

# VTrans Climate Actions

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VERMONT CLIMATE COUNCIL, SEPTEMBER 12, 2022

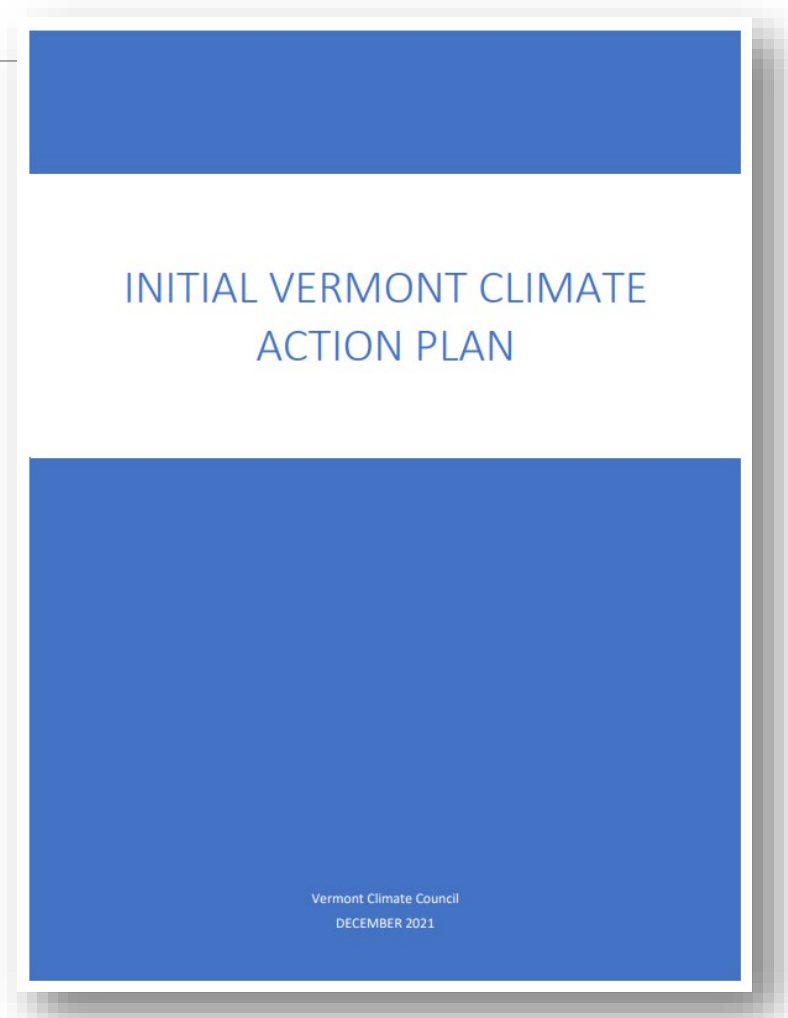
ANDREA WRIGHT, ENVIRONMENTAL POLICY MANAGER, VT AGENCY OF TRANSPORTATION

# Climate Action Plan

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Initial plan finalized in December 2021

- Reduce GHG emissions below 2005 GHG emissions in Vermont by:
  - no less than 26% below 2005 GHG emission levels by January 1, 2025;
  - by no less than 40% below 1990 GHG emission levels by January 1, 2030;
  - and no less than 80% below 1990 GHG emission levels by January 1, 2050.



# Light Duty Electrification



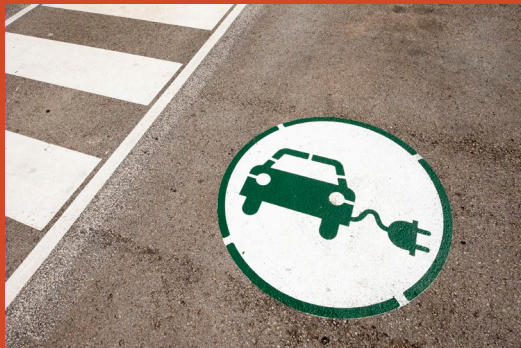
## Market Driving Programs ACCII/ACT

Requirements for Auto  
manufacturers to:

- Deliver more electric vehicles to Vermont
  - All electric cars and *some* electric trucks by 2035
- Deliver even cleaner passenger cars and trucks

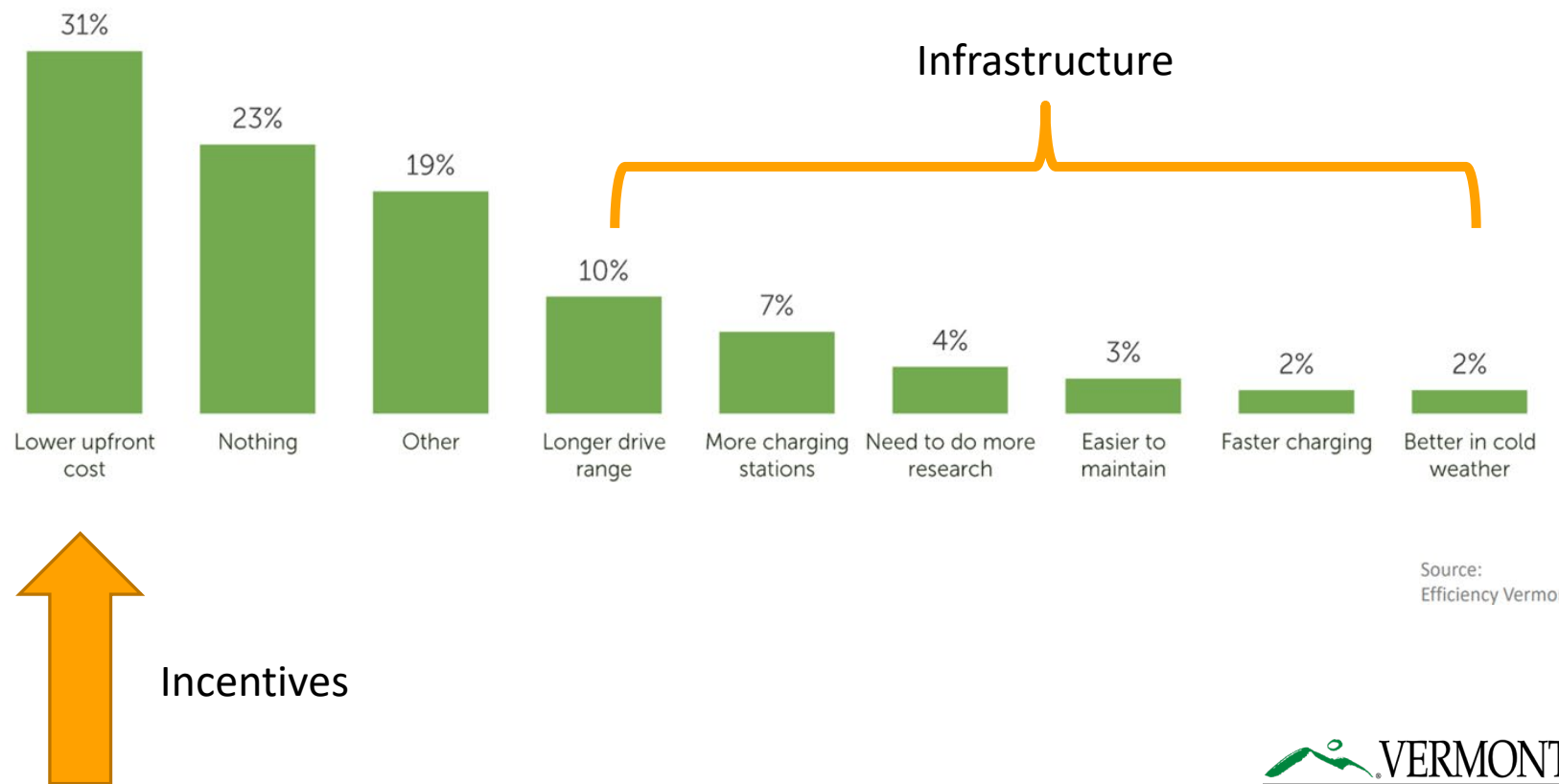
NOT an electric vehicle purchase mandate

# Light Duty Electrification

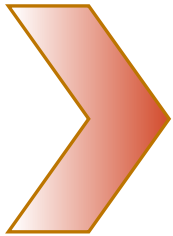
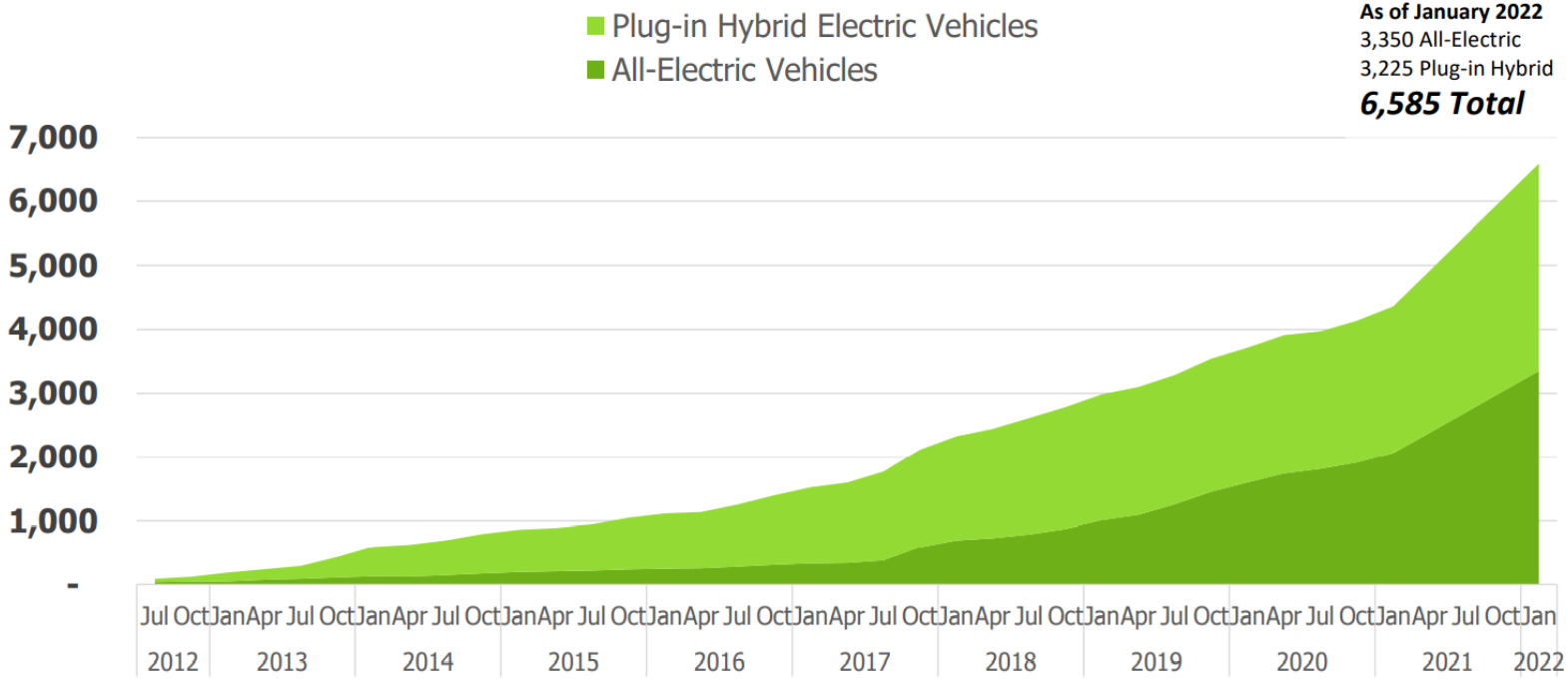


## Electric Vehicle Purchase Incentives

What would make a VTer more likely to buy an EV?



# EV Adoption in Vermont



Electrify **27,000**  
 light duty  
 vehicles by 2025  
  
**126,000** by 2030

Source:  
 VT DMV / VT DEC  
 2022

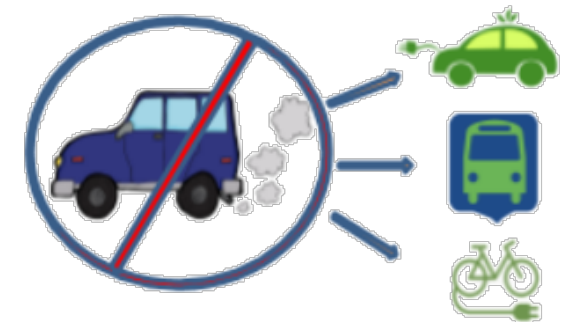
# Light Duty Electrification EV Incentives

Purchase rebates and tax credits lower the upfront cost:

- ✓ State of Vermont – Up to \$4,000
- ✓ Federal Government – Up to \$7,500
- ✓ + additional incentives through your electric utility
- ✓ Replace Your Ride (new in 2022) – up to \$3,000
- ✓ MileageSmart – up to \$5,000 off used highly efficient vehicle
- ✓ Electric bikes – up to \$400

Drive  
Electric  
Vermont

mileagesmart ●●●●



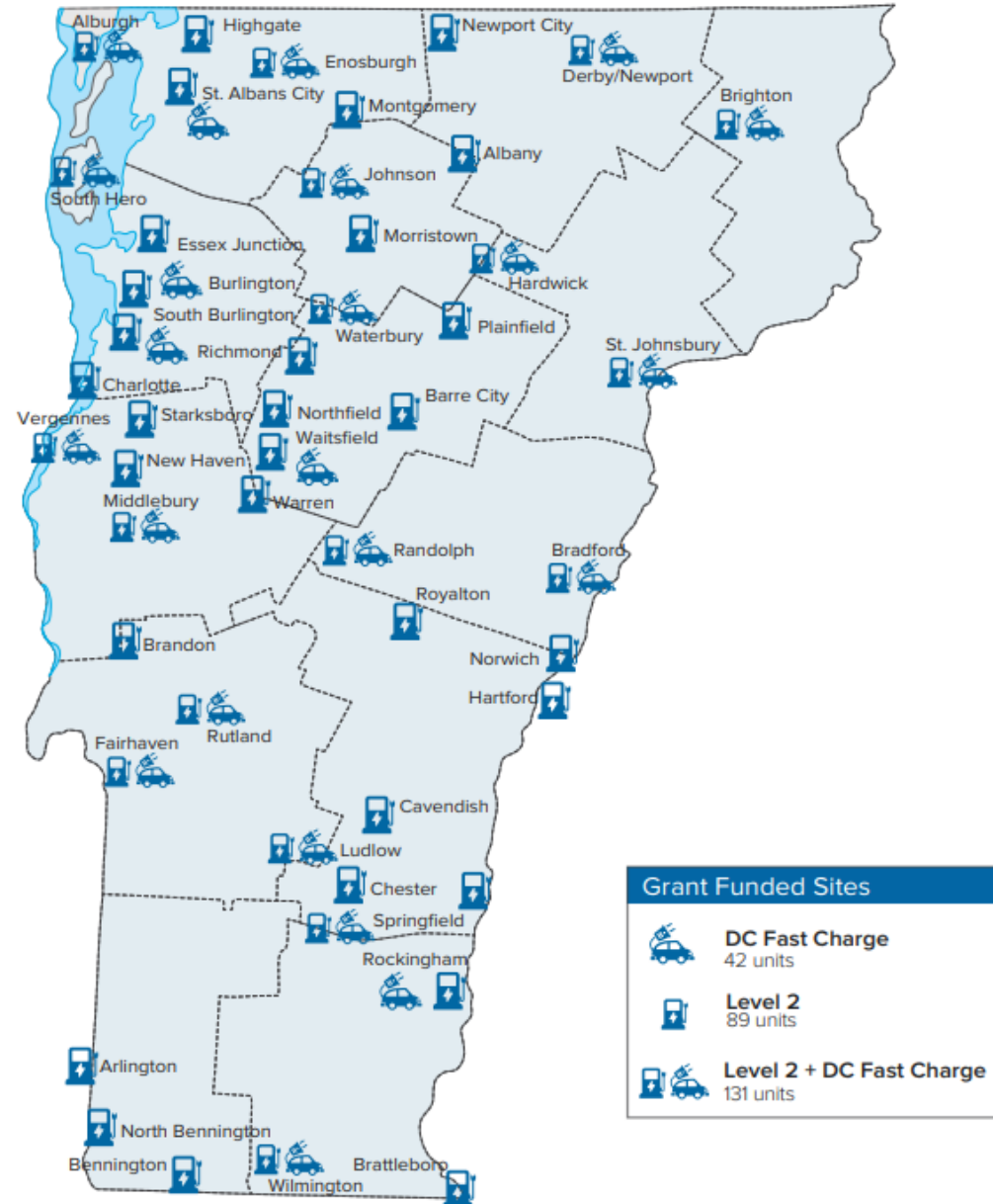
# Light Duty Electrification EV Incentives

	Prior Investments	FY2022 T-Bill Investments	Funds Remaining*
New PEVs	\$5,050,000	\$12,000,000	\$12,000,000
MileageSmart	\$2,200,000	\$3,000,000	\$3,478,000
Replace Your Ride	\$1,495,000	\$3,000,000	\$4,492,788
Electric Bicycles	\$55,000	\$50,000	\$18,192

# Electric Vehicle Supply Equipment

\$6.5 Million

262 Charging Ports



Department of Housing and Community  
Development: [Interactive map](#)



# Awards Summary

- **13** awards in **37** locations
- **84** Level 2 charging ports
- Projects to provide access to **6,230** affordable housing units in Bennington, Caledonia, Chittenden, Franklin, Grand Isle, Orleans, Washington and Windsor Counties

# EVSE for Multiunit Dwellings Program

Department of Housing and Community Development launched grant program in January 2022 for non-profit affordable housing developments of ten (10) units or more



NEVI \$21,200,000  
over 5 years

FY23 Budget

\$16.25 million:

\$6.25 million for fast charging  
along highway corridors

\$10 million for community  
charging

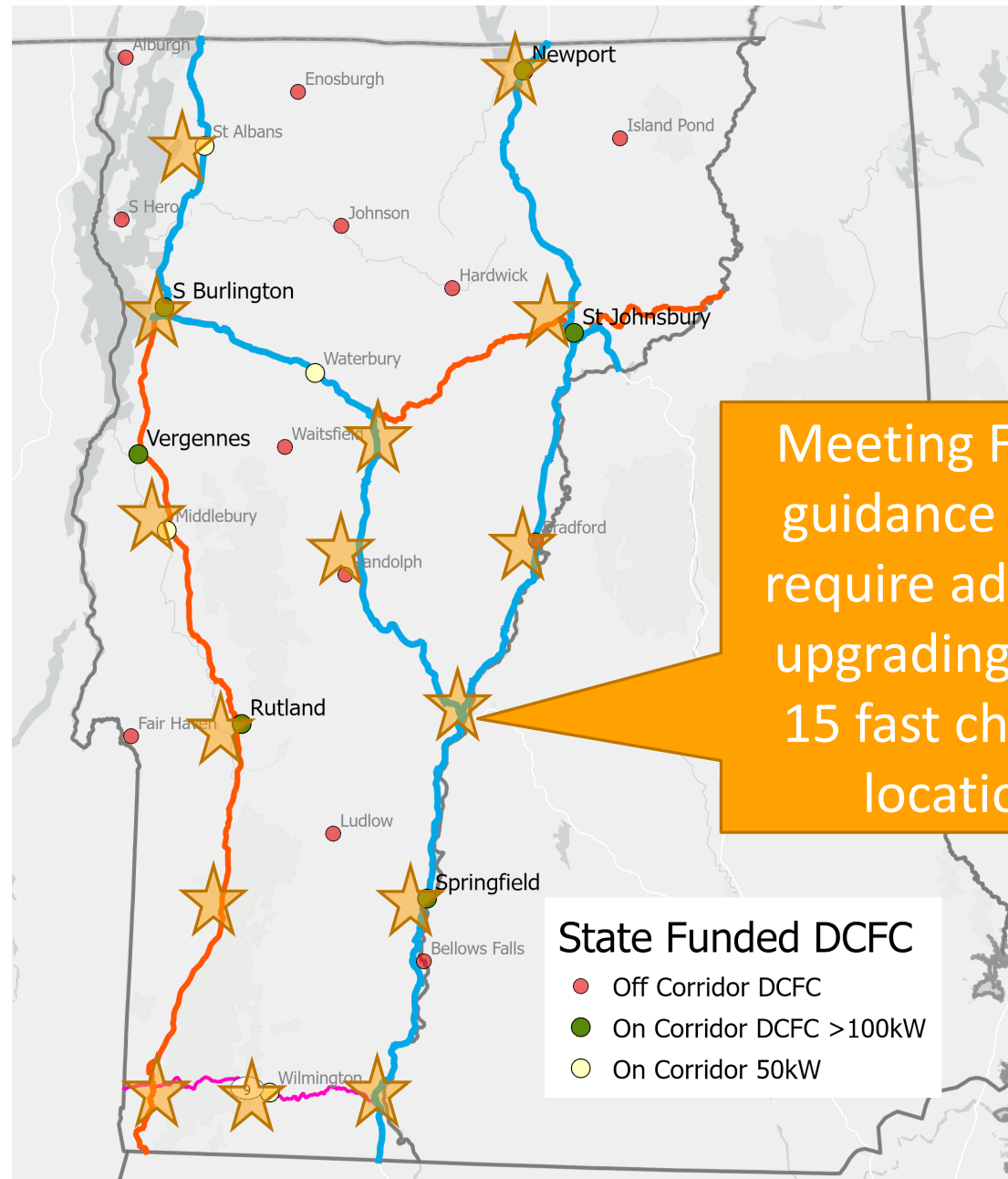
\* Updates State EVSE Goals

# Continued State Investment in EVSE



# EVSE Network Coverage

FHWA  
Designation  
Buildout



# Projected Charging Needs for 2025

To support **6,585** PEVs in VT:

- 330 Workplace Level 2 Plugs
- 262 Public Level 2 Plugs
- 69 Public DC Fast Charging Plugs

Vermont currently has:

- 714 Public Level 2 Plugs
- 76 Public DC Fast Charging Plugs, with more in progress

To support **27,000** PEVs in VT by 2025:

- At least another 250 Level 2 plugs
- At least another 150 DCFC plugs in 38+ locations

## Your Results

In Vermont, to support 27,000 plug-in electric vehicles you would need:

**1,271** Workplace Level 2 Charging Plugs

**954** Public Level 2 Charging Plugs  
*There are currently 707 plugs with an average of 2.5 plugs per charging station per the Department of Energy's [Alternative Fuels Data Center Station Locator](#).*

**247** Public DC Fast Charging Plugs  
*There are currently 89 plugs with an average of 2.3 plugs per charging station per the Department of Energy's [Alternative Fuels Data Center Station Locator](#).*

## Where Do I Start?

Planners may want to prioritize installation of fast charging infrastructure above Level 2 charging.

**Build DC Fast First:** Establishing fast charging networks that enable long-distance travel, serve as charging safety nets, and provide charging for drivers without home charging is critical to support all-electric vehicles that have no other alternative for quickly extending their driving range.

**Build Level 2 Second:** EVI-Pro typically simulates the majority of Level 2 charging demand coming from plug-in hybrid electric vehicles, which have the ability to use gasoline as necessary for quickly extending driving range.

## Change Assumptions

Plug-in Electric Vehicles (as of 2016): 1,400

Light Duty Vehicles (as of 2016): 551,900

Number of vehicles to support

Vehicle Mix		
Plug-in Hybrids 20-mile electric range	<input type="text" value="15"/>	%
Plug-in Hybrids 50-mile electric range	<input type="text" value="35"/>	%
All-Electric Vehicles 100-mile electric range	<input type="text" value="15"/>	%
All-Electric Vehicles 250-mile electric range	<input type="text" value="35"/>	%
<b>Total</b>	<b>100%</b>	

How much support do you want to provide for plug-in hybrid electric vehicles (PHEVs)?

### Full Support

Most PHEV drivers wouldn't need to use gasoline on a typical day.

### Partial Support

Calculate using half of full support assumption.

Do not count PHEVs in charging demand estimates.

Percent of drivers with access to home charging  %

**Recalculate**

Credit: Alternative Fuels Data Center, [EVI Pro-lite](#)

# Fleet (and Equipment) Electrification



**146/95 Miles**  
City/Combined Range

**3.0 Seconds**  
0-60 MPH

**60 Minutes**  
DC-Fast Recharge

- Increasingly aggressive targets for fleet electrification
- Harley Davidson LiveWire
- VTrans internal directive
- Buildings



# Reduce VMT

## Vehicle Miles Travelled (VMT) Study

- Demonstrate how smart growth strategies can reduce VMT to meet transportation emission reduction goals
- Quantify the co-benefits of smart growth strategies beyond the GHG emissions reductions (including health, safety, and economic benefits).

## Transportation Demand Strategies

- Public Transit
- Go! Vermont
- Transportation Alternatives
- Park and Ride
- Passenger and Freight Rail



BUS INFORMATION



RIDESHARING



TRAIN INFORMATION



FERRY INFORMATION



EV CARS AND CHARGING STATIONS

# Carbon Reduction Program

## Infrastructure Investment and Jobs Act (IIJA)

**\$32 million**

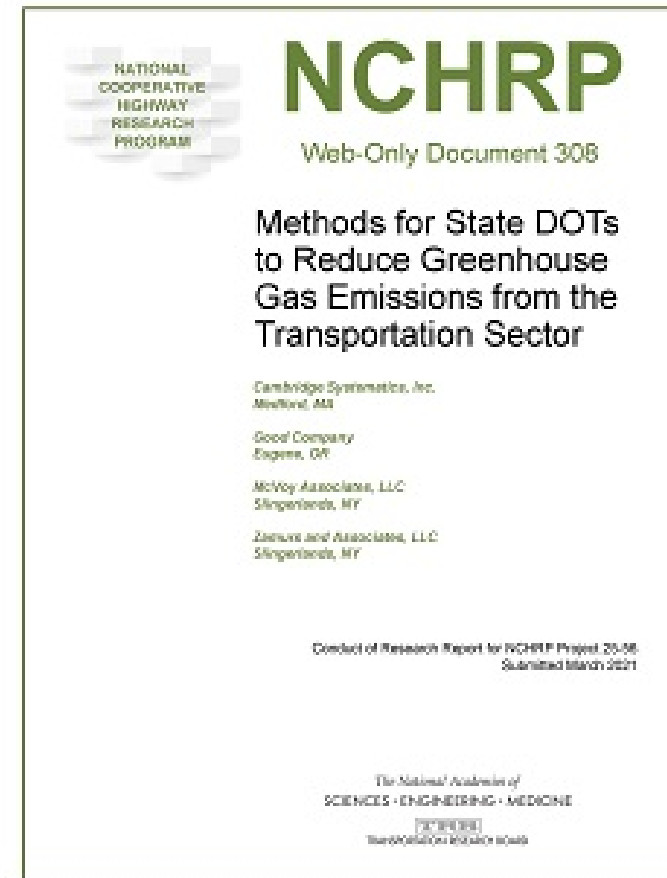
**\$6.3 annually over 5 years**

- Public Transit
- Transportation Alternatives
- Congestion Mitigation
- Efficient Street and Traffic Lighting
- Travel Demand Management Strategies
- Deployment of Alternative Fuel Vehicles and related Infrastructure
- Carbon Reduction Strategy

# Carbon Reduction Strategy

Capital Program GHG Accounting  
Methodology and Baseline  
January 2023

Carbon Reduction Strategy  
Nov 15, 2023





# Carbon Reduction Strategy

## Phase I

### **TECHNICAL AND ADVISORY COMMITTEES**

#### **PHASE I**

#### **TASK I: PROJECT INITIATION**

#### **TASK II: METHODOLOGY OPTIONS EVALUATION AND RECOMMENDATION**

#### **TASK II: METHODOLOGY OPTIONS EVALUATION AND RECOMMENDATION TASK**

#### **IV: DOCUMENTATION AND TRAINING**

# Carbon Reduction Strategy

## Phase II

### **TASK I: STAKEHOLDER AND PUBLIC ENGAGEMENT**

- Two rounds of focus group meetings with up to six stakeholder groups
- Minimum of two, statewide public meetings

### **TASK II: GAP ANALYSIS**

### **TASK III: DEVELOP AND EVALUATE STRATEGY SCENARIOS**

Four scenarios:

- One specifically and exclusively for the typical transportation infrastructure and service investments,
- One specifically and exclusively for policy and regulatory approaches, and
- Up to two additional that are some combination of strategies.

### **TASK IV: CARBON REDUCTION STRATEGY**

# Carbon Reduction Strategy - Phase II

## Relative Cost-Effectiveness of Strategies

Table 6. Cost-Effectiveness of Clean Transportation Strategies

Strategy	GHG	PM2.5	New non-SOV trips	Jobs	Health benefits
Light duty EVs	+++	+++	-	+	++
Electric transit buses	+++	+++	-	+	+++
Electric school buses	+++	+++	-	+	++
Electric trucks	+++	+++	-	++	++
Hydrogen trucks	+++	+++	-	++	++
Shared ride incentives	+	+	+++	+	+
Micromobility: Shared e-scooters & e-bikes	+	+	++	+	++
Micromobility: E-bike ownership	++	++	+++	+	++
Land use/smart growth	+++	++	-	++	++
Bicycle investment	++	++	+++	++	+++
Pedestrian investment	+	+	+++	++	+++
Travel demand & mobility management	++	++	+++	++	++
Bus rapid transit	+	+	+++	++	+
Commuter/intercity rail	+	+	++	++	+
Bus service: Expansion	+	-	++	+++	+
Bus service: Efficiency	++	+	++	+++	++
Electric microtransit	+	+	+++	++	+
Traffic flow improvements	+++	-	-	+++	-

Table 5. Benefits Key

Benefits Range	GHG tons/\$M	PM2.5 lbs/\$M	New non-SOV trips per \$M	New jobs per \$M	Value of health benefits per \$M
-	<10	<1	<1,000	<1	<\$0.1M
+	10 – 100	1 – 10	1,000 – 50,000	1 – 10	\$0.1 – \$0.25M
++	100 – 1,000	10 – 100	50,000 – 250,000	10 – 20	\$0.25M – \$2.5M
+++	>1,000	>100	>250,000	>20	>\$2.5M

Note: A typical car emits about 4 to 5 tons of GHG per year, so 100 tons is equivalent to taking 20 cars off the road, and 1,000 tons is equivalent to taking 200 cars off the road.

Source: Rhode Island Clean Transportation and Mobility Innovation Report (2020)

# Contact

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