

Summary of Rural Resilience and Adaptation Subcommittee Priority Strategies and Actions

PATHWAY 1: Increase capacity for climate resilience planning and implementation, and address inequities of under-resourced communities.

Strategy 1: Provide tools and resources to help communities assess climate vulnerabilities and create climate resiliency plans.

- Develop a climate planning toolkit to help towns assess vulnerabilities to climate change impacts, such as heat, air quality, drought, and flooding, and identify and prioritize actions to increase their resilience to climate change. Include newly developed tools, such as the vulnerability index, and existing tools, such as the AOT Repeat Flood Damage Inventory Tool.

Strategy 2: Establish permanent statewide funding and technical support for local and regional climate resilience planning and project implementation to enhance rural resilience to impacts of climate change.

- Increase funding to Regional Planning Commissions and local municipalities to support climate and energy planning and target funds to support towns with limited staff and marginalized populations that score high on the climate vulnerability index.
- 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). Use the Transportation Planning Initiative as a model to fund RPC natural resource staff and support trainings with ANR and other partners.
- Increase and create a permanent state fund for design and implementation of local and regional climate adaptation and resilience projects.
- Provide technical assistance to municipalities to assess the flood and erosion risks facing their drinking water and wastewater systems and identify potential mitigation improvements
- Establish a state level individual assistance program to provide financial assistance to uninsured or underinsured households impacted by disasters not federally declared.

Strategy 3: Expand cross-sector collaboration to align efforts, share best practices, and leverage resources to advance equitable resilience and preparedness efforts statewide.

- Identify and develop new programs to address the full range of climate impacts, especially those that impact important Vermont industries, including drought, less or irregular snowfall, and shorter or irregular sugaring season.
- Complete a Statewide climate change impact assessment for Vermont's commercial sector, including the ski and sugaring industry.

Strategy 4: Increase community participation in local governance and support civic engagement and citizen involvement.

- 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 emergency's; evaluate options for online collaboration in preparation for a meeting that can be done with transparency.
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PATHWAY 2: Proactively and strategically invest to enhance resilience in transportation, communications, water/wastewater, and energy infrastructure statewide.

Strategy 1: Create a policy, planning and organizational foundation to support effective investments in infrastructure resilience.

- Develop a vulnerability index methodology and tool for broad use by stakeholders to identify priority areas for investment. The index will account for the vulnerability communication, energy, transportation and water infrastructure in addition to socioeconomic and equity factors that affect community resilience.
- Update or adopt as appropriate infrastructure design standards to reflect impacts from a changing climate, such as more frequent extreme weather as well as an increasing range of high and low temperatures, freeze/thaw cycles, and mixed precipitation (harden, incorporate redundancies, maximize life span, reduce annual maintenance and operational costs. etc.)
- Seek federal stimulus (ARPA), infrastructure bill, and other non-ratepayer funding to defray costs of utility resilience upgrades that exceed benefits to ratepayers, such as:
 - Ubiquitous communications networks that enable full utilization and participation of distributed energy resources in an interactive grid.
 - Resiliency Zones: batteries installed at or near critical facilities, potentially paired with solar (and/or small wind) and with a microgrid /islanding where possible, to allow them to continue to operate in the event of extended disruptions to electric service.
 - Strategic upgrades to substations, distribution, and transmission capacity across the Vermont grid needed to enable the state's renewable and electrification goals, after first exploring feasibility of any lower-cost options, e.g. flexible load management, curtailment, and storage.
 - Emerging non-wires technologies that address major challenges system resilience (e.g. long-duration outages).
- Create a framework for identifying and evaluating climate resilience threats and impacts to energy systems serving rural communities.
- Complete the flood vulnerability assessment of all bridges, culverts and road segments on the state and town highway systems, identify and prioritize needed investments. This action includes completing the statewide expansion of the [Transportation Resilience Planning Tool](#).
- Complete a flood vulnerability assessment of state-owned rail infrastructure to identify and prioritize needed improvements
- Incorporate GHG reduction goals and CAP strategies, and actions related to resilience in the VTrans transportation planning and project development process.
- Increase funding for floodplain restoration, including buy-out programs
- Increase investment to municipalities to support reductions in inflow and infiltration into wastewater collection systems.
- Examine the climate impacts of sludge and biosolids to determine if regional facilities can reduce utility costs and climate impacts. Support investment in strategically placed facilities for sludge and septage processing (much is currently trucked to Montpelier/Chittenden Co.)
- Increase investment to municipalities to support reductions in inflow and infiltration into wastewater collection systems.
- Increase efforts and funding towards pollution prevention programs at wastewater facilities.
- Understand source water vulnerabilities and invest in planning efforts to assist communities, especially those that are vulnerable for their long-term water supply needs. Revamp funding programs for source protection programs, increase funding for programs (include existing and new water sources) and conservation easements
- Increase the number of public water systems and publicly owned wastewater treatment works implementing an asset management program. Expanding programs, funding opportunities, and incentives to develop and implement these programs.
- Continue investments in traditional and green infrastructure to intercept, sink and treat stormwater.

- Encourage adoption of low impact development regulations for municipal zoning, including Xeriscaping and increased density outside of flood prone areas.

Strategy 2: Public, private, and nonprofit entities should be prepared to respond and recover quickly to disruptions caused by severe weather and other climate change threats.

- Strategically integrate planning and preparedness across disciplines and geographies addressing the interdependencies of energy, communications, and other systems.

Strategy 3: Increase the resilience of critical infrastructure to severe weather and other climate change threats by reducing vulnerabilities of specific facilities.

- Identify mission critical facilities in collaboration with local and regional planners, utilities and transportation providers to identify actions, procedures, or investments to mitigate the impact of extreme weather events to services provided by these facilities. Examples of mission-critical facilities include designated emergency shelters, first responder facilities, hospitals and other medical facilities, key infrastructure such as water/wastewater pumping and treatment and sewer, key communications infrastructure such as fiber nodes, government offices, fuel suppliers, transportation hubs, supermarkets and other facilities municipalities identify as critical to serving communities during extreme weather events.
- Replace aging electric and communication infrastructure with the most appropriate resilient alternative when cost effective. For example, during normal replacement schedules for aging and unreliable lines, evaluate and where cost effective and feasible, improve resilience by relocating lines underground or through other options.
- Create a transportation flood resilience funding program to meet the requirements and related funding that are anticipated to be part of the 2021 reauthorization of the federal transportation act.
- Expand public investment, particularly hazard mitigation funding to flood-proof or relocate drinking water and wastewater treatment infrastructure at significant risk of flooding, when flood damaged, or during end-of-life refurbishment.
- Work with Vermont villages and property owners to relocate septic systems and public or private drinking water wells that are at risk due to floods.
- Develop programs to achieve net zero energy drinking water and wastewater treatment facilities including microhydro, solar energy, heat exchange, building envelope; AND operational and technological efficiencies.
- Improve road drainage around lakes / ponds to reduce stormwater runoff and erosion, especially on municipal roads.

Strategy 4: Increase the resilience of critical infrastructure to severe weather and other climate change threats by improving system efficiency, reliability and redundancies.

- Evaluate the risks and opportunities created by potential climate change in-migration to VT's critical infrastructure.
 - Implement the recommendations from an AOT study evaluating road usage charges such as a flat fee, mileage-based fee and per kilowatt hour fee to replace the decline in state motor fuel taxes resulting from vehicle electrification.
 - Expand broadband to support remote work and tele-services to reduce the impact of travel disruptions.
 - Deploy foundational informational and operational technology statewide to enable and optimize storage and other distributed energy resources (e.g., GridLogic, Virtual Peaker, other emerging distributed energy resource management systems, in particular those that are open-source to various technologies and vendors)
 - Update the 1995 Vermont State Highway Design Standards to create context sensitive, multi-modal projects that support smart growth per the Act 167 (2014) Sec 26 Report - VT State Standards Work Plan.
 - 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.
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PATHWAY 3: Support the reduction of municipal, school district, residential, university, and hospital fossil fuel use in rural areas through equitable best practices that address the unique challenges of rural communities.

Strategy 1: Provide tools and resources to help assess data needs and establish best practices for rural communities, businesses, and institutions to reduce fossil fuel use.

- Require the collection of fossil fuel usage data at the municipal level for buildings, vehicle fleets, and utilities; identify data gaps and ways to collect that data for measuring change in fossil fuel use going forward.
- Ensure data on fossil fuel usage at the municipal level is available and accessible in one location for municipal and public use.
- Engage higher education institutions to actively participate in developing systems to gather, compile, update, extrapolate fossil fuel data and make that available to the public.

Strategy 2: Equitably expand access to programs that provide options to rural homeowners, landlords, municipalities, school districts, universities, and hospitals for weatherization, electrification, and utility upgrades.

- Ensure that there is broad and statewide public education and promotion of benefits, economic and otherwise, and opportunities for fossil fuel reduction.
- Evaluate all existing state-funded programs for effectiveness, access, and equity and consider increased funding for weatherization, energy efficiency and electrification programs in order to expand access to all Vermonters, and to expand programs with zero up-front costs. Existing programs may include the VEIC Property Assessment Clean Energy (PACE) program, Efficiency Vermont rebates, HEAT Squad - NeighborWorks of Western Vermont home energy audit program, and the Shared Equity program. In addition, the private sector should be engaged to provide innovative third-party financing opportunities that are paid for over time by the customer.
- Create new educational programs so existing energy efficiency, electrification, and utility upgrade programs may increase their public education and outreach.
- The Public Service Department should ensure that all utilities provide similar opportunities for all customers (rebates, incentives) to encourage fossil fuel reduction, electrification, and energy savings.
- Increase low-income weatherization through the State Weatherization Assistance Program including technical assistance to help households and landlords manage the process.
- Entities that provide rebates for weatherization should stabilize rebate values year to year.
- Expand workforce development programs such as the VT Training Program or the Department of Labor's Workforce Education & Training Fund; cover costs for businesses to train in-house auditors/technicians. Pilot new programs in rural areas where workforce needed is greater.
- Revise state building energy codes and standards to require a minimum 200 Amp service for new construction as electrification expands.
- Provide funding to assist low-income homeowners to upgrade electric service to 200 Amps. Electric utilities and renewable energy developers could provide new incentives and financing options through third-party financing mechanisms, on bill financing, RES Tier III incentives, third-party power purchase agreements, and grants. All programs must include equal access to renters.
- Implement a statewide program to support electrification of municipal fleet vehicles ensuring it is designed to allow equitable access and participation to municipalities regardless of tax base.
- Support water and wastewater systems in conducting and implementing energy audits and recommendations for energy reduction and electrification.
- Evaluate and eliminate statutory barriers to renewable energy development on school and other municipal property.
- Develop a program to establish Weatherization Navigators at each Regional Planning Commission (RPC) to help individuals, municipalities, and businesses through the process of weatherization and energy efficiency upgrades.

- Review and expand existing programs to support landlords in weatherizing rental properties, including St. Johnsbury Rental Housing Improvement Program, and other programs in counties and towns.
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PATHWAY 4: Change Vermont's land-use policies so current and future land development will be adaptive and resilient to climate change impacts by promoting compact development, enhancing the capacity of natural and working lands, and reducing greenhouse gas emissions.

Strategy 1: Increase investment in the infrastructure (sewer, water, stormwater, sidewalks, bike lanes, EV charging, broadband, energy supply) needed to support development that is more resilient to climate disruptions, equitable, resource efficient, and protects the adaptive capacity of natural resources.

- Revise stormwater permitting as needed to ensure green infrastructure is primary in design considerations.
- Increase investment in stormwater and green infrastructure, including separating combined wastewater and storm water systems, to protect public health and water quality.
- Complete a Climate Readiness assessments of drinking water, stormwater, and wastewater infrastructure. (This is an EPA tool that looks at all climate impacts including, fires, droughts, flooding, etc.).
- Examine regionalization efforts and sharing of resources for all water utilities.
- Invest in enhancing water sources in vulnerable communities to enhance resilience to long-term drought.
- Increase investment to municipalities for new and expanded water and wastewater facilities to support reductions in inflow and infiltration into wastewater collection systems.

Strategy 2: Develop permanent private and public funding sources to flood-proof, 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.

- Establish a dedicated, comprehensive state level program with funding to strategically purchase or match funding for hazard-prone properties, easements to conserve river corridors, floodplains, forests, and wetlands to reduce overall flood risk and enhance flood storage statewide.
 - Expand the eligibility criteria and increase funding for VHCB's conservation and buyout program, to address any flood-vulnerable structures.
 - Fund ERAF for non-federal disasters in towns that have adopted floodplain and/or river corridor bylaws and to support the 25% non-federal match for buyouts and develop criteria for distribution when funding is limited.
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PATHWAY 5: Ensure that all people have access to safe, accessible, energy efficient, and affordable housing

Strategy 1: Update state and local land-use governance, regulations, practices, and investments to eliminate barriers to housing development

- Increase manufactured housing tax credits to replace older and inefficient manufactured homes.
- Expand the existing program to relocate mobile home park homes and residents outside of flood vulnerable locations.
- Create a rental registry and inspection program to locate all of Vermont's rental housing and improve their quality and safety.
- 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) and fund homes starts within communities planning and investing in development-ready infrastructure, building development partnerships, and updating zoning bylaws to welcome new homes.

- 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.

Strategy 2: Increase investments in the preservation and development of both private-market and nonprofit-owned affordable housing.

- Continue to fund housing investments that leverage private initiative and funding to cost-effectively create housing units under models like the Re-Housing Recovery Program funding and the proposed Vermont Housing Investment Program.
- Create programs to assist prospective homebuyers to purchase and make improvements to homes that are energy inefficient and otherwise in need of immediate investment.
- Increase support for mission-driven, non-profit housing developers to maintain their ability to produce high-quality, energy- and location-efficient housing.

Strategy 3: Increase access to fair and affordable housing for Vermonters who are housing instable.

- Implement the recommendations of the Analysis of Impediments to Fair Housing.
- Increase funding for community-based homelessness prevention and rapid re-housing.