

## Long Island

# Superstorm Sandy-damaged bulkheads still unrepaired 3 years later

Updated December 27, 2015 9:05 PM

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Remi Verrier stands next to a damaged bulkhead near his waterfront home in Lindenhurst on Friday, Nov. 6, 2015. The bulkhead, ruined during superstorm Sandy, has led to erosion on his property. Photo Credit: Barry Sloan

Miles of wooden bulkheads protecting Long Island waterfront properties from erosion are nearing the end of their useful life span — rotting, rusting and below current height codes.

And at least 1,000 bulkheads — and possibly many more — remain unrepaired three years after superstorm Sandy. The bulkheads are yet another component of coastal resilience and vulnerability amid increased tidal flooding, predictions of more intense storms, and rising sea levels.

“It won’t take a superstorm Sandy to do the damage of Sandy, because water levels will be starting out higher,” said Malcolm Bowman, distinguished professor of oceanography at Stony Brook University’s School of Marine and Atmospheric Sciences and head of the university’s storm surge research group. “I can’t predict it will be the next one, but in the next group of storms will be a big bully.”

Bowman, who said sea levels could rise between 3 and 6 feet by the end of the century, added that a damaged bulkhead can also endanger adjoining property: “Water will always find its way into the lowest point. If one bulkhead is damaged, it’s like a missing tooth.”

Homeowners are responsible for maintaining their bulkheads — barriers that protect property from the effects of waves, tides and flooding. Wood piles driven into the water bottom support wooden or vinyl sheathing anchored to the property with buried metal rods.



But given the scope of Sandy's destruction, New York Rising, the state's storm recovery program, opted to allow homeowners to apply for funds to rebuild bulkheads if they've already applied for other NY Rising aid. So far, 1,228 homeowners have applied for bulkhead repair funds. Of those, 736 have received money for initial design work, 104 have received money to start construction with an average award of \$58,000, and 256 are seeking to be reimbursed for repairs, according to Barbara Brancaccio, a spokeswoman for NY Rising, who described the aid as a "unique opportunity."

About 100 applicants have a “zero” award because of duplication of benefits, or they have reached NY Rising’s grant cap, or their application is incomplete. The estimated \$30 million in bulkhead awards could grow because the program is still open to homeowners who have already applied for other New York Rising recovery funds.

While more than 1,200 Sandy-damaged bulkheads are known because of these applications, those owned by people not in the NY Rising program are untallied.

Sandy victims such as John Mastros, who lives with his 80-year-old mother in her home along a Freeport canal, said he’s “very appreciative” for the help. “Nobody had to do this,” Mastros said. He has already received half of the bulkhead award — he declined to say how much — and is lining up a contractor to replace 130 feet of undermined bulkhead that has left deep sinkholes in the backyard. But sometimes lengthy process of getting NY Rising money has become a waiting game for many applicants.

“A lot of people have gotten the starting awards of \$2,500 [for initial design work] and most have gotten award letters, but it’s a very long and slow process that we’re starting to see unfold here,” said Patrick Nugent, an owner of Paul Nugent and Sons Marine Construction of Freeport. He said some potential customers have been waiting for up to a year to get funds.

“It’s not coming nearly as fast as people would like to see it,” he said. “People aren’t putting their own money into the bulkhead because the money.”

Brancaccio said applicants have to obtain all permits and complete soil tests and other steps before receiving construction funds.

NY Rising initially focused on funding home repairs and elevations, opening up applications for bulkheads later.

Not everyone who has applied for the funds will get them. Some have been denied because NY Rising considers that the bulkhead award would be a duplication of benefits, based on the homeowner having received more insurance or other money for home repairs than the amount NY Rising would have given using federal standards. The difference between what NY Rising would have granted and what was received is then deducted from any award for bulkhead repair, sometimes resulting in no award at all.

Debra Kneski and her 14-year-old son live in a canalside ranch in Massapequa. A positive award for bulkhead repair would mean she wouldn't have to drain her retirement fund, she said. She claims she paid out of pocket more than she received in insurance money to repair flood damages to her house, but was told she has a duplication of benefits issue.

"My head is spinning," she said. She has to replace her leaking bulkhead, she said, "or I'll lose my house. My backyard is sinking."



Her neighbor, Rossane DiSimone, faces the same issues and said, "The bulkhead is very expensive and I don't have the money to do it now."

Typical costs to replace the structures on Long Island are about \$50,000 but can go much higher for larger or more complex jobs, Nugent said. New bulkheads built 18 inches to 2 feet higher to meet current codes may require tons of fill to grade the property.

Homeowners argue that insurance payments were never meant to cover bulkhead repairs. "How are they then being considered duplicative?" wrote Remi and Rhonda Verrier of Lindenhurst to their elected officials. They complain it is unfair and arbitrary to treat bulkheads differently from house elevations, which are also not covered by insurance and are funded by NY Rising independently from home repair awards. (Total awards per household are capped at \$300,000, or \$350,000 with elevation, with an additional \$50,000 for lower and moderate-income homeowners.)

Brancaccio dismissed such complaints, saying elevation was deemed an "investment in resilience" to reduce future flood insurance costs and further taxpayer expenditures on storm recovery.



“The bulkhead is vastly different and considered a part of the scope for overall household repairs,” she said. Because bulkheads are not generally covered by homeowners insurance, “NY Rising is offering most people a unique opportunity.”



## **Environmental concerns**

Ineffective or missing bulkheads can have significant impacts, including sinkholes and eroding shorelines. On the North Shore, where many blufftop properties on Long Island Sound are unprotected by bulkheads, erosion has left some houses destabilized and, at worst, dangling.

According to the final reports submitted by several South Shore coastal communities to the NY Rising Community Reconstruction Program on resiliency needs, many bulkheads are old and, as stated in Massapequa’s report, “have not been raised to current code requirements, causing significant erosion, property damage and increased flood levels.”

Updated height regulations are enforced when bulkheads are new or replaced, but, Massapequa’s report said, “inconsistent bulkhead height and irregular maintenance have allowed water to seep in at sporadic intervals that cannot be removed without pumping and other efforts.”

Freeport's report noted, "Although bulkheads are not designed for flood control, the condition of deteriorated or non-functional bulkheads exacerbates flooding issues in Freeport...many bulkheads in the Village have exceeded their maximum lifespan." Joseph Madigan, Freeport’s superintendent of buildings, said land behind deteriorated bulkheads “starts washing away behind them into the canal” to the point, he said, of limiting navigation. “Most of the old bulkheads don’t have a return, a piece that separates the property from adjoining properties, and it starts to wash away the adjoining properties,” he added.

Even new, higher bulkheads could not stop Sandy's extraordinary storm surge, which easily flowed over them. But Nugent said they can help prevent flooding from more routine tidal flooding and storms.

"Every year it seems the tides get higher and higher, the abnormal high tides are much more frequent," he said.

Properly installed new structures were much more likely to survive Sandy's receding floodwaters, which pulled loose many older structures, he said.

He noted that in neighborhoods developed around the same time, bulkheads built to last 40 to 50 years are aging together: "A huge percentage of the bulkheads along the coastline in the residential areas are near the end of their life span."

### **'Thinking collectively'**

Bulkheads, which require multiple permits to replace, can have negative long-term effects on coastal environments when they interfere with natural processes or wetlands, experts say. The state's Department of Environmental Conservation discourages or bars their construction in many sites. Owners of structures built before 1978 have the right to replace them.

Like other scientists, Ali Farhadzadeh, a certified floodplain manager and an assistant professor in Stony Brook University's civil engineering department and the School of Marine and Atmospheric Sciences, calls for broader strategies that meld nature-based approaches to absorbing storm forces — living shorelines, wetlands and natural buffers — with structural features such as house elevations and bulkheads.

During storms, "You are getting a lot of damage . . . because we are not thinking collectively," Farhadzadeh said, noting the generally poor condition of the country's infrastructure, including its waterfronts. "You have to study the entire region, not just a specific property. . . . Do we have a plan for the next 50 years?"

Long Beach has opted for a collective approach to bulkheads, and will put almost \$13 million in recovery aid to rebuild bulkheads along a stretch of its north shore. Flooding from Reynolds Channel devastated neighborhoods and public infrastructure during Sandy, city officials said.

“Bulkheading is one piece of a much larger puzzle we’re putting together here,” City Manager Jack Schnirman said about the city’s overall resiliency planning and projects. “Sandy showed us here in Long Beach we’re all in this together.”

Freeport Mayor Robert T. Kennedy, who said another Sandy could devastate his village, believes the answer lies not in bulkheads or other local infrastructure, but in the construction of ocean gates at the Debs and Jones inlets. They could be closed to ward off surges and tides that would otherwise inundate the shores of Nassau County’s back bays.

### **New ideas to hold back sea**

John D. Cameron, an engineer who leads the Long Island Regional Planning Council, has advocated environmental studies to explore the impact of movable steel barriers in the South Shore inlets, and says the gates, along with dune construction, could provide long-term protection worth the possible multibillion-dollar cost.

Sea gates spared Stamford, Connecticut; Providence, Rhode Island; and New Bedford, Massachusetts, from damage after they were put in place in the decades after a deadly 1938 hurricane, Bowman said.

“You have to stop the surges from pouring through the inlets,” he said.

According to the Army Corps of Engineers, which is already working on beach projects along Long Island’s south shores and barrier islands, Nassau County’s back bays are one of nine focus areas being considered for study of how to mitigate storm impacts.

Three of those areas — but not Nassau — were included in President Barack Obama’s budget for fiscal year 2016, said Vincent Elias, a spokesman for the Corps’ New York District. The next proposed budget will be released in February, and if the Nassau study is included and funded, the Corps could “begin developing alternatives for reducing the flood risk due to storm surges in the back bays,” Elias said in an email.

“Gates at inlets would potentially be an alternative along with others that would be looked at,” he said, “but we can’t speculate on the conclusions until the study is initiated and completed.”

Jay Tanski, a coastal processes specialist with New York Sea Grant at Stony Brook University, said flat, low-lying South Shore coastal communities can expect potential flooding and erosion from rising sea levels even if storms don't intensify. That could force political and social decisions on whether "to allow these communities to be wiped out, or take actions to mitigate erosion," he said.

At some point, he said, "it might not be worthwhile from a cost or environmental impact perspective to keep doing that."