

## NFIP Policy Summary - June 22, 2017

This is a summary of the recent policy changes to the National Flood Insurance Program (NFIP).

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### House

On June 15, 2017, the House Financial Services Committee passed two bills to reform the NFIP, which is set to expire on September 30, 2017. On Wednesday, June 21, 2017 passed the remaining five bills. The measure is for a 5-year reauthorization. These bills are expected to come to the House floor in July.

Summaries of bills that passed the committee on **June 15, 2017**:

#### ***H.R. 2868, the National Flood Insurance Program Policyholder Protection Act of 2017***

- This bill would protect NFIP policyholders from unreasonable premium rates (capping at \$10,000 for any residential property with 4 or fewer residences) and require FEMA to conduct a study to analyze the unique characteristics of flood insurance coverage of urban properties.
- It would offer a mitigation credit to certain mitigation activities in urban areas.

#### ***H.R. 2874, the 21<sup>st</sup> Century Flood Reform Act of 2017***

- This bill would improve the financial stability of the NFIP; enhance the development of more accurate estimates of flood risk through new technology and better maps; increase the role of private markets in the management of flood insurance risks; and provide for alternative methods to insure against flood peril.

Summaries of bills that passed the committee on **June 21, 2017**:

#### ***H.R. 1422, Flood Insurance Market Parity and Modernization Act***

- Outlines regulations for private insurers that are allowed to sell certain types of insurance complementing the National Flood Insurance Program
- Requires that certain buildings and personal property be covered by flood insurance, and for other purposes
  - No federal agency shall approve financial assistance for acquisition or construction within a special flood hazard area unless the building or mobile home is covered by flood insurance
  - Any new, increased or extended mortgage in special flood hazard areas cannot be approved unless the property is covered by flood insurance for the term of the loan

#### ***H.R. 1558, Repeatedly Flooded Communities Preparation Act***

- Amends the National Flood Insurance Act of 1968 to ensure community accountability for areas repetitively damaged by floods, and for other purposes
  - Require any covered community to identify areas that are repeatedly damaged by floods and to assess, with the assistance from the Administrator, the continuing risks to such areas

- Require communities to develop a plan for mitigating continuing flood risks to such repetitively flooded areas, submit the plan to the Administrator, implement the plan, update plan as needed and report on progress – may be incorporated into current hazard mitigation plans
  - Administrator shall provide assistance through data and mitigation grants
  - Administrator shall provide appropriate sanctions for covered communities that fail to comply with requirements or to make sufficient progress
- A key amendment was to allow FEMA to collect premiums monthly, rather than annually, from policyholders, in exchange for a fee of no more than \$25, rather than an earlier proposed \$50 annual fee.

***H.R. 2246, Taxpayer Exposure Mitigation Act of 2017***

- Repeals the mandatory flood insurance coverage requirement for commercial properties located in flood hazard areas to provide for greater transfer of risk under the NFIP to private capital and reinsurance markets, and for other purposes
- Within 12 months of this section passing, the Council must provide a set of standards, guidelines, and procedures for state and local governments, MPOs or state-recognized councils/organizations to use in mapping flood risks and developing alternative maps to the flood insurance rate maps

***H.R. 2565***

- Requires FEMA to conduct a study on the feasibility of incorporating the actual replacement cost value for each NFIP covered property and amends the National Flood Insurance Act of 1968 to require FEMA to use actual replacement cost values as part of the determination of chargeable risk premiums

***H.R. 2875, National Flood Insurance Program Administrative Reform Act of 2017***

- Makes administrative reforms to the NFIP to increase fairness and accuracy and protect the taxpayer from program fraud and abuse, and for other purposes
  - Makes administrative changes to how FEMA handles claims and appeals to address problems policyholders had in filing and appealing claims after 2012's Superstorm Sandy
- 

**Senate**

Senate draft reauthorization: The Sustainable, Affordable, Fair and Efficient National Flood Insurance Program Reauthorization Act (SAFE NFIP)

*Main takeaways:*

- Measure calls for 6-year reauthorization
- Caps all premium rate hikes at 10% on any policyholder for 6 years
- Excludes catastrophic loss years in the average historical loss year calculation in accordance with accepted actuarial principles
- Requires FEMA to offer zero or low-interest loans to fund mitigation projects by homeowners

- Increases policy coverage limits to \$500,000 for residences and \$1,500,000 for multifamily and business structures
- Requires FEMA to conduct a study on offering business interruption coverage
- Increases the maximum Increased Cost of Compliance (ICC) payment from \$30,000 to \$100,000 and expands eligibility to any repetitive loss properties in and outside SFHA
- Requires ICC to be eligible to fund acquisition/demolition, elevation, and/or relocation projects
- Authorizes \$1 billion to be appropriated to fund the Flood Mitigation Assistance and require FEMA to prioritize properties that have suffered repetitive losses and have unaffordable premiums.
- Authorizes \$500 million per year for 6 years for Pre-Disaster Mitigation Grant Program
- Authorizes \$800 million per year for 6 years for activities to fund LiDAR and mapping of the entire country
- Increases focus on multifamily building mitigation strategies and community-wide mitigation
- Requires FEMA to conduct a pilot study on the cost implications of street raising, to mitigate the effects of sea level rise, for formerly ground floor residential and business properties
- For more info: <https://www.menendez.senate.gov/imo/media/doc/SAFE-NFIP-Section-by-Section-6-13-17.pdf>

# Flood Vulnerability Assessment Methodology Overview

June 26, 2017

## Sea-Level Rise Timeframes

Figure 1 displays sea-level rise projections from the Southeast Florida Regional Climate Compact’s Sea Level Rise Working Group in 2015. These projections use the year 1991 and mean sea level in Key West, FL as the reference point. 1991 is the midpoint of the current National Datum Epoch (1983-2001, and the most commonly used baseline at present. The shaded blue zone represents the likely range of sea-level rise for the South Florida region. See full report from the Southeast Florida Regional Climate Compact here: <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf>

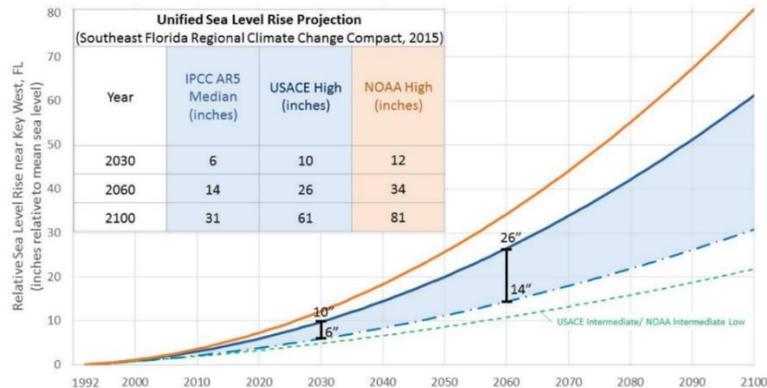


Figure 1: Multiple projections from 2015 Southeast Florida Regional Climate Compact's Sea Level Rise Working Group.

### Estimated Relative Sea Level Change from 2015 To 2100

8723170, Miami Beach, FL

NOAA's 2006 Published Rate: 0.00784 feet/yr

All values are expressed in feet

Year	USACE Low	USACE Int	USACE High
2015	0.00	0.00	0.00
2020	0.04	0.06	0.13
2025	0.08	0.13	0.29
2030	0.12	0.20	0.46
2035	0.16	0.27	0.65
2040	0.20	0.35	0.85
2045	0.24	0.44	1.08
2050	0.27	0.53	1.33
2055	0.31	0.62	1.59
2060	0.35	0.72	1.87
2065	0.39	0.82	2.17
2070	0.43	0.93	2.49
2075	0.47	1.04	2.83
2080	0.51	1.15	3.19
2085	0.55	1.27	3.56
2090	0.59	1.40	3.95
2095	0.63	1.52	4.36
2100	0.67	1.66	4.80

Figure 2: Estimated Relative Sea Level Change from 2015 to 2100 at Miami Beach, FL

Because we used 2015 LIDAR-derived elevation data<sup>i</sup>, we used 2015 as our baseline for our GIS analysis. We also used mean sea level at Miami Beach as the reference point, rather than Key West. Figure 2 displays the US Army Corps of Engineers sea-level rise projections from 2015 to 2100. These projections indicate between 0.20 feet and 0.85 feet of sea-level rise by 2040 and between 0.39 and 2.17 feet by 2065. For our analysis, we used USACE High Projections for 2040 and 2065, approximately 10 and 26 inches respectively. It is also important to note that between 1992 and 2015, sea level has risen 3-5 inches.

### Storm Surge

Storm surge is a temporary rise of coastal waters, in exceedance of typical astronomical high tides, generated by a tropical storm or hurricane. This rise occurs when offshore wind essentially “piles” water along the coastline, creating a surge of water that often leads to inland flooding. This flooding can be made worse when surge coincides with normal high tides. Our maps show the projected depth of inundation at different sea-level rise timeframes based on the new 2016 surge model (SLOSH)<sup>ii</sup> and the most recent 2015 LIDAR-derived elevation data, collected by Miami-Dade County. These were calculated using Category 3 High storm surge levels at mean tide.

### For more information contact:

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Lindsay Willson - [Lwilson@miamigov.com](mailto:Lwilson@miamigov.com)

Or visit: <http://sfregionalcouncil.org/slrmia> (coming soon)

<sup>i</sup> [https://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/CORIS/all/iso/xml/fl2015\\_miami\\_dade\\_m5038\\_metadata\\_ISO.xml&view=getDataView&header=none](https://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/CORIS/all/iso/xml/fl2015_miami_dade_m5038_metadata_ISO.xml&view=getDataView&header=none)

<sup>ii</sup> <http://www.nhc.noaa.gov/surge/slosh.php>

# VULNERABILITY ASSESSMENT

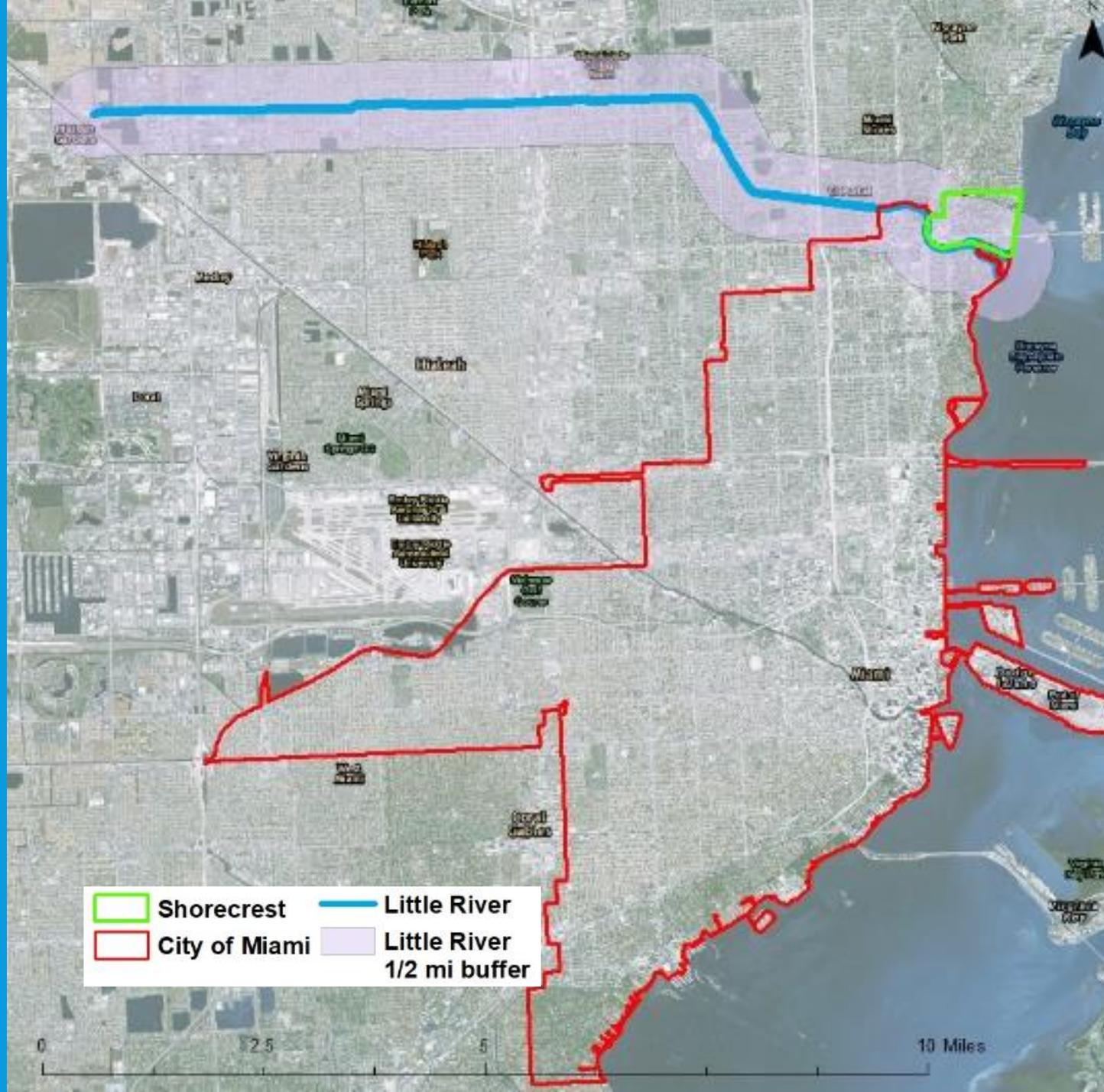
MIAMI RIVER, JOSE MARTI PARK, LITTLE RIVER & VIRGINIA KEY

Keren Bolter, PhD - South Florida Regional Planning Council

Lindsay Willson - City of Miami Office of Resilience & Sustainability

June 26, 2017

# Little River & Shorecrest



# Miami River & Jose Marti Park





# Virginia Key

# DEMOGRAPHICS

## Total Population

Miami-Dade County, FL

**2,639,042**  
People

Miami, FL

**424,632**  
People

Miami River 1/2 mile buffer

**54,720.9**  
People

Jose Marti Park 1/2 mile buffer

**13,767.59**  
People

## Change in Population 2000 to 2010

Miami-Dade County, FL

**243,073**  
People

Miami, FL

**37,874.12**  
People

Miami River 1/2 mile buffer

**5,263.9**  
People

Jose Marti Park 1/2 mile buffer

**2,652.68**  
People

## Total Population Under 18 (Children)

Miami-Dade County, FL

**550,700**  
People

Miami, FL

**77,706**  
People

Miami River 1/2 mile buffer

**10,050.85**  
People

Jose Marti Park 1/2 mile buffer

**2,643.55**  
People

## Total Population 65 and Over

Miami-Dade County, FL

**393,474**  
People

Miami, FL

**67,856**  
People

Miami River 1/2 mile buffer

**8,667.31**  
People

Jose Marti Park 1/2 mile buffer

**1,841.25**  
People

# DEMOGRAPHICS

## Location Affordability for a Median Income Household (Family)

### Percent Income Spent on Housing and Transportation - Median Income Household

Miami-Dade County, FL

**55%**  
Percent

Miami, FL

**51%**  
Percent

### Percent of Income Spent on Housing for a Median Income Family

Miami-Dade County, FL

**32.47%**  
Percent

Miami, FL

**30.84%**  
Percent

### Percent of Income Spent on Transportation for a Median Income Family

Miami-Dade County, FL

**22.6%**  
Percent

Miami, FL

**19.89%**  
Percent

## Location Affordability for a Very Low Income Resident

### Percent Income Spent on Housing and Transportation - Very Low Income Individual

Miami-Dade County, FL

**155%**  
Percent

Miami, FL

**134%**  
Percent

### Percent of Income Spent on Housing for a Very Low Income Individual

Miami-Dade County, FL

**109.89%**  
Percent

Miami, FL

**98.13%**  
Percent

### Percent of Income Spent on Transportation for a Very Low Income Individual

Miami-Dade County, FL

**44.92%**  
Percent

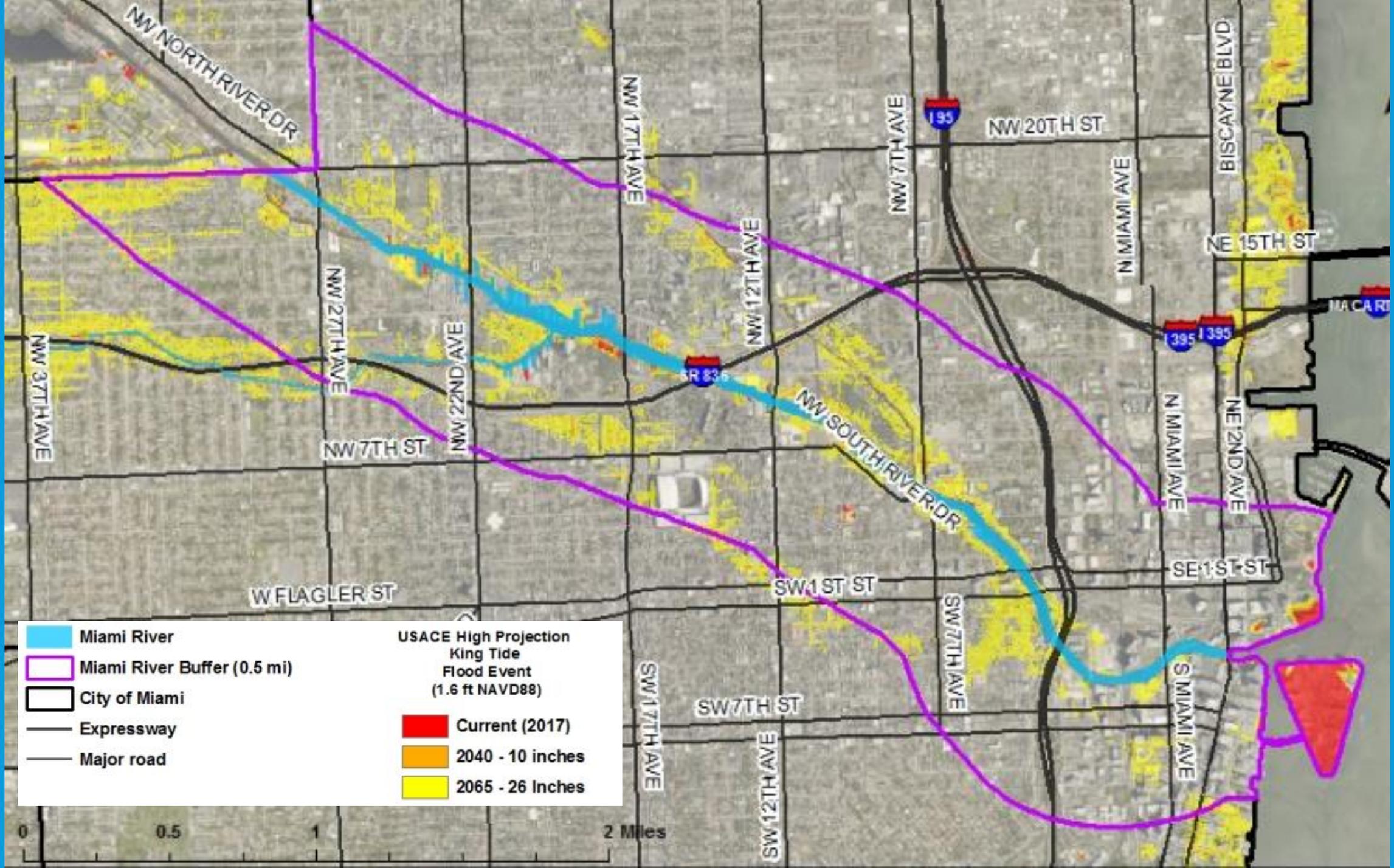
Miami, FL

**35.83%**  
Percent

Sources: US HUD, DOT, LAI; US HUD & DOT, LAI <http://www.locationaffordability.info/> Housing and transportation costs consume about half of the average household budget, but it can be difficult for people to fully factor transportation costs into decisions about where to live and work. The Location Affordability Index (LAI) works to close this gap by providing estimates of household housing and transportation costs at the neighborhood level along with constituent data on the built environment and demographics.

# DATA

- 2015 LIDAR-derived elevation data
- 2016 data from the Sea, Lake, Overland Surges from Hurricanes (SLOSH) model

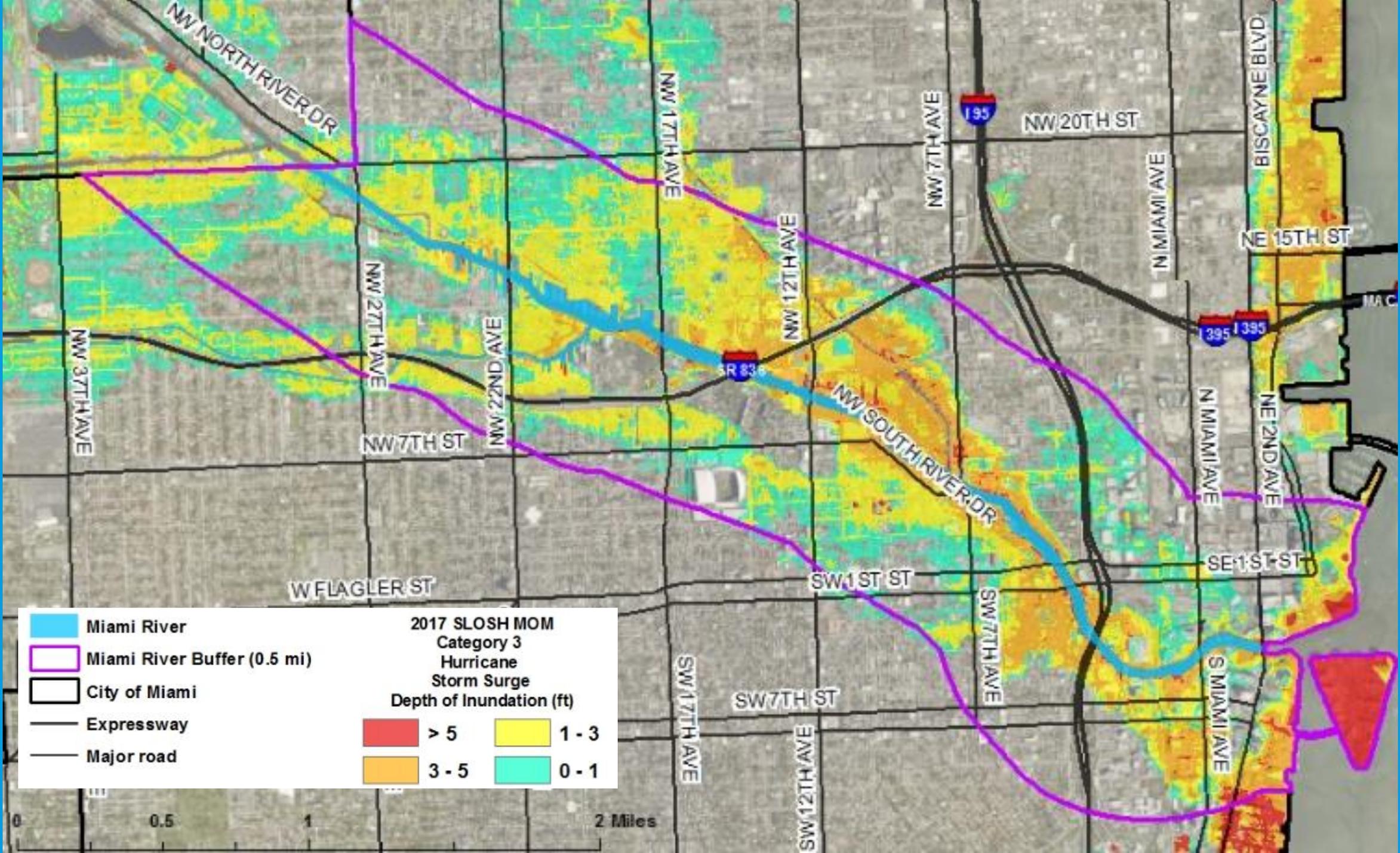


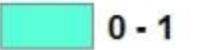
	Miami River		Miami River Buffer (0.5 mi)		City of Miami		Current (2017)
	Expressway		2040 - 10 inches		2065 - 26 Inches		
	Major road						

USACE High Projection  
King Tide  
Flood Event  
(1.6 ft NAVD88)

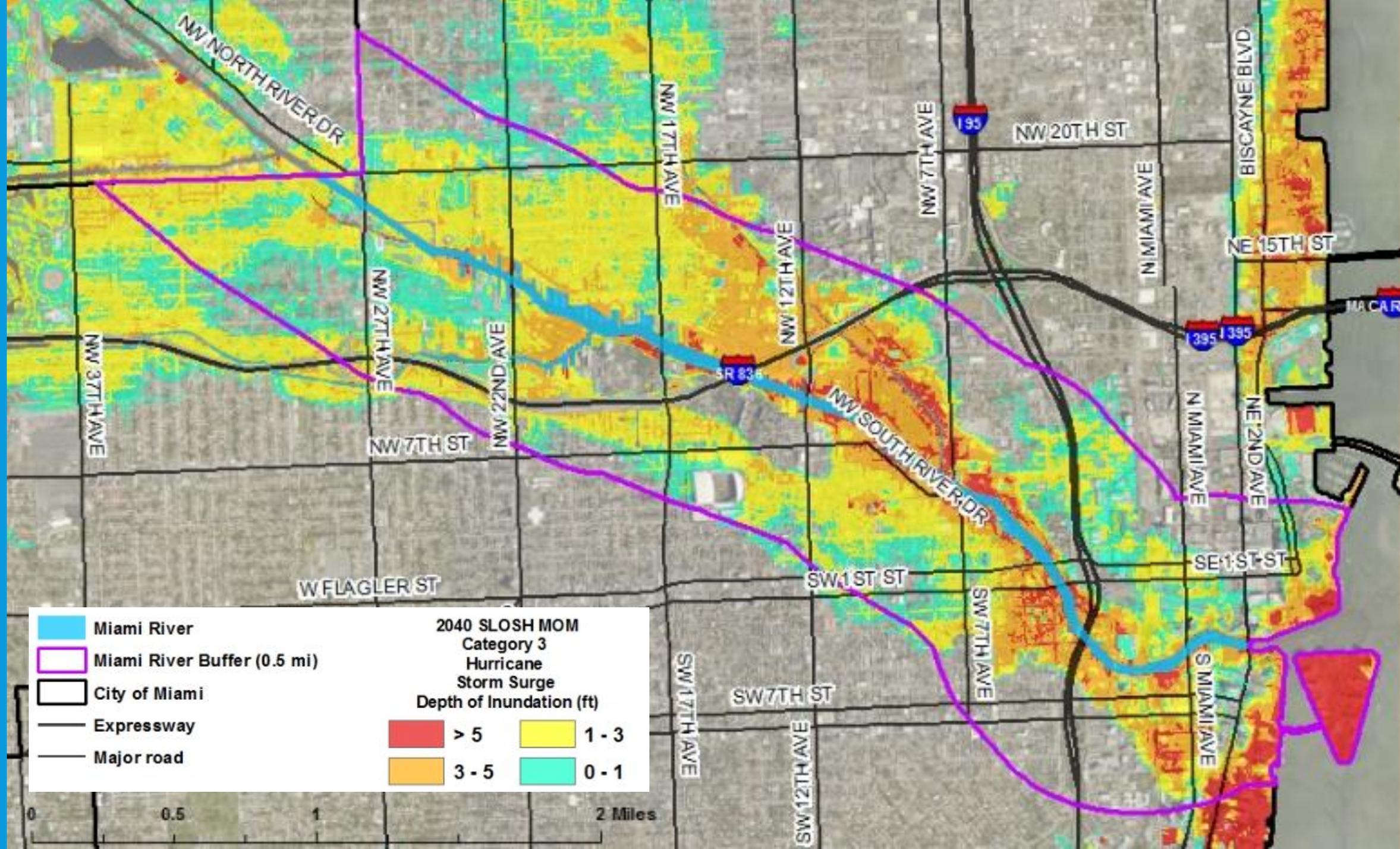
0 0.5 1 2 Miles

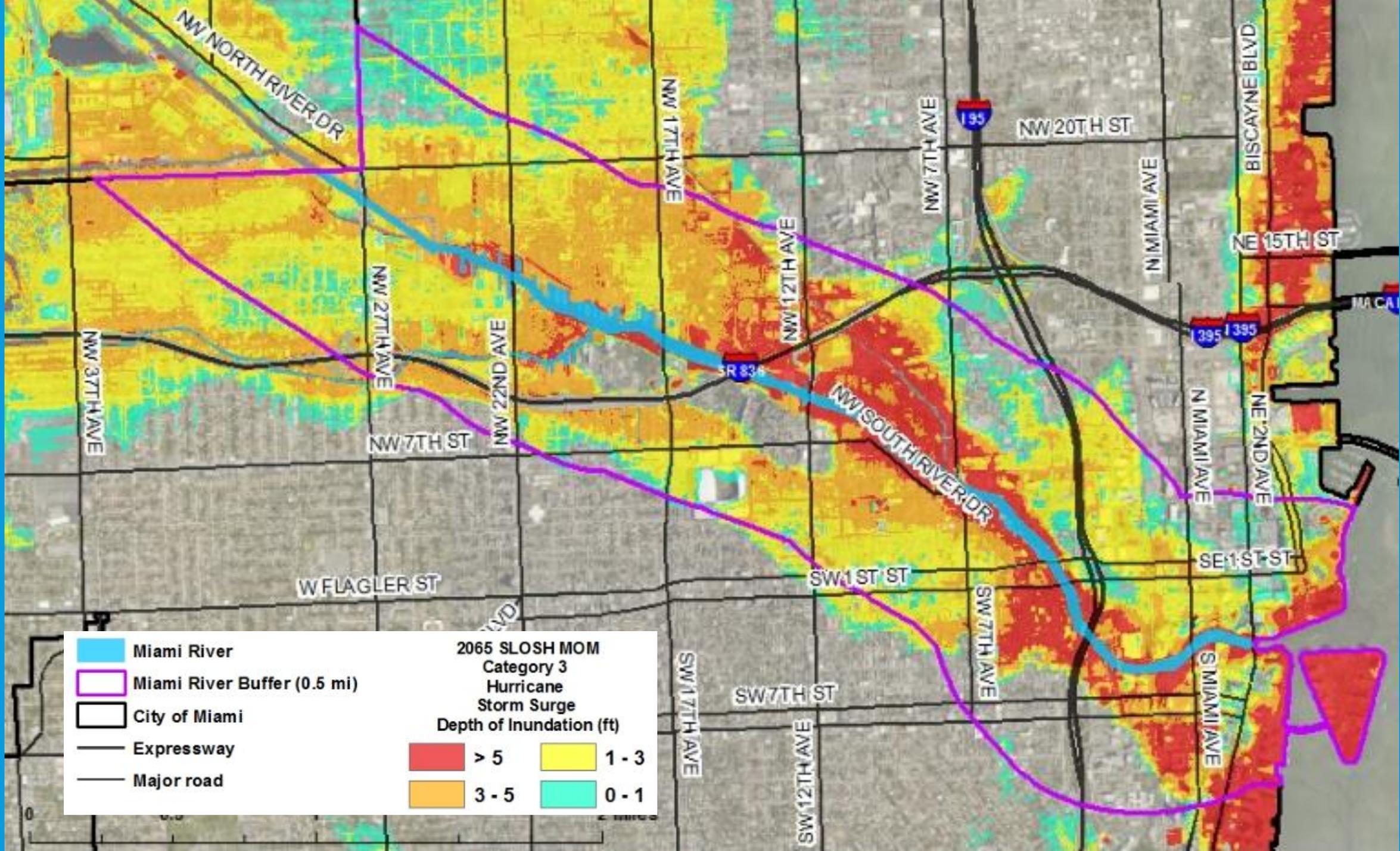


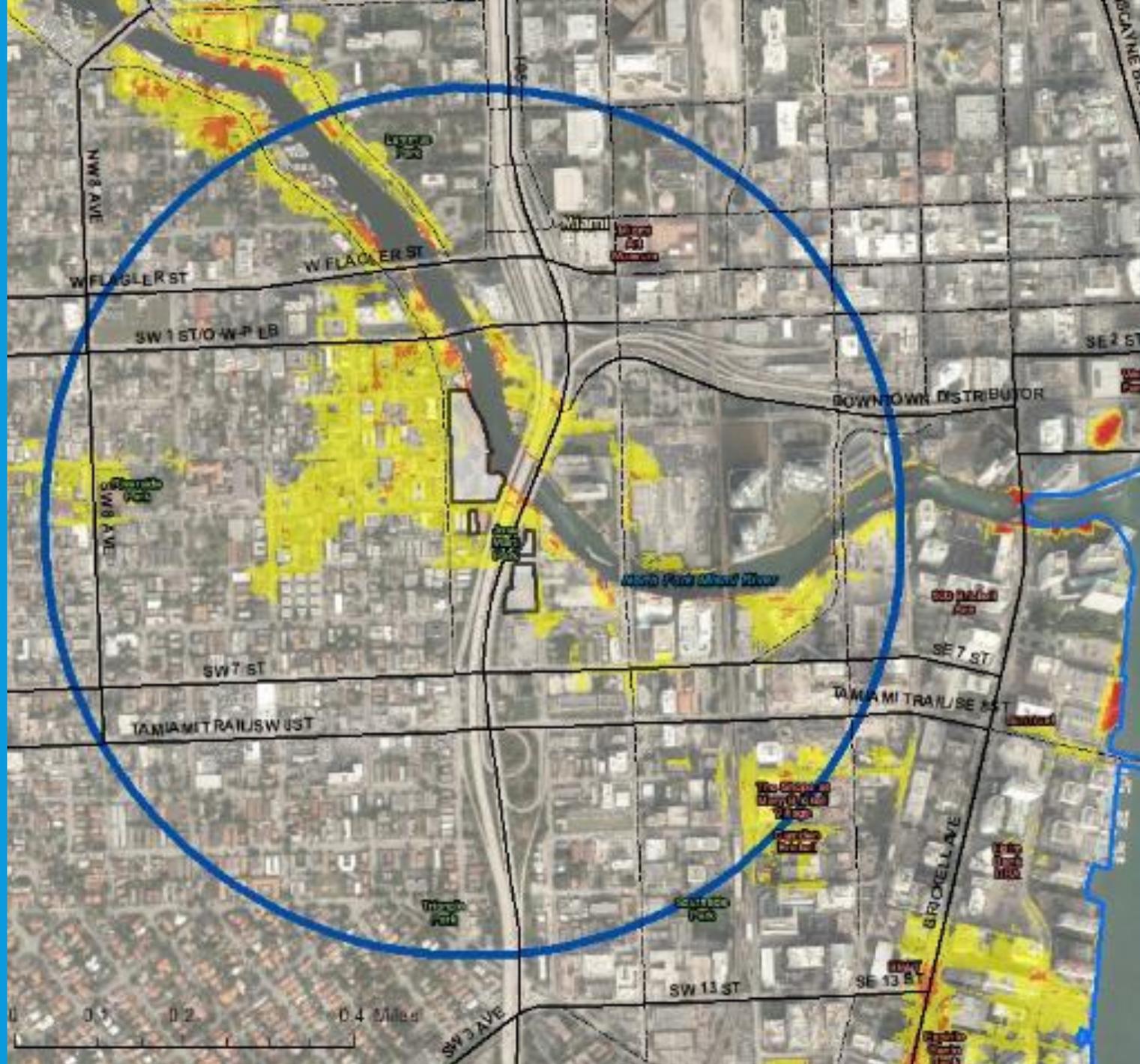


	Miami River	<b>2017 SLOSH MOM</b>	
	Miami River Buffer (0.5 mi)	Category 3	
	City of Miami	Hurricane	
	Expressway	Storm Surge	
	Major road	Depth of Inundation (ft)	
	> 5		1 - 3
	3 - 5		0 - 1

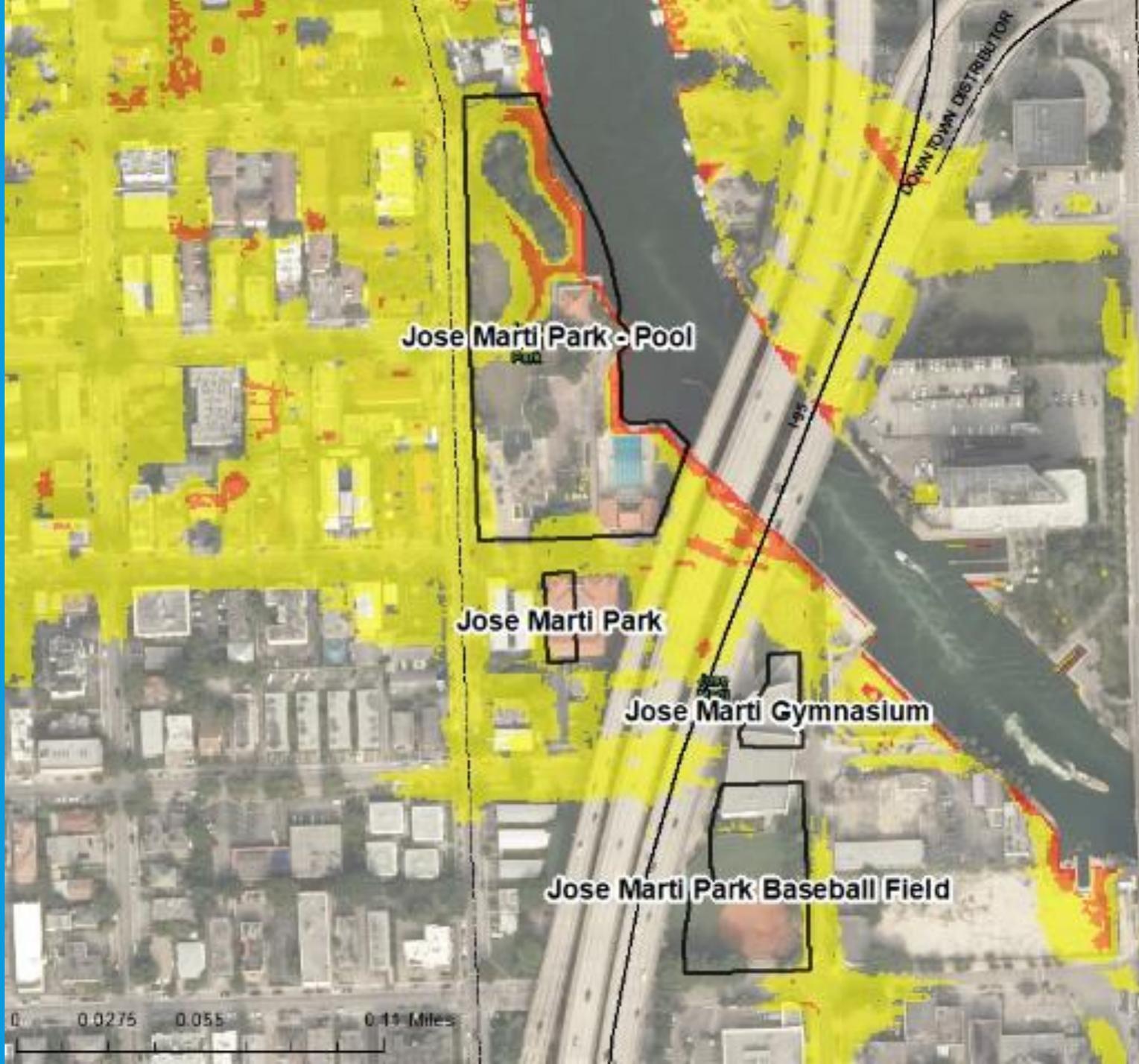
0 0.5 1 2 Miles



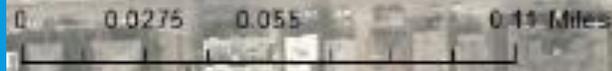




-----	County Road	<b>USACE High Projection King Tide Flooding (1.6 ft NAVD88)</b>						
————	State Road							
□	City of Miami							
○	Jose Marti Park 1/2 mi buffer							
N	▲	<table border="0"> <tr> <td>■</td> <td>Current</td> </tr> <tr> <td>■</td> <td>2040 - 10in</td> </tr> <tr> <td>■</td> <td>2065 - 26in</td> </tr> </table>	■	Current	■	2040 - 10in	■	2065 - 26in
■	Current							
■	2040 - 10in							
■	2065 - 26in							
<b>Sea Rise from 2015 Levels</b>								



-----	County Road	<b>USACE High Projection King Tide Flooding (1.6 ft NAVD88)</b>
————	State Road	
□	City of Miami	
□	Jose Marti Park 1/2 mi buffer	
N	▲	
		■ Current
		■ 2040 - 10in
		■ 2065 - 26in
Sea Rise from 2015 Levels		

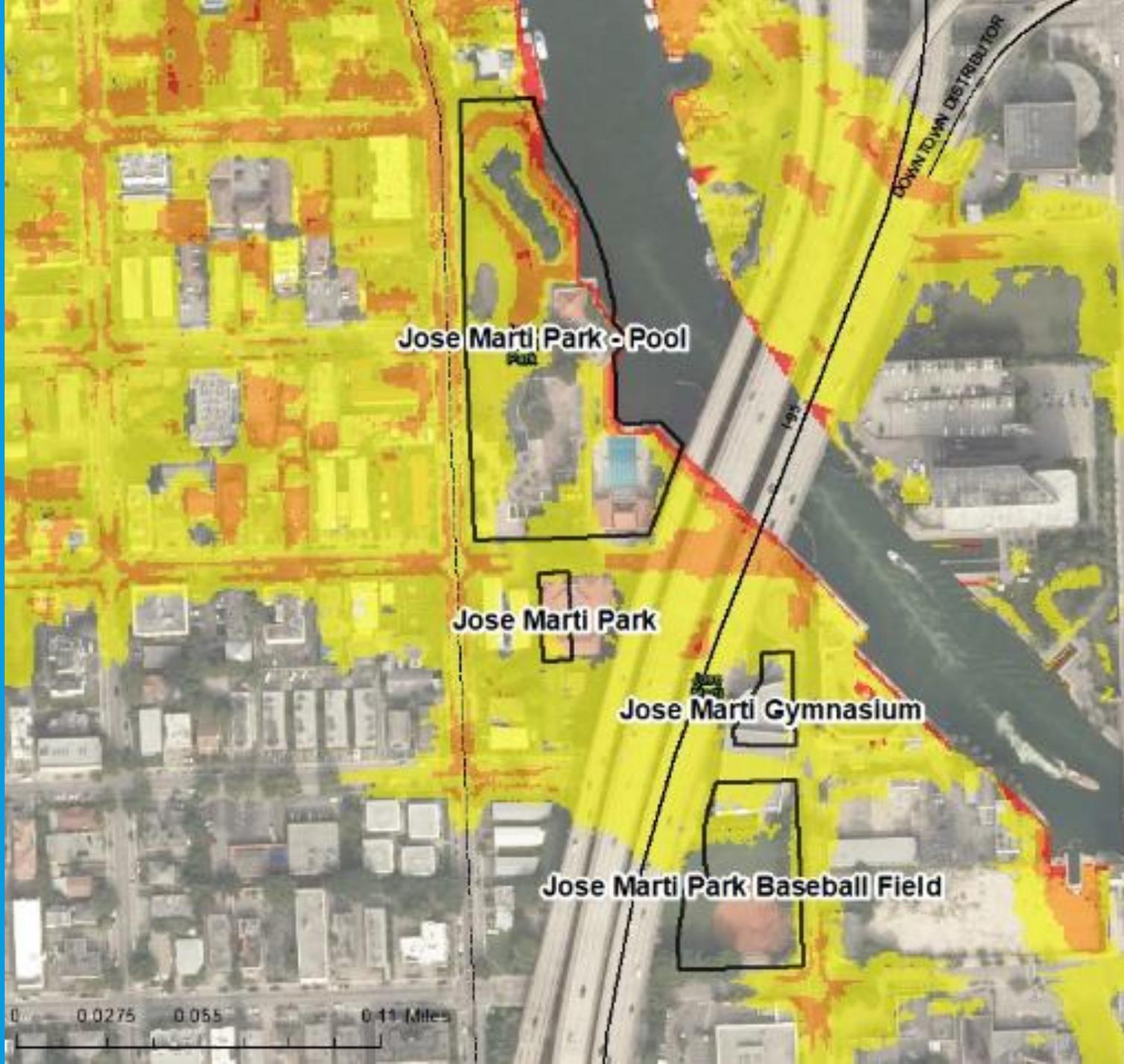




-----	County Road	USACE High Projection Extreme Tide Compound Flooding (2.1 ft NAVD88)
————	State Road	Current
□	City of Miami	2040 - 10in
□	Jose Marti Park 1/2 mi buffer	2065 - 26in

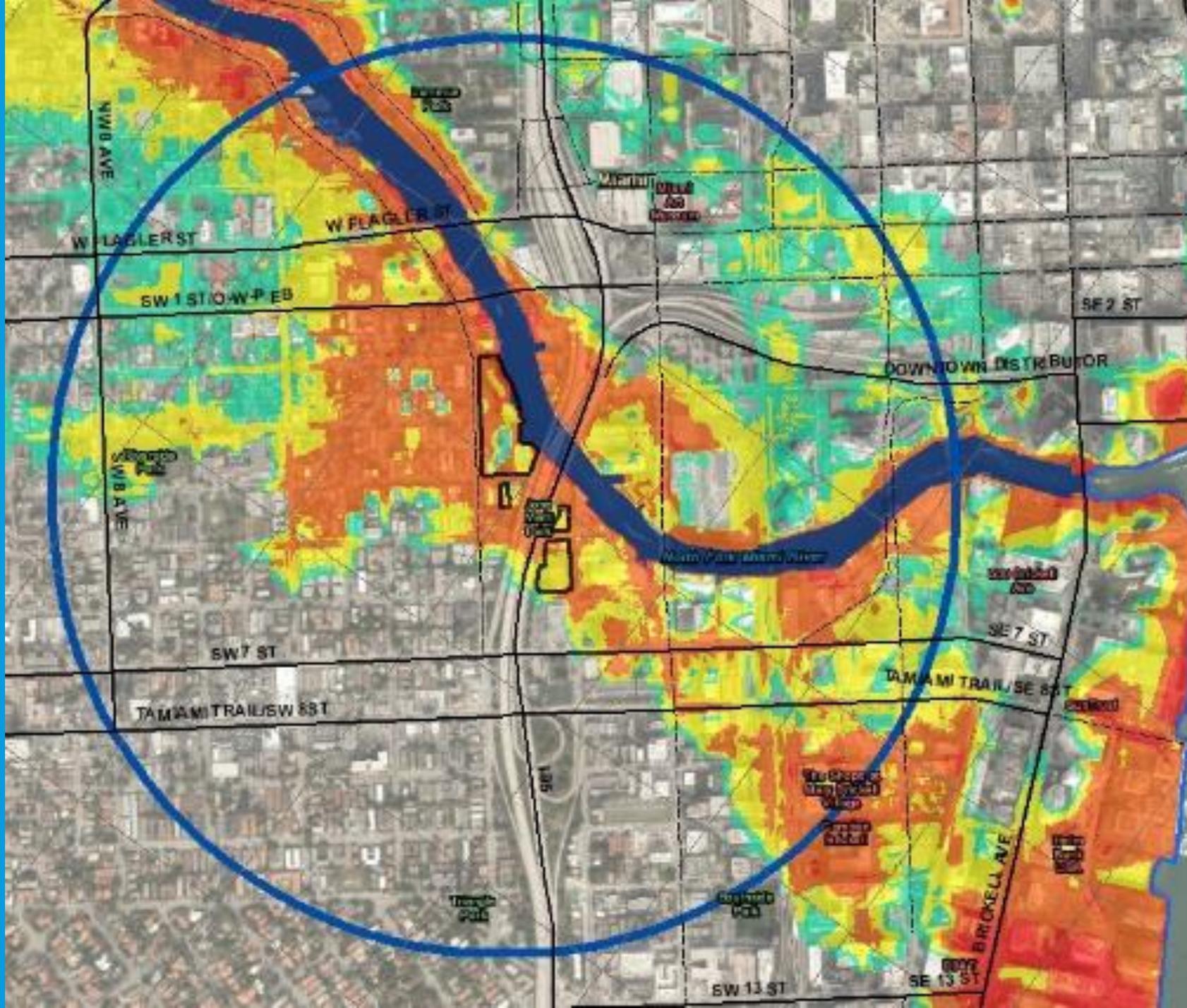
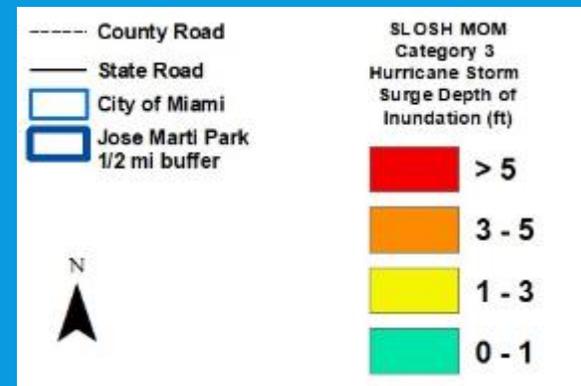
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Sea Rise from 2015 Levels

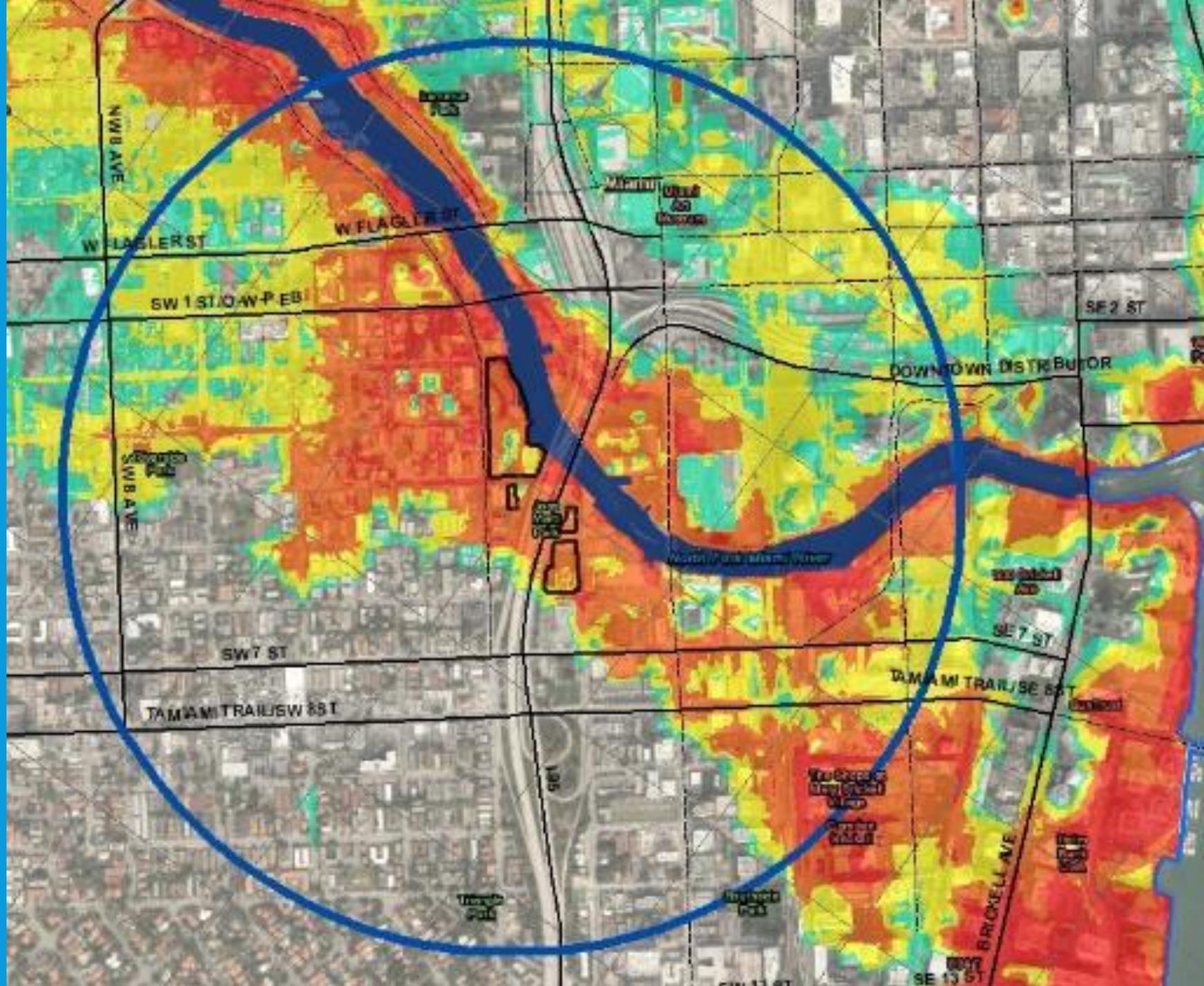


-----	County Road	USACE High Projection Extreme Tide Compound Flooding (2.1 ft NAVD88)
————	State Road	
□	City of Miami	
□	Jose Marti Park 1/2 mi buffer	
N	↑	
■	Current	
■	2040 - 10in	
■	2065 - 26in	
Sea Rise from 2015 Levels		

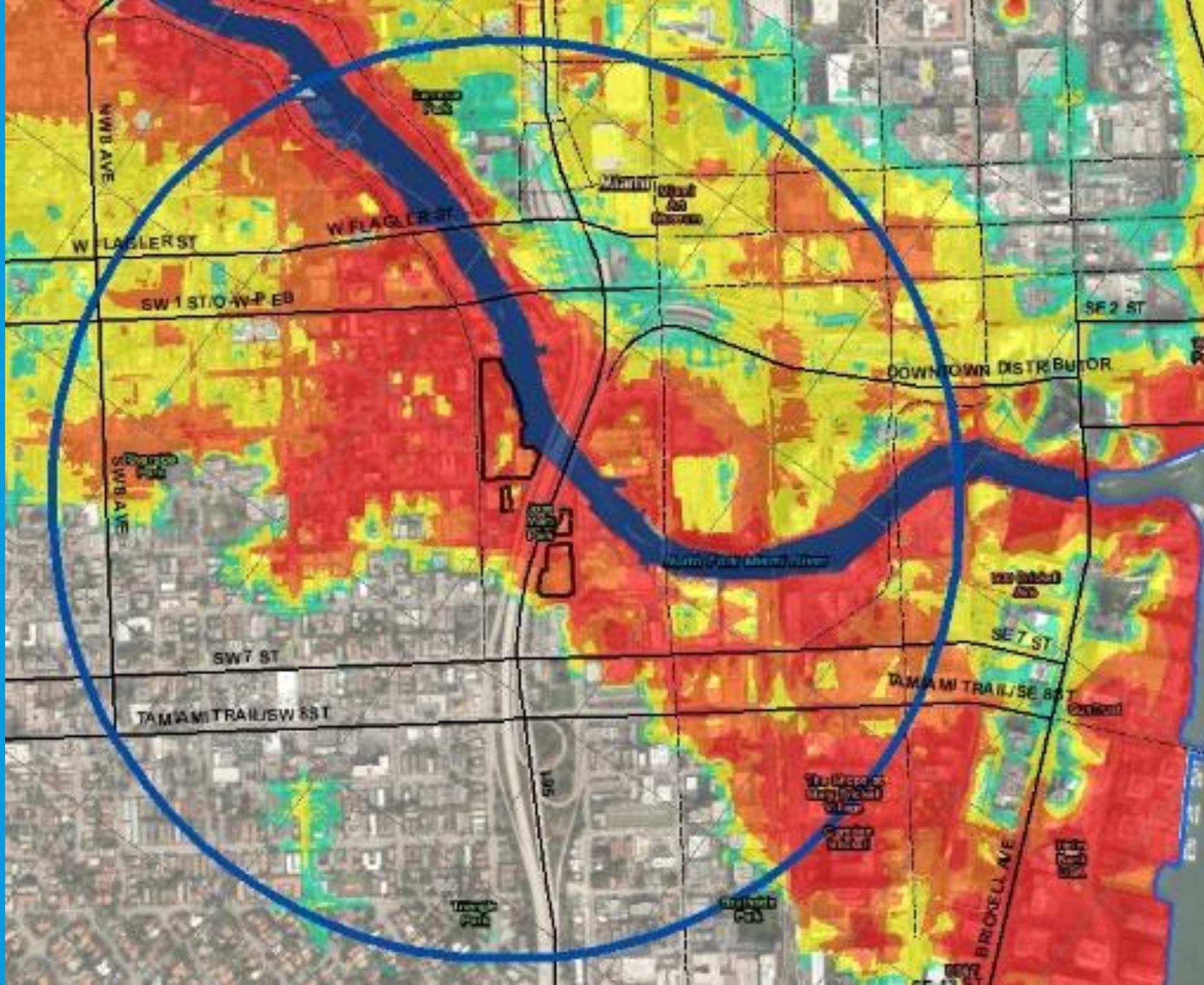
2017



# 2040



2065



-----	County Road	SLOSH MOM
-----	State Road	Category 3
□	City of Miami	Hurricane Storm
□	Jose Marti Park	Surge Depth of
□	1/2 mi buffer	Inundation (ft)

█	> 5
█	3 - 5
█	1 - 3
█	0 - 1

N

# CONTACT INFO

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- Lindsay Willson – [Lwilson@miamigov.com](mailto:Lwilson@miamigov.com)

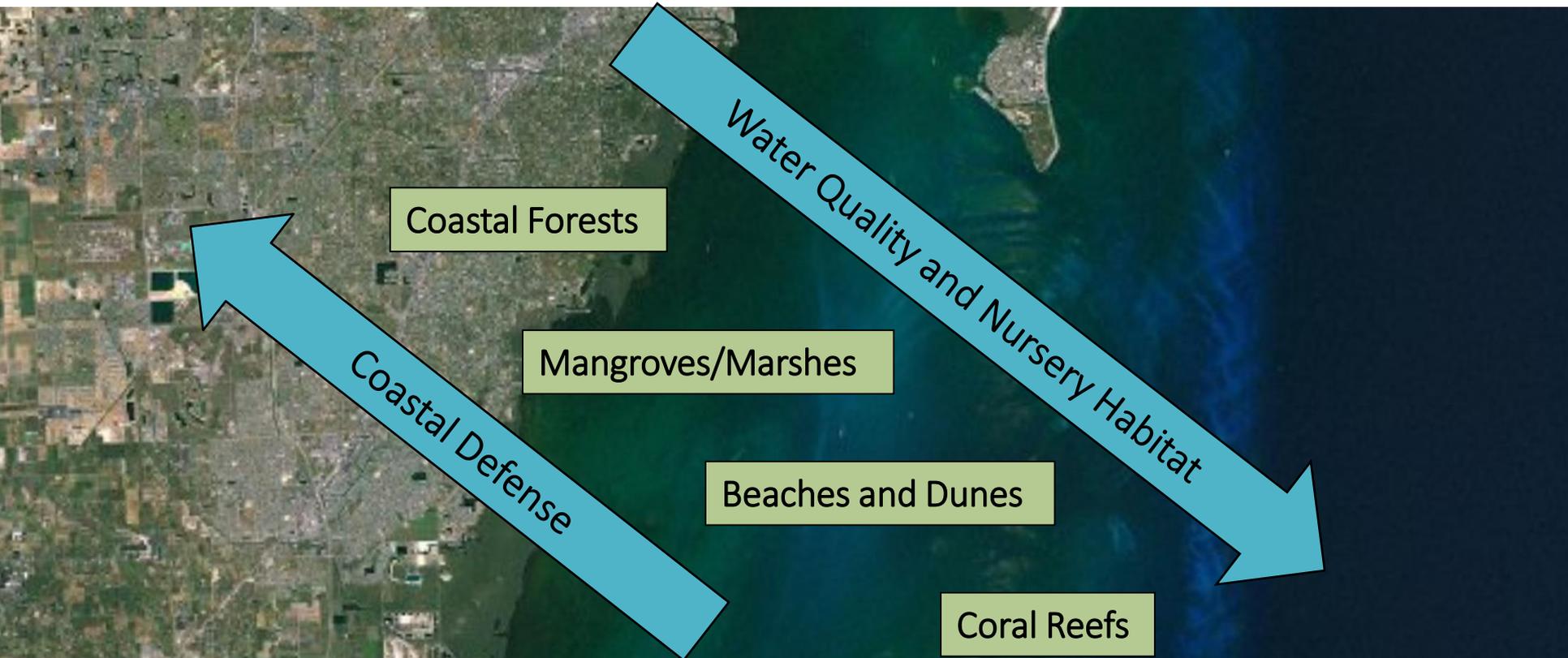
# Working with Nature to Reduce Risk and Adapt to Climate Change

Sonia Succar  
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*Riding the Waves: Working with Nature to Reduce Risk and Adapt to Climate Change*

# Natural coastal defenses minimize erosion and absorb floodwaters



# Regional Climate Change Action Plan

- Details 106 recommendations across 7 planning areas
- Natural Systems (NS) planning area has 14 recommendations
- “NS-7 Coordinate ‘living shorelines’ objectives... to foster use of natural infrastructure (e.g. coral reefs and mangroves) instead of or in addition to grey infrastructure (e.g. bulkheads).”



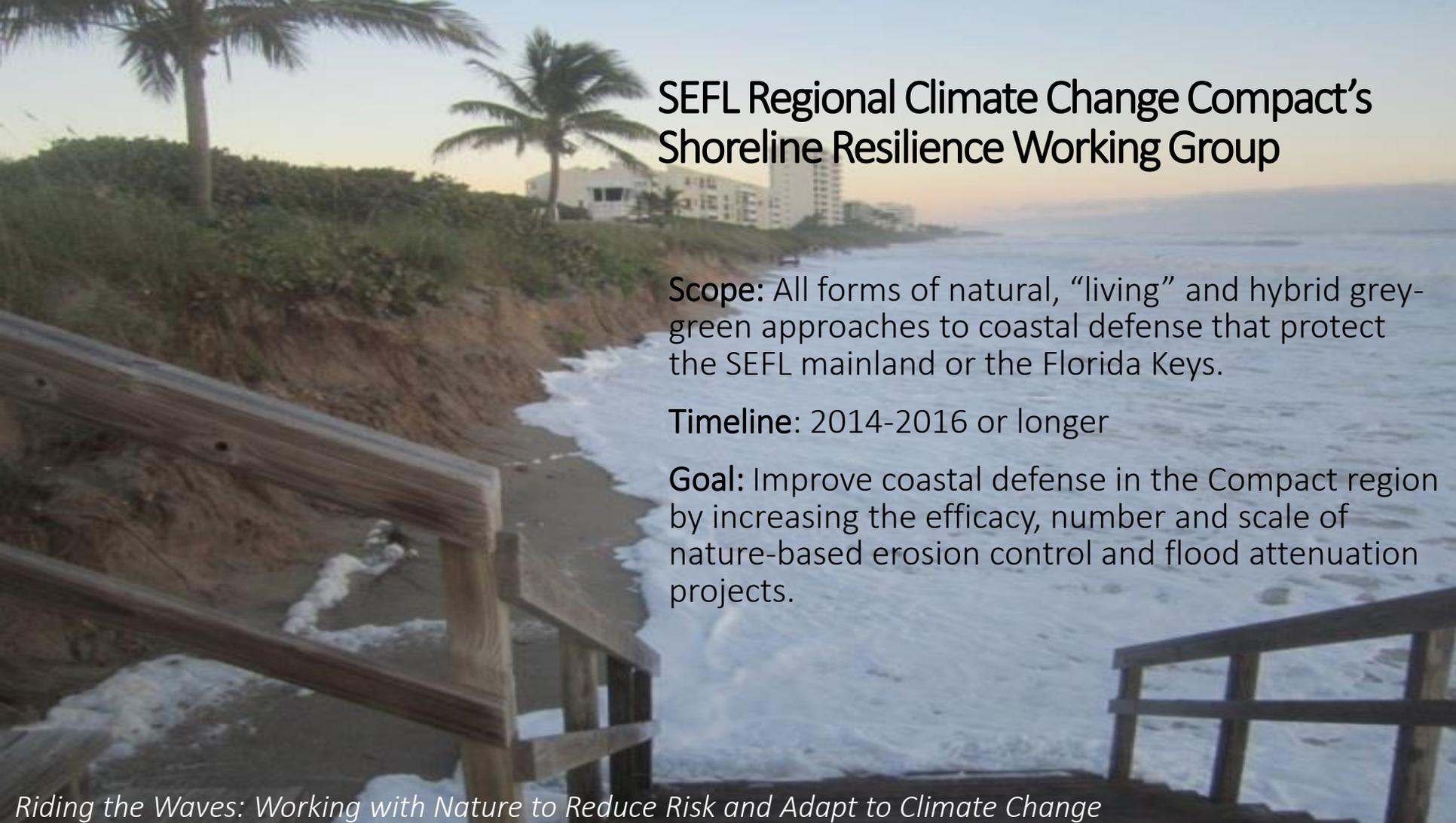
## A Region Responds to a Changing Climate

Southeast Florida Regional Climate Change Compact Counties

Regional Climate Action Plan

October 2012





## SEFL Regional Climate Change Compact's Shoreline Resilience Working Group

**Scope:** All forms of natural, “living” and hybrid grey-green approaches to coastal defense that protect the SEFL mainland or the Florida Keys.

**Timeline:** 2014-2016 or longer

**Goal:** Improve coastal defense in the Compact region by increasing the efficacy, number and scale of nature-based erosion control and flood attenuation projects.

# SEFL Regional Climate Change Compact's Shoreline Resilience Working Group

## Objectives:

Serve as a clearing house for best practices and technical information

Highlight completed projects as examples

Catalogue opportunities for new projects

Promote new projects with particular emphasis on a diverse set of high profile examples that advance the science and socialize the concept of nature-based coastal defenses



Living shoreline/hybrid



Wetland restoration

*Riding the Waves: Working with Nature to Reduce Risk and Adapt to Climate Change*



# Nature-Based Coastal Defenses in Southeast Florida

Published by The Nature Conservancy  
Protecting nature. Preserving life.

PROJECT DESCRIPTION

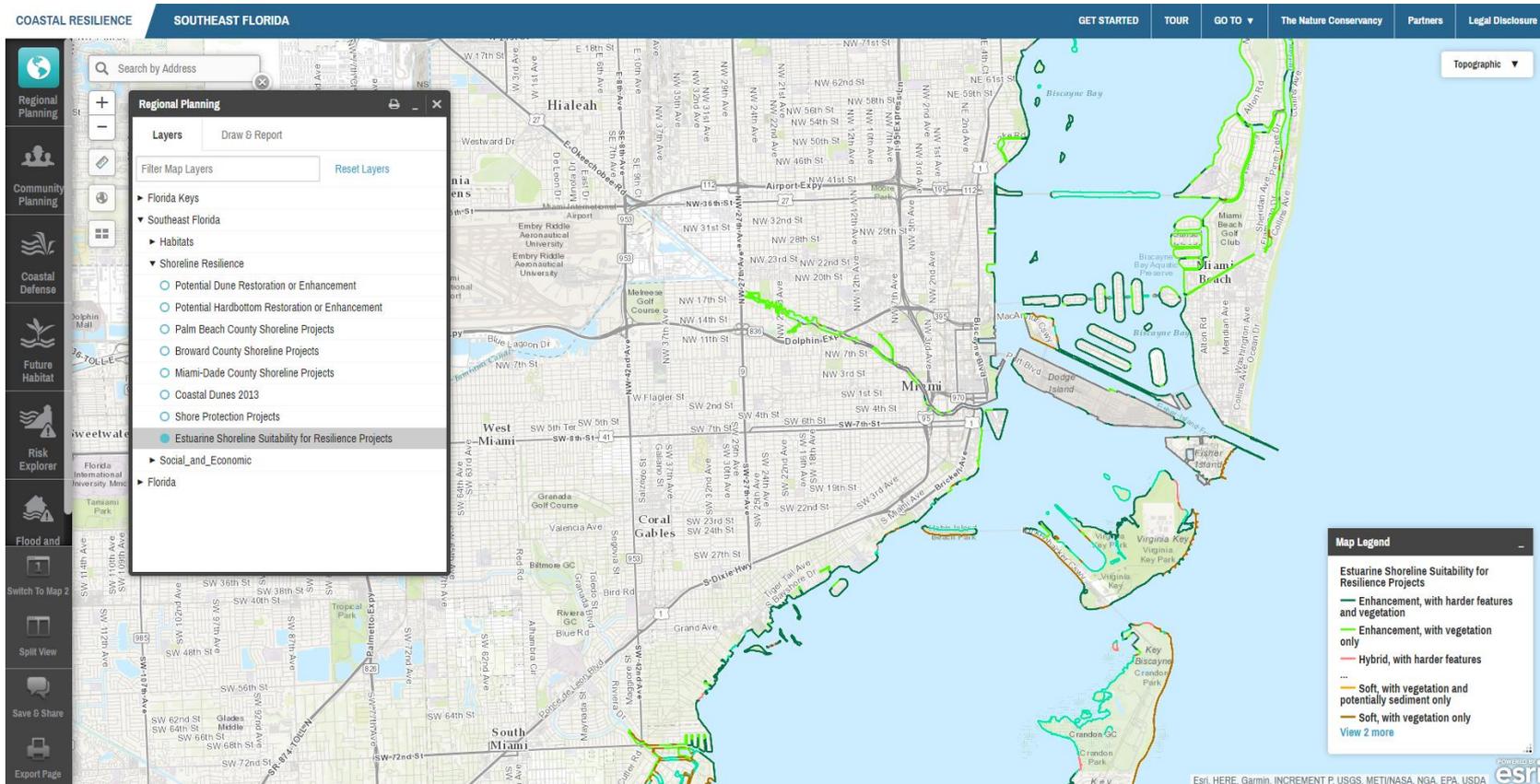
RESTORATION: Restores natural ecosystem and coastal processes		STRUCTURE AND RESTORATION: Combines constructed shoreline features with restored or created natural systems
PROJECT		Total Acres
Coral Cove Dune Restoration Project		20 acres
Florida Keys Coral Restoration		1 acre
John U. Lloyd Beach State Park Dune Restoration Project		2.5 acres
Miami Beach Dune Restoration and Enhancement Project		54 acres
Snook Islands Natural Area Habitat Enhancement Project		70 acres
Virginia Key North Point Ecosystem Restoration		17 acres
West Lake Park Mitigation and Restoration Project		27 acres

ICON KEY	Coastal Wetland	Structure
	Breaks waves along the shoreline, provides critical habitat for fish and invertebrates	Constructed shoreline features protect from waves and storm surge, limited habitat value
	Breaks waves offshore, provides critical habitat for fish and invertebrates, provides tourism and recreational opportunities	Beach/Dune Breaks waves along the shoreline, provides habitat for turtles, birds and other wildlife, and provides tourism and recreational opportunities
	Breaks waves offshore, provides critical habitat for fish and invertebrates, improves water quality via filtration	

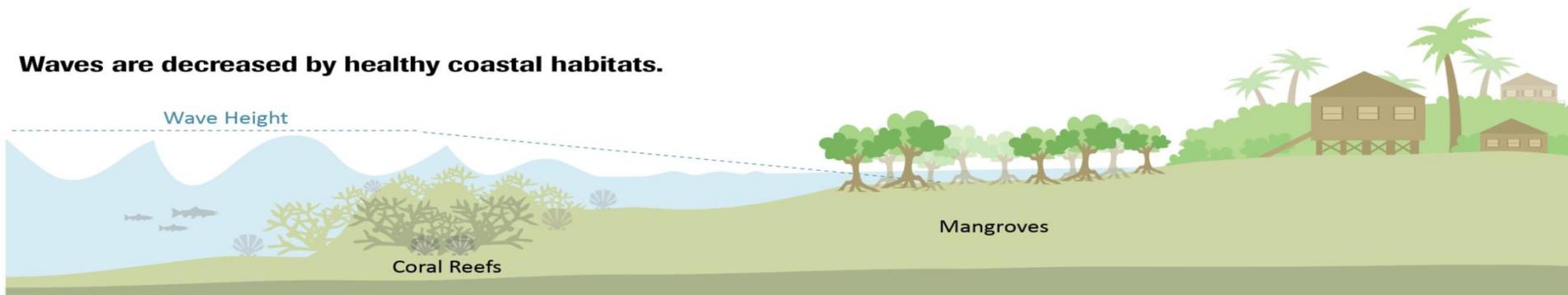
[www.nature.org/southeastflorida-report](http://www.nature.org/southeastflorida-report)

*Riding the Waves: Working with Nature to Reduce Risk and Adapt to Climate Change*

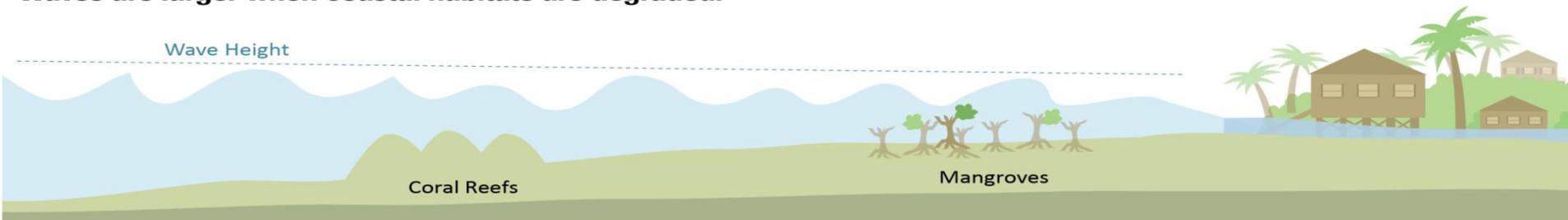


Natural coastal defenses provide cost-effective risk reduction, they are relatively adaptable to changing conditions and they provide numerous co-benefits that south Floridians already value.

**Waves are decreased by healthy coastal habitats.**



**Waves are larger when coastal habitats are degraded.**



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# Coastal Wetlands

*Riding the Waves: Working with Nature to Reduce Risk and Adapt to Climate Change*



# Types of Coastal Wetlands

- Mangroves
- High marsh (cordgrass and needlerush)
- Mud flats
- Isolated freshwater wetlands within the coastal watershed
- Transitional plant communities



# Coastal Wetlands

## BIOLOGICAL VALUES

Biogeochemical Cycling

Biogenic Soil Accretion

Aquatic Food Web Support

Fish & Wildlife Habitat

## VALUE TO SOCIETY

Flood Storage

Storm Surge Attenuation

Erosion Control

Water Quality Maintenance

Support Important Commercial &  
Recreational Fisheries



# Coastal Wetlands

## CONSERVATION APPROACHES

Education & Outreach

Protection

Environmental Regulations

Conservation Easements

Creation

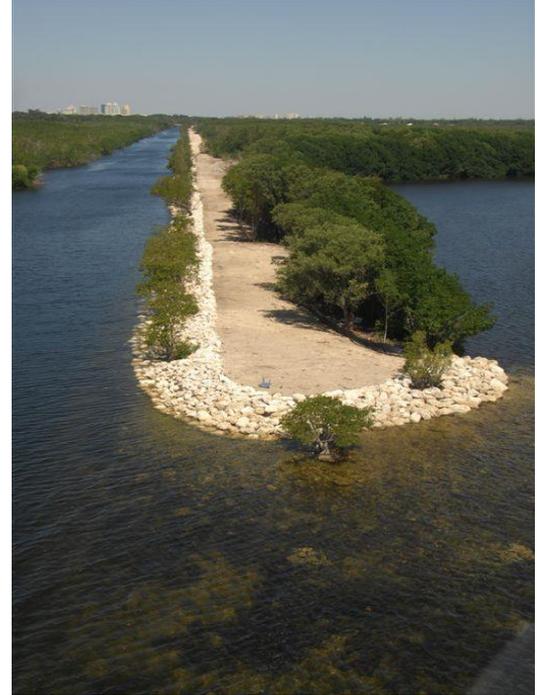
Restoration

Enhancement



# Hybrid Living Shorelines

## Riprap & Mangrove Planters



# Hybrid Living Shorelines

## West Lake Park Riprap Crib Design



# Living Shorelines

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Associate Professor, Florida Atlantic University

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*Riding the Waves: Working with Nature to Reduce Risk and Adapt to Climate Change*

# Living Shorelines

## BIOLOGICAL VALUES

Provide critical link between terrestrial and aquatic ecosystems

Support natural processes

Preserve the functionality of the intertidal zone

Improve wildlife access to habitat

## VALUE TO SOCIETY

Wave energy dissipation and erosion rate reduction

Protection to prolong the life of the hard structure

Visual/aesthetic value for waterfront homeowners

Filtering of stormwater runoff

Cost-effectiveness

# Why Living Shorelines?

## THREATS

*In Florida, 48% of the developed east shore and 50 % of the developed west shore are armored causing:*

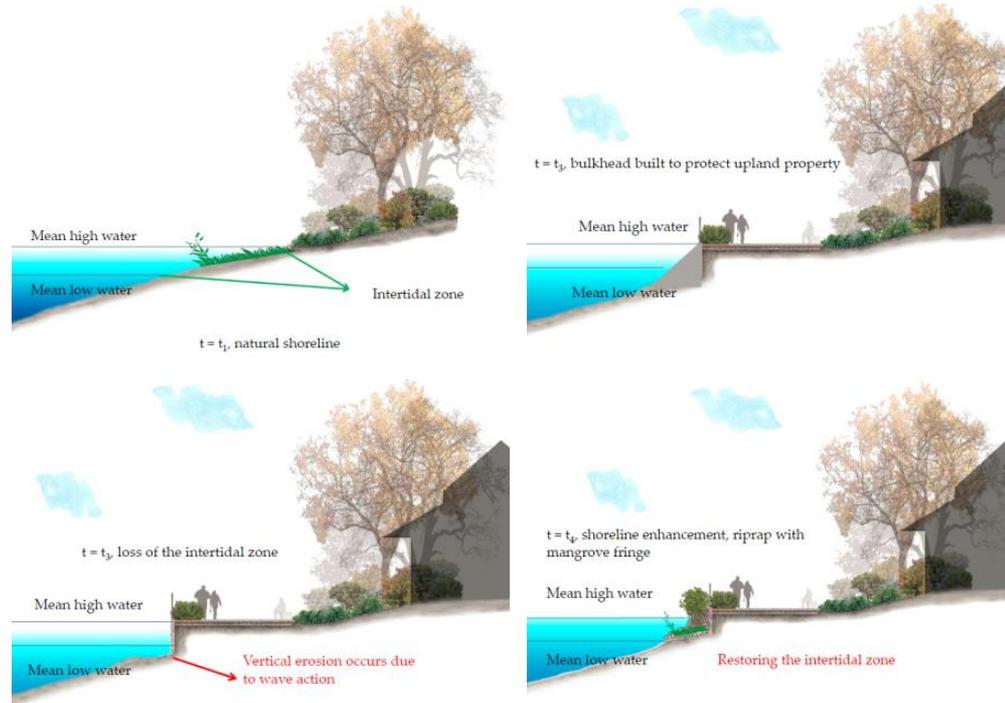
Wave energy reflection that can lead to scouring, undercutting, and potential structure failure

Active vertical erosion and loss of natural sediment supply

Downdrift erosion on the edges of man-made structures

Loss of intertidal habitat and biodiversity

Turbidity and other water quality issues due to lack of filtering capacity provided by the natural shoreline



# Living Shorelines



Vegetated beaches



RIPRAP WITH VEGETATION



Seawalls with vegetation



Sea Oat Planting



Crib ripraps to protect wetlands

# Living Shorelines

## SITE IDENTIFICATION APPROACH

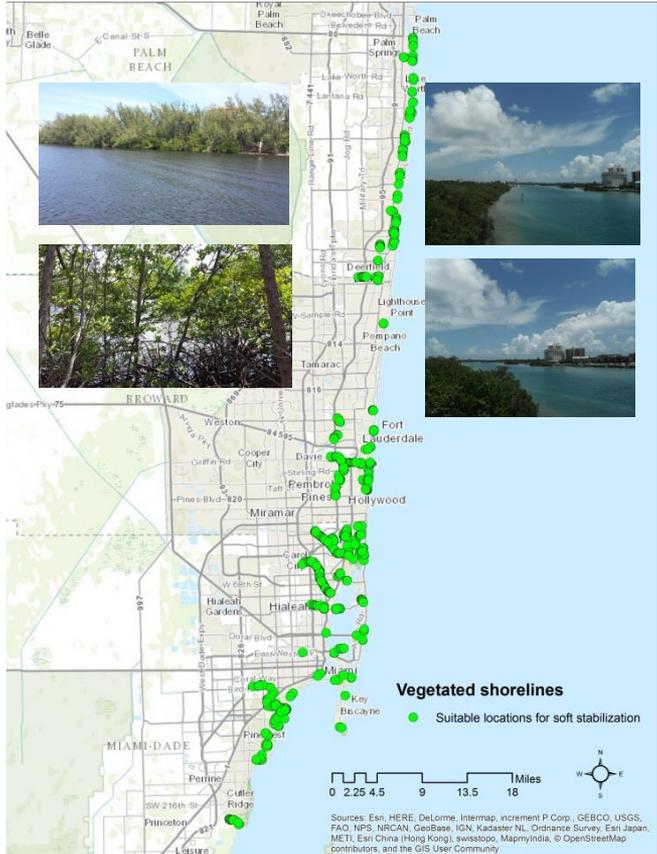
## EXPOSURE

Existing Shoreline Type	Exposure	Generic Project Type
Natural and erodible	High	Hybrid, with harder features
	Med	Hybrid, with softer features
	Low	Soft, with vegetation only
Unnatural and erodible	High	Hybrid, with harder features
	Med	Hybrid, with softer features
	Low	Soft, with vegetation and potentially sediment only
Armored but permeable (riprap, etc.)	High	Enhancement, with harder features and vegetation
	Med	Enhancement, with harder features and vegetation
	Low	Enhancement, with vegetation only
Armored with wall/impermeable	High	Enhancement, with harder features and vegetation
	Med	Enhancement, with harder features and vegetation
	Low	Enhancement, with vegetation only

1. Wind-wave action
2. Boat traffic
3. Storm surge
4. Distance to inlet
5. Water depth
6. Nearshore slope

Expert opinion survey to elicit parameter weights

# Living Shorelines

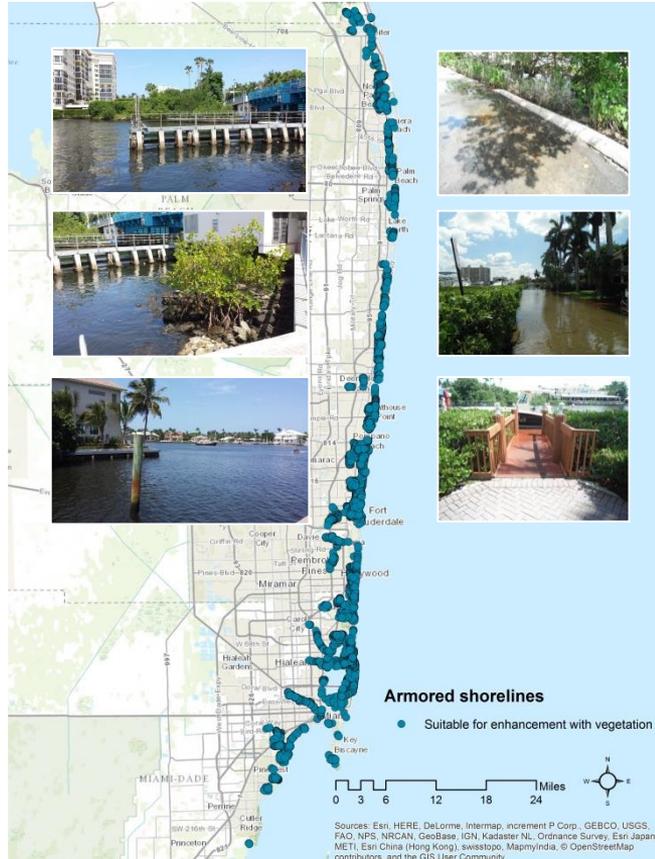


Locations suitable for stabilization with vegetation only

Vegetated shoreline  
- 30% public

Beach & vegetation  
- 30% public

# Living Shorelines

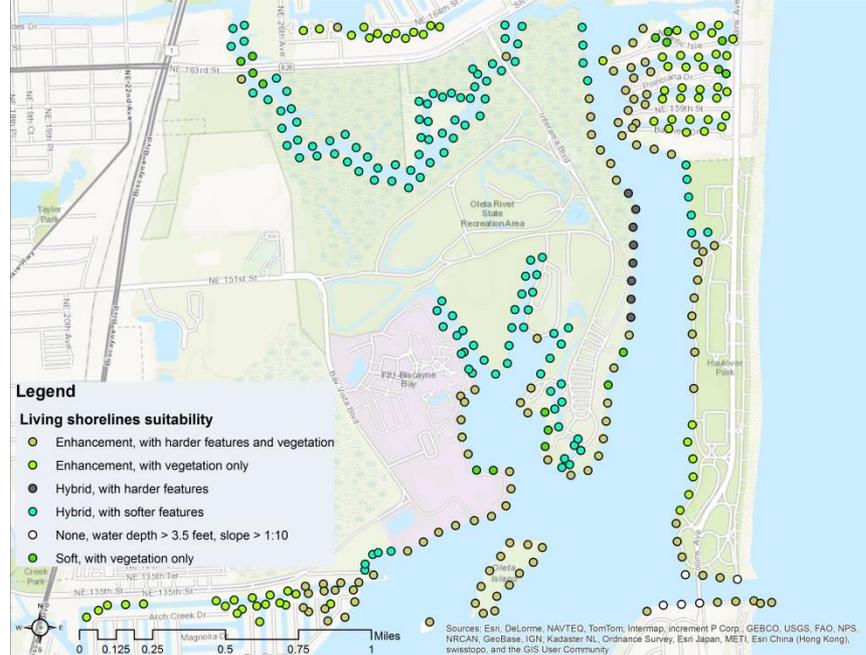
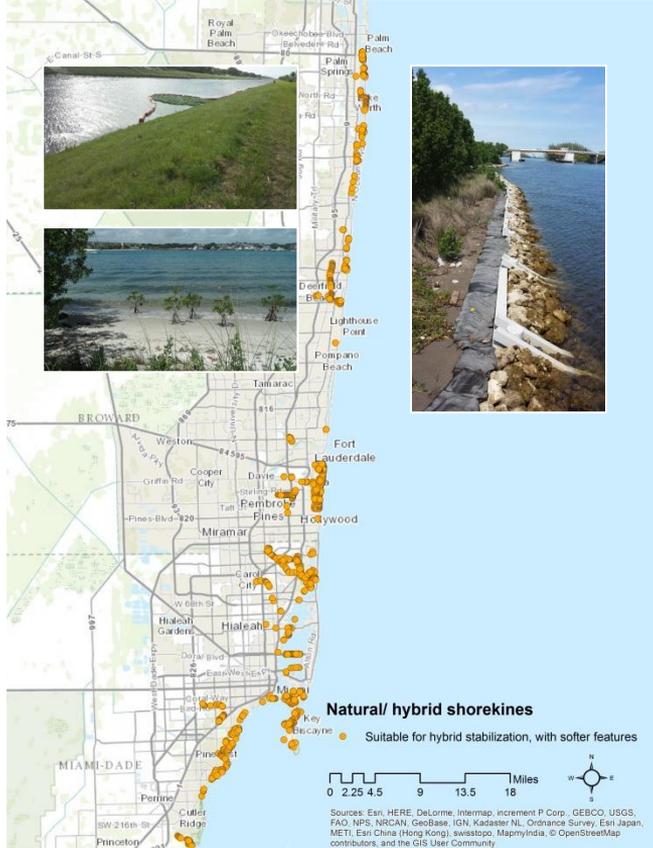


Locations where seawalls and ripraps are present.

Parcels suitable for shoreline enhancement with vegetation

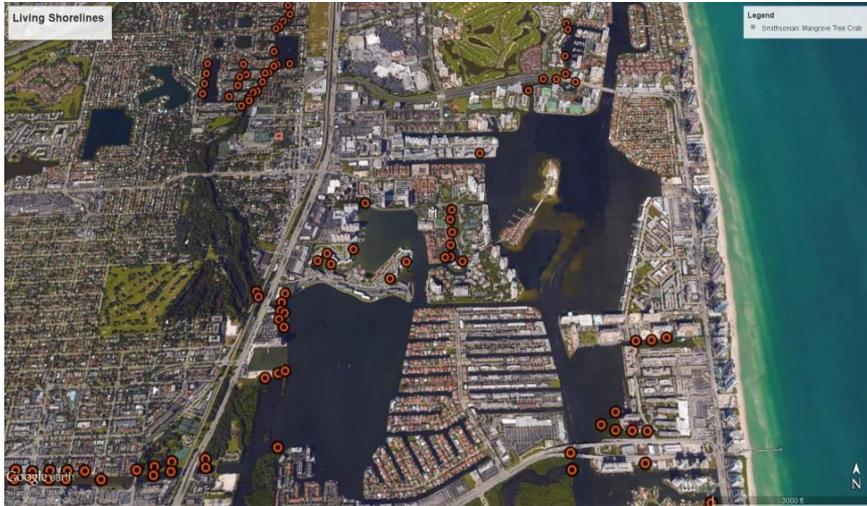
- Low wave energy
- Water depth below 3 ft → 30 feet from shoreline
- 10 % of all armored

# Living Shorelines

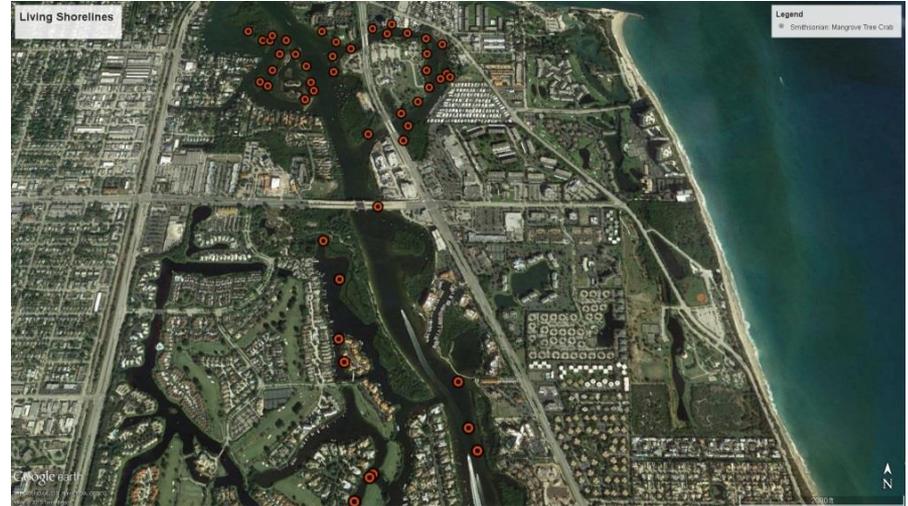


Natural/ Hybrid Shorelines  
 -Suitable locations for hybrid stabilization and a mix of options

# Living Shorelines



Broward County



Palm Beach County

Suitable for soft stabilization

# Living Shorelines



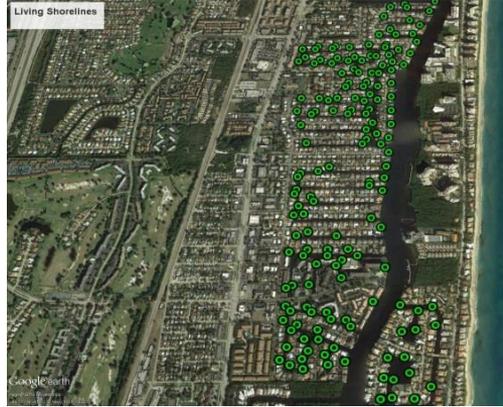
Broward County



Miami-Dade County



Broward County



Palm Beach County

Locations where existing man-made structures can be enhanced with mangrove fringes or other types of vegetation



# Shoreline Resilience Project Opportunities in the City of Miami

Project Type	City-wide Linear Ft.	City-owned Linear Ft.
Seawall enhancement, with harder features and vegetation	137,899	27,516
Seawall enhancement, with vegetation only	80,162	7,718
Hybrid construction with harder features	2,942	956
Hybrid construction with softer features	35,554	12,195
Soft stabilization with vegetation and potentially sediment only	344	344
Soft stabilization with vegetation only	26,497	17,992
<b>Total Linear Feet of Potential Project</b>	<b>283,398</b>	<b>66,720</b>
None, water depth > 3.5 feet, slope > 1:10	63,186	11,581
None, already restored wetlands	1,985	1,985
None, already vegetated or other type of natural shoreline	24,712	24,711
<b>Total Linear Feet of Shoreline</b>	<b>373,281</b>	<b>104,997</b>

# Shoreline Resilience Project Opportunities in the City of Miami



**Existing seawalls with natural elements presents the largest opportunity for consideration:**

- With 218,061 feet city-wide
- 35,234 feet on city-owned parcels

**Potential Locations:**

- Jose Marti Park
- Morningside Park
- Kennedy Park
- Much of the Baywalk

# Shoreline Resilience Project Opportunities in the City of Miami



## Other opportunities for Hybrid Projects:

- 38,496 feet in city-wide
- 13,751 feet in city-owned

## Soft stabilization with vegetation and sediment only:

- 26,841 feet in city-wide
- 18,336 feet in city-owned



Thank you!

