

Legend

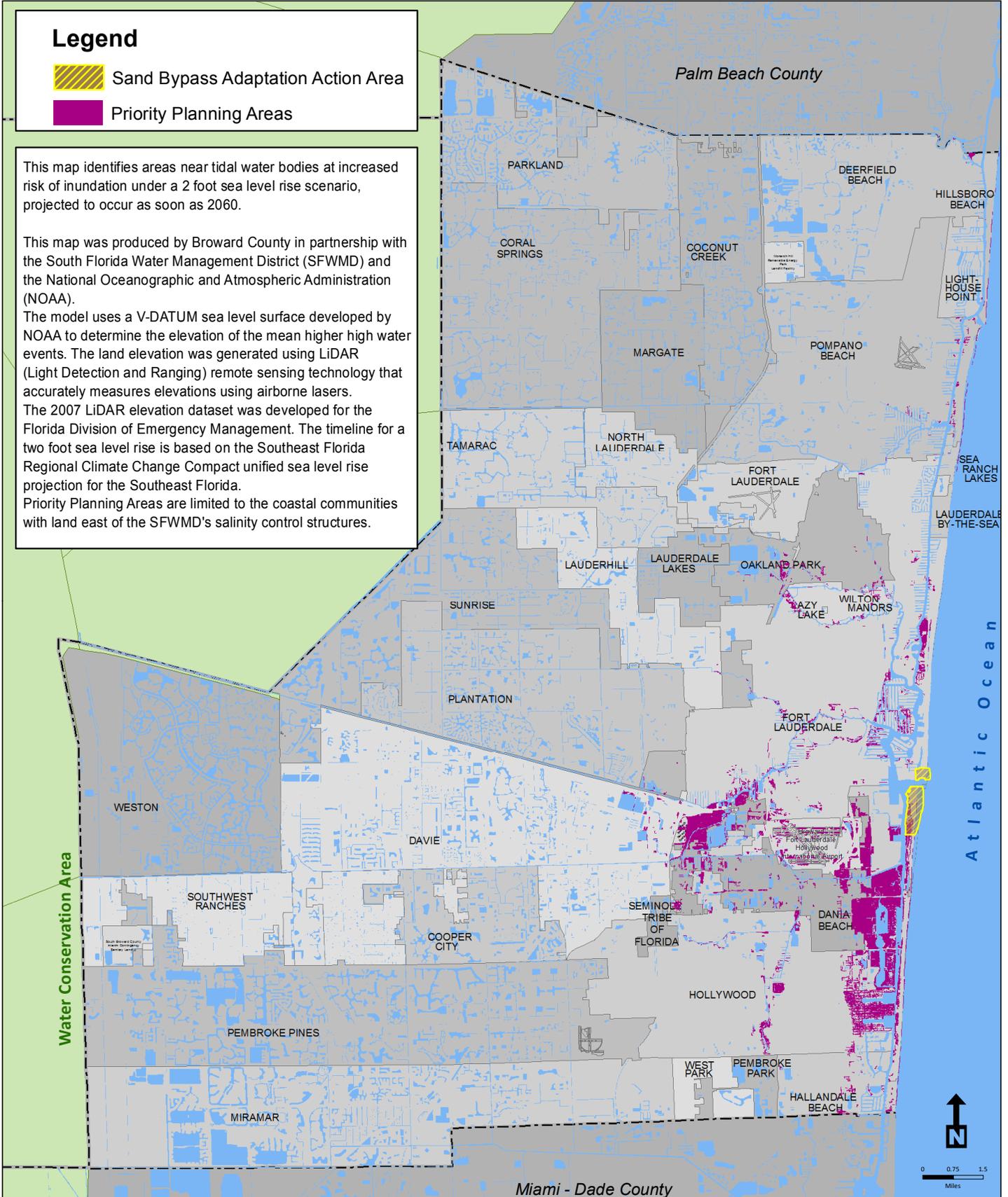
- Sand Bypass Adaptation Action Area
- Priority Planning Areas

This map identifies areas near tidal water bodies at increased risk of inundation under a 2 foot sea level rise scenario, projected to occur as soon as 2060.

This map was produced by Broward County in partnership with the South Florida Water Management District (SFWMD) and the National Oceanographic and Atmospheric Administration (NOAA).

The model uses a V-DATUM sea level surface developed by NOAA to determine the elevation of the mean higher high water events. The land elevation was generated using LiDAR (Light Detection and Ranging) remote sensing technology that accurately measures elevations using airborne lasers.

The 2007 LiDAR elevation dataset was developed for the Florida Division of Emergency Management. The timeline for a two foot sea level rise is based on the Southeast Florida Regional Climate Change Compact unified sea level rise projection for the Southeast Florida. Priority Planning Areas are limited to the coastal communities with land east of the SFWMD's salinity control structures.



Adopted: December 8, 2015

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

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

Current Priority Planning Areas (PPA) for Sea Level Rise Map plus Proposed PPA Sites

MAP 2

LEGEND

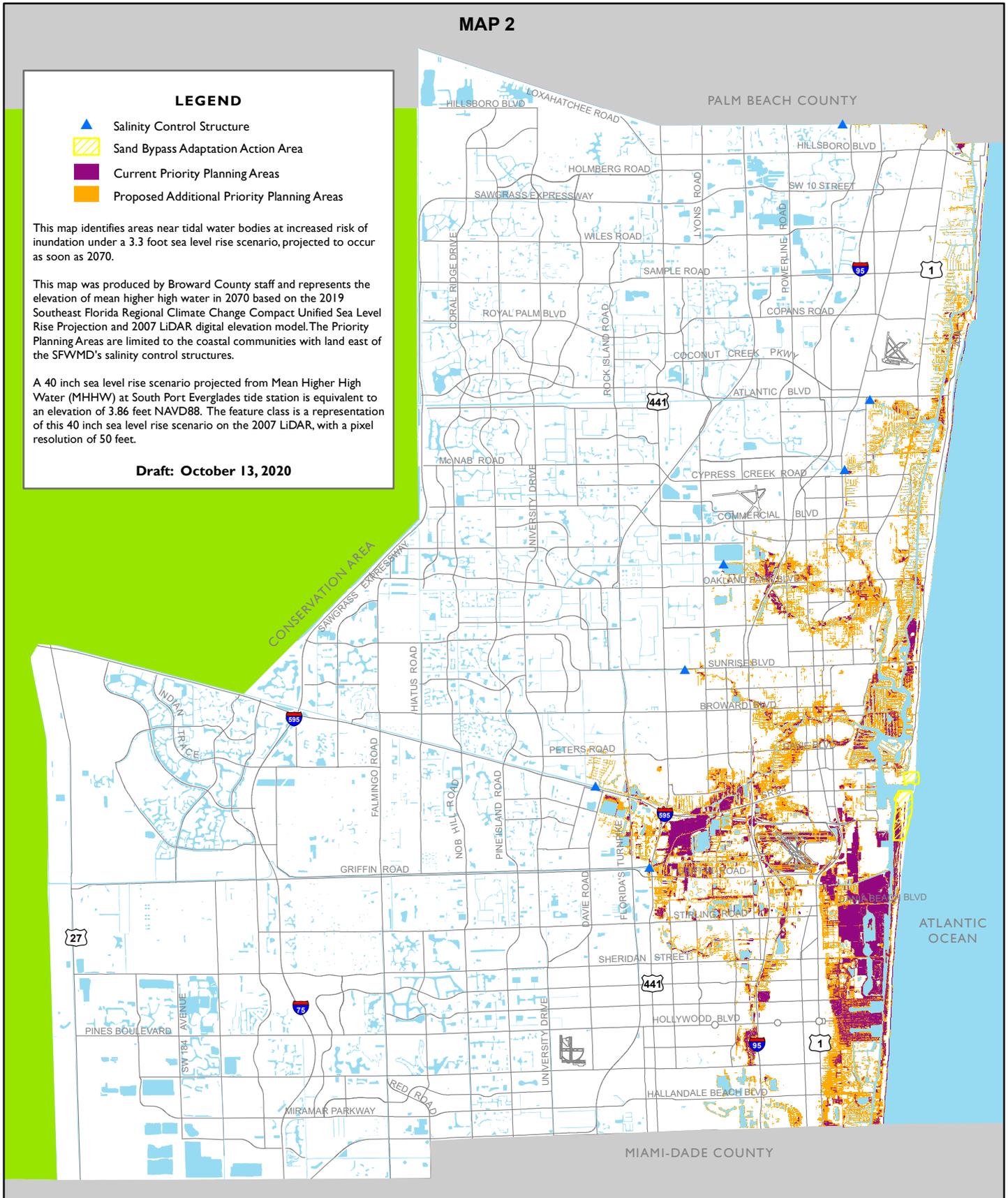
- ▲ Salinity Control Structure
- Sand Bypass Adaptation Action Area
- Current Priority Planning Areas
- Proposed Additional Priority Planning Areas

This map identifies areas near tidal water bodies at increased risk of inundation under a 3.3 foot sea level rise scenario, projected to occur as soon as 2070.

This map was produced by Broward County staff and represents the elevation of mean higher high water in 2070 based on the 2019 Southeast Florida Regional Climate Change Compact Unified Sea Level Rise Projection and 2007 LiDAR digital elevation model. The Priority Planning Areas are limited to the coastal communities with land east of the SFWMD's salinity control structures.

A 40 inch sea level rise scenario projected from Mean Higher High Water (MHHW) at South Port Everglades tide station is equivalent to an elevation of 3.86 feet NAVD88. The feature class is a representation of this 40 inch sea level rise scenario on the 2007 LiDAR, with a pixel resolution of 50 feet.

Draft: October 13, 2020



SOURCES

Broward County Environmental Planning and Community Resilience Division, Broward County Planning Council

This is a generalized map. This map should not be used to determine parcel boundaries or limits of depicted items. Please contact the Broward County Planning Council office at 954.357.6695 regarding questions pertaining to parcel boundaries or limits.



BROWARD COUNTY LAND USE PLAN NATURAL RESOURCE MAP SERIES

MAP 3

LEGEND

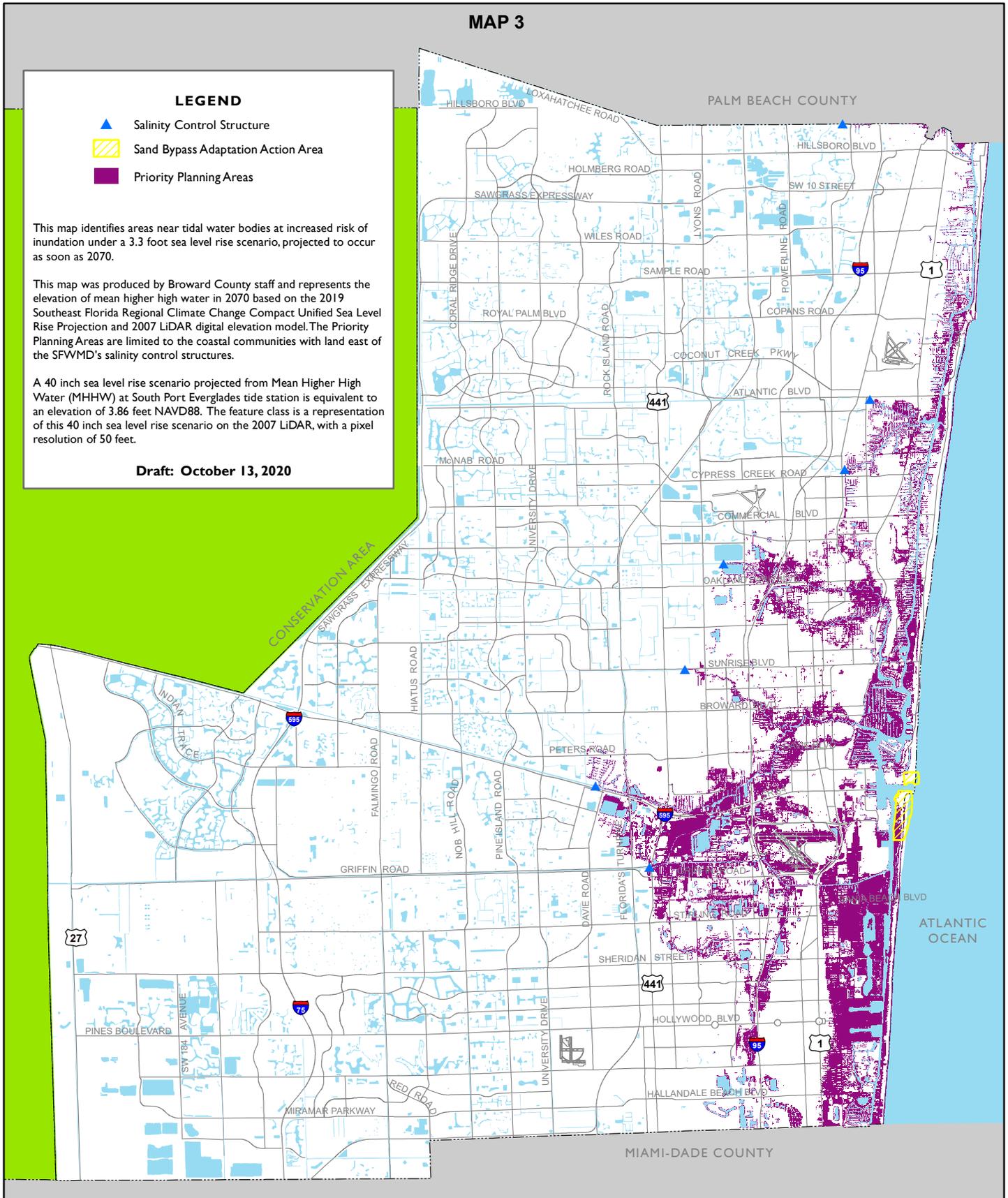
-  Salinity Control Structure
-  Sand Bypass Adaptation Action Area
-  Priority Planning Areas

This map identifies areas near tidal water bodies at increased risk of inundation under a 3.3 foot sea level rise scenario, projected to occur as soon as 2070.

This map was produced by Broward County staff and represents the elevation of mean higher high water in 2070 based on the 2019 Southeast Florida Regional Climate Change Compact Unified Sea Level Rise Projection and 2007 LiDAR digital elevation model. The Priority Planning Areas are limited to the coastal communities with land east of the SFWMD's salinity control structures.

A 40 inch sea level rise scenario projected from Mean Higher High Water (MHHW) at South Port Everglades tide station is equivalent to an elevation of 3.86 feet NAVD88. The feature class is a representation of this 40 inch sea level rise scenario on the 2007 LiDAR, with a pixel resolution of 50 feet.

Draft: October 13, 2020



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SECTION I
AMENDMENT REPORT
BROWARD COUNTY LAND USE PLAN
PROPOSED AMENDMENT PCNRM 20-2

**(NATURAL RESOURCE MAP SERIES -
PRIORITY PLANNING AREAS FOR SEA LEVEL RISE MAP)**

RECOMMENDATIONS/ACTIONS

DATE

I. Planning Council Staff Transmittal Recommendation

October 13, 2020

It is recommended that the proposed amendment to the Broward County Natural Resource Map Series – Priority Planning Areas for Sea Level Rise map be approved. **See Map 3.**

As the Planning Council is aware, the Broward County Charter requires at least one Planning Council public hearing and Article 1.2(A) of the *Administrative Rules Document: BrowardNext* outlines the following circumstances in which a second Planning Council public hearing may be recommended or required:

- (1) At its initial public hearing, the Planning Council takes an action to recommend denial of a proposed amendment; or
- (2) At its initial public hearing, the Planning Council takes an action to recommend approval subject to meeting specific criteria or policy prior to a second Planning Council public hearing; or
- (3) At its initial public hearing, the Planning Council votes by a majority of the members present with a minimum of six (6) affirmative votes for a second Planning Council public hearing; or
- (4) If the County Commission requests by a vote of the majority of members present to request a second Planning Council public hearing; or
- (5) If an objection or comment on adverse impacts to important state resources or facilities is issued during the State of Florida Chapter 163 review process; or
- (6) If State of Florida Chapter 163 requires or is modified to require a second local planning agency public hearing.

If the Planning Council chooses to require a second Planning Council public hearing per Article 1.2(A)(1)(2) or (3), such recommendation must be made as part of its motion.

II. Planning Council Transmittal Recommendation

October 22, 2020

Approval per Planning Council staff transmittal recommendation, including not requiring a second Planning Council public hearing. (Vote of the board; Unanimous; 16-0: Blackwelder, Blattner, Breslau, Castillo, DiGiorgio, Fernandez, Gomez, Good, Graham, Hardin, Maxey, Parness, Railey, Rich, Ryan and Stermer.)

SECTION II
AMENDMENT REPORT
PROPOSED AMENDMENT PCNRM 20-2

BACKGROUND

The Broward County Board of County Commissioners adopted the first iteration of the Priority Planning Areas for Sea Level Rise (PPA) map on February 12, 2013. The PPA map identified areas at increased risk of flooding in accordance with the 2012 Unified Regional Sea Level Rise Projection, which predicted a 2-foot increase in sea level by the year 2060. The PPA map has since been utilized to implement several policies in the BrowardNext – Broward County Land Use Plan (BCLUP) related to climate change, including the review of proposed land use plan amendments per Policy 2.21.1, which states in part that “Broward County shall evaluate plan amendments within Priority Planning Areas for Sea Level Rise and strongly discourage those amendments which would place additional residential and non-residential development at risk of flooding from sea level rise.”

The 2015 iteration of the PPA map designated the Port Everglades Sand Bypass project area as an Adaptation Action Area (AAA) of regional significance, as well as updated the data to include both the “more likely” and the “possible” inundation layers, which depict those areas within the county with a certainty level of between 25% and 100%. The BCLUP text was concurrently amended to create a process and implementation criteria for designating AAA’s of regional significance, as well as providing a method for de-designation of areas that have successfully mitigated the effects of sea level rise based on adaptation strategies, or changes in land use, community priorities, or other such considerations. The current PPA map and BCLUP text were adopted by the Broward County Commission on December 8, 2015. **See Map 1.**

BCLUP Policy 2.21.3 which states that “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.”

In an effort to utilize best available data as required by Policy 2.21.3, the Broward County Environmental Planning and Community Resilience Division (EPCRD) submitted an amendment package to update the PPA map based upon the 2019 Regional Sea Level Rise Projection for Southeast Florida. The proposed PPA map reflects future conditions anticipated for a 50-year planning horizon (i.e. through 2070), and predicts a 40 inch (3.3-foot) increase in sea level rise (relative to 2000), consistent with the 2017 National Oceanic and Atmospheric Administration (NOAA) Intermediate High Curve. **See Attachment 1.**

Map 2 depicts the current PPA map together with proposed additional PPA sites. **Map 3** depicts the proposed PPA map.

PUBLIC OUTREACH

The Broward County Environmental Planning and Community Resilience Division (EPCRD) held two (2) virtual public workshops on June 23 and July 7, 2020. The workshops were attended by close to 100 stakeholders representing several municipalities and regional agencies. The EPCRD also made presentations at the Broward County Water Advisory Board's (WAB) meeting on September 11, 2020, as well as the WAB's Technical Advisory Committee on August 21, 2020. There were no substantive concerns or objections regarding the proposed PPA map amendment update. General questions and the EPCRD responses from the workshops and presentations can be found in Attachment 2. In addition, written comments were received by the EPCRD from the Florida Department of Transportation District 4:

- **Florida Department of Transportation (FDOT)** believes that early participation in the processing of land use plan map amendments that increase the intensity or density of the parcel, are located within a PPA and have access to State maintained roads, would be beneficial to all parties. In addition, the FDOT would like to obtain the PPA GIS data files for its use. The FDOT also suggested including small sub-area maps, such as by municipality, for easy adoption and use by partners. **See Attachment 2.**

Planning Council staff distributed the proposed amendment via email to all municipal mayors, managers and planning directors on September 9, 2020. As of this writing, written comments have been received from the City of Fort Lauderdale:

- **Fort Lauderdale** requested that the County utilize the City's more recent Lidar data in hopes to get a higher level of detail when portraying the PPA map. The EPCRD staff advised that the County's PPA map will be updated again once countywide 3D Elevation Program (3DEP) data is received, but that in the interim the City could utilize its own Lidar data to examine land areas lower than 3.86 feet when considering the planning needs of areas at higher risk of inundation. **See Attachment 2.**

SECTION III
AMENDMENT REPORT
PROPOSED AMENDMENT PCNRM 20-2

PLANNING ANALYSIS

The Priority Planning Areas for Sea Level Rise (PPA) map is intended to focus on areas that are potentially vulnerable to sea level rise and outlines priority planning locations that may be directly impacted by sea level rise due to their location and tidal influence. Further, the map is utilized to implement several policies in the Broward County Land Use Plan (BCLUP), including the review of proposed BCLUP amendments per Policy 2.21.1, to determine if areas proposed for development or redevelopment are at risk of flooding from sea level rise.

The purpose of this amendment is to update the PPA map based upon the 2019 Regional Sea Level Rise Projection for Southeast Florida. The proposed PPA map reflects future conditions anticipated for the current 50-year planning horizon (i.e. through 2070), and predicts a 40 inch (3.3-foot) increase in sea level rise (relative to 2000), versus the current 2-foot increase by 2060 as predicted by the 2012 and 2015 Projections. **See Attachment 1.**

For clarification, the matter of implementation of the map in the review of BCLUP policies is for planning purposes only. Depiction of an area on this map does not preclude or prohibit development vulnerable to sea level rise; however, per Policy 2.21.1, the County will consider potential mitigation strategies and requirements included within local comprehensive plans and/or development regulations or flood protection improvements committed to by amendment applicants.

A digital version of the map is available and creates the ability for interested parties and municipalities to zoom in on particular areas.

In the future, the map may be updated and amended based on additional data and improved mapping and modeling information, for the designation of additional AAA's, or for the de-designation of existing AAA's that no longer meet the criteria for AAA status.

Planning Council staff recommends approval of the proposed amendment.

SECTION IV
AMENDMENT REPORT
PROPOSED AMENDMENT PCNRM 20-2

MAPS

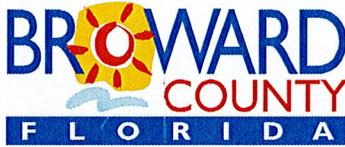
1. Current “Priority Planning Areas for Sea Level Rise” Map (adopted December 8, 2015)
2. Current “Priority Planning Areas for Sea Level Rise” Map plus Proposed PPA Sites
3. Proposed “Priority Planning Areas for Sea Level Rise” Map

(The attached maps are for illustrative purposes and to conserve resources. Digital copies of the maps are available online as part of the agenda materials.)

ATTACHMENTS

1. Correspondence from Jennifer Jurado, PH.D., Chief Resilience Officer and Director, Broward County Environmental Planning and Community Resilience Division, to Barbara Blake Boy, Executive Director, Broward County Planning Council, dated May 26, 2020
2. Correspondence from Jennifer Jurado, PH.D., Chief Resilience Officer and Deputy Director, Broward County Environmental Protection and Growth Management Department, to Barbara Blake Boy, Executive Director, Broward County Planning Council, dated September 16, 2020

ATTACHMENT 1



**ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT
ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION**

115 S. Andrews Avenue, Room 329H • Fort Lauderdale, Florida 33301 • 954-519-1270 • FAX 954-519-1496

DATE: May 26, 2020

TO: Barbara Blake Boy, Executive Director, Broward County Planning Council

FROM: Jennifer Jurado, Ph.D., Chief Resilience Officer and Director, Environmental Planning and Community Resilience Division *J.J.*

SUBJECT: *Proposed amendment to the Broward County Land Use Plan Natural Resource Map (NRM) Series Priority Planning Areas Map for Sea Level Rise in accordance with the 2019 Unified Regional Sea Level Rise Projection for the year 2070.*

On February 12, 2013 (Item 11) the Broward County Board of County Commissioners, with the recommendation of the Planning Council, adopted the Priority Planning Area for Sea Level Rise Map as part of the County's Natural Resources Map Series to support sea level rise adaptation planning. This map identifies areas identified at increased risk of flooding in accordance with the 2012 Unified Regional Sea Level Rise Projection and a 50-year planning horizon, with a predicted two-foot increase in sea level in the year 2060.

As the science has advanced, global climate models and projections have informed update of the Regional Sea Level Rise Projection for Southeast Florida. On March 10, 2020 (Item 28), the Board of County Commissioners accepted the third iteration to the Regional Projection, the 2019 Update, and directed staff direction to utilize this updated projection as the basis for sea level rise adaptation planning. Accordingly, it is now necessary to update the County's planning tools to account for future conditions anticipated for the 50-year planning horizon extending to 2070, and align planning requirements to account for the predicted 40 inch (3.3 feet) increase in sea level (relative to 2000), consistent with the 2017 NOAA Intermediate High Curve.

The proposed change would amend the Priority Planning Areas (PPA) map of the Natural Resource Map Series of the BrowarNEXT Broward County Land Use Plan. This map is used as the basis for assessing future flood risk as a function of land elevation and coastal water levels and thus aid in informing adaptation needs in the context of land use considerations. Areas within the PPA are most directly affected

by the influence of sea level rise and on surface and groundwater levels, impacts most pronounced in coastal areas seaward of salinity control structures.

Update of planning requirements is necessary as climate trends and predictions provide greater insight as to the magnitude of adaptation needs. These investments will help provide coordinated, strategic responses to changing climatic and sea level rise conditions and thus help ensure a resilient Broward County.

Please contact me or Sara Forelle, AICP, Planning Section Supervisor, Planning and Development Management Division at SForelle@broward.org or at 954-357-6635 if you have any questions or require additional information.

Attachments:

Memo to Planning Council
Staff Report and Proposed Map

CC: Bertha Henry, County Administrator
Henry Sniezek, Director, Environmental Protection and Growth Management Department
Samantha Danchuk, Ph.D., Assistant Director, Environmental Planning and Community Resilience Division
Sara Forelle, AICP, Planning Section Supervisor, Planning and Development Management Division

JJ/slf

STAFF REPORT

Amendment to the Priority Planning Areas (PPA) Map, BrowardNEXT Land Use Plan Natural Resource Map Series

I. Item Summary.

Commission District	All
Applicant/Agent	Environmental Protection and Growth Management Department (EPGMD) Environmental Planning and Community Resilience Division (EPCRD)
Proposed modifications	<ul style="list-style-type: none"> Deletes and replaces the Priority Planning Areas Map of the BrowardNEXT Land Use Plan Natural Resource Map Series.
Effect of Proposed Change	<ul style="list-style-type: none"> Amends the Priority Planning Areas to be consistent with the Sea Level Rise projections in accordance with the 2019 Unified Regional Sea Level Rise Projection for the year 2070 (see Exhibit 1).
Land Use Plan Consistency	Consistent with BrowardNEXT Broward County Land Use Plan: Strategy CCR-2 Policies 2.21.3, 2.21.7

II. Staff Recommendation. Recommend that the Broward County Planning Council support staff recommendation and Broward County Board of County Commissioners (Board) transmit the proposed amendment to state review agencies, consistent with the requirements of SS. 163.3174 and 163.3184, F.S.

III. Background. The Priority Planning Area Map identifies areas near tidally-influenced water bodies at increased risk of inundation under a given sea level rise scenario, projected to occur by or before the planning horizon depicted on the map derived from Unified Regional Projections coordinated through the Southeast Florida Regional Climate Change Compact.

On February 12, 2013 (Item 11) the Board of County Commissioners (Board) adopted the Priority Planning Area for Sea Level Rise Map to support sea level rise adaptation planning. This map identifies areas identified at increased risk of flooding in accordance with the 2012 Unified Regional Sea Level Rise Projection and a 50-year planning horizon, with a predicted two-foot increase in sea level in the year 2060. As the science has advanced, global climate models and projections have informed update of the Regional Sea Level Rise Projection for Southeast Florida. The Board adopted an update to this map on December 8, 2015 (Item 15) to include the Port Everglades Sand Bypass project areas as an Adaptation Action Area of regional significance.

In the meantime, the Board has continued to advance community resilience through strategic planning, regulatory processes, and technical investments. On March 31, 2020 the Board adopted an amendment to Chapter 39 of the Broward County Code of Ordinances that incorporates standard minimum seawall and top-of-bank elevation for new construction and seawall improvements for Unincorporated Broward County (Broward Municipal Services District). This amendment will serve as a model ordinance for tidally-influenced municipalities. Public comment was open on the

proposed amendment from April 2, 2019 through May 31, 2019, as well as included in the distribution by Planning Council staff. Feedback was positive and reinforcing of the approach.

Up until now, the County's resilience efforts have been benchmarked to a 2-foot SLR scenario and 50-year time horizon. However, on March 10, 2020 (Item 28), the Board accepted the third iteration to the Compact's Regional Sea Level Rise Projection (the 2019 Update) and directed staff direction to utilize this updated projection as the basis for sea level rise adaptation planning. Accordingly, it is now necessary to update the County's planning tools to account for future conditions anticipated for the 50-year planning horizon extending to 2070, and align planning requirements to account for the predicted 40 inch increase in sea level (relative to 2000), consistent with the projection's primary curve of reference, the NOAA Intermediate High Curve.

IV. Description of Amendment. The proposed Amendment deletes and replaces the Priority Planning Areas Map of the BrowardNEXT Land Use Plan Natural Resource Map Series consistent with the Sea Level Rise projections in accordance with the 2019 Unified Regional Sea Level Rise Projection for the year 2070 (**Exhibit 1**).

V. Data & Analysis.

Data and Analysis

As the science has advanced, global climate models and projections have informed update of the Regional Sea Level Rise Projection for Southeast Florida. 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. 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.

The Unified Regional SLR Projection (see Exhibit 2) 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.

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.

Of note:

- 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 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.
- Mapping of the 40-inch sea level rise scenario is based upon the Mean Higher High Water Level and the regional digital elevation model developed in conjunction with Compact partners and the assistance of NOAA. Elevation is presented in North American Vertical Datum (NAVD) 88.

Use of this 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.

Consistency with the BrowardNEXT 2017 Broward County Land Use Plan

The proposed changes are consistent with the following Land Use Plan strategies and policies:

STRATEGY CCR-2: Increase the resilience of our community to the effects of climate change.

Implementation strategy: Applying the unified sea level rise projection for Southeast Florida when considering land use (including areas of potential population growth, natural system restoration, and infrastructure adaptation) and long-term functionality of appurtenant infrastructure, especially water management, drainage, water supply and water treatment systems, both coastal and inland.

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 2.21.7 In order to ensure coordination, consistency and maximum effectiveness of improvements necessary to mitigate high tide flooding associated with realized and additional sea level rise through the year 2070, tidally-influenced municipalities shall adopt within 24-months of the effective date of this Policy (February 13, 2020), regionally consistent top elevations for seawalls, banks and berms, and other appurtenant infrastructure (e.g., boat ramps) consistent with the findings and recommendations of the United States Army Corps of Engineers/Broward County Flood Risk Management Study for Tidally Influenced Coastal Areas. These standards shall be consistent with Chapter 39, Article XXV – Resiliency Standards for Flood Protection - of the Broward County Code of Ordinances, which shall serve as the model ordinance, and shall not be applicable to oceanfront beaches or shorelines seaward of the Coastal Construction Control Line.

VI. Exhibits

Exhibit 1: Proposed Map

Exhibit 2: Unified Regional Sea Level Rise Projection (2019 Update)

EXHIBIT 1 – Proposed Map - page 1

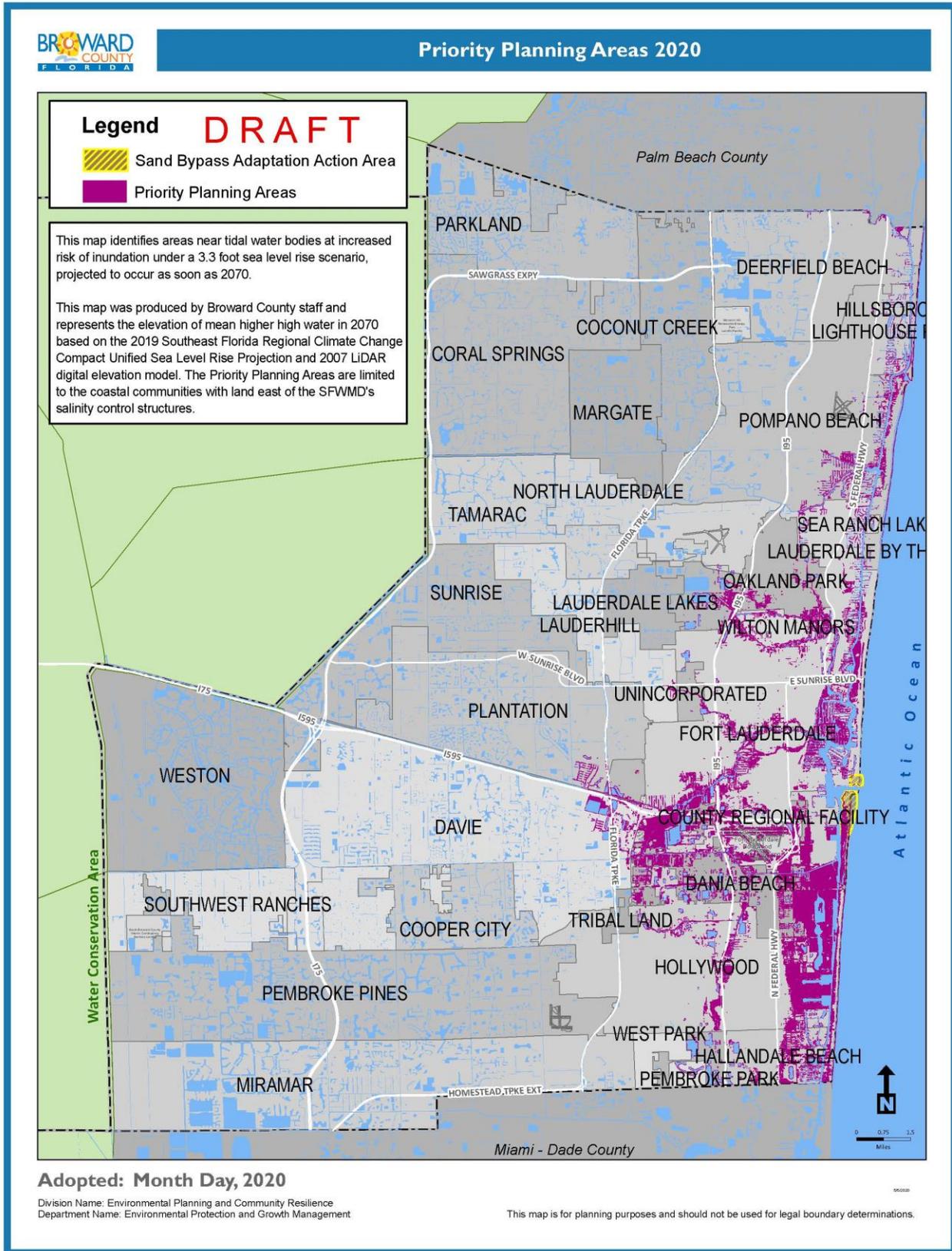


EXHIBIT 1 – Proposed Map - page 2

Map Narrative

Priority Planning Areas 2020

This map identifies areas near tidal water bodies at increased risk of inundation under a 3.3 foot sea level rise scenario, projected to occur as soon as 2070.

This map was produced by Broward County staff and represents the elevation of mean higher high water in 2070 based on the 2019 Southeast Florida Regional Climate Change Compact Unified Sea Level Rise Projection and 2007 LiDAR digital elevation model. The Priority Planning Areas are limited to the coastal communities with land east of the South Florida Water Management District's salinity control structures.

Feature class is a representation of 40" NAVD88 on the 2007 LiDAR, with a pixel resolution of 50 feet.

EXHIBIT 2 - Unified Regional Sea Level Rise Projection (2019 Update)

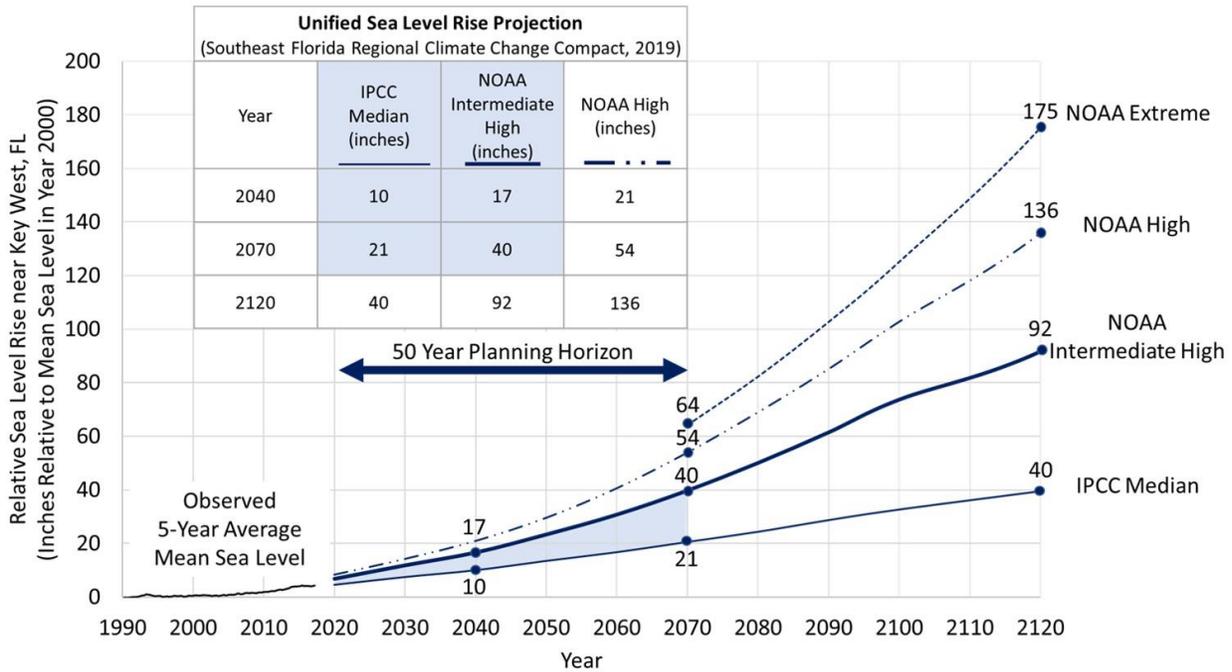


Figure 1: Unified Sea Level Rise Projection. These projections start from zero in year 2000 and are referenced to mean sea level at the Key West tide gauge. Based on the 5 year average of mean sea level, approximately 3.9 inches of sea level rise has occurred from 2000 to 2017 (see historic sea level section of guidance document). The projection includes global curves adapted for regional application: the median of the IPCC AR5 RCP8.5 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 RCP8.5 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.

ATTACHMENT 2



**ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT
ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION**

115 S. Andrews Avenue, Room 329H • Fort Lauderdale, Florida 33301 • 954-519-1270 • FAX 954-519-1496

DATE: September 16, 2020

TO: Barbara Blake Boy, Executive Director, Broward County Planning Council

FROM: Jennifer Jurado, Ph.D., Chief Resilience Officer and Deputy Director,
Environmental Protection and Growth Management Department

A handwritten signature in blue ink, appearing to read "Jennifer Jurado".

SUBJECT: *Proposed amendment to the Broward County Land Use Plan Natural Resource Map (NRM) Series Priority Planning Areas (PPA) Map for Sea Level Rise in accordance with the 2019 Unified Regional Sea Level Rise Projection for the year 2070 – Additional materials: Outreach Efforts*

On May 22, 2020 the Environmental Planning and Community Resilience Division (EPCRD) forwarded an application to the Planning Council for the above-referenced Priority Planning Areas (PPA) map amendment. Upon submittal, the Planning Council staff requested that information about outreach efforts be provided prior to scheduling the proposed amendment for the Planning Council agenda.

The proposed change would amend the PPA map of the Natural Resource Map Series of the BrowarNEXT Broward County Land Use Plan to reflect future conditions anticipated for the 50-year planning horizon extending to 2070. The proposed PPA map reflects the third iteration to the Regional Sea Level Rise Projection for Southeast Florida (the 2019 Update) which has been accepted by the Board of County Commissioners as the basis for sea level rise adaptation planning. Consistent with this action, staff has updated the PPA to account for a 3.3 foot rise in sea level relative to 2010, by the year 2070. The PPA delineates areas most directly affected by the influence of sea level rise based on ground elevations, limited to coastal areas seaward of salinity control structures which are directly influenced by tidal water elevations.

EPCRD's outreach efforts consisted of sharing the proposed map with the members of the Water Advisory Board (WAB) at a regular meeting on September 11, 2020 and with its Technical Advisory Committee (TAC) on August 21, 2020. The 15-member Broward WAB's purpose is to advise and make recommendations to the Broward County Board of Commissioners in matters relating to the development, use and management of water resources within Broward County. Its TAC, composed of 26 members, provide technical expertise from a diverse group of water managers, local and state agencies, and

environmental, academic, and business interests. Additionally, two public virtual workshops were held on June 23 and July 7, 2020 and were attended by close to 100 attendees primarily representing different municipalities and regional agencies. Meetings are typically held in person, but due to COVID-19 social distancing concerns, all four meetings were held via the online platform Webex. The presentations provided context for the Map updates and covered the origin of the maps and the specifics of the update, as well as how the maps will be used in the future. Attendees were provided the opportunity to ask questions and share concerns during the meeting and via email after the meeting. To date, two emails have been received from the City of Fort Lauderdale and the Florida Department of Transportation's (FDOT) District 4 office. Please note that FDOT is one of the agencies that is listed on the mandatory list of reviewers at the time future land use map amendments are transmitted to state and regional agencies for comment.

Please find attached a summary of EPCRDs outreach efforts, including comments received and responses provided during the workshops and via email. Please contact me or Sara Forelle, AICP, Planning Section Supervisor, Planning and Development Management Division at SForelle@broward.org or at 954-357-6635 if you have any questions or require additional information.

Attachments:

Outreach Efforts, which includes copies presentations as exhibits.

CC: Leonard Vialpando, Director, Environmental Protection and Growth Management Department
Samantha Danchuk, Ph.D., Assistant Director, Environmental Planning and Community Resilience Division
Sara Forelle, AICP, Planning Section Supervisor, Planning and Development Management Division

JJ/slf

Attachment: PPA Map Amendment Outreach Process

Virtual Workshops

Due to social distancing concerns related to the COVID-19 pandemic, the Environmental Planning and Community Resilience Division (EPCRD) scheduled two online workshops (June 23 and July 7, 2020 via Webex and a conference call bridge) to share information and elicit feedback. Following the presentation about the modeling process several comments were received (see below). Invitations were emailed to the mayors, city managers and planning directors of all of the Broward County municipalities. Invitations were also sent to land use attorneys and local agencies, including the Planning Council, Florida Department of Transportation – District 4, County CRAs and developers. Close to 100 attendees attended the public virtual workshops. The EPCRD Director and Assistant Director presented the findings and responded to questions from the attendees. Following a request, a map has been posted online since late June. This map includes a “slider” bar to assist viewing the difference between the existing (2 ft SLR) and proposed (3.3 ft SLR) designations (see at <http://arcg.is/C4irn>).

There were no major concerns associated with review of the map expressed during the workshop. Below are responses from EPCRD staff to the verbal and the Webex chat box questions (*responses appear in italics*):

- Can you describe what this means for municipality, for instance, is it information that they can utilize for planning or through the LU Plan is there a set of policies they must adopt (like the seawall ordinance)? *The proposed maps will be used to review Future Land Use Map Amendments and discuss potential mitigation strategies, as applicable.*
- *The County will consider updating the maps when new LiDAR data is available; the current map uses 2007 data.*
- *The PPA is specific to areas east of the salinity control structures, but the future conditions flood map accounts for changes in flood elevations for our western communities as well, as a function of reduced discharge capacity of our canals with rising seas.*
- *EPCRD provided a link that allows interactive review of the PPA map with a slider that allows for easy comparison of previous (yellow) vs. proposed map (fuchsia). <http://arcg.is/C4irn>*
- *The future conditions **flood maps** presented in the Powerpoint are illustrative and are not the proposed maps at this time. The final drafts will be part of another workshop and shared for feedback when draft product is ready for final stakeholder review. This will likely be end of August.*

- *The existing, adopted map in Land Use Plan (not the proposed map) is located: : <https://www.broward.org/Planning/FormsPublications/Documents/BCLUP%20Priority%20Planning%20Area%20for%20Sea%20Level%20Rise%20Map.pdf>*
- *There are some areas in Lauderhill that are impacted by flooding in the C-14 canal. It appears that there are no areas within North Lauderdale on the map.*
- *Are the criteria for land use plans amendments already in place or are they also going to be updated? What are the county's criteria for scale and implementation of green infrastructure in this context? Specifically, how do you foresee building and zoning code changing to accommodate its successful implementation? EPCRD staff responded that the Land Use Plan already references resilience criteria for redevelopment applications within the Priority Planning Areas. Amendments to the text in this section are not currently proposed. Also, the County's Comprehensive Plan includes green infrastructure policies. No building or zoning code amendments to accommodate green infrastructure are proposed as part of the PPA map amendment.*

Exhibit 1: Priority Planning Area Map Update – presentation 7-7-2020 (pdf)

Water Advisory Board and Technical Advisory Committee Meetings

A presentation with the proposed map was shared with the members of the Water Advisory Board (WAB) at a regular meeting on September 11, 2020 and previously with its Technical Advisory Committee (TAC) on August 21, 2020. Copies of the presentation were emailed in advance of the meeting. Questions regarding the map and presentation were generally about how the map would be used, adoption timeline, and where it could be viewed. Below are the responses provided.

- *The map will be used to evaluate future land use map amendments and:*
 - *identify areas vulnerable to sea level rise, tidal flooding and climate change impacts (CC2.9).*
 - *Designate areas at increased risk of flooding by sea level rise within the PPA map and work to increase climate resilience in these areas by encouraging use of adaptation and mitigation strategies or discouraging density increases (CC2.14).*
 - *Add AAAs of Regional Significance to PPA Map (CC2.15).*
- *Regarding moving infrastructure, if we move highway drainage west, where would you put it? Is there storage capability being put in? Good question. This remains an area of priority in coordination with partners. Now we have a process. We've worked with FDOT to generate project review criteria. This information was used in evaluating the Hollywood A1A. We are asking FDOT to use the new rainfall projections. They are also involved in the Resilience Plan. We need to continue asking questions.*

- Are you working with Gretchen Cassini (Surtax/Penny for Transportation)? *We have provided a checklist, a process and database of tools. They are not embedded in the process, yet; it has been delayed until next year.*
- You should work with Brian Caletka at the MPO. *We met with the MPO and provided a presentation. Another conversation is pending.*
- Some government entities want to see the use of surtax funding expanded. Make sure that the information is included in all conversations about surtax projects.

Exhibit 2: Priority Planning Area Map Update – presentation 9-11-2020 (pdf)

Emails and associated responses

Emails were received from the FDOT District 4 office and from the City of Fort Lauderdale. See attached.

From: [Danchuk, Samantha](#)
To: "Hymowitz, Larry"
Cc: [Forelle, Sara](#); [Jurado, Jennifer](#)
Subject: RE: Land Use Plan Amendment - Priority Planning Areas for Sea Level Rise Map
Date: Wednesday, July 22, 2020 3:31:35 PM
Attachments: [image001.png](#)
[image003.jpg](#)
[image004.jpg](#)
[image002.jpg](#)

Good afternoon Larry,

Thank you for your comments and suggestion regarding the municipal version maps. We can share the GIS data layers after adoption if needed.



SAMANTHA DANCHUK, PH.D., P.E., ASSISTANT DIRECTOR
Environmental Protection and Growth Management Department
ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION
115 S Andrews Ave, Room 329-H | Fort Lauderdale, Florida 33301
954.519.1295

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From: Hymowitz, Larry
Sent: Tuesday, July 21, 2020 4:22 PM
To: Danchuk, Samantha ; Resilience
Cc: Sesodia, Josie ; Blake Boy, Barbara ; Gardner-Young, Caryn ; Krane, John ; Fasiska, Christine ; Bush, Lois ; Poole, James ; Kiselewski, Karen ; Podczewinsky, John
Subject: Land Use Plan Amendment - Priority Planning Areas for Sea Level Rise Map

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Thank you for providing documentation to FDOT for review. FDOT appreciates the opportunity to provide comments to the proposed update to the Broward County Land Use Plan Priority Planning Areas (PPA) for Sea Level Rise Map prior to formal transmittal to DEO. Broward County is a great

partner with FDOT and is proactive in identifying priority areas and adaptation action areas, as well as performing the modeling and assessments required to evaluate current and future risks and opportunities for improvements.

Regarding the PPA Map amendment in particular, FDOT believes that participation at an early stage of processing future land use map amendments in a PPA that increase intensity or density for parcels with access to state maintained roads, such as an ad hoc participant at application or development review committee meetings would be beneficial to all parties involved. Developers may be required to obtain a drainage connection permit from FDOT and early coordination could improve drainage/stormwater coordination and permit processing.

FDOT intends to continue information sharing with Broward County for effective and efficient decision making. We will continue to provide reports, research, and GIS data of interest to Broward County and appreciate having access to the County's data to assist in transportation plans and projects. After amendment adoption, FDOT would appreciate obtaining the PPA GIS files for its use, if feasible.

From the PPA map alone, it is difficult to determine if particular locations are in a PPA (existing or being added). The on-line tool is helpful for viewing purposes; however, it might be beneficial to include smaller sub area maps, such as by flexibility zone or municipality for easy adoption and use by partners.

Please contact Ms. Lois Bush at 954-777-4654 or Lois.Bush@dot.state.fl.us if there are any questions with the comments being provided.

Larry Hymowitz
Planning Specialist – Policy and Mobility Planning Section
Planning & Environmental Management - FDOT District Four
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309-3421
Phone: (954) 777-4663; Fax: (954) 677-7892
larry.hymowitz@dot.state.fl.us

**Teleworking, 8-4:45 Monday through Friday,
can be reached by e-mail or by phone (954-777-4663)**



From: Danchuk, Samantha <SDANCHUK@broward.org>

Sent: Tuesday, June 16, 2020 3:32 PM

Subject: INVITE: Land Use Plan Amendment Priority Planning Areas for Sea Level Rise Map

EXTERNAL SENDER: Use caution with links and attachments.

Good afternoon,

Please accept this invite to a presentation of the proposed Land Use Plan Amendment to update the Priority Planning Areas for Sea Level Rise Map (attached) on either June 23 at 10 am or July 7 at 1 pm. Comments on the amendment can also be emailed directly to resilience@broward.org (please send by July 21st).

The proposed change would amend the Priority Planning Areas (PPA) map of the Natural Resource Map Series of the BrowardNEXT Broward County Land Use Plan. This map is used as the basis for assessing future flood risk as a function of land elevations and coastal water levels and adaptation needs in the context of land use considerations. On March 10, 2020 (Item 28), the Board of County Commissioners accepted the third iteration of the Southeast Florida Regional Unified Sea Level Rise Projection, the 2019 Update, and directed staff to utilize this updated projection as the basis for sea level rise adaptation planning. Accordingly, it is now necessary to update the County's planning tools to account for future conditions anticipated for the 50-year planning horizon extending to 2070, and align planning requirements to account for the predicted 40 inch (3.3 feet) increase in sea level (relative to 2000), consistent with the 2017 NOAA Intermediate High Curve.

Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/698570677>

You can also dial in using your phone.

United States: [+1 \(646\) 749-3122](tel:+16467493122)

Access Code: 698-570-677

Thank you,



SAMANTHA DANCHUK, PH.D., P.E., ASSISTANT DIRECTOR

Environmental Protection and Growth Management Department

ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION

115 S Andrews Ave, Room 329-H | Fort Lauderdale, Florida 33301

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From: [Danchuk, Samantha](#)
To: "[EParker@fortlauderdale.gov](#)"; "[AFajardo@fortlauderdale.gov](#)"; "[CCooper@fortlauderdale.gov](#)"; "[NGassman@fortlauderdale.gov](#)"
Cc: [Lelis, Katie](#); [Forelle, Sara](#); [Jurado, Jennifer](#)
Subject: RE: Priority Planning Area Map and Text Amendments
Date: Thursday, September 10, 2020 10:23:32 AM
Attachments: [image001.png](#)
[image002.jpg](#)
[image003.jpg](#)
[image004.png](#)

Good morning Ella,

Thank you for the inquiry regarding the proposed Priority Planning Area Map update. Yes, the map will be updated when new processed and verified land elevation data is available. Staff does have a pending request to receive the City of Fort Lauderdale's DEM but it is likely more feasible for the map to be updated when the new countywide 3DEP data is received. In the meantime, the City could examine the land areas within the City lower than 3.86 feet NAVD on the new City LIDAR to consider planning needs of areas at higher risk of inundation.

Thank you,



SAMANTHA DANCHUK, PH.D., P.E., ASSISTANT DIRECTOR

Environmental Protection and Growth Management Department

ENVIRONMENTAL PLANNING AND COMMUNITY RESILIENCE DIVISION

115 S Andrews Ave, Room 329-H | Fort Lauderdale, Florida 33301

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From: Ella Parker <EParker@fortlauderdale.gov>

Date: September 10, 2020 at 8:04:28 AM EDT

To: "Forelle, Sara" <SFORELLE@broward.org>

Cc: Anthony Fajardo <AFajardo@fortlauderdale.gov>, Christopher Cooper <CCooper@fortlauderdale.gov>, Nancy Gassman <NGassman@fortlauderdale.gov>

Subject: Fwd: Priority Planning Area Map and Text Amendments

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Good Morning Ms. Forelle,

It appears that the updated maps for the areas covering the City of Fort Lauderdale are utilizing 2007 Lidar data. The City had made a request to use our more recent Lidar

data when portraying the maps in hopes to get a higher level of detail.

Could you please advise if and when the updated maps may reflect the new data for the City? Thank you.

Kind regards,

Ella Parker, AICP | Urban Design & Planning Manager

City of Fort Lauderdale | Urban Design & Planning Division

700 NW 19th Avenue | Fort Lauderdale FL 33311

P: (954) 828-3729<[tel:\(954\)%20828-3729](tel:(954)20828-3729)> E: eparker@fortlauderdale.gov>

[\[cid:image001.png@01D0DF11.571B7640\]](#)

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From: Von Stetina, Deanne <DVONSTETINA@broward.org>>

[Sent: Wednesday, September 9, 2020 2:29 PM](#)

[To: Forelle, Sara <SFORELLE@broward.org>>](#)

[Subject: \[-EXTERNAL-\] Priority Planning Area Map and Text Amendments](#)

[\(Please note that this email is being sent to all local government mayors, managers and planners\)](#)

[Good afternoon.](#)

[As you may be aware, the Broward County Environmental Planning and Community Resilience Division \(EPCRD\) has proposed an update of the BrowardNext - Broward County Land Use Plan Natural Resource Map Series, Priority Planning Areas \(PPA\) for Sea Level Rise map and Highlighted Regional Issues: Climate Change Resilience Vision. Please see attached. The items will tentatively be the subject of a public hearing at the Planning Council's October 22 meeting.](#)

[The PPA map is used as the basis for assessing future flood risk as a function of land elevations and coastal water levels and adaptation needs in the context of land use considerations. On March 10, 2020, the Board of County Commissioners accepted the third iteration of the Southeast Florida Regional Unified Sea Level Rise Projection, the 2019 Update, and directed EPCRD staff to utilize this updated projection as the basis for sea level rise adaptation planning. Accordingly, it is now necessary to update the County's planning tools to account for future conditions anticipated for the 50-year planning horizon extending to 2070, and align planning requirements to account for the predicted 40 inch \(3.3 feet\) increase in sea level \(relative to 2000\), consistent with](#)

[the 2017 NOAA Intermediate High Curve. The Climate Change Resilience Vision text is being amended to be consistent with the revised PPA map.](#)

[The EPCRD held virtual workshops on June 23 and July 7, as well as requested written comments. Planning Council staff requests any additional comments and/or questions be submitted by September 30, 2020, in order to be addressed and included in the amendment report.](#)

[Thank you for your continued assistance and collaboration. Please feel free to contact me or Sara Forelle \(\[sforelle@broward.org\]\(mailto:sforelle@broward.org\)\) or 954.357.6635 if you have any questions.](#)

[\[BCPC 2017 logo square\]Deanne D. Von Stetina, AICP, Assistant Executive Director
115 South Andrews Avenue, Room 307
Fort Lauderdale, Florida 33301
954.357.6690 \(direct\) \[www.Broward.org/PlanningCouncil\]\(http://www.Broward.org/PlanningCouncil\)](#)

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BROWARD COUNTY RESILIENCE STRATEGY

PRIORITY PLANNING AREA MAP UPDATE

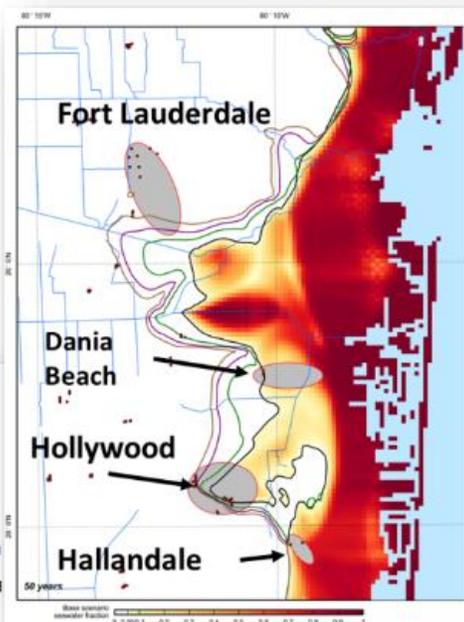
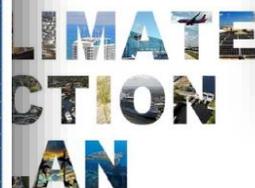
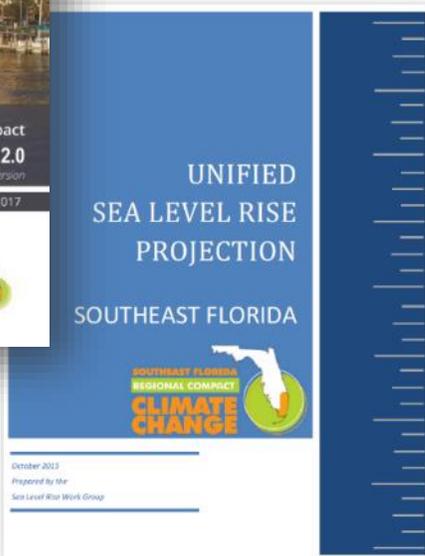
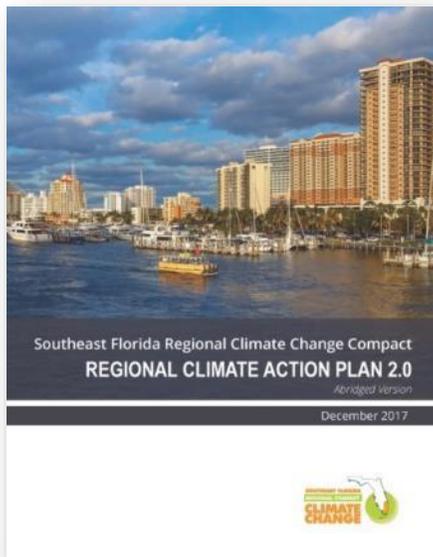
COMMUNITY WORKSHOPS - JUNE 23, 2020 & JULY 7, 2020

JOINT WAB/TAC - SEPTEMBER 11, 2020



EXTENSIVE PLANNING, DIVERSE INVESTMENTS

County-wide Regional Plans



Saltwater Intrusion and Water Supplies

Critical Infrastructure and Future Flood Risk



CONFLUENCE OF PRESSURES

☐ Climate Trends

- Rising Seas
- Rainfall Intensification
- Increased Storm Surge



Inland Flooding

Tidal Flooding



☐ Exposures

- Population
- Assets



King Tide Coastal Erosion

CHANGES TO PLANNING AND INVESTMENTS

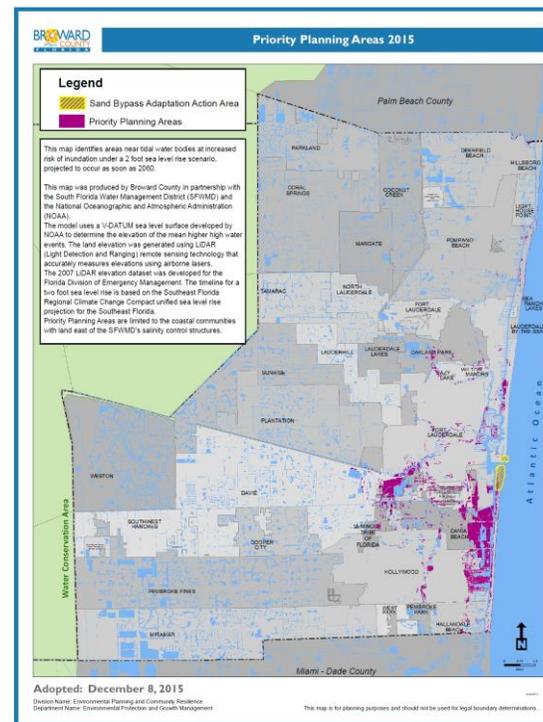
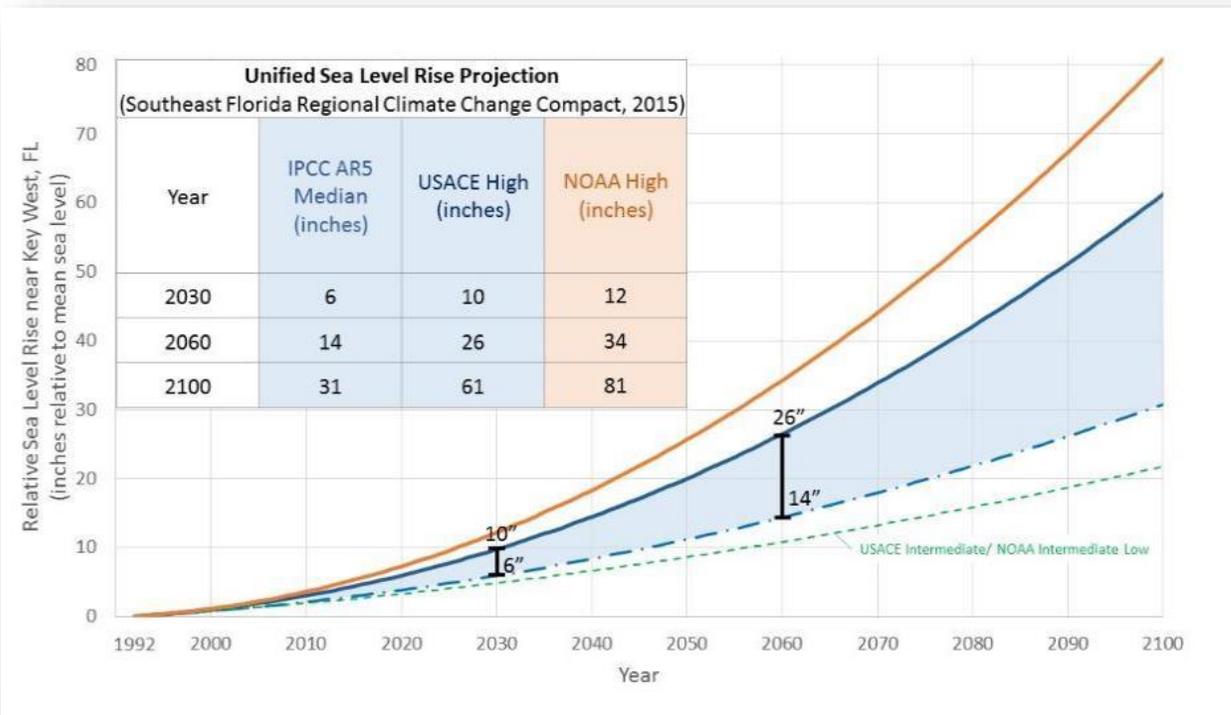
❑ Considerations

- Land Use
- Infrastructure Citing
- Resilience Standards
- Expanded Drainage
- Additional Free Board

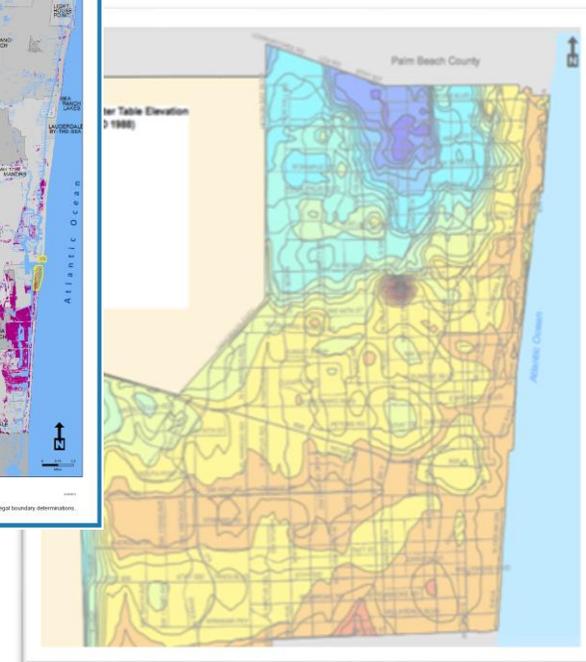


FUTURE CONDITIONS PLANNING: SEA LEVEL RISE, LAND USE, AND GROUNDWATER

2012 & 2015



2017



COUNTYWIDE RESILIENCE STANDARDS: TIDAL FLOOD BARRIERS

- ❑ Approved March 31, 2020
- ❑ Modeled water levels:
 - 2 feet sea level rise
 - High tides
 - 25-yr storm surge
- ❑ Requires **5 feet NAVD by 2050**,
allows **4 feet NAVD until 2035**
- ❑ Requires municipal adoption in 2 years

Municipalities with Tidally Influenced Waterways



Resilient Shorelines

SEAWALL REPLACEMENT ALTERNATIVES THAT ENHANCE FLOOD PROTECTION, HABITAT, AND YOUR PROPERTY VALUE



By the year 2060, sea level is expected to increase over 2 feet



Replace wall with resilient living shoreline rather than seawall only



Improve local water quality, fishing, and environment



Pick the best option based on space, depth and waves



Enhance an existing seawall, if in good condition

Hollywood Marina



FUTURE CONDITIONS: 100-YEAR FLOOD MAP AND RAINFALL PROJECTIONS



- 2060 condition:
- 2 feet SLR
 - High Tide
 - Groundwater
 - 13% Rainfall Increase

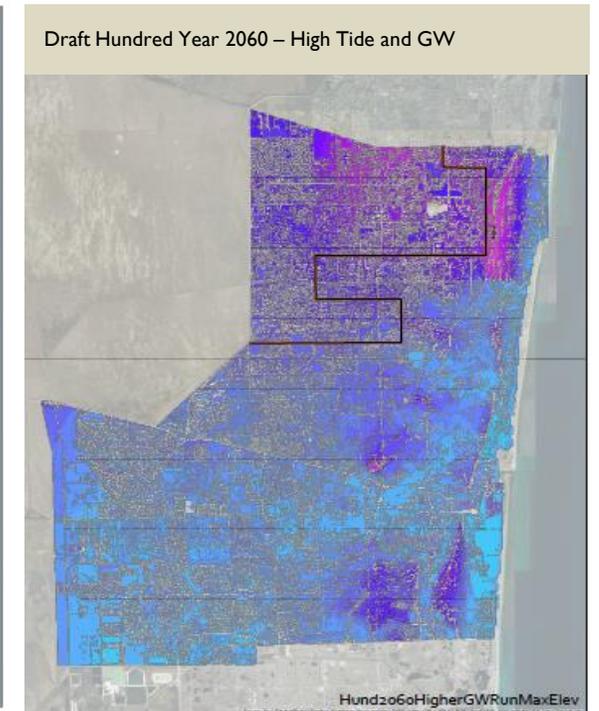
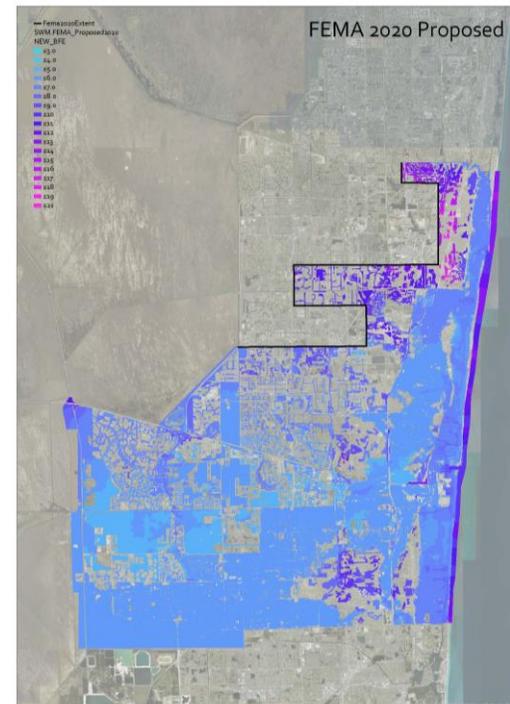
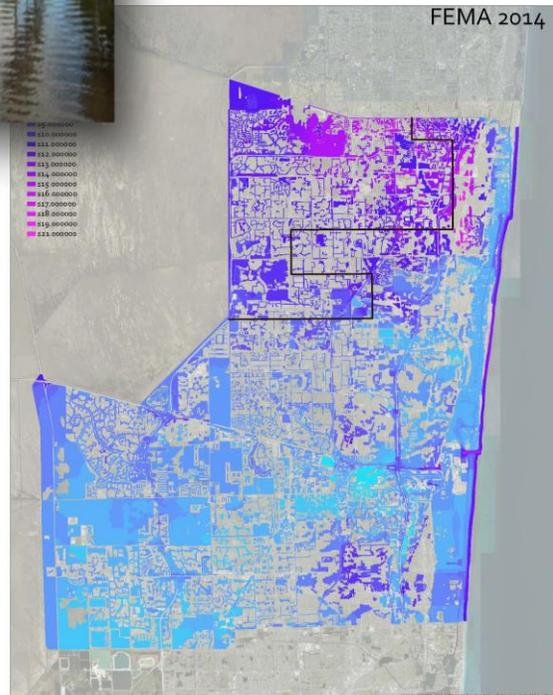


Table 2: Future Rainfall Depth Change Factors with 68% Confidence Intervals

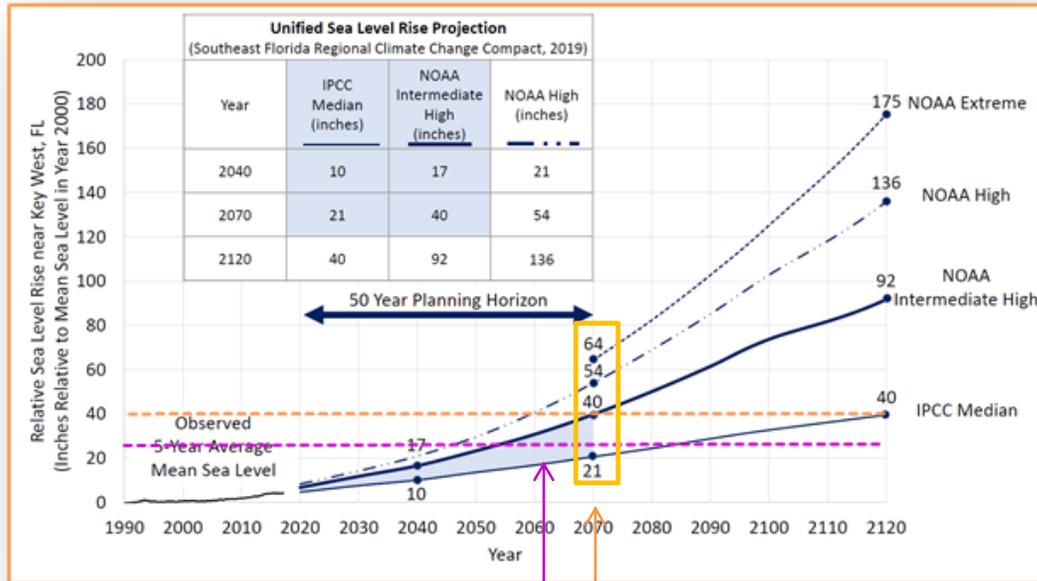
CF Range	Design Storm Event						
	25-year / 1-day ¹	100-year / 1-day ¹	10-year / 3-day ²	25-year / 3-day ²	50-year / 3-day ²	100-year / 3-day ²	500-year / 3-day ²
Low (16%)	0.96	0.99	0.95	0.93	0.92	0.88	0.83
Median (50%)	1.19	1.20	1.09	1.12	1.12	1.13	1.18
High (84%)	1.35	1.46	1.21	1.31	1.37	1.44	1.68

1 – Derived from DDSM ensemble results, 2 – Derived from SUPER ensemble results

FUTURE CONDITIONS: THE NEXT GENERATION

GW Table Map

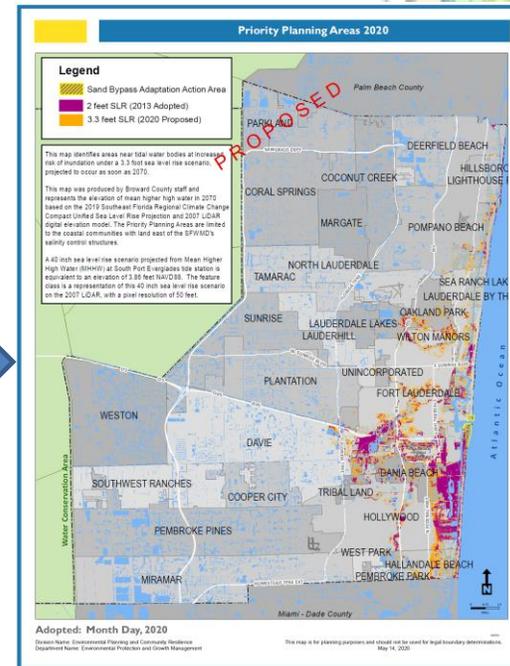
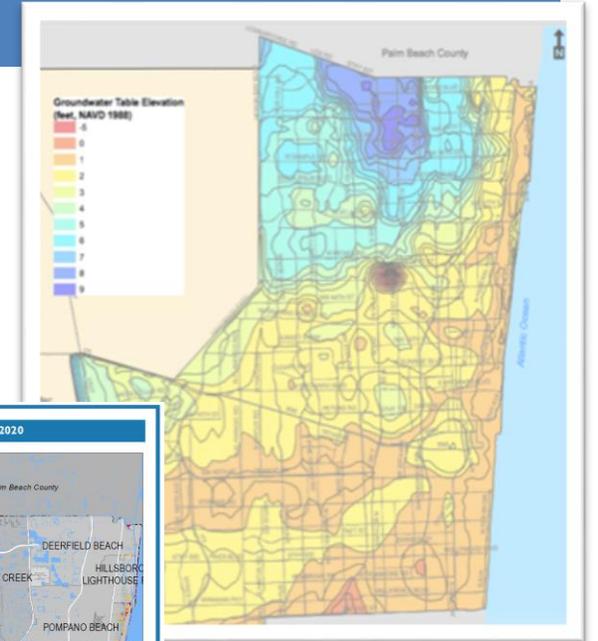
Approved March 10, 2020



24" Previous Target

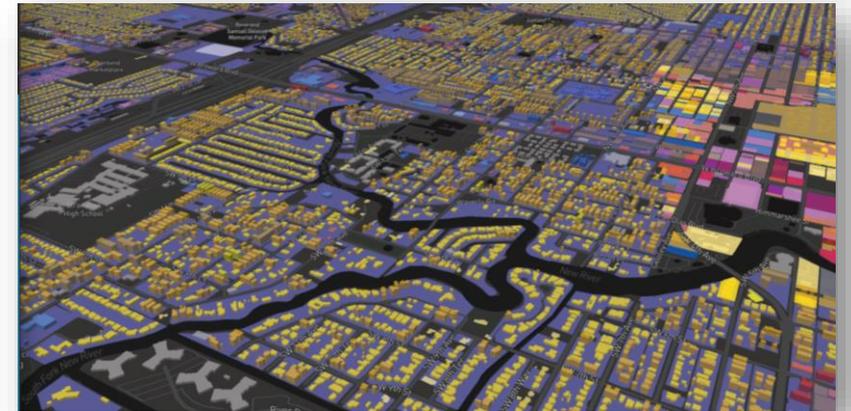
40" Current Target

PPA Map



NEXT STEPS: A COUNTYWIDE RESILIENCE PLAN

- ❑ Risk Assessment and Resilient Infrastructure Plan
 - Basin-level analysis
 - Critical infrastructure and services
 - Mitigation strategies
 - Planning level cost estimates
 - Redevelopment strategies
 - Priority capital improvements
 - Quantified risk reduction
 - Alternative planning scenarios
- ❑ Project Timeline 2021 - 2023



Courtesy of MIT and U Toronto

Dr. Jennifer L. Jurado
Chief Resilience Officer, Director
Environmental Planning and Community Resilience Division
Broward County
jjurado@broward.org
954-519-1464



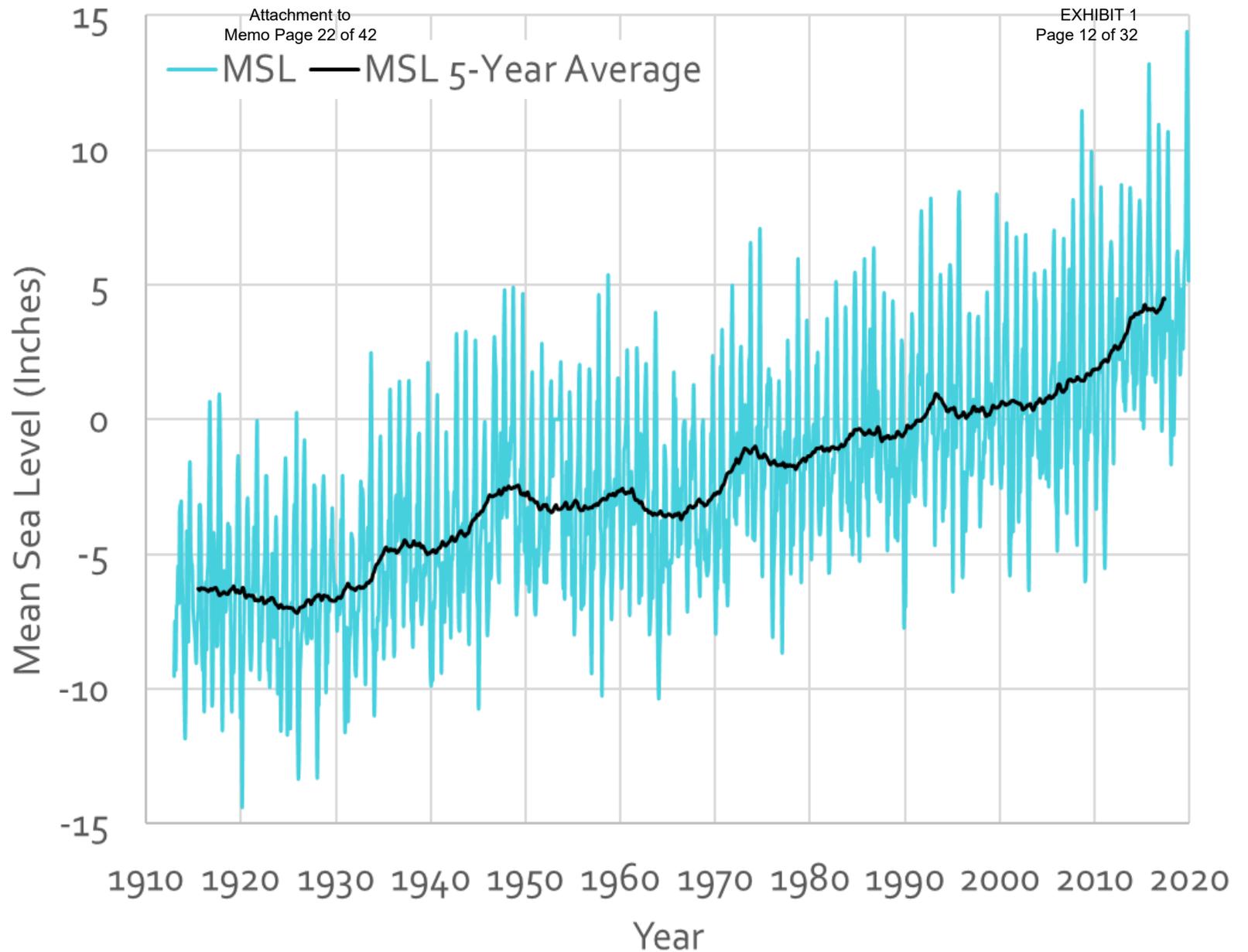
Priority Planning Areas for Sea Level Rise Map

BROWARD COUNTY

ENVIRONMENTAL PLANNING AND
COMMUNITY RESILIENCE DIVISION

Rising Sea Levels

- Key West Tide Gauge
- 11 inches since 1913
- More frequent nuisance flooding
- Eventual permanent inundation



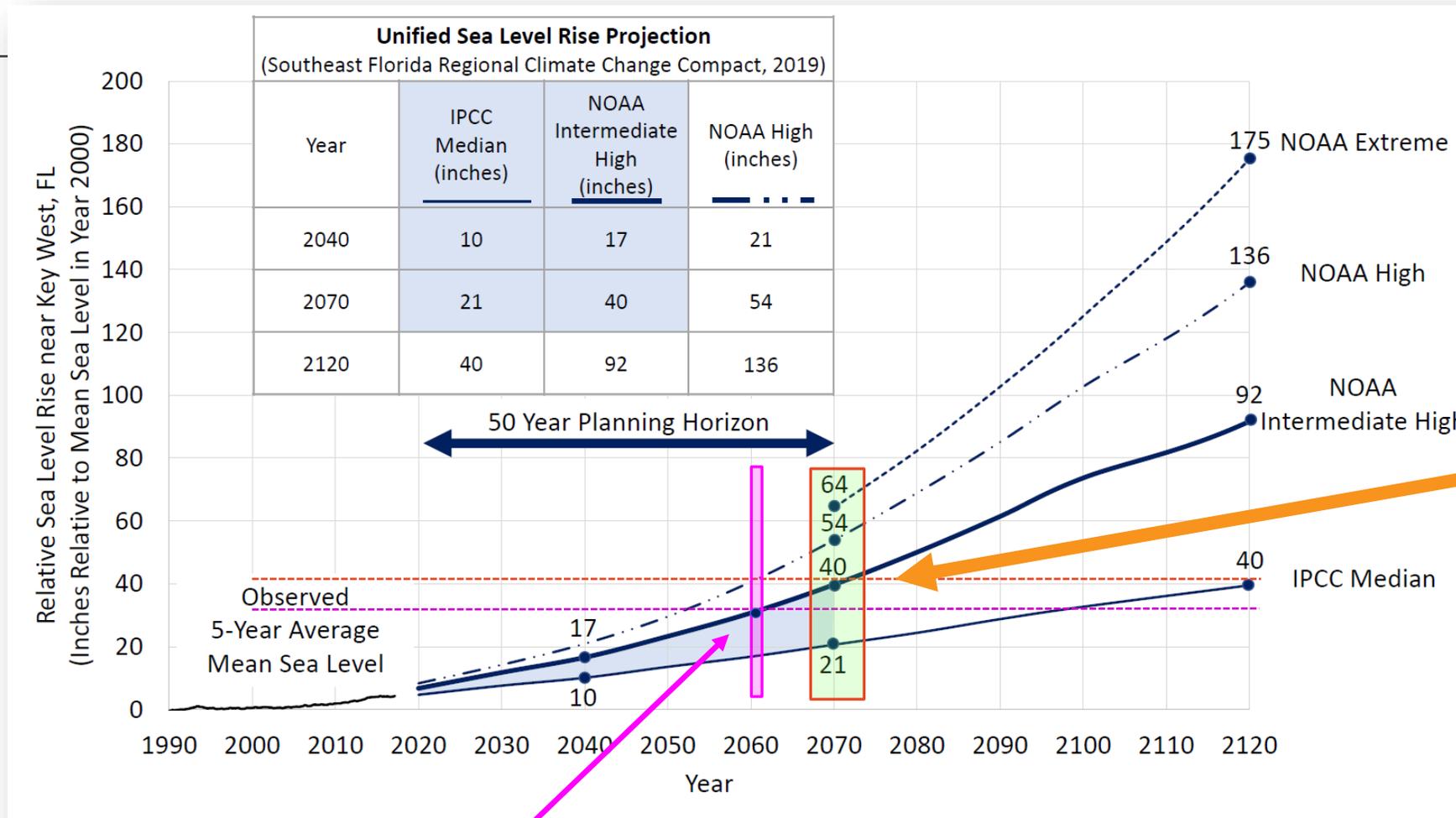


Inundation

Subsequent Resilience Policies

- 2012- Priority Planning Areas for Sea Level Rise Map (PPA Map)
- 2014- Designation of First Adaptation Action Area of Regional Significance
- 2014- Land Use Amendment Resilience Criteria specified for review process
- 2015 –Updated Unified Sea Level Rise Projection for Southeast Florida
- 2015- PPA Map revised to also include “possible” flooding areas
- 2017 - Establishment of Future Conditions Map Series
- 2017 - Establishment of Future Conditions Wet Season Groundwater Table Map
- 2020 - Establishment of Tidal Flood Barrier Resilience Standard
- 2020–Updated Unified Sea Level Rise Projection for Southeast Florida

Updated Regional SLR Projection



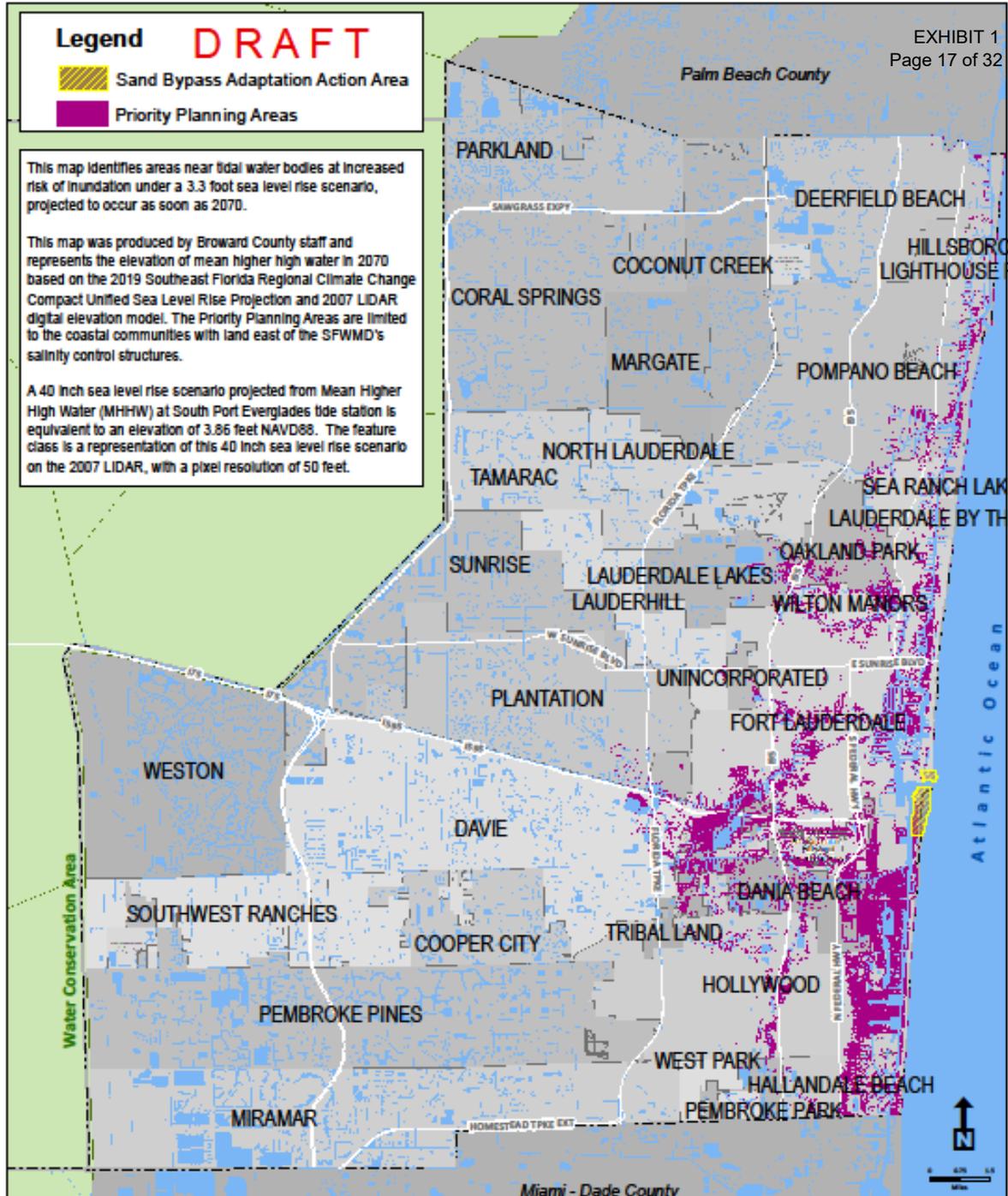
**40
inches
by 2070
(current)**

27 inches by 2060 (previous)

Broward County Comprehensive Plan

BROWARDNEXT2.0

Climate Change Element Policy CC2.8 requires County to **update Priority Planning Areas for Sea Level Rise Map** and infrastructure vulnerability assessments every five years to ensure adaptation planning and investments are based on best available data



Proposed Priority Planning Areas for Sea Level Rise Map Amendment

Map Legend

Map identifies areas near tidal water bodies at increased risk of inundation under 3.3 feet (40 inches) sea level rise scenario by 2070

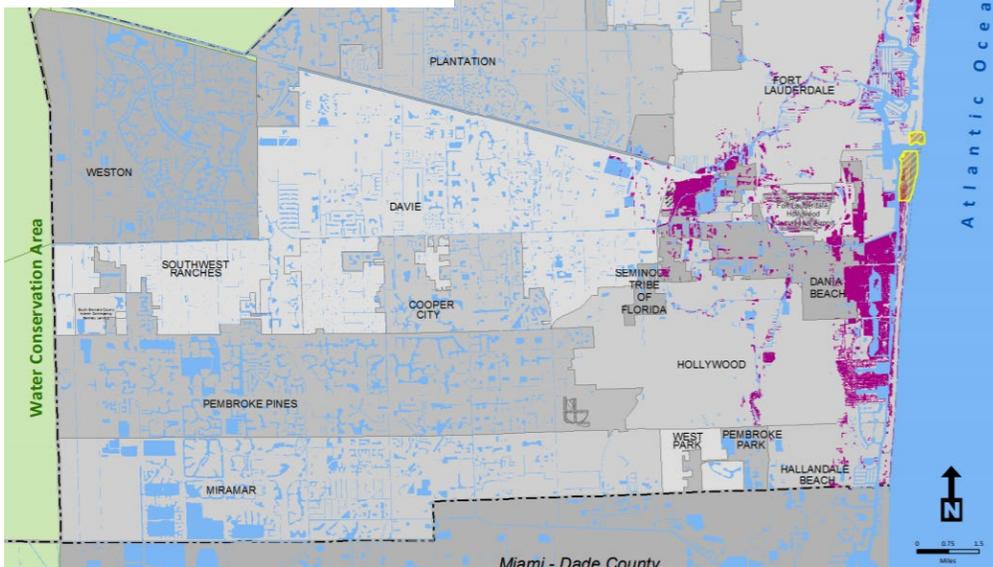
Areas are east of the salinity control structures

Represents mean higher high water (high tide)

Areas lower than 3.86 feet NAVD are inundated

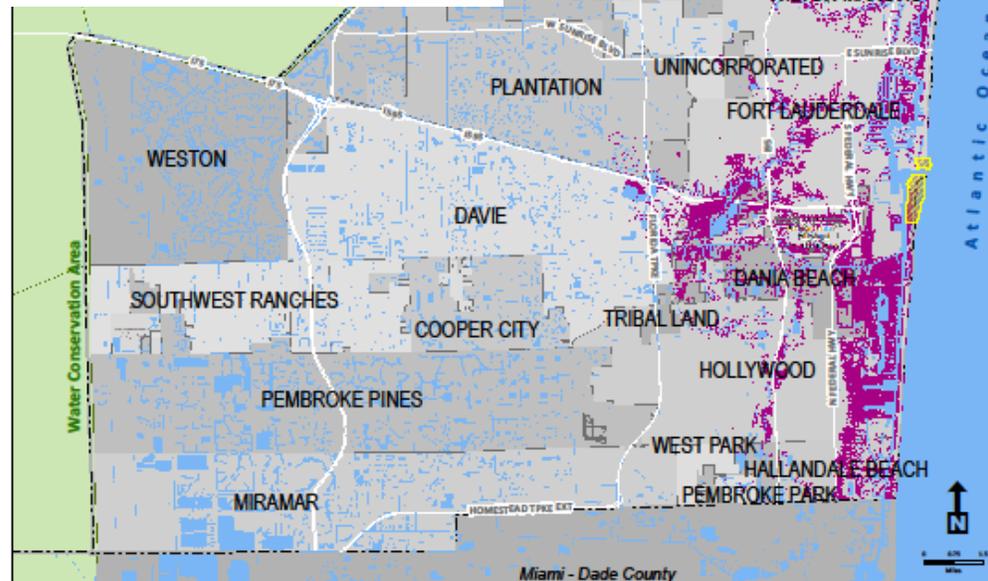
Existing Map

2 feet of sea level rise by 2060
6.8 mi²



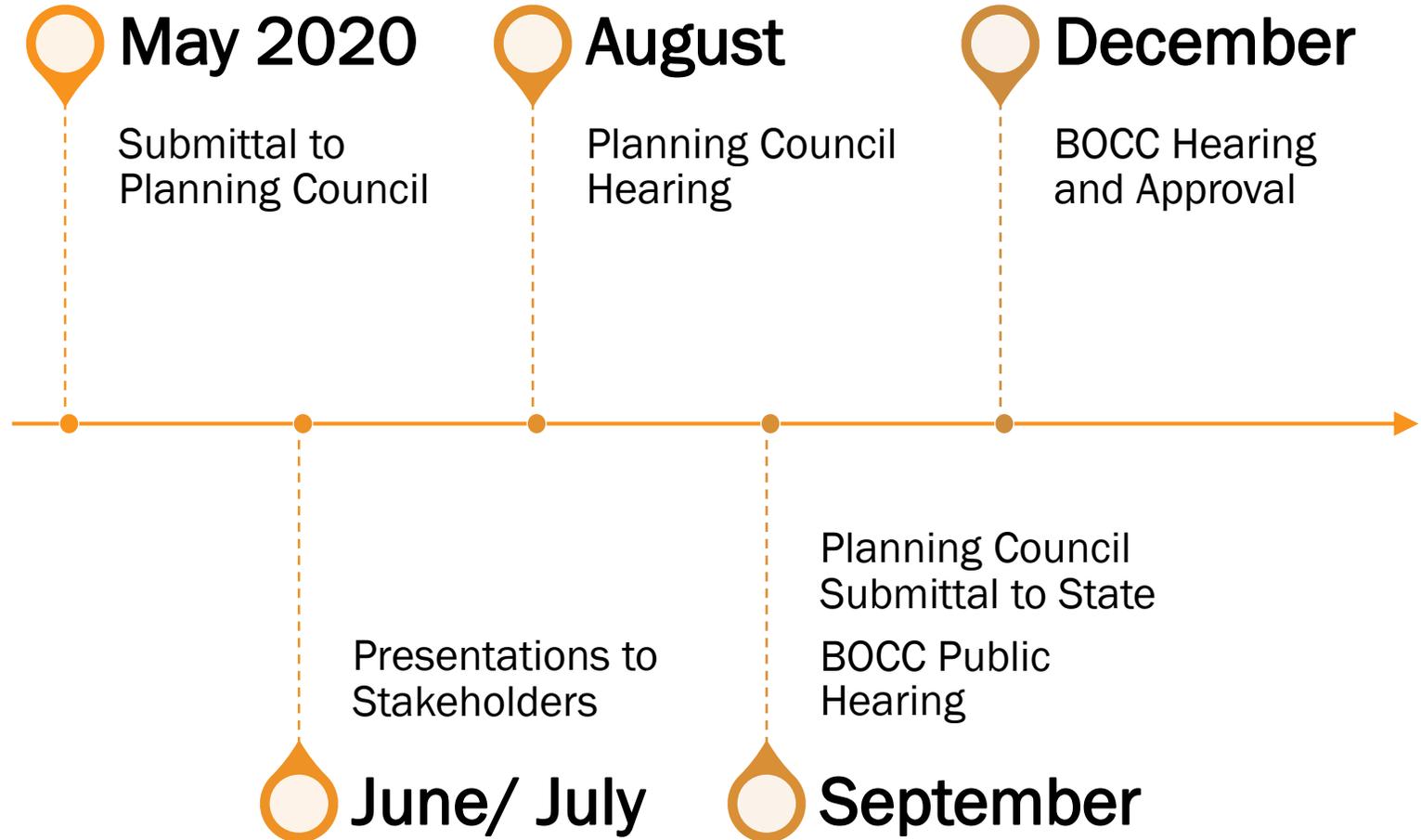
Proposed Map

3.3 feet of sea level rise by 2070
17.6 mi²



Comparison: <http://arcg.is/C4irn>

Anticipated Timeline



Historic Use of PPA Map

Comprehensive Plan

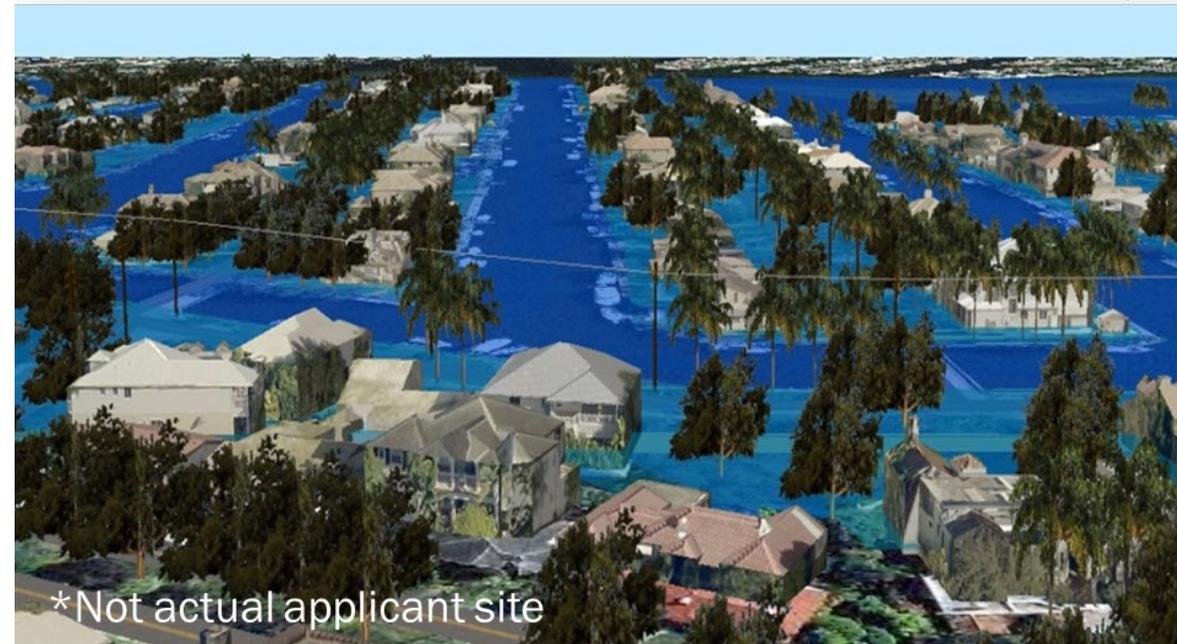


Climate Change Element Policy
CC2.9: To *identify areas vulnerable to sea level rise*, tidal flooding and climate change impacts.

LUPA Site Review

Consider life of infrastructure
and projections

Recommendations based on
resilience of site and
municipal commitments
affecting access and
functionality



Example: Proposed Waterfront Multi-family

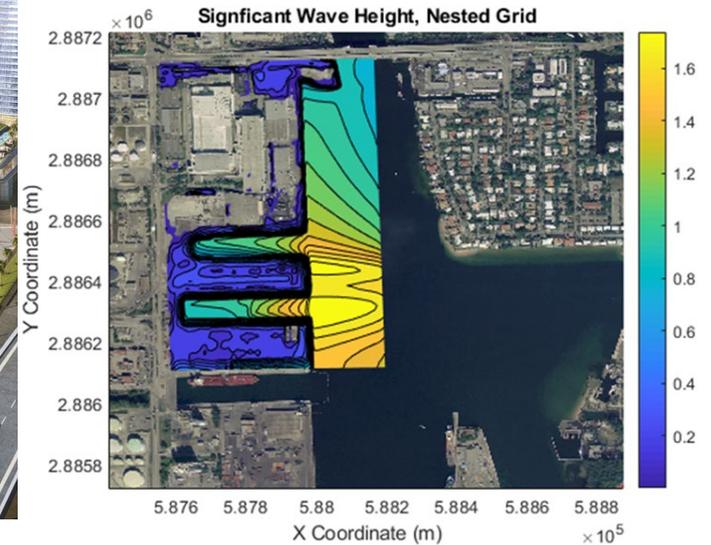
Design Considerations:

- ✓Seawall height
- ✓Onsite stormwater drainage
- ✓Finished floor elevations
- ✓Highway drainage
- ✓Flood Risk of adjacent properties

County Capital Planning

Basis for review within
capital project evaluation

Planning requirements to
address rising seas, storm
surge, and groundwater
changes



Examples:

Joint Governmental Center, Convention Center Hotel

Design Considerations:

- ✓ Storm surge
- ✓ Seawall height
- ✓ Finished floor elevations, wet proofing
- ✓ Drainage
- ✓ Incremental adaptation

Future Use of PPA Map and Priority Areas

Comprehensive Plan

Climate Change Element Policy CC1.7: Establish sustainable development patterns in PPAs by coordinating with municipalities to *promote land uses with functional walkable mixed-use development designs* and projects and revising zoning and land development codes in support.

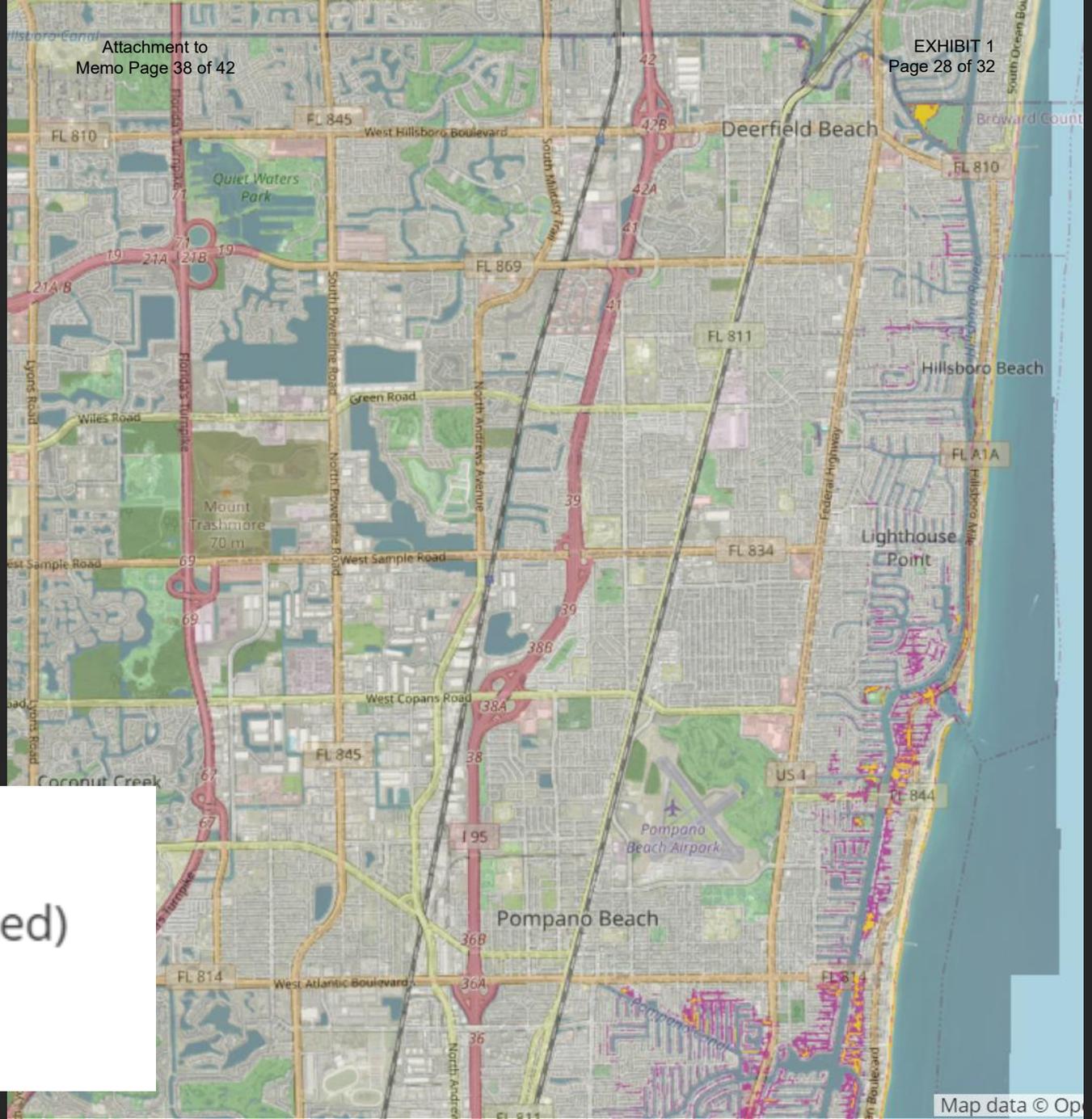
CC2.9: Continue to improve mapping to *identify areas vulnerable to sea level rise*, tidal flooding and climate change impacts.

CC2.14: Designate areas at increased risk of flooding by sea level rise within the PPA map and work to increase climate resilience in these areas by *encouraging use of adaptation and mitigation strategies or discouraging density increases*.

CC2.15: Add **AAAs** of Regional Significance to PPA Map.

CC3.6: Adopt a *Countywide Transfer of Development Rights program* to create significant public open space or corridors, protecting areas appropriate for resilience strategies in PPA Map and directing development to more suitable areas including activity centers.

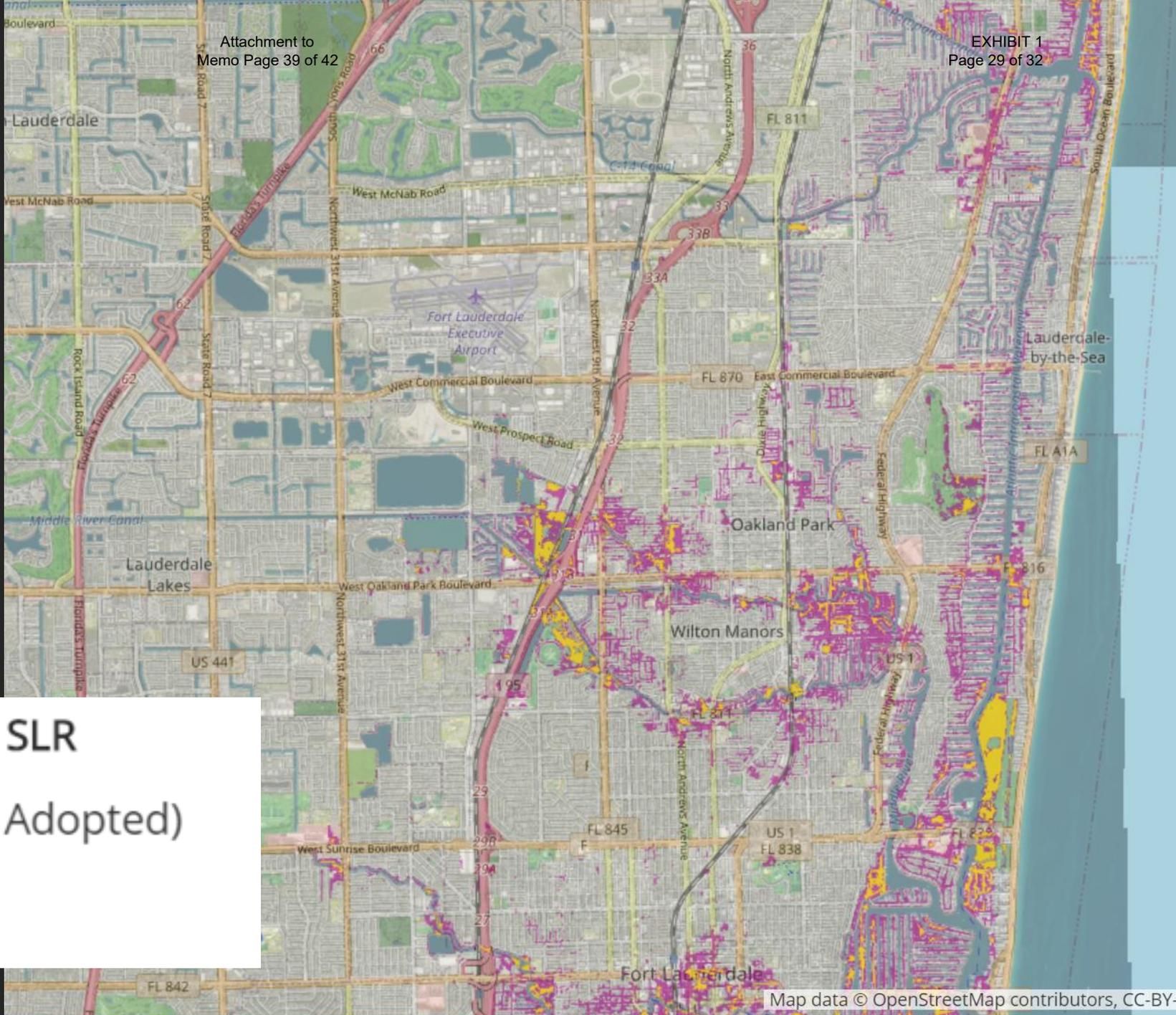
Deerfield Beach to Pompano Beach



Pompano Beach to Fort Lauderdale

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EXHIBIT 1
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3.3 feet SLR

(2020 Proposed)

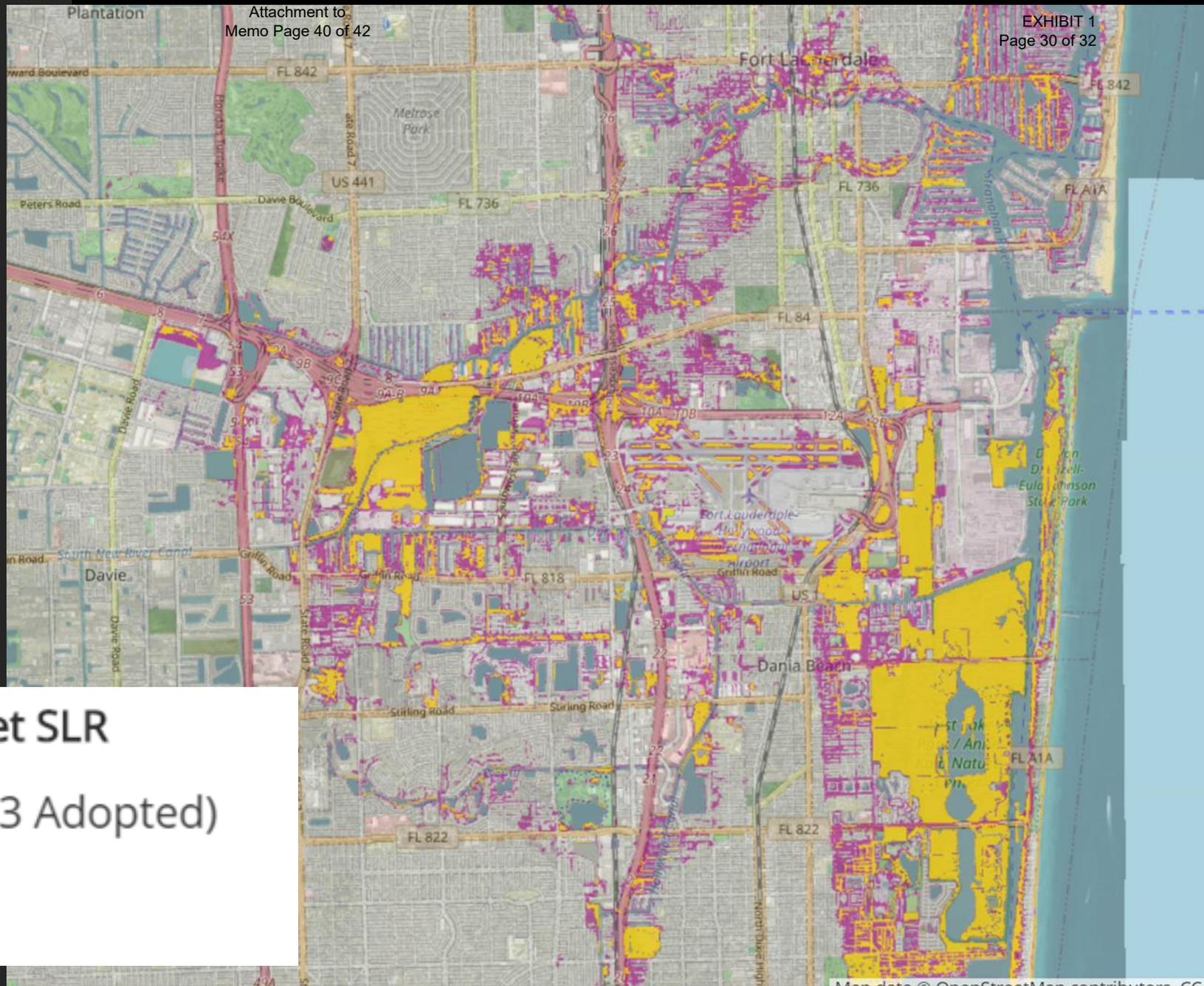


2 feet SLR

(2013 Adopted)



Fort Lauderdale to Dania Beach



3.3 feet SLR

(2020 Proposed)

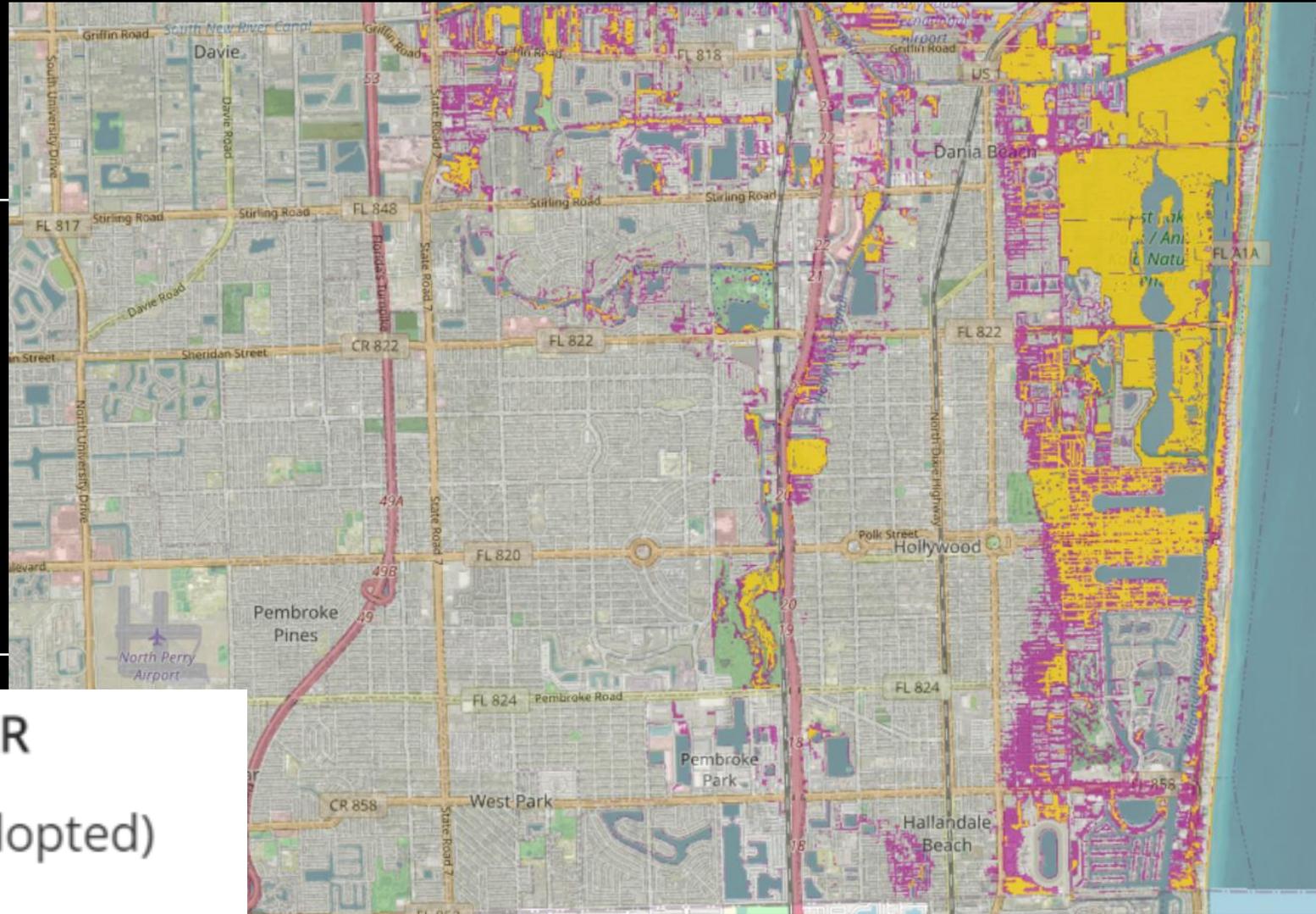


2 feet SLR

(2013 Adopted)



Dania Beach to Hallandale Beach



3.3 feet SLR

(2020 Proposed)



2 feet SLR

(2013 Adopted)



Public Comments Welcome

Map Slider <http://arcg.is/C4irn>

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Broward.org/climate

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