North Jersey Transportation Planning Authority
Greenhouse Gas Reduction Plan

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North Jersey Transportation Planning Authority
<table>
<thead>
<tr>
<th>Bergen</th>
<th>Morris</th>
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<tbody>
<tr>
<td>Essex</td>
<td>Newark</td>
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<td>Hudson</td>
<td>Ocean</td>
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<td>Hunterdon</td>
<td>Passaic</td>
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<td>Jersey City</td>
<td>Somerset</td>
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<td>Middlesex</td>
<td>Sussex</td>
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<td>Monmouth</td>
<td>Union</td>
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<td>Warren</td>
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North Jersey Transportation Planning Authority

The Metropolitan Planning Organization for Northern New Jersey

STANDING COMMITTEES

Planning & Economic Development Committee
Project Prioritization Committee
Freight Initiative Committee
Regional Transportation Advisory Committee
Project Objectives

- Develop an on-road mobile source GHG emissions baseline through 2050 & develop alternative forecasts

- Develop GHG reduction strategy and strategy bundle definitions tailored to be consistent with northern New Jersey context

- Evaluate strategies at the regional, county, and municipal scale and present all results through the development of a Strategy Effectiveness Matrix
Project Work Plan

- Task 1 – Enhancing the Baseline Forecast of GHG Emissions in the Transportation Sector
- Task 2 & 3 – Develop Strategies and Evaluate Effectiveness and Cost Effectiveness in Reducing GHG Emissions
- Task 4 – Integrate GHG Reduction Recommendations in a web-based tool
Baseline & Alternative GHG Emission Forecasts

**Near Term Regulatory Changes**

- Adopted 2017-2025 light duty vehicle (LDV) fuel economy/greenhouse gas emission standards

**Long Term/Uncertain Regulatory and Other Market Changes**

- Additional 2026-2050 light duty vehicle (LDV) fuel economy/greenhouse gas emission standards
- Additional 2019-2050 medium and heavy duty truck (MDV/HDV) fuel economy/ greenhouse gas standards
- Increased adoption/penetration rates of hybrid and electric vehicles and/or more stringent fuel standards
Baseline & Alternative Emissions Analysis

Regional Results

» 0.7% annual VMT growth rate (2006 – 2050)
» 2050 Baseline (all) – 2% increase from 2006
» 2050 Alternative Baseline (all) – 43% decrease from 2006
Baseline & Alternative Emissions Analysis

Regional Results

Higher passenger vehicle consumption-based emissions (7–10% higher than direct)

Lower commercial vehicle consumption-based emissions (35–37% lower than direct)
Objective – To define and assess a set of GHG reduction strategies for the on-road mobile transportation sector that are consistent with regional and local transportation and land use goals

1. Strategy Definition
2. Strategy Filtering with Stakeholder Review & Comment
3. Develop Evaluation Approach
4. Evaluate GHG Reductions & Develop Analysis Tool
GHG Reduction Strategies Identification

Strategy Definition, Review and Evaluation

- **Strategy Definition**
  - Appropriate level of detail to permit evaluation
  - Scale of evaluation (regional or local)
  - Levels of deployment intensity
  - Agency(s) responsibility for implementation
  - Geographic application of strategies within the NJTPA region
  - Barriers to implementation (regulatory, political, technological, fiscal)
  - Timeline for implementation (short – mid – long-term)
GHG Reduction Strategy Screening

Strategy Identification and Evaluation Process

1. Exclusion - Authority
2. Priority - Investment - Barriers - Return
3. Region & Local Need

Strategy Definition

Bundle Concepts (Baseline + 3)
Bundle Definition

Strategy & Bundle Analysis
Strategies target multiple approaches to reduce VMT through land use, mode shift, demand management, and pricing.

- Transit-oriented development
- Freight-oriented development
- Complete streets
- Ridesharing
- Commuter outreach and incentive programs, TMAs
- Telecommuting and alternative work schedules
- Parking pricing
- Bus and rail transit quality of service
- VMT taxes
- PAYD insurance
Strategy Identification

System Efficiency Strategies

Strategies target multiple approaches to improve system efficiency and reduce delay through network management and ITS, system preservation, and strategic capacity enhancement.

» Arterial system management
» Active traffic management
» Limited access system management
» Arterial system preservation
» Time of day truck operation policies
» Intermodal freight center access
» Freight rail capacity constraints
Strategies target multiple approaches to reduce carbon intensity of fuels and passenger and freight travel through a combination of incentives, regulation, and partnerships.

- Electric vehicle planning, purchasing incentives, and support programs
- Incentives for AFV fleet purchasing and fueling infrastructure
- SmartWay program for drayage trucks and truck phase-out program
- Commercial vehicle truck idling
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Geography</th>
<th>Implementation Timeline</th>
<th>Lead Time to Full Effectiveness</th>
<th>Travel Market</th>
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</thead>
<tbody>
<tr>
<td>Smart Growth Incentives</td>
<td>Place type</td>
<td>Long</td>
<td>Long</td>
<td>Passenger</td>
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<tr>
<td>Transit Oriented Development</td>
<td>Place type</td>
<td>Long</td>
<td>Medium</td>
<td>Passenger</td>
</tr>
<tr>
<td>Freight Oriented Development (Freight Villages)</td>
<td>Region</td>
<td>Long</td>
<td>Long</td>
<td>Commercial</td>
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<tr>
<td>Complete Streets (Bike/Transit)</td>
<td>Place type</td>
<td>Medium</td>
<td>Short</td>
<td>Passenger</td>
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<tr>
<td>Complete Streets (Ped/Transit)</td>
<td>Place type</td>
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<td>Short</td>
<td>Passenger</td>
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<tr>
<td>Carpool/Vanpool Incentive Programs and Ridesharing</td>
<td>Place type</td>
<td>Short</td>
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<td>Passenger Commute</td>
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<td>Commuter Outreach/Incentive Programs (TMAS)</td>
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<td>Telecommuting and Compressed Work Week Targets</td>
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<td>TDM Mini Bundle</td>
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<td>Parking Pricing and Supply Management</td>
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<td>Short</td>
<td>Passenger Commute</td>
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<tr>
<td>Bus Transit Quality and Reliability of Service</td>
<td>Place type</td>
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<td>Short</td>
<td>Passenger</td>
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<tr>
<td>Rail Transit Quality and Reliability of Service</td>
<td>Place type</td>
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<td>Long</td>
<td>Passenger</td>
</tr>
<tr>
<td>VMT or Carbon Tax</td>
<td>Region</td>
<td>Long</td>
<td>Immediate</td>
<td>Passenger</td>
</tr>
<tr>
<td>PAYD Insurance</td>
<td>Region</td>
<td>Medium</td>
<td>Short</td>
<td>Passenger</td>
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<tr>
<td>Arterial System Management</td>
<td>Place type</td>
<td>Medium</td>
<td>Immediate</td>
<td>Arterial All</td>
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<tr>
<td>Limited Access System Management</td>
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<td>Immediate</td>
<td>Limited Access All</td>
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<td>Limited Access Incident Management</td>
<td>Place type</td>
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<td>Immediate</td>
<td>Limited Access All (incident delay)</td>
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<td>System Preservation/Corridor Access Management</td>
<td>Place type</td>
<td>Medium - Long</td>
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<td>Arterial All</td>
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<td>Truck Route/Time-of-Day Truck Operation Policies</td>
<td>Place type</td>
<td>Short</td>
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<td>Commercial (Peak to Off-peak)</td>
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<td>Intermodal Freight Centers Access Improvement</td>
<td>Place type</td>
<td>Long</td>
<td>Immediate</td>
<td>Commercial (&quot;Last Mile&quot;)</td>
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<td>Freight Rail Capacity Constraints</td>
<td>Region</td>
<td>Medium</td>
<td>Long</td>
<td>Commercial (Inter-region/state)</td>
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</table>

Note: 1) Mini-bundle accounts for overlap between programs that provide incentives for ridesharing and parking cash-out, plus alternative work schedules.
Note: 2) Time required to implement:  Short (<= 1 year), Medium (2-5 years), Long (5+ years)
Note: 3) Time required for implemented strategy to reach full potential:  Immediate (<3 years), Short (<10 years), Medium (10-20 years), Long (20+ years)
# GHG Reduction Strategy Analysis

## VMT Reduction Focus

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<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
<td>Metro</td>
<td>Suburb</td>
</tr>
<tr>
<td>Total Bundle Reduction (PV VMT)¹ excluding VMT/PAYD</td>
<td>12.0%</td>
<td>10.0%</td>
<td>8.5%</td>
<td>2.0%</td>
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<tr>
<td>Total Bundle Reduction (All VMT)¹ excluding VMT/PAYD</td>
<td>11.4%</td>
<td>9.5%</td>
<td>8.3%</td>
<td>1.9%</td>
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## System Efficiency Focus

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<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
<td>Metro</td>
<td>Suburb</td>
</tr>
<tr>
<td>Total Bundle Reduction (PV Delay)²</td>
<td>17.7%</td>
<td>15.9%</td>
<td>18.7%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Total Bundle Reduction (All Delay)</td>
<td>18.5%</td>
<td>16.4%</td>
<td>18.8%</td>
<td>5.1%</td>
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## Technology and Fuels Focus

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<tr>
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</thead>
<tbody>
<tr>
<td>Passenger Vehicles - PEV Market</td>
<td></td>
<td>Urban</td>
<td>Metro</td>
<td>Suburb</td>
</tr>
<tr>
<td>Passenger Vehicles - Clean Fuels</td>
<td></td>
<td>0.0%</td>
<td>15.1%</td>
<td>2.8%</td>
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<tr>
<td>Commercial Vehicles - Incentive Programs</td>
<td>Commercial</td>
<td>2.1%</td>
<td>13.4%</td>
<td>23.0%</td>
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<tr>
<td>Commercial Vehicles - Zero/Clean Idling</td>
<td>Commercial</td>
<td>1.9%</td>
<td>3.2%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Total Bundle Reduction (PV GHG Emissions)</td>
<td>Passenger</td>
<td>0.0%</td>
<td>17.8%</td>
<td>30.5%</td>
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<tr>
<td>Total Bundle Reduction (CV GHG Emissions)</td>
<td>Commercial</td>
<td>4.0%</td>
<td>16.6%</td>
<td>26.2%</td>
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<tr>
<td>Total Bundle Reduction (All Emissions)</td>
<td>Both</td>
<td>0.9%</td>
<td>17.5%</td>
<td>29.3%</td>
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</tbody>
</table>
GHG Reduction Analysis – All Strategies and Bundles

-80% target reduction
Remaining Tasks

- Complete GHG Reduction Strategy Cost-Effectiveness Matrix

- Evaluate GHG Reduction Strategy Co-benefits (air quality benefits)

- Develop web-based toolkit for counties and municipalities to obtain GHG mitigation planning guidance

Visit the NJTPA Climate Initiative for more information
http://www.njtpa.org/Plan/Element/Climate/ClimateChangeInitiative.aspx