

# Memorandum



**Date:** August 20, 2015

**To:** Honorable Chairman Jean Monestime  
and Members, Board of County Commissioners

Agenda Item No. 2B8  
October 6, 2015

**From:** Carlos A. Gimenez  
Mayor

A handwritten signature in blue ink, appearing to read "Carlos A. Gimenez", written over the printed name of the sender.

**Subject:** Status Report for Resolution No. R-46-15, Directing the Mayor or Mayor's Designee to Prepare an Action Plan and Report to Accelerate the Climate Change Adaptation Planning Process by Evaluating the Engineering and Other Relevant Expertise Needed to Develop an Enhanced Capital Plan

On January 21, 2015, the Board of County Commissioners (Board) passed seven (7) resolutions, each supporting the implementation of one of the seven recommendations included in the "Miami-Dade Sea Level Rise Task Force Report and Recommendations." Resolution R-46-15, which requires a status report in 90 days and an Action Plan and Report within 180 days, directs the Mayor or Mayor's designee to prepare an action plan and report to accelerate the climate change adaptation planning process by evaluating the engineering and other relevant expertise needed to develop an enhanced capital plan that includes, but is not limited to, flood protection, salinity structures, pump stations and road and bridge designs, and to determine the costs of retaining the experts needed. Pursuant to R-46-15, this status report is submitted for your review.

## **Background**

In July 2013, the Board created the Miami-Dade Sea Level Rise Task Force (Task Force) for the purpose of reviewing current and relevant data, science and reports, and to assess the likely and potential impacts of sea level rise and storm surge on Miami-Dade County over time. On July 1, 2014, the Task Force presented a report to the Board entitled, "Miami-Dade Sea Level Rise Task Force Report and Recommendations," providing the requested assessment along with recommendations on how Miami-Dade County can begin planning and preparing for projected sea level rise impacts. In addition, Resolution R-451-14 and Ordinance 14-79 were adopted in 2014, requiring that planning, design and construction of County infrastructure consider potential sea level rise impacts.

In February 2008, Miami-Dade County entered into Joint Funding Agreement A08E0FL20817 with the United States Geological Survey (USGS) to develop an integrated surface/groundwater numerical flow model, with one of the objectives of the project being to evaluate if sea level rise will cause salt water intrusion into coastal wellfields. Technical staff from the Miami-Dade Water and Sewer Department (WASD) has worked with the USGS on this project since then, and the numerical model was formally published by the USGS in September 2014. The model is designed to evaluate if the current surface-water structure control operational criteria effectively control saltwater intrusion and flooding with projected population increase and sea level rise, among other uses.

This enhanced modelling capability is extremely important to all forthcoming adaptation planning for sea level rise in Miami-Dade County and the Southeast Florida region because it is a significant improvement upon former models used to generate "bathtub" sea level rise inundation maps. It will provide critical information about the effect of sea level rise and

precipitation events on the groundwater table, and how this may affect water resource management, including water supply, wastewater disposal, and canal operations. This will facilitate a more accurate understanding of areas and infrastructure more vulnerable to flooding in Miami-Dade County. WASD and the USGS used the modified guidance developed by the U.S. Army Corps of Engineers (USACE, 2011) and a planning scenario of 9 to 24 inches additional rise by 2060, consistent with projections presented in the 2014 National Climate Assessment and formally adopted by the partner counties in the Southeast Florida Regional Climate Change Compact, for the modeling effort. Future efforts include updating the model to include the revised sea level rise projection, which is expected to be published in May 2015 by the Southeast Florida Regional Climate Change Compact's (Compact) Sea Level Rise Consensus Workgroup.

**Quarter 1 Progress (January 31, 2015 – April 30, 2015)**

The following steps have been taken during the First Quarter towards implementation of Resolution R-46-15:

- Staff of the Miami-Dade Regulatory and Economic Resources Department (RER) and WASD are working to establish an internal working group, comprised of technical staff from key departments, to begin evaluating the engineering and other expertise needed to conduct a thorough analysis and develop cost estimates to acquire this expertise and begin formulating a capital plan. One of the first tasks for the technical workgroup is to develop criteria and parameters for use in the groundwater/surface water integrated model, which will then be utilized to help determine areas and infrastructure more at risk for flooding and inundation.
- The Compact's Sea Level Rise Consensus Workgroup is currently finalizing a revised Sea Level Rise Projection for Southeast Florida. This projection, which is expected to differ to some degree from the original sea level rise projection developed in 2011, will be utilized for planning purposes by Miami-Dade County and the other partners of the Compact. This revised projection and accompanying document are expected to be finalized and released in August 2015.
- As part of the Environmental Protection Agency Consent Decree process, WASD has conducted a preliminary sea level rise and storm surge risk assessment of coastal wastewater treatment plants, and has developed a scope of work for Request for Proposals for the design of Consent Decree Projects, which include the requirement to evaluate "project alternatives using life cycle cost analysis and vulnerability of the facilities to climate change impacts, such as sea level rise, storm surge, wind, and flooding; as well as recommending mitigation options for these impacts." This analysis process has already begun for the Ocean Outfall Legislation Program and will be used as an initial template for evaluation by the internal technical working group to consider as a template for other departments to consider following. Additional examples from other local governments are currently being identified for further evaluation by the internal technical working group.
- As part of the Ocean Outfall Legislation Program, WASD has contracted with the Ocean Outfall Legislation Program Management consultant for components of the required work, incorporating analyses for climate and sea level rise risks and vulnerabilities into robust facility designs and hardening plans. Tasks to date have included analysis of wastewater facility vulnerability and risk to projected changes in precipitation intensity, duration, and frequency.

- Miami-Dade County Parks, Recreation, and Open Spaces (PROS) Department has also begun considering the impacts of climate change and sea level rise to their infrastructure and services, and have begun addressing the potential threat to County marinas, beaches, coastal parks, and natural areas as an initiative in the Leadership Goal area of their 2014 Conservation Plan. Using as a guide the “Analysis of the Vulnerability of Southeast Florida to Sea Level Rise,” published in August 2012, by the Compact’s Inundation Mapping and Vulnerability Assessment Workgroup, PROS created basic (bathtub) inundation maps to show vulnerability of PROS sites and infrastructure to 1 feet and 2 feet of sea level rise. This information was then used to develop a proposed example adaptation plan for one PROS coastal park, to determine which infrastructure was likely at risk to 1 feet and 2 feet of sea level rise, and to develop a proposed priority list along with costs for actions needed to protect that infrastructure over time.
- It is anticipated that this vulnerability analysis by WASD and PROS can serve to inform the development of “an enhanced capital plan” as required by Resolution R-46-15. Therefore, the internal technical workgroup, once formed, will review, evaluate, and consider the plan for development as a process or template for use by other County departments to assess vulnerabilities and begin addressing those vulnerabilities.

Due to the anticipated timeline to accomplish the required modelling needed to better determine the areas in Miami-Dade County that are more vulnerable to sea level rise and flooding, and the complex evaluation needed to determine the technical resources and funding needed for an enhanced Capital Plan, it is requested that the deadline for the Final Report and Capital Plan be extended to one (1) year.

In accordance with Ordinance 14-65, this memorandum and report will be placed on the next available Board of County Commissioners meeting agenda.

If you have questions concerning the above, please contact Mark R. Woerner, AICP, Assistant Director for Planning, Department of Regulatory and Economic Resources, at (305) 375-2835 or [mwoerner@miamidade.gov](mailto:mwoerner@miamidade.gov).

cc: Honorable Harvey Ruvin, Clerk of Courts, Eleventh Judicial Circuit  
Robert A. Cuevas, Jr., County Attorney  
Office of the Mayor Senior Staff  
Jack Osterholt, Deputy Mayor/Director, Department of Regulatory and Economic Resources  
Jack Kardys, Director, Miami-Dade County Parks, Recreation, and Open Spaces  
Lester Sola, Director, Miami-Dade Water and Sewer Department  
Lourdes M. Gomez, Deputy Director, Department of Regulatory and Economic Resources  
Christopher Agrippa, Clerk of the Board  
Charles Anderson, Commission Auditor  
Eugene Love, Agenda Coordinator