

**MINUTES OF
SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY-EAST
COASTAL ADVISORY COMMITTEE MEETING
HELD ON MAY 16, 2018**

PRESENT: G. Paul Kemp, Chair
Richard A. Luettich, Jr., Committee Member

The Coastal Advisory Committee of the Southeast Louisiana Flood Protection Authority-East (FPA or Authority) met on May 16, 2018, in the Franklin Avenue Administrative Complex, Meeting Room 201, 6920 Franklin Avenue, New Orleans, Louisiana. Mr. Kemp called the meeting to order at 2:01 p.m.

Opening Comments: Mr. Kemp commented on the I-STORM peer review of the IHNC Surge Barrier Sector and Barge Gates and Seabrook Complex taking place this week. He advised that today's meeting would be his last Coastal Advisory Committee meeting as his term on the FPA Board expires on June 30th.

Adoption of Agenda: The agenda was adopted by the Committee as presented.

Approval of Minutes: The Committee approved the minutes of the Coastal Advisory Committee meeting held on February 15, 2018.

Public Comments: None.

New Business:

A. Discussion of the LSU survey data.

Mr. Kemp explained that the LSU C4G group has a methodology for obtaining levee crown survey data quickly by utilizing a towed instrument while driving along the top of a levee. The survey is conducted driving along a levee in both directions.

Stevan Spencer, Chief Engineer, explained that LSU C4G conducted the pilot survey in New Orleans East at no cost to the FPA. The RTK survey was conducted from the I-10 past the Highway 11 floodgate to the Highway 90 floodgate and then to the CSX Railroad (LPV 109.02a). The pilot survey was about five miles in length and was completed in four hours. LSU did two runs (north to south and south to north). The two runs were very close when compared to each other (about a tenth of a foot in difference in spots). The October, 2017, Linfield, Hunter and Junius crown survey performed in advance of the levee raising and armoring was used as a comparison. The ground survey generally appeared to be two or three inches higher than the RTK survey. He pointed out that the quality of a RTK survey may not be acceptable for use in the 2023 system recertification for FEMA. He suggested that LSU be requested to provide a proposed cost to perform a RTK survey for a five-mile length of levee along the lakefront. The results of the RTK survey will be provided to the Coastal Protection and Restoration Authority (CPRA) to determine whether the method can be used for the

system recertification. RTK surveys can be performed yearly to determine any whether any changes or differential settlement have occurred.

Mr. Kemp advised that additional steps could be taken to obtain additional information from LSU on sources of variability (e.g., atmospheric factors). The pilot RTK survey will provide a good dataset for experimentation and establishing control points. The RTK pilot survey came out of the initial proposal regarding Continuously Operating Reference Stations (CORS).

Mr. Spencer pointed out that he was reminded about the change in datum in 2022 during his discussion of the RTK survey method with Tim Osborne with the National Hurricane Center.

Bob Jacobsen suggested that the FPA request a proposal for a report from Cliff Mugnier analyzing sources of error and a recommendation regarding surveying practices and technology for use over the next five years.

Mr. Luetlich recommended that the FPA define its surveying needs more fully and then request that Mr. Mugnier advise whether the RTK methodology can meet the FPA's needs; if not, what must be done in order to meet the FPA's needs.

The Committee concurred that the next steps would be the written report and then a determination of the FPA's needs.

B. Discussion of Pontchartrain Beach sheetpile and responsibilities.

Mr. Kemp advised that the FPA has been discussing the removal of the Pontchartrain Beach sheetpile with the Lake Pontchartrain Basin Foundation (LPBF).

John Lopez, LPBF Coastal Sustainability Program Manager, explained that Pontchartrain Beach is currently leased by the Orleans Levee District (O.L.D.) to the LPBF. The LPBF has a long term ambition of reopening the beach. The LPBF was presented with an opportunity to purchase 10,000 cubic yards of sand. Permits were obtained from the O.L.D., the State and the U.S. Army Corps of Engineers (USACE) for 1) storing the sand at the beach, 2) removing the old deteriorating sheetpile that runs perpendicular to the beach, and 3) building a detached breakwater, which replaces the functionality of the sheetpile for holding the sand on the beach. The LPBF would like to remove the sheetpile and build the breakwater before placing the sand on the beach. Estimates were obtained by the O.L.D. Engineering Department for removing the sheetpile (approximately \$60,000 to \$150,000 depending on the condition of the sheetpile below the water surface and method of removal). He suggested that the construction of a breakwater and placement of sand at the beach would add resilience to the levee. He pointed out that there are places where the shoreline at Pontchartrain Beach is less than 20-30 feet from the base of the levee. The erosion is up to the bulkheads that parallel the shore and were part of the beach design in the 1950's and is beginning to remove material behind the bulkheads. He pointed out that there is no immediate threat or problem; however, there could be some risk in the long term should the current trends continue. Discussions have taken place as to whether the O.L.D.

could financially assist with these efforts. At this point no financial commitments have been made.

Mr. Kemp advised that the Non-Flood Protection Asset Management Authority (NFPAMA) has been brought into the discussions.

Dr. Lopez explained that the original legislation for the O.L.D. reclamation project mandated that a percentage of the reclaimed area remain public. Pontchartrain Beach is part of the public area calculation.

Derek Boese, Chief Administrative Officer, advised that the Coastal Advisory Committee discussed the removal of the sheetpile about three months ago. An issue came up about which entity is responsible for removing the sheetpile. The original Memorandum of Understanding (MOU) delineating which properties were under the O.L.D. Flood Protection Division and the NFPAMA places Pontchartrain Beach under the O.L.D. Flood Protection Division. He pointed out that it would be more appropriate for the NFPAMA to manage Pontchartrain Beach and that the MOU is currently being updated.

Dr. Lopez advised that Pontchartrain Beach is currently closed to the public and that the land access is gated. The LPBF leases the actual beach area from the O.L.D (its owner), but not the State water bottom. Boaters are able to access the area by water. He also noted that any issues related to flood protection regarding the levee along Pontchartrain Beach would not be transferred should the lease be transferred from the O.L.D. Flood Protection Division to the NFPAMA.

The Committee discussed the potential liability issue. Dr. Lopez advised that the beach has been fairly stable with the last replenishment of the beach taking place in the 1950s; however, in the last few years erosion and scouring are taking place behind the bulkhead. The deterioration of the sheetpile has taken place over a number of years.

Mr. Luetlich commented that he was struggling about the FPA's role in this effort and that it seems outside of the FPA's mission, but it could partner with organizations to make the property available for the public good. He questioned whether the O.L.D. Flood Protection Division should pay for the improvements. Dr. Lopez pointed out that issues dealing with the levee would be the responsibility of the FPA and O.L.D. Flood Protection Division. According to a LPBF analysis, about 10,000 cubic yards of sand were lost on the east side of the beach due to Hurricane Isaac and erosion of the foundational material underlying the beach inside the parallel bulkhead has started.

Mr. Boese stated that a determination should be made as to whether the sheetpile removal is a flood protection issue. After a determination is made, the issue can be presented to the Board for a decision. Mr. Kemp suggested a collaboration with the NFPAMA. Mr. Luetlich suggested that the NFPAMA be requested to obtain quotes, have the engineering done and the property designated as a non-flood protection asset managed by the NFPAMA.

The Committee will request that the Pontchartrain Beach matter be deferred at the May 17th Board meeting.

C. Discussion of Bob Jacobsen's modeling.

Mr. Kemp explained that the concept to utilize the Central Wetlands as a potential off line storage area should a problem occur keeping IHNC Basin below +8-ft. during a flood event that exceeds the 100-year level was initially developed by Bob Turner. The IHNC Basin has a limited surface area about one-tenth the size of the Central Wetlands, which is the 30,000 acre area between the Federal levee and non-Federal levee located primarily in St. Bernard Parish. The FPA is attempting to determine whether there is any merit to the concept to divert water into the Central Wetlands as an emergency or contingency approach. The concept could necessitate changes in procedures or it could be developed as a potential emergency procedure. Input was received from Eustis Engineering (Eustis) at the February 15th Operations Committee meeting relative to the strength of the I-walls along the Industrial Canal. Eustis will submit a final report on this issue. Bob Jacobsen has been doing some modeling work in this area. Concern was expressed that the flow of water into the Central Wetlands would not take place quickly enough to counteract rising water in the Industrial Canal should the Bayou Bienvenue Sector Gate be opened too late during an event.

Mr. Jacobsen explained that in the spring of 2016 he provided a report that included recommendations on how to reduce residual risks throughout the FPA's jurisdiction and the portion of the Pontchartrain Levee District that affects Jefferson Parish. The top residual risk area targeted was the IHNC basin. He pointed out the potential for vessels and barges that break loose and for other floating objects in the Industrial Canal to damage a floodwall. The path forward included discussion of the issues with the USACE and CPRA. The USACE's modeling indicated that opening the Bayou Bienvenue Sector Gate after the water reaches a certain height would cause velocity issues and that water movement would not take place quickly enough; therefore, the USACE considered the concept impractical.

Mr. Jacobsen further explained that the next initial step was taken as part of the residual risk study; that is, to assume that the Bayou Bienvenue Sector Gate is closed 24 hours in advance of a storm due to implications that the action would be needed. A HEC-RAS 1-D model was used to mimic an event. Streams were created to represent flow in and out of the wetlands, along with cross sections. The model indicated that should conditions warrant, the water could be substantially reduced by opening the sector gate 24 to 36 hours prior to the peak event. Procedural questions were encountered during discussions with the USACE relative to this model. Planning the action in any formal sense requires a change to operational plans, which would require going thru the permitting process. The USACE also indicated that storing surge water in the Central Wetlands would potentially make the 40 Arpent Levee System part of the Hurricane and Storm Damage Risk Reduction System (HSDRRS); therefore, the 40 Arpent Levee would have to be accredited for storm water and not just rain water. The USACE suggested that the issue could be considered an emergency issue and not a planned procedure. However, subsequent discussions with other entities suggest that any planning would still make it a planned procedure. Additional technical questions remained unanswered; e.g., did the 1-D model provide enough information to determine the concept's feasibility. Discussions ensued regarding 2-D modeling. A decision was

made to determine whether a 2-D model could be quickly developed in order to determine feasibility. He explained how the 2-D model was set up. A topobathy DEM (Digital Elevation Model) was compiled, which in addition to Lidar included depth associated with major information from NOAA on the MRGO, GIWW, IHNC and Lake Borgne. In order to support the model, additional bathymetry on some of the channels was needed. A new topobathy was created that included the additional bathymetry with channels for conveyance. The new finalized HEC-RAS 2-D model was downloaded on May 4th.

Mr. Jacobsen discussed the creation of the mesh for the model. The model was set up with over 180,000 cells. He explained that flows must be imposed at the perimeter pump stations and the model must be developed to run in a steady mode prior to introducing the flows resulting from opening the Bayou Bienvenue Sector Gate.

Mr. Jacobsen explained that he is in the process of creating a steady flow run with an initial trickle of flow from rainfall coming from the perimeter pump stations. Examples of recent model runs were reviewed. He explained that three scenarios were used with the 1-D model; i.e., with the IHNC Basin filled 6-ft, 9-ft. (100-year level) and 12-ft. In each case opening of the Bayou Bienvenue Sector Gate in advance substantially reduced the water level. He discussed the model runs he hoped to complete in 2-D in the next two weeks.

Mr. Kemp commented that the Committee is focused on the steps forward in terms of going beyond the 100-year return frequency and is attempting to achieve 500-year or 1,000-year performance from the system. The FPA is interested in potentially increasing the flood storage capacity at relatively low costs while dealing with the limitations. He expressed excitement at reaching this stage in regards to the concept for the Central Wetlands Unit and stated that the FPA still does not have an answer as to whether this concept is the correct thing to do or whether the I-walls along the Industrial Canal can be bolstered above the current USACE limit (approximately 8-ft). This effort is being driven by the potential for an extraordinary event or by a less extraordinary event in which some type of failure is experienced in the closure system.

Mr. Jacobsen explained that the 2-D model can be used to examine scenarios in more detail plus additional scenarios. He pointed out that the USACE's estimate of 6-ft. of water (100-year level) in the IHNC Basin is predicated on a nine-inch rainfall event. The system could potentially experience a Hurricane Harvey type event or a Category 1 event that does not cause overtopping, but is stalled for a prolonged period of time with heavy rainfall and the structure gates remain closed potentially filling the Basin with 8 or 9-ft. of water from direct rainfall and water pumped into the IHNC Basin. He noted that there is risk associated with the I-walls in the IHNC Basin that involves catastrophic failure that does not exist anywhere else in the system making it a top priority for focusing on residual risks. He commented that there is a potential to have 8 or 9-ft. of water in the IHNC Basin from overtopping or pure rainfall events several times over a 500 year period.

Mr. Jacobsen advised that he and Mr. Turner discussed developing a number of scenarios (e.g., failure to complete the closure of the Barge Gate or any other structure

gate in the system and for different types of storm events) with a number of options at the FPA's disposal, and preferably a real time model to test all of the scenarios. Pumping capacities into the IHNC Basin and the Central Wetlands Unit were discussed.

Mr. Boese pointed out that the cost to operate the Bayou Bienvenue Sector Gate during the scenarios discussed would be significant, versus other potential low hanging fruit, such as addressing the I-walls. Mr. Spencer commented that Eustis' biggest concern is seepage under the I-walls. Having the relief wells tested and shown to be in good working condition by the USACE would alleviate some of Eustis' concern. Eustis discovered some low factors of safety in isolated locations and this information was provided to the USACE. Mr. Boese pointed out that the FPA would focus on the locations with a low factor of safety regardless of the more extreme scenario.

Mr. Spencer explained that the IHNC Surge Barrier was designed to be overtopped during a 100-year event at a rate of one-tenth of a cubic foot per second per linear foot. Water from overtopping for a 100-year event plus rainfall and water pumped into the IHNC Basin by the Sewerage and Water Board brings the projected water level in the Basin to plus or minus 9-ft. Mr. Jacobsen pointed out that the overtopping addressed by the USACE in the 100-year level is wave overtopping and not free flow. He explained that the 2016 report reviewed some of the assumptions related to wave heights and water levels for 100-year and 500-year events with a margin of uncertainty included; therefore, the overtopping rates in the report are higher than those provided by the USACE. No structural impact loads are included in the USACE's accreditation documents for the system. The US Coast Guard's Regulated Navigation Area is not strictly enforced; e.g., there are no contracts to sink a vessel or barge that does not evacuate the Basin or inspections to ensure that every structure has a proper foundation. Mr. Boese pointed out that the US Coast Guard does patrol the Basin to ensure the evacuation of vessels and barges; however, the risks are not completely eliminated.

Mr. Kemp stated that he has enjoyed working with the Coastal Advisory Committee members and hoped that the Committee's discussions and work continues.

Dr. Lopez concurred that the Committee's work should continue and thanked Mr. Kemp for all of his work over the years.

There was no further business; therefore, the meeting was adjourned at 3:45 p.m.