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
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

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
| 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

CAMDEN 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

- 227.3 square miles
- 37 Municipalities
- Over 510,000 residents
- County Seat: Camden City
Population Density

Population per Sq. Mile by Block Group
- 52 - 2,177
- 2,178 - 3,574
- 3,575 - 5,210
- 5,211 - 7,438
- 7,439 - 31,690

Low Income Block Group

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

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

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Edward J. Bloustein School of Planning and Public Policy
Population projection, Camden County, NJ
Linear model

\[ y = -1,243.200000x + 3,017,058.800000 \]
\[ R^2 = 0.881934 \]

Data Source: NJGSU, ESRI base map, ACS 2014 and 2019 estimates

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Prepared: June 10, 2021
by Alan M. Voorhis, Transportation Center
Rutgers University, New Jersey Institute of Technology
Age & Gender

Age & Gender Pyramid 2015-2019
Camden County, NJ

Median Age: 38.8 years old
County Average Median Household Income: $70,451

AHPNJ Region 3: 2020 Affordable Housing Income Limits. Region 5: Burlington, Camden, and Gloucester

<table>
<thead>
<tr>
<th>Income Limit (4 person Household)</th>
<th>Very Low</th>
<th>Low</th>
<th>Moderate</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>$28,980</td>
<td>$48,300</td>
<td>$77,280</td>
<td>$96,600</td>
<td></td>
</tr>
</tbody>
</table>

Median Household Income

- Low Income Block Group
  - Median Household Income by Block Group
    - $9,200 - 43,000
    - 43,001 - 72,000
    - 72,001 - 110,000
    - 110,001 - 150,000
    - 150,001 - 250,000

Note: Low Income Block Groups as median household income < $48,300 (AHPNJ)
Date Source: NJGIN, ACS 2015-2019 5-year estimate, ESRI base map

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Prepared: June 10, 2021 by Alan M. Voorhees Transportation Center
Households living in poverty

Low Income Households

1 Dot = 10
- households under poverty
Percent of Households under Poverty by Block Group
- 0% - 5.43%
- 5.44% - 12.43%
- 12.44% - 25.78%
- 25.79% - 41.88%
- 41.89% - 81.55%
- Low Income Block Group

Data Source: NUIIN, ACS 2015-2019 5-year estimates, 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

Edward J. Bloustein School of Planning and Public Policy
Educational Attainment

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

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Educational Attainment
(less than high school)

Camden County, NJ

Percent of Population with less than High School Degree
- 0% - 2.91%
- 2.92% - 6.04%
- 6.05% - 10.55%
- 10.56% - 19.82%
- 19.83% - 93.17%
- Low Income Block Group

Less than High School
H.S Degree or Equivalent
Some College
Bachelor's Degree or Higher
Unemployment Status

Employment Status

Percent of Unemployed Population by Block Group
- 0% - 1.19%
- 1.20% - 2.73%
- 2.74% - 4.56%
- 4.57% - 7.43%
- 7.44% - 23.84%
- Low Income Block Group

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

1 Dot = 200 persons of racial minority
Percent of Racial Minority Population by Block Group
- 0% - 14.71%
- 14.72% - 43.33% (County Average: 33.33%)
- 43.34% - 51.41%
- 51.42% - 77.77%
- 77.78% - 100%

Low Income Block Group

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 10, 2021 by Alan N. Voorhees, Transportation Center
Indicators of Potential Disadvantage

Foreign-born Population

1 Dot = 200
- foreign-born persons

Percent Foreign-born Population by Census Tract
- 0.96% - 5.21%
- 5.22% - 11.12%
- 11.13% - 15.38%
- 15.39% - 21.83%
- 21.84% - 33.53%
- Low Income Block Group

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

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34
Indicators of Potential Disadvantage

Limited English Proficiency

1 Dot = 20 households with limited English proficiency

Percent of Limited English Proficiency Households by Block Group

- 0% - 1.86%
- 1.87% - 4.80%
- 4.81% - 12.97%
- 12.98% - 26.27%
- 26.28% - 54.87%

Low Income Block Group

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

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Indicators of Potential Disadvantage

Disability

1 Dot = 30
- persons with disability

Percent of Persons with Disability by Census Tract
- 5.22% - 9.02%
- 9.03% - 13.53%
- 13.54% - 15.55%
- 15.56% - 19.7%
- 19.71% - 28.35%
- Low Income Block Group

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

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Indicators of Potential Disadvantage

Older Adults

1 Dot = 20
older adults (75+)
Percent of Older Adults (75+)
by Block Group
- 0% - 3.53%
- 3.64% - 6.56%
- 6.57% - 14.78%
- 14.79% - 29.22%
- 29.23% - 48.20%
- 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 Families

1 Dot = 30
- single parent families

Percent of Single Parent Families by Block Group

- 0% - 9.27%
- 9.28% - 36.95%
- 36.96% - 48.52%
- 48.53% - 74.42%
- 74.43% - 100%
- Low Income Block Group

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

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Health Behaviors

Camden is ranked among the least healthy counties in New Jersey (Lowest 0%-25%)

### Health Behaviors

<table>
<thead>
<tr>
<th>Health Behaviors</th>
<th>Camden County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Smoking</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>33%</td>
<td>26%</td>
</tr>
<tr>
<td>Food environment index</td>
<td>8.4</td>
<td>9.3</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>Access to exercise opportunities</td>
<td>90%</td>
<td>95%</td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>17%</td>
<td>18%</td>
</tr>
<tr>
<td>Alcohol-impaired driving deaths</td>
<td>20%</td>
<td>22%</td>
</tr>
</tbody>
</table>

### Physical Environment

<table>
<thead>
<tr>
<th>Physical Environment</th>
<th>Camden County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution-particulate matter</td>
<td>10.1</td>
<td>9.9</td>
</tr>
<tr>
<td>Drinking water problems</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Severe housing problems</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>Driving alone to work</td>
<td>76%</td>
<td>71%</td>
</tr>
<tr>
<td>Long commute-driving alone</td>
<td>41%</td>
<td>43%</td>
</tr>
</tbody>
</table>
Health Behaviors

<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Camden County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor or fair health</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Poor physical health days</td>
<td>4.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Poor mental health days</td>
<td>4.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Low birthweight</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>77.2</td>
<td>80.5</td>
</tr>
<tr>
<td>Diabetes prevalence</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>Frequent physical distress</td>
<td>12%</td>
<td>11%</td>
</tr>
</tbody>
</table>

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

Source: 2020 NJ County Health rankings
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PLACE
Natural Land Use

Land Use Division

Percentage of County Area covered

- AGRICULTURE: 6.05%
- BARREN: 1.35%
- FOREST: 22.90%
- URBAN: 51.57%
- WATER: 4.06%
- WETLANDS: 14.06%

Land Use

- AGRICULTURE
- BARREN LAND
- FOREST
- URBAN
- WATER
- WETLANDS
Employment Density

- Low Income Block Group
- Number of Employees per sq. mile
  - 0 - 616
  - 617 - 1,585
  - 1,686 - 3,171
  - 3,172 - 5,277
  - 5,278 - 19,357

Note: The area of a hexagon is 1 sq. mile.
Data Source: NJGIIN, ESRI Business Analyst (2020 Data), ESRI base map

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Employment Density by Wage

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

- < 500
- 501 - 1,000
- 1,001 - 2,000
- 2,001 - 4,000
- > 4,000

Note: low-wage: earnings $1,250/month or less; mid-wage: earnings $1,251/month to $3,333/month; higher-wage: earnings greater than $3,333/month

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

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

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Recreation

- Fitness Center
- State, local, and nonprofit open space
- Low Income Block Group

Data Source: NDGIM, ESRI base map, ESRI Business Analyst (2020 data)

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Medical Services

Data Source: NPGIN, ESRI base map, ESRI Business Analyst (2020 data)

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Commercial Amenities

- Convenience/ Specialty Stores
- Full-service Grocery Stores
- Laundromats
- Low Income Block Group

Data Source: NGIN, ESRI base map, ACS 2015-2019 5-year estimate, ESRI Business Analyst

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Climate Vulnerability

Sea Level Rise (5 ft)

- Low Income Block Group
  5 ft. sea level rise depth

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

Type
- Interstate/US/State highway
- County Route
- Local Road
- Low Income Block Group

Data Source: NJGIN, ESRI base map

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Intersection Density

Number of Intersections per acre
- 0 - 41
- 42 - 79
- 80 - 123
- 124 - 194
- 195 - 298

Low Income Block Group

Data Source: NJGIN, EPA, ESRI base map

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Transit Service Area

- Rail Station
- Rail Station Service Area
- Bus Service Area
- Bus Route
- Low Income Block Group

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

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Service Frequency-Rail Stations

Trips Per Hour
- 0 - 1.25
- 1.26 - 1.50
- 1.51 - 6.75
- 6.74 - 7.00
- 7.01 - 7.25

Railroads
Low Income Block Group

Note: Weekday Morning Hours: 6:00 - 10:00
Data Source: NJGIN, ESRI base map, NJT Transit GTFS data

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Alternative Fuel Stations

Fuel Type
- CNG
- Electric
- Liquefied Petroleum Gas
- Low Income Block Group

Data Source: NJGIN, Alternative Fuel Data Center, ESRI base map

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Measured Accessibility Analysis
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?