

Public comment open on Army Corps seawall plan

By JACK FICHTER
Cape May Star and Wave

CAPE MAY — The U.S. Army Corps of Engineers is proposing building a 530-foot-long section of seawall at the corner of Beach and Wilmington avenues to stop the ocean from overflowing during coastal storms.

The Army Corps issued a draft feasibility report and environmental assessment last month. It plans to place a concrete cap on top of the existing structure for a distance of about 530 feet. The cap would be constructed to an elevation of 17 feet for about 350 feet, with 90 foot tapers on either end to transition to the surrounding elevations.

Public comment is being accepted through March 26. According to the report, the landward face of the concrete cap would be formed or stamped with a stone-like facade so that it looks more like a natural feature. Plantings would be placed in front of the landward face of the seawall for aesthetic purposes.

On the seaward side, sand would be graded into the cap to form a partial dune that would be graded into the existing adjacent dune to the southwest. The placed sand would prevent the need for a handrail on the seaward side for public safety.

To stabilize the placed sand from erosion, dune vegetation will be planted.

The city of Cape May has signed a Feasibility Cost-Sharing Agreement (FCSA) and is acting as the non-federal sponsor for the study, with a responsibility for 50 percent of the costs of it.

The study area for the project included an area known as Frog Hollow, which is low lying and particularly prone to flooding. Frog Hollow's approximate boundaries are the triangle that is formed by Beach Avenue, Madison Avenue and Washington Street.

The topography section of the report notes historically, much of Cape May was a tidal wetland. Over the course of the early 1900s, the area was gradually filled for residential and federal government land development purposes.

The report states a timber bulkhead provided coastal storm risk management along the oceanfront of Cape May through the 1960s. The seawall was built following the destruction of the bulkhead and boardwalk by the Ash Wednesday Storm in March 1962. The seawall is made of large rocks about 4 to 5 feet in diameter with concrete grouted within the voids.

It extends from Second Avenue on the west side of the city to Wilmington Avenue on the east side. From Second to Madison avenues, the top of the seawall is covered by an asphalt promenade that is used for recreation. This length of the seawall also has a concrete retaining wall on the street side. From Philadelphia Avenue to Wilmington Avenue, the seawall does not have a promenade and has a 2-foot timber bulkhead on the street side.

There are two storm water pump stations located in the Frog Hollow area that were designed and constructed to facilitate the drainage of storm water from the low-lying city streets.

The Benton Avenue pump

station is located near the intersection of Queen Street and Benton Avenue and was built in the early 1980s. This station has three pumps, one electric and two fueled by diesel. The electric pump has a 7,000 gallons per minute (gpm) capacity and each diesel pump has a 25,000 gpm capacity. Only two of the pumps can be operating at the same time, so the maximum pumping rate would be both of the diesel pumps combined at 50,000 gpm.

The Madison Avenue Pump Station is located at the intersection of Madison and Beach avenues and was built in 1987. It has two pumps, both electric and with individual pumping capacities of 7,000 gpm. They are designed to function in a lead/lag sequence, with the second pump operating only when the first is at maximum capacity. Both pump stations discharge storm water to the ocean.

During Hurricane Sandy, the ocean overtopped the seawall in a number of locations, but primarily at the corner of Beach and Wilmington avenues. Local residents witnessed the ocean "pouring over the seawall like a waterfall" in this location during both high and low tides, states the study.

Wave and tidal action from Sandy brought approximately 8,000 cubic yards of sand over the seawall at the intersection and onto Beach Avenue and adjacent residential properties. Sand deposition in some areas was approximately 8 feet high, according to the study.

The city's cleanup costs for the sand deposition were approximately \$30,000.

The report states when the ocean overtops the seawall during an event like Hurricane Sandy, Beach Avenue floods and acts as a drainage channel that funnels the ocean water west into Frog Hollow, the lowest-lying part of the city.

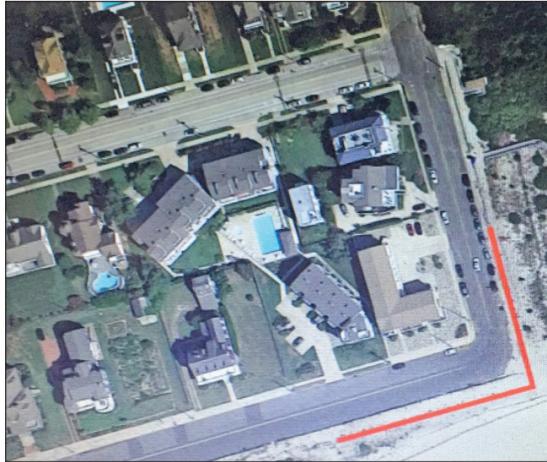
Residents reported at least 3 feet of water in the streets of Frog Hollow during Hurricane Sandy. Local officials also reported that the pump stations in Frog Hollow were operating for approximately 48 hours straight throughout the storm.

According to the study, rainfall amounts during Hurricane Sandy were relatively low for a large coastal storm, about 10 inches between October 28 and 31, 2012, and should have been adequately managed by the pump stations to keep the area free of flooding.

However, the presence of 3 feet of water would indicate that the storm water system was overwhelmed by the additional input of the ocean water. And if the pumping stations had failed to function during Hurricane Sandy, the flooding would have been much more significant.

In other sections of the study area, flooding reached three blocks north of Beach Avenue to Maryland Avenue, and as far west as Mt. Vernon Avenue, adjacent to the Fow Tract.

According to National Flood Insurance Program (NFIP) data, which was provided by FEMA to the Philadelphia District, about 26 structures in the study area were damaged by ocean-side



Provided

The seawall proposed by the U.S. Army Corps of Engineers (marked in orange) would be 530 feet long with 350 feet 17 feet high and 90 feet on either side sloping down to grade.

flooding during Hurricane Sandy, which resulted in \$20 million in damages. About 50 structures in the study area are classified as Repetitive Loss properties according to the NFIP. This means that they have had two or more flood claims over \$1,000 paid by the NFIP within any 10-year period. The study notes the ocean is not visible from Beach Avenue on the east side of Cape May from about Philadelphia to Wilmington avenues. The top of the stone seawall is about 4 to 5 feet higher than the ground along Beach Avenue. Sand that has accreted and vegetation that has established also adds about 3 to 4 feet of elevation to the top of the seawall, which blocks pedestrian views of the ocean.

Pedestrians must access the beach via one of the access ramps that crossover the seawall to view the ocean. According to topographic surveys, the top of the sand lying on top of the seawall at the corner of Beach and Wilmington avenues is at an approximate elevation of 14 feet.

According to the report, city officials indicated that four storm events had overtopped the seawall in the last 26 years. These were the

Halloween Storm of 1991, the two nor'easters of 1992 and Hurricane Sandy.

In an effort to determine why the area in the vicinity of Beach and Wilmington avenues was the "weak spot" for flooding along the ocean front, the project development team (PDT) examined recent survey profiles of the federal beach replenishment project in conjunction with the seawall elevation survey data that was collected for this study. The PDT also discussed the Beach and Wilmington avenues area with the Army Corps project manager for the federal beach project. The project manager indicated that the area is considered an erosion "hot spot" where it is difficult to maintain sand which is placed during periodic beach nourishment cycles.

Even when an additional lobe of sand has been added as a buffer at Beach and Wilmington Avenues area, the tidal and wave forces of the ocean quickly bring the area into a linear equilibrium with the beaches to the east and west, notes the study.

The PDT has concluded that the underlying condition which makes the area so vulnerable is the distance from the seawall to the ocean.

TIDES: March 10-17, 2021

DATE	HIGH		LOW	
	A.M.	P.M.	A.M.	P.M.
10	5:49	6:18	11:58	
11	6:36	7:03	12:02	12:43
12	7:19	7:43	12:49	1:24
13	7:58	8:20	1:33	2:01
14	9:35	9:55	3:14	3:36
15	10:11	10:29	3:53	4:09
16	10:47	11:04	4:32	4:41
17	11:23	11:39	5:11	5:13

MOON PHASES

New moon, March 13 • first quarter, March 21

Cape May Star & Wave

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The last two blocks of Beach Avenue angle out toward the ocean, which decreases the distance between the seawall and the ocean by approximately 300 feet compared to the rest of the ocean front in Cape May.

During a storm surge event when the ocean surface is elevated, this corner is the first and most susceptible point for wave attack. Frequent encroachment by the ocean is also the reason that a dune has not accreted and become vegetated in front of the seawall as it has along the rest of the ocean front.

The Army Corps North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk (NACCS) has identified Cape May as an area which has a high risk of flood peril from coastal storms now and in the future.

"Flooding will also continue to threaten the safety of residents and the resilience of the local economy. Expected average annual damages in the future without-project condition from 2020 to 2070 are in the amount of \$725,000.

The availability of post Hurricane Sandy grant funding has also prompted renewed interest in elevating homes, note the study, however, the first-floor elevations of many structures in the study area remain, and are likely to remain, near existing grade. The large hotels along

Beach Avenue have extensive first floors which are near existing grade. Elevation of these types of structures is typically costly, complicated, and achieved through demolition and rebuilding, states the study.

The total cost estimate for the constructed project is \$3.749 million dollars in October 2020 price levels. The cost share for construction is split 65 percent federal and 35 percent non-federal.

The construction baseline is June 2023. The total project cost would be shared between the Army Corps and the city of Cape May with 65 percent of the cost from federal funds and 35 percent non-federal.

The Historical Preservation Committee commented that the aesthetic values of the constructed seawall could be improved by upgrading the original small curb wall to match the new wall to provide consistency of design for the streetscape. HPC also commented that planters could be integrated in the immediate vicinity of the wall or on top of the wall (i.e., on the dune that will eventually drape over the wall) to break up the "flatness" of the seawall presentation.

The economic modeling for the Cape May Seawall CAP 103 Feasibility Study consists of three reaches which con-

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