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## Community and Economic Development in North Carolina and Beyond Blog: Local Government Strategies for Mitigating the Risks of Flooding

By CED Guest Author

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With six feet (and counting) of snow on the ground in Boston, the only thing that local officials should fear as much or more than more snow is a heat wave. If it doesn't melt slowly, communities and homeowners will have to deal with significant flooding. In an area as developed as the Boston metro, there are not a lot of places for that water to go. Mitigating the impact of flooding is not just a Northeastern issue.



Photo taken by Josh Bressemer and submitted to MassLive.com  
([http://photos.masslive.com/republican/2011/03/heavy\\_rain\\_melting\\_snow\\_causes\\_flooding\\_in\\_western\\_mass\\_2.html](http://photos.masslive.com/republican/2011/03/heavy_rain_melting_snow_causes_flooding_in_western_mass_2.html))

A changing climate, increasing populations, and waterside development are changing the way that water flows through and around our built environment and the corresponding risk associated with flooding. On the front lines of managing this water flow and development are cities and counties, but they can't manage it alone. The cooperation of private landowners, particularly building owners, is critical to make the necessary changes for a flood resilient community. Investments in on-site building modifications, like the use of free-board (raising a structure above the 1-percent flood event level), the use of water-resistant building materials, the selective development of available land, and site-specific design features can help mitigate the detrimental impacts of a flood on human health, property, and the environment.



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Local governments are in an opportune position to assist – and even incentivize – these types of investments on private property. They have a vested interest. Storm water and flood mitigation efforts protect the environment, public health, and property. These upfront investments can eventually save both private and public dollars and resources.

According to an analysis conducted by the Multihazard Mitigation Council of the National Institute of Building Sciences, every dollar spent on hazard mitigation can save an average of four dollars in avoided losses due to human loss, direct property damage, reduced costs of emergency response, damage to public and natural resources, and direct/indirect business losses[1]. Many of these costs, if not mitigated, would be both directly and indirectly borne by the government and the tax payers that support them. In addition to minimizing costs, there are added community benefits of some storm water and flood mitigation efforts. For example, the availability of pervious surfaces allow water to filtrate through soil rather than quickly running off which can greatly reduce sediment and pollutants in adjacent streams, lakes and reservoirs.

Local governments have the capacity to assist. Most local government agencies have a planning role in their community and the expertise and perspective to interpret and update flood maps to take into account current development and future growth. Many already regulate floodplain development with zoning and building codes. Additionally, cities and counties have access to low-cost capital and the revenue sources to secure that capital.

Some local governments, like Mecklenburg County, NC, have implemented “buyout” programs to acquire privately-owned land for the public purpose of flood mitigation[2]. In the 1990s, FEMA started to promote these voluntary floodplain property acquisition programs (or buyout programs) to mitigate flood losses. Buyout programs involve the purchase (and sometimes relocation) of existing structures, flood-damaged structures, and/or vacant property in the floodplain to “break the cycle” of development-destruction-redevelopment in floodplains[3]. But these “non-structural[4]” efforts are difficult to apply to existing development that doesn’t view relocation as a possible option (the program is voluntary). Additionally, buyouts are expensive and result in a “patchwork” of acquired and non-acquired parcels of land if everyone doesn’t relocate. Many times flood risk can be mitigated with on-site modifications to buildings and properties. For the individual homeowner, however, these flood mitigation solutions can be expensive, complicated, or not practical[5]. A recent New York Times article estimated that the cost of elevating a house can range from \$10,000 to \$100,000 depending on its size, weight, and when it was built[6].

Sometimes all that is needed is a modification to buildings in the floodplain to make them more flood-resilient. To meet this need, the State of Connecticut kicked off a program last summer to provide low-interest loans for flood mitigation efforts. The program, called **ShoreUp**, offers homeowners and small businesses in areas subject to flooding a loan at a 2.75% interest rate. These loans can be for anywhere between \$10,000 and \$300,000 and can be used to elevate buildings one foot above the 500-year flood height. Borrowers can take up to 15 years to pay back the loan. The funding for the program comes through Connecticut’s Department of Housing. Although at the state level, a similar program could be adapted for one or more local governments.

Though innovative programs like Connecticut’s loan program are still in their early stages, it is clear that state and local governments will play an important role in alleviating the financial burden homeowners face. A locally implemented financial incentive program will help individual homeowners prioritize investment in flood mitigation efforts in the areas most at risk of flooding. Over time, these efforts have the potential to save the homeowner, the local government, the state government, the federal government, and taxpayers valuable resources and money.

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## Resources

[1] Multihazard Mitigation Council. 2005. Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities. Washington, DC: National Institute of Building Sciences. Downloaded on 11/19/14 from: [http://www.nibs.org/?page=mmc\\_projects#nhms](http://www.nibs.org/?page=mmc_projects#nhms)

[2] Trautman, Tim. *Comprehensive Local Programming: Soup to Nuts*. Presentation to UNC-Chapel Hill Fall Course, PLAN 590. November 2014.

[3] Fraser, James, Rebecca Elmore, David Godschalk, and William Rohe. 2003. Implementing Floodplain Land



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Acquisition Programs in Urban Localities. The Center for Urban and Regional Studies, University of North Carolina at Chapel Hill, December 2003. Report prepared for FEMA and NSF. Downloaded on 12/1/14 from: <http://jamescfraser.com/storage/publications/Floddplain%20Project%20Report.Final.pdf>

[4] As opposed to structural mitigation measures that are typically engineering-based approaches such as dams, levees, and channel hardening.

[5] PlanNYC . 2013. A Stronger, More Resilient New York. Comprehensive Plan. Released June 2013. Downloaded on 12/1/14 from: <http://www.nyc.gov/html/sirr/html/report/report.shtml>

[6] Harris, Elizabeth. 2013. Going Up A Few Feet, And Hoping to Avoid A Storm's Path. NY Times Article. April 15, 2013. Downloaded on 11/19/14 from: <http://mobile.nytimes.com/2013/04/16/nyregion/after-hurricane-sandy-homeowners-elevate-property.html>