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)

2050 Emissions Reduction Goal
(80% Decrease from 2006 Baseline)

New Jersey’s GHG Emissions and Goals
(MMTCO₂e)
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?

- **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.
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?

- **5 MINUTE WALK**
  - (3 MPH AVG)
  - RADIUS: 1/4 MILE
  - ACRES: ~126
  - DWELLING UNITS: 1,000 @ 8/AC
  - POPULATION: 2,600 @ 2.6/UNIT

- **5 MINUTE BIKE**
  - (12 MPH AVG)
  - RADIUS: 3/4 MILE
  - ACRES: ~1,130
  - DWELLING UNITS: 9,040 @ 8/AC
  - POPULATION: 23,500 @ 2.6/UNIT

- **5 MINUTE ELECT. VEHICLE**
  - (20 MPH AVG)
  - RADIUS: 1 2/3 MILE
  - ACRES: ~5,560
  - DWELLING UNITS: 16,100 @ 8/AC
  - POPULATION: 41,860 @ 2.6/UNIT

- **15 MINUTE BIKE**
  - (12 MPH AVG)
  - RADIUS: 3 MILE
  - ACRES: ~16,100
  - DWELLING UNITS: 144,800 @ 8/AC
  - POPULATION: 376,480 @ 2.6/UNIT

CREDIT: DPZ CoDesign
Key relationships

People + Places + Connections

Neighborhood → Community → Region
## Work Plan

<table>
<thead>
<tr>
<th>PHASE 1 – Exploring key concepts, desktop analysis, looking toward the future (Mar 2021 to Feb 2022)</th>
<th>Activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Conduct leading practice research</td>
</tr>
<tr>
<td></td>
<td>• Collect, analyze, and map data</td>
</tr>
<tr>
<td></td>
<td>• Identify of potential community and equity partners</td>
</tr>
<tr>
<td></td>
<td>• Convene “Thought Leaders” webinar and visioning workshops</td>
</tr>
<tr>
<td></td>
<td>• Identify vision components</td>
</tr>
<tr>
<td></td>
<td>• Select locations for neighborhood-scale analysis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHASE 2 – Field work, community engagement, and developing recommendations (Mar 2022 to Sep 2022)</th>
<th>Activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Conduct field visits and interviews to get to know the neighborhoods</td>
</tr>
<tr>
<td></td>
<td>• Develop and implement community engagement plan</td>
</tr>
<tr>
<td></td>
<td>• Identify local mobility and other community needs and concerns</td>
</tr>
<tr>
<td></td>
<td>• Prepare concept plans for retrofitting existing neighborhoods</td>
</tr>
<tr>
<td></td>
<td>• Identify infrastructure needs</td>
</tr>
<tr>
<td></td>
<td>• Develop planning and policy recommendations</td>
</tr>
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<td></td>
<td>• Prepare comprehensive final report</td>
</tr>
<tr>
<td></td>
<td>• Convene “Thought Leaders” Forum #2 – How do we get there?</td>
</tr>
</tbody>
</table>
Phase 1 Case Study Locations

1. Atlantic
2. Camden
3. Cumberland
4. Essex
5. Hudson
6. Mercer
7. Middlesex
8. Warren
CUMBERLAND COUNTY
Exploring the Geography of People, Place, and Connections
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

- 484 square miles
- 14 Municipalities
- Over 150,000 residents
- County Seat: The City of Bridgeton
Population

Population Density

- Low Income Block Group
- Persons per square mile
  - 14 - 1083
  - 1084 - 2769
  - 2770 - 5378
  - 5379 - 9095
  - 9096 - 13960

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

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

Prepared: June 20, 2021
by Alan M. Voorhees Transportation Center

Rutgers
Edward J. Bloustein School of Planning and Public Policy
Change in Population: 2014-2019


Percent Population Change 2014-2019

- Low Income Block Group
- Percent Population Change
  - -0.24% to -0.10%
  - -0.11% to 0.03%
  - 0.03% to 0.23%
  - 0.24% to 1.03%
  - 1.03% to 1.04%

Data Source: NGSIN, ACS 2014-2019 5-year estimate, ESRI base map

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 20, 2021 by Alan M. Voorhees Transportation Center
Race and Ethnicity - 2019

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

Median Age: 37.6 years old

Source: US Census Bureau, 2019 ACS, 5-year
## Household Income

### AHPNJ Region 3: 2020 Affordable Housing Income Limits. Region 6: Atlantic, Cape May, Cumberland, and Salem

<table>
<thead>
<tr>
<th>Income Limit (4 person Household)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>$24,625</td>
</tr>
<tr>
<td>Low</td>
<td>$41,041</td>
</tr>
<tr>
<td>Moderate</td>
<td>$65,666</td>
</tr>
<tr>
<td>Median</td>
<td>$82,083</td>
</tr>
</tbody>
</table>

County Average Median Household Income: $54,149
Households living in poverty

Households in Poverty

- Low Income
- Block Group
- 1 Dot = 10

Households in Poverty

Percent of Total
Households in Poverty

<table>
<thead>
<tr>
<th>Percent Range</th>
<th>County Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - 8%</td>
<td>15.96%</td>
</tr>
<tr>
<td>8% - 16%</td>
<td></td>
</tr>
<tr>
<td>16% - 26%</td>
<td></td>
</tr>
<tr>
<td>26% - 34%</td>
<td></td>
</tr>
<tr>
<td>34% - 58%</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Prepared by Alain M. Voorhees Transportation Center

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28
Educational Attainment

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than H.S Diploma</td>
<td>21%</td>
</tr>
<tr>
<td>H.S Diploma or equivalent</td>
<td>39%</td>
</tr>
<tr>
<td>Some College</td>
<td>24%</td>
</tr>
<tr>
<td>Professional School Degree</td>
<td>1%</td>
</tr>
<tr>
<td>Bachelor's Degree or higher</td>
<td>16%</td>
</tr>
</tbody>
</table>
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

- Low Income Block Group
- Percent of racial minority
  - 0% - 25%
  - 25% - 48%
  - 48% - 65%
  - 65% - 79%
  - 79% - 97%

County average: 48.08%

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

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Indicators of Potential Disadvantage

Foreign-born Population

- Low Income Block Group
  - Foreign Born Persons

Percent of Foreign-born Population by Census Tract

- 0% - 6%
- 6% - 10%
- 10% - 15%
- 16% - 22%
- 22% - 37%

County average: 10.09%

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

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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% - 2%
- 2% - 4%
- 4% - 14%
- 14% - 26%
- 26% - 42%

County average 7%

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

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Prepared: June 20, 2021
by Alan M. Voorhees Transportation Center
Indicators of Potential Disadvantage

Disability Status

- Low Income Block Group
  - 1 Dot = 20
    - Persons with a disability
  - Percent With Disability
    - 0% - 6%
    - 6% - 13%
    - 13% - 18%
    - 18% - 23%
    - 23% - 33%
    - County average 13.29%

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

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Indicators of Potential Disadvantage

Older Adults (75+)

- Low Income Block Group
  - 1 Dot = 20
  - Older adults (75+)

Percent of Older Adults (75+) by Block Group

- 0% - 2%
- 2% - 7%
- 7% - 10%
- 10% - 13%
- 13% - 21%

County average 6.9%

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 Group
- 1 Dot = 30
- single parent family

Percent of Single Parent Families by Block Group

- 0% - 21%
- 21% - 41%
- 41% - 56%
- 56% - 73%
- 73% - 100%

County average: 41.23%

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

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# Health Behaviors

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

## Health Behaviors

<table>
<thead>
<tr>
<th>Health Behaviors</th>
<th>Cumberland County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Smoking</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>Adult obesity</td>
<td>37%</td>
<td>26%</td>
</tr>
<tr>
<td>Food environment index</td>
<td>7.5</td>
<td>9.3</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>32%</td>
<td>26%</td>
</tr>
<tr>
<td>Access to exercise opportunities</td>
<td>79%</td>
<td>95%</td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Alcohol-impaired driving deaths</td>
<td>30%</td>
<td>22%</td>
</tr>
</tbody>
</table>

## Physical Environment

<table>
<thead>
<tr>
<th>Physical Environment</th>
<th>Middlesex County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution-particulate matter</td>
<td>7.8</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>24%</td>
<td>22%</td>
</tr>
<tr>
<td>Driving alone to work</td>
<td>81%</td>
<td>71%</td>
</tr>
<tr>
<td>Long commute-driving alone</td>
<td>31%</td>
<td>43%</td>
</tr>
</tbody>
</table>
### Health Behaviors

Middlesex is ranked among the least healthy counties in New Jersey (Lowest 0%-25%) regarding Health Outcomes.

<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Cumberland County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor or fair health</td>
<td>25%</td>
<td>18%</td>
</tr>
<tr>
<td>Poor physical health days</td>
<td>5.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Poor mental health days</td>
<td>4.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Low birthweight</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>75.3</td>
<td>80.4 years</td>
</tr>
<tr>
<td>Diabetes prevalence</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>Frequent physical distress</td>
<td>16%</td>
<td>11%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leading Causes of Death Under age 75 in Cumberland County</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant neoplasms</td>
<td>589</td>
</tr>
<tr>
<td>Diseases of heart</td>
<td>464</td>
</tr>
<tr>
<td>Accidents</td>
<td>359</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>99</td>
</tr>
<tr>
<td>Cerebrovascular diseases</td>
<td>73</td>
</tr>
</tbody>
</table>
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PLACE
Natural Land Use

Land Use

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (sq miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>155</td>
</tr>
<tr>
<td>Wetlands</td>
<td>149</td>
</tr>
<tr>
<td>Agriculture</td>
<td>100</td>
</tr>
<tr>
<td>Urban</td>
<td>71</td>
</tr>
<tr>
<td>Water</td>
<td>29</td>
</tr>
<tr>
<td>Barren Land</td>
<td>7</td>
</tr>
</tbody>
</table>

Legend:
- AGRICULTURE
- BARREN LAND
- FOREST
- URBAN
- WATER
- WETLANDS
Urban Land Use

Land Use 2015

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

Other Land Use
- Agriculture
- Barren Land
- Forest
- Water
- Wetlands

Data Source: NCGIN, ESRI base map

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 19, 2021
by Alan M. Voorhees Transportation Center

Rutgers Edward J. Bloustein School of Planning and Public Policy
Employment Density

Number of employees per sq mile
- 0 - 67
- 67 - 230
- 230 - 552
- 552 - 1328
- 1328 - 3300

Data Source: NJGIN, Esri Business Analyst (2020 data)

Note: The area of a hexagon is 1 sq mile

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Employment Density by Wage

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

- <400
- 401 - 800
- 801 - 1200
- 1201 - 1600
- >1600

Low-wage Employees, Residence
Mid-wage Employees, Residence
High-wage Employees, Residence
Low-wage Employees, Workplace
Mid-wage Employees, Workplace
High-wage Employees, Workplace
Education Services

Type 1: Colleges and universities

Type 2: K-12 public schools
Recreation

Type 1: State, local and nonprofit Open Space

Type 2: Fitness centers
Medical Services

Type 1: Hospitals and emergency centers

Type 2: Pharmacies
Other Essential Services

Type 1: Commercial Banks and Credit Unions

Type 2: Postal Services

Type 3: Childcare Centers
Commercial Amenities

Type 1: Full-service grocery stores

Type 2: Convenience/Specialty stores

Type 3: Laundromats
Climate Vulnerability

Sea-level rise

Sea Level Rise (5 ft)

- Low Income Block Group
- High
- Low

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

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Climate Vulnerability

Exposure to extreme heat (High-emissions scenario)

Days with Maximum Above 95°F

- <=4 days
- 5-10 days
- 11-20 days
- 21-30 days
- 31-40 days
- 41-50 days
- 51-60 days
- 61-70 days
- > 70 days

Source: NJ Forest Adapt
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF MOBILITY AND CONNECTIONS
Intersection Density

Number of intersections per acre
- 0 - 4
- 4 - 14
- 14 - 35
- 35 - 79
- 79 - 176

Low income block group

Data Source: NJGIN, Esri Business Analyst (2020 data)

Note: The area of a hexagon is 1 sq mile

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Bus Service Frequency

Max Wait Time
- 0 - 15 min
- 16 - 50 min
- 51 - 78 min
- 79 - 107 min
- 108 - 152 min

Bus Route
Low Income Block Group

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

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Alt. Fueling Station

- Low Income Block Group
- Fuel Type
  - Compressed Natural Gas
  - Electric
  - Liquified Petroleum Gas

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

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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?