

Analysis of RIDOT/Cambridge Systematics Transportation Modeling

**Watson School & Climate and Development Lab in Brown University with
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Science and Technical Advisory Board Presentation
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Introduction and Context

- RI must cut emissions 45% by 2030, net zero by 2050
- Transport accounts for 39%
- Evaluate RIDOT Report and 2025 Climate Action Strategy and its
- Identifies improvement opportunities within:
 1. EVs
 2. Freight Emissions
 3. Pricing Strategies
 4. Mode Shift



RHODE ISLAND 2025 CLIMATE ACTION STRATEGY
RI EXECUTIVE CLIMATE CHANGE COORDINATING COUNCIL



Modeling Limitations

- Lacks implementation pathway
- Relies on simplified modelling
- Generic assumptions
- Not sufficient for AoC mandates



Electric Vehicles

- ZEV strategies focus on scaling EV adoption, but current policies prioritize quantity over real emissions impact.
- Limitations:
 - Linear adoption assumption
 - Volume over efficiency



Electric Vehicles: Recommendations

Targeted Charging: MUD + Corridors

- Expand *PowerUpRI* to multi-unit housing charging and tourism & corridor fast-charging networks
- Unlocks EV adoption for renters and travel users
- ~8,400–14,100 MT CO₂e/yr
\$18–\$61/MT CO₂

Fleets & Buses: Geofenced “Green Zones”

- Use GPS-based geofencing to require electric-only operation in schools and hospitals etc.
- Targets high-exposure zones; enables partial electrification
- +10,000–20,000 MT CO₂e by 2030
\$1–\$5/MT CO₂

Note: MUD refers to multi-unit housing; PowerUpRI is a Rhode Island’s EV charging incentive program

Freight Emissions

- Freight strategies focus on operational efficiency such as traffic flow and idling
- Limitations:
 - near-zero reductions
 - induced demand increases emissions



Freight Emmissions: Recommendations

Parcel Hubs for Dense Urban Deliveries

- Centralised locker and pickup points
- Targets last-mile deliveries
- ~11,700–46,800 MT CO₂e/yr
\$1–\$5/MT CO₂

Targeted EV Incentives for High-Mileage Deliveries

- Subsidies and support for electrifying delivery fleets
- Focuses on highest-utilisation vehicles
- ~40,000–120,000 MT CO₂e/yr
\$18–\$61/MT CO₂

Pricing Strategies

- Pricing policies aim to internalise environmental costs but currently function mainly as revenue tools
- Limitations:
 - Weak behavioural impact
 - Limited political feasibility



Price Strategies: Recommendations

I-95 Freight Tolling

- Charges freight vehicles on major interstate corridors, especially through-traffic
- Targets out-of state traffic
- ~8,000–20,000 MT CO₂e/yr
\$16–\$198/MT CO₂

Zoned Congestion Pricing

- Charges drivers in high-traffic urban areas during peak periods
- Targets stop-start urban driving where emissions per mile are highest
- ~20,000–80,000 MT CO₂e/yr
\$57–\$579/MT CO₂

Mode Shift

- RIDOT's model aims for 14.7M VMT/year in reductions through 2040, driving 0.3% VM reduction
- Limitations:
 - Geographic Misallocation
 - Network effects ignored
 - Post-2040 plateau



Mode Shift: Recommendations

Complete the Providence–Pawtucket–Central Falls Protected Corridor

- Continuous protected cycling network from Providence, to Central Falls
- Triggers non-linear network effects
- ~9,250 MT CO₂e/yr.
\$560–\$840/MT CO₂

Convert the East Bay Bike Path to a Commuter Corridor

- Last-mile links, transit interfaces, wayfinding, and employer parking to support RI's separated cycling path for daily commuting
- Leverages an existing 14-mile asset
- ~2,000–6,000 MT CO₂e/yr
\$160–\$325/MT CO₂

Launch a Statewide E-Bike Subsidy Program

- Scale the existing E-Bike Rebate Program toward a income-stratified program with \$750–\$1,500 rebates
- Extends mode shift beyond those already willing to cycle
- ~2,100 MT CO₂e/yr
\$840–\$1,100/MT CO₂

Conclusions

- Equity and emissions efficiency are complementary
- Targeting high-impact users and locations delivers greater impact
- Better modeling is needed for Rhode Island–specific decisions



Thank You!

