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

Overburdened Communities (OBC) Under the Environmental Justice Law
Data from 5 Year American Community Survey (2015 to 2019)

<table>
<thead>
<tr>
<th>Category of OBC*</th>
<th>Number of Block Groups</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority</td>
<td>1,870</td>
<td>2,405,859</td>
</tr>
<tr>
<td>Low Income &amp; Minority</td>
<td>1,165</td>
<td>1,667,572</td>
</tr>
<tr>
<td>Low Income</td>
<td>197</td>
<td>271,412</td>
</tr>
<tr>
<td>Low Income, Minority &amp; Limited English</td>
<td>122</td>
<td>187,828</td>
</tr>
<tr>
<td>Minority &amp; Limited English</td>
<td>12</td>
<td>11,972</td>
</tr>
<tr>
<td>Low Income &amp; Limited English</td>
<td>2</td>
<td>2,574</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,168</td>
<td>4,518,217</td>
</tr>
</tbody>
</table>

*The Environmental Justice Law defines OBCs as block groups with:
(1) At least 25 percent low-income households; or
(2) At least 40 percent of the residents identify as minority or as members of a state-recognized tribal community; or
(3) At least 40 percent of the households have limited English proficiency.

For more information, visit: nj.gov/dep/nj/communities.html
New Jersey Emissions Targets

2020 Emissions Reduction Goal (Equivalent to 1990 GHG Emissions)
- 125.6 MMTCO₂e
- 128.6 MMTCO₂e
- 100.9 MMTCO₂e

2050 Emissions Reduction Goal (80% Decrease from 2006 Baseline)
- 25.7 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.

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?

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 WALK (3 MPH AVG)
RADIUS - 3/4 MILE
ACRES - ~1,130
DWELLING UNITS - 9,040 @ 8/AC
POPULATION - 23,500 @ 2.6/UNIT

5 MINUTE BIKE (12 MPH AVG)
RADIUS - 1 MILE
ACRES - ~2,010
DWELLING UNITS - 16,100 @ 8/AC
POPULATION - 41,860 @ 2.6/UNIT

5 MINUTE ELEC. VEHICLE (20 MPH AVG)
RADIUS - 1 2/3 MILE
ACRES - ~5,560
DWELLING UNITS - 44,700 @ 8/AC
POPULATION - 116,200 @ 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

| 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

MERCER COUNTY
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PEOPLE
County at a glance

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

A mix of small towns, urban centers and rural communities
Population Density

- Population per sq mile by block group:
  - 161 - 1,576
  - 1,577 - 3,087
  - 3,088 - 5,234
  - 5,235 - 10,930
  - 10,940 - 37,510

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center
Change in Population: 2014-2019


Data Source: NJGIN, ACS 2014 and 2019 estimate
Race and Ethnicity - 2019

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

Median Age: 37 years old
Household Income

County Average Median Household Income: $81,057

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

<table>
<thead>
<tr>
<th>Income Limit (4 person Household)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>$32,772</td>
</tr>
<tr>
<td>Low</td>
<td>$54,621</td>
</tr>
<tr>
<td>Moderate</td>
<td>$87,393</td>
</tr>
<tr>
<td>Median</td>
<td>$109,242</td>
</tr>
</tbody>
</table>

Data Source: NJGIN, ACS 2015-2019 5-year estimates, Low Income Households as median household income <$54,621(APHNJ), ESRI base map
Households living in poverty

Data Source: NJGIN, ACS 2014 and 2019 estimate
Educational Attainment

25 years and older w/ less than High School Diploma

11%

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

43%

Educational Attainment (less than high school)

- 9% - 14%
- 25% - 34%
- 22% - 40%
- 0% - 17%
- 50% - 90%

Educational Attainment (bachelor degree or higher)

- 5% - 60%
- 45% - 59%
- 15% - 40%
- 10% - 15%
- 0% - 5%

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center

Rutgers University Bloustein School of Planning and Public Policy
Unemployment Status

Data Source: NJGIN, ACS 2014 and 2019 estimate
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
Percentage of Racial Minority Population by Block Group
- 0% - 12%
- 13% - 24%
- 25% - 35%
- 36% - 45%
- 46% - 55%
- 56% - 65%
- 66% - 75%
- Low income block groups

Data Source: NJGIN, ACS 2015 - 2019

Foreign-Born Population

1 Dot = 200
- Foreign Born Persons
Percent of Foreign-born Population by Census Tract
- 0% - 3%
- 4% - 7%
- 8% - 11%
- 12% - 14%
- 15% - 18%
- 19% - 21%
- 22% - 24%
- 25% - 27%
- 28% - 31%
- 32% - 35%
- 36% - 39%

Data Source: NJGIN, ACS 2015 - 2019
Indicators of Potential Disadvantage

Limited English Proficiency

- Low income block groups
- Households with limited English proficiency
- Percentage of limited English proficiency households by block group

<table>
<thead>
<tr>
<th>Percentage</th>
<th>County average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - 4%</td>
<td>8.5%</td>
</tr>
<tr>
<td>5% - 7%</td>
<td></td>
</tr>
<tr>
<td>8% - 20%</td>
<td></td>
</tr>
<tr>
<td>21% - 0%</td>
<td></td>
</tr>
</tbody>
</table>

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 16, 2021
by Alan M. Voorhees Transportation Center

Rutgers Edward J. Bloustein School of Planning and Public Policy
Indicators of Potential Disadvantage

Older Adults (75+)

- Low income block groups
- 1 Dot = 20
  - Older Adults (75+)

Percentage of Older Adults (75+) by Block Groups

- 0%
- 1% - 6% County average 3.05%
- 7% - 9%
- 10% - 11%
- 12% - 14%

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 16, 2021
by Alan M. Voorhees Transportation Center
Indicators of Potential Disadvantage

Persons with Disability

- Low income block groups
- 1 Dot = 30

Persons with Disability by Census Tract:
- 0% - 7%
- 8% - 9%
- 10% - 11%
- 12% - 14%
- 15% - 30%

County average: 10.4%

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 16, 2021
by Alan M. Voorhees Transportation Center
Indicators of Potential Disadvantage

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center

Low income block groups
- Dot = 30
  - Single Parent Family
Percentage of Single Parent Families by Block Group
- 0% - 3%
- 4% - 15%
- 16% - 33% County average
- 34% - 62% 24.5%
- 63% - 100%

Rutgers School of Planning and Public Policy
Health Behaviors

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

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

<table>
<thead>
<tr>
<th>Physical Environment</th>
<th>Mercer County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution-particulate matter</td>
<td>8.6</td>
<td>8.6</td>
</tr>
<tr>
<td>Drinking water problems</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Severe housing problems</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Driving alone to work</td>
<td>71%</td>
<td>71%</td>
</tr>
<tr>
<td>Long commute-driving alone</td>
<td>32%</td>
<td>43%</td>
</tr>
</tbody>
</table>

Source: 2020 NJ County Health rankings
Health Outcomes

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

<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Mercer County</th>
<th>NJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor or Fair Health</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>Poor Physical Health Days</td>
<td>3.8</td>
<td>3.7</td>
</tr>
<tr>
<td>Poor Mental Health Days</td>
<td>4.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Low Birthweight</td>
<td>9%</td>
<td>8%</td>
</tr>
</tbody>
</table>
GEOGRAPHY OF PLACE

Healthy, Just and CO2-neutral Mobility for All
Natural Land Use
Urban Land Use

Land Use

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

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

Data Source: NJGIN, ESRI base map

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 17, 2021
by Alan M. Voorhees Transportation Center

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

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 17, 2021
by Alan M. Voorhees Transportation Center

RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Employment Density by Wage

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

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

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

Education

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

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 17, 2021 by Alan M. Voorhees Transportation Center

Rutgers Edward J. Bloustein School of Planning and Public Policy

44
Medical Services

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 17, 2021 by Alan M. Voorhees Transportation Center
Other Essential Services
Commercial Amenities

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

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared : June 17, 2021
by Alan M. Voorhees Transportation Center
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
Bus Stop Density

number of bus stops per sq mile
- 0 - 1
- 2 - 4
- 5 - 7
- 8 - 14
- 15 - 25

Data Source: NJGIN, ESRI base map

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center
**Bus Service Frequency**

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

Bus Routes
Low income block groups

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

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

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

Fuel Type
- Compressed Natural Gas
- Electric
- Liquified Petroleum Gas

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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center
Measured Accessibility Analysis
“15-min.” Accessibility

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

Data Source: NJGIN, ESRI base map

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: June 16, 2021
by Alan M. Voorhees Transportation Center

RUTGERS
Edward J. Bloustein School of Planning and Public Policy
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?