MINUTES
TECHNICAL ADVISORY COMMITTEE
TO THE WATER ADVISORY BOARD
October 18, 2019

MEMBERS PRESENT

Albert Carbon (Chair), Luis Ochoa for Kevin Hart (Co-Chair), Talal Abi-Karam, Harold Aiken, Mike Bailey, Randy Brown, Jace Selby for Mike Crowley, Guillermo Regalado, Sara Forelle, Rafael Frias, Susan Bodmann for Alan Garcia, Barry Heimlich, Steve Holmes, Leny Huaman, Jennifer Jurado, Pete Kwiatkowski, Jose Lopez, Lisa Milenkovic, M. Reczka for Renuka Mohammed, Pat O'Quinn, David McIntosh for Stephanie Pearson, Steve Urich, Tim Welch

OTHERS PRESENT

Steven Eagle, Mark Ellard, Norma Ellison, Susan Juncosa, John Loper, Carolina Maran, Lorraine Mayers, Robert McColgan, Suzanne Mechler, John Shaw, Roy Virgin, Steven Weinsier, Mike Zygnerski

(A sign-in sheet reflecting those present is filed with the supplemental papers of the meeting, as well as copies of the presentations.)

CALL TO ORDER

A meeting of the Technical Advisory Committee to the Water Advisory Board was held on October 18, 2019; commencing at 9:35 am in the Hearing Room of the Broward County Government Center West in Plantation, FL. A quorum was present.

APPROVAL OF MINUTES

The minutes of the August 16, 2019 meeting were motioned and approved.

PRESENTATIONS

Mapping of the Saltwater Interface in the Biscayne Aquifer
Jonathan Shaw, PG, Principal Hydrogeologist, South Florida Water Management District

Jonathan Shaw provided the South Florida Water Management District's (SFWMD) 5-year saltwater intrusion mapping update including an overview of saltwater intrusion and aquifers, the importance to wellfields and infrastructure, their project approach and results, conclusions, and next steps. He acknowledged the SFWMD staff members. He informed that SFWMD maps for all its 16 counties except for Miami-Dade which is mapped by USGS.

Referring to various maps and charts in his hand-out, Mr. Shaw explained the generalized hydrogeology of South Florida, the saltwater interface mapping project itself, and its mapping challenges. He outlined the common sources of saltwater intrusion, emphasized the importance of protecting wellfields, and explained the strategy of the mapping project.

Mr. Shaw outlined the next steps in working with local governments and permittees to identify other existing wells to increase accuracy for future maps, identify funding sources for well replacement, standardize well construction and sampling issues, and evaluate data gaps and areas of concern.

In summary, Mr. Shaw outlined the various conclusions:

- General movement to the west has been observed since 2014
- Saltwater has intruded in central Broward County as far inland as the Florida Turnpike
- Movement is occurring from the south towards the Ft. Lauderdale Peele-Dixie wellfield and west towards Pompano wellfields
- Dania Beach and Hallandale in southern Broward County are impacted
- Some changes may be due to new data points or more refined interpretation in Deerfield Beach

Lastly, Mr. Shaw informed the maps are available and provided the website address. A technical question and answer session followed. The Chair thanked Mr. Shaw for his update.

Future Conditions 100-Year Flood Map Update

Mark Ellard, P.E., CFM, Senior Principal, Water Resources, GeoSyntec Consultants
John Loper, P.E., Associate Vice President, Taylor Engineering

Mark Ellard acknowledged the members of the project team:

- Broward County – Jennifer Jurado, Carolina Maran, Mike Zygnerski
- GeoSyntec – Prime consultant in charge of data collection, stakeholder outreach, rainfall Analysis, model tool development, evaluation and recommendations
- Taylor Engineering – Hydrologic & Hydraulic Modeling – updating current conditions, developing Future conditions, integrating coastal analysis
- CLIMsystems and Jupiter Intelligence: Future Rainfall Development
- Stoner & Associates: Surveying
- Adept Strategy and Public Relations

Mr. Ellard outlined the project goals involved in mapping future flood risk and enhancing infrastructure resilience. He outlined the major tasks of data collection and review, stakeholder outreach and coordination, updating the current conditions model, development of the future conditions model, development of the future 100-year flood contour map, and CRS evaluation and recommendations.

John Loper summarized and then discussed in detail the various stakeholder suggestions made during the process:

- Redefine the numerous parameters used to account for the County's permitting process
- Update flow control structures with SFWMD's rating parameters
- Update cross sections in the C-14 Canal based on recent SFWMD surveys
- Add a second event to the model validation
- Add more locations for flow and stage comparisons
- Perform a comparison between reported flooded areas and modeled floodplain

Then Mr. Ellard discussed future rainfall modeling. Climate scientists were brought in to evaluate datasets and NOAA's recent rainfall analysis, Atlas 14 rainfall stations, was used to map out rainfall for existing conditions with the target future year of 2060. A workshop was held on September 17th with representatives from Broward County, SFWMD, FIU, USGS, the consultant team, and other interested parties to present preliminary future rainfall analysis and develop a strategy for moving forward. A

super-ensemble approach which uses different subsets of all the individual model projections from datasets was decided.

In conclusion, Mr. Ellard outlined the current progress and next steps:
Regarding current conditions modeling;

- Model data was compiled from stakeholders, SFWMD, and survey was completed
- Model calibration of the June 2017 storm event was completed
- Design storm simulations from 10, 25, 50, 100, and 500 scenarios was completed
- Final comments are being addressed in October

Regarding future conditions:

- Finalization of future conditions land use and infrastructure changes is complete
- Development of future conditions rainfall projections are to be completed in October
- Execution of future conditions modeling scenarios are to be completed in October
- Preparation of preliminary future conditions flood map will be completed in November

A technical question and answer period followed. The Chair thanked Mr. Ellard and Mr. Loper for their updates.

USACE South Atlantic Coastal Study Tier 1 Risk Assessment
Samantha Danchuk, Ph.D., P.E., Assistant Director, Broward County EPCRD

Samantha Danchuk provided background information on the South Atlantic Coastal Study. This study was authorized by WRDA bill with the intent to try to identify coastal risks and vulnerabilities due to sea level rise in the Southeastern US. This South Atlantic Division (SAD) study area includes North Carolina, South Carolina, Georgia, Alabama, and Florida. It was budgeted for $16 million for a period of 3 years. She informed that this 1st year should accomplish a list of measures that specifically address flood issues and risks to specifically advance a project list in order to get federal authorizations for studies and eventual construction projects to reduce that risk.

Ms. Danchuk stated the components of the study are the Tier 1 Analysis and the Tier 2 focus areas. The first step of Tier 1 Risk Assessment was to build out and collect all datasets necessary to identify risks related to storm surge, sea level rise, and rainfall flooding for incorporation in our modeling. For the Tier 1 Risk Assessment, she explained the Composite Risk Index within this study is a series of layers of exposure to population, infrastructure, environment, and social conditions.

Ms. Danchuk informed that she had an opportunity to attend a field workshop and explained that the scheme has already been developed. Referring to her hand-out of Broward County, she then explained in detail the various datasets used to build the composite, and how each dataset (index) is weighted. She emphasized her concerns for the methodology applied to how critical infrastructures should be weighted higher. A report should be released shortly with the details of the methodology used. Tier 2 is expected to refine the local datasets with focus areas as necessary.

Ms. Danchuk summarized the composite index altogether for the entire study, as follows:

- 60% population and infrastructure
- 30% environmental
- 10% social vulnerability

Referring to her hand-out for Broward County, she explained in detail the modifications for the hazard index are to include 3' sea level rise added to 10% annual chance water levels and 1% flood, USACE medium projections for 2120 and high projections for 2170.

Ms. Danchuk summarized the preliminary review:

- Areas where tidal flooding is occurring is not ranked as high composite risk and should be addressed in Tier 2
- Modeling is needed for future hazard index to be addressed in Tier 2
- Infrastructure density should reflect critical infrastructure and review of parcel size to be verified after release of the methodology report

She discussed the comparison points to the North American Coastal Study (NACCS) and common mitigation measures demonstrated to address a lot of our issues.

In conclusion, Ms. Danchuk outlined the progress to date:

- Tier 1 assessment is completed
- The USACE field workshop was held in September that collected all the information regarding the issues we are facing locally
- A methodology report should come out soon.
- Tier 2 will identify Southeast Florida, Broward or reaches in Broward as focus areas.
- Mitigation measures will be recommended as a result of the review of the local mitigation strategy project list submitted from the municipalities

She emphasized the need for the reauthorization of ACOE projects that includes our beach projects. The Chair thanked Ms. Danchuk for her report.

NEW BUSINESS

<u>C-51 Status</u>

Dr. Jurado mentioned that the C-51 challenge was discussed at the Broward Leaders Resilience Roundtable held on October 4th. Several communities requested additional information on the project. She mentioned that Mayor Bogen is a huge advocate of the project and requested discussion on it for his monthly mayor council meetings.

Dr. Jurado remarked that internal discussion has taken place regarding the sanitary sewer ordinance. Concerns raised were the liabilities of enforcement, contract agreements, and the ability to transfer assets to the enforcing municipalities. Chair Geller had requested additional input be submitted over the next several weeks.

NEXT SCHEDULED JOINT WAB/TAC MEETING: November 8, 2019
NEXT SCHEDULED TAC MEETING: December 20, 2019

ADJOURNMENT

There being no further business to discuss, the meeting adjourned at 11:33 am.