



RESEARCH BRIEF SERIES

# MITIGATION MATTERS

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**AWARD AMOUNT:**  
\$9,839

*FEMA defines mitigation as the effort to reduce loss of life and property by lessening the impact of disasters. Effective mitigation requires that we all understand local risks and invest in long-term planning to reduce risks and enhance community well-being.*

## DEVELOPING A NEW INTERDISCIPLINARY MODEL FOR MAPPING FLOOD RISKS AND IMPACTS

### SUMMARY

In July 2023, the towns of Ludlow and Cavendish in rural Vermont were hit by severe flooding. Flood risk maps are an important tool that professionals and residents use to navigate flood recovery. This research project studied challenges related to the accessibility and accuracy of flood risk maps—specifically, the Federal Emergency Management Agency’s (FEMA) National Flood Hazard Layer and the State of Vermont’s River Corridors maps—in the aftermath of the July 2023 floods. It aimed to illuminate how local and state professionals, community organizers, and impacted residents used flood risk maps and the challenges that they encountered with finding, interpreting, or implementing them. The project also studied the accuracy, and perceived accuracy, of flood risk maps of Ludlow and Cavendish. Findings are contributing to efforts to make flood risk maps of rural areas more accessible to all users.

This interdisciplinary, mixed-methods research project employed three primary data collection methods: qualitative interviews, participatory community mapping, and site visits. The research team conducted interviews with professionals and community organizers as well as impacted residents. Community mapping events enabled residents to show where the floods impacted them in different ways. Finally, site visits to flooded properties with community organizers provided essential context to the data gathered elsewhere.



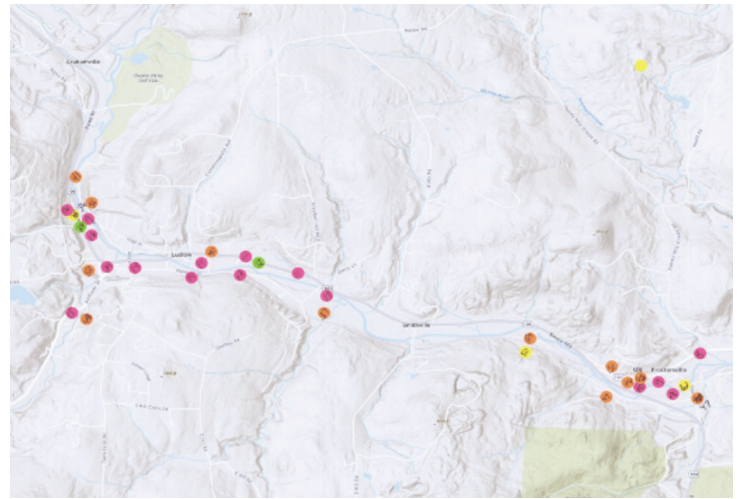
*July 12, 2023: Flooding destroyed a motel on the Lamoille River in Hardwick, Vermont. Photo Credit: Mike Hardiman, Shutterstock.*

### KEY FINDINGS

- Flood risk maps are inaccessible to many residents impacted by flooding, with users having difficulties finding, interpreting, and implementing the maps.
- Flood risk maps are perceived to be inaccurate by professionals, community organizers, and impacted residents alike.
- A lack of trust in the accuracy of flood risk maps, combined with the accessibility difficulties of the maps, results in many community members not utilizing flood risk maps to their fullest extent.

## POLICY IMPLICATIONS

- Flood risk maps, whether online or on paper, should be made more accessible to community members, especially those without a background in GIS mapping systems.
- The purpose of every flood risk map should be made clear to the user upon first use.
- Federal and state governments should provide resources that assist community members in interpreting and using flood risk maps before and after floods. Community liaisons are an example of such a resource.



Map of flood impacts in Ludlow and Proctorsville created by community members during a Community Mapping Event



Ground floor of the Timber Inn in Ludlow, Vermont. The high-water line of the July 2023 flood can be seen at the top of the windowsill. Photo credit: Noah Bezanson, July 17, 2024.

## AUDIENCE

This research will be useful for anyone who designs or disseminates flood risk maps. It will also be informative for state and local officials and community organizers who want to understand the difficulties that residents encounter in using flood risk maps.

Full report: Bezanson, N., Reddy, E., Boke, C., Kelly, S., & Santi, P. (2025). Developing a New Interdisciplinary Model for Mapping Flood Risks and Impacts. (Natural Hazards Center Mitigation Matters Research Report Series, Report 24). Natural Hazards Center, University of Colorado Boulder. Available at: <https://hazards.colorado.edu/mitigation-matters-report/developing-a-new-interdisciplinary-model-for-mapping-flood-risks-and-impacts>



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