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Emissions Reductions: Transportation Recommendations

Pathway: Through legislation and administrative action, join a cap-and-invest program, such as the New York Cap and Invest (NYCI) or Western Climate Initiative (WCI), covering emissions from Vermont's transportation fuels sector, and potentially other sectors, once necessary preparatory steps are taken.

Strategy: Vermont's Agency of Natural Resources (ANR) will develop a framework for the reporting of greenhouse gas emissions data from fuel suppliers and other significant emitters of climate pollution and recommend to the Legislature statutory by December 15, 2025 changes needed to support streamlined reporting requirements and a stepped implementation plan.

- **Priority Action:** Take the following steps to join a cap-and-invest program:
 - Develop a framework for the reporting of greenhouse gas emissions data from fuel suppliers and other significant emitters of climate pollution. Vermont's Agency of Natural Resources (ANR) will work expeditiously to put a reporting framework in place and recommend to the Legislature by December 15, 2025, statutory changes and funding needed to support streamlined reporting requirements and a stepped implementation plan.
 - Determine the most appropriate and feasible mechanism(s) for addressing affordability concerns related to the implementation of a cap-and-invest program.
 - Ensure that a significant portion of cap-and-invest revenues are used to provide direct payments or rebates in as close to real time as possible to Vermonters with low- and middle-incomes, to prevent cost of living increases for those households from the program. Another significant portion of revenues should be used to provide direct incentives to support low- and middle-income households in reducing pollution and saving money via increased energy efficiency and adoption of no or low-carbon technologies.
 - ANR, in collaboration with the Public Service Department (PSD), the Vermont Agency of Transportation (VTrans), and the Vermont Climate Council, will advance a study that will make specific technical

- recommendations around achieving affordability, including potential limits on allowance prices i.e. a price ceiling.
 - Monitor cap-and-invest programs and continue to track updated economic analysis to understand the costs and benefits on implementing the program in Vermont, and join the best available program, such as the Western Climate Initiative (WCI) or the New York Cap and Invest (NYCI), based on the above analysis.
- The Council views a cap-and-invest program as an overarching policy to provide predictable and substantial emissions reductions in Vermont over time. However, alongside such a program, additional policies will be needed to achieve targeted reductions, deliver benefits to lower-income Vermonters, and to achieve the scale of emissions reductions required by the Global Warming Solutions Act (GWSA). In the thermal sector, this plan recommends important investments in weatherization and lower emission heating systems, which can provide near-term emissions reductions. The Council also acknowledges the need to explore and implement other complementary policies to accelerate the transition to non-fossil heating fuels. Options include a thermal energy benefit charge and thermal sector performance standards, such as a modified clean heat standard, equipment standards, and fuel standards.

Pathway: Reduce greenhouse gas (GHG) emissions from vehicles

Strategy: Market-Driving Technology Forcing Regulatory Programs (Vehicle Emissions Standards)

- **Priority Action:** Reduce greenhouse gas emissions from vehicles by:
 - Continuing to monitor and maintain Vermont's adoption of the California Advanced Clean Cars II (ACC II) and Advanced Clean Trucks (ACT), including adopting rule amendments adopted by CARB that provide increased compliance flexibility.
 - Urge the Vermont Attorney General to join and participate in any litigation defending California and the Section 177 states' authority under the Clean Air Act.
 - Supporting vehicle electrification ensuring long-term, consistent funding for electric vehicle (EV) incentives to low- and moderate-income car purchasers which aligns with estimates provided for the VT Agency of Transportation's (VTrans) February 2024 Clean Transportation Incentive Programs Report; as well as guidance from the February 2025 Legislative Report on Vermont Clean Transportation Incentive Programs.

- Supporting vehicle electrification investment for the equitable deployment of fast charging and Level 2 charging options to levels needed to meet the modeling done in the Pathways 2.0 Report and as estimated in the VTrans's January 2025 Statewide Level 3 Report, Map, and Funding.

Strategy: Light and Heavy Duty Electric Vehicle Purchase Incentives and Programs

- Action: Require VT Agency of Transportation (VTrans) to analyze the pros and cons of a “statewide high-mileage user” vehicle purchase incentive program and advance if justified with the goals of maximizing cost and carbon savings benefits through targeted incentives.
- Action: Ensure long-term, consistent and sufficient funding for programs in line with Global Warming Solutions Act (GWSA) targets for electric vehicle (EV) adoption including core programs such as point of sale purchase incentives, Mileage Smart, transit and micro-transit electrification in future state budgets and transportation bills (T-Bills). Amend program eligibility and parameters as informed by ongoing data tracking and analyses
- Action: Analyze, design and advance as appropriate a vehicle efficiency price adjustment that’s linked to the “purchase and use” tax for new vehicles. The program will incentivize the purchase of more efficient vehicles with an emphasis on electric vehicles and disincentivize purchase of inefficient vehicles within a vehicle class. A previous VT Agency of Transportation (VTrans) feebate study will be included in the analysis

Strategy: New and emerging alternative fuels for heavy duty vehicles

- Action: Support research and deployment of hydrogen fuel cells, sustainably produced biofuels and other less carbon intensive (CI) alternatives for the heavy duty sector.

Strategy: Electrify medium and heavy-duty vehicle auxiliary systems

- Action: Fund programs that incentivize electric auxiliary systems, such as (but not limited to) hybrid-electric bucket trucks and electric transport refrigeration units and programs that incentivize installation of electrified parking spaces in truck loading/unloading zones.

Strategy: Public Investment in and Maintenance of Electric Vehicle Supply Equipment (EVSE)

- Action: Continue coordinated efforts within Vermont and across the region to support sufficient investment for the equitable deployment of direct current fast charging (DCFC) and Level 2 electric vehicle supply equipment (EVSE) in the face of

diminishing federal support and foster charging uniformity and interoperability to the extent possible.

- Action: Direct the Public Utility Commission (PUC) to continue to develop consistent and equitable electric vehicle (EV) charging rates across the state and Vermont utilities
- Action: Explore and advance Right to Charge policies for multi-family, condominium and rental units.
- Action: Continue to support utility innovation to foster increasing customer participation in managed charging programs to maximize cost and carbon benefits . This should be informed by the Vermont System Planning Committee's Flexible Load Management Working Group and Vermont Electric Power Company's (VELCO) Long-Range Transmission Plan to ensure grid stability and resilience.
- Action: Maintain and/or establish requirements for publicly funded electric vehicle supply equipment (EVSE) installers to ensure timely and continued maintenance of electric vehicle (EV) charging equipment and up-time standards.
- Action: Work to ensure consistent and equitable electric vehicle supply equipment (EVSE) infrastructure buildout for public, private, residential, commercial and rural constituencies; identify the most effective/cost-effective solutions; and task the state's Interagency Working Group and Drive Electric Vermont to explore and recommend strategies and solutions for EVSE deployment with a focus on serving renters, multi-family units and rural communities.

Strategy: Educate drivers on benefits of electrification

- Action: Engage and support key stakeholders such as the Clean Cities Coalition, Efficiency Vermont, Drive Electric Vermont, Vermont Energy Education Program, fleet owners and others to raise public awareness about electric vehicles, electric bikes and new or needed programs to elevate awareness and interest in cleaner vehicles.

Pathway: Lower the carbon intensity (CI) of fuels

Strategy: Consider establishing a Clean Fuels Standard

- Action: VT Agency of Natural Resources (ANR) should use the results of the Vermont Greenhouse Gas Policy Analysis (Climate Policy Study) to further consider the effects of developing a program to lower the carbon intensity of fuels for transportation as a standalone policy.

Pathway: Reduction in Vehicle Miles Traveled (VMT)

Strategy: Promote smart growth concentrated, mixed use development patterns.

- Action: Expand Downtown and Village Center tax credits and sales tax reallocations to make development and redevelopment in existing compact locations more financially feasible. In addition increase technical support for municipalities to update zoning and subdivision regulations and incentivize zoning that allows for more compact, mixed uses and reduces barriers to affordable housing as informed by regional and municipal planning under Act 181 of 2024 (An act relating to community resilience and biodiversity protection through land use).
- Action: Review existing and new state policies such as regional dispersion of job centers and consolidation of education and health care and the potential effects on vehicle miles traveled (VMT). In addition advance strategies identified in the 2024 VT Agency of Transportation (VTrans) study that analyzed the effects of land use patterns on VMT and the long term emissions benefits of compact settlement patterns.

Strategy: Develop state, regional and local capacity to undertake transportation planning and investment in

- Action: Support regional planning commissions (RPCs) and municipalities develop regional and local multi-modal transportation planning and investment priorities.
- **Priority Action:** Invest in public, active, shared, and multimodal transportation, such as transit, micro transit, biking and walking.
 - Use VT Agency of Transportation's (VTrans) July 2024 Vermont Smart Growth, Vehicle Miles Traveled (VMT), and greenhouse gas (GHG) Research Project Report and the November 2023 VTrans Carbon Reduction Strategy and associated GHG Sketch Tool to guide investments, to reduce the need for single occupancy vehicles, also known as reducing VMT, which has important co-benefits such as cost savings to individuals and families, access to jobs, and health and environmental benefits.
- Action: Plan for and invest in the interconnection of modes to promote a seamless, efficient transportation

Strategy: Increase the availability and knowledge of transportation options that increase transit and passenger rail use to decrease single occupancy vehicle trips

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- Action: Support communities in implementing context appropriate micro-transit and other appropriate mode options according to the VT Agency of Transportation (VTrans) Mobility Services Guide
- Action: Continue to support Go-Vermont and other travel options programs by growing active user by 10% each
- Action: Continue the state's commitment to Amtrak and inter-city bus service.

Strategy: Increase walking and biking to most effectively reduce emissions and replace vehicle trips.

- Action: Collect pedestrian and bike use and other data to better inform state and federal investment.
- Action: Annually track and report compliance with Vermont's Complete Streets Policy.
- Action: Assess and revise as needed... Vermont State Highway design standards and policies...to encourage active transportation safety in a locational context.
- Action: Prioritize funding in designated development areas.

Strategy: Increase access to broad band to support telework, telemedicine and other functions that avoid

- Action: Complete the Vermont rural broadband expansion by 2030 to serve all Vermonters.
- Action: VT Agency of Transportation (VTrans) and the regional planning commissions (RPCs) should undertake research and evaluate the vehicle miles traveled (VMT) impacts/emissions reductions of remote

Emissions Reductions: Buildings and Thermal Recommendations

Pathway: Reduce greenhouse gas (GHG) emissions from the residential, commercial, and industrial (RCI) fuels sector via a broad sector-wide policy framework.

Strategy: Adopt at least one sector-wide mechanism to reduce thermal sector greenhouse gas emissions (GHG), recognizing that, regardless of the specific broad sector-wide approach, complementary policies will also be necessary to meet Global Warming Solutions Act (GWSA) emissions reduction requirements

- **Priority Action:** Analyze options for a performance-based Clean Fuels Standard that implements a declining carbon intensity (CI) score eligibility requirement for residential, commercial, and industrial (RCI) fuels and can be implemented gradually alongside other complementary policies that would be necessary. As a potential alternative, analyze instituting a minimum percentage clean fuel blending requirement for all RCI liquid and gaseous fuels, utilizing an approved list of eligible clean fuels.

Pathway: Reduce greenhouse gas (GHG) emissions associated with buildings and facilities through cost effective and affordable weatherization and energy efficiency improvements, as well as through use and enforcement of energy and electrical standards and codes.

Strategy: Ramp up implementation of the multi-year Weatherization (WX) at Scale Initiative to meet the scale and pace of residential and commercial weatherization that is [used in the Vermont Pathways model] necessary to meet 2030 Global Warming Solutions Act (GWSA) requirements.

- **Priority Action:** Sustain and expand funding for comprehensive weatherization focused on low- and moderate- income households.
 - Through legislation or administrative action, ensure that the current scope of weatherization being conducted is sustained, while aggressively working to ensure that 79,000 additional homes are comprehensively weatherized

as soon as practicable, with a priority on low- and moderate-income households.

- The weatherization work should recognize energy efficiency broadly. It should include traditional energy efficiency measures, electrical, health, and safety measures needed to comply with codes, and needed infrastructure upgrades such as wiring and service panels to enable electric vehicle (EV) charging, the adoption of heat pumps (HP) for space and water heating, and other strategic electrification opportunities.
- Current programs (funding and workforce) are able to weatherize approximately 4,000 homes per year at an average cost of \$11,000 per unit. Much of the recent funding has come from federal sources, which are unlikely to be renewed.
- It is essential, however, that Vermont take steps to maintain and accelerate its current pace of weatherization in order to complete the additional 79,000 units as soon as practicable.
- **Priority Action:** Through legislation or administrative action, ensure additional commercial, industrial, municipal, and non-residential buildings, as modeled to be necessary, are comprehensively weatherized by 2030, and secure the funding needed to achieve the target.
 - Including “weatherization ready” project needs
 - With priority for supporting/expanding existing programs (i.e. the Municipal Energy Resilience Program, Municipal Technical Assistance Program, Building Communities, etc.).
- **Priority Action:** Secure funding for electrification of space & water heating for low- and moderate-income households.
 - Develop programs for implementation regarding 200-amp service and related building upgrades, coordinated with weatherization, efficiency, and equipment incentive programs (electric vehicle (EV) chargers, heat pumps (HP), storage, etc.), and ensure that any potentially related statewide program (such as Clean Heat Standard (CHS), if adopted, or enhanced weatherization efforts) includes building electrical upgrades in their design and funding models in order to enable decarbonization.

Strategy: Strengthen state-wide building energy standards and fund related education and code compliance necessary to meet the 2030 and 2050 Global Warming Solutions Act (GWSA) requirements, consistent with pending Building Energy Code Working Group recommendations.

- **Action:** Regularly update the existing statewide residential building energy standard (RBES), putting Vermont on the path to adopting Zero Energy Ready building energy standards for new construction by 2030.

- Action: Regularly update the existing statewide commercial building energy standard (CBES), putting Vermont on the path to adopting Zero Energy Ready building energy standards for new construction by 2030.
- Action: Develop and fund a state-level energy code initiative that provides standards, education and compliance assistance, and training to municipalities to ensure awareness of and compliance with existing and future building energy standards and/or codes.
- Action: In alignment with the Act 47 Building Energy Code Study Committee's recommendations, through legislation action, consider designating the Division of Fire Safety (DFS) as the statewide “authority having jurisdiction” (AHJ) over all building construction (public, private, commercial, and residential):
 - Empower the DFS to enforce Vermont’s Residential Building Energy Standards (RBES) and Commercial Building Energy Standards (CBES).
 - Give them the ability to raise funds to cover the cost of energy code adoption and administration through permit fees.
 - Expand DFS’s current database redesign to incorporate a statewide, central, publicly accessible repository for all Vermont buildings (including all residential buildings) that includes energy code data.
 - Eliminate filing the certificate in town records and the notarization requirement.
 - Establish a certificate application tool for both CBES & RBES that generates an energy standard “permit” before construction and a final certification upon completion that is part of the DFS database.
- Action: In alignment with the Act 47 Building Energy Code Study Committee's recommendations, require the Office of Professional Regulation (OPR) to:
 - Update the contractor registry so contractors explicitly acknowledge residential building energy standards (RBES) and commercial building energy standards (CBES) legal requirements.
 - Develop a certification designation for contractors trained on RBES and include the certification on the OPR Contractor Registry and Division of Fire Safety (DFS) websites.
 - Update the OPR website to make it user-friendly, alert consumers to contractors who are trained on RBES, and provide filtering functionality, e.g., by specialties, location, and certifications.
 - Authorize OPR to update their contract requirements and template for contractor-owner agreements to include a clause acknowledging that energy codes are mandatory.

- Action: Establish a role for energy efficiency utilities (EEU) to play in supporting energy codes compliance and incentives.
- Action: In alignment with the Act 47 Building Energy Code Study Committee's recommendations, incentivize energy efficiency utilities (EEU) to support projects meeting “net zero” level of performance in their residential new construction programs.
- Action: In alignment with the Act 47 Mobile Home Task Force recommendations continue and increase funding for existing programs that replace aged mobile homes or fill vacant mobile home park lots with new energy efficient models.
- Action: Direct the Commissioner of Public Service through legislation to explore the use of efficiency standards for multi-family rental properties more consistent with at least the 2015 International Energy Conservation Code (IECC) with amendments. Require a report by March 2026 on the impacts on housing costs, energy burden, and GHG emissions of adopting such a standard. Require recommendations from the Commissioner on whether to require such a standard in Vermont and, if recommended, which rental properties should be covered under such a standard.

Pathway: Reduce greenhouse gas (GHG) emissions through appropriate use of emission-based equipment standards

Strategy: Explore and potentially implement a regulatory requirement for new space and water heating equipment sold and installed in Vermont to meet a zero greenhouse gas (GHG) emissions standard

- **Priority Action:** Conduct a study that considers the technological options and market feasibility for emissions-based equipment standards (EBES) for various types of heating. The purpose is to better understand the feasibility and considerations of Vermont adopting thermal equipment emissions standard(s), either for oxides of nitrogen or, more broadly for greenhouse gases (GHG).
 - The legislature needs to fund the study
 - The Agency of Natural Resources (ANR) needs to file a report with the Vermont Climate Council by June 30, 2027
 - The study shall consider:
 - adoption by other states,
 - the means by which equipment standards can influence market activity,
 - the most equitable approaches, and
 - how to secure the greatest emissions reductions
 - Study is contingent on securing funding.

Strategy: Adopt a regulatory and/or performance-based approach that results in the use of lower global warming potential (GWP) refrigerants sold in Vermont.

- Action: Work with key stakeholders to better understand the number and type of entities that would potentially be subject to a refrigerant management program (RMP) and the associated costs and benefits of an RMP (From Non-Energy Pathways recommendations).
- Action: Work with key stakeholders to better understand and formulate recommendations regarding a regulatory or performance-based approach that results in the use of lower global warming potential (GWP) refrigerants in heat pumps (HP) sold in Vermont.
- Action: Consider whether to require permanent leak detection systems for entities using over a certain threshold of high global warming potential (GWP) refrigerants and if a cost share should be provided, with additional outreach through work with key stakeholders to better understand the number of applicable entities and the costs and benefits of such a requirement.

Pathway: Reduce greenhouse gases (GHG) by ensuring beneficial electrification of building space and water heating, with a focus on ensuring equitable access to cost-effective and affordable electrification by low- and moderate-income households.

Strategy: Encourage equitable adoption of electric heat pumps (HP) as replacements for fossil fuel heating and ensure access to beneficial electrification regardless of household income.

- **Priority Action:** Through legislation or administrative action, develop a long-term sustainable source (or sources) of funding to enable expanded outreach, consumer funding, and financing for the beneficial electrification of low- and moderate-income households, including home repairs and electrical wiring and panel upgrades needed in order to be "heat pump ready". Implementation Lead: Legislature, Public Utility Commissions (PUC) (through Clean Heat Standard design and rules)
- Action: Through administrative action, provide due consideration to measures to ensure consumer protections are in place to ensure low- and moderate-income households do not experience increased service disconnections as a result of increased electrification of space and water heating.

- Action: Through administrative action, ensure consumer protections are in place to ensure low- and moderate-income households do not experience increased overall energy costs and/or reduced access to federal or state fuel assistance support as a result of increased electrification of space and water heating.
- Action: Support the Department of Children and Families (DCF) to allow the disbursement of Low-Income Energy Assistance Programs (LIHEAP) funds across multiple fuel types (at the individual household level).

Strategy: Institute regulatory or performance-based approaches to transition the water heater market in Vermont and ensure that water heaters models are able to be managed by electric utilities

- Action: The Public Utility Commission (PUC), in consultation with the Public Service Department (PSD) and State electric distribution utilities, shall file a written report with the House Committees on Energy & Digital Infrastructure Committee and the Senate Committees on Finance and Natural Resources and Energy, no later than March, 2026, that addresses the feasibility of Vermont adopting an appliance performance standard requiring new electric water heaters for sale in Vermont to be manufactured with a modular demand response communications port or the capability of responding to an open communications standard, ensuring that all new electric water heaters are capable of load management.
Report is contingent on securing funding.

Strategy: Encourage integration of electric water heaters into Vermont's electric system and the timely adoption of utility programs to ensure that electric water heating loads are directly managed or controlled through time-differentiated price signals.

- Action: Adopt legislation consistent with the provisions of Section 33 (Plug In Vehicle Electric Distribution Utility Rate Design) in Act 55 (2021, an act relating to the Transportation Program) directing all Vermont distribution utilities to adopt propose demand response programs for electric water heaters, and to file electric water heating demand response tariffs with rates consistent with the criteria set out in Act 55 of 2021, Section 33, (c)(1)(A)-(D), (F), and (e) by July 1, 2027 for review by the Public Utility Commission (PUC) pursuant to 30 V.S.A. § 225. Legislation needs to provide funding necessary to support state oversight.

The PUC may grant a petitioning electric distribution utility an extension of the filing deadline. An extension may only be granted in response to a petition if the PUC finds that the electric distribution utility's inability to meet the July 1, 2027, implementation deadline is due to a technical inability to implement demand response program, adverse economic impacts to ratepayers that would result from

such implementation, or other good cause demonstrated. The length of the extension shall be directly related to the demonstrated need for the extension.

Pathway: Reduce greenhouse gas emissions by reducing the greenhouse gas (GHG) intensity of fuels used for thermal residential, commercial, and industrial (RCI) purposes.

Strategy: Create a market-based approach to reduce thermal sector greenhouse gas (GHG) emissions

- **Priority Action:** Through legislative and administrative action, adopt a performance-based Clean Fuels Standard that implements a declining carbon intensity (CI) score eligibility requirement for residential, commercial, and industrial (RCI) fuels and can be implemented gradually alongside other complementary policies that would be necessary.
 - Alternate approach if recommended action is not deemed feasible (not performance based): Through legislative and administrative action, institute a minimum percentage clean fuel blending requirement for all RCI liquid and gaseous fuels, utilizing an approved list of eligible clean fuels.
- **Priority Action:** Alternate approach if recommended action is not deemed feasible (not performance based): Through legislative and administrative action, institute a minimum percentage clean fuel blending requirement for all residential, commercial, and industrial liquid and gaseous fuels, utilizing an approved list of eligible clean fuels.

Pathway: Optimize greenhouse gas (GHG) emissions reduction requirements and energy equity in electric, gas, and energy efficiency utility regulation.

Strategy: Consider changes to regulated utility performance metrics to include greenhouse gas (GHG) emissions reductions and energy burden reductions so as to more cost-effectively achieve Vermont's legal GHG reduction requirements and energy-equity goals.

- **Action:** Through legislation direct the Public Utility Commission (PUC) to open a case that examines existing regulated utility performance metrics and considers whether changes to those metrics to optimize greenhouse gas (GHG) reductions and energy burden reductions for Vermonters with low- and moderate-incomes would promote state policy goals.

Pathway: Recruit, train, and retain the workers and support the businesses necessary to implement Vermont's thermal sector energy transformation.

Strategy: Increase coordination among multiple state agencies, workforce development entities, public education institutions, and employers to ensure the scaling up of the workforce needed to achieve the Global Warming Solutions Act (GWSA) requirements. This will require a substantial ramp up in workforce recruitment, training, placement, and retention involving multiple public and private entities.

- Action: Complete the development of the Weatherization Workforce Training Center currently underway under the leadership of the Weatherization Workforce Training Center Steering Committee.

Pathway: Geothermal

- **Priority Action:** Utilities and their regulators should adopt standards and programs to support thermal energy networks, waste heat recovery, and community-scale geothermal.

Emissions Reductions: Non-Energy Recommendations

Pathway: Further reduce non combustion emissions through development of strategies that look at refrigerants, semi-conductors, waste, and wastewater.

Strategy: Reducing Emissions of Refrigerants

- Action: Provide incentives to improve or replace commercial and industrial refrigeration systems with the goal of reducing the use of high global warming potential (GWP) refrigerants. With state funding, Vermont Energy Investment Corporation (VEIC) will provide enhanced support through increased project incentives for grocers, convenience stores, and other facilities that require refrigeration for perishable products within Vermont to transition to lower GWP

and/or Natural refrigerants and install leak-detection systems to reduce refrigerant emissions from existing systems.

- Action: Provide incentives for businesses to transition from high global warming potential (GWP) refrigerants to lower GWP alternatives using data from outreach for refrigerant management program (RMP) development to target appropriate facilities. This would be a voluntary program that would speed the transition to lower GWP refrigerants and supplement/compliment reductions achieved through the Act 65 rulemaking (rules regarding phase-down of the use of Hydrofluorocarbons).
- Action: Consider appropriateness of adding heat pumps to Act 65 (rules regarding phase-down of the use of Hydrofluorocarbons)

Strategy: Continue to Explore Efficiencies and Alternatives to High global warming potential (GWP) Fluorinated Gases in the Semiconductor Manufacturing Process

- Action: Further develop incentives for the adoption of emission reduction technologies such as combustion abatement units to reduce greenhouse gas (GHG) emissions during semiconductor production processes.
- Action: Seek funding available through the CHIPS Act (an act which provides funds to support the domestic production of semiconductors and authorizes various programs and activities of the federal science agencies) to support research, development, and implementation of emission reduction technologies in the semiconductor industry and advance sustainable manufacturing practices

Strategy: Continue to Explore Efficiencies and Alternatives to High global warming potential (GWP) Fluorinated Gases in the Semiconductor Manufacturing Process

- Action: Further develop incentives for the adoption of emission reduction technologies such as combustion abatement units to reduce greenhouse gas (GHG) emissions during semiconductor production processes.
- Action: Seek funding available through the CHIPS Act (an act which provides funds to support the domestic production of semiconductors and authorizes various programs and activities of the federal science agencies) to support research, development, and implementation of emission reduction technologies in the semiconductor industry and advance sustainable manufacturing practices

Strategy: Further reduce fugitive emissions from Wastewater Treatment Facilities (WWTFs) by ensuring flares are operational at existing anaerobic digesters (ADs) at WWTFs

- Action: Complete a survey of Wastewater Treatment Facilities (WWTFs) with Anaerobic Digestors (ADs) and their operational status.
- Action: Prioritize installing or repairing functional flares at the next facility upgrade for the two identified facilities, Barre City and Newport City, that are not implementing beneficial use.
- Action: Explore requiring waste heat recovery capabilities in new wastewater system projects and significant system expansions where cost effective, which are funded via state wastewater programs including those associated with State designation programs.

Strategy: General Waste Reduction

- Action: Create Reduce, Reuse, Repair network
- Action: Host statewide Reuse conference
- Action: Promote waste reduction messaging on social media: VTRecycles Facebook page and TheVermontDEC Instagram and Facebook pages
- Action: Conduct media and community-based social marketing (CBSM) campaign on waste reduction

Strategy: Reduce Wasted Food

- Action: Maintain related website scrapfoodwaste.org
- Action: Promote annual food waste reduction challenge.
- Action: Conduct outreach to businesses and schools on food waste reduction and management
- Action: Promote wasted food reduction and management messaging on social media through VTRecycles Facebook page and TheVermontDEC Instagram and Facebook pages

Strategy: Promote General and Special Recycling

- Action: Promote recycling messaging on social media through VTRecycles Facebook page and TheVermontDEC Instagram and Facebook pages
- Action: Support special recycling media and outreach
- Action: The Agency of Natural Resources (ANR) upcoming Recycling Systems Analysis Report, due in early 2025, should provide more information on the estimated emissions related to various recycling systems and their costs and benefits. This information should help inform any future conversations about the Vermont Bottle

Bill and general recycling systems in Vermont to further support emissions reductions.

Emissions Reductions: Electricity Recommendations

Pathway: Load Management and Grid Optimization

Strategy: Support cost-effective load management, grid hardening, and optimization, e.g., through advanced metering, storage, targeted siting of generation, rate design, and distributed energy resource management systems statewide to enable customer programs and avoid or delay more expensive physical upgrades.

- **Priority Action:** Support cost-effective load management, grid hardening, and optimization, e.g., through advanced metering, storage, targeted siting of generation, rate design, and distributed energy resource management systems statewide to enable customer programs and avoid or delay more expensive physical upgrades.
 - Continued Public Utility Commission (PUC) oversight of utility load management programs, investments, and rate designs, and consideration of regulatory approval improvements for efficient generation and infrastructure siting.

Pathway: Further decrease greenhouse gas Emissions (GHG) emissions from electric sector purchases

Strategy: 100% Carbon-free or Renewable Electricity

- Action: Review design parameters of 100% carbon-free electric portfolio standard that equitably promotes electrification - Here are the questions reviewed by the Climate Council previously that we would expect to include:
 - Mechanisms to support equitable access to renewable energy
 - Supporting existing versus new resources
 - In-state versus out-of-state generation
 - Supporting generation of all sizes (ex. small scale distributed energy resources (DERs) versus utility-scale/larger DERs)
 - Scale of deployment
 - Energy storage (both short and long duration)
 - Time scale on which renewability is measured (ex, annual, quarterly, monthly, hourly)

- Incentivizing resources to deliver when needed (e.g. during peak hours, noting that these are likely to shift over time; seasonal needs such as winter loads; how storage may fit in)
- Siting, including environmental, community, and transmission system considerations
 - Carbon impact of resources; what source/criteria are utilized
 - Informed by greenhouse gas (GHG) inventory recommendations
 - Timeline for reaching 100%

Pathway: Increase Access and Participation in Renewable Energy Programs

Strategy: Review and implement as appropriate recommendations from Act 179 (an act relating to the Renewable Energy Standard) study regarding evolution of community-level renewable energy programs, especially for low-income customers.

- **Priority Action:** Review and implement as appropriate recommendations from Act 179 (An act relating to the Renewable Energy Standard) study regarding evolution of community-level renewable energy programs, especially for low-income customers.
 - With community and customer input, utilities continue, or consider, creating procurement and customer enrollment programs to support community-based renewable energy projects. Primary considerations for any such program should be cost-containment actions, funding avenues that are not electric customer supported, and how approval for community-based project siting occurs.

Pathway: Enable All Vermonters to Choose Electrification

Strategy: Deploy programs that ensure the electric grid supports customer electrification necessary to meet Global Warming Solutions Act (GWSA) Goals, incl. service drops, transformers, smart panels, electric vehicle (EV) chargers, storage, etc. Highlight importance of cost-effectiveness and equity in design, implementation, and affordable funding.

- **Priority Action:** Support existing programs and expand as needed to ensure the electric grid supports customer electrification necessary to meet Global Warming Solutions Act (GWSA) goals, including service drops, transformers, smart panels, electric vehicle (EV) chargers, storage, etc. Highlight importance of cost-effectiveness and equity in design, implementation, and affordable funding.

- Continued Public Utility Commission (PUC) oversight of utility programs (e.g. Tier III); consider expanding credit in Tier II for these purposes; seek state or federal sourced funding where possible; strive for deployment across utility territories with ability to participate for all customers, including rural/low-income.

Pathway: Further decrease greenhouse gas Emissions (GHG) emissions from electric sector purchases

Strategy: 100% Carbon-free or Renewable Electricity

- Action: Review design parameters of 100% carbon-free electric portfolio standard that equitably promotes electrification - Here are the questions reviewed by the Climate Council previously that we would expect to include:
 - Mechanisms to support equitable access to renewable energy
 - Supporting existing versus new resources
 - In-state versus out-of-state generation
 - Supporting generation of all sizes (ex. small scale distributed energy resources (DERs) versus utility-scale/larger DERs)
 - Scale of deployment
 - Energy storage (both short and long duration)
 - Time scale on which renewability is measured (ex, annual, quarterly, monthly, hourly)
 - Incentivizing resources to deliver when needed (e.g. during peak hours, noting that these are likely to shift over time; seasonal needs such as winter loads; how storage may fit in)
 - Siting, including environmental, community, and transmission system considerations
 - Carbon impact of resources; what source/criteria are utilized
 - Informed by greenhouse gas (GHG) inventory recommendations

Timeline for reaching 100%

Pathway: Increase Access and Participation in Renewable Energy Programs

Strategy: Review and implement as appropriate recommendations from Act 179 (an act relating to the Renewable Energy Standard) study regarding evolution of community-level renewable energy programs, especially for low-income customers.

- **Priority Action:** Review and implement as appropriate recommendations from Act 179 (An act relating to the Renewable Energy Standard) study regarding evolution of community-level renewable energy programs, especially for low-income customers.
 - With community and customer input, utilities continue, or consider, creating procurement and customer enrollment programs to support community-based renewable energy projects. Primary considerations for any such program should be cost-containment actions, funding avenues that are not electric customer supported, and how approval for community-based project siting occurs.

Pathway: Enable All Vermonters to Choose Electrification

Strategy: Deploy programs that ensure the electric grid supports customer electrification necessary to meet Global Warming Solutions Act (GWSA) Goals, incl. service drops, transformers, smart panels, electric vehicle (EV) chargers, storage, etc. Highlight importance of cost-effectiveness and equity in design, implementation, and affordable funding.

- **Priority Action:** Support existing programs and expand as needed to ensure the electric grid supports customer electrification necessary to meet Global Warming Solutions Act (GWSA) goals, including service drops, transformers, smart panels, electric vehicle (EV) chargers, storage, etc. Highlight importance of cost-effectiveness and equity in design, implementation, and affordable funding.
 - Continued Public Utility Commission (PUC) oversight of utility programs (e.g. Tier III); consider expanding credit in Tier II for these purposes; seek state or federal sourced funding where possible; strive for deployment across utility territories with ability to participate for all customers, including rural/low-income.

Education, Workforce, Finance & Funding: Education Recommendations

Pathway: Create accessible, equitable research, partnerships, and education

Strategy: Provide climate-related education at all levels, outreach, research, and technical assistance programs.

- **Priority Action:** Compile an open source, accessible, and interdisciplinary climate change curriculum for Vermont educators that builds off existing resources and programs to enable teaching across subject areas.
- Action: Develop a Climate Change Curriculum website on the Agency of Education Website
- **Priority Action:** Amend the Vermont State Board of Education's Education Quality Standards to incorporate environmental and climate change education at all grade levels.
- Action: Survey Vermont students in areas of interests related to greenhouse gas (GHG) emission reduction strategies and technologies
- Action: Strengthen existing extracurricular programs that provide climate change education and activities.

Strategy: The language in Vermont agencies must be reviewed and updated to be more equitable.

- Action: Educate state staff on the history of Vermont, the harm that has been done in the name of conservation, the history of state involvement in the eugenics movement, and the role that language plays in the continuation of oppression and misunderstandings.
- Action: Identify and develop alternative terms and words to those that are rooted in historical injustices, and invest in community outreach to create broad understanding of de-colonized words.
- Action: Recommend that the legislature create a board to systematically review state government institutions to ensure that language intrinsically tied to historical injustices is removed from all active documents and policies.
- Action: Leadership in all levels of state government must make this a top priority.

Pathway: Educate Vermonters about their energy choices and available funding options to increase energy efficiency in residential homes

Strategy: Sustain funding for programs to educate Vermonters about their energy choices and funding options

- **Priority Action:** Maintain funding for programs to educate Vermonters about their energy choices and funding options to increase energy efficiency in residential homes, including the Green Savings Smart Program, which supports energy coaches at Community Action Agencies.

Pathway: Advance workforce development and strengthen current Vermont workforce by addressing the comprehensive needs of employees and employers, while focusing on both immediate and long-term solutions

Strategy: Advance the US Climate Alliance's Governor's Climate-Ready Workforce Initiative in service of building a workforce needed to drive climate action in Vermont.

- **Priority Action:** Implement the Climate-Ready Workforce Initiative to grow career pathways in climate change and clean energy fields, support new and existing workers, retain recent graduates, ensure job quality and safety, strengthen workforce diversity, and train workers in service of the collective U.S. Climate Alliance goal of 1 million new registered apprentices across 24 states by 2035.
 - Increase the number of registered apprenticeships that can be supported in the state by Vermont State University, the Vermont Department of Labor (VDOL), and other registered apprenticeship programs, especially in plumbing/HVAC (heating, ventilation, and air conditioning), electrical, and weatherization.
 - Support training from middle school through adult education and Service-Learning programs for a wide variety of audiences, including through the weatherization training center and the many existing training programs.
 - Target outreach, training, support, and Service-Learning systems for existing Vermont residents to enter and stay in careers that support on climate action, including farm and forestry, conservation, clean energy, weatherization, outdoor recreation, and resilience and adaptation careers.
 - Invest in instructors and physical infrastructure to increase the number of students who can be supported in the Career and Tech Ed system in the state

including electrician, plumbing, building trades programs, as well as agriculture, forestry and other sectors mentioned above.

- Action: Climate Action Office, in collaboration with the Vermont Department of Labor (VDOL) and other relevant state Agencies, will lead the Resilient Communities and Lands, focused on careers in the development and maintenance of safe, livable, and resilient communities; preparedness for and response to climate impacts such as extreme heat, wildfires, severe storms, flooding, and drought; and the deployment of natural climate solutions and climate-smart stewardship of our lands and waters.
- Action: Focus registered apprenticeship outreach and program development on specific occupations: weatherization specialist, electrician, plumber, solar installer and invest and seek additional state and federal funds in off-setting wages so employers have an incentive to (safely) take on additional apprentice training spots.
- Action: Vermont Department of Labor (VDOL) will work to clarify and streamline requirements in electrical and plumbing and work with the electrician's and plumber's licensing boards to include stackable licenses in the design of 4 year training programs.

Strategy: Increase capacity and productivity within the current contractor network to speed adoption of cost and energy saving technologies that will lower the cost of housing and accelerate worker productivity.

- **Priority Action:** Monitor the impacts of decarbonization on the workforce and create programs to support impacted workers by tracking leading indicators.
- Action: Strengthen partnerships to support business expansion of Human Resources training and support (including for employee benefits) training employers to increase success in recruitment and retention.
- Action: Create new avenues for businesses to access equipment and make other investments that will increase their capacity.

Strategy: Target outreach, training, support systems for existing Vermont residents to enter and stay in climate change careers, including farm and forestry, clean energy and resilience careers.

- **Priority Action:** Target outreach, training, support systems for existing Vermont residents to enter and stay in climate change careers, including farm and forestry, clean energy and resilience careers.
- Action: Support professionals and experienced/credentialed retirees to become trainers and instructors for the next generation of workers.
- **Priority Action:** Support training from middle school through adult education programs for a wide variety of audiences, including through the weatherization training center and the many existing training programs.

- **Priority Action:** Increase the number of students who can be supported in the Career and Tech Ed system in the state including electrician, plumbing, building trades programs, agriculture and working land sectors
- **Priority Action:** Increase the number of registered apprenticeships that can be supported in the state by Vermont State University and the Vermont Department of Labor (VDOL), especially in plumbing/HVAC (heating, ventilation, and air conditioning), electrical, and weatherization.
- **Priority Action:** Support programs for people to start and build their own businesses in the trades, including those offered by business development and climate change career programs.
- **Action:** Communicate with potential future employees, including youth and out-of-state workers about benefits of these careers in Vermont.

Pathway: Explore opportunities to further leverage public and private capital to make needed clean energy, resilience and adaptation investments.

Strategy: Reduce hurdles facing Vermonters in accessing and affording cleaner and more energy efficient technologies, weatherization, and necessary infrastructure and resilience investments

- **Priority Action:** Interim Funding for Priority Climate Actions: Until new and significant sources of revenue are in place to fully implement the recommended priority actions in this Climate Action Plan (CAP), the State should identify, authorize, and appropriate revenue from existing or new sources that will immediately support the creation or expansion of certain priority actions. This funding should be used to (a) establish or grow programs proven in Vermont, or demonstrated in other jurisdictions, to be cost-effective strategies for achieving climate benefits, while optimizing other public policy co-benefits, and (b) increase investment in building state agency capacity to design and implement the priority action recommendations. The source of revenue should (a) be a bridge to having adequate revenue from other programs such as a cap-and-invest system, (b) be structured to mitigate impacts on Vermonters facing financial hardships, and (c) not burden those economic sectors and programs that are essential to a transition to a low-carbon and climate-adapted landscape and economy.
- **Priority Action:** Support the implementation of the Climate Superfund (Act 122), including by funding the work at the Agency of Natural Resources (ANR), Vermont Treasurer's Office and any other work deemed necessary to support its implementation, helping to provide essential revenue to invest in resilience and adaptation measures.

- **Priority Action:** Building off recent climate infrastructure financing efforts, the Vermont State Treasurer's Office, in consultation with the Climate Action Office and Climate Council, should explore opportunities to further leverage public and private capital to make needed clean energy, resilience and adaptation investments. This effort should focus on reducing hurdles facing Vermonters in accessing and affording cleaner and more energy efficient technologies, weatherization, and necessary infrastructure and resilience investments. It should seek to build off existing structures and institutions (such as credit unions and banks) to leverage programs, partners and capital as well as explore other potentially useful strategies (such as on-bill utility financing, bonding and insurance markets).

Rural Resilience & Adaptation: Public Health Recommendations

Pathway: Support equitable adaptation to the public health impacts of climate change

Strategy: Increase support for regional, municipal, and community partners to mitigate, prepare, and respond to climate impacts on health.

- **Priority Action:** Provide increased capacity to strengthen messaging and awareness of local and state emergency preparedness, response, and recovery structures.
- **Priority Action:** Provide funding and technical assistance to municipalities and local partner organizations to support adaptation and preparedness planning in communities, with specific focus on disproportionately affected and vulnerable populations; including the identification, adaptation, and equipping of facilities to serve as community resilience hubs that serve as places for learning, collaboration, resource access, and refuge in response to climate-related hazards and other community needs.

Strategy: Increase support for individuals and households to prepare and adapt to climate impacts on health.

- **Action:** Review/improve existing tools and/or develop new tools to better identify and support Vermonters needing extra assistance during an emergency, including state systems such as the Citizens Assistance Registry for Emergencies and its integration with the Vermont 2-1-1 system, support for local systems managed by municipal and community partners, or other alternatives
- **Priority Action:** Provide funding for equipment, supplies, and services that improve resilience and reduce the health impact of climate-related hazards for income-

qualifying households needing extra assistance. The intent is to provide financial support for resilience needs in a similar way to existing financial support for energy efficiency (e.g., through heat pump (HP) and electric vehicle (EV) rebates). Resilience equipment and strategies should address health risks related to flooding, power outages, extreme temperatures, hazardous air quality, humidity, vector-borne diseases, and other climate-related hazards, and could include:

- Supplies and equipment to improve heat resilience, such as trees and other vegetative shade, window treatments (shade and thermal barriers), efficient air conditioning (heat pumps) fans, and dehumidifiers;
- Equipment to improve indoor air quality, such as air purifiers, mechanical ventilation (e.g. energy recovery ventilator (ERVs));
- Backup power equipment;
 - Window screens;
 - Services such as water intrusion and moisture mitigation & management, private drinking water testing and treatment, etc.
- **Priority Action:** Provide state-contracted community mental health services partners more capacity to address anxiety, depression, distress, and trauma caused by climate change and climate-related disasters.
- **Action:** Adopt a policy to prioritize state climate mitigation spending on actions that maximize public health, climate resilience, and health equity co-benefits, while minimizing the potential for co-harms.

Strategy: Expand state capacity to plan, prepare, and respond to climate-related health hazards.

- **Action:** Direct state agencies to collaborate across relevant agencies to develop, maintain, and exercise state response plans and mechanisms for addressing climate-related health hazards including flooding, extreme temperatures, power loss, hazardous air quality, and infectious diseases.
- **Action:** Fund increased state staff capacity and resources to better plan, prepare, and respond to climate-related health hazards, including increased support for regional, municipal, and community partners.

Strategy: Improve tools and mechanisms for increasing awareness about climate impacts on health and potential adaptation strategies.

- **Action:** Routinely review and update publicly available information about the highest priority climate-related health risks for Vermont.
- **Action:** Communicate to the public, communities, and state partners about climate-related health risks and offer guidance about what individuals and communities can do to reduce their risks, with specific focus on disproportionately affected populations (including overburdened and underserved communities, unhoused

individuals, older adults, children, people with health sensitivities, and outdoor workers).

- Action: Direct state agencies to develop improved tools and approaches for communicating with community partners, with people in languages other than English, and with other underserved populations (including rural, unhoused, and isolated individuals).

Rural Resilience & Adaptation: Community Capacity Planning Recommendations

Pathway: Increase capacity for climate resilience planning and implementation, and address inequities of under-resourced communities

Strategy: Provide tools, technical support, and permanent funding for local and regional climate resilience planning and project implementation to enhance resilience to the impacts of climate change.

- Action: Develop a climate planning toolkit that serves as a hub for existing tools, resources, and information, relevant for designing and implementation of climate action measures or strategies at a municipal level.
- Action: Expand capacity for the State to train on and support the use of the Municipal Climate Toolkit through development of education materials, expanded technical assistance, and streamlined tools to help municipalities access planning and implementation support related to climate action.
- Action: Provide planning guides and tools, such as the Municipal Climate Planning Framework and Guide and the Municipal Climate Toolkit, that help municipalities develop and integrate climate actions into their planning processes that are locally relevant and aligned with State Climate goals.
- Action: Provide funding and technical assistance for the development and implementation of climate resilience municipal plans through existing program and technical assistance providers, such as the Municipal Planning and Resilience Grant Program, and fully funding Regional Planning Commissions to develop Local Hazard Mitigation Plans.
- **Priority Action:** Increase State capacity to manage funding programs and provide technical assistance for the development and implementation of climate resilience plans, with a focus on maximizing the efficacy of Local Hazard Mitigation Plans, and augmenting existing programs with the Municipal Planning and Resilience Grant

Program, the Municipal Climate Planning Framework and Guide, and the Municipal Climate Toolkit.

- **Priority Action:** Establish permanent, dedicated funding for Regional Planning Commissions to hire and retain staff for climate resilience and natural resources planning work, hazard mitigation application development, and management of hazard mitigation grants on behalf of municipalities or other eligible grant recipients as well as cover overhead costs related to completing Local Hazard Mitigation Plans.
- **Priority Action:** Secure sustainable, long-term funding to expand and maintain a permanent Flood Resilient Communities Fund (Community Resilience and Disaster Mitigation Fund) for the design and implementation of local and regional climate change adaptation projects and community resilience. Funding may be used as local match for federally funded hazard mitigation programs as well as non-Federal Emergency Management Agency (FEMA) eligible hazard mitigation activities.
- **Action:** Assess the efficacy of and consider revisions to Emergency Relief and Assistance Fund (ERAF) to contribute towards the 25% non-federal match for Federal Emergency Management Agency (FEMA) hazard mitigation funding applications and match for other flood disaster risk reduction opportunities.
- **Action:** Create and fund one natural resource staff position at every Regional Planning Commissions to assist with implementation of climate policies and natural resources requirements such as Act 171 (forestry and habitat blocks) (an act which amended Vermont Planning Statutes). Use the Transportation Planning Initiative as a model to fund RPC natural resource staff and support trainings with the Agency of Natural Resources (ANR) and other partners.

Strategy: Fund initiatives that foster collaboration/coordination between local economic development/small business support organizations and local and regional climate planning efforts.

- **Action:** Provide tools, technical support, and permanent funding for resilience planning and disaster recovery that covers diverse range of small businesses in Vermont, including those dependent on sustainable use of natural resources.
- **Action:** Complete a Statewide climate change impact assessment for Vermont's commercial sector and natural resource based industries including but not limited to the ski, sugaring, and logging industries.
- **Action:** Assist businesses in applying for and receiving recovery loans and grants.
- **Priority Action:** Expand the Business Emergency Gap Assistance Program (BEGAP) to provide financial support and one-on-one coaching to businesses and nonprofits before a disaster in addition to providing funding to businesses who are impacted by climate disasters and disruptions. Link and coordinate efforts with organizations and networks providing similar support to businesses.

Strategy: Increase community participation in local governance and support civic engagement and citizen involvement

- Action: Require remote meeting options, including a call-in option for all meetings of public bodies; allow fully virtual meetings of public bodies with guidelines similar to the State of Emergencies; evaluate options for online collaboration in preparation for a meeting that can be done with transparency.
- Action: Develop, extend, and implement relevant and appropriate strategies and approaches to increasing local stakeholder engagement and participation in resilience and adaptation programs, such as weatherization and hazard mitigation, at respective municipal levels.
- Action: Improve community resilience networks through Resilience Hubs and support for the coordination and capacity of community resilience initiatives at the local level, focusing on what already exists and is working by region (e.g., Community Resilience Organizations, Community Organizations Active in Disaster) to reduce community and individual vulnerability to natural hazards.

Pathway: Change Vermont's land-use policies so current and future land development will be adaptive and resilient to climate change impacts

Strategy: Develop permanent private and public funding sources to floodproof, elevate and purchase commercial and residential properties, as well as conserve and restore ecosystem services upstream to protect our people, property, environment, and economy from flooding.

- Action: Expand the eligibility criteria and increase funding for Vermont Housing and Conservation Board's (VHCB) conservation and buyout program, to address any flood-vulnerable structures.

Pathway: Ensure that all people have access to safe, accessible, energy efficient, and affordable housing.

Strategy: Update state and local land-use governance, regulations, practices, and investments to eliminate barriers to housing development, and support the creation additional year-round housing units in line with the State's Housing Needs Assessment

- Action: Expand pilot program to train a network of local builders in the design and building of small and mid-sized and accessory dwelling units (mother-in-law apartments).
- Action: Expand the Rapid Response Mobile Home Infill Program.
- Action: Convene a statewide conversation on the Vermont Municipal and Regional Planning and Development Act's (24 VSA, Chapter 117) provisions on land use and housing to outline amendments and strategies that will expand housing choice, opportunity, and improve community resilience.
- Action: Explore opportunities for resilient residential building codes and resilient zoning, including evaluation of impacts, and options for programmatic and/or regulatory structure to support implementation. Coordinate this effort with existing efforts to adopt the inspection, repair, and cleaning (IRC), enforce and update the Residential Building Energy Standards (RBES) and Commercial Building Energy Standards (CBES) codes, and update the International Building Codes (IBC)
- Action: Create educational/informational materials for municipal leaders on the intersection of housing and climate crises.
- Action: Improve recovery communications.

Strategy: Increase investments in the preservation and development of both private-market and nonprofit-owned affordable housing.

- Action: Increase funding and financing products for homes starts within communities that are planning and investing in development-ready infrastructure, building development partnerships, and updating zoning bylaws to welcome new homes.

Strategy: Increase access to fair and affordable housing for Vermonters who are housing instable

Strategy: Develop data sets and analyses on the intersection of climate and housing policy

- Action: Create a geolocated, searchable housing inventory that includes characteristics relevant to climate action planning, such as risk of flooding

- **Priority Action:** Integrating regional housing targets and ongoing mapping, including Flood Insurance Rate Map updates, River Corridors, and landslide hazards, identify areas that are suitable for new, climate safe housing, and increase funding mechanisms where communities are investing in development-ready infrastructure.
- **Action:** Commission a study to identify how many Vermonters have been displaced by floods (Irene, 2023 and 2024 floods).

Rural Resilience & Adaptation: Built Infrastructure Recommendations

Pathway: Proactively and strategically invest to enhance resilience in transportation, communications, water/wastewater, and energy infrastructure and prioritize our most vulnerable communities and environmental-justice populations

Strategy: Create a policy, planning and organizational foundation to support effective investments in infrastructure resilience by understanding exposure, identifying vulnerabilities and risks, investigating options for prioritized actions.

- **Priority Action:** The State, through the Public Utility Commission (PUC) and Public Service Department (PSD), should complete the PUC resilience planning investigation underway, which is analyzing whether and how to define, value, measure, and set targets for grid resilience. Utilities should continue to integrate resilience planning into their operations.
- **Action:** Utilities should conduct benefit-cost analysis on resilience upgrades and seek non-ratepayer (e.g., federal, state, municipal, nonprofit, and private) funding for measures where costs exceed benefits.
- **Priority Action:** Expand upon the Municipal Vulnerability Indicators tool to create a Municipal Vulnerability Index that can be used by state agencies and others as a resource to assist in prioritizing infrastructure resilience investments across the state based on specific vulnerabilities or combinations of vulnerabilities. Ensure it includes currently missing data such as historic utility outage data, to the extent available, and the Agency of Natural Resources' (ANR) Environmental Justice mapping tool, when complete.
- **Action:** Support the development and implementation of asset management programs for all public water systems and publicly owned wastewater treatment works.

- Action: Understand and develop opportunities for creating water and wastewater systems performance efficiencies (i.e. sewer performance assessments (SPA), inflow, infiltration, pollution reduction) including nature-based solutions (NbS).
- Action: Complete a flood vulnerability assessment of state-owned rail infrastructure to identify and prioritize needed improvements.
- Action: Increase investment to municipalities for new and expanded facilities to support water and wastewater systems performance efficiencies (reductions in inflow, infiltration, pollution).
- Action: Examine pros and cons of regionalizing or sharing resources for all water and wastewater treatment utilities and practices.
- Action: Strategically integrate planning and preparedness across disciplines and geographies addressing the interdependencies of transportation, energy, communications, and other systems.
- Action: Increase infrastructure investment needed to for walking, biking and transit; support planning for regional bike corridors to improve safety and transportation options between community centers. Identify and eliminate barriers to development, including inequities resulting from match, maintenance, and other requirements.
- Action: Utilities should deploy technology for management, control, and optimization of distributed energy resources, including energy storage, to improve reliability and resilience while reducing costs for all customers.
- Action: Expand broadband to support remote work, tele-services, and reduce the impact of disruptions to travel, health, and safety.
- Action: Evaluate the risks and opportunities created by potential climate change in-migration to Vermont's critical infrastructure.
- **Priority Action:** Create a transportation flood resilience funding program to design and construct transportation projects identified as high priority locations via use of the most relevant risk and vulnerability assessment tools.
- Action: Evaluate the cost benefit of road maintenance stormwater runoff and erosion practices, especially on municipal roads.
- **Priority Action:** Replace or harden electric and communication infrastructure with the most appropriate resilient alternative when cost effective. For example, for aging or unreliable lines, utilities should continue to evaluate improving resilience by relocating lines underground or through other options, where demonstrated to be feasible and cost effective to electric customers.
 - Planning frameworks, valuation tools, and metrics resulting from the Resilience Investigation (Case No. 25-0339-PET) being conducted by the Public Utility Commission (PUC) should be used to inform this evaluation."
- Action: Local and regional planners, utilities, transportation providers, and state agencies should collaborate to identify mission critical facilities and develop preparedness, survivability, and recovery plans, procedures, and investments that

mitigate the impact of extreme weather events to services provided by these facilities.

- Action: Assess the vulnerability of drinking water, stormwater, and wastewater infrastructure assets; and prioritize opportunities to address those vulnerabilities; including relocation of systems.
- Action: Develop and fund programs to ensure continuous power for continuity of operations at water and wastewater facilities, including evaluation of solar /storage microgrids, anaerobic digesters (ADs), and other potential solutions.
- Action: Provide a sustainable funding source for addressing drinking water, stormwater, and wastewater infrastructure vulnerabilities identified and prioritized through asset management plan and vulnerability assessments development.

Pathway: Change Vermont's land-use policies so current and future land development will be adaptive and resilient to climate change impacts

Strategy: Increase investment in the infrastructure (sewer, water, transportation, broadband, energy supply) needed to support communities that are more resilient to climate disruptions, equitable, resource efficient, and protects the adaptive capacity of natural resources.

- **Priority Action:** Develop a framework that creates a plan to identify prioritized state investments in resilience projects. The framework should be attentive to fiscal constraints, similar to the State Transportation Improvement Program, and build upon the Resilience Implementation Strategy (RIS), the State Hazard Mitigation Planning, and Hazard Mitigation Project Review processes. The purpose of this action is to have a standing list of projects, vetted through an interagency prioritization and public engagement process, that could be implemented as funding is available.
- Action: Understand and invest in opportunities for creating water and wastewater systems performance efficiencies (i.e. sewer performance assessments (SPA), inflow, infiltration, pollution reduction) including investment in nature-based solutions (NbS)
- Action: Assess the vulnerability of drinking water, stormwater, and wastewater infrastructure assets; and prioritize opportunities to address those vulnerabilities; including relocation of systems.
- Action: Examine pros and cons of regionalizing or sharing resources for all water and wastewater treatment utilities and practices.
- Action: Increase investment to municipalities for new and expanded facilities to support water and wastewater systems performance efficiencies (reductions in inflow, infiltration, pollution).

- Action: Building upon the State Hazard Mitigation Planning and Hazard Mitigation Project Review processes, develop a framework similar to the State Transportation Improvement Program that creates a fiscally constrained plan to identify prioritized state investments in resilience projects.

Rural Resilience & Adaptation: Compact Settlement Recommendations

Pathway: Support compact settlement patterns that contribute to the reduction of greenhouse gas (GHG) emissions, enhance community and built environment resilience, and help conserve natural and working lands.

Strategy: Increase investment in the infrastructure (sewer, water, stormwater, transportation, mixed-use development, housing, sidewalks, bike lanes, electric vehicle (EV) charging, broadband, energy supply) needed to support resilient, compact, walkable development.

- Action: Expand the eligibility of the existing downtown and village center tax credit programs to revitalize neighborhood housing in and around state designated centers.
- Action: Support public private partnerships to fund the design and construction of new infill housing in existing neighborhoods.
- Action: Increase Municipal Planning Grant (MPG) funds to support physical planning and design, zoning modernization and bylaw adoption that creates housing growth opportunities and more housing choices.
- Action: Expand the existing downtown and village tax credit program eligibility to offset the cost to elevate or flood proof existing buildings located in areas with increased flood risks. Strengthen coordination with existing programs such as Vermont Emergency Management (VEM).
- **Priority Action:** Increase investment in municipalities to harden, improve, expand and build new drinking water, wastewater, stormwater, and other infrastructure to support compact development, especially growing away from climate hazards such as flooding, and ensure the assets' long-term operation and maintenance.

Strategy: Update state and local land-use policies, regulations, and practices to remove barriers to compact settlement and improve coordination on land use and development planning and implementation across agencies, departments, municipalities, boards, commissions, and authorities.

- Action: Prioritize public funding for mixed-use developments near transit hubs in regional and rural centers
- Action: If a statewide land use planning policy and implementation plan is authorized, assess the feasibility and potential benefits of creating a State Planning Office and/or other potential structures within the executive branch to implement the Plan at the state level.
- Action: Create an office of Strategic Investment and Coordination that supports achievement of land use planning goals by aligning and resolving conflicts in state and local regulations and funding and provides a permitting platform from both the customer and policy objective perspective.
- **Priority Action:** Continue to implement and monitor for progress and outcomes Act 181, which is the statutory framework for updating and implementing many State and local land use policies (such as designation program reform and Act 250 updates).
- Action: Connect existing programs with new and safe development across rural communities. Create a State-wide redevelopment authority to bank land , underwrite acceptable risk, address vacancy, and brownfields, improve building flood resilience in settled areas, and plan for new neighborhood development and infrastructure.
- Action: Provide enhanced technical assistance and support to municipalities and regions, including outreach and education for landowners and community members, to develop and implement town plans intended to maintain forest blocks and connecting habitat as authorized by Act 171 (an act which amended Vermont Planning Statutes), and effective zoning and subdivision bylaws to maintain forest blocks and connecting habitat. Because forest and habitat blocks do not end at state and national boundaries, support engagement in interstate and bi-national forest block and habitat connectivity efforts such as the Staying Connected Initiative at both the state and regional levels.

Strategy: Fund research, data collection and digital maps to provide insights on land use decisions in Vermont and the impact it can have on climate and resilience goals and outcomes.

Agriculture & Ecosystems: Reduce & Sequester Recommendations

Pathway: Maintain and expand Vermont's natural and working lands' role in the mitigation of climate change through human interventions to reduce the sources and enhance the sinks of greenhouse gases (GHG).

Strategy: Maintain and expand Vermont's natural and working lands' role in the mitigation of climate change through human interventions to reduce the sources and enhance the sinks of greenhouse gases (GHG).

- **Priority Action:** Increase funding, enhance, and adapt existing State of Vermont programs that support greenhouse gas (GHG) emissions reductions, soil carbon sequestration, and/or climate adaptation and resiliency on working lands, including through manure management. Coordinate with applicable agencies to defend and accelerate the implementation of federally funded climate mitigation and resilience practices in Vermont.
 - Enhance and adapt programs to better incorporate nature-based solutions as well as traditional, ecological and indigenous knowledge (TEK/IK).
 - Example State programs include, but are not limited to: Agency of Agriculture Farms and Markets (AAFM): Agriculture-Clean Water Initiative Performance (Ag-CWIP), Best Management Practice (BMP), Forestry Acceptable Management Practices (FAMP), Capital Equipment Assistance Program (CEAP), Conservation Reserve Enhancement Program (CREP), Farm Agronomic Practice (FAP), Grassed Waterway and Filter Strip (GWFS), Pasture and Surface Water Fencing (PSWF), Vermont Pay for Phosphorus (VPFP), The Vermont Farmer Ecosystem Stewardship Program (VFESP); land acquisition, river corridor easements, wetland conservation, County Forester Program, and the recommendations in the ANR report, "Maintaining and Creating Resilient Forests (2015)."
- **Action:** Expand the Capital Equipment Assistance Program (CEAP) program to extend beyond water quality and incorporate climate change criteria.
- **Action:** Implement agroforestry and silvopasture practices that integrate woody vegetation in agricultural production.
- **Action:** Implement agronomic practices that reduce tillage and increase vegetative cover, e.g., no-till, cover crop.

- Action: Implement edge-of-field practices that increase herbaceous and woody vegetation, e.g., riparian forest buffers through the Conservation Reserve Enhancement Program (CREP).
- Action: Implement grazing practices that increase vegetative cover and forage quality, e.g., rotational grazing.
- Action: Implement methane capture and energy generation on farms, e.g., anaerobic digesters (ADs) and covers.
- Action: Implement Nutrient Management and Amendments (e.g., biochar, compost) on cropland and grazing land.
- Action: Research and develop a climate feed management program, including feed amendments (e.g., seaweed, biochar) and feed quality (e.g., forage quality) to reduce enteric methane emissions; consider downstream impacts, sustainability, and equity.
- Action: Research and pilot improved manure management and storage programs.
- Action: Implement natural resource restoration practices that support climate mitigation and resilience, including river corridor easements, wetland restoration, and afforestation practices with consideration to agricultural land loss.
- Action: Develop a methodology and protocol for quantifying climate mitigation, resilience, and adaptation impacts of existing state and federal water quality implementation programs as reported through the annual Clean Water Initiative Performance (CWIP) Report. The CWIP Report “summarizes the State of Vermont’s clean water efforts and demonstrates how investments are making a difference through accountability measures.” As mentioned, most water quality conservation practices and programs also have climate mitigation, resilience, and adaptation benefits. Recommend using existing tracking systems and quantifying the climate benefits from this existing implementation and data tracking. The data spans state and federal funding and regulatory programs that drive clean water efforts and coordinates across agencies to track these efforts and monitor progress.
- Action: The Vermont Climate Council has recommended developing and issuing a Request for Proposals (RFP) that will review and analyze methodological gaps of emission inventory tools currently used by the State of Vermont to quantify greenhouse gas (GHG) emissions for evaluating changes in the Agriculture, Forestry, and Other Land Use (AFOLU) sector and the tools’ alignment with the Intergovernmental Panel on Climate Change (IPCC), Environmental Protection Agency (EPA), and peer state methodologies and approaches. The specific recommendations for this RFP can be found in the Carbon Budget Report memo found in Appendix 10.
- **Priority Action:** Utilize best practices to quantify carbon sequestration and emission reductions from agriculture and forestry.
- Action: Enhance education, outreach, research, and technical assistance programming to encourage adopting strategies that increase climate mitigation, adaptation, and resilience on natural and working lands. Education should target

farmers, loggers, and those providing technical assistance. Incorporate nature-based solutions and traditional ecological and indigenous knowledge (TEK/IK).

Strategy: Implement a Payment for Ecosystem Services (PES) program for natural and working lands.

- **Priority Action:** Fund and implement Payment for Ecosystem Services (PES) programs for lands to encourage landowners and land and water caretakers to implement practices that improve soil health, crop and forest resilience, increase carbon storage, increase stormwater storage capacity, and reduce runoff. Fund existing agricultural PES programs and expand to include or develop new programs for forestry. Note: PES programs recognize and reward land and water caretakers for practices that enhance ecological function and community well-being, rooted in both traditional stewardship values and modern land management. These programs do not include carbon markets or trading.

Strategy: Address upstream waste and downstream emissions from food waste and synthetic fossil-fuel based inputs.

- Action: Develop a program for tracking and limiting the use of chemicals, substances, or products that contribute to climate change in Vermont and leverage existing legislative activity on this topic.
 - i. Vermont Agency of Agriculture and Food Markets (VAAFM) currently tracks statewide commercial pesticide use as well as statewide fertilizer use. This data is currently used to establish trends in the use of these inputs as our agricultural systems evolve.
 - ii. Programs to track these agricultural inputs already exist at VAAFM but have not been assessed through the lens of contributions to climate change. VAAFM, or the newly established Agricultural Innovation Board (AIB) established by Act 49 of 2021, should prioritize an assessment of the impacts and benefits our agronomic management systems have on offsetting climate change.
 - iii. An assessment of Vermont's different agronomic practices and management, such as conventional, organic, no-till, and cover cropping, should be weighted for impacts on climate change based on agricultural inputs, fuel consumption, carbon sequestration, and other measurable factors."
- Action: The state should identify simple, low- and no-cost mechanisms to increase organics diversion and provide incentives and business and workforce development to private organics haulers and composters (including farms).
 - Act 41 of 2021 (an act relating to the regulation of agricultural inputs for

farming) created an Agricultural Residuals Management Program to be administered by Vermont Agency of Agriculture and Food Markets (VAAF.M.) The purpose of this new chapter of the law is to establish a program for the management of residual wastes generated, imported to or managed on a farm for farming in Vermont"

Strategy: Develop and implement programs which incentivize management practices which maintain or increase forest carbon storage.

- Action: Apply these certification standards to procuring forest products utilized in energy or thermal generation facilities subject to Public Utility Commission (PUC) oversight (parallel to the existing review for state-mapped deer winter yard, etc.) through potential revisions to the renewable energy standard.
- Action: Create or adopt existing certification standards where management activities account for principles of Improved Forest Management towards increased carbon storage, as well as maintaining and creating resiliency (as described in existing state guidance such as Maintaining and Creating Resilient Forests in Vermont: Adapting Forests to Climate Change, Vermont Department of Forests, Parks, and Recreation (VTFPR) 2015, or as modeled in existing programs such as the American Forest Foundation's Family Forest Carbon Program).
- Action: Explore additional market opportunities for certified products, expanding the potential revenue base to support Improvement Forest Management (parallel Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), etc.)

Strategy: Increase tree coverage.

- Action: Expand tree and other planting efforts on private land to promote restoration efforts to reforest riparian areas, wetland buffers, and degraded lands.
- Action: Increase funding to tree planting via the Renewable Energy Standard (RES).
- Action: Expand funding and support to the Vermont Community Canopy Program.
- Action: Increase support, funding, and education for increased urban tree planting efforts expansion to increase access to natural spaces and improve carbon sequestration/storage in the urban environment.
- Action: Provide incentives for the restoration and expansion of floodplain forests.

Agriculture & Ecosystems: Support Adaptation Recommendations

Pathway: Adaptation—Sustain, restore, and enhance the health and function of Vermont's lands and water to help natural and human communities adapt to climate change.

Strategy: Increase funding and enhance programming and capacity for climate adaptation technical assistance, planning, training, and education for farm and forestland owners, landowners, other land and water caretakers, and municipalities.

- **Priority Action:** Enhance education, outreach, research, and technical assistance programming to encourage farmers, foresters, and other land and water caretakers to adopt strategies that increase climate mitigation, adaptation, and resilience. State agencies should work with and support efforts to fund partners and higher education, such as University of Vermont (UVM) Extension and Natural Resource Conservation Districts (NRCDs).
 - These efforts should be incorporated into current programs, braiding traditional ecological knowledge and indigenous knowledge (TEK/IK), recognizing the value these bring to better understanding and taking care of the land. Initiatives should be designed to represent diverse perspectives while addressing a diversity of audiences and age groups. Simplify and assist with application processes for funding and support programs."

Strategy: Plan and regulate for climate resilience and adaptation.

- Action: Establish "climate resilience zones" informed by existing data, bolstered with new research and science, to identify locations that have high resilience potential for both the natural and built environments and use to inform land use development and regulations.
- Action: Per the formula in statute, fully fund Regional Planning Commissions (RPCs) to ensure sufficient capacity necessary to address climate change in regional and municipal plans.

Strategy: Promote healthy, connected river corridors, floodplains, and wetlands.

- Action: Create a mechanism, position, or body within the Executive Branch to ensure coordinated climate action across state government with just transitions and environmental justice expertise. This interagency body or mechanism is intended to

connect actions both within and beyond the scope of the Global Warming Solutions Act (GWSA)-required Climate Action Plan (CAP) to ensure effective communication across agencies that work together to promote climate change mitigation, adaptation, and resilience and add a consistent climate lens to the myriad of regulatory and funding programs.

Pathway: Viability—Support and empower Vermont’s natural and working land owners and other land and water caretakers to enhance farm and forest viability and to make informed decisions to increase resilience and adaptation to climate change.

Strategy: Support and enhance local food markets for greater viability, mitigation, and resilience benefits.

- Action: Fund training for farm technical and business advisers in the Farm Viability Network on how to integrate climate risk management planning in farm and forest business planning.

Strategy: Foster partnerships at all levels (state, federal, nonprofit, Indigenous/tribal, and private sector) essential to recognizing, capacitating, and building strategies for landowners and other land and water caretakers to address climate change, increase adaptation across natural and working lands, and enhance community resilience.

- **Priority Action:** Leverage the power of peer learning to advance climate resilience by funding a request for proposal (RFP) that provides funds to support Vermont Natural Resources Conservation Districts (NRDCs), farmer organizations, and non-profit organizations with the specific objective of allowing them to reach other farmers and foresters and do peer-to-peer education about improved soil and manure management strategies that enhance climate resilience.
- Action: Partner with agriculture, food system, and forest product organizations and networks (e.g., Farm to Plate Network) and host annual/bi-annual input sessions to evaluate policy proposals and Climate Action Plan (CAP) progress and build and reinforce state, federal, non-profit, Indigenous/tribal, and private sector collaborations.
- Action: Fund a research project to fully understand household food insecurity in Vermont and how to invest in its elimination. The design and implementation of the research project should engage academics, advocacy groups, and impacted individuals and include research on geographic spread, root causes, and costs to the health care, educational, and emergency response systems (as written in the 2021-

2030 F2P Strategic Plan pg. 158). Collaborate with Hunger Free Vermont, Vermont Foodbank, and Liberation Ecosystem.

Strategy: Expand funding for existing programs dedicated to farmland access, forestland ownership, and conservation, and leverage this funding to increase land access through flexible and new ownership financing mechanisms, policies, and models.

- Action: Assist food and farm businesses with navigating municipal and state permit requirements and regulations. This will create a more supportive environment for business growth and diversification, especially as it relates to on-farm accessory businesses, farm employee housing, and the development of off-farm processing, distribution, and storage infrastructure (as written in the 2021-2030 F2P Strategic Plan pg. 33).

Strategy: Investigate innovative funding mechanisms for assisting with the implementation of climate-smart agriculture practices, crop insurance for diversified Vermont-scale farms, and emergency recovery following extreme weather events to better respond when climate change-related events occur.

- **Priority Action:** Create a dedicated climate impact emergency recovery fund for farms and forestry operations or related infrastructure (or ensure the agriculture and forestry sectors are given specific considerations in existing recovery funds), support leverage of federal funds and expansion of programs to support the adaptive capacity and restoration of farms and forests, and promote insurance for farm and forest landowners and businesses, to ensure that they can equitably and viably recover from climate induced disasters.
 - The fund should be simple to access, deploy sufficient funds quickly following a disaster, be flexible, equitable, and proportional to meet the diverse needs of the farming and forestry community, and be sustained over time with predictable and consistent funding."
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of the farming and forestry community, and be sustained over time with predictable and consistent funding.

Pathway: Economies—Grow and connect local and sustainable natural and working lands’ economies, markets, and food systems while ensuring and providing equitable access to said economies, markets, and food systems for Vermont's people.

Strategy: Develop, expand, and sustain local markets specifically for food, agricultural, and forest products in ways that ensure farm and forest viability, climate resilience, and food sovereignty and security for all of Vermont’s people.

- Action: Support research and development efforts, as well as expansion of new markets and opportunities for local wood products processing and manufacturing in Vermont.
- Action: Develop supply chain substitutions that better support local products.
- Action: Research the efficacy of food hubs as public infrastructure (e.g., libraries and public infrastructure).
- Action: Map Vermont’s agricultural land base and production capacity, including geographic data about predicted climate change impacts, aggregation and distribution infrastructure, and regional dietary needs (as written in the 2021-2030 F2P Strategic Plan, pg. 32).
- Action: Provide additional support for critical programs that help Vermont’s agricultural sustainability and ability to address climate issues, including:
 - (1) Support the growth of Vermont Agency of Agriculture Food and Markets (VAAFMM) Meat Inspection and Agricultural Development programs, which will help expand Vermont products into the regional marketplace and develop consumer education and public awareness campaigns around the steps involved in getting meat products from farm to table;
 - (2) Fund a pilot aggregation and sales system that effectively serves the charitable food system and institutional and other market channels through a structured partnership among established processors, aggregators, and gleaners. The pilot would include data collection on specific marketable surplus food products;
 - (3) Support the Vermont Farm to School Network;
 - (4) Support organizations in the charitable food system to source food directly from Vermont farmers;
 - (5) Create a Local Food Access Funding Program;

- (6) Develop a distribution and logistics infrastructure investment plan to guide strategic transportation investments to improve the efficiency and cost-effectiveness of in-state and regional food distribution. Include a business plan analysis for a public/private Vermont wholesale terminal market that would provide cross-docking, cold storage, and logistical service between Vermont producers and regional wholesale buyers;
- (7) Using the infrastructure study as a guide, increase public-private investment in intermediated market distributors to improve operational efficiencies and overall sales through enhanced marketing, infrastructure, route optimization, shared transportation-management software, and access to logistics professional development and consulting.
- Action: Develop a strategic plan for the forest economy, modeled on the Farm-to-Plate strategic plan but improved to better incorporate impacted stakeholders and principles of equity, and examine our current language and approach to forest management.
- Action: Develop alternative markets for residue, by-products, and otherwise not-used wood, focusing on cellulose insulation, bioplastic composites, or biofuels.
- **Priority Action:** Dedicate robust funding for farm and forest supply chain resilience and state food security, including significant investment in storage, processing, and distribution infrastructure. Prioritize investments in farm, food, and forestry businesses, cooperatives, non-profits, tribes, and community projects that have climate resilience, adaptation, and mitigation goals.
 - Funding should include a substantial increase in base funding for the Working Lands Enterprise Initiative (WLEI), the Agriculture Development Grant program, as well as the Crop Cash Plus and Farm Share, dedicated appropriations for distribution and food hub operations and infrastructure, and appropriations for research, development, and support for siting and permitting process improvements that recognize the vital conservation benefits of market expansion opportunities for local wood products processing and manufacturing in Vermont.

Strategy: Promote workforce development in all working lands sectors along all points of the supply chain.

- Action: Develop, endorse, and implement fair trade, equitable labor practices, and just livelihoods for the natural and working lands sector.
- Action: Better resource state programs to support personal and professional development, and where needed, develop additional affordable and accessible training programs such as apprenticeships, certificates, stackable credentials, and concurrent degrees. Train natural land managers and other land and water caretakers in securing, retaining, and supporting employees.

Strategy: Strengthen all aspects of farm, food, and forest product sector supply chains, including the associated infrastructure necessary to support them (e.g., processing, storage, and distribution).

- Action: Make significant investments in storage, processing, and distribution infrastructure to enhance product innovation and quality across all Vermont food and forest products.
- Action: Support product-specific value chain development by facilitating producer, distributor, and buyer matchups and supporting producer-driven aggregation, distribution, and marketing enterprises.

Strategy: Ensure equitable access to local foods, culturally relevant foods, land, funds, grants, and technical assistance for people who have been historically marginalized and come from impacted communities.

- **Priority Action:** Improve funding opportunities and create equitable access for Black, Indigenous, and People of Color (BIPOC) farm, food, and forest organizations and businesses by developing multi-year unrestricted BIPOC-centered grants and loan programs. This includes uplifting and resourcing the work of the Vermont Abenaki and other Indigenous Peoples in the State, Land Access and Opportunity Board (LAOB), and other BIPOC peoples and organizations in Vermont.
- Action: Build out and utilize traditional ecological knowledge (TEK) to build out connections to our Tribal and Indigenous communities in the development and utilization of traditional products (e.g., birch syrup, sumac spices, etc.).

Strategy: Develop a Vermont food security and sovereignty plan centered around a thriving food system and inspired by community-based responses to food insecurity and disruptive events.

- Action: Involve food insecure individuals and farmers in the planning and investigate questions including, but not limited to, affordable housing, health care, transportation, siting of retail grocery stores, food distribution, and ensuring the continued production of food in Vermont.

Pathway: Support and empower Vermont's farmers, foresters, and other land and water caretakers to capacitate renewable energy and building product transitions.

Strategy: Promote and incentivize the use of local wood and agricultural products to reduce embodied carbon footprint.

- Action: Develop alternative markets for non-timber wood, focusing on cellulose insulation, bioplastic composites, or biofuels.
- **Priority Action:** Promote and incentivize the use of agricultural and sustainably harvested wood-based construction materials (subject to existing certification criteria or procurement standards to be developed) over less climate-friendly options, such as imported wood from locations lacking required sustainable harvest requirements and/or non-wood materials with high carbon footprints (such as steel, concrete, etc.).
 - This could include using state procurement standards to require that publicly funded building projects, or those subsidized through low-interest loans or tax benefits, use chain-of-custody certified wood products (mass timber, cellulose insulation, advanced wood heating, etc.) and prioritize building materials—such as sustainably harvested wood—that align with climate goals and ecological values, while reducing reliance on high-carbon, non-renewable materials like steel and concrete.
 - Continue to research and develop the life-cycle accounting of these products for the greatest impact.
- Action: Develop a regional certification standard for forestry to validate carbon storage values for forest building products (methodologies supporting supply chain validation for carbon storage frequently use Forest Stewardship Council (FSC) as a proxy; regional-scale certification standards focused around net carbon benefit are needed for product transparency).

Strategy: Transition fuel sources for the forestry and maple sector.

- Action: Provide funding to incentivize sugar makers to switch evaporators from fossil fuels to wood pellets and incentivize the elimination of diesel generators for sap vacuum pumps.
- Action: Incentivize alternative fuels such as biofuels or offsets for logging equipment.

Strategy: Sustainably source renewable energy products and materials.

Action: Fund competitive research to track and innovate on the sustainability and ethical implications of renewable energy materials and products consumed to meet the Climate Action Plan (CAP).

Pathway: Education: Create accessible, equitable research, partnerships, and education; promote shared understanding; and invest in sustainable workforce development for the natural and working lands sector.

Strategy: Provide funding for climate-related education at all levels, outreach, research, and technical assistance programs.

- Action: Develop and make available accessible outreach and educational materials that communicate climate change science and local impacts to the general public, which include and highlight the role that Vermont's natural and working lands play in providing solutions to climate change.
- Action: Enhance education, outreach, and technical assistance programming to support farmer learning and to encourage adopting climate-smart agricultural practices. Ensure equitable access by creating two full-time University of Vermont (UVM) Extension and part-time staff for each National Resource Conservation District (NRCD).
 - Grow the capacity of additional VT academic institutions and indigenous-led & Black, Indigenous, People of Color (BIPOC) organizations to offer technical support to farmers and foresters, such as Middlebury College's perennial program with traditional ecological knowledge (TEK).
- Action: Establish and fund an educational program explaining the role of Vermont farmers and foragers and their high-quality, local food products in maintaining a low climate impact.
- Action: Establish stronger relationships between state agencies, regional planning commissions (RPCs), and faculty at Vermont and adjacent state institutes of higher learning to create opportunities for state and regional research needs to become an aspect of faculty research agendas.
- Action: Support increased investment in healthy soil education through educational mini-grants for teachers to all audiences (including agriculture, homeowner, forestry, publications, K-12 schools, and institutions of higher learning) and implementation of practices through funding of best management practices (BMP) challenges, technical assistance programs, and cost shares.

Strategy: Develop and promote climate-related educational materials for private landowners and other land and water caretakers to empower them to make climate-informed decisions about their land and waters.

- Action: Expand infrastructure and educational programs around community and backyard composting and recycling.

- Action: Educate Vermont landowners and other land and water caretakers about the benefits of reducing lawn mowing frequency and amount of mowed lawns to increase biodiversity and ecosystem health and ultimately reduce emissions.
- Action: Promote planting future climate-adapted tree species and crops to expand tree planting efforts on private land. This promotes restoration efforts in 304 reforest riparian areas, wetland buffers, and unhealthy soil.
- Action: Create and deploy an extension-type program for the river corridor and floodplain buffers that provides educational material and technical assistance for private landowners and other land and water caretakers.

Agriculture & Ecosystems: Climate Resilient Lands

Pathway: Adaptation—Sustain, restore, and enhance the health and function of Vermont's lands and water to help both natural and human communities adapt to climate change.

Strategy: Increase technical assistance, capacity, education, and resources to support private and municipal farm and forestland owners, planners, and other land and water caretakers for climate change adaptation.

- **Priority Action:** State agencies should utilize financial incentives, siting policies, and regulations to incentivize, support, and preferentially site renewable energy capacity on buildings, parking lots (by installing solar roofs), in compact settlement areas, including renewable energy and charging facilities at rental housing, as well as in previously disturbed / developed areas, where feasible. Avoid conversion of ecologically sensitive areas, forests, and prime agricultural soils.

Strategy: Promote and incentivize climate-adaptive forest management practices.

- Action: Braid existing and ongoing research and traditional ecological knowledge and indigenous knowledge (TEK/IK) to promote planting future climate-adapted tree species and agricultural crops where appropriate. Monitor, assess, and adaptively manage these practices. Share results and develop training.

Strategy: Clearly define and articulate the state's approach, definitions, and specific applications of nature-based solutions (NbS) and how these approaches are implemented with the full engagement and consent of Indigenous Peoples and local communities in a way that respects their cultural and ecological rights and knowledge.

- **Priority Action:** State agencies should promote nature-based climate solutions (NbS), traditional ecological and indigenous knowledge (TEK/IK) by considering how to gauge their effectiveness and incorporate them into assessments, planning efforts, prioritization frameworks, and funding programs to address climate change impacts.

Strategy: Manage natural and working lands and waters for biodiversity, forest health, water quality, and climate resilience.

- Action: Fund support for local academic institutions, researchers, and applied research, braiding Western science with TEK and IK to evaluate best climate practices for our lands and waters.
- **Priority Action:** State land management agencies should continue to adapt their management of lands using nature-based climate solutions (NbS) to address climate impacts, increase ecosystem resilience, enhance biological diversity, and improve water quality. State land management agencies should also enhance technical assistance and resilience funds to support the financial capacity of other land and water caretakers to achieve these goals.
- Action: Support research efforts to better understand forest ecosystems, local climate change impacts on forests, waters, and ecosystems, and restoration and conservation actions needed in the face of these changes.
- Action: Incentivize and provide appropriate support for introduced species control efforts, specifically where populations threaten the perpetuation of forest cover and resilience of forests to climate change impacts.
- Action: Fund increased investment in healthy soil education for landowners and other lands and water takers and implementation of practices to increase soil health. For example, coordinating a Comprehensive Assessment of Soil Health (CASH) for farmers with the University of Vermont (UVM).

Strategy: Increase flood resilience of the natural and built environments, reduce future development in floodplains and floodways, and educate state and municipal planners.

- Action: Invest in transporting funding to restore aquatic and terrestrial connectivity to improve flood resilience and increase habitat for fish, wildlife, and plants.
- **Priority Action:** State agencies and the legislature should identify gaps and opportunities to expand and improve current programs that promote healthy,

connected river corridors, floodplains, and wetlands, prioritize restoration and conservation, and incentivize water storage in headwaters and natural areas to promote flood resilience and biodiversity through expansion of wetland, floodplain, riparian forest and river corridor easements that better compensate land and water caretakers for restoring, managing and conserving these natural water storage areas (including opportunities presented by Act 121 (an act relating to the regulation of wetlands, river corridor development, and dam safety))

Strategy: Promote healthy, connected headwaters, river corridors, floodplains, and wetlands.

- Action: Develop an equitable and inclusive pay-for-practice incentive program and explore state tax policy incentives for everyone including forest landowners, farmers, and other land and water caretakers to adopt climate-adaptive practices.

Pathway: Land Use—Promote land uses that support carbon sequestration and storage, climate resilience and adaptation, and natural and human communities for a sustainable and equitable future.

Strategy: Educate Vermonters on the benefits of compact settlement, highlighting the need to prioritize the reduction of forest fragmentation. Promote and incentivize compact settlement patterns in suitable areas.

- Action: Develop required climate-based framework and/or criteria for state grant and regulatory programs.
- Action: Provide enhanced technical assistance and support to municipalities and regional planning commissions (RPCs), including outreach and education for landowners, land and water caretakers, and community members, to develop, revise, and implement town plans to maintain forest blocks and landscape connectivity as authorized by Act 171 (an act which amended Vermont Planning Statutes). Support the adoption of effective zoning and subdivision bylaws to preserve intact forest blocks and connecting habitats while also preventing development in floodplains and floodways.

Strategy: Include biodiversity and resilience goals in the planning and management of public and private lands.

- Action: Assess current efforts and support additional efforts to research, educate, and implement practices informed by traditional ecological and indigenous knowledge (TEK/IK), such as using prescribed fire to promote regeneration and coppicing, where appropriate for Vermont's forests and ecosystems.

- Action: Identify lands for conservation in or adjacent to the built environment to provide benefits to human health, wellbeing, and equity in those areas.
- Action: Improve statewide forest planning efforts braiding in traditional ecological and indigenous knowledge (TEK/IK) on town, state, and federal lands, including developing an action plan by the Agency of Natural Resources (ANR) for how town and state Lands will help accomplish Act 59 (an act relating to community resilience and biodiversity protection) targets by 2030 and 2050. Collaborate with the U.S. Forest Service (Green Mountain National Forest) planners for more unified forest planning across the state.
- Action: Examine the implications and consider establishing a state policy of no net loss of natural and working lands (including active and passively managed forests, agricultural lands, and wetlands) accounting for the transitions of lands within and between these conditions, with aspiration for a net gain. Braid traditional ecological and indigenous knowledge (TEK/IK) into policy.
 - (1) As part of this effort, track land use trends to quantify the degree of no net loss (define), including aggregating data on subdivision, land transfers, and the loss and/or fragmentation of forests, agricultural lands, and wetlands to inform progress and state policy.
 - (2) Develop a strategy to increase the area of land in functioning wetlands, with an initial focus on protecting and recovering the highest quality wetlands ("Class I Wetlands" in the Agency of Natural Resource's (ANR) wetlands rules), consistent with the goal of ensuring no net loss of other categories of natural and working lands."
- Action: Recommend amending the Use Value Appraisal (UVA) program to allow for:
 - (1) greater development of old forest structure as articulated in the targets of Vermont Conservation Design;
 - (2) the enrollment of wildland reserves under the existing forestland category where conditions and eligibility criteria are met as defined by Forest Parks and Recreation (FPR), facilitating the development of old forest conditions through active restoration and/or passive management as a means of enrollment in the Old Forest ecologically significant treatment area (ESTA) category;
 - (3) privately held parcels with 'Forever Wild' easements on them, held by a qualified 501c(3), to be enrolled in the UVA Program in the Conservation Category; and
 - (4) the potential for, and implications of, developing a new category of enrollment for land in UVA which allows for passive management modeled on the 'open-space' designation included in similar programs elsewhere in New England."
- Action: Implement legislation to authorize the Agency of Natural Resources (ANR) to revise the Flood Hazard Area & River Corridor (FHARC) rule to incorporate statewide

jurisdiction and permitting authority for river corridors for all kinds of development while also working proactively to restore and conserve river corridors.

Strategy: Invest in strategic and equitable (conservation with impacted people) conservation to increase the pace of permanent conservation towards 30x30 and 50x50 targets (described in Act 59), with Vermont Conservation Design acting as the guiding plan for prioritization of efforts.

- Action: Educate communities and expand the use of the Water Infrastructure Sponsorship Program (WISPr) to improve accessibility and use for restoration projects.
- Action: Maintain a suite of farmland conservation and protection tools ranging from voluntary, regulatory, and planning (e.g., easements, Act 250 (Vermont's land use and development law), planning, and zoning) and ensure these tools incorporate climate change and monitor progress.
- Action: Per the formula in statute, fully fund the Vermont Housing & Conservation Board (VHCB), including \$3 million for the Farm & Forest Viability Program, and increase annual VHCB funding around the statutory amount by 15%, targeting those funds for implementation of conservation actions recommended in the Climate Action Plan (CAP), and informed by traditional ecological and indigenous knowledge (TEK/IK), especially those related to forests.
- Priority Action: State agencies should work with partners, and the legislature should fund the state agencies as necessary, to promote strategic and equitable statewide landscape connectivity and the conservation of priority forest blocks, farmland, and other actively and passively managed lands through planning and implementation toward 30x30 goals, and 50x50 goals in alignment with Act 59 of 2023 (an act relating to community resilience and biodiversity protection). This work should use the best available data and mapping, including Vermont Conservation Design, while braiding in traditional ecological and indigenous knowledge (TEK/IK).
 - Conservation planning and implementation should meet the targets set forth in Vermont Conservation Design. These goals include managing forests to achieve a target of 3-5% young forest and allow at least 9% of Vermont's forest to become (or be maintained as) old forest, specifically targeting 15% of the matrix forest within the highest priority forest blocks—including National Forests—to achieve the old growth condition and ensure the protection of sacred sites or other historically or culturally important areas as determined by the Vermont Division of Historic Preservation.
 - At the same time, protecting farmland and managed forestlands from development through land conservation and protection programs is essential to ensure these land uses continue to provide climate mitigation, adaptation, and resilience benefits. Existing State land use protection programs—such as

the Vermont Farmland Conservation Program and forest conservation easements—should be enhanced to improve farmland access and the protection of agricultural soils and working forests."

Strategy: Increase technical assistance, capacity, education, and resources to support private farm and forest landowners in addressing the trends relating to intergenerational transfer.

- Action: Support forestland succession and estate planning efforts to reduce forest loss, parcelization, and fragmentation by implementing Act 171, 'Intergenerational Transfer of Forestland Working Group Recommendations' of 2017, and incorporating traditional ecological and indigenous knowledge (TEK/IK).
- Action: Research programs in other states and countries and work with land owners to facilitate the transfer of intact farmland and forests.

Strategy: Avoid, minimize, and mitigate the negative impacts of renewable energy generation, like other land development, on natural and working lands.

- **Priority Action:** State agencies should utilize financial incentives, siting policies, and regulations to incentivize, support, and preferentially site solar and wind energy capacity on new buildings, parking lots (by installing solar roofs), in compact settlement areas, including renewable energy and charging facilities at rental housing, as well as in previously disturbed / developed areas.
 - Use disincentives to avoid forest clearing, particularly clearing of ecologically sensitive forest blocks, and conversion of active agricultural land, particularly prime agricultural soils.

Pathway: Support and empower Vermont's farmers, foresters, and land caretakers to capacitate renewable energy and build product transitions.

Strategy: Educate, track, and appropriately reward on-farm renewable energy.

- Action: Increase outreach, reward, and support renewables on farms on rooftops, barns, and storage facilities, and minimize or avoid loss of working and natural lands to renewables development by siting solar in areas that retain some agricultural use, such as grazing or in locations that do not meaningfully diminish the agricultural viability of a farm.

Pathway: Support compact settlement patterns in suitable locations that contribute to the reduction of greenhouse gas (GHG) emissions, enhance community and built environment resilience, and help conserve natural and working lands.

Strategy: Increase investment in the infrastructure (sewer, water, stormwater, mixed-use development, housing, sidewalks, bike lanes, electric vehicle (EV) charging, broadband, energy supply) needed to support compact, walkable development in suitable locations.

- Action: Expand the eligibility of the existing downtown and village center tax credit programs to revitalize neighborhood housing in and around state designated centers.
- Action: Support public-private partnerships to fund the design and construction of new infill housing in existing neighborhoods, including affordable housing.
- Action: Make village centers permanently eligible for the downtown transportation fund that builds infrastructure needed to increase walking, biking and transit.

Strategy: Update state and local land-use governance, regulations, and practices to remove barriers to compact settlement and improve coordination and communication on land-use issues across agencies, departments, municipalities, boards, commissions, authorities, and the public.

- Action: Prioritize public funding for mixed-use developments near transit hubs in regional and rural centers.
- Action: If a statewide land use planning policy and implementation plan is authorized, explore creation of a State Planning Office and/or other potential structures within the executive branch to implement the Plan at the state level.
- Action: Create an office of Strategic Investment and Coordination that supports achievement of land use planning goals by aligning and resolving conflicts in state and local regulations and funding and provides a permitting platform from both the customer and policy objective perspective.

New Actions

- **Priority Action:** Fund and undertake as soon as possible the study previously requested by the Vermont Climate Council on the use of woody biomass for utility-scale electric energy facilities. In addition, use the guidance previously provided by the Council to the Vermont Public Utility Commission (PUC) regarding biomass.
 - The Council's biomass addendum is here:
<https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Docume>

nts/Biomass%20recommendations%20-%20Final%20Approved%20Version%20-%20December%202023.pdf

- Action: Assess the status and impacts of outside burning furnaces. Monitor and regulate the impact of human health and the environment.
- Action: Monitor and regulate quality of wood pellets from out of state to ensure public health and ensure the source is not from logging forests emitting carbon dioxide (CO₂).
- Action: Regulate emissions of biochar burning units in the state.