

**Attachment A**

**PROPOSED**

ORDINANCE NO.

1 AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF BROWARD  
2 COUNTY, FLORIDA, PERTAINING TO ANTECEDENT GROUND WATER AND  
3 SURFACE WATER STAGES USE TO DESIGN SURFACE WATER MANAGEMENT  
4 SYSTEMS, AMENDING 27-200(B)(5)3. OF THE BROWARD COUNTY CODE OF  
5 ORDINANCES ("CODE"); INCORPORATING A GROUNDWATER WATER ELEVATION  
6 MAP REFLECTING THE 2070 FUTURE CONDITION; AND PROVIDING FOR  
7 SEVERABILITY, INCLUSION IN THE CODE, AND AN EFFECTIVE DATE.

8 (Sponsored by the Board of County Commissioners)  
9

10 WHEREAS, Broward County (County) implements a permitting and licensing the  
11 construction and operation of surface water management systems;

12 WHEREAS, County adopted design criteria to ensure the surface water  
13 management systems provide adequate flood and water quality protections;

14 WHEREAS, Plate WM 2.1 – Future Conditions estimates the 2060 groundwater  
15 elevations assuming a 2.2 feet sea level rise;

16 WHEREAS, advances in the best available science and modeling necessitated a  
17 2019 update to the Unified Regional Sea Level Rise Projections, which projected a 3.3-  
18 foot increase in sea level rise (relative to 2000 water levels);

19 WHEREAS, County adopted the 2019 Unified Regional Sea Level Rise Projections  
20 in March 2020 and directed County staff to use this new baseline to update the County's

21 modeling and planning tools to account for the conditions anticipated over a 50-year  
22 planning horizon;

23 WHEREAS, County staff utilized the 2019 Unified Regional Sea Level Rise  
24 Projections as a model input to generate the updated Plate WM 2.3 – 2070 Future  
25 Conditions (2070) Average Wet Season Groundwater Elevation, resulting in a more  
26 accurate projection of groundwater elevations over a 50-year planning horizon; and

27 WHEREAS, incorporating the updated Plate WM 2.3 – 2070 Future Conditions  
28 Average Wet Season Groundwater Elevation into the Code’s surface water management  
29 design criteria will help ensure that new and major redevelopments are designed and  
30 constructed to deliver the necessary flood protection level of service and water quality  
31 treatment during their expected useful lifespan,

32 BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF  
33 BROWARD COUNTY, FLORIDA:

34 Section 1. Section 27-200 of the Broward County Code of Ordinances is hereby  
35 amended to read as follows:

36 **Sec. 27-200. Criteria for issuance or denial of licenses.**

37 . . .

38 (b) Surface water management:

39 . . .

40 (5) Design criteria:

41 . . .

42 3. Criteria:

43 . . .

44                   b)     Antecedent conditions: ~~Ground~~ Groundwater and surface  
45                   water stages antecedent to a design event shall be the higher  
46                   of the average wet season water levels or the applicable  
47                   control elevations. Plate WM 2.1– Average Wet Season  
48                   Groundwater Levels may be used for determining the average  
49                   wet season ~~ground~~ groundwater levels for use in calculating  
50                   a design event for existing projects, except for applications for  
51                   major redevelopment as defined in Section 27-192 or for a  
52                   major modification to a surface water management license. In  
53                   calculating a design event for new applications for a surface  
54                   water management license, applications for major  
55                   redevelopment of existing sites, and applications for major  
56                   modifications to existing surface water management licenses,  
57                   the applicant must use Plate WM 2.4~~2~~– 2060 Future  
58                   Conditions Average Wet Season Groundwater Levels or Plate  
59                   WM 2.3– 2070 Future Conditions Average Wet Season  
60                   Groundwater Levels, whichever shows a higher wet season  
61                   water level, shall be used for to determining the average wet  
62                   season ~~ground~~ groundwater levels ~~for use in calculating a~~  
63                   ~~design event for new applications for a surface water~~  
64                   ~~management license, applications for major redevelopment of~~  
65                   ~~existing sites, and applications for major modifications to~~

66 ~~existing surface water management licenses submitted after~~  
67 ~~June 30, 2017.~~

68 . . .

69 Section 2. Severability.

70 If any portion of this Ordinance is determined by any court to be invalid, the invalid  
71 portion will be stricken, and such striking will not affect the validity of the remainder of this  
72 Ordinance. If any court determines that this Ordinance, in whole or in part, cannot be  
73 legally applied to any individual, group, entity, property, or circumstance, such  
74 determination will not affect the applicability of this Ordinance to any other individual,  
75 group, entity, property, or circumstance.

76 Section 3. Inclusion in the Broward County Code of Ordinances.

77 It is the intention of the Board of County Commissioners that the provisions of this  
78 Ordinance become part of the Broward County Code of Ordinances as of the effective  
79 date. The sections of this Ordinance may be renumbered or relettered and the word  
80 "ordinance" may be changed to "section," "article," or such other appropriate word or  
81 phrase to the extent necessary to accomplish such intention.

82 Section 4. Effective Date.

83 This Ordinance is effective as of \_\_\_\_\_, 2024.

ENACTED

**PROPOSED**

FILED WITH THE DEPARTMENT OF STATE

EFFECTIVE

Approved as to form and legal sufficiency:  
Andrew J. Meyers, County Attorney

By: \_\_\_\_\_ 00/00/2023  
Jennifer D. Brown (date)  
Assistant County Attorney

By: \_\_\_\_\_ 00/00/2023  
Maite Azcoitia (date)

ATTY/para  
Ordinance Name  
11/28/2023  
iManage file#

Coding: Words ~~stricken~~ are deletions from existing text. Words underlined are additions to existing text.

# ATTACHMENT B



## Future Conditions Average Wet Season Groundwater Elevation Map

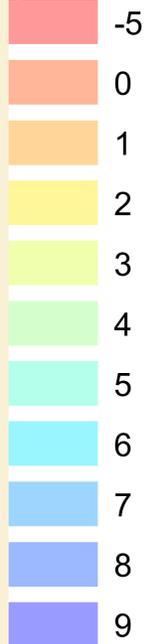
### WM 2.1 Future Conditions

05/05/2017

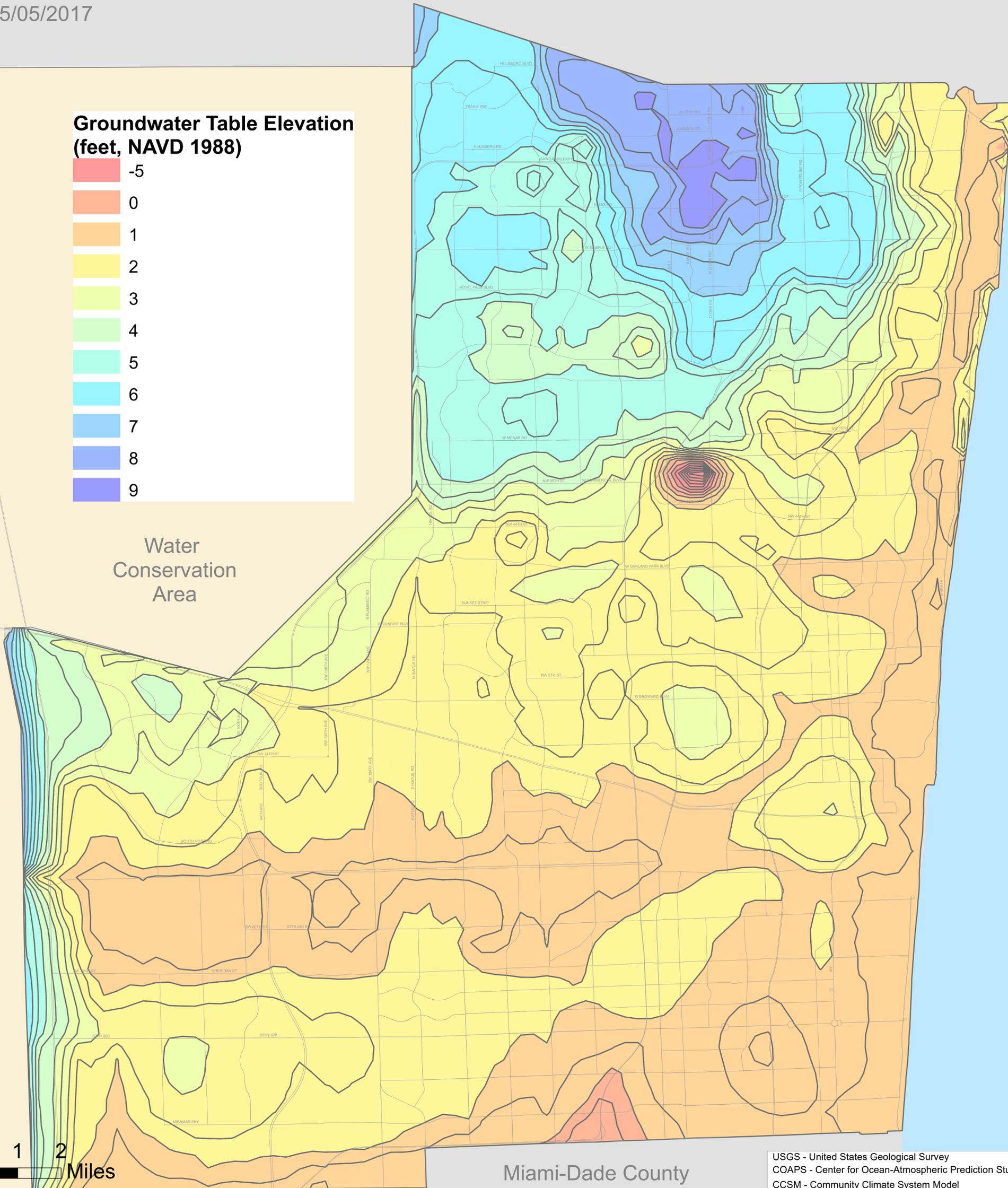
Palm Beach County



#### Groundwater Table Elevation (feet, NAVD 1988)



Water Conservation Area



Miami-Dade County



USGS - United States Geological Survey  
 COAPS - Center for Ocean-Atmospheric Prediction Studies  
 CCSM - Community Climate System Model  
 USACE - United States Army Corps of Engineers  
 NRC3 - National Research Council Curve 3  
 NAVD 88 - 1988 North American Vertical Datum

Division Name: Environmental Planning and Community Resilience  
 Department Name: Environmental Protection and Growth Management

The map represents the expected future average wet season groundwater elevations for Broward County. The average is based on model outputs for the months of May through October over the period of 2060-2069. The models used are The Broward County Inundation Model and the Broward County Northern Variable Density model, both developed by the USGS and MODFLOW based. The future conditions that are modified in the models are both precipitation and sea level rise. The future precipitation pattern is based on the COAPS downscaled CCSM global model and represents an increase of 9.1% rainfall from the base case of 1990-1999 (53.4 in/yr to 58.2 in/yr). Sea level rise was based on the USACE NRC3 curve which equates to an increase of 26.6 to 33.9 inches to the future period from 1992 levels. Final results are presented in NAVD 88.

This map is for planning purposes and should not be used for legal boundary determinations.

**WM 2.2**  
**2060 Future Conditions**

Palm Beach County



Water Conservation Areas

Atlantic Ocean

Miami-Dade County

USGS - United States Geological Survey  
COAPS - Center for Ocean-Atmospheric Prediction Studies  
CCSM - Community Climate System Model  
USACE - United States Army Corps of Engineers  
NRC3 - National Research Council Curve 3  
NAVD 88 - North American Vertical Datum 1988

Department Name - Resilient Environment Department

The map represents the predicted future average wet season groundwater elevations in Broward County based on model outputs for the months of May through October for the period of 2060-2069. The models used are MODFLOW-based Broward County Inundation Model Phase 1 and the Broward County Northern Variable Density Model developed by the USGS. The modeled future conditions are precipitation and sea level rise. The future precipitation pattern is based on the COAPS downscaled CCSM global model and represents an increase of 9.1% from the base case of 1990-1999 (53.4 to 58.2 in/yr). Sea level rise was based on the USACE NRC3 curve which equates to an increase of 26.6 to 33.9 inches from the base sea levels in 1992. Final results are presented in Feet NAVD88.

This map is for planning purposes and should not be used for legal boundary determinations.

**WM 2.3**  
**2070 Future Conditions**

Palm Beach County



**Groundwater Elevation**

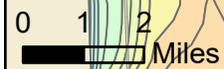
Feet NAVD 88



Water Conservation Areas

Atlantic Ocean

Miami-Dade County



USGS - United States Geological Survey  
 COAPS - Center for Ocean-Atmospheric Prediction Studies  
 CCSM - Community Climate System Model  
 NOAA - National Oceanic and Atmospheric Administration  
 NAVD 88 - North American Vertical Datum 1988

Department Name - Resilient Environment Department

The map represents the predicted future average wet season groundwater elevations in Broward County based on model outputs for the months of May through October for the year 2070. The models used are MODFLOW-based Broward County Inundation Models Phase 1 and Phase 2, and the Broward County Northern Variable Density Model developed by the USGS. The modeled future conditions are precipitation and sea level rise. The future precipitation pattern is based on the COAPS downscaled CCSM global model and represents an increase of 9.1% from the base case of 1990-1999 (53.4 to 58.2 in/yr). This map is an update to Plate WM 2.1 - Future Conditions, in accordance with the 2017 NOAA Intermediate-High Sea Level Rise Scenario for 2070 with a predicted increase of 40 inches relative to the year 2000. Final results are presented in Feet NAVD88.

This map is for planning purposes and should not be used for legal boundary determinations.

## Attachment E

### **Broward County Land Use Plan:**

- STRATEGY CCR-2 Increase the resilience of our community to the effects of climate change.
- STRATEGY EP-2: Create a countywide water management/flood protection plan.
- STRATEGY DP-1: Develop and implement a countywide long-term recovery and redevelopment strategy.
- POLICY 2.21.3 Broward County shall update climate related policies and maps, including the Priority Planning Areas for Sea Level Rise Map, in the Land Use Plan with best available data, every 5 years or as available, including findings of the Broward County and USGS Joint Climate Change Inundation Modeling effort, which seeks to achieve a better understanding of the impacts of climate change and rising sea level on the County's water supplies, drainage and flood control systems.
- POLICY CC2.9 Broward County shall continue to improve analysis and mapping capabilities for identifying areas of the County vulnerable to sea level rise, tidal flooding, and other impacts of climate change. Activities shall include acquisition of increasingly accurate Light Detection and Ranging (LiDAR) data, or other state-of-the-art elevation data, and other necessary modeling data and programs every 5 years to update the Priority Planning Area for Sea Level Rise Map in the County's Land Use Plan and the Future Conditions map series and improve available information needed to make informed decisions regarding adapting to the impacts of climate change.
- POLICY CC2.10 Broward County shall maintain a "Future Conditions Map Series," including a Future Conditions Average Wet Season Groundwater Elevation Map and a Future Conditions 100-yr Flood Elevation Map, in order to incorporate new planning and design standards to account for predicted changes in groundwater and flood levels due to sea level rise and potential increases in rainfall and ensure the resiliency of current and future infrastructure investments.
- POLICY CC2.12 Broward County, in conjunction with its municipalities and partner agencies, shall make the practice of adapting the built environment to the impacts of climate change an integral component of all planning processes, including but not limited to: comprehensive planning, building codes, life-safety codes, emergency management, land development and zoning regulations, water resource management, flood control and storm water management, coastal management, and community development.

### **Broward County Comprehensive Plan:**

- POLICY WM2.5 Broward County will continuously update the future conditions map series, including wet season groundwater elevation and future condition flood elevation maps, to reflect impacts of projected sea level rise and climate change for planning and regulatory purposes.
- POLICY WM3.14 Broward County will ensure that the construction and operation of storm water management systems comply with all applicable provisions within Chapter 27, Article V, "Water Resource Management", Broward County Code of Ordinances, which includes water quality standards and a provision for adequate area and easements to accommodate a storm water management system in accordance with current drainage standards.
- POLICY WM3.15 The Broward County Planning Council and the Planning and Development Management Division (PDMD) will require applications for land use plan amendments in the flood-prone portions of the County to contain sufficient data and analyses for the County to make a determination that the subsequent development: (1) will be served by adequate storm water management and drainage facilities; (2) will not adversely affect ground water

quality, environmentally sensitive lands, or wetlands; and (3) will not lead to increased saltwater intrusion or area-wide flooding.

### **Broward County Climate Change Action Plan**

- POLICY 9. Address mitigation and adaptation policies in the Land Use Plan. Ensure the County's Land Use Plan addresses mitigation and adaptation policies. Maintain and update the Priority Planning Areas Map for Sea-Level Rise and Future Conditions Map Series in accordance with updates to the regional sea-level rise projection. Support linking local and state infrastructure investments to improved integration of multimodal transportation and land use, expansion of transportation choices, reduction in single-occupancy vehicle trips and greenhouse gas emissions, improvement in energy efficiency, provision of affordable housing near employment centers, and other progress toward sustainability and a better quality of life.

### **Southeast Florida Regional Climate Action Plan 3.0**

- ER-2 Advance resilience standards and infrastructure improvements.
- ST-1.1 Review local government comprehensive plans and transportation, infrastructure and capital improvement plans to determine gaps in planning for projected sea level rise in Southeast Florida and ensure resilience objectives are incorporated. Identify opportunities to maximize intergovernmental and interagency coordination on utilization of the Southeast Florida Regionally Unified Sea Level Rise Projections.
- ST-2.1 Develop sea level rise scenario maps and updated storm surge maps, based on the Compact's Regionally Unified Sea Level Rise Projections and the National Oceanic and Atmospheric Administration's (NOAA) Sea, Lake and Overland Surges from Hurricanes (SLOSH) model, to be included in appropriate local and regional planning documents.
- ST-2.3 Continue to update maps in local and regional plans as more data becomes available and scientific projections are refined. Local governments, agencies and organizations should use best available data and tools for land use and other planning.
- WS-8.1 Modernize planning, design standards and permitting for development and infrastructure improvements of drainage systems, surface water management systems, and finished floor elevations to reflect updates that integrate future climate conditions into groundwater table maps, flood elevation maps and tidal elevations. Consider incremental adaptations to incorporate uncertainty in future climate conditions.