



City of Hallandale Beach City Commission Agenda Cover Memo

Meeting Date:	Item Type:		1 st Reading	2 nd Reading
8/5/2020	<input checked="" type="checkbox"/> Resolution	Ordinance Reading	Click or tap to enter a date.	Click or tap to enter a date.
	<input type="checkbox"/> Ordinance	Public Hearing	<input type="checkbox"/>	<input type="checkbox"/>
File No.:	<input type="checkbox"/> Other	Advertising Required	<input type="checkbox"/>	<input type="checkbox"/>
20-171		Quasi Judicial:	<input type="checkbox"/>	<input type="checkbox"/>
Fiscal Impact (\$):	Account Balance (\$):	Funding Source:	Project Number :	
Long Term Savings: up to \$1.8 billion	N/A	Undetermined		
Contract/P.O. Required	RFP/RFQ/Bid Number:	Sponsor Name:	Department:	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	N/A	James Sylvain, P.E. Public Works Director	Public Works
Strategic Plan Focus Areas:				
<input type="checkbox"/> Financial	<input checked="" type="checkbox"/> Organizational Capacity	<input checked="" type="checkbox"/> Infrastructure	<input checked="" type="checkbox"/> Development, Redevelopment and Economic Development	
Implementation Timeline				
Estimated Start Date: Upon adoption Estimated End Date: Year 2100				

SHORT TITLE:

A RESOLUTION OF THE MAYOR AND CITY COMMISSION OF THE CITY OF HALLANDALE BEACH, FLORIDA, ADOPTING THE 2019 UPDATE OF THE UNIFIED REGIONAL SEA LEVEL RISE PROJECTION PRODUCED BY THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT AS THE BASIS FOR SEA LEVEL RISE ADAPTATION PLANNING ACTIVITIES; AND PROVIDING AN EFFECTIVE DATE.

STAFF SUMMARY:

Summary:

Staff is recommending that Commission adopt the 2019 Unified Sea Level Rise Projection produced by the Southeast Florida Regional Climate Change Compact.

Background:

The Southeast Florida Regional Climate Change Compact Steering Committee first convened a Technical Ad Hoc Work Group to develop a unified sea level rise projection for the Southeast Florida region in 2010. The work product included a Unified Sea Level Rise Projection and Guidance Document, which was adopted by the Compact Counties (Monroe, Miami-Dade, Broward, and Palm Beach Counties) in 2011. Thereafter, the Work Group recommended review and update of the sea level rise projection following the release of the Fifth Assessment Report by the United Nation's Intergovernmental Panel on Climate Change (IPCC, 2013) and the Third National Climate Assessment by the United States Global Research Program (NCA, 2014).

In September 2014, the Work Group was reconvened for the purpose of updating the Compact's unified SLR projection based on projections and scientific literature released since 2011. The updated projection and associated guidance document were finalized in October 2015. The guidance document provides a summary of the projections and publications reviewed and discussed by the Work Group, the methodology for deriving the projection, description of the recommended unified regional sea level rise projection and additional recommendations by the Work Group.

On January 27, 2016 the City Commission passed a Resolution (Exhibit 2) to adopt the Southeast Florida Regional Climate Change Compact's Unified Sea Level Rise projections. The 2015 unified projections were slated to be updated 5 years after publication.

Current Situation:

In December 2019, the Work Group and Compact released its most updated set of unified sea level rise projections (Exhibit 3). The updated projection incorporates both lower and upper boundaries based on global trends and local conditions and is considered appropriate guidance for the majority of land use and infrastructure planning decision making and investments in the region. The updated projection is as such:

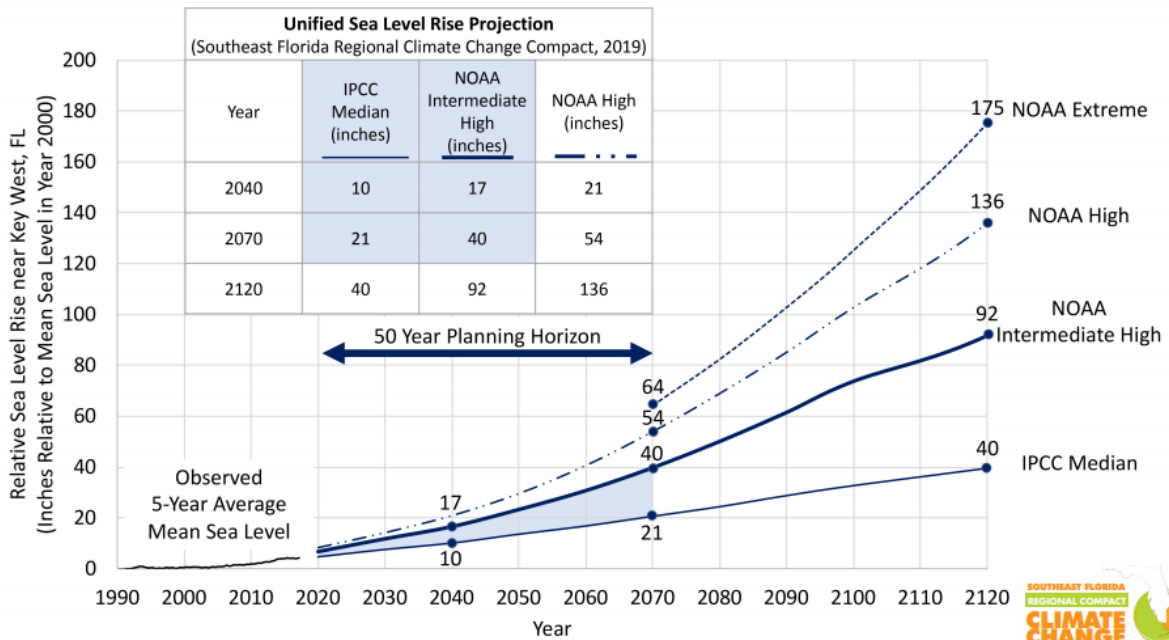


FIGURE 1: Unified Sea Level Rise Projection

These projections start from zero in year 2000 and are referenced to mean sea level at the Key West tide gauge. Based on the 5-year average of mean sea level, approximately 3.9 inches of sea level rise has occurred from 2000 to 2017 (see historic sea level section of guidance document). The projection includes global curves adapted for regional application: the median of the IPCC AR5 RCP 8.5 scenario (Growing Emissions Scenario) as the lowest boundary (solid thin curve), the NOAA Intermediate High curve as the upper boundary for short-term use until 2070 (solid thick line), the NOAA High curve as the upper boundary for medium and long-term use (dash-dot curve). The shaded zone between the IPCC AR5 RCP 8.5 median curve and the NOAA Intermediate High is recommended to be generally applied to most projects within a short-term planning horizon. Beyond 2070, the adaptability, interdependencies, and costs of the infrastructure should be weighed to select a projection value between the IPCC Median and the NOAA High curves. The NOAA Extreme curve (dash curve) brackets the published upper range of possible sea level rise under an accelerated ice melt scenario. Emissions reductions could reduce the rate of sea level rise significantly.

For the utilization of this updated projection, the Compact suggests that the following curves be used for infrastructure planning:

- **IPCC Median Curve:** most infrastructure projects before 2070 or projects whose failure would result in limited consequence to others
- **NOAA Intermediate High Curve:** infrastructure projects that may stay in place beyond a design life of 50 years and projects in need of a greater factor of safety related to potential inundation such as evacuation routes, communications and energy infrastructure, and critical government facilities
- **NOAA High Curve:** Existing and proposed critical infrastructure which are not easily replaceable or removable, have a 50+ year design life, and are interdependent on other infrastructure or services. Examples of projects which should utilize the NOAA High Curve include power plants, water/wastewater treatment facilities, levees or impoundments, and bridges along major evacuation routes.

For the design of infrastructure which falls into the categories above, design should reference North American Vertical Datum (NAVD88) as depicted below:

FIGURE 2: Unified Sea Level Rise Referenced to NAVD

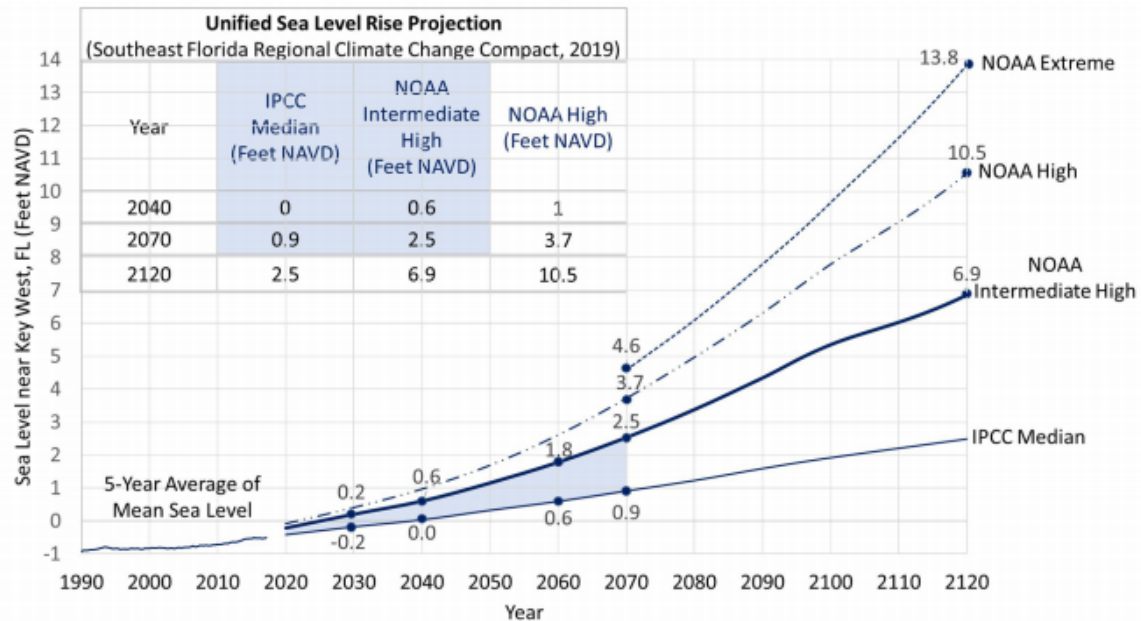


TABLE 3: Unified Sea Level Rise Projection Referenced to NAVD

UNIFIED SEA LEVEL RISE PROJECTION (Southeast Florida Regional Climate Change Compact, 2019)			
Year	IPCC Median (Feet NAVD)	NOAA Intermediate High (Feet NAVD)	NOAA High (Feet NAVD)
2040	0	0.6	1
2070	0.9	2.5	3.7
2120	2.5	6.9	10.5

Why Action is Necessary:

Pursuant to Article V, Section 5.01 of the City of Hallandale Beach Charter, a Resolution adopted by the City Commission is an expression of the Commission on matters of official concern and opinion.

Cost Benefit:

Implementing these Unified Sea Level Rise Projections for design and construction of infrastructure throughout the City is estimated to cost \$67 million for 2040 projections, \$91 million for 2070 projections, and \$297 million for 2100 projections. However, these additional costs have the potential to save the City six times as much money in avoided disaster recovery expenses due to the mitigation built into the infrastructure. The National Institute of Building Sciences released a finding in 2018 that every \$1 invested in disaster mitigation (like designing infrastructure to withstand future flooding) saves society \$6 in disaster recovery.

PROPOSED ACTION:

The City Commission consider the attached Resolution to adopt the update to the Unified Sea Level Rise Projection for Southeast Florida and utilize its recommendations for planning and infrastructure design.

ATTACHMENT(S):

Exhibit 1 – Proposed Resolution

Exhibit 2 – Resolution 2015 Unified Projections

Exhibit 3 – Unified Sea Level Rise Projection Southeast Florida 2019 Update