VTRANS CLIMATE MITIGATION

Data, Progress, and Plans

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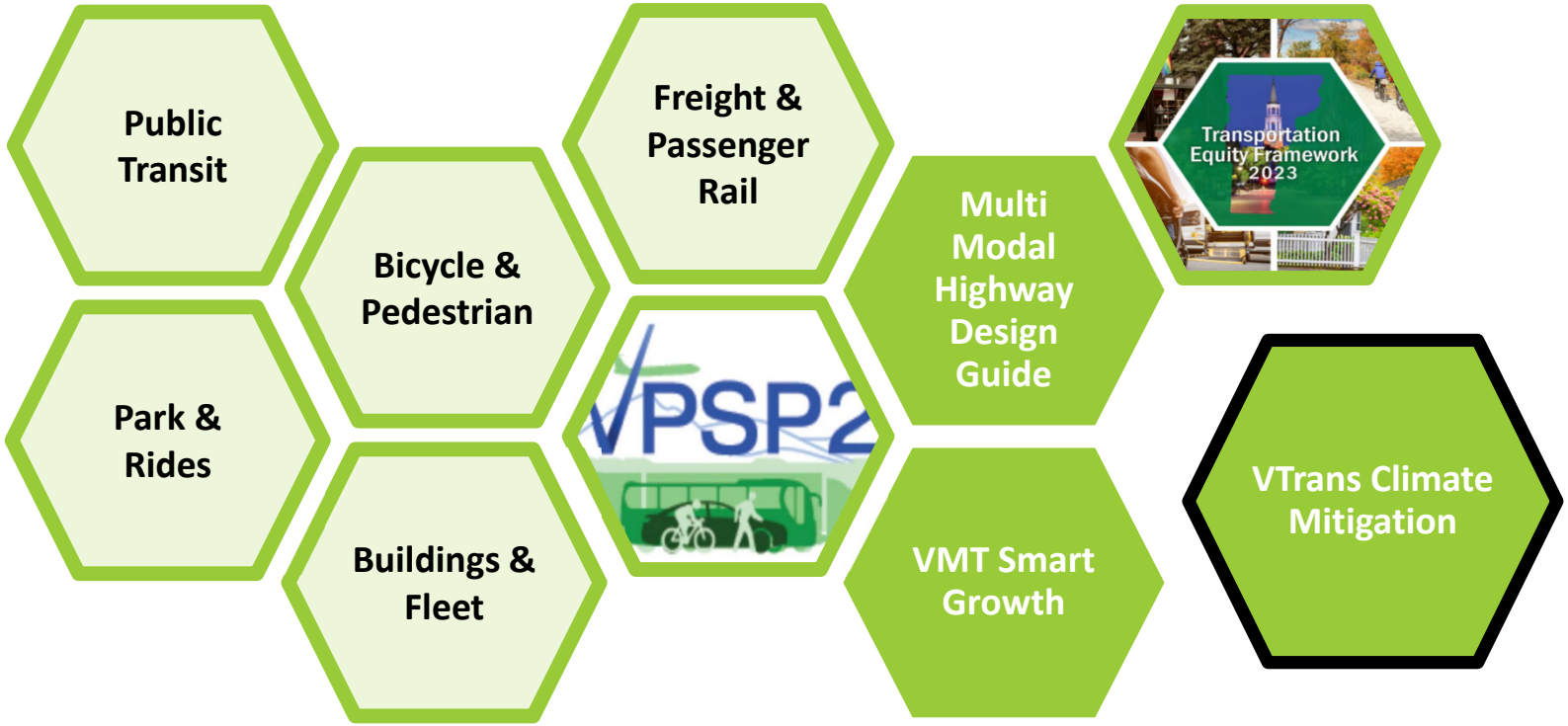
VTrans "Climate" Programs



Carbon Reduction Program

$32 million FFY22-FFY26

- Infrastructure Investment and Jobs Act
- 80% / 20% (Fed/State) Match
- Variety of eligible projects to reduce GHG

Objectives

- Support Vermont's GWSA requirements for GHG emissions reduction
- Support U.S. DOT requirements for each State to develop a Carbon Reduction Strategy

Phase I: Develop a methodology for evaluating the effect of the Agency Capital Program on GHG emissions

Phase II: Understand the gap in meeting needed reductions and recommend strategies to fill the gaps

Carbon Reduction Strategies due to FHWA by November 15, 2023

Strategies will be updated every 4 years

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Carbon Reduction Strategy

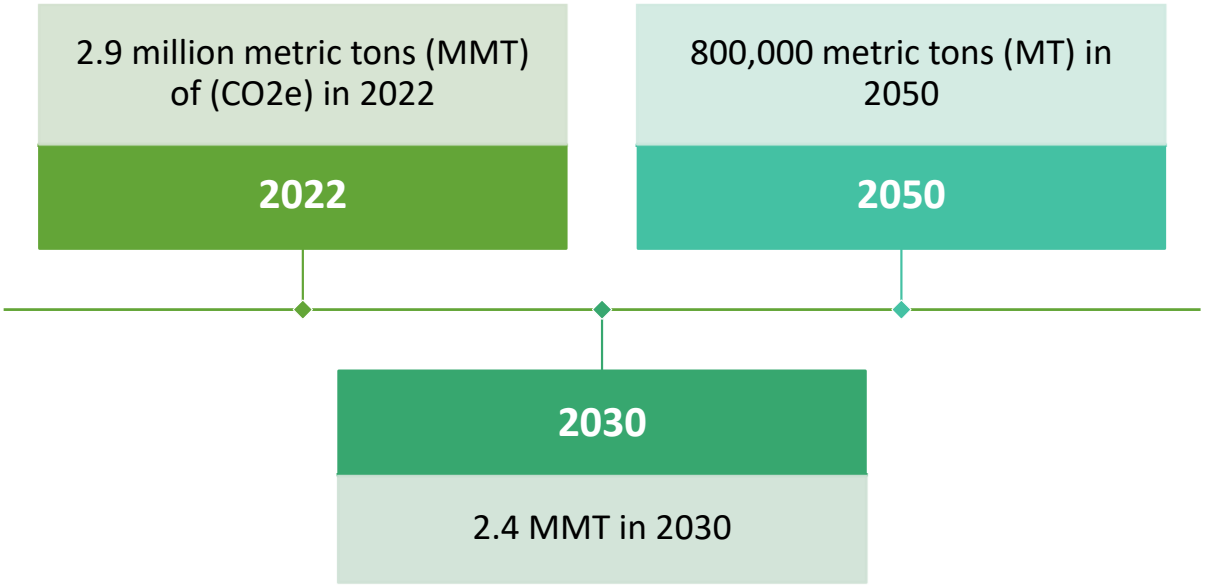
Technical Analysis

A **baseline forecast** of the state's transportation emissions through 2050, considering current adopted policies.

An assessment of the **GHG impacts of AOT's current Capital Program**, related to project construction, mode shift, efficient traffic operations, and clean vehicles funded by the program.

An assessment of the **gap** between projected baseline emissions and emission levels required under the GWSA in years 2025, 2030, and 2050.

Development and evaluation of potential **strategies** to close the gap, including evaluation of potential benefits, costs, and co-benefits.



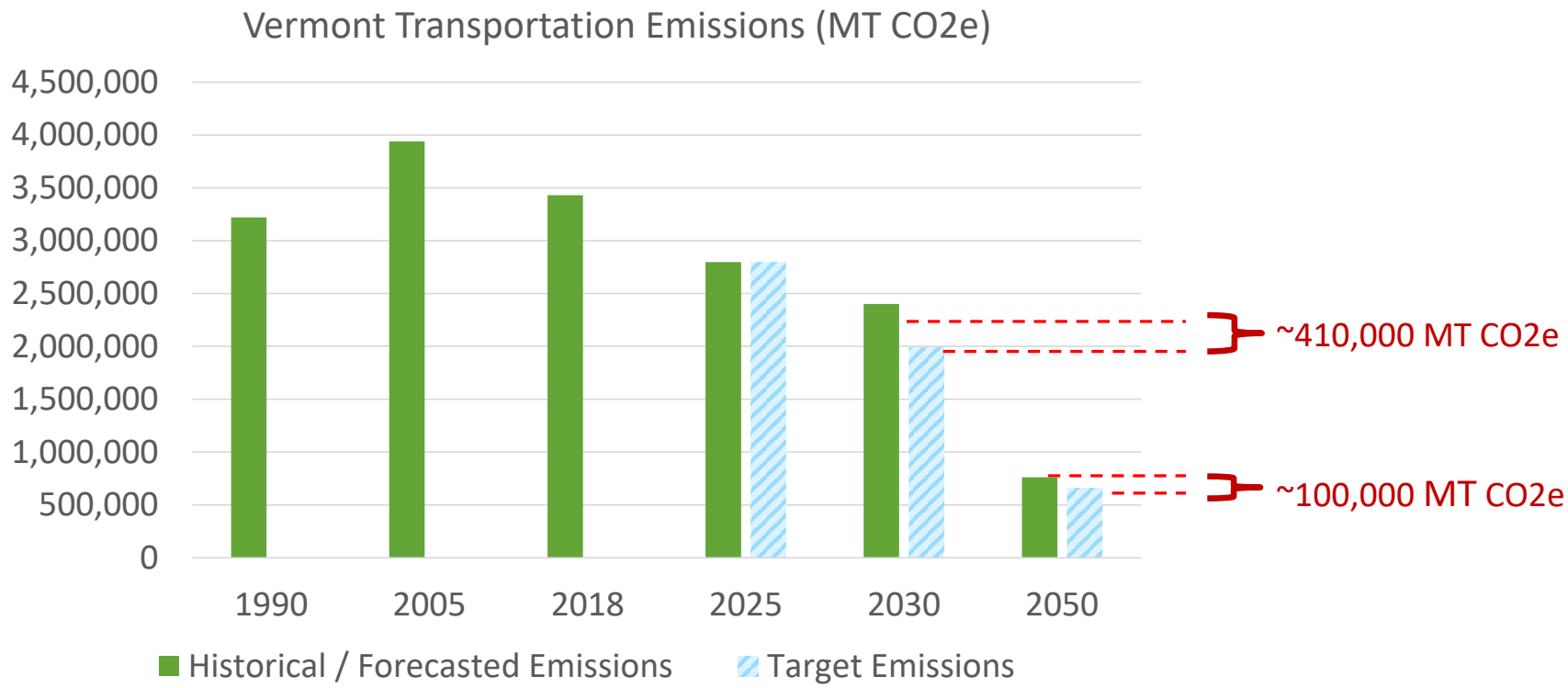
Transportation Emissions Baseline Forecast (MT CO2e)

Source Categories: On Road Vehicle, Transit, Rail and Freight, Aviation, Marine, Construction and Maintenance.

VTrans Capital Program Evaluation

- Reviewed a count of over 400 Projects in the Capital Program
- Agency Generated Emissions
- Systems User Emissions
- Conclusions:
  - Current programmed projects in the capital budget will have a small impact (reducing total transportation emissions by about 0.1 percent or less).
    - 2025 about 2,600 MT reduction vs overall, 2.7 MMT forecasted
    - 2030 about 2,115 MT reduction vs overall, 2.4 MMT forecasted
    - 2050 about 654 MT reduction vs overall, 762,000 MT forecasted
- As more vehicles electrify in the future, VMT reductions from mode shift and traffic operations improvement projects will have smaller impact on GHG emission reductions.

Gap Analysis



Possible Strategies to Close Gap

Mode Shift 

- Bicycle and pedestrian network expansion, Transit service expansion, Micromobility subsidies, Expanded travel demand management programs to encourage less carbon-intensive means of travel and non-single occupancy vehicles.

Traffic and Roadway Strategies 

- Compact land use/smart growth.
- Broadband expansion to serve the entire state.

Land Use & Tele-Travel Strategies 

- Transit vehicle electrification.
- Advanced Clean Fleets to further electrify truck fleets in the state.

Clean Car/Truck Incentives and Requirements 

- Feebates to further incentivize clean vehicles.
- Clean Transportation Standard
- Cap and Invest

Carbon Management Strategies 

Strategy	CO_2 Reduction (2030 metric tons)	% of 2030 Gap Closed	Estimated Cost Through 2030 ($M)
Bicycle and pedestrian network expansion	220	0.1%	55.7
Transit service expansion	690	0.1%	44.0
Micromobility	1,420	0.3%	7.9
Travel demand management	80	0.0%	2.8
Transit vehicle electrification	4,260	1.0%	31.5
Land use	5,660	1.4%	NA[a]
Broadband expansion	5,300	1.3%	191.7
Advanced Clean Fleets	35,700	7.7%	79.3
Feebates	19,800	4.8%	NA[b]
Combined Effects			
Transportation investment and services	6,500	1.6%	141.8
Transportation + land use + broadband	17,600	4.3%	333.5
Transportation + land use + broadband + ACF + feebates	73,000	17.8%	412.8

GHG Reduction Strategies: 2030 Effects

Strategy	CO_2 Reduction (2050 metric tons)	% of 2050 Gap Closed	Estimated Cost Through 2050 ($M)
Bicycle and pedestrian network expansion	70	0.1%	231.3
Transit service expansion	90	0.1%	60.0
Micromobility	870	0.9%	30.4
Travel demand management	10	0.0%	10.7
Transit vehicle electrification	17,000	17.0%	110.3
Land use	900	0.9%	0
Broadband expansion	850	0.8%	191.7
Advanced Clean Fleets	112,000	112%	461.8
Feebates	2,800	2.8%	0
Combined Effects			
Transportation investment and services	18,400	18%	443
Transportation + land use + broadband	20,600	21%	634
Transportation + land use + broadband + ACF + feebates	147,300	135%	1,091

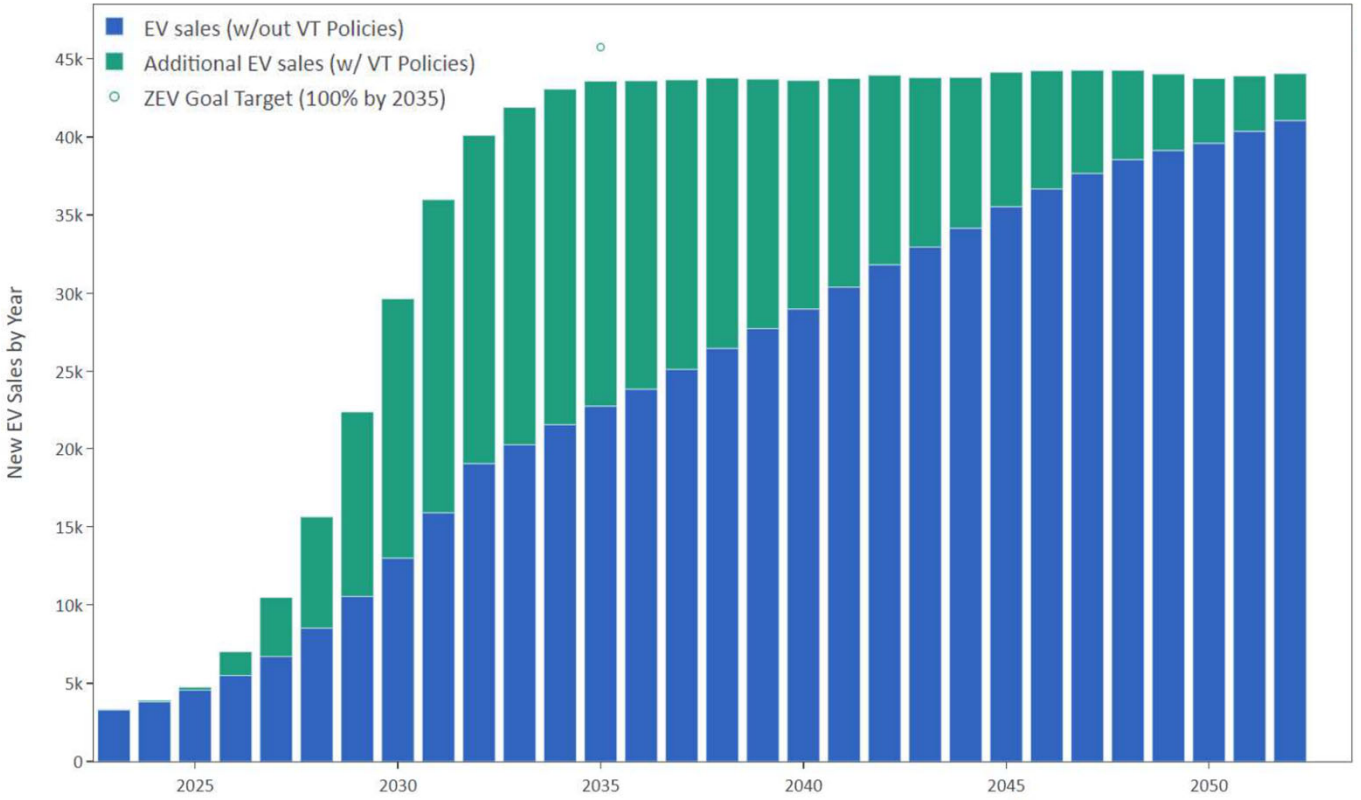
GHG Reduction Strategies: 2050 Effects

Incentive Programs

New Plug-In Electric Vehicle (PEV) Incentive Program	$17.1 million authorized $6.75 million remaining
MileageSmart (Used High Efficiency Vehicle Incentive)	$5.2 million authorized $933,000 remaining
Replace Your Ride	$4.5 million authorized $655,000 repurposed $2.83 million remaining
eBike Incentive Program	$250,000 Authorized $ 37,900 remaining
Electrify Your Fleet	$500,000 authorized Program launched in November

EV Adoption

Forecast of Annual New PEV Sales from VT Incentive Programs with IRA



Summary of results: Vermont's new EV sales by year resulting from current federal rebates and state rebates including the impact of ACC2. The lower blue section of each bar includes the federal IRA rebates, while the upper green section of each bar indicates the EV sales that were motivated by the general improvement to the EV ecosystem and diffusion pathway caused by the existence of the state rebates.
Source: Center for Sustainable Energy®, 2023

Electric Vehicle Charging Infrastructure

80/20 (Federal/Local) match met by private sector

National Electric Vehicle Infrastructure (NEVI)

$21 million

NEVI Plan required annually to access funding

Funds must be spent on EV charging on designated corridors

Charging and Fueling Infrastructure (CFI) Discretionary grant program

$20+ million funding request

46 sites along Vermont's scenic byways, State and National Parks, Forests and Wildlife refuges

Electric Vehicle Charger Reliability and Accessibility Accelerator

Agency declined to apply but will design its own program instead with CRP funds

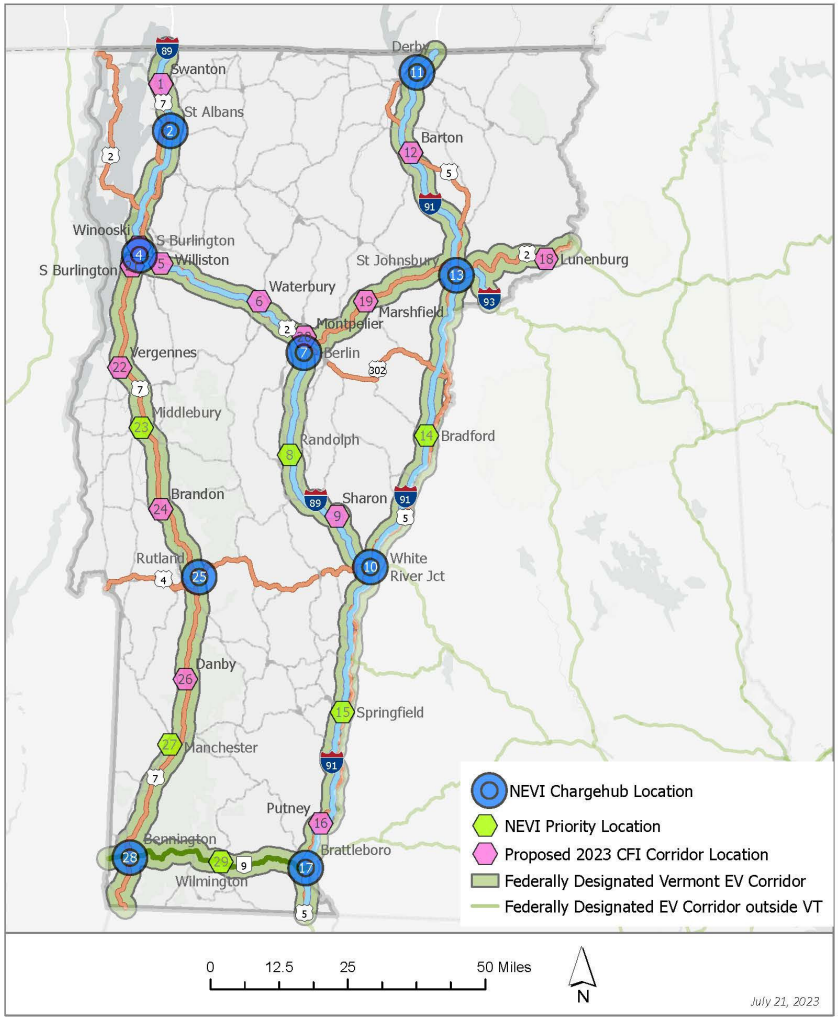
Competitive grant to repair and replace broken and non-operational EV chargers

Electric Vehicle Charging Infrastructure

Priorities:

1. Broad geographic coverage—fully built-out status
2. Greater redundancy for mainstream adoption
3. Preparation for EV freight

Vermont NEVI Priority Areas



Tracking and Reporting

Continued strategy evaluation and progress tracking and reporting

Annual updates reporting on key drivers of emissions

Post-implementation reviews

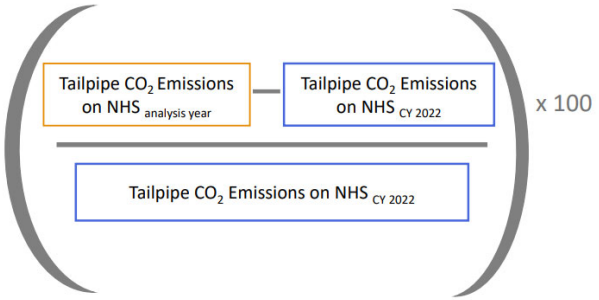
VTrans Climate Dashboard

FHWA GHG Performance Measure

FHWA Greenhouse Gas Performance Measure

- December 7th, 2023 FHWA published a Final Rule establishing a GHG Performance Measure
- Percent change in tailpipe Carbon Dioxide (CO2) emissions on the National Highway System (NHS) compared to the reference year of calendar year 2022
- Applies to all State DOTs and MPOs
- Initial Targets Due February 1, 2024

https://www.federalregister.gov/documents/2023/12/07/2023-26019/national-performance-management-measures-assessing-performance-of-the-national-highway-system



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Questions