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To the rescue

New Jersey community receives coastal restoration project



Project team for the Union Beach, New Jersey Coastal Storm Risk Management Project. Credit: USACE.

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New Jersey community receives coastal restoration project

By JoAnne Castagna

In the fall of 2012, Superstorm Sandy devastated the East Coast of the United States, including the State of New Jersey. Firefighter Paul Kerwin remembers rescuing his fellow Borough of Union Beach, New Jersey neighbors on that day, “Sandy was quite an experience. We worked round the clock, pulling people out from their flooded homes that were submerged in almost 10 feet of water. I remember a house actually coming off its foundation and floating across a creek and a shed lifting off the ground and drifting down a road with a man standing on its roof. We saved him and did about 200 rescues that night.”

Kerwin, a lifelong Union Beach resident, has been a firefighter with the Union Beach Gardens Fire Department for decades. The safety of his community is important to him. This extends to his other job, as a maintenance worker for the New Jersey Department of Environmental Protection.

His agency is working in collaboration with the U.S. Army Corps of Engineers, New York District on coastal restoration projects along the New Jersey coast that will help to reduce flooding from future Sandy-like storms and sea level rise, and hopefully put an end to the days when he has to rescue his neighbors off roofs. One of these projects is the Union Beach New Jersey Coastal Storm Risk Management Project.

The Borough of Union Beach is a bay-side community of 1.8 square miles along the coast of Raritan Bay on the northern portion of Monmouth County, New Jersey. From Union Beach, visitors have a view of the New York City Skyline and the Verrazano-Narrows Bridge.

Over the years, the residential and commercial waterfront community has experienced flooding during tidal coastal storms because it is located on low-lying land with numerous small creeks. The flooding has worsened due to an increase in tidal storm events, restricted channel flow of the small creeks, and increased urbanization and coastal erosion. So, when Superstorm Sandy arrived the community was devastated. Sandy’s storm surge flooded 90% of the Borough and as a result, 60 structures were destroyed and 629 were substantially damaged, leaving behind 4,500 tons of debris.

“They were overwhelmed, anxious and had lost everything,” Kerwin recalls. “We put them on the big deuce and a half trucks and took them to the school to shelter them, but then the school had to be evacuated because it started to take on water and then we had to get them to the police station. This was all within the first few hours of the storm, but it felt like forever.”

To reduce such massive flooding in the future, the Army Corps is performing a number of coastal flood risk management projects along the New Jersey shore including the Union Beach New Jersey Coastal Storm Risk Management Project that’s being partially funded by the Hurricane Sandy Disaster Relief Appropriation Act of 2013, or what’s referred to as the “Sandy Bill.”

New York District Commander, Col. Alexander Young says the bill is funding the District’s Superstorm Sandy Coastal Storm Risk Reduction program of which the Union Beach project is a part of. “So far, the District has completed 52 of the 60 projects in the program.”





Increasing the size of Union Beach as part of the Union Beach, New Jersey Coastal Storm Risk Management Project. Credit: USACE.



Superstorm Sandy created extensive damage to several homes on Union Beach, New Jersey. Credit: AP Photo/Wayne Parry.



The Army Corps is performing this project in collaboration with the New Jersey Department of Environmental Protection, its non-federal sponsor, and Army Corps Contractor, Weeks Marine of Cranford, New Jersey. “We’re excited to be working on this project because Union Beach has been battered by many storms that have included a nor’easter in 1992, Superstorm Sandy, and most recently Tropical Storm Ida in 2021,” says David Gentile, project manager, New York District, U.S. Army Corps of Engineers

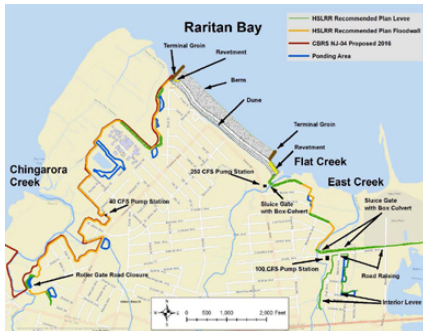
Gentile says the project will create a line of defense around the Union Beach community to help reduce flooding during future storms. This includes increasing the size of the beach, constructing measures that will slow down beach erosion, and building inland structures that will reduce flooding and help keep tidal water and rainwater out of the line of defense to keep the community from flooding.

Union Beach has eroded over the years due to wave action and longshore currents. When hurricanes and coastal storms occur, breaking waves and elevated water levels can change the width and elevation of beaches and accelerate erosion, which can put community structures landward of the beach in jeopardy.

Protecting the community

To help protect the community, the Army Corps is increasing the size of the beach. To do this, more than 600,000 cubic yards of sand has been dredged from the ocean and pumped onto the beach to increase the beach’s height and width. In addition, a 16-foot-18-foot-high dune will be built and planted with dune grass.

An enlarged beach and dunes act as a buffer between the waves and storm water levels and communities near the shore. This was demonstrated during Superstorm Sandy. After the storm, the Army Corps examined its beach restoration projects across the northeast U.S., to identify what projects were more effective in reducing storm risk to the shore communities. The analysis showed



Project Details Map for the Union Beach, New Jersey Coastal Storm Risk Management Project. Credit: USACE.



Project Manager David Gentile, New York District, U.S. Army Corps of Engineers showing the Union Beach, New Jersey Coastal Storm Risk Management Project to New York District Commander, Col. Alexander Young and dignitaries. Credit: USACE.

that beach communities that had previously received beach restoration and dune construction sustained less destruction and saved billions of dollars in avoided damages.

To slow down the erosion of the newly constructed beach, two groins will be constructed. Groins are structures that extend out perpendicular from the shore into the water and interrupt water flow and limit the movement of sand, to prevent beach erosion. Inland from the beach, structures will be built that will reduce flooding and help the storm water system drain excess water without letting tidal water flood the community.

As mentioned earlier, Union Beach has numerous small creeks that flood during storm events. These creeks include Chingarora Creek, Flat Creek and East Creek. The Army Corps is constructing three pumping

stations and two sluice gates to reduce the risk of tidal flooding around these creeks.

Pump stations pumps allow water to be removed from within the line of defense while the sluice gates are closed to prevent tide flood waters from flooding a community. In addition, several levees and floodwalls will be constructed to keep tidal water from entering the community.

Presently, most of the beach construction has been completed and the remainder of the project will be worked on in 2024. Kerwin is optimistic about its success because he works with the Army Corps on other New Jersey coastal restoration projects that are performing as planned, “For the Keansburg Beach Hurricane and Storm Damage Risk Reduction Project, every time we operate the tide gate, it does what

it’s supposed to do and stops flooding in the area. I always tell Union Beach residents to talk with those in other New Jersey communities because they’ll tell you how their tide gates are working and how they now have a level of protection.”

When Sandy was charging up the East Coast of the United States, Kerwin told his neighbors to leave. Many of them didn’t and as a result, he and his company were out in the storm, putting their lives at risk to save them and their children, some just babies, from their flooded homes. “Today when I tell them to leave, they ask me, ‘How many bags should I take?’”

Hopefully, with the completion of the Union Beach New Jersey Coastal Storm Risk Management Project, Kerwin and his neighbors can all stay safely in their homes when the next storm rolls around. **FC**

Dr. JoAnne Castagna is a public affairs specialist and writer for the US Army Corps of Engineers, New York District. She can be reached at joanne.castagna@usace.army.mil.