



# When Flooding Leads to Creativity

**S**ometimes a disaster is the best wake up call and the prod that moves us forward from “same old, same old” practices. About 15 years ago, a colleague once noted ruefully that the best check of a Flood Insurance Rate Map’s accuracy is to have a disaster: did the map predict the horizontal and vertical extent accurately, did it overestimate, did it underestimate? As we wake up to more frequent social and economic assaults from storms, new approaches to protecting our social and economic well-being garner more interest.

Tactics take many forms, from structural to artistic. Falling somewhere on that broad spectrum are Dutch physicist/artist Theo Jansen’s Strandbeests, wind-driven creatures originally conceived of as a means to move sand from the bottom of the beach up to the top to create continuously maintained protective dunes without any human intervention. (If you are unfamiliar with these amazing creatures, *strandbeests.org* and many other sites show them in action.)

In an unusual move by a federal agency, the US Department of Housing and Urban Development (HUD) launched a post-Sandy regional design competition called Rebuild By Design. HUD described its goals as follows: “to promote innovation by developing regionally-scalable but locally-contextual solutions that increase resilience in the region, and to implement selected proposals with both public and private funding dedicated to this effort.” The results have been fascinating, and six projects in New York, New Jersey, and Connecticut have been allocated Community Development Block Grant Disaster Recovery funds totaling \$930 million. Section VI of the Federal Register notice published October 16, 2014 provides an overview of the purpose of the competition and how the funding will be released.

The most interesting result of the competition is the range of approaches to resiliency

reflected in the research and submitted plans. Some applicants leaped way outside the confines of the box, proposing ideas beyond conventional levee, pipe, and sea wall approaches to accomplish the goal.

Instead of blaming disasters entirely on the whims of nature, we humans must accept some accountability for our susceptibility as well, through our choices of where we build, how we build, and general dominance over the landscape. The winning proposals bluntly acknowledge the natural and beneficial functions of floodplains (reminiscent of President Carter’s Executive Order 11988), a feature long overlooked in our rush to maximize development to grow the economy. And all involve various partnerships between local citizens, universities, public utilities, public transportation authorities, fire companies, conservation organizations, private businesses, and/or government agencies at federal, state, regional, and local levels.

The BIG U project will wrap around the coastline of Manhattan’s southern end, giving this project its name. Its more traditional aspect is reliance on ten-foot tall earth-topped berms intended to protect the borders of the land within the “U” with a series of waterfront parks reuniting the city with its natural resources. The non-traditional part of the BIG U is its focus on planning to experience disasters, preparing communities to be more resilient.

New Jersey’s New Meadowlands project revives respect for the natural powers of an area long used as a dumping ground. Once restored, these tidal marshlands will again be able to collect vast amounts of rainwater, lessen the impact of ocean surges on nearby structures located on other terra more firma, and reduce sewer overflows in nearby towns. The large natural reserve of the Meadowpark at the outer fringes of the marshes will be linked to the uplands by a Meadowband

used for public spaces, public transit, and public access to the Meadowpark.

The team developing “Living with the Bay” approached the competition goals with an array of regional variations based on local needs. The three main solutions in this project are relocation out of the most floodprone areas (or structural elevation when affordable housing alternatives are lacking); restoration of coastal landscapes to serve both as protection and as attractive, accessible public spaces; and protection of critical infrastructure that also benefits those living in the immediate vicinity (such as by reducing sewer overflows).

“Living Breakwaters” combines harbor stewardship with flood protection. In building what this team terms “a necklace of breakwaters to buffer against wave damage, flooding and erosion” and its “Billion Oyster Project”, increasing the harbor’s health will provide better flood protection and the side benefit of educational opportunities.

Up in the Bronx, a maritime industrial community will benefit from “Hunt Point Lifelines”. Accounting for local economic and societal long term and short term impacts of any flood protection plan is a major aspect of “Lifelines.” A Levee Lab provides flood protection research opportunities while educating the public about the importance of working waterfronts.

Susceptible to both flash flooding and coastal surge flooding, Hoboken, NJ faces constant water problems. “Resist, Delay, Store, Discharge” pretty much says it all in this project’s name. Green infrastructure is one of its approaches to reducing stormwater runoff. ■

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