

Community-based flood resilience as a strategy

Building a stronger
future together

\$36 million

Federal and private funding secured by a small town on Maryland's Chesapeake Bay for flood infrastructure improvements

\$1.45 billion

Public and private funding for New York City's East Side Coastal Resiliency Project, which includes 18 movable flood gates, each 10 feet high and 42 feet long



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To protect against damage from flooding events,

individual [homeowners](#) and [business owners](#) have long been encouraged to take measures emphasizing resilience, which can reduce losses and help keep buildings and the people inside them safe.



When floods are the result of extreme rainfall, storm surge or other natural disasters, however, it's typically entire communities - or sometimes even [entire cities](#) - that are imperiled.

Broader flood mitigation plans that have been conceived and adopted collaboratively by governments, businesses, residents and others can serve as a bulwark against rising waters and the damage they cause. These efforts, which are often spurred by public-private partnerships, reflect the input of multiple stakeholders within a locality and leverage their unique knowledge and expertise, resulting in plans that are large in size but tailored in scope. In this way they are absolutely key to strengthening community resilience against flooding.

Creating a coalition

When members of a community band together to craft a flood resilience plan, the creative process itself becomes a part of the overall strategy. In the give-and-take between stakeholders, opportunities arise for debate over priorities, tactics and implementation; from these debates, consensus ultimately emerges and stakeholder buy-in is increased. By drawing from different parts of the community and making sure that everyone has a seat at the drafting table, plan architects benefit from a diverse array of viewpoints and lived experiences regarding flooding events.

The knowledge gleaned from this collective input is invaluable. While models and historical data about floodplains are crucial to developing an effective resilience plan, their value is bolstered by the personal knowledge and testimony of people who have endured flooding or rising water levels and can speak to their impact on local geography, infrastructure and development.

The strongest plans take advantage of all the scientific, political, financial, technical and communications expertise to be found within a community. At the outset, this means recruiting members from across the full spectrum of stakeholders and soliciting their input.

In addition to seeking out homeowners, renters and representatives from local businesses, plan architects should also consider bringing the following groups into the mix:

Local authorities and public officials. Working closely with representatives at the city, county and state level is necessary to ensure the practicality and legality of measures to be taken, as well as to secure the means of financing. Having allies in local government also allows plan architects to anticipate and avoid bureaucratic or regulatory hurdles that might get in the way of progress.

Community leaders. Recruiting community organizers, housing and public health advocates, religious figures and others with close ties to different segments of the local population brings new and valuable voices into the conversation and helps planners get their own messages out to these different segments, increasing public awareness and support.

Associations and affiliation-based groups. Senior citizens, children, disabled individuals and others who coalesce around shared interests and goals can broaden planners' understanding of vulnerability and lead them toward solutions that will better represent the unique needs and wishes of these communities-within-communities.

Science and technology experts. Hydrologists, meteorologists, city planners and experts from the agriculture and public health sectors all play a crucial role in the development of effective flood resilience plans. The specialized knowledge they impart will help create the technical foundation for agreed-upon objectives and strategies.

Environmental groups and NGOs. Organizations that combine environmental advocacy with research and policy analysis can help planners collect important data, communicate with the public and ensure equitable outcomes.

Building an action plan

The [Associated Programme on Flood Management](#) is a globally focused organization dedicated to helping countries implement plans for maximizing the utility of floodplains and minimizing the negative impacts of flooding, including damage to property and the loss of life.



A central tenet of their approach is that responsible flood policy must reflect broad stakeholder participation and public commitment.

Their [step-by-step guide](#) to community-based flood management provides a template for conceiving, constructing and implementing plans that incorporate best practices while also acknowledging that no two communities are exactly alike.

With the stipulation that communities vary in size, topography, average rainfall amounts, proximity to waterways or coastlines and other factors that determine flood risk, what are some of the general attributes that community-based flood plans share? The [engineering and infrastructure firm SEH](#) has identified four areas of primary focus:

01

Mitigation. This category might include the implementation of high-tech solutions such as [Geographic Information Systems](#) (GIS), which are used to collect hydrologic and hydraulic data needed for modeling; infrastructure solutions such as [levees](#), [floodwalls](#) and [impoundments](#); and natural solutions like [wetland restoration](#) and [stormwater reuse](#). It might also encompass the use of publicly available tools that help communities estimate and understand their respective flood risks, such as the U.S. Geological Survey's [Flood Inundation Mapper](#).

02

Preparedness. Measures could include the development of an emergency preparedness plan (along with periodic exercises to test its effectiveness); utilization of [emergency warning systems](#) to help anticipate floods before they occur; accurate documentation of [combined sewer systems](#) to allow sufficient time for clearing inlets; regular clearance of [drainage structures](#); and the stockpiling of materials such as [pumps](#), [sandbags](#) and [earth fill](#) used in the construction of temporary levees.

03

Response. This section of a plan addresses the immediate needs of people who have experienced a flooding event, and focuses on emergency relief, search and rescue missions, and maintaining public health and safety.

04

Recovery. As SEH notes, recovery measures “bridge the gap between emergency and normalcy.” At the basic community level, they might include providing temporary housing, counseling and reconstruction. At the administrative level, they might include applying for federal or state grants that fund mitigation efforts. Another important aspect of the recovery phase: Marking high-water lines, interviewing residents and business owners, and documenting damage with photos and videos to support requests for financial assistance and future modeling.



Public-private partnerships

For communities seeking to build or strengthen their resilience plans, opportunities for assistance exist that leverage the power of public-private partnerships to secure project funding and technical assistance from a combination of government, philanthropic, academic, nonprofit and private sources. Through one such partnership, one small community in Maryland's Chesapeake Bay received \$36 million to fund critical infrastructure improvements, including the raising and strengthening of bulkheads, to help protect it from frequent storm surge.

New York City, which endured major flooding during Superstorm Sandy in 2012, has recently combined \$1.45 billion in public and private financing to fund its massive East Side Coastal Resiliency project, which will protect a highly vulnerable stretch of lower Manhattan from flood waters with a series of 18 movable flood gates standing 10 feet high and 42 feet long apiece. Public-private funding and consulting mechanisms have also driven successful resilience projects for communities in Connecticut, Florida and Texas; in these states and others, private companies and NGOs have partnered with state and local governments to map flood exposure, conduct stakeholder workshops and trainings, and help manage specific infrastructure projects.

Strength in numbers

Personal and commercial flood insurance of the type that Chubb offers can be a valuable tool for mitigating losses – but it's only one aspect of a broader strategy for protecting the health and property of people at risk from flooding events. At the core of community-based flood resilience planning is a simple but powerful idea:

When neighbors come together to solve problems, the solutions they arrive at tend to be more thorough, more targeted and more equitable. Communities willing to invest in mitigation and resilience planning end up reducing risk for everyone who lives and works within them.

