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)

1990: 125.6
2006: 128.6
2015: 100.9
2050: 25.7

New Jersey’s GHG Emissions and Goals (MMTCO$_2$e)
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?
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>
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<tr>
<td></td>
<td>• Collect, analyze, and map data</td>
</tr>
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<td></td>
<td>• Identify of potential community and equity partners</td>
</tr>
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<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>
<tr>
<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
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

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

Prepared: June 17, 2021
by Alan M. Voorhees Transportation Center
Population Change 2014-2019
Median Age: 44.4 years old
Household Income

<table>
<thead>
<tr>
<th>Income Limit (4 person Household)</th>
<th>AHPNJ 2020 Affordable Housing Income Limits. Region 2: Essex, Morris, Union and Warren</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>$28,786</td>
</tr>
<tr>
<td>Low</td>
<td>$47,976</td>
</tr>
<tr>
<td>Moderate</td>
<td>$76,761</td>
</tr>
<tr>
<td>Median</td>
<td>$95,952</td>
</tr>
</tbody>
</table>

County Average Median Household Income: $81,307
Households living in poverty

Low Income Households

- County Boundary
- Low Income Block Groups
- 1 Dot = 10 Households Under Poverty
- Percent of Households within the Poverty Level
  - 0% to 4%
  - 4% to 8%
  - 8% to 15%
  - 15% to 20%
  - 20% to 37%

County average: 8%

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
Educational Attainment- less than H.S Diploma

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than H.S Diploma</td>
<td>8.5 %</td>
</tr>
<tr>
<td>H.S Diploma or equivalent</td>
<td>30.60 %</td>
</tr>
<tr>
<td>Some College</td>
<td>27.90 %</td>
</tr>
<tr>
<td>Bachelor's Degree or higher</td>
<td>33 %</td>
</tr>
</tbody>
</table>

Data Source: NINGIN, 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 University
Edward J. Bloustein School of Planning and Public Policy
Educational Attainment- Bachelor Degree or higher

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: June 17, 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
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

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

Prepared: June 17, 2021
by Alan M. Voorhees Transportation Center
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%
- 3% to 6%
- 6% to 12%
- 12% to 24%

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
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%
  - 8% to 12%
  - 12% to 19%
  - 19% to 32%

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
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% County average
- 11% to 22% 22%
- 22% to 33%
- 33% to 54%
- 54% to 87%

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
Health Behaviors

Warren (WA)

Health Outcomes
Warren (WA) is ranked in the higher middle range of counties in New Jersey (Higher 50%-75%)

Health Factors
Warren (WA) is ranked in the higher middle range of counties in New Jersey (Higher 50%-75%)

<table>
<thead>
<tr>
<th>Health Factors</th>
<th>Warren (WA)</th>
<th>Trend</th>
<th>Error Margin</th>
<th>Top U.S. Performers</th>
<th>New Jersey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult smoking</td>
<td>17%</td>
<td>14-20%</td>
<td>16%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Adult obesity</td>
<td>32%</td>
<td>29-35%</td>
<td>26%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Food environment index</td>
<td>8.7</td>
<td>8.7</td>
<td>8.7</td>
<td>9.4</td>
<td></td>
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<tr>
<td>Physical inactivity</td>
<td>28%</td>
<td>25-30%</td>
<td>19%</td>
<td>27%</td>
<td></td>
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<tr>
<td>Access to exercise opportunities</td>
<td>97%</td>
<td>91%</td>
<td>95%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>21%</td>
<td>20-22%</td>
<td>15%</td>
<td>16%</td>
<td></td>
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<tr>
<td>Alcohol-impaired driving deaths</td>
<td>18%</td>
<td>11-25%</td>
<td>11%</td>
<td>22%</td>
<td></td>
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<tr>
<td>Sexually transmitted infections</td>
<td>206.9</td>
<td>161.2</td>
<td>405.5</td>
<td>405.5</td>
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<tr>
<td>Teen births</td>
<td>8</td>
<td>7.9</td>
<td>12</td>
<td>12</td>
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</table>

Clinical Care

<table>
<thead>
<tr>
<th>Clinical Care</th>
<th>Warren (WA)</th>
<th>Trend</th>
<th>Error Margin</th>
<th>Top U.S. Performers</th>
<th>New Jersey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsured</td>
<td>7%</td>
<td>6-8%</td>
<td>6%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Primary care physicians</td>
<td>1,680:1</td>
<td>1,030:1</td>
<td>1,180:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentists</td>
<td>1,350:1</td>
<td>1,210:1</td>
<td>1,140:1</td>
<td></td>
<td></td>
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<tr>
<td>Mental health providers</td>
<td>470:1</td>
<td>270:1</td>
<td>420:1</td>
<td></td>
<td></td>
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<tr>
<td>Preventable hospital stays</td>
<td>4,519</td>
<td>2,565</td>
<td>4,333</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammography screening</td>
<td>40%</td>
<td>51%</td>
<td>41%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flu vaccinations</td>
<td>54%</td>
<td>55%</td>
<td>52%</td>
<td></td>
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</tr>
</tbody>
</table>
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, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: July 01, 2021 by Alan M. Voorhees Transportation Center

Edward J. Bloustein School of Planning and Public Policy
Urban Land Use

Land Use

- County Boundary
- Urban Land Use
  - Residential
  - Commercial and Service
  - Industrial
  - Transportation/Communication/Utilities
  - Recreational Land
  - Other Urban Land
- Other Land Use
  - Agriculture
  - Barren Land
  - Forest
  - Water
  - Wetlands

Data Source: NJGIN

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RUTGERS
Edward J. Bloustein School of Planning and Public Policy
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

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

Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
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

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

Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
Recreation

- County Boundary
- Low Income Block Group
  - Fitness Centers
- State, Local and Non-profit Open Space

Data Source: NJGIN and ESRI Business Search Safegraph

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

Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
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

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

Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
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

- County Boundary
- Low Income Block Group

Number of Intersections per acre

D3b
- 1 - 30
- 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

Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
Bus Stop Density

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
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

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: July 01, 2021
by Alan M. Voorhees Transportation Center
Measured Accessibility Analysis

Medical Facilities
- Hospitals and Emergency Centers, Pharmacies and Drug Stores

Recreational Facilities
- Input Score/Distance from Recreation Centers
  - 0 = ≤ 1 mile
  - 1 = 1/2 - 1 mile
  - 2 = 1/4 - 1/2 mile
  - 3 = > 1/4 mile

Essential Services
- Commercial Banks, Credit Unions, Postal Services, Child Care Centers

Educational Facilities
- Input Score/Distance from Educational Facilities
  - 0 = ≤ 1 mile
  - 1 = 1/2 - 1 mile
  - 2 = 1/4 - 1/2 mile
  - 3 = > 1/4 mile

Frequent Service Transit
- Input Score/Distance from Transit Stops
  - 0 = ≤ 1 mile
  - 1 = 1/2 - 1 mile
  - 2 = 1/4 - 1/2 mile
  - 3 = > 1/4 mile

Intersection Density
- Input Score/Intersections per Acre
  - 1 = Up to 30
  - 2 = 30 to 95
  - 3 = 95 to 213

Commercial Amenities
- Commercial Amenities
  - Grocery Stores, Convenience & Specialty Stores, Laundromats

Input Score/Distance from Commercial Amenities
  - 0 = ≤ 1 mile
  - 1 = 1/2 - 1 mile
  - 2 = 1/4 - 1/2 mile
  - 3 = > 1/4 mile

* Commercial Amenities
15-min Accessibility

Accessibility

Best Access
Moderate Access
Limited Access
Low Income Block Group

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

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

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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?