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
Changing policy dynamics at the State and national levels
New Jersey Emissions Targets

2020 Emissions Reduction Goal
(Equivalent to 1990 GHG Emissions)

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

New Jersey’s GHG Emissions and Goals (MMTCO₂e)

2050 Emissions Reduction Goal
(80% Decrease from 2006 Baseline)
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.
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 Elec. Vehicle (20 MPH AVG)**
  - Radius: 1 2/3 Mile
  - Acres: ~2,010
  - Dwelling Units: 16,100 @ 8/AC
  - Population: 41,860 @ 2.6/UNIT

- **15 Minute Bike (12 MPH AVG)**
  - Radius: 3 Miles
  - Acres: ~18,100
  - 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>
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<td></td>
<td>• Identify of potential community and equity partners</td>
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<td></td>
<td>• Convene “Thought Leaders” webinar and visioning workshops</td>
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<td></td>
<td>• Identify vision components</td>
</tr>
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<td>• Select locations for neighborhood-scale analysis</td>
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</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>
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<td></td>
<td>• Identify local mobility and other community needs and concerns</td>
</tr>
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<td></td>
<td>• Prepare concept plans for retrofitting existing neighborhoods</td>
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<tr>
<td></td>
<td>• Identify infrastructure needs</td>
</tr>
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<td></td>
<td>• Develop planning and policy recommendations</td>
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<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

ATLANTIC 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

• 671.83 square miles
• 23 Municipalities
• Over 266,105 residents
• County Seat: Mays Landing
Race and Ethnicity - 2019

- White: 66%
- Black or African American: 15%
- American Indian and Alaska Native: 8%
- Asian: 11%
- Some other Race: 0%
Median Age: 41.7 years old
AHPNJ 2020 Affordable Housing Income Limits. Region 6: Atlantic, Cape May, Cumberland, and Salem

<table>
<thead>
<tr>
<th>Income Limit (4 person Household)</th>
<th>Income 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>
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<tr>
<td>Median</td>
<td>$82,083</td>
</tr>
</tbody>
</table>

County Average Median Household Income: $62,110
Households living in poverty
## 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>13%</td>
</tr>
<tr>
<td>H.S Diploma or equivalent</td>
<td>32%</td>
</tr>
<tr>
<td>Some College</td>
<td>26.9%</td>
</tr>
<tr>
<td>Bachelor’s Degree or higher</td>
<td>28.1%</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 17, 2021
by Alan M. Voorhees Transportation Center

Rutgers
Edward J. Bloustein School of Planning and Public Policy
Educational Attainment- Bachelor Degree or Higher

Educational Attainment Bachelor Degree or Higher

- County Boundary
- Low Income Block Groups
- Population with a Bachelor's Degree or Higher
  - 1.8% to 15%
  - 15% to 25%
  - 25% to 35%
  - 35% to 50%
  - 50% to 71%

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

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Indicators of Potential Disadvantage

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

- County Boundary
- Low Income Block Groups
- Single Parent Family
- Percent of Single Parent Families by Block Group
  - Less than 20%
  - 20% to 38%
  - 30% to 55%
  - 55% to 80%
  - 80% to 100%

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

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Prepared: June 17, 2021
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Health Behaviors

Atlantic (AT)

Health Outcomes
Atlantic (AT) is ranked among the least healthy counties in New Jersey (Lowest 0%-25%)

Health Factors
Atlantic (AT) is ranked among the least healthy counties in New Jersey (Lowest 0%-25%)

Download New Jersey Rankings Data

<table>
<thead>
<tr>
<th>Health Outcomes</th>
<th>Mercer County</th>
<th>Trend</th>
<th>Error Margin</th>
<th>Top U.S. Performers</th>
<th>New Jersey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Life</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Premature death</td>
<td>8,900</td>
<td>8,500-9,300</td>
<td>5,400</td>
<td>5,900</td>
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<tr>
<td><strong>Quality of Life</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Poor or fair health</td>
<td>19%</td>
<td>17-21%</td>
<td>14%</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Poor physical health days</td>
<td>4.3</td>
<td>4.0-4.6</td>
<td>3.4</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Poor mental health days</td>
<td>4.7</td>
<td>4.4-5.0</td>
<td>3.8</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Low birthweight</td>
<td>8%</td>
<td>8.8%</td>
<td>6%</td>
<td>8%</td>
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</tbody>
</table>

Health Factors

<table>
<thead>
<tr>
<th>Health Behaviors</th>
<th>New Jersey</th>
<th>95% CI</th>
<th>90% CI</th>
<th>85% CI</th>
<th>75% CI</th>
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</thead>
<tbody>
<tr>
<td>Adult smoking</td>
<td>18%</td>
<td>16-20%</td>
<td>16%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Adult obesity</td>
<td>33%</td>
<td>29-36%</td>
<td>26%</td>
<td>27%</td>
<td></td>
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<tr>
<td>Food environment index</td>
<td>7.8</td>
<td>8.7</td>
<td>9.4</td>
<td></td>
<td></td>
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<tr>
<td>Physical inactivity</td>
<td>32%</td>
<td>30-36%</td>
<td>19%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Access to exercise opportunities</td>
<td>91%</td>
<td>91%</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive drinking</td>
<td>17%</td>
<td>17-18%</td>
<td>15%</td>
<td>16%</td>
<td></td>
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<tr>
<td>Alcohol-impaired driving deaths</td>
<td>30%</td>
<td>26-34%</td>
<td>11%</td>
<td>22%</td>
<td></td>
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<tr>
<td>Sexually transmitted infections</td>
<td>488.3</td>
<td>161.2</td>
<td>405.5</td>
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<tr>
<td>Teen births</td>
<td>16</td>
<td>15-17</td>
<td>12</td>
<td>12</td>
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</table>

Clinical Care

<table>
<thead>
<tr>
<th>Clinical Care</th>
<th>New Jersey</th>
<th>95% CI</th>
<th>90% CI</th>
<th>85% CI</th>
<th>75% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninsured</td>
<td>10%</td>
<td>9-11%</td>
<td>6%</td>
<td>9%</td>
<td></td>
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<tr>
<td>Primary care physicians</td>
<td>1,210:1</td>
<td>1,030:1</td>
<td>1,180:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentists</td>
<td>1,650:1</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>580:1</td>
<td>270:1</td>
<td>420:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventable hospital stays</td>
<td>5,384</td>
<td>2,565</td>
<td>4,333</td>
<td></td>
<td></td>
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<tr>
<td>Mammography screening</td>
<td>41%</td>
<td>51%</td>
<td>41%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flu vaccinations</td>
<td>50%</td>
<td>55%</td>
<td>52%</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>
Healthy, Just and CO2-neutral Mobility for All

GEOGRAPHY OF PLACE
Natural Land Use

Land Use

- County Boundary
- Agriculture
- Barren Land
- Forest
- Urban
- Water
- Wetlands

Data Source: NJGIN

Planning for Healthy, Just, Resilient, and CO2-Neutral Mobility in New Jersey
Prepared: July 02, 2021 by Alan M. Voorhees Transportation Center

Land Use Percentage, Mercer County, NJ
- Urban: 15.46%
- Forest: 33.20%
- Wetlands: 31.10%
- Agriculture: 6.09%
- Barren: 0.75%

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Urban Land Use

Land Use

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

Data Source: NJGIN

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Employee Density

Total Employees
- Less than 200
- 200 to 800
- 800 to 1800
- 1800 to 4200
- 4200 to 19082

Data Source: NJGIN and ESRI Business Search Safegraph

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

Prepared: July 02, 2021
by Alan M. Voorhees Transportation Center
Employee Density by Wage

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), 2014-18
Recreation

- County Boundary
- Low Income Block Groups
  - 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
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Medical Services

- County Boundary
- Low Income Block Groups
  - Medical Facilities
  - Hospital and Emergency Center

Data Source: NJGIN and ESRI Business Search Safegraph

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

Prepared: July 02, 2021
by Alan M. Voorhees Transportation Center
Alt. Fueling Station

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

Data Source: NJGIS, ESRI Base Map, US Department of Energy

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

Sea Level Rise (5ft)

- County Boundary
- Low Income Block Groups

5 ft Sea Level Rise Depth Value
- High
- Low

Data Source: NJGIN, ACS 2015-2019 5-year Estimate, ESRI Base Map, NOAA

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Edward J. Bloustein School of Planning and Public Policy
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
- 61-80 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 Groups

Number of Intersections per acre
- 1 - 70
- 70 - 160
- 160 - 325

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

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Bus Stop Density

Low Income Block Groups
Bus stop density
Count of Points
- 0
- 1 - 2
- 3 - 10
- 11 - 20
- 21 - 42
- 43 - 75

Note: Area of unit hexagon = 1 sq. mile

Data Source: NJGIN, ACS 2015-2019 5-year Estimate, ESRI Base Map, NJDEP

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Bus Service Frequency

Bus Service Frequency

- County Boundary
- Low Income Block Groups
- Bus Route

Max Wait time
- 0 - 10 min
- 11 - 15 min
- 16 - 20 min
- 21 - 25 min
- 26 - 29 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

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

Recreational Facilities

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

Educational Facilities

Frequent Service Transit

Intersection Density

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

Input Scores/Distance from Medical Facilities
- 0 = <1 mile
- 1 = 1/4-1/2 mile
- 2 = 1/2-1 mile
- 3 = >1 mile
- Medical Facilities

Input Scores/Distance from Recreational Facilities
- 0 = < 1 mile
- 1 = 1/4-1/2 mile
- 2 = 1/2-1 mile
- 3 = >1 mile
- Fitness Centers

Input Scores/Distance from Essential Facilities
- 0 = < 1 mile
- 1 = 1/4-1/2 mile
- 2 = 1/2-1 mile
- 3 = >1 mile
- Essential Services

Input Scores/Distance from School
- 0 = < 1 mile
- 1 = 1/4-1/2 mile
- 2 = 1/2-1 mile
- 3 = >1 mile
- 6-12 Schools

Input Scores/Intersections per Acre
- 0 = <9
- 1 = 10 to 20
- 2 = 24 to 50
- 3 = 60 to 100

Input scores: Distance from Commercial Amenities
- 0 = <4 mile
- 1 = 1/4-1/2 mile
- 2 = 1/2-1 mile
- 3 = >1 mile
- Commercial Amenities
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 or in-person depending on conditions

• Timing – December 2021-March 2022
Thoughts? Questions? Comments?