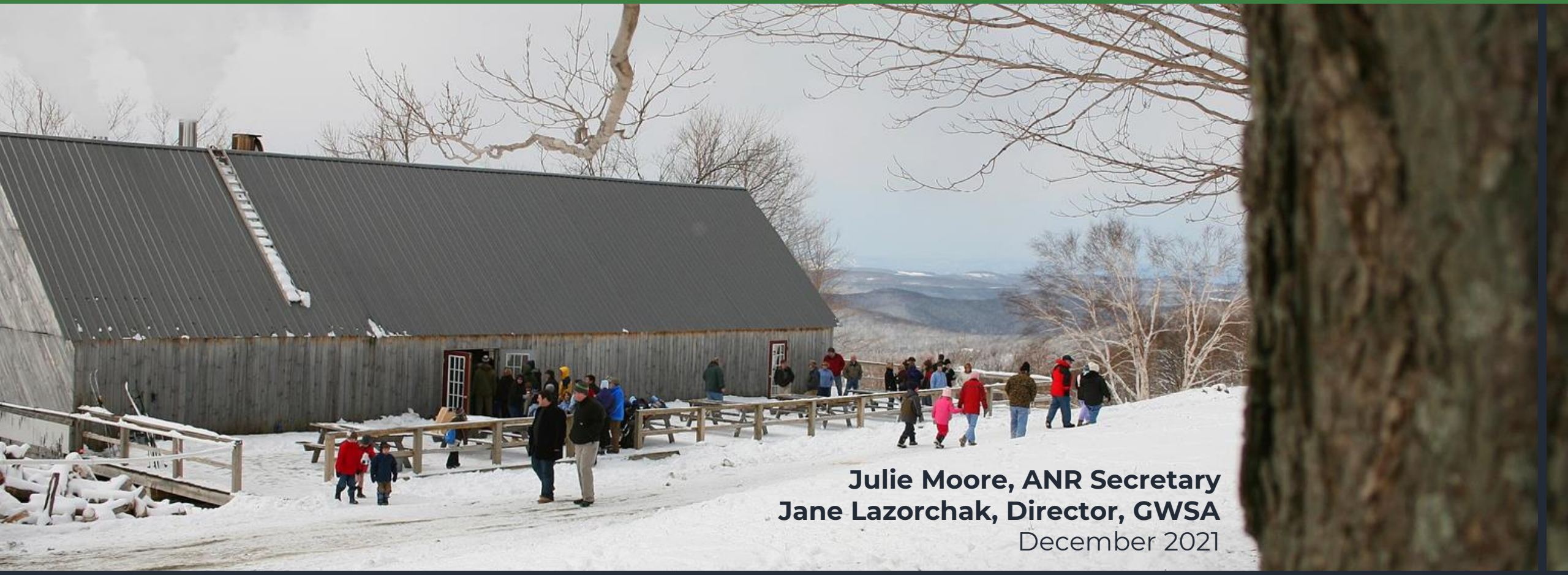
The Global Warming Solutions Act and the Vermont Climate Action Plan



Julie Moore, ANR Secretary
Jane Lazorchak, Director, GWSA
December 2021

VERMONT

Climate Change in Vermont

More rain and flooding, changes to agriculture, different forests

healthvermont.gov

Not everyone is impacted equally

Global Warming Solutions Act (GWSA), Act 153 of 2020:

- Enacted: September 23, 2020
- First meeting of the Vermont Climate Council: November 20, 2020
- Subcommittees Began Meeting in February, 2021
  - Cross-Sector Mitigation, Rural Resilience and Adaptation, Agriculture and Ecosystems, Just Transitions and Science and Data
- Initial Climate Action Plan adopted: December 1, 2021

The Vermont Climate Action Plan

- ➔ Aim to cut climate pollution in half by 2030
- ➔ Prioritize those who are most affected
- ➔ Shaped by five subcommittees
  - ◆ with public input
  - ◆ in coordination with CEP
- ➔ Updated at least every 4 years
- ➔ Implementation section to inform decision-making
- ➔ Framework for measuring progress

GWSA Charge to the Climate Council

1. **Reduce greenhouse gas emissions** from the transportation, building, regulated utility, industrial, commercial, and agricultural sectors;
2. Encourage smart growth and related strategies;
3. **Achieve long-term sequestration and storage of carbon** and promote best management practices to achieve climate mitigation, adaption, and resilience on natural [and] working lands;
4. **Achieve net zero emissions by 2050 across all sectors;**
5. Reduce energy burdens for rural and marginalized communities;
6. Limit the use of chemicals, substances, or products that contribute to climate change; and
7. **Build and encourage climate adaptation and resilience** of Vermont communities and natural systems.

The Climate Action Plan

CAP Strategies and Actions

"test" established in GWSA for required elements of CAP

GHG mitigation (Section 592(b))

"…the specific initiatives, programs, and strategies, including regulatory and legislative changes, necessary to achieve the State's greenhouse gas emissions reduction requirements…"

Suite of actions ***necessary*** to achieve…

Legislature

ANR (rulemaking)

Additional actions

VCC

Adaptation, resilience and sequestration (Sec. 592(c))

"…build and encourage climate adaptation and resilience of Vermont communities and natural systems…"

Suite of actions ***consistent*** with…

Legislature

ANR (rulemaking)

VCC

Equity Lens: Guiding Principles for a Just Transition

A framework for the Climate Council and subcommittees to evaluate, adjust and prioritize recommendations based on how they will impact Vermont's impacted and frontline communities.

01

Ensuring inclusive, transparent, and innovative engagement

02

Creating accountable & restorative recommend-ations

03

Moving at the speed of trust

04

Incorporating solidarity to create inclusionary spaces

05

Prioritizing the most impacted first

06

Developing supports for workers, families, and communities

Five Impact Areas

Cutting Climate Pollution

Reducing emissions from transportation, buildings, energy and products.

Capturing Carbon

Removing carbon from the air and storing it in soil or plants.

Resilient Working and Natural Lands

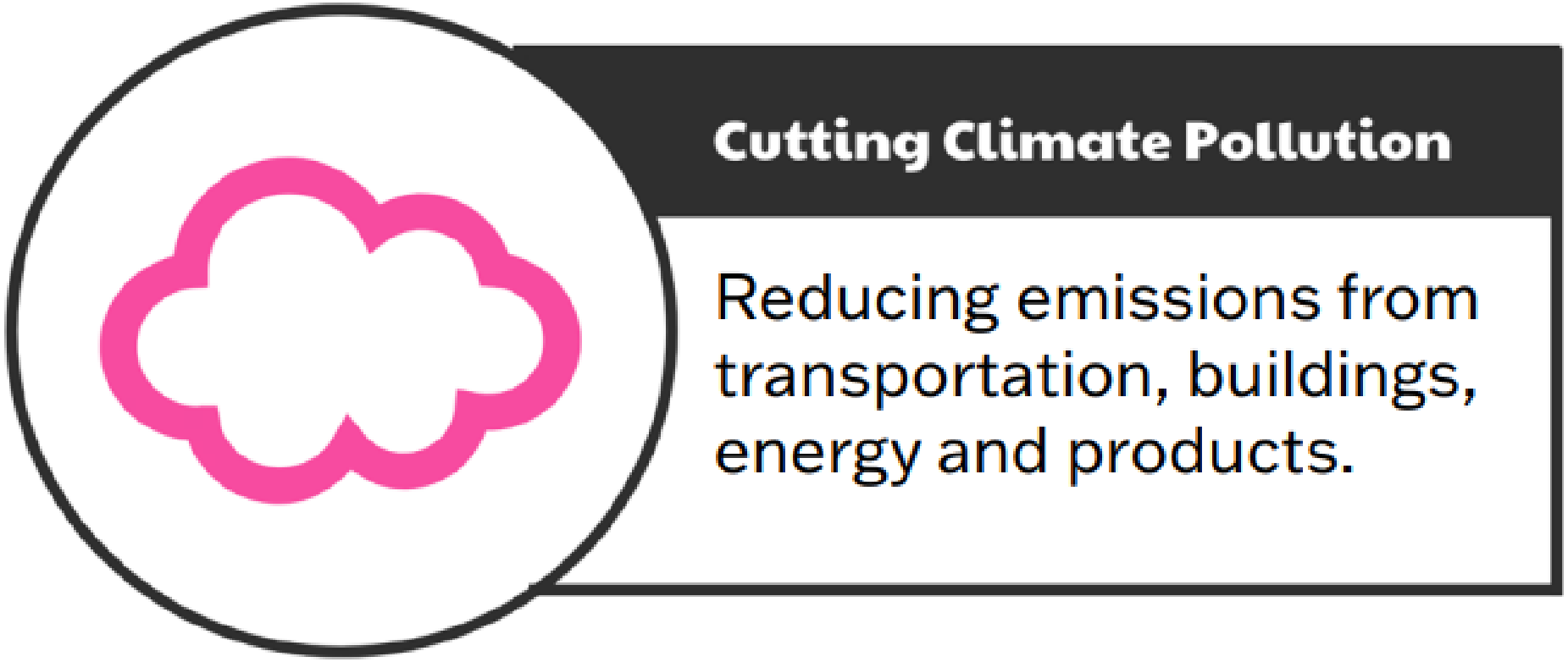
Preparing farms, forests and ecosystems for climate change.

Cross-Cutting Solutions

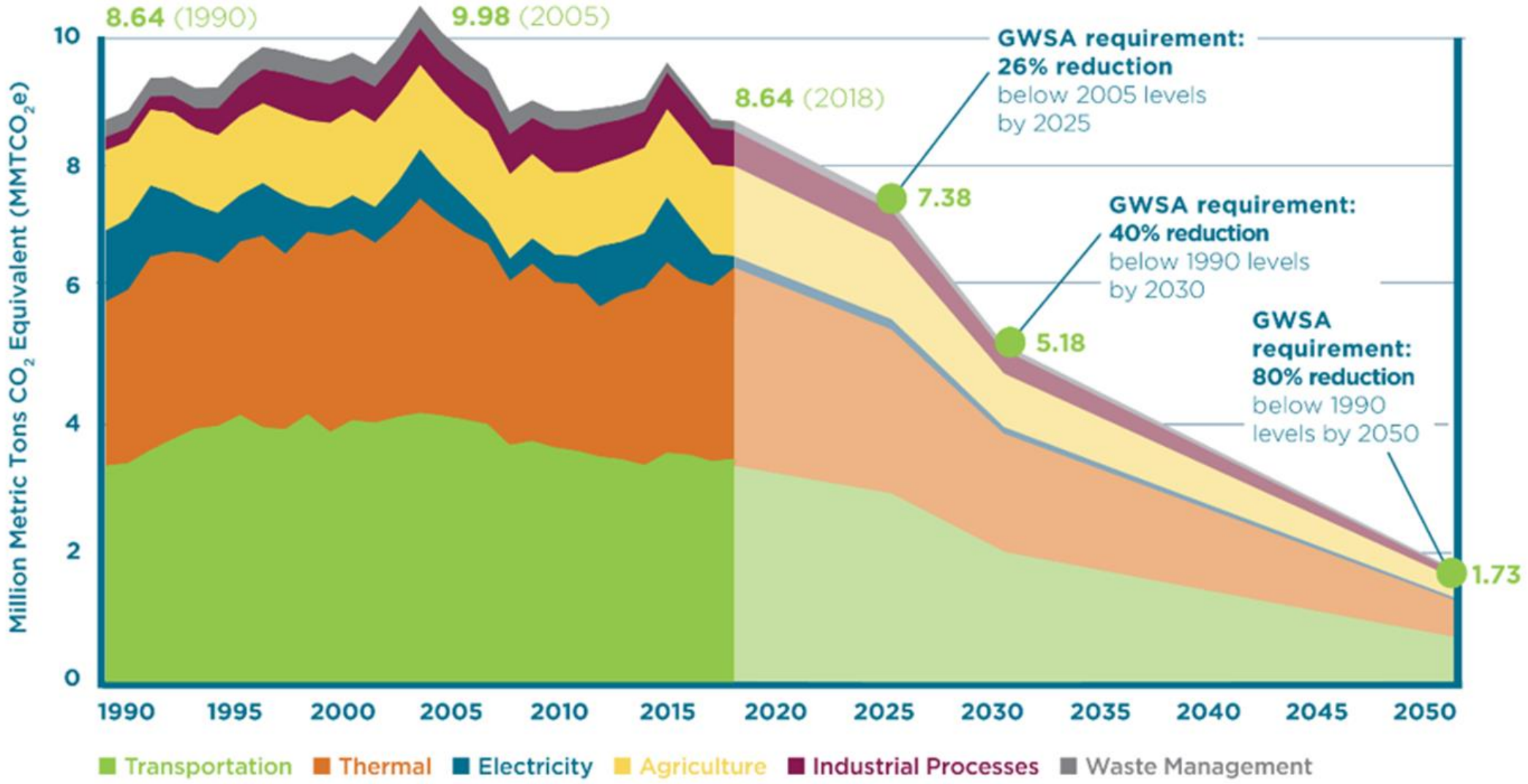
Investing in communities and workforce development.

Vital Communities

Protecting people and infrastructure from climate impacts.


Cutting Climate Pollution
Reducing emissions from transportation, buildings, energy and products.

GWSA Emission Reduction Requirements



Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.

Efficient Transit and Electric Vehicles

- Provide incentives to help Vermonters purchase electric vehicles
- Build more charging stations for electric vehicles
- Join the Transportation and Climate Initiative Program (TCI-P) when regional market viability exists**
  - TCI-P would cap emissions from transportation fuel in the region and invest funds from the sale of carbon allowances to reduce emissions
  - *"As of the date of the adoption of this CAP, the future of the TCI-P is uncertain, and it is not immediately clear how Vermont's adoption of the action to participate in the TCI-P would be implemented without partnership from other states in the region."*
- Adopt California's Advanced Clean Car and Clean Truck Rules
  - Requires manufacturers to sell an increasing number of zero-emission vehicles thru 2035.
  - Implemented thru ANR-led rulemaking
    - GWSA requires rules to be filed with ICAR by July 1, 2022

*** non-consensus item*

Efficient Transit and Electric Vehicles

- Electrify medium and heavy-duty vehicle auxiliary systems (i.e., bucket trucks and electric transport refrigeration units)
- Create infrastructure that supports more walking, biking, public transit options
- Educate drivers on benefits of electrification and other transportation options to reduce vehicle miles traveled (VMT)

Efficient Transit and Low- and Zero-Emission Vehicles (ZEVs)

Transportation	2025	2030
Number of EVs ★	43,000	166,000
EV Share of Sales	40%	>80%
VMT Reduction from Baseline	1.9%	3.5%
EV share of VMTs	8%	29%
EV Managed Charging	27%	50%

★ Of the nearly 433,000 vehicles registered in Vermont (328,000 cars; 105,000 light-duty trucks), currently about 1% (<5,000) are ZEVs

Better Buildings and Homes

- Expand weatherization (“weatherization at scale”)
- Develop and implement a Clean Heat Standard
  - Performance standard driving transition to less carbon-intensive heating practices
- Incentivize adoption of clean, energy-efficient heating options, such as heat pumps and modern wood heat
- Institute a rental property efficiency standard (RPES)
- Regularly update and ensure compliance with the statewide residential building energy code

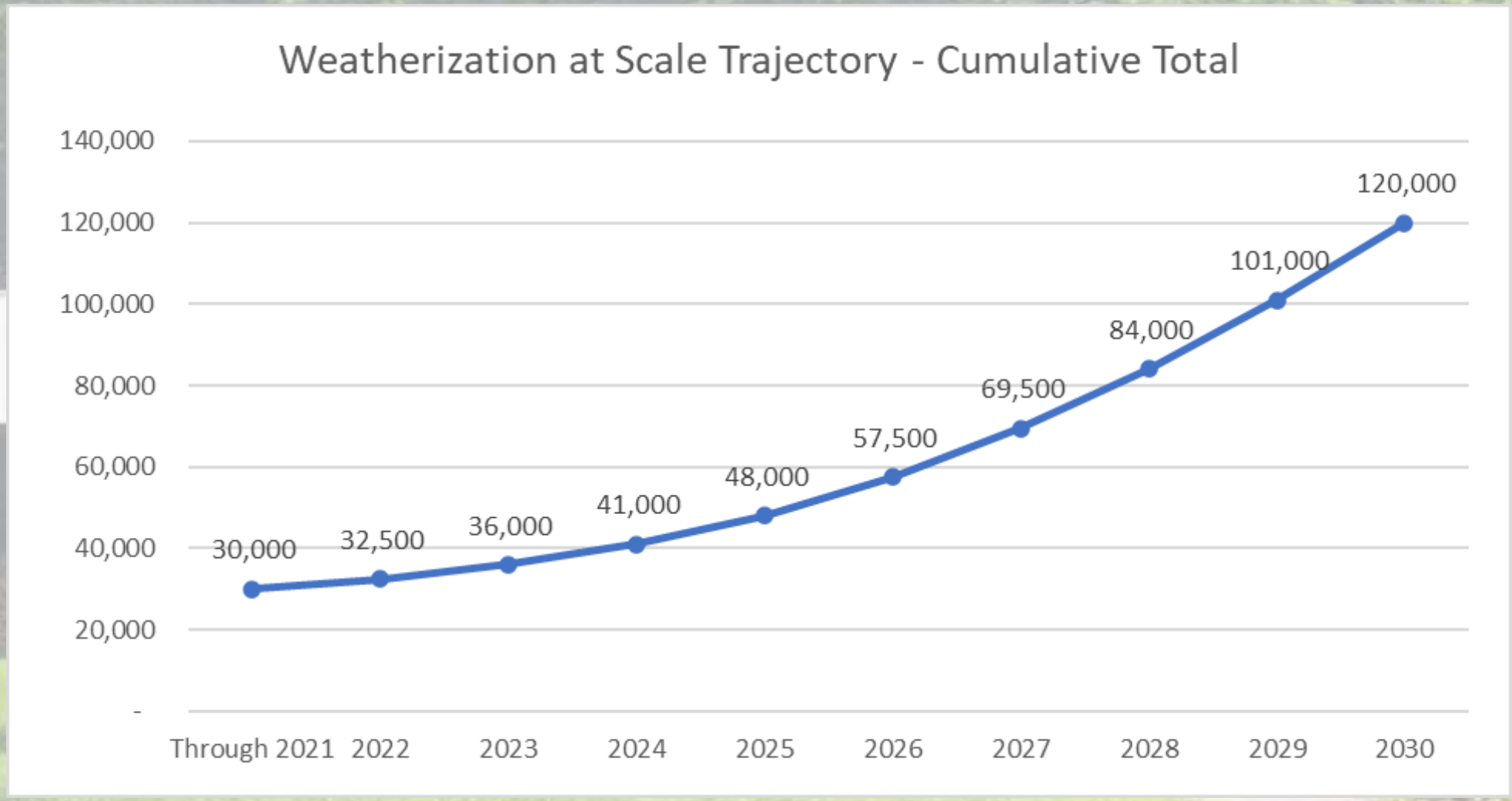
NPS Photo Credit L Shahi

Better Buildings and Homes

Residential	2025	2030
Homes Weatherized	48,000	120,000
Heat Pumps Installed	78,041	142,851
Heat Pump Water Heaters Installed	63,247	136,558
Homes with Biofuels	19,324	29,823

NPS Photo Credit L Shahi

Weatherization at Scale

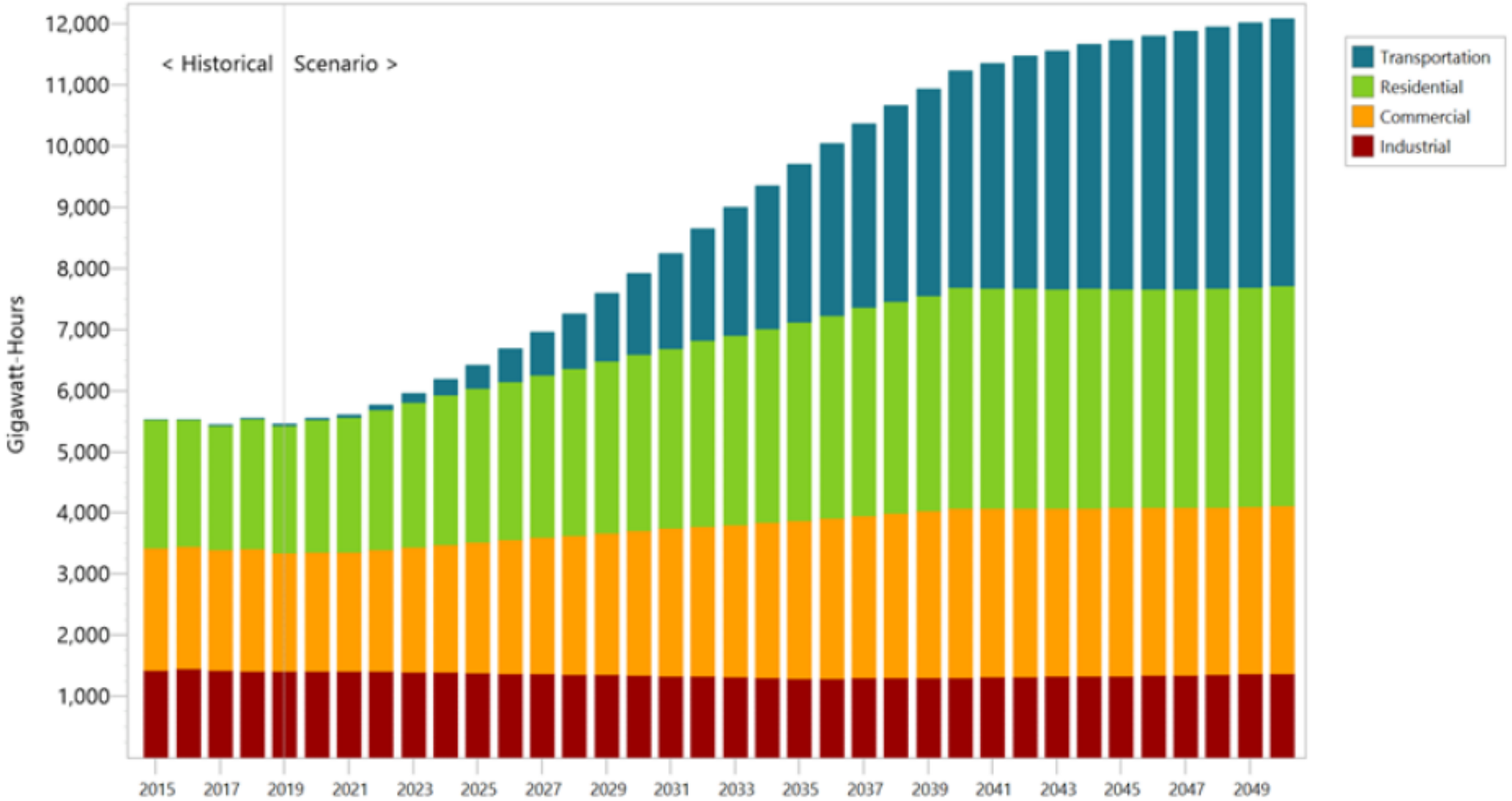


NPS Photo Credit L Shahi

Clean, Reliable Energy

- Shift away from fossil fuels and fossil fuel-dependent equipment
- Pursue 100% Carbon-free or renewable electricity by 2030
  - Up from current goal of 75% by 2032
  - Total demand for electricity is expected to double from roughly 5.5 TWh in 2020 to more than 12 TWh by 2050
- Enable all Vermonters to choose electrification
  - Upgrade electrical service in homes/businesses
- Invest in load management and grid optimization

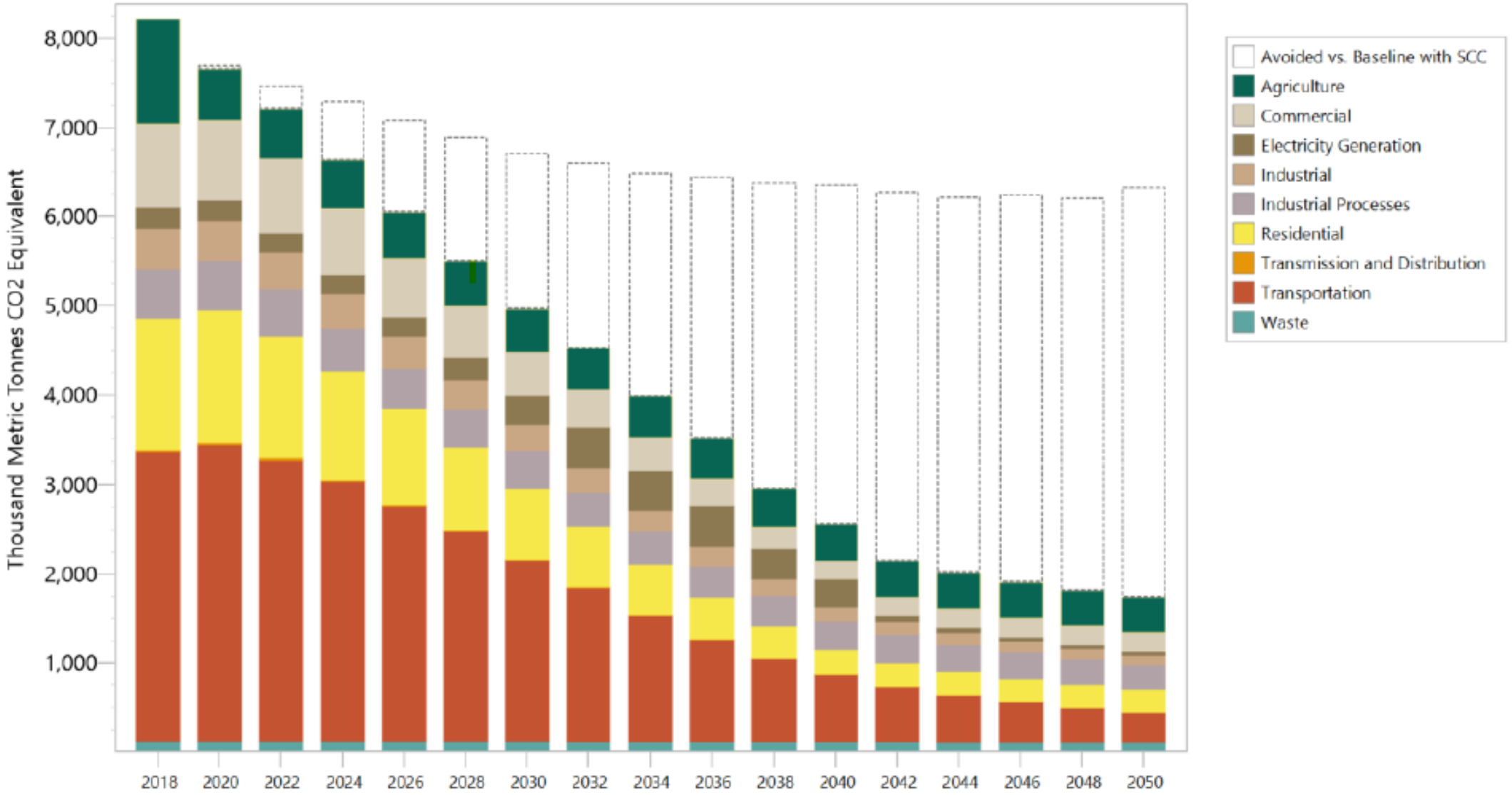
Modeled Electricity Demand in Vermont, thru 2050

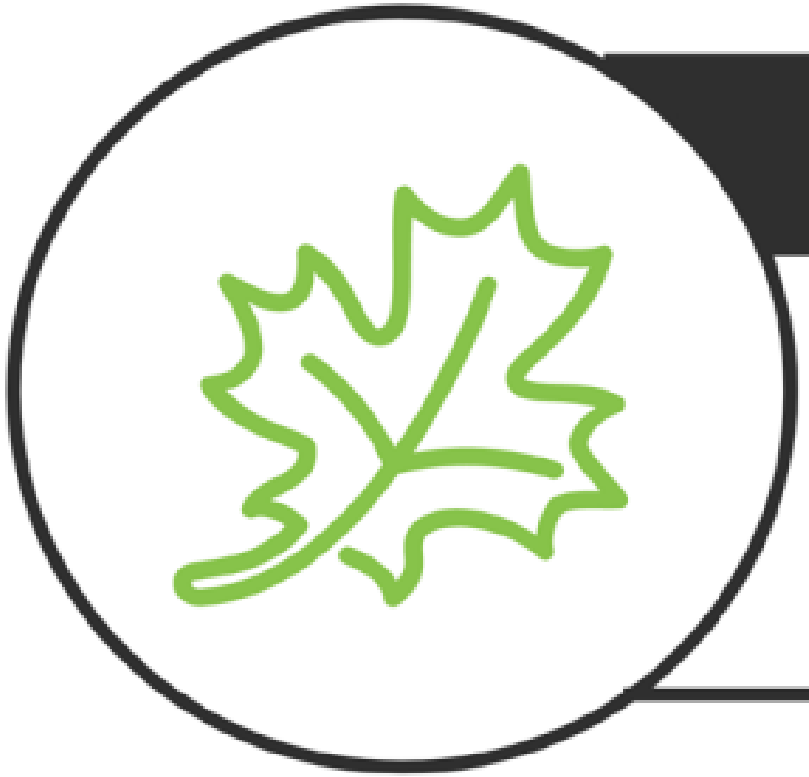


Other Greenhouse Gas Reduction Opportunities

- Improve manure management and implement methane capture on farms
- Reduce emissions of refrigerants with high global-warming potential
- Reduce emissions of fluorinated gases from semiconductor manufacturing
- Ensure flares are operational at all existing municipal wastewater digesters

GWSA Requires Aggressive Scale and Pace





Resilient Working and Natural Lands

Preparing farms, forests and ecosystems for climate change.

Resilient working and natural lands

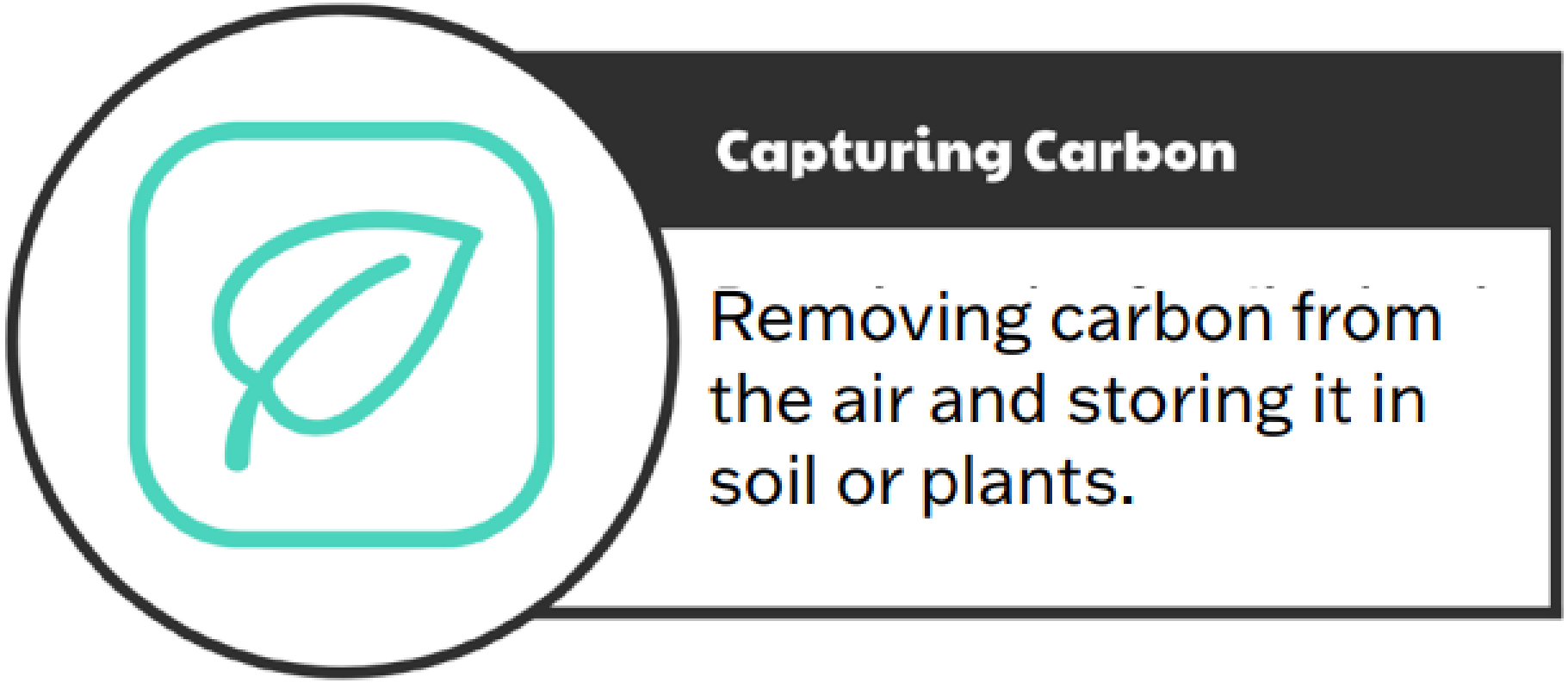
- Invest in agricultural and working lands management practices that mitigate emissions and improve resilience
  - Many of the same practices that are important for clean water are also beneficial for climate (i.e., cover crops, reduced tillage, expanded buffers, managing for resilient forests)
- Expand nature-based solutions and understanding of traditional ecological knowledge (TEK)
  - Invest in strategic conservation
  - Promote healthy, connected river corridors, floodplains, and wetlands
- Support and empower Vermont's natural and working lands owners, managers, and caretakers, and expand local markets

Vital Communities

Protecting people and infrastructure from climate impacts.

Vital Communities

- Prioritize planning practices and investments that help Vermont communities prepare for climate impacts
  - Develop a climate toolkit
  - Update land-use policies to better support adaptive, resilient, compact settlement
- Increase resilience of key infrastructure (transportation, energy, communications, water/wastewater)
- Support the reduction of municipal, school district, residential, university, and hospital fossil fuel use
- Ensure all have access to safe, accessible, energy efficient, and affordable housing

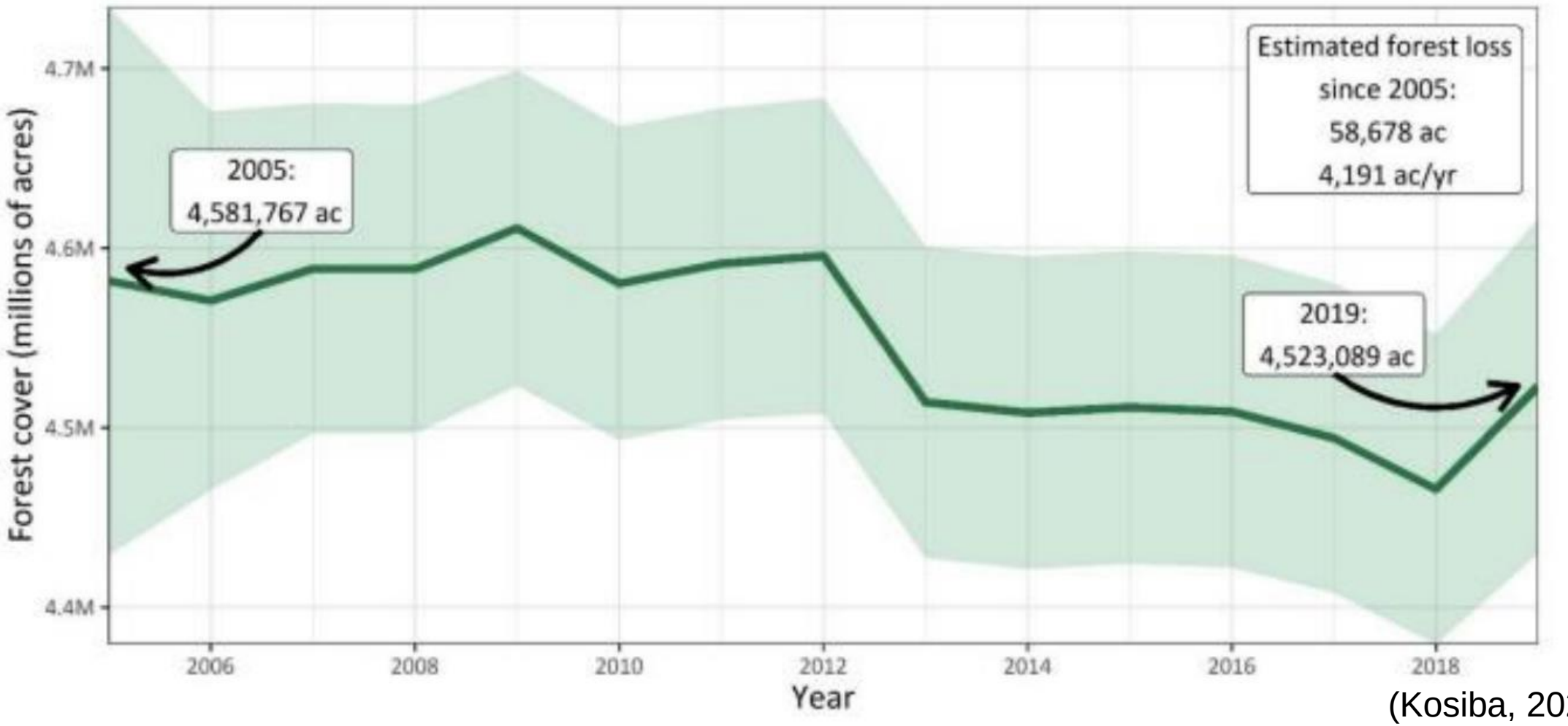

Capturing Carbon
Removing carbon from the air and storing it in soil or plants.

Capturing Carbon

- Develop and implement programs which incentivize management practices which maintain or increase carbon storage
  - Changes to Use Value Appraisal (UVA) program **
  - Carbon markets
  - Payment for ecosystem services

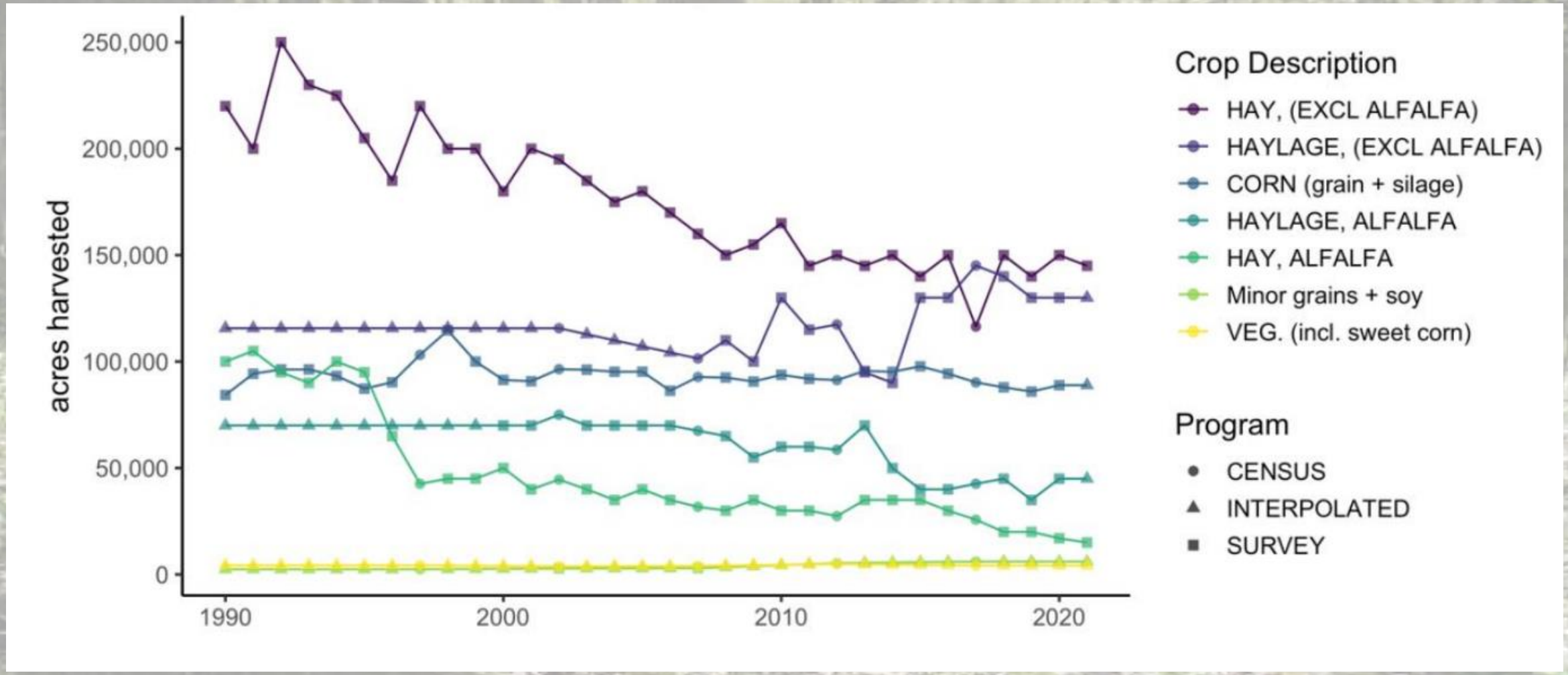
*** non-consensus item*

Estimated Forest Acreage in Vermont



(Kosiba, 2021)

Estimated Cropland Acreage in Vermont



(USDA NASS, 2021)

Cross-Cutting Solutions

Investing in communities and workforce development.

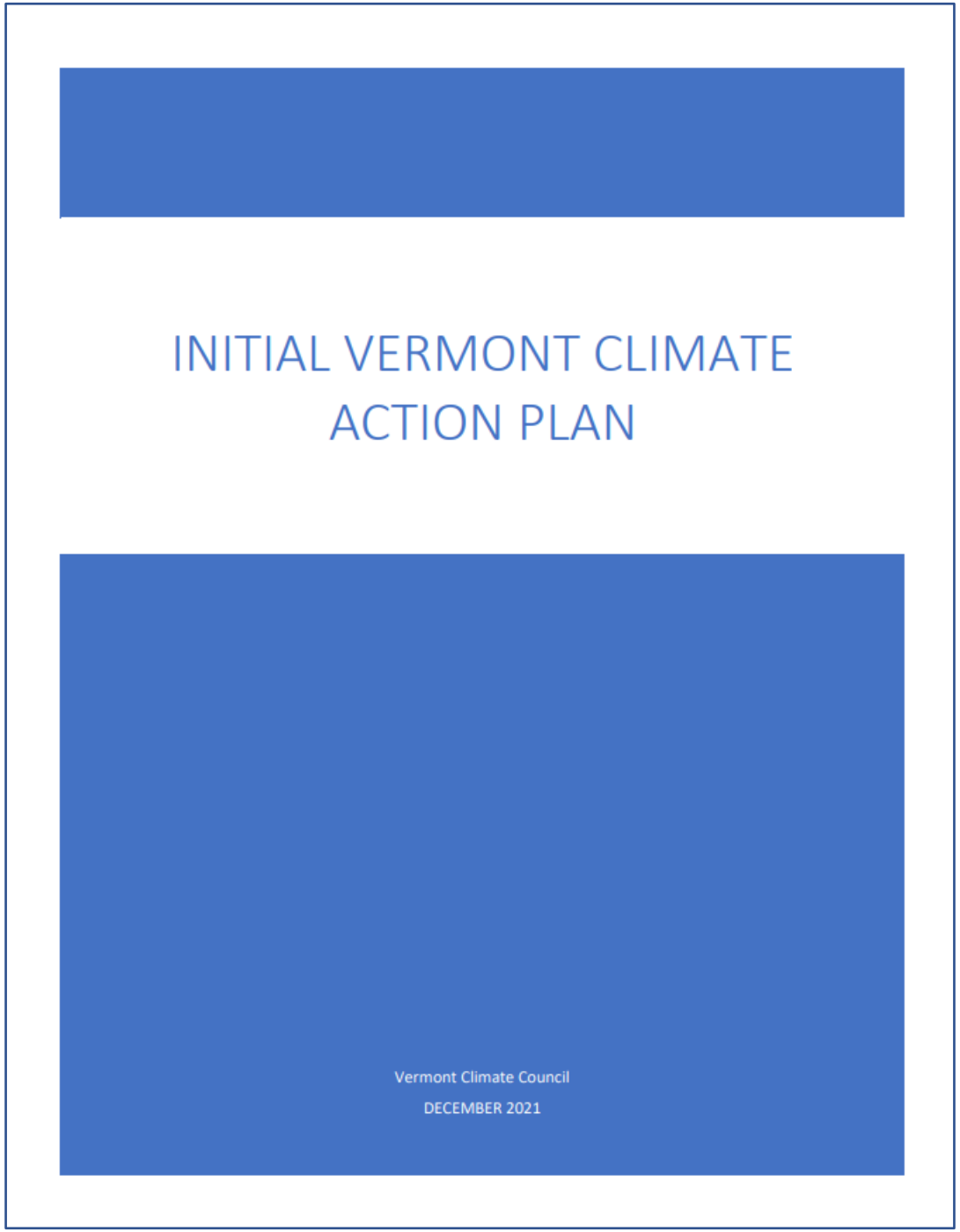
Cross-Cutting Solutions

- Support compact settlement patterns
  - Infrastructure investments, tax incentives
  - Regulatory changes (Act 250, designated centers, local zoning)
  - No net loss of natural or working lands **
  - State land-use policy/plan **
- Ensure state government, community and partner capacity needed to support implementation
- Establish statewide environmental justice policy
- Expand training and resources for workforce development
- Launch comprehensive climate education programs
- Encourage personal actions

*** non-consensus items*

What Will You Find in the CAP?

- The GWSA established a suite of ambitious goals and requirements
- VCC developed a broad and far-reaching set of recommendations
- Initial Climate Action Plan identifies:
  - 26 pathways
    - Written broadly; high-level
  - 64 strategies
    - Statements of measurable activity
  - 234 specific action steps
    - Operational tasks



With the CAP Adopted, What Happens Now?

VCC

- Develop strategies for transportation sector GHG emissions reductions
- Make recommendations for utilization of ARPA funds to Legislature and the Governor
- Request budget to support further technical analyses/study
- Prioritize work needed to build equity into climate action and ensure a just transition

ANR

- Complete Pathways Analysis
- Initiate rulemaking re: CA Clean Car & Truck standards

JFO

- Prepare "…an analysis of the economic, budgetary, and fiscal costs and benefits of the Plan…"

Legislature

see next slide

It is essential to extend the VCC's commitment to co-creation of and broad-based public engagement in building out the policies and programs needed to implement the CAP

With the CAP Adopted, What Happens Now?

- Activity largely moves back into the Legislature to:
  - Identify a suite of high-impact policy priorities that will support durable environmental outcomes
    - Weigh investments in GHG emissions reductions against the tangible steps to lessen the effects of climate change on Vermonters
  - Fully appropriate ARPA funds for climate action
    - Identify opportunities to utilize one-time monies to augment federal funds to achieve the speed and scale of implementation actions required by the GWSA
  - Understand additional analyses and contractor support needed to fully achieve the requirements of the GWSA, including:
    - Advancing improvements to the emissions inventory and carbon budget
    - Establishing an approach for data collection and management to track progress
    - Creating a municipal climate toolkit, including vulnerability index
    - Continuing and expanded public outreach and engagement
  - Ensure diverse appointments to the Council as vacancies arise, and support those appointees with just compensation