



Manasquan Inlet to Barnegat Inlet (Northern Ocean County)

Coastal Storm Damage Reduction

Background

The Manasquan Inlet to Barnegat Inlet Coastal Storm Damage Reduction Project is the result of a 2002 feasibility study that investigated flood and coastal storm damage effects between the two inlets. The study involved extensive engineering, environmental, and economic analyses and recommended the construction of a dune and berm system with the intent of reducing impacts from coastal erosion and storms. The plan calls for beachfill construction along the oceanfront between Point Pleasant, New Jersey and the northern boundary of the Island Beach State Park utilizing sand from an offshore borrow source and periodic nourishment on a 4 year interval for the life of the project. Congress authorized the project as part of the Water Resources Development Act of 2007. The Non-Federal Sponsor (NFS) of the project is the New Jersey Department of Environmental Protection (NJDEP).

Status

USACE awarded a contract to Weeks Marine Inc. on Jan. 10, 2017. Work is expected to begin in the spring of 2017. The project, once fully completed, will cover approximately 14 miles of coastline along the Barnegat Peninsula and will reduce the risk of storm damages for the communities of Point Pleasant Beach, Bay Head, Mantoloking, Brick Township, Toms River Township, Lavallette, Seaside Heights, Seaside Park, and Berkeley Township. More than 11 million cubic yards of sand will be dredged from approved borrow areas and pumped through a series of pipes onto the beaches of the municipalities.

Frequently Asked Questions

How high will the dunes be built? And how wide will the beaches be after construction?

The dunes are constructed to an elevation above a fixed engineering datum, not a height above an existing boardwalk or other structure. The datum for this project is the North American Vertical Datum of 1988, (NAVD88). The following link

has more information on NAVD88 and its relationship to other historic and tidal datums:

<https://www.ngs.noaa.gov/faq.shtml>

To understand how high the dune will be above a certain road, boardwalk, structure or tidal datum in your area one should ask their Public Works Department for a reference point about existing elevations to best understand what will be built. Additionally, the plans for the upcoming beachfill project can be viewed on the Fed Biz Ops website:

https://www.fbo.gov/index?s=opportunity&mode=form&id=359650ebfaf55e76a0129b0df7818ebe&tab=core&_cview=1

For most of the project area, the dunes will be built to elevation 22 feet (NAVD88). In Seaside Heights and in Point Pleasant, the dunes will be built to elevation 18. An important distinction is that dunes will be built substantially wider than any existing dunes.

The berm (the flat portion of the beach between the toe of the dune and the beginning of the foreshore slope to the water line) design varies between locations from 75-100 feet. However, during the initial construction the berm is built substantially wider (several hundred feet) than the design width, with the understanding that Mother Nature will redistribute much of the wider berm offshore within the first year after construction.

Where is the sand coming from? Will it match the color and grain size of the existing sand?

The sand will be coming from several offshore “borrow areas.” The identified borrow areas are chosen for their compatibility of the sand with the existing sand on the beaches. USACE goes through an extensive process to find these sites and gain the environmental approvals to use them. The process includes physical sampling as we seek to closely match the grain size to the “native” sand on the beach. Sometimes, the sand pumped onto the beach may initially appear to be a darker color as it has been buried unexposed to sunlight. Once exposed to the elements, this disappears quickly and the material will match the existing sand.

Doesn't the project erode after construction?

Because we cannot reliably place material under water in the surf zone, we know that the profile will undergo an initial adjustment to reach the natural equilibrium profile of the beach. We expect Mother Nature to erode some of the berm in the first year, which is why we build a post-construction template much wider than the designed template. In addition, the project includes scheduled regular "periodic nourishment" every 4 years to add more sand into the system to maintain the design profile over the life of the project.

How will people access the beach over the dunes?

Our contract includes the construction of "dune crossovers," which are built over the tops of the dune as opposed to "through the dune."

These are typically built in the same locations as existing access points. Additionally, we are building ADA-accessible dune crossovers and vehicular dune crossovers in certain locations based on coordination with the non-federal sponsor (NJDEP) and the local municipalities. The pedestrian crossovers are topped with a hard-pack clay-like material, which is easier to walk on. The crossovers include fencing to assist with keeping people from walking on the dunes, which damages the stabilizing dune grass.

Will dune grass be planted? Will any existing vegetation be impacted?

Yes, the contract includes the plantings of Cape American Beach Grass and Spartina Patens. This is done during the winter timeframe when the plants are dormant. Existing vegetation on the seaward side of dunes will likely be covered or removed; however the contractor will try to avoid impacting existing vegetation on the landward side of the dune (depending on location).

How long will my stretch of beach be affected by construction?

It depends, in part, by the quantities of sand required to build the engineered dune and berm template. Some areas require substantially more sand than others, which impacts the amount of time to complete beachfill operations in certain areas. However, typically the contractor advances 100-300 feet per day depending on weather, dredging production and other factors. During construction, communities can expect the construction crews to close no more

than 1000 feet of beach as work progresses along the island (closed sections are "rolling" and advance as the beachfill progresses along the island).

Why is the operation 24 hours a day and 7 days a week? Why not stop operations for weekends and holidays?

Mobilizing a dredge to a project site can cost more than \$100,000 a day. Therefore, the operation must continue 24 hours a day in order for the project to remain economically feasible. Not operating 24/7 would impact the production rate of the project and would also increase the loss rate of sand, both of which would drastically increase the cost of the project to taxpayers. Also, 24/7 operations allow the project to progress faster down the beach reducing the impact to each area by reducing the time the construction will be in front of any one location.

Is the project noisy?

Beachfill operations require ground equipment (bulldozers and other construction equipment) to move pipes and grade the sand into the template. Residents and visitors in the immediate area are likely to hear different aspects of the operation such as trucks moving and back up alarms going off. However, work does progress along the island and the noise dissipates.

What if I feel vibrations? Will this cause damage?

Residents and visitors may feel some vibrations near the construction site at different times. Our contractor uses vibration monitoring seismographs to ensure that vibrations remain below the prescribed threshold that could cause any structural damage within homes.

Why is work taking place in the summer season?

A large project means a large contract, for which we have to provide private industry with an ample amount of time to complete the work. Inevitably, some of this work, at some locations, will take place during the summer. If we don't provide enough time, we risk receiving bids that are too high for us to consider, or receiving no bids at all. It's also important to note there is a limited number of dredges that can handle beachfill operations. So if we specifically exclude summer work, we again risk pricing ourselves out of the bidding market and not being able to build these projects at all.

However, there are some things we have tried to soften the impact. First, during construction we close no more than 1,000 feet of beach at a time; this allows continued access for beachgoers by detouring no more than a block or two from any given point. We will post daily updates to our website to notify people of any closures. We know this doesn't eliminate the inconvenience, but hopefully at least makes it more manageable.

Why is my community not getting finished first if it's in worse shape than another community? How do you determine sequence?

The order of work is driven by the contractors bidding on the contract. To enter a competitive bid, they must look at the most productive way to prosecute the work that enables them to complete the project the fastest with the least amount of material losses. Things that affect those decisions are: weather, availability of equipment, direction of sediment drift, the type of equipment that can do the job, (Cutterhead dredge versus hopper dredge), location/distance of the borrow areas, and the depth of the borrow area to name a few of the variables considered.

Who is paying for the project?

The federal government will be paying initially for the entire project using funds approved under the 2013 Disaster Relief Appropriations Act, which funds projects that Congress had previously authorized but had not been completed by the time Sandy hit. Ultimately, the State of New Jersey will be responsible to pay for 35% of the costs for this initial construction.