

Lesson #3 Floodplain development puts entire communities at risk

Homes and other structures built in floodplains represent not just a risk for property owners, but also for the community at large. A house that tears away during a flood becomes a dangerous projectile hurtling down the river. In at least three instances, in Danby, Bridgewater and Woodford, houses that swept into rivers obstructed downstream bridges, in some cases wiping them out.

At one point during Irene, the Mill Brook House in Danby, once owned by the author Pearl S. Buck, collapsed into the adjacent river. The house was built somewhere between the early 1700 and 1800s according to unnamed town officials cited by the Manchester Journal. When it slipped into the water the Danby-Mt. Tabor Historical Society, which had purchased the house just 10 months earlier, lost its collection along with the building. Once in the river the Mill Brook House got caught against the Main Street Bridge, creating a dam. The river threatened to jump its channel, flow down Main Street and inundate homes in nearby low-lying areas. The bridge and an attached water main would have been lost. Fortunately, Thomas Fuller Jr., operating an excavator in the area, was alert to the potential danger. He acted quickly to smash the house, using the bucket of his machine to push through the roof and walls. The river then carried the debris underneath the bridge.



In Bridgewater Corners a house washed up against the bridge, blocking water and threatening to wipe out the bridge. Photo by Mansfield Heliflight.

In Woodford, George Davis told the Bennington Banner what happened to the house he had built on the Roaring Branch.

“That house just picked up off the foundation, just like it was when it sat there, and started floating down the river. It went down around and rested against the bridge. It was fully intact. We could have gotten a crane, picked it up, and brought it back home, literally. But, then a big, huge tree came down the river with a whole root system on it. Huge thing. It hit that house and just smashed it to pieces. Literally, pieces.”

A 10-foot section of the bridge collapsed, isolating Woodford for 11 days and severing a water main that served Bennington. In Bridgewater, four houses were completely destroyed and many more were damaged. One destroyed building slammed into a bridge on Hale Hollow Road just off Route 100A. Water flowing around the destroyed home overran and seriously damaged the bridge.

Many communities get in trouble because they rely solely upon the National Flood Insurance Program (NFIP) to assess flood risk. NFIP offers flood insurance to homeowners, renters and business owners if their community participates in the program. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce risk of flooding. However NFIP is an insurance program, and should not be substituted for community-specific planning around flood risk.

National Flood Insurance Maps don't offer sufficient protection



Structures built in floodplains like this one along the Danby-Pawlet Road are a risk for homeowners and the community at large. Floods can threaten to wash them downstream into bridges or other structures. Photo by Lori Fisher.

FEMA flood risk maps, upon which the NFIP program is based, have limitations. The maps are not flexible, especially in the face of the increased frequency and severity of storms that have been measured in the Northeast. The maps also do not account for watershed development that can increase surface runoff and the amount of water reaching a stream during a storm. FEMA floodplain maps do not include site-specific hazards like erosion and streambank failure from channel migration. Small feeder streams are typically omitted in such maps, but can be a significant source of local flooding. Channel debris can increase water levels above risk areas identified in flood maps. Rather than solely relying on standard FEMA maps, communities should consult with the Vermont Rivers Program and their local regional planning commission to address specific local conditions. The following steps will help any community prepare for floods (adapted from materials prepared by the Two Rivers Ottauquechee Regional Commission):

- Develop a Pre-Disaster Mitigation Plan that includes steps to reduce losses in the event of flooding and explicitly considers limitations of FEMA flood maps;
- Create mutual aid agreements for flood warnings and response; and
- Improve local regulations to limit impervious cover, elevate buildings and require flood-proofing well above base flood elevations (freeboard requirements), and increase setbacks from stream channels with a high risk of erosion.

Vermont municipalities aren't required to prepare comprehensive plans, but most do. Following Irene, state requirements for local and regional plans changed – all plans adopted after July 1, 2014, must include a new “flood resilience plan” that:

- Identifies flood hazard and fluvial erosion hazard areas, based on river corridor maps provided by the state;
- Designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property; and
- Recommends policies and strategies to protect those areas identified and designated for protection, and to mitigate risks to public safety, critical infrastructure, historic structures and municipal investments.

A FEMA-approved local hazard mitigation plan should be incorporated in a community's flood resilience plan. Hazard mitigation planning and proposed mitigation measures must be coordinated with the community's other long-term planning programs and flood preparation efforts. The Vermont Agency of Natural Resources has developed a community web portal “Flood Ready” that allows communities to check their flood vulnerability.

Living by a gurgling brook may have great appeal, but homes built too close to water represent a danger to the owners and to the community. Municipalities must take steps to limit new development, and outdoor storage of materials in known flood hazard areas. Any new structures in hazard areas need to be securely anchored and designed to withstand periodic flooding. Existing structures should be retrofitted to the extent feasible so that they do not become a hazard. Towns need to enact strong regulations that limit new floodplain development to minimize such risks.