

Preparing for Natural Disasters and the Effects of Climate Change in the Green Mountain State



Know Our Risks

Vermont needs to not only conduct the research to be well informed about risks posed by a changing climate, but also fully utilize the data we already have by making information easily accessible, in formats and tools that are useful to communities and individuals as they plan for the future.



Elevate & Integrate Emergency Management

The work to plan, prepare, respond to and recover from disasters is ongoing, it shouldn't receive attention only in the immediate aftermath of disaster and it shouldn't be isolated within one department, division or local organization.

Vermont needs to elevate emergency management as critically important at all times, and integrate it throughout local, regional and statewide work.



Align Rules & Investments for Stronger Communities

We know that our state is vulnerable to climate change, and that our risks grow as the climate becomes more unstable. Yet, we also have inherited a system of incentives, rules, and frameworks for decision making that don't reflect this reality. We need to structure rules and direct our investments towards greater resilience and create disincentives for actions that increase vulnerability.



Working Together & Learning Together

The challenges Vermont faces in establishing resilience are complex, they reach across sectors and across jurisdictions, and require collaboration and continuous learning. It is easy for communications and collaboration to break down, even in a small state like Vermont, and we need to remain proactive in continuing to work, and learn, together.



Executive Summary

In 2012-2013, the Institute for Sustainable Communities (ISC) led the Resilient Vermont Project to develop priority recommendations for resilience to climate change. This project stemmed originally from the experience of Tropical Storm Irene and flooding in the spring of 2011, but these represent just one part of the profound changes we can expect with a changing climate. We need to be prepared for a range of scenarios.

The Resilient Vermont Project used stakeholder workshops, forums and interviews, review of reports and data on climate change, lessons learned from recent natural disasters, and the input of ISC staff to develop priority recommendations. We divide the recommendations into four categories:

Know Our Risks – Vermont needs to be well informed about risks posed by a changing climate and also needs to make information about those risks available in formats that can be utilized by communities and individuals as they plan for the future.

Elevate and Integrate Emergency Management – The work to plan, prepare for, respond to and recover from disasters should receive attention at all times, not only in the aftermath of a disaster, and shouldn't be isolated within one department, division or local organization.

Align Rules and Investments for Stronger Communities

– We know our state's vulnerabilities and can predict increasing risks with climate change, but we have a system of incentives, rules, and frameworks for decision making that often favor inaction over proactive mitigation of climate-related hazards. We need to structure rules and direct our investments towards greater resilience.

Work Together and Learn Together – The challenges Vermont faces in establishing resilience are complex, they reach across sectors and across jurisdictions, and require collaboration and continuous learning. We need to build networks, programs, and engagement strategies to ensure that happens.

This report elaborates on these four areas with twentythree specific recommendations.

The process of bringing stakeholders together to develop these recommendations has itself given us a head start on some of the findings. Many groups sprang up in the aftermath of Tropical Storm Irene to deal with resilience, in addition to organizations and individuals already taking on that challenge. The Resilient Vermont Project gave all of these players an opportunity to come together and share their ideas for future action while building a shared vision for what a resilient Vermont would look like. It improved communications from local to regional to state. It reaffirmed some things that already work and should serve as a base for future action. We recommend building on the momentum of statewide collaboration through establishing a Vermont Strong Network for resilience.

A resilient Vermont will be better prepared for, and able to more effectively manage and bounce back from natural disasters and climate-related shocks. However, the particular elements of this resilience will always be evolving, as new information or technology or circumstances shape Vermont's best available strategies. The recommendations in this report set up systems that allow us to do better today and continue to strengthen resilience into the future.

The full resport is available at resilient vt.org. For questions on Resilient Vermont please contact Deb Perry at dperry@iscvt.org or 802-225-2947



List of Recommendations



Know Our Risks

- 1. Develop and disseminate best available climate and risk information in user-friendly formats that can be incorporated into local, regional, and statewide plans and used to inform priorities and investments.
- 2. Institute a sustained river corridor mapping program that provides information about flood and erosion risk to inform local, regional and state plans and the identification of hazard mitigation projects.
- 3. Conduct a statewide transportation vulnerability assessment that produces a statewide data set and map that shows areas of highest relative vulnerability and is used to guide prioritization of investment.
- 4. Incorporate vulnerable population data and analysis into municipal, regional, and state hazard mitigation plans with the help of social service providers so that the needs of Vermont's vulnerable populations are clearly identified and represented at all levels of hazard mitigation planning.
- 5. Take advantage of a strategic opportunity to forge a public-private partnership between IBM, electric utilities and the state to utilize a state-of-the art weather model, in combination with state data, to improve the accuracy of storm predictions, enable early warnings, and efficiently mobilize emergency equipment and personnel.



Elevate & Integrate Emergency Management

- 6. The State of Vermont should become an innovator in instituting resilience in emergency management in ways that best serve the needs of Vermonters.
- Within state government, assign a champion responsible for resilience and risk management who is authorized
 to coordinate the work across state agencies to achieve a consistent approach, identify and advance state
 priorities, and ensure accountability.
- 8. Elevate the position of the Division of Emergency Management and Homeland Security within state government to increase their authority and ability to effectively integrate preparedness and risk management into all state government functions.
- 9. Increase emergency management capacity at the local/municipal level to ensure that those who are responsible for emergency management functions before, during, and after disasters have the skills, training, and equipment they need.
- 10. Regionalize key emergency management functions to provide more efficient and effective support to communities, improve communications, and create strong regional coordination.



Align Rules & Investments for Stronger Communities

- 11. Provide guidance and incentives for proactive investment in transportation infrastructure.
- 12. Prioritize investment in resilient water and wastewater infrastructure.
- 13. Invest in training and technical assistance programs to promote cost-effective action and preparedness, and reduce future disruptions to state and municipal infrastructure systems.
- 14. Engage private landowners as key partners to implement land management practices that reduce hazards and support healthy ecosystems.
- 15. Leverage existing investment in conservation and stormwater management to maximize resilience benefits.
- 16. Create a regulatory framework/approach to land use that does not create any new or additional vulnerabilities along Vermont's waterways ("No Adverse Impact" approach).
- 17. Develop model flood resiliency bylaws for compact communities located in river corridors.
- 18. Establish a dedicated fund to support the purchase of hazard-prone properties that are at high risk but are not eligible for funding through FEMA or other programs.
- 19. Designate pilot adaptation areas and direct investments into those areas.

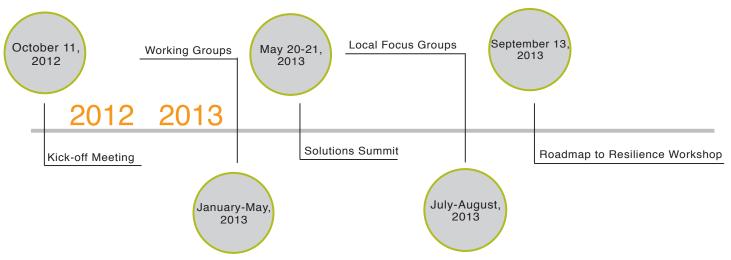


Working Together & Learning Together

- 20. Create the Vermont Strong Network a cross-sector collaboration that includes nonprofit, public and private organizations involved in resilience work to align efforts, share best practices, and leverage resources to advance resilience efforts statewide.
- 21. Use regional networks to support watershed-scale planning and enable municipalities to collaborate across jurisdictions to set priorities and make cost-effective investments that reduce hazards for downstream communities and development.
- 22. Support local resilience networks that bring together planning boards, conservation commissions, emergency managers, social service providers and other leaders to develop a shared vision for resilience within a community.
- 23. Invest in education and outreach to increase public literacy regarding river science and floodplain management practices.



Creating the Roadmap



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 faced by our most vulnerable Vermonters and the strength of our community fabric.
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