

# When could a storm like Sandy strike New Jersey again? We'll be ready | Opinion

4 minute read

**Robert Keady**

Special to the USA TODAY Network

Published 4:00 am ET Oct. 27, 2022

This weekend marks a decade since Sandy — a hurricane downgraded to a superstorm — made landfall in New Jersey, causing more than \$30 billion in damages and laying waste to swaths of the Jersey Shore and other areas in the state. The storm raged for over a week, starting in the Caribbean, and ending in the northeastern United States. Sandy left destruction in 24 states from Maine to Florida, but those of us in New Jersey and neighboring New York bore the brunt of it.

In New Jersey, one of the hardest-hit municipalities was the borough of Union Beach, which in 2012 had a little more than 6,000 residents. In fact, the most iconic image that comes to mind when we think of the storm's impact on New Jersey is the half-torn yellow house on Front Street in Union Beach. High winds and storm surge caused the most extensive damage in the borough. Almost 60 properties were destroyed and 629 properties — 22% of the borough's total housing stock — was damaged, according to post-storm estimates from T&M Associates.



Camp Osborne section of Brick Township is shown in panoramic images (top to bottom) days after Superstorm Sandy hit in 2012, a year after the storm and then 10 years later as redevelopment finally gets under way. *Thomas P. Costello*

But in the last 10 years since the superstorm, Union Beach and several New Jersey municipalities have placed safeguards against the next Sandy. One example has been elevating structures to protect them from damage. Since Sandy, the Federal Emergency Management Agency developed new mapping that required homeowners to rebuild a minimum of one foot above the 100-year storm elevation. There are several tactics that have ensured municipalities will be better equipped to handle 100-year storms.

## Elevating or dry-proofing Structures

People with flood insurance could get their homes restored (up to \$250,000 per household), or they could have applied for the Increased Cost of Compliance (ICC) coverage, which if they qualified, received up to \$30,000 to elevate their homes. Those without flood insurance had to seek funding through FEMA. Additionally, the New Jersey Department of Environmental Protection's Blue Acres Program offered to purchase damaged properties and leave the area as natural land. Structures that cannot be elevated, like local businesses in Union Beach for example, are dry proofed. Dry proofing means sealing outer doors and lower-level windows and creating a dam where water cannot creep through.

Up to 75% of homes in Union Beach's flood zone have been elevated since 2012. Starting this shortly this year, the borough will begin to undergo a series of upgrades, including flood gates and walls, levies and sand berms — the project is expected to take six years.

Some municipalities are receiving federal funding for these upgrades. Highlands, which was battered by Sandy, received \$128.7 million for a flood control project from the 2021 Bipartisan Infrastructure Investment and Jobs Act and Disaster Relief Supplemental laws.

## Redirecting stormwater runoff

Some municipalities use construction techniques that allow for increased infiltration of stormwater runoff into groundwater aquifers — or bodies of saturated rock and sediment through which water passes. This specific technique would help if a hurricane produced a significant rain event. Municipalities like Sea Bright in Monmouth County have also built flood walls to protect property from storm surges. Some flood walls predate Sandy, and some may have been improved since the superstorm.

## Rebuilding sewer pump stations

Another way to minimize or eliminate damage from future hurricanes or storm surges is to stormproof existing sewer pump stations. The South Monmouth Regional Sewerage Authority in Belmar was rebuilt after Sandy because of the significant electrical and mechanical damage it underwent during the storm. For this example, our team at T&M provided conceptual, preliminary, and final design of the



Laura Hallam outside her rebuilt home on Brook Avenue in Union Beach 10 years after Sandy. *Jerry Carino*

new pump station and mobile enclosure. The design included converting the existing dry well pump room into a combination wet/dry well by constructing a dividing wall. Ultimately, the mobile enclosure, which houses the electrical controls, can be relocated off-site prior to a major storm event and then brought back to restore normal operation of the pump station. This is something other municipalities and counties can adopt to prevent significant storm surge damage.



The aftermath of Superstorm Sandy's severe flooding is seen on Coolidge Ave in Seaside Heights looking toward Ortley Beach. *PETER ACKERMAN / STAFF PHOTOGRAPHER*

## Restoring natural sediment along New Jersey's coastline

Municipalities like Long Branch, Spring Lake, Belmar and Deal have opted to restore natural sediment along their coastlines which can regulate erosion along the Jersey Shore, *New Jersey Monthly* magazine has reported. Additionally, some communities have set up raingardens to help thwart flooding during hurricane season.

## Creating a living shoreline

My firm worked with the Ocean County Department of Parks and Recreation to rehabilitate Berkeley Island County Park — now John C. Bartlett Jr. County Park at Berkeley Island — which sits on a 25-acre peninsula in the Barnegat Bay. The park lost extensive shoreline and large portions of its parking lot and entrance road to severe erosion. The park's elevation was raised above the base flood elevation level and living shorelines, stone revetments, offshore breakwaters, and a new bulkhead were used to reestablish the shoreline and protect the park from future erosion and storms.

A living shoreline is a stabilized coastal edge made of natural materials like plants, rock, or sand. At the time, the use of living shorelines in New Jersey for shoreline stabilization has been limited and minimal guidance

exists regarding the design of this innovative technique. The final design was developed through a collaborative process involving Stevens Institute of Technology, T&M, Ocean County and the NJDEP. This project and process will help refine a set of guidelines for future shoreline stabilization projects. Being one of the first living shorelines in the state, it will serve as a pilot project.

According to the National Oceanic and Atmospheric Administration (NOAA), living shorelines, which mimic a shoreline's natural state, help protect coastal communities from the impacts of hurricanes and help affected communities bounce back faster.

## What's next?

While we don't know when the next 100-year — or larger — superstorm like Sandy will make landfall in New Jersey, this year has been an above normal hurricane season in the Atlantic, according to NOAA.

As part of President Joe Biden's infrastructure package, New Jersey is receiving \$20 million for one of its projects: to elevate a main evacuation route for Atlantic City, which will help residents travel safely before a superstorm makes landfall. The Bipartisan Infrastructure Law also has provided funds in water infrastructure, which will positively impact New Jersey's waterways for years.

The state's municipalities and counties also have done a lot to prepare for future potentially crippling storms. In many cases, it has required significant collaboration among various partners. For example, the New Jersey Resilient Coastal Communities Initiative has an online self-assessment tool "to help communities reduce vulnerability and increase preparedness through planning, mitigation and adaptation," according to Rutgers University, an important participant in this initiative. The website includes mapping tools, municipal maps, and risk communication information.

On a micro level, other effective ways to protect against flood damage include raising electrical boxes and major appliances; installing sewer backflow valves; and buying flood insurance, according to FEMA. The federal agency also suggests fortifying garage doors, keeping outdoor gear in sheds or securely strapped to prevent them from becoming windborne missiles; and ensuring trees are planted correctly to minimize damage caused by high winds.

New Jersey needs to continue to make these strides to strengthen our resilience and able to withstand superstorms like Sandy.

*Robert Keady is the municipal practice leader for T&M Associates, a leading national consulting, engineering, environmental, technical services and construction management company based in Middletown, NJ.*