

DRAFT MINUTES
TECHNICAL ADVISORY COMMITTEE
TO THE BROWARD COUNTY WATER ADVISORY BOARD

April 16, 2021

A meeting of the Technical Advisory Committee (TAC) to the Broward County Water Advisory Board was held on April 16, 2021, commencing at 9:30 am on WebEx. (The TAC meeting minutes were summarized by Gregory Mount (Gmount@Broward.org or 954-519-0356). Copies of the presentations are filed with the supplemental papers of the meeting.)

I. Roll Call

Members Present:

Kevin Hart (Chair)
Randolph Brown (Vice-chair)
Albert Carbon
Susan Bodmann for Alan Garcia
Brett Butler
Doug Bell
Harold Aiken
Isabel Cosio Carballo
Jose Lopez
Leny Huaman
Lisa Milenkovic
Giovanni Batista for Mark Collins
Mike Bailey
Adolfo Gonzalez for Mike Crowley
Patrick Davis
Lorraine Mayers for Pete Kwiatkowski
Rafael Frias
Randolph Brown
Renuka Mohammed
Sara Forelle
Stephanie Pearson
Steve Holmes
Steve Urich
Talal Abi-Karam
Tim Welch

Members Absent:

None

Others Present:

Commissioner Anthony Caggiano, Agustin Maristany, Alex Montalvo, Dr. Ana Carolina Maran, Andrea McGee, Ashok Raichoudhury, Bill Tracy, Carlos Hernandez, Chris Lips, Christina Miskis, Charles Drake, David Hoot, David McIntosh, David Walker, Dianys Arocho, Commissioner Dr. Ben Sorenson, Ethan Heijn, Fernando A. Craverio, Dr. Gregory Mount, Guillermo Regalado, Hongying Zhao, Jack McCluskey, Janine Alexander, Jay Ameno, Dr. Jennifer Jurado, Kassandra myers, katie Ielis, Kevin Biederman, Keely Phillpotts, Kenson Coupet, Larry Teich, Lynette Cardoch, Commissioner Mary Molina-Macfie, Mike Zygnerski, Dr.

Rajendra Sishodia, Rama Rani, R. Taylor, Ricardo Morillo, Robert McColgan, Sam Baker, Sara Ayers-Rigsby, Shana coombs, S. Juncosa, Dr, Stephanie Malloy, Steven Eagle, Stew Magenheimer, Commissioner Thomas Good, Thaddeus Hamilton, Victoria Olson, Vilma Melendez, B. Zhao

II. Statement of Meeting Objectives

A meeting of the Technical Advisory Committee to the Broward County Water Advisory Board was held on April 16, 2021, commencing at 9:30 am on WebEx.

III. Public Comments

None Provided.

IV. TAC Approval of Minutes of December 18, 2020

Motion: Randolph Brown, Second: Sara Forelle, Vote: Unanimous

V. Candidates for Environmental Representative Category Introduction

Chair Hart introduced and allowed each of the five candidates time to introduce themselves. The candidates were: Keely Phillpotts, Roy David Walker, Sara Ayers-Rigsby, Thaddeus Hamilton, and Victoria Olson.

VI. TAC Vote on Environmental Representative Vacancy

Chair Hart directed members to respond to Email from Greg Mount soliciting their choices. Chair Hart will announce the new elected member at the end of the meeting.

VII. Presentations

- A. Critical Resiliency Infrastructure (15p, 10d)
Ana Carolina Coelho Maran, P.E., Ph.D. *District Resiliency Officer, South Florida Water Management District.*

(21:00-41:35, Questions until 54:10) Dr. Maran begins the presentation with some background in the Districts infrastructure needs beyond regular operations and management. A video of overtopping is shown to illustrate the issues with control structures in the region. There were two recent supporting studies that are used to determine the criticality of water control structures: Coastal resilience Study and Low-lying Tidal Structure Assessment.

The low-lying structure assessment was presented first. The main goal was to evaluate the impact of SLR when combined with storm surge, determine the effectiveness of each structure to provide flood protection and then rank each structure with respect to its susceptibility to SLR and storm surge. A total of 27 structures were evaluated and the USACE is evaluating 9 additional ones with the SACS study. Structures were chosen based on the design head loss value of less than 1.5 foot, some in Miami Dade and Broward are at 0.5 foot. 7 structures located in Broward County were assessed using a HEC-RAS model, looking at design flow, surge and SLR, and standard operations. Broward county structures will begin to be impacted with a modeled 25-year surge event and 0.5 or less of SLR (3) and 25-year surge event with 0.5-1.0 foot of SLR will overtop the three more structures.

The second study was the Coastal Resiliency Study which focused on how the district could make infrastructure more resilient. Five structures were chosen that broadly represented the conditions found in the area and then hardening measures were identified that would minimize vulnerability under current and future conditions, target full operational capacity during storm surges, and then

resume operations shortly after a storm event. The impact of storm surge was modeled for hurricanes and all of the structure were overtopped with a Cat 3 storm, and three were overtopped with a Cat 2. Cat 3 was similar in stage to the 100-year flood event. Next SLR scenarios were presented and by 2043 and 2030 respectively, SLR will begin to overtop the structures.

Recommendations for hardening strategies were made that would provide design guidance and criteria for adaptation. Additional FPLOS flood mitigation strategies was also presented and will begin in the C8 and C9 basin next. Finally, the next steps are outlined that support a Resiliency Projects Plan, including exploration of additional funding opportunities.

Questions:

Dr. Jurado: We are interested in knowing more about the exposures on the west coast. 2009 SFWMD report had identified structures on both coasts. The west coast had quite a range that was represented 0.5-5 feet. Have the ranges become more refined over time?

Dr. Maran: The map shown was not the final results, the table provides for Category I-VI assessments. In general, the west coast is less impacted than those in the southeast. The new results incorporate rainfall, storm surge (storm frequency), and SLR to model bank full elevation.

Stephanie Pearson: How does the restudy relate to the low-lying structures report?

Dr. Maran as part of ongoing projects we are working closely with the USACE to evaluate 36 structures in terms of criticality. This will hope to focus the initial phase of the restudy. It will incorporate other studies and models such as FPLOS.

Pat Davis: Can you describe the look at forward pumping and the effect on sea wall elevations?

Dr. Maran: Yes, we may see impacts on the canal elevations downstream. The pumps would maintain design discharge downstream. The overall understanding of the design discharge and the relationship to sea level rise/tidal elevations would be studied and modeled as part of the restudy.

Talal Abi-Karam: The table shows the combination of the three events. Are they weighted or are they all equal?

Dr. Maran: They are equally weighted, and assumed that the storm surge, SLR, and rainfall can all occur at the same time.

Prior to VII. B. Chair Hart asked Dr. Jurado for some background information about the Sewer System Evaluations. Dr. Jurado provided a quick introduction to the presentations. Updates to Broward County's CCAP priority recommendations is the sanitary sewer system evaluations. This will be a priority for the organization and working with the stakeholders to comprehensively address the issues of compromised systems and levels of service. The presentations/case studies will help to inform how some of these studies are being completed.

- B. Comprehensive Sanitary Sewer System Evaluations: Examples from the Region.
 - a. City of Oakland Park's Sanitary Sewer System Evaluation and Rehabilitation Program (15p, 10d)
Chris Lips, *Assistant Public Works Director City of Oakland Park*, and
Ethan Heijn, PE. *Senior Associate, Hazen and Sawyer*.

(59:03 – 82:05) This presentation is a overview of the Oakland Park Sanitary Sewer Evaluation and Rehabilitation program. Mr. Lips provided an overview of the Oakland Park systems and the wastewater plants that are utilized. Bid pack projects have been ongoing for the past 20 years and have included repairs and updates for a total of about 60 million dollars. Flood issues have been mitigated but are still occurring.

Recently, the city has been about 75% smoke tested and have bought a camera truck. There has been an investment in certain basins and have produced noticeable improvements. Cost savings by bringing certain remediation efforts back in-house. Next, he showed a slide that compared the water purchased to the water returned as wastewater. In the past, for every gallon bought, three were returned as waste. During the dry season, the rate is about one to one, so infiltration remains a large issue.

Mr. Heijn then took over and provided alternative approaches to Evaluation and Rehabilitation including an analysis and prioritization plans. They completed a systems and basin level analysis to use what is available to determine where there are issues. He stressed the use of information that is already available and showed the difference between total energy consumed in two basins. The one that had no remediation efforts had a significantly higher energy usage.

He highlighted a detailed investigation phase where multiple technologies are utilized to investigate the subsurface lines. These could be simple inspections or the deployment of unmanned robots. The investigation concludes with a corrective action plan. He notes there is a great benefit to having a strong internal inspection component, such as the camera truck.

During rehabilitation, the payback period is considered to determine what the cost is if problems are ignored. That approach gets incorporated with a risk-based assessment to make determinations of where repairs should be completed. The Florida Clean Waterways Act (SB715) requires corrective action to be taken with infiltration, inflow, and leakage is excessive and when there is a violation of surface water quality or groundwater standards.

Ethan concluded with some key points. The measurement of outcomes is used to justify investments as well as to prove the effectiveness. Measurements for post rehabilitation should be carefully selected. Successful programs provide economic benefits.

The chair opened the floor to questions.

Questions:

Mr. Batista: Is there a threshold for basin volume that would trigger consideration for fund expenditures for SB 712?

Mr. Heijn: An earlier draft did have a gallon per capita values, the proposed rules are still working to be finalized, but the numeric values have been removed.

- b. City of Pompano Beach Sanitary Sewer System Evaluation. Pompano Beach, Fl. (15p, 10d)
Randy Brown, *Utilities Director for the City of Pompano Beach, Fl.*

(82:06-105:46) This presentation provided an overview of the City of Pompano Beach's program and infrastructure and provided a detailed breakdown. The customer rates were presented for O&M and capital projects. The city has a variety of tools for gravity line assessment, repair and or replacement. Mr. Brown continued with an overview of the assets available to the city and the use of GIS to accurately locate and map infrastructure and the use of robotic cameras to investigate pipes before and after repairs.

Mr. Brown then highlighted the force main system tools that the city uses. Including the use of additional pumps and generators for storm times and the injection of chemicals to protect against corrosion. There is a hydraulic model of the system that allows for evaluation such as when a new pump or station is implemented. He highlighted infrastructure such as pumpstations for the system. The city has adapted its trucks to be outfitted for common tasks such as pump removals, without requiring multiple trips to the yard.

The impacts of contractors to infrastructure were discussed, showing numerous directional drilling accidents that happen on a weekly basis. The result of the accident could go unknown for years, or it can be immediate, such as the directional drilling of a 42-inch force main, dumping millions of gallons of sewage into the canals. The use of flushable products complicates the sewer system, increasing costs and overflows. Future work to make sure that storms are planned for is ongoing.

Dr. Jurado: Is the epoxy lining a temporary improvement or is it a long-lasting repair?

Mr. Brown: The sock type lining lasts 20-30 years at least and can be completed manhole to manhole without opening the ground. Chair Hart showed a piece of the lining and stated that they had lined pipes up to 48 inches in diameter.

- c. WIFIA Funding and GIS Technology Delivers \$82 Million Gravity Sewer Rehab Program. TetraTech. (15p, 10d)
Janine Alexander, PE. *Senior Project Manager, and Alex Montalvo, Tetra Tech.*

(106:02 –138:16) Ms. Alexander begins the presentation with a comment on the cost of services and how GIS implementation can save hundreds of thousands of dollars on surveying and other associated costs. Ms. Alexander gives an overview of the Toho Water Authority infrastructure, many of which were developer driven and then taken over by the authority. A triage approach was taken in 2009 and realized that a more advanced condition assessment was needed. The results of the program were that they were not advancing through the backlog enough, and that emergency repairs were escalating and overtaking the budget. They spent millions of dollars to do emergency repairs, whereas scheduled projects would have accomplished more and been more cost effective. The authority needed to become more proactive, rather than reactive.

Next, Ms. Alexander explains the Water Infrastructure Finance and Innovation Act (WIFIA) which is a federal credit program that is used for water and wastewater projects. It can be used for

stormwater and complement other money. 9 billion in funding has been provided since inception. A thorough explanation of the two-phase process for applying for the funding is provided and mentions the key dates of opening in April and closing in July. Certain additional requirements are present, American Iron and Steel must be used, and Davis-Bacon Act must be followed. She details the financial benefits and loan repayments / interest rates.

Mr. Montalvo continued the presentation with the logistics of handling the large amounts of data that these types of projects generate and creative ways to take data and turn it into projects. He details the rapid assessment tools developed that allows for the evaluation of large volumes of inspection data. Putting all of the information into one place is the challenge, here it is done with GIS, to enable informed decision making. This supports a targeted, data driven response. A matrix and a rehab decision tree were developed to determine criticality based on the sum of the information present and is used to make broader decisions about reducing risk to the utility and improved level of service. After the repairs are made, they are tracked and rolled back into the asset management program.

- C. Water Matters Month and Youth Climate Summit Updates
Sara Forelle, AICP. *Natural Resources Section Manager, Broward County Environmental Planning and Resilience Division.*

(138:20- 144:45) Ms. Forelle presents the success of the 19th annual Water Matters Month, and provided members with an update. She first thanked the sponsors and partners for their assistance with this years events. She detailed the website and the scavenger hunts that residents were able to participate in and compete for prizes. There were weekly themes with new information, presenters and activities. Over 3,000 people visited the website and several thousands clicked on links. Several hundred people participated in the competition for prizes. Ms. Forelle then explained the 3rd Annual Broward Youth Climate Summit. Over 4,200 students participated with notable keynote speakers and contributions by county elected officials and staff members.

Chair opens the floor to questions: No questions asked.

- VIII. New Business and Open Discussion**
 - a. Voting results. Chair Hart announced Roy David Walker was selected to be the new Environmental Representative Member.
- IX. Next scheduled TAC Meeting: June 18, 2021, 9:30 am, anticipated virtual.**
- X. Next scheduled Joint WAB/TAC Meeting: May 14, 2021, 10:00 am, anticipated virtual.**
- XI. The meeting was adjourned at 12:01 PM.**