

REMINGTON, VERNICK & VENA ENGINEERS

SUMMARY OF QUESTIONS & RESPONSES

TO: Borough of Seaside Park

DATE: June 23, 2017

FROM: Pamela Hilla, P.E., C.F.M.

SUBJECT: Public Meeting – Bayfront Hazard Mitigation Project

Question: Near E Street and N. Bayview Avenue gets more water and more frequently water enters the street, does this require more consideration, as it is the lowest spot?

Answer: Yes. The elevation of the roadway at the intersection of E Street and N. Bayview Avenue is 0.8 ft, is one of the lowest lying areas along N. Bayview Avenue. The goal of this project is to disconnect the drainage outfall from the bay and redirect the storm water to the existing NJDOT pump station. This will help reduce tidal flooding in this low lying area, which currently floods if the tide elevation exceeds 0.8 ft.

Question: Why can't we make this better than elevation 1.7 feet?

Answer: Based on elevation and funding constraints, it is not feasible to construct a complete flood mitigation project. At the end proposed improvement flanking of flood water will occur allowing the flood water to enter the streets.

Question: What is the approximate elevation near 14th Street pier?

Answer: The elevation of the 14th Street pier is approximately 5ft.

Question: Is Phase 1 of the project permitting?

Answer: Yes, Phase 1 of the HMGP grant is to prepare design plans and obtain permitting from the various agencies including NJDOT, NJDEP, USACE, OCSCD, US Fish and Wildlife and Ocean County. The funding under Phase 1 includes surveying, planning, design, permitting and fees.

Question: Once the beach replenishment is constructed, how do we get past the structures?

Answer: Additional stabilized public access points shall be incorporated into the design to provide beach access. This will be reviewed with Council.

Question: Breakwater, seems to make sense, will we be able to see over the wall to the beach?

Answer: Yes, the elevation is low enough to see the beach over the wall. The wall will be elevated 3-4 feet above the elevation of the existing roadway. In the future if the road is elevated the height of the wall above the roadway would be reduced.

Question: Will the existing bulkhead be cut?

Answer: No, the existing bulkhead will be utilized at the existing elevation.

Question: What about moorings, crabbing and access over the seawall?

Answer: Moorings are not incorporated into the design. Stabilized access points shall be incorporated into the design to provide public access into the bay for crabbing, kayaking and other recreational uses.

Question: What is the timeline?

Answer: It is anticipated to take 6-8 months to complete permitting with the various agencies. We anticipate the start of construction in 18-24 months.

Question: Have you considered building the beach up and using concrete blocks to raise the grade?

Answer: The initial design submitted to NJDEP proposed replenishing the beach area and using articulated concrete matting and planted vegetation to stabilize the shoreline. NJDEP will not permit fill beyond the 1977 Shoreline, therefore modifications were made to the proposed plan to construct a breakwater.

Question: Who will own and maintain the pump station?

Answer: The NJDOT will be responsible for the ownership and maintenance of the pump station.

Question: Has this strategy been tested and modeled to produce results, demonstrate results of reduced flooding?

Answer: Pump stations are currently being utilized by the County to reduce tidal flooding. Breakwaters and habitat restoration have been successful at multiple locations throughout the Chesapeake Bay including Kings Reach, Murphy Project, Otenasek Shoreline Project, and Fishing Creek Farm, Cherrytree Cove. Additionally, the County will be constructing a shoreline restoration project using breakwaters at Berkeley Island Park.

Question: What is the definition of a living shoreline?

Answer: NJDEP Coastal Area Facility Review Act (CAFRA) defines a living shoreline as: "Living Shoreline" means a shore management practice that addresses the loss of vegetated shorelines, beaches, and habitat in the littoral zone by providing for the protection, restoration or enhancement of these habitats. This is accomplished through the strategic placement of plants, stone, sand, or other structural and organic materials. There are three types of living shorelines: natural, hybrid, and structural. Natural

living shorelines include natural vegetation, submerged aquatic vegetation, fill, and biodegradable organic materials. Hybrid living shorelines incorporate natural vegetation, submerged aquatic vegetation, fill, biodegradable organic materials, and low-profile rock structures such as segmented sills, stone containment, and living breakwaters seeded with native shellfish. Structural living shorelines include, but are not limited to, revetments, breakwaters, and groins.”

- Question: How will the construction affect N. Bayview Avenue?
Answer: The proposed improvements will reduce the total width of N. Bayview Avenue to 50 ft. The proposed seawall will encroach into N. Bayview Avenue 4 ft. Meetings have been held with Ocean County to discuss reducing the travel lane widths to help minimize the impact on the proposed shoulder widths.
- Question: Is there existing vegetation that would be damaged?
Answer: The existing vegetation will be protected using Soil Erosion and Sediment Control standards. The goal of the project is to restore vegetation along the shoreline.
- Question: Will the proposed access point damage the existing vegetation?
Answer: The access points will be revised to prevent damage to the existing vegetation.
- Question: Can the new seawall be constructed waterward of the original bulkhead?
Answer: The initial design proposed the seawall waterward of the original design. During pre-application meetings with NJDEP and USACE, it was strongly advised the seawall be constructed within the roadway to prevent negative impact to the water way. Additionally, the regulations restrict beach replenishment, per the limits of the 1977 shoreline. By utilizing the roadway, this reduces the impact to the water way and maximizes the beach replenishment area.
- Question: What is the reason for the new seawall?
Answer: The uplands seawall is being proposed to help dissipate wave action under storm surge events. Under the Preliminary FIRM Maps this area is mapped as a VE 9 ft which encounters 3-5’ wave action. The seawall is intended to protect the infrastructure in the surrounding area.
- Question: What is going to prevent water from flooding the area?
Answer: By eliminating the number of outfalls along N. Bayview Avenue and redirecting the storm water to the pump station, the frequency of tidal flooding that occurs through the existing drainage system will be reduced. Flanking will continue to occur at the project limits which will cause flooding of the roadway when the tide exceeds an elevation of 1.7’.

Question: Will the repaving of N. Bayview Avenue be the responsibility of the Borough or the County?

Answer: The infrastructure including catch basins, storm sewer, seawall and roadway will be owned and maintained by the County. The grant funding received by the Borough will be used to construct the improvements, including the trench repair of Bayview Avenue where the storm sewer is proposed. Re-paving will be limited to the shoulder where the trench repair is being performed. The Borough will not be taking on ownership of the County's infrastructure.

Question: Is the County still going to maintain the bulkhead?

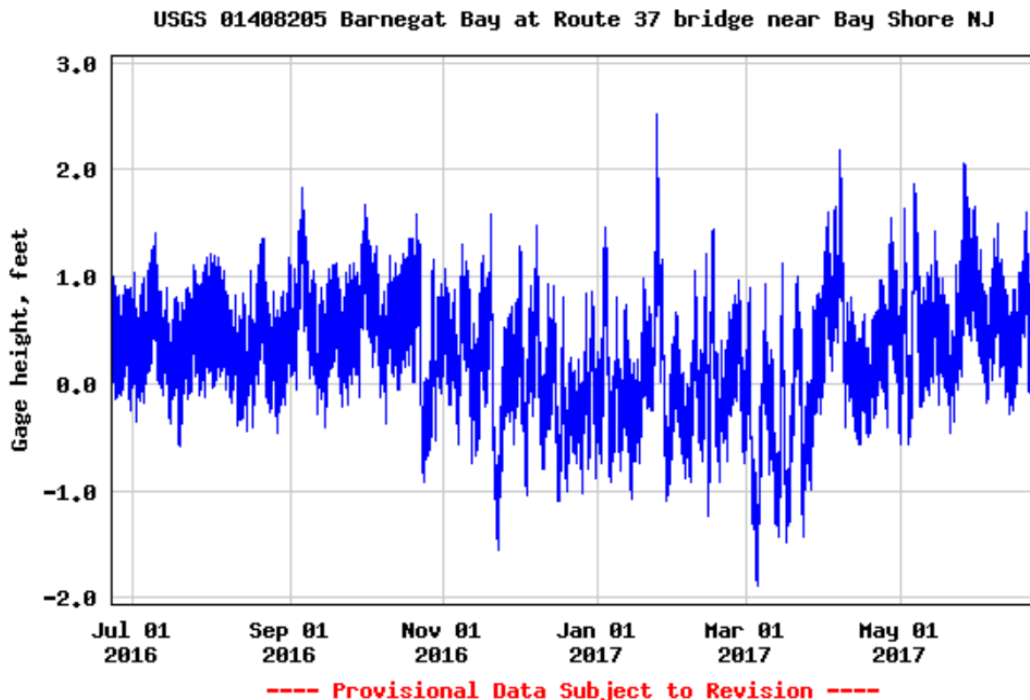
Answer: Yes the County will own and maintain the bulkhead.

Question: How can ladders be used to access the bay for the older residents?

Answer: Revisions to the plans will be proposed to provide additional stabilized access points to the bay. This will be reviewed further with Council. Ladder rungs will not be proposed to access the bay area.

Question: What percent of flood events would this eliminate?

Answer: Based on the USGS gage height data, the flood elevation of the Barnegat Bay exceeded an elevation of 1 ft and flooded portions of the roadway over 100 days from July 1, 2016 to June 30, 2017. From the available data, eleven (11) of those days the flood waters exceeded an elevation of 1.7'. Therefore, it is estimated that approximately 90% of the nuisance tidal flooding that currently occurs may be remediated.



Question: Can dredge material be used for the beach replenishment?
Answer: Preliminary discussions have been made with the NJDEP to help coordinate the use of NJDOT material for the beach replenishment component of this project. This is being pursued to help reduce construction costs. This will require further authorization through NJDEP.

Question: What does the yellow indicate on the map?
Answer: The hatched yellow areas represent the extent to 1977 Shoreline limits. This is relevant, because current CAFRA regulations do not permit the placement of fill beyond the limits of the 1977 Shoreline. There is an exception permitted for structural components of the project intended to reduce wave energy, such as breakwaters.

Question: Can Council help provide walkways?
Answer: Revisions to the plans will be proposed to provide additional stabilized access points to the bay. This will be reviewed further with Council.

Question: Where are we with this?
Answer: Permit applications have been submitted to NJDEP, USACE and NJDOT. Technical review of the project is pending at this time.

Question: Is an actual living shoreline proposed?
Answer: The definition of a living shoreline does permit for structural elements and habitat restoration. Based on the NJDEP's definition of "Living Shoreline" the proposed improvements satisfy the conditions of the regulations. Development of vegetated habitat is proposed along with structural measures to stabilize the shoreline.

Question: Prototype for hybrid living shoreline, has it been demonstrated?
Answer: Yes hybrid living shoreline has been demonstrated which includes beach replenishment, joint planted revetment, breakwaters, sills and vegetation. A document entitled Living Shoreline Engineering Guidelines prepared by Stevens Institute of Technology can be found at <http://www.nj.gov/dep/cmp/docs/living-shorelines-engineering-guidelines-final.pdf> which was utilized in the design.

Question: Is NJDEP holding us back?
Answer: No the NJDEP is not holding the project back. A living shoreline is a new regulation with NJDEP. We are working with NJDEP on how to incorporate a structural design that is sustainable given the current site conditions.

Question: Could this design evolve?
Answer: Yes, as the project goes through permitting and public comment the project can evolve.

Question: Can the 4 foot wall on N. Bayview Avenue be moved into the bay?
Answer: Proposing the seawall into the bay would be difficult to permit through NJDEP. Additionally, it would restrict the limits of beach replenishment based on the location of the 1977 Shoreline.

Question: When is the project anticipated to be completed?
Answer: Project completion is anticipated in approximately 2-3 years.

Question: 8th Street encounters flooding, can anything be done in the meantime?
Answer: N. Bayview Avenue is a County road, they are required to maintain the roadway and existing outfalls. It is recommended that you contact the County in writing with your concerns and request actions be taken to rectify the situation.

Question: Why aren't jetties proposed?
Answer: Jetties would require encroachment further into the waterway which could impede on the mapped Submerged Aquatic Vegetation (SAV). This option can be discussed further with NJDEP to determine permitting constraints.

Question: What is the total cost of the project?
Answer: The uplands seawall and drainage improvements are estimated to cost \$1.1 million which will be paid for under the HMGP Grant. The improvement for the breakwater, beach replenishment and vegetation is estimated to cost \$700,000. As things progress further with permitting, additional grants will be pursued for the "Living Shoreline" component of the project. Discussions with NJDEP to help obtain dredge material for this project are ongoing. Using dredge material would significantly reduce construction costs.

Question: It looks like the rocks are in straight lines, would it be better if they were angled?
Answer: The breakwater is proposed in a straight line to utilize the existing bulkhead located in the waterway. A wave analysis is being performed to substantiate the design.

Question: I am nervous about the County having to take care of the wall since they don't do the wall that is there?
Answer: The County will be required to own and maintain the seawall. It is not recommended that the Borough take on that responsibility at this time.

Question: Many come to the bay to watch the sunset and feed the ducks. Children can't enjoy what we have. Will this be impacted by the project?
Answer: Revisions to the plans will be proposed to provide additional stabilized access points to the bay. This will be reviewed further with Council.

Question: We have a concern for the present conditions at the end of H Street and N. Bayview Avenue. The barrier is only about a foot high and does very little to prevent overflow from the wave action and flooding from storms.

Answer: The plans propose extending the seawall to the end of H Street and N. Bayview Avenue which would be elevated approximately 3-4' above the roadway. Additionally there will be beach replenishment proposed waterward of the seawall to further protect the roadway from overflow of waves.

Question: Where will the replenishment sand be coming from?

Answer: Discussions are being made with NJDEP to obtain dredge material to perform the beach replenishment. If dredge material is not available, appropriate material shall be purchased and delivered to the site.

Question: I am in favor of the proposal as long as there is reasonable and convenient access at multiple locations to the bay?

Answer: Revisions to the plans will be proposed to provide additional stabilized access points to the bay. This will be reviewed further with Council.

Question: Great design and will definitely help, but the reason we erode down to I Street is due to a manual made jetty at N Street. When they built out to the bay, the entire shore was scoured with the tide. Unless you allow flow through that manmade bulkhead, you will never resolve the problem.

Answer: Allowing flow through the N Street bulkhead is not feasible at this time.

Question: I like the overall project but not sure giving up 4 feet of N. Bayview Avenue is the best solution. Can storm water runoff be adequately piped from I Street to Island Avenue?

Answer: The plan is to use larger, water tight storm sewer pipes and catch basins that will be sized adequately to collect the storm water runoff of the 25 year storm event. The drainage system will connect to the existing catch basin located at the intersection of Island Avenue and N. Bayview Avenue. This catch basin is adjacent to the pump station and is approximately 7.5 ft deep which provided enough depth to connect the storm sewer in I Street to Island Avenue. NJDOT is currently reviewing the proposed drainage improvements.

Question: Access to the bay from in front of my house or a block north or south either way is important. My family as well as my neighbors and summer tenants use this area for paddle boarding, kayaking and other water activities. Walking to I Street is not a feasible way to get to the open bay.

Answer: Revisions to the plans will be proposed to provide additional stabilized access points to the bay. This will be reviewed further with Council.

Question: A lot of alternative ideas were proposed. Can they be presented at the next meeting? We need alternatives.

Answer: A follow up meeting can be scheduled by Council to present on alternate options for the design and receive public input.

Question: Not in favor of any narrowing of N. Bayview Avenue. Breakwater should be further out. Breakwater should be first attempt. Once wave action slowed then sand can be added with planting. This might actually help tremendously without additional walls. Even jetties might help. This project is going to do more harm to what is already viable and attractive.

Answer: The intent of the design is to create a breakwater to dissipate the wave energy along the shoreline. There is an existing abandoned bulkhead in the water way which will be utilized to help stabilize the breakwater. There would be benefit to extending the breakwater further out into the water, however this would be difficult to permit due to the existing mapped Submerged Aquatic Vegetation (SAV). A meeting is currently scheduled with NJDEP, Barnegat Bay Partnership and Save Barnegat Bay to review alternate designs and permitting constraints associated with them.

Question: Please provide information that confirms the sediment, stabilization & vegetation measures in this project.

Answer: The plans will be designed in accordance with Ocean County Soil Conservation District Standards and will include inlet filter protection, floating turbidity barriers, sediment control tank for dewatering and storm water diversion, silt fencing and oil-water separators. A permit shall be obtained for the proposed soil control measures prior to construction. Native vegetation shall be utilized to stabilize the beach replenishment including but not limited to northern bayberry, rusosa rose, spike grass, and salt meadow cord grass. Vegetation will need to be reviewed and approved by NJDEP.

Question: Have you considered real “living shorelines”? Clearly it works in “nuisance” flooding as seen on Bay Avenue, 12th Avenue, 13th Avenue and 14th Avenue.

Answer: The plan is to restore beach area and vegetative habitat waterward of the proposed seawall, which would be a living shoreline. Additionally, structural measures are proposed to protect the beach area from high energy wave action so that the vegetation can be sustainable. The road elevation at Bay Avenue and 12th Avenue, 13th Avenue and 14th Avenue is slightly higher than the road elevation in the project limits which further protects the roadway from “nuisance” flooding.

Question: What other alternatives have been reviewed and why weren’t they considered?

Answer: Alternate designs were reviewed and discussed with the various regulatory agencies at pre-application meetings in an effort to help expedite the review process. Alternate designs reviewed with the regulatory agencies included:

- Construction of the seawall waterward of the existing bulkhead. ***NJDEP and USACE strongly advised against this design due to the negative impact on the water way and the Submerged Aquatic Vegetation (SAV). Additionally, proposing a seawall waterward of the existing bulkhead would require both a CAFRA Individual Permit and a Waterfront Development with a total application of \$60,000 to NJDEP.***
- Multiple concrete A-Jacks were considered waterward of the seawall to act as an energy dissipater in lieu of constructing a rip rap breakwater. ***As a condition of the HMGP Grant, use of green infrastructure was requested. A-Jacks are not recognized by the NJDEP as green infrastructure.***
- Concrete revetment matting was proposed waterward of the seawall to stabilize the beach area and help establish a stabilized area for vegetation. ***In reviewing the plans with the NJDEP, this would require beach replenishment beyond the 1977 Shoreline. Although the improvements would be reflective of the 1920 Shoreline as identified in aerial photography, the current regulations to not permit beach fill beyond the 1977 Shoreline limits.***
- Meetings were held with the County to discuss an alternative option of elevating the roadway versus connecting the storm drainage to the NJDOT pump station. ***It was requested that the option to connect to the NJDOT pump station be pursued initially due to existing elevation constraints associated with elevating the roadway.***

Question: What is the track record with this engineering firm for this type of project?

Answer: Our firm, Remington, Vernick & Vena Engineers is well versed in shoreline stabilization projects throughout Ocean County including bulkhead design, revetment projects including such as concrete articulated mats and rip rap, beach replenishment, and dredging.

Question: What type of aids to navigation to warn boaters of breakwaters?

Answer: Additional measures shall be taken to warn boaters of the breakwaters.

Question: How long will the project remain effective at the current rate of sea level rise? Once the average bay level is such that bay water flows around the ends of the new bulkhead/seawall, the project becomes ineffective.

Answer: As future funding becomes available, it is recommended that the Borough continue to perform flood mitigation improvement projects that restrict the flow of bay water in to the roadway further protecting against sea level rise.