		Existing Recommendations				Prioritization Criteria										
Action	Status	Revise Action, Revise Strategy, Remove, Keep as is	Proposed Revised Language	Notes	Initial Priority Ranking	Impact (High/Moderate/Low) (3/2/1)		Cost - Effectiveness (High/Medium/Low) (3/2/1)		Co-Benefits (High/Medium/Low) (3/2/1)		Technical Feasability (yes/no) (1/0)		Overall Prioritization	
Pathway 1B: 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 1Ba: 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 action.															
Create a framework for identifying and evaluating climate resilience threats and impacts to energy systems serving rural communities.	Advancing. (Action Modified)	Revise Action	The state, through the Public Utility Commission and Public Service Department, should investigate resilience planning, including defining, valuing, measuring, and setting targets for grid resilience. Utilities should integrate resilience planning into their Integrated Resource Plans based on guidance resulting from this proceeding.	Action needed an actor and additional specificity. Grid resilience is undefined and therefore meaningless and problematic in the utility regulatory space without having standards to plan and invest to (if different from existing reliability/stability), including a way to define value, a cost-benefit framework, and metrics to measure and reward progress or penalize lack of progress. The Department has secured technical assistance from the National Labs to assist with such a proceeding, and the Legislature has created a petition for a resilience proceeding.	High	High	3	High	3	High	3	Yes	1	High	2.5
Increase funding for floodplain restoration, including buy-out programs.	Advancing.	Remove		This is very generic and captured below, / would remove - under 1/b											
Seek federal stimulus (ARRA), infrastructure bill, and other non-ratepayer funding to defray costs of utility resilience upgrades that extend benefits to ratepayers, such as: • Ubiquitous communications networks that enable fall utilization and participation of distributed energy resources in an interactive grid. • Resilience Zones: Batteries installed at or near critical facilities, potentially paired with solar photovoltaic (PV) and other distributed generation resources, 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).	Advancing.	Revise 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.			Moderate	2	Moderate	2	Moderate	2	Yes	1	Medium	1.75
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.	Being implemented	Revise		The TRPT is complete for all state and local roads but will require continuous improvement/update											
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.	Being implemented	Revise 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 ANR's Environmental Justice mapping tool, when complete.	MVI exists but lacks certain features/capabilities originally envisioned. Having a true index will help funders quickly identify areas of highest need within a broad geographic area based on relative vulnerabilities.	HIGH Notes from 12/6 Subcommittee – Make this a new action b/c we'd need a new tool. Current MVI is an indicator (and what does M is describing would be an index)	High	3	High	3	High	3	Yes	1	High	2.5
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.	Being implemented	Revise Action	Support the development and implementation of asset management programs for all public water systems and publicly owned wastewater treatment works.	Revised language but good to keep asset mgt in.		Moderate	2	High	3	High	3	yes	1	High	2.25
Incorporate GHG reduction goals and CAP strategies, and actions related to resilience in the VTrans transportation planning and project development process.	Being implemented	Remove		Lack specificity so likely redundant to other more measurable/actionable items.											
Update or adopt as appropriate infrastructure planning and design standards to reflect impacts from a changing climate, such as more frequent extreme weather as well as an increasing usage of high and low temperatures, freeze/thaw cycles, and mixed precipitation (hailes, incorporate redundancies, maximize life span, reduce annual maintenance and operational costs, etc.).	No Action Taken	Remove		So broad - what does this even mean? (Steph) Needs specificity to be actionable - think critical											
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.	No Action Taken	Revise Action	Understand and develop opportunities for creating water and wastewater systems performance efficiencies (i.e. SPAs, inflow, infiltration, pollution reduction) including nature-based solutions.	Revised and combined previous actions related to w/ww "source" pollution reduction. Needs an actor. Who understands?	Recommendation from Nat to delete this action. Discuss. This is supposed to be the assessment for other action calling for implementation. If this goes should the implementation along?	Low	1	Medium	2	Low	1	yes	1	Low	1.25
Complete a flood vulnerability assessment of state-owned rail infrastructure to identify and prioritize needed improvements.	Being implemented	Keep as is		Action is happening - contract recently executed.		High	3	High	3	High	3	Yes	1	High	2.5
Encourage adoption of low impact development regulations for municipal zoning, including low water usage landscaping practices and increased density outside of flood prone areas.	Being implemented	Remove		Needs an actor. Who understands?											
Increase investment to municipalities to support reductions in inflow and infiltration into wastewater collection systems.	Action not defined	Revise Action	Increase investment to municipalities for new and expanded facilities to support water and wastewater systems performance efficiencies (reductions in inflow, infiltration, pollution).	Revised and combined previous actions related to investments for w/ww "source" pollution reduction.		Low	1	Medium	2	Low	1	yes	1	Low	1.25
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 hauled to Montpelier/Chittenden Co.)	Advancing.	Revise Action	Examine pros and cons of regionalizing or sharing resources for all water and wastewater treatment utilities and plants.	Revised and combined previous actions related w/ww efficiencies through regionalization.		Low	1	Medium	2	Low	1	Yes	1	Low	1.25
Increase efforts and funding towards pollution prevention programs at wastewater facilities to ensure that facilities protect available treatment capacity, which can focus development on already-served designated centers.	Being implemented	Combined Primary	Understand and develop opportunities for creating water and wastewater systems performance efficiencies (i.e. SPAs, inflow, infiltration, pollution reduction) including nature-based solutions.	Revised and combined previous actions related to w/ww "source" pollution reduction.		Low	1	Medium	2	Low	1	yes	1	Low	1.25
Continue investments in traditional and green infrastructure to intercept, sink and treat stormwater.	Being implemented	Combined Primary	Understand and develop opportunities for creating water and wastewater systems performance efficiencies (i.e. SPAs, inflow, infiltration, pollution reduction) including nature-based solutions.	Revised and combined previous actions related to w/ww "source" pollution reduction.		Low	1	Medium	2	Low	1	yes	1	Low	1.25
Strategy 1Bb: Public, private, and nonprofit entities should be prepared to respond and recover quickly to disruptions caused by more extreme weather and other climate change threats.															
Strategically integrate planning and preparedness across disciplines and geographies addressing the interdependencies of transportation, energy, communications, and other systems.	No Action Taken	Strategy deleted. Move action to 1Ba.	TBD - Should be further modified to create more measurability.	Moved to 1Ba to include one or more actions related to **preparedness**. See Stakeholder input. May not be needed for infrastructure but consistent for Community Capacity. CHECK TO SEE **THIS** IS INCORPORATED INTO FINAL REC.											
~~**Strategy 1Bc: Increase the resilience of critical infrastructure to severe weather and other climate change threats by reducing vulnerabilities of specific facilities.**~~															
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.	Advancing.	Revise and move to new 1Bb	(NEED TO FIGURE THIS ONE OUT STILL, COULD BREAK UP AND MOVE THE FIRST PART UNDER INVESTMENT ?)												
Strategy 1Bd: Increase the resilience of critical infrastructure to severe weather and other climate change threats by improving system efficiency, reliability and redundancies. Revised as Strategy 1Bb: Increase the resilience of critical infrastructure to severe weather and other climate change threats by reducing vulnerabilities and improving system efficiency, reliability and redundancies.															
Deploy foundational informational and operational technology statewide to enable and optimize storage and other distributed energy resources (e.g., dimbaugs, Virtual Peaker, other emerging distributed energy resource management systems, in particular those that are open source to various technologies and vendors)	Advancing.		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.	Updated to include an actor, avoid calling out specific technologies in a rapidly changing marketplace. Added reducing costs because most of these technologies can provide a win-win and not increase electric rates (which would make electrification - and therefore mitigation of GHG- unaffordable)	HIGH? Indroad add in Row 31 as high	High	3	High	3	High	3	Yes	1	High	2.5	BUT advancing (though somewhat based on a different basis - i.e., to avoid grid upgrades to accommodate more DG) by CEM. So doesn't have to be in our top 5.
Expand broadband to support remote work and tele-services to reduce the impact of travel disruptions.	Advancing.	KEEP AS IS	Expand broadband to support remote work, tele-services, and reduce the impact of disruptions to travel, health, and safety.	Expl, added verus to health & safety		High	3	Medium	2	High	3	Yes	1	High	2.25	is being fully funded, with some state but also lots of federal $$
Update the 1999 Vermont State Highway Design Standards to create coded-overlays, multi-modal projects that support smart growth (per the Act 267 (2014) Sec 26 Report - "VT State Structures Work Plan.	Advancing.	Revise													
Evaluate the risks and opportunities created by potential climate change re-migration to VT's critical infrastructure.	No Action Taken	Combined Primary	(NEED INPUT - DOESN'T SEEM TO FIT WITH CRITICAL FACILITIES ACTION, AS IT'S APPARENTLY ABOUT ALL FACILITIES.		IF KEEP, SHOULD BE MOVED TO PLANNING (1Ba))		Low	1	Low	1	Low	1	Yes	1	Low	1	From a grid/comms perspective more people is not necessarily a huge factor. It may be a bigger issue for transportation and water/wastewater.
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.	Advancing. (Action Modified)	Revise	In the absence of and/or in addition to dedicated federal funding, create a transportation flood resilience funding program to address identified transportation risks and	Previous action related to planning for funding and the modification speaks to the need for a state funding source for transportation projects especially if federal programs are not in place and especially for municipal infrastructure	HIGH per TG changes made 12/9	High	3	High	3	High	3	Yes	1	High	2.5	
Improve road drainage around lakes / ponds to reduce stormwater runoff and erosion, especially on municipal roads.	Being implemented (Action Modified)	Revise	Evaluate the cost benefit of road maintenance (stormwater runoff and erosion practices, especially on municipal roads.	Move to 1Ba. This was more of an implementation action, which is occurring through the MRGP, and was revised to relate to planning		Moderate	2	Moderate	2	High	3	yes	1	Medium	2
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.	Advancing.	KEEP AS IS				High	3	High	3	High	3	Yes	1	High	2.5
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, food supplies, transportation hubs, supermarkets and other facilities necessitated	No Action Taken	Revise	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 impacts of extreme weather events to services provided by these facilities.	Moved from Strategy 1Bd because focus is on specific facilities. Combined with Action 1b.3.1, which speaks to interagency collaboration on disaster preparedness and response. (EFFECTIVELY MOVED UNDER PLANNING, VS. INVESTMENT)	HIGH Feedback from 12/6: Make this more actionable. Bethany/Jessie "collaborate"	High	3	High	3	High	3	Yes	1	High	2.5	Could combine with the MVI one - i.e., as MVI indicators tool being revised to a MV Index, RPCs & munis & first responders etc. could be included in the process to make sure all critical facilities are identified
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.	No Action Taken	Revise	Assess the vulnerability of drinking water, stormwater, and wastewater infrastructure assets, and prioritize opportunities to address these vulnerabilities, including relocation of systems.	Move to 1Ba. Revision speaks to the need for planning and prioritizing at risk assets. Funding for implementation is in a separate revised action.	MED-HIGH (Not ranked this 30. Addressed in revised priority action 4)-	High	3	High	3	High	3	Yes	1	High	2.5
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.	No Action Taken	Revise	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, and other potential solutions.	Revised to relate more to resilience.	LOW (Not ranked this 89) Revised 12/6	Moderate	2	Low	1	Medium	2	No	0	Low	1.25
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.	Being implemented	Revise	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.	Revised and combine previous actions related investment for w/ww/sw resilience.		High	3	High	3	High	3	Yes	1	High	2.5
Pathway 1.7: Change Vermont's land-use policies so current and future land development will be adaptive and resilient to climate change impacts															
Strategy 1.7a: 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.															
Invest in enhancing water sources in vulnerable communities to enhance resilience to long-term drought.	Advancing.	Combined Primary	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.	Move to 1Bb. Revised and combine previous actions related investment for w/ww/sw resilience.	MED-HIGH (Not ranked this 34. Edited language to incorporate top 3 w/ww actions.	High	3	High	3	High	3	Yes	1	High	2.5
Increase investment to municipalities for new and expanded water and wastewater facilities to support reductions in inflow and infiltration into wastewater collection systems.	Advancing.	Combined Primary	Understand and invest in opportunities for creating water and wastewater systems performance efficiencies (i.e. SPAs, inflow, infiltration, pollution reduction) including investment in NBS	Move to 1Ba. Revised and combined previous actions related to w/ww "source" pollution reduction.		Low	1	Medium	2	Low	1	yes	1	Low	1.25
Monitor and update stormwater permitting process as needed to ensure green infrastructure is preferred in design considerations.	Being implemented	Remove	DELETE ???	Status is 'being implemented'. Does it need to remain?											
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, drought, flooding, etc.).	No Action Taken	Combined Primary	Assess the vulnerability of drinking water, stormwater, and wastewater infrastructure assets, and prioritize opportunities to address these vulnerabilities, including relocation of systems.	Move to 1Ba. Revision speaks to the need for planning and prioritizing at risk assets. Funding for implementation is in a separate revised action.		High	3	High	3	High	3	Yes	1	High	2.5
Examine regionalization efforts and sharing of resources for all water utilities.	No Action Taken	Combined Primary	Examine pros and cons of regionalizing or sharing resources for all water and wastewater treatment utilities and plants.	Move to 1Ba. Revised and combined previous actions related w/ww efficiencies through regionalization.	MED (Not ranked this 85)	Low	1	Medium	2	Low	1	Yes	1	Low	1.25
Increase investment in stormwater and green infrastructure, including separating combined wastewater and storm water systems, to protect public health and water quality.	Being implemented	Combined Primary	Increase investment to municipalities for new and expanded facilities to support water and wastewater systems performance efficiencies (reductions in inflow, infiltration, pollution).	Move to 1Ba. Revised and combined previous actions related to investments for w/ww "source" pollution reduction.	MED (Not ranked this 84). Also, do we need a NEW action that is about planning and investment into new W/WW facilities?	Low	1	Medium	2	Low	1	yes	1	Low	1.25

9 Cumulative Priority Ranking

This level of priority ranking will be rolling together a minimum of three (and up to four) prioritization criteria for those actions that are most critical and/or most urgent to address, and combining all other criteria into one "overall" priority ranking.

Action	Initial Priority Ranking	Impact (High/Moderate/Low) (3/2/1)	Cost - Effectiveness (High/Medium/Low) (3/2/1)	Co-Benefits (High/Medium/Low) (3/2/1)	Technical Feasability (yes/no) (1/0)	Overall Prioritization
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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