



Broward County

Legislation Details (With Text)

File #:	20-395	Version:	1
		Status:	Agenda Ready
		In control:	Resilient Environment - Natural Resources Division
On agenda:	3/10/2020	Final action:	3/10/2020
Title:	MOTION TO ACCEPT updated Unified Regional Sea Level Rise Projection (2019) of the Southeast Florida Regional Climate Change Compact and directing staff to utilize the updated projection as the basis for sea level rise adaptation planning activities.		
Sponsors:			
Indexes:	Established Commission Goals		
Code sections:			
Attachments:	1. Exhibit 1 - Unified Sea Level Rise Projection, 2. Exhibit 2 - Sea Level Rise Projection Guidance Report		

Date	Ver.	Action By	Action	Result
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Broward County Commission Regular Meeting

Director's Name: Henry A. Snizek

Department: Environmental Protection

Division: Environmental Planning & Comm. Resilience

Information

Requested Action

MOTION TO ACCEPT updated Unified Regional Sea Level Rise Projection (2019) of the Southeast Florida Regional Climate Change Compact and directing staff to utilize the updated projection as the basis for sea level rise adaptation planning activities.

Why Action is Necessary

Board action is necessary to formally accept the updated Unified Regional Sea Level Rise Projection (2019) of the Southeast Florida Regional Climate Change Compact.

What Action Accomplishes

This action provides the Board with a sea level rise projection and support document to guide risk assessments and sea level rise adaptation planning county-wide and in coordination with the region of southeast Florida.

Is this Action Goal Related

Yes

Previous Action Taken

None.

Summary Explanation/Background

THE ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT AND THE

ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION RECOMMEND APPROVAL OF THE ABOVE MOTION.

This item supports the Commission's Value of "Encouraging investments in renewable energy, sustainable practices and environmental protection," Goal 2: Proactively lead in the planning, design and construction of projects supporting resilience and climate adaptation, including coordination with other entities to foster resilient design as part of local and regional projects, especially shore protection efforts.

The Southeast Florida Regional Climate Change Compact (Compact), updates the Unified Regional Sea Level Rise Projection at least every five years to provide ongoing and current guidance for regionally consistent sea level rise adaptation planning and decision-making. The Compact published the first Unified Regional Sea Level Rise (SLR) Projection for Southeast Florida in 2011, and updated the projection in 2015. The 2019 projection, the Compact's third Unified Regional SLR Projection, provides an update to the amount of anticipated sea level rise in Southeast Florida through 2120. These projections represent a consensus from a technical Work Group consisting of members from the academic community and federal agencies, with support from local government staff, and incorporates the most up-to-date, peer-reviewed literature, and climate modeling data.

Support for this item provides acceptance of the 2019 update to the Unified Regional SLR Projection for Southeast Florida as the basis for sea level rise adaptation planning in Broward County and in coordination with our regional partners (Exhibit 1). This action helps to ensure that all major infrastructure projects and planning decisions in Broward County and the Southeast Florida region are informed and guided by a common, geographically-relevant sea level rise projection.

The Unified Regional SLR Projection consists of the three planning curves as the basis for a Southeast Florida sea level rise projection for the 2040 and 2070 planning horizons. These curves are projected from the year 2000 to 2120 and include: National Oceanic and Atmospheric Administration (NOAA) High curve, the NOAA Intermediate High curve, and the median of the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 (AR5) Representative Concentration Pathway (RCP) 8.5 scenario from the IPCC, 2013 report. Mean sea level rise is projected to be ten to 17 inches by 2040 and 21 to 54 inches by 2070 (above the 2000 mean sea level in Key West, Florida). In the longer term, sea level rise is projected to be 40 to 136 inches by 2120. Projected sea level rise, especially beyond 2070, has a significant range of variation as a result of uncertainty in future greenhouse gas emissions reduction efforts and resulting geophysical effects. A fourth curve, the NOAA Extreme, is included for informational purposes, illustrating the possible upper limit of sea level rise in response to potentially massive ice sheet collapse in the latter part of the century.

The IPCC Median or lower blue shaded portion of the projection, (as seen on Exhibit 1), can be applied to most adaptable infrastructure projects to be replaced before 2070 or projects whose failure would result in limited consequences to others. Projects in need of a greater factor of safety related to potential inundation or with lower capacity to adapt mid-life should consider designing for the NOAA Intermediate High Curve. For critical infrastructure projects with design lives in excess of 50 years or low capacity to adapt mid-life, use of the NOAA High curve is recommended with planning values of 54 inches in 2070 and 136 inches in 2120. Sea level will continue to rise even if global

mitigation efforts to reduce greenhouse gas emissions are successful at stabilizing or reducing atmospheric Carbon Dioxide concentrations; however, emissions mitigation is essential to moderate the severity of potential impacts in the future. A substantial increase in sea level rise within this century is likely and may occur in rapid pulses rather than gradually.

Sea level measured at the Key West gauge has risen approximately 3.9 inches from 2000 to 2017. Interannual and interdecadal variation in the sea level rate of rise is anticipated, as is a persistent increase in sea level over the long term. Since 2013, the observed mean sea level has varied between the IPCC Median and NOAA Intermediate-High curves.

The 2019 update presents several adjustments to the current Regional SLR Projection (2015), as follows:

- The regional sea level projections provided by the National Oceanographic and Atmospheric Administration (NOAA) replaced two of the three previously used curves. The selected curves are regional projections rather than previously used global projections. The NOAA Intermediate High regional projection was selected as the upper boundary for typical infrastructure because of its IPCC determination to be very likely under the RCP 8.5 emissions pathway, which aligns with current global emissions trends. The NOAA Intermediate High regional projection also approximates the previously used U.S. Army Corps of Engineers (USACE) High curve. The NOAA High curve was updated with its regional projection. The third curve, the IPCC Median, was reprojected for the region (Key West) rather than global scale, using the NOAA (Sweet et al., 2017) methodology.
- The year 2000 has been selected as the initial year of the projection because of its use as the reference year for the latest regional sea level projections published by NOAA. NOAA has determined a new mean sea level for 2000, the midpoint of the tidal epoch from 1991 to 2009.
- The NOAA Extreme curve is displayed on the Unified Regional Sea Level Rise Projection for informational purposes but is not recommended for design.

The guidance document describes the recommended application of the projection as it relates to both high- and low-risk projects and short- and long-term planning efforts along with the methodology and science applied to develop the projection (Exhibit 2).

The recommended projection provides guidance for the Compact Counties and their partners to plan for and address the anticipated impacts of sea level rise within and across the region. The near-term planning horizons (through 2070) are critical to implementation of the Southeast Florida Regional Climate Change Action Plan and Broward's Community-wide Climate Change Action Plan and to efforts to optimize the remaining economic life of existing infrastructure while advancing adaptation strategies. As scientists continue to improve our understanding of the factors and reinforcing feedback mechanisms impacting sea level rise, the Southeast Florida community will need to adjust the projections accordingly and adapt to the changing conditions. To ensure public safety and economic viability in the long-run, strategic policy decisions will be needed to develop guidelines to direct future public and private investments to areas less vulnerable to future sea level rise impacts while working to reduce impacts in areas at risk.

Source of Additional Information

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Fiscal Impact

Fiscal Impact/Cost Summary

There is no fiscal impact associated with the acceptance of this projection.