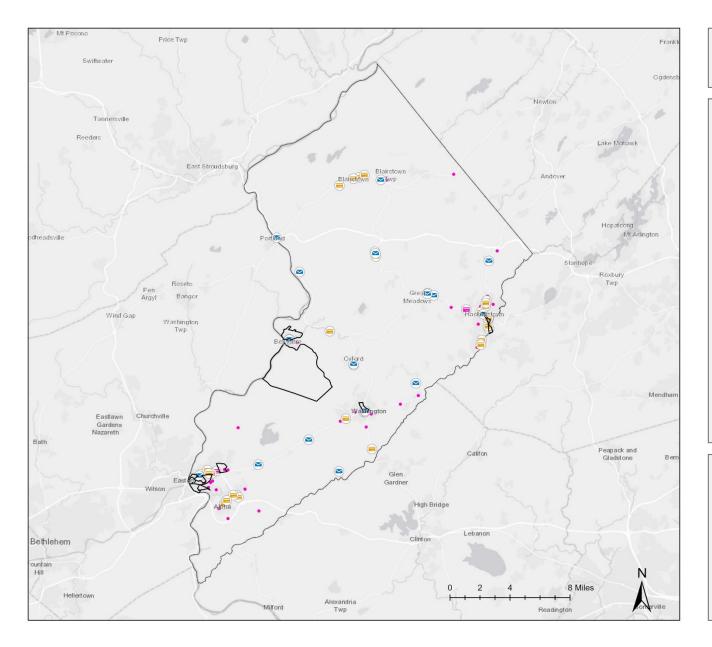
Data Source: NJGIN and ESRI Business Search Safegraph

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Essential Services

- County Boundary
- ☐ Low Income Block Group
- Childcare Facilities
- Postal Service
- Commercial Bank
- Credit Union

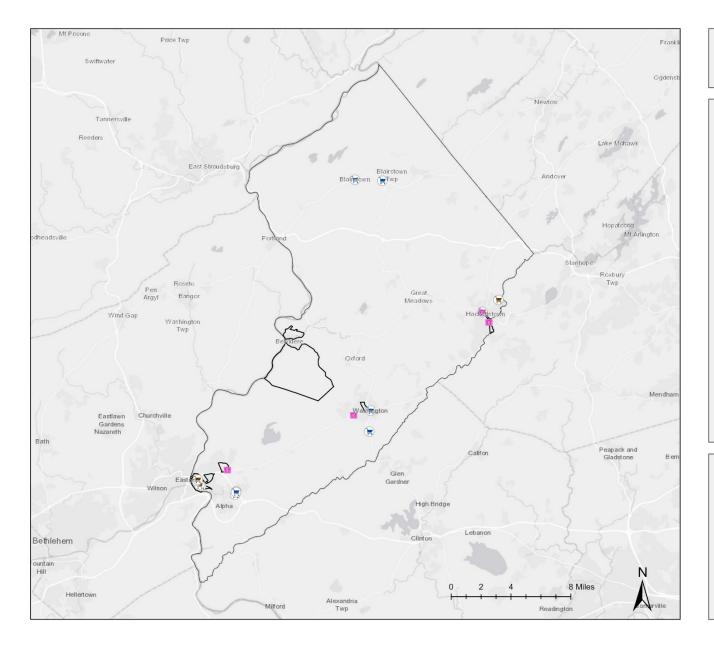
Data Source: NJGIN and ESRI Business Search Safegraph

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Commercial Amenities

- County Boundary
- ☐ Low Income Block Group
- Laundry Self Service
- Convenience/ Specialty Store
- Full-service Grocery Store

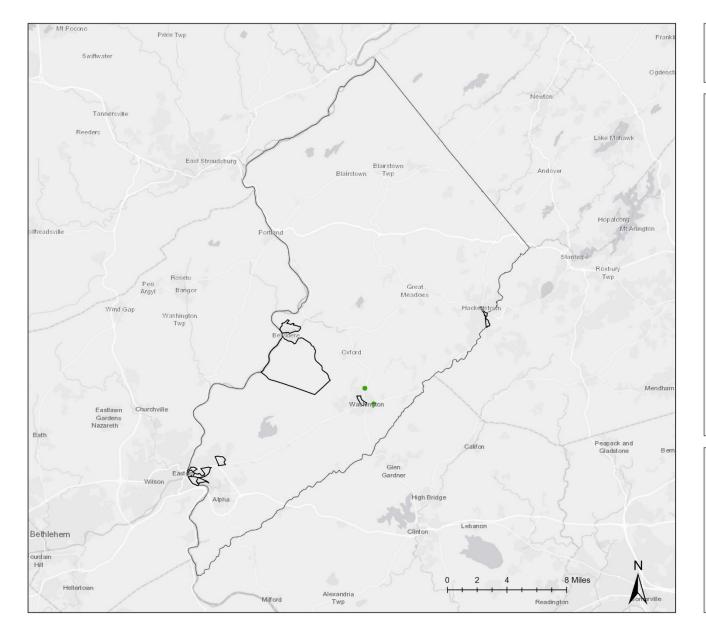
Data Source: NJGIN and ESRI Business Search Safegraph

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Alt. Fueling Station

County Boundary

☐ Low Income Block Group

Fuel Type

Electric

Data Source: NJGIN, ACS 2015-2019 5-year Estimate, US Department of Energy and ESRI Base Map

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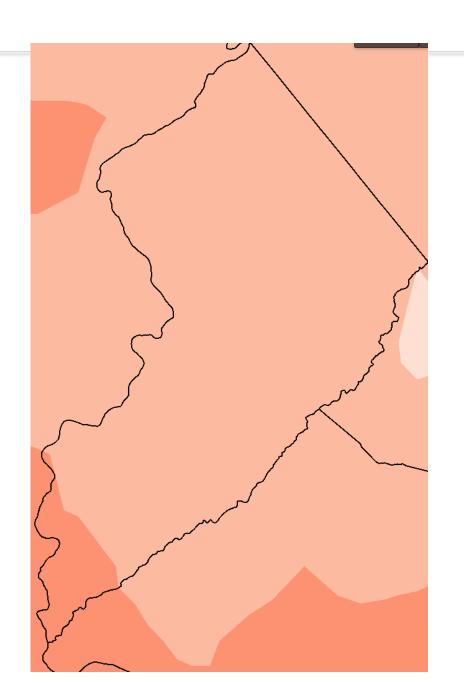


Climate Vulnerability

Exposure to extreme heat (High-emissions scenario)



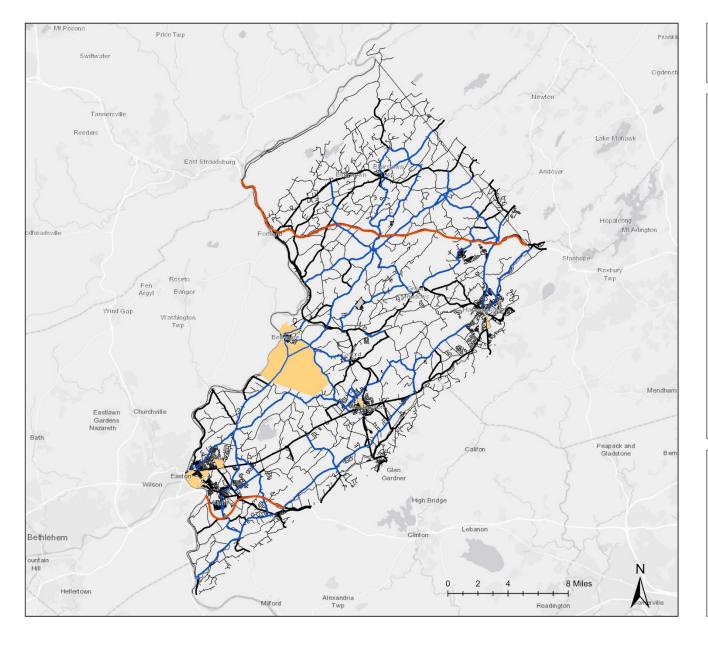
Source: NJ Forest Adapt



Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF MOBILITY AND CONNECTIONS





Road Network

☐ County Boundary

Low Income Block Group

Interstate

— County Road

— Major Roads

Local Roads

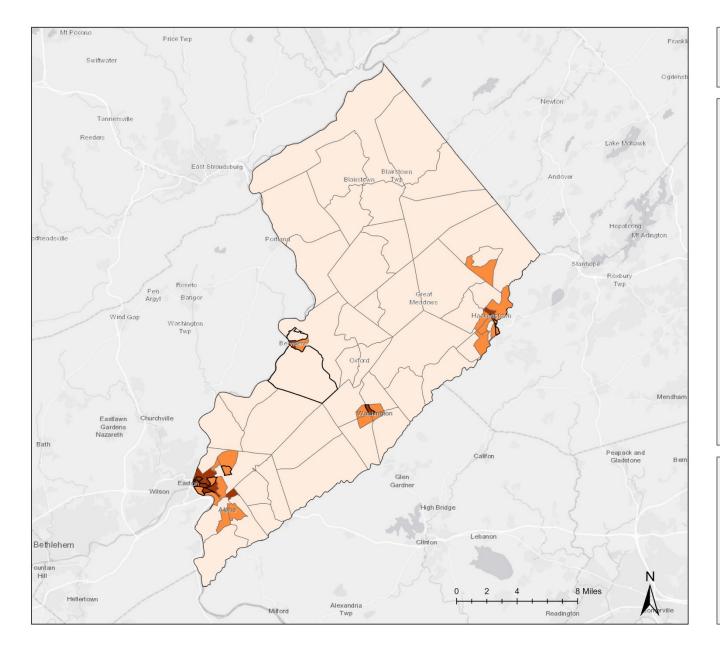
Data Source: NJGIN, ACS 2015-2019 5-year Estimate, NJDOT-SLD Database and ESRI Base Map

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Intersection Density

☐ County Boundary

Low Income Block Group

Number of Intersections per acre

D3b

30 - 95

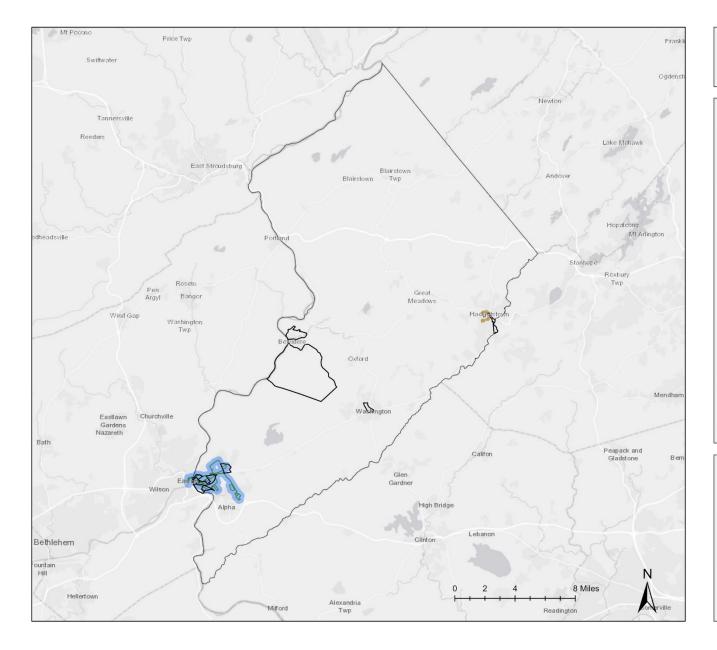
95 - 213

Data Source: NJGIN, ACS 2015-2019 5-year Estimate, National Walkability Index-EPA and ESRI Base Map

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







Transit Service Area

- County Boundary
- □ Low Income Block Group
- Railway Station
- Railway Station Service area- 0.5 mile
- Buffer bus route- 0.25 mile
- Bus Routes

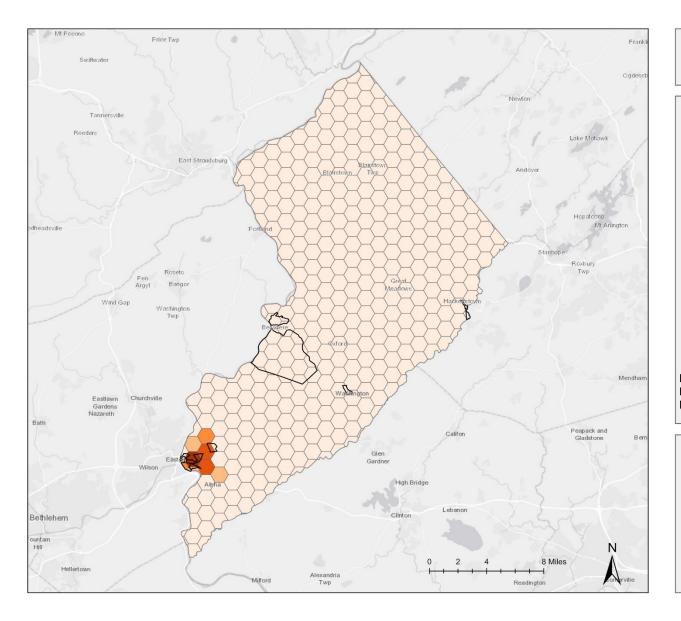
Total Transit Service Area= 6.12 sq. miles Bus Route Servce Area= 5.72 sq. miles Railway Station Service Area= 0.40 sq. miles

Data Source: NJGIN, ACS 2015-2019 5-year Estimate, NJT Transit GTFS data and ESRI Base Map

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



Bus Stop Density



Bus Stop Density

- County Boundary
- Low Income Block Group Count of Points
- **1** 3
- 4 5
- **6** 16
- **17 22**

Note Area of unit hexagon = 1 sq. mile

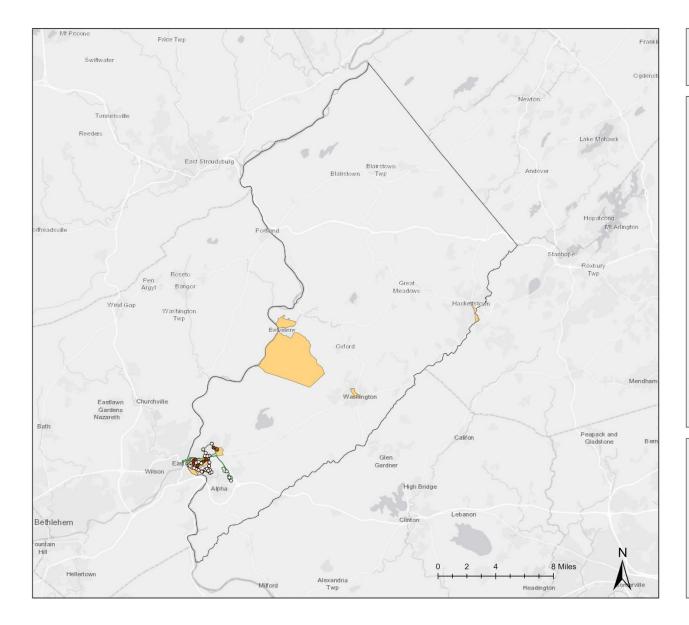
Data Source: NJGIN, ACS 2015-2019 5-year Estimate, NJT Transit GTFS data and ESRI Base Map

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

Prepared: July 01, 2021



Bus Service Frequency



Bus Service Frequency

- County Boundary
- Low Income Block Group
- Bus Routes

Max Wait time

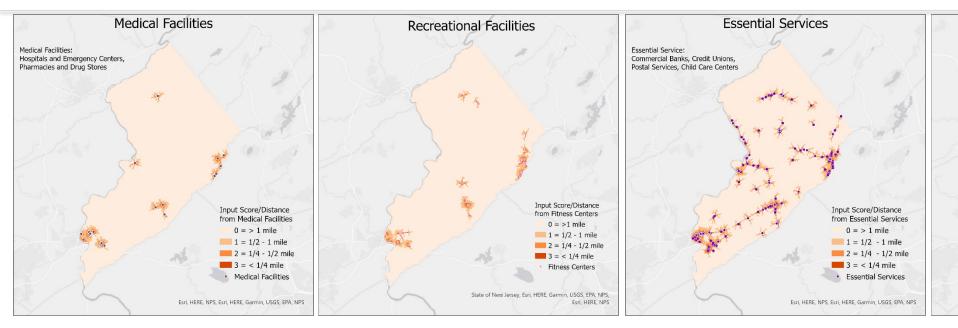
- 0 10 min
- 11 15 min
- 16 30 min
- 31 60 min
- 61 137 min

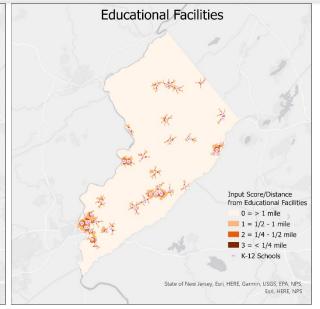
Data Source: NJGIN, ACS 2015-2019 5-year Estimate, NJT Transit GTFS data and ESRI Base Map

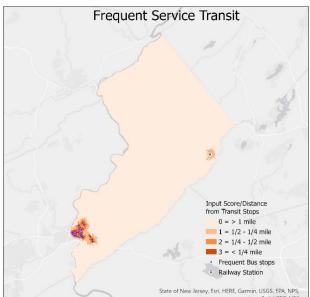
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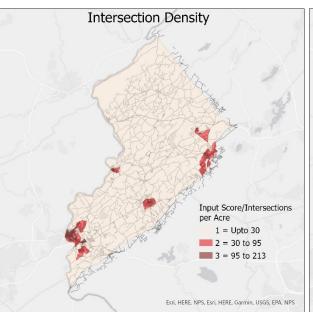


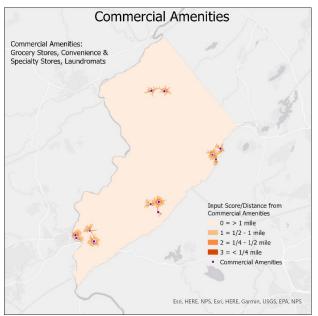
Measured Accessibility Analysis



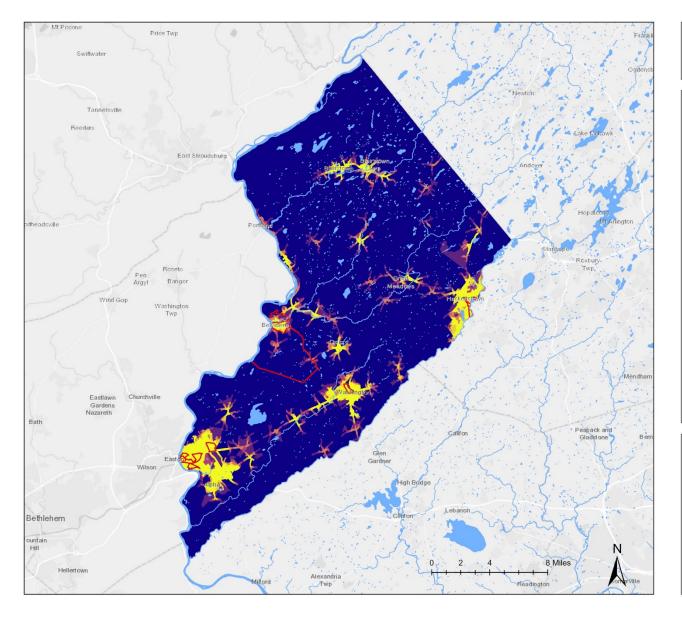








15-min Accessibility



Accessibility



Data Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI Business Analyst, NJ Transit GTFS Data and ESRI base map

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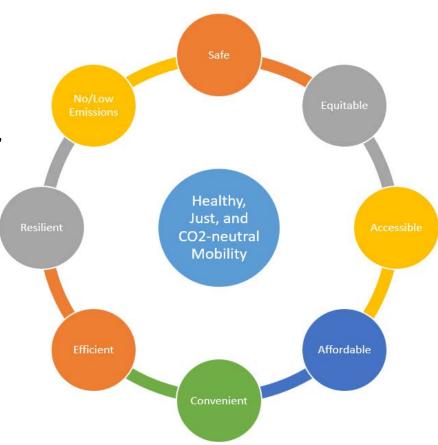
Issues Forum #1

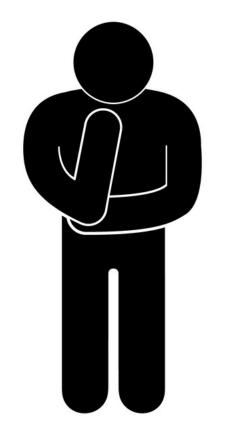
Objectives

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

Format

- Plenary + breakouts
- Virtual
- Timing December 2021-March 2022





Thoughts? Questions? Comments?