

MINUTES
OF THE TECHNICAL ADVISORY COMMITTEE
TO THE WATER ADVISORY BOARD
June 28, 2019

MEMBERS PRESENT

Albert Carbon, Kevin Hart, Talal Abi-Karam, Harold Aiken, Doug Bell, Randy Brown, Mark Collins, Enrique Vadiveloo for Patrick Davis, Sara Forelle, Rafael Frias, Susan Garcia for Alan Garcia, Barry Heimlich, Steve Holmes, Jennifer Jurado, Pete Kwiatkowski, Leny Huaman for Garrett McAllister, Tim Welch

OTHERS PRESENT

Corey Aitken, Kevin Carter, Shana Coombs, Marjorie Craig, Ernie Cox, Jeremy Decker, Francois Domond, Mark Ellard, Norma Ellison, John Loper, Carolina Maran, Jack McCluskey, Andrews Sobrino, Carlos Tamara, Jeff Thompson, Steve Urich, Mike Zygnerski

CALL TO ORDER

A meeting of the Technical Advisory Committee to the Water Advisory Board was held on June 28, 2019; commencing at 9:36 am in Rm 430 in Broward County Governmental Center in Fort Lauderdale. A quorum was present.

APPROVAL OF MINUTES

The minutes from the April 19th meeting were motioned and approved.

As Mark Ellard and John Loper had not yet arrived for the first presentation, the Chair moved on to the second presentation.

Numerical Model Development for the Evaluation of Drainage Infrastructure Capacity Under Projected Sea-Level and Climate Conditions in Broward County

Jeremy Decker, Hydrologist, USGS

Jeremy Decker provided background on the Broward County Inundation Model, Phase 2:

- Cooperative project between USGS and Broward County Environmental Planning
- Primary objective is to interpret drainage capacity and potential inundation of areas in Broward County under projected climate conditions and rising sea levels
- It is a 3-year project which began in June 2018 and will finish in June 2021 and is a continuation/update to previous USGS/Broward County studies (Inundation Model and Southern and Central Saltwater Intrusion Model)
- Deliverables include USGS Data Release of flow model and archive, USGS Report documenting flow model and model results along with a user guideline

Mr. Decker discussed the details of the specific completed tasks with regards to the steady-state groundwater/surfacewater model being constructed. He also discussed the details of the current tasks involved with the model. With regards to future scenario development, he referred to various graphs in his hand-out depicting sea level projections previously based on the 2011 Climate Compact, increased

sea level projections adopted in the 2015 Climate Compact, control elevations at coastal structures, tidal fluctuations, etc. He then discussed the preliminary scenario testing with the steady-state model regarding sea level rise, primary structure control elevations, adjusting sea levels to represent future conditions, groundwater level differences, and operational changes.

In conclusion, Mr. Decker summarized the future tasks as follows:

- Continuing development of a transient model of the historical period from 2013 to 2017
- Finalizing calibration parameters
- Working with Broward County officials while further developing future scenarios
 - Confirm and refine projected sea level rise scenarios
 - Develop projected rainfall and ET scenarios
- Documenting model construction and testing results
 - USGS Scientific Investigations Report
 - USGS Data Release containing model files and archival materials

A question and answer session followed. Jennifer Jurado suggested a subcommittee be coordinated for those interested in exploring further options and opportunities.

The Chair thanked Mr. Decker for his update.

As Mark Ellard and John Loper had now arrived, the Chair returned to the first presentation.

Future Conditions 100-Year Flood Map – Current Conditions Calibration

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 and developing future conditions, integrating coastal analysis
- 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. He referred to schematics in his hand-out that depicted the various new culverts, bridges, gated structures, pump stations, etc. in the updated 1-D Model compared to the base model. He also referred to maps utilizing the June 2017 rain event depicting radar rainfall used for model input and recorded data for boundary conditions.

John Loper then discussed in detail the calibration process involved utilizing the June 2017 surprise rain event. He illustrated a snapshot of a map of the variability of that day. The water budget calibration included looking at flow volumes at coastal discharge structures and major outflows towards WCA's.

Once the water budget, groundwater levels, and flows at the major structures were calibrated, the focus was on canal stages. He referred to graphs depicting the results from the Hillsboro Canal, the North New River, and the C-11 Canal. The updated and validated model was used to simulate the synthetic design 3-day storm events for 10-years, 25-years, 50-years, 100-years and 500-years respectively.

In conclusion, Mr. Loper outlined the current progress and next steps:

- Model data compilation from stakeholders, SFWMD, and complete survey
- Model calibration undergoing final refinements
- Finalize design storm simulations (10, 25, 50, 100, 500)
- Develop task reports
- Develop future conditions rainfall IDF curves
- Finalize future conditions land use and infrastructure changes
- Execute future conditions modeling scenarios
- Prepare preliminary future conditions flood map
- Develop task reports

A question and answer session followed. Dr. Jurado informed that this map will be finalized this year and hopefully the adoption process by the Board. She expressed that she felt comfortable with the calibrations, the results and its application moving forward. She provided an update on the seawall top elevations. The item has been submitted to the Planning Council, is expected to be heard in August, with the next step application of results in a countywide risk analysis. She stressed that this will serve as the basis for updating the standards.

The Chair thanked Mr. Ellard and Mr. Loper for their reports.

Hydrologic Conditions Update

Mike Zygnerski, Natural Resources Section Manager, Broward County Environmental Planning

Mike Zygnerski referred to his hand-out outlining the overall concerns; rainfall/recharge, water levels, and chloride levels. Broward County's annual averages since 1966 are at an average of 58 inches per year (30-year average); years above and below standard deviation are noted. As far as Broward's seasonal averages, 2/3 of its rainfall occurs during the wet season. Yearly values for the wet season generally are average over a 23-year span. As for the dry season, 20 of 23 years have been average or above average. He referred to maps depicting district-wide seasonal, year-to-date, and monthly rainfall. U.S. Drought Monitor for Florida depicted no drought currently, and three-month outlooks for temperature and precipitation probability depicted above-average temperatures.

Referring to his graph illustrating Lake Okeechobee's water level history and projected stages, Mr. Zygnerski remarked that water levels are of concern as Lake Okeechobee has been rebounding. Its stages started dropping in correlation to below average rainfall. Pete Kwiatkowski clarified that the Corps has performed atypical operations this dry season, making a concentrated effort to release more water more often to Caloosahatchee starting November consistently thru May.

Mr. Zygnerski mentioned that the WCA's are high and full and are not accepting any more water. He demonstrated the new version of USGS mappers illustrating current groundwater levels and trends. Overall groundwater levels are increasing throughout the county reaching normal to above average levels, aside from the northwest which shows slightly below average levels. He then discussed chloride levels. Chloride wells are responding to long-term trends rather than recent weather. Wells closer to canals show consistently higher chloride levels.

In conclusion, Mr. Zygnerski summarized as follows:

- High June rainfall helped bring up low local water levels
- No current State-wide drought conditions
- Levels have recovered near and in Lake Okeechobee after dipping below 11 ft.
- Chlorides not seemingly impacted by recent weather but following long-term trends

The Chair thanked Mr. Zygnerski for his update.

Septic Tank Ordinance – Best Practices White Paper Update

Albert Carbon, P.E., Public Works Director, City of Oakland Park

Randy Brown, Utilities Director, City of Pompano Beach

The Chair recapped that at the March 9th WAB meeting, Chair Geller requested a report from the committee on current best practices and solutions from other utilities and governments around the country since this is a national issue. After state- and county-wide inquiries, Randy Brown was directed to the “Septic to Sewer” Guidance Document developed by the Florida Water Environment Association (FWEA) in 2018 that address all concerns and provides case studies. As a result, a “Septic Tank Ordinance-Best Practices White Paper” was produced. The Chair acknowledged the help of Randy Brown, Kevin Carter, and Carolina Maran on this paper. He requested the committee members provide comments for incorporation in a final presentation to the board in September. This document will be referenced in the back-up for the agenda item as a working document rather than the ordinance itself. He reiterated this topic will be an agenda item at the next committee meeting in August, encouraging comments.

Hyperion Project and Water Utility Climate Alliance Update on Rainfall Projections

Carolina Maran, Ph.D., P.E., Water Resources Manager, Broward County Environmental Planning

Carolina Maran shared the highlights of 3 separate workshops supporting Broward County’s Future Conditions 100-Year Flood Elevations Map and other future assessments, as follows:

- **Rainfall Projections Workshop** - May 16, 2019 – Florida International University, Sea Level Solutions Center
- **Water Utilities & Climate Alliance Training** – May 29-30, 2019 – Tampa Bay Water
- **Hyperion Project Final Workshop** – June 3-4, 2019

The focus of the FIU Rainfall Projections Workshop was to review the state-of-the-art in downscaling rainfall for the state for the purpose of developing unified rainfall scenarios for Florida. The next steps include a final workshop report, a funding proposal, scopes of work, and to promote continued collaboration with partners.

The focus of the Hyperion Project Final Workshop was to review the final results of study cases in this 3-year project funded by the Department of Energy. She acknowledged the various academic institutions and partners. There were 4 study cases each having a different focus and different parameters. She summarized the very robust set of metrics used to guide the research of each academic institution.

The study case in Florida focused on developing IDF curves for tropical storms and future rainfall predictions. The approach was to select 13 models and track the daily data performances of each model

along with historical model evaluations from 1956 to 2005. Three models were ranked on how they were performing to a set of metrics that monitor extreme rainfall. Results showed that individual models still have large estimation uncertainty. Using the better performing models, bias correct so that different models can be merged to create a longer record of data. In the coastal storms segment of the Florida Study, both a conventional climate model and an advanced climate model were used. A final report will be produced for each of the study cases and will be distributed as soon as it is available. Consumer reports will also be produced illustrating all the metrics compared to all the model results. This supports the Hyperion Project to provide expert guidance for developing best practices to use the information. She then mentioned the Hyperfacets storylines-based project funded by the Department of Energy.

The focus of the Water Utilities and Climate Alliance Training was to create a practitioner community active in climate adaptation consisting of smart users and consumers of climate information. She outlined the training objectives; enhance understanding of capabilities and limitations, learn planning methods for addressing uncertainty, learn communication strategies to address barriers, etc. One of the training highlights is that model agreement is not a forecast. One of the highlights of decision-making is that we cannot afford to be prepared for everything. She then emphasized climate change communication involves knowing the audience, who should share the knowledge, the level of detail in the content, the desired format for delivery, and to actively listen and engage.

In conclusion, Dr. Maran expressed the final message from all the workshops was that the training brought good information in order to incorporate the future climate variables in the studies. She informed that Broward County is communicating future rainfall conditions in the community flood map project.

The Chair thanked Dr. Maran for her report.

NEW BUSINESS

The Chair informed that at the next committee meeting in August, we will intend to fill the vacancy previously held by Ron Eyma in the Utility Directors/City Engineers/Public Works Department category. A request for nominees will be distributed shortly.

Update on Economic Resilience Group

Jennifer Jurado explained that the Economic Resilience Group is a committee that convened under the South Florida Regional Climate Change Compact. This committee focuses on economic resilience involving several compact principles on business, including the Chamber of Commerce, the Broward Workshop, and various economic development groups. She reported on an important meeting held in May between the committee, Lt. Col. Kelly, ACOE; Drew Bartlett, SFWMD Executive Director, and others that discussed the need for South Florida to be defined as a priority area in the South Atlantic Coastal Study. As a result of fine-tuning the language for future flood risk resilience of the Central & South Florida Flood Control Project (C&SF), a supplemental House Bill was moved forward that provides for \$35 million in an ACOE investigations line for which Florida is eligible. She informed that a letter was advanced this week by Senator Marco Rubio's office with a congressional sign-on that strongly urges the ACOE to prioritize the C&SF Project in stakeholders' workplans. She requested Dr. Maran circulate the letter and encouraged the members to endorse it and make reference to it in their own communications.

The Chair thanked Dr. Jurado for her update. A question and answer session followed.

C51 Reservoir Update

Ernie Cox reported on a meeting held with Adam Gelber, Director of Office of Everglades Restoration, US Dept of Interior; and Virginia Walsh, Chief of Hydrology, Miami-Dade Water & Sewer Dept regarding the potential ability to bring additional water into the Miami-Dade system. Mr. Gelber raised his concern about the amount of time for CERP Projects to actually deliver water to the Biscayne coastal wetlands, and understood the potential for the C51 Reservoir to provide some incremental water to the Biscayne coastal wetlands sooner. Mr. Cox emphasized the importance of approaching him sooner rather than later regarding for water supply, as alternatives may not always be available. Dr. Jurado remarked that additional meetings are planned relating to the project. She stressed her concern regarding the statewide influence of not acknowledging the utility need for storage. She reiterated how important the project is for Broward County, emphasizing it is only a one-time capital cost, and the November timeline for locked-down alternatives is fast approaching. She encouraged the members to give full consideration of the project's value in their water supply planning, and to please contact her or Mr. Cox for further discussion.

The Chair thanked Mr. Cox for his update.

NEXT SCHEDULED TAC MEETING – August 16th

NEXT SCHEDULED WAB MEETING – September 20th

ADJOURNMENT

There being no further business to discuss, the meeting adjourned at 11:46 am.