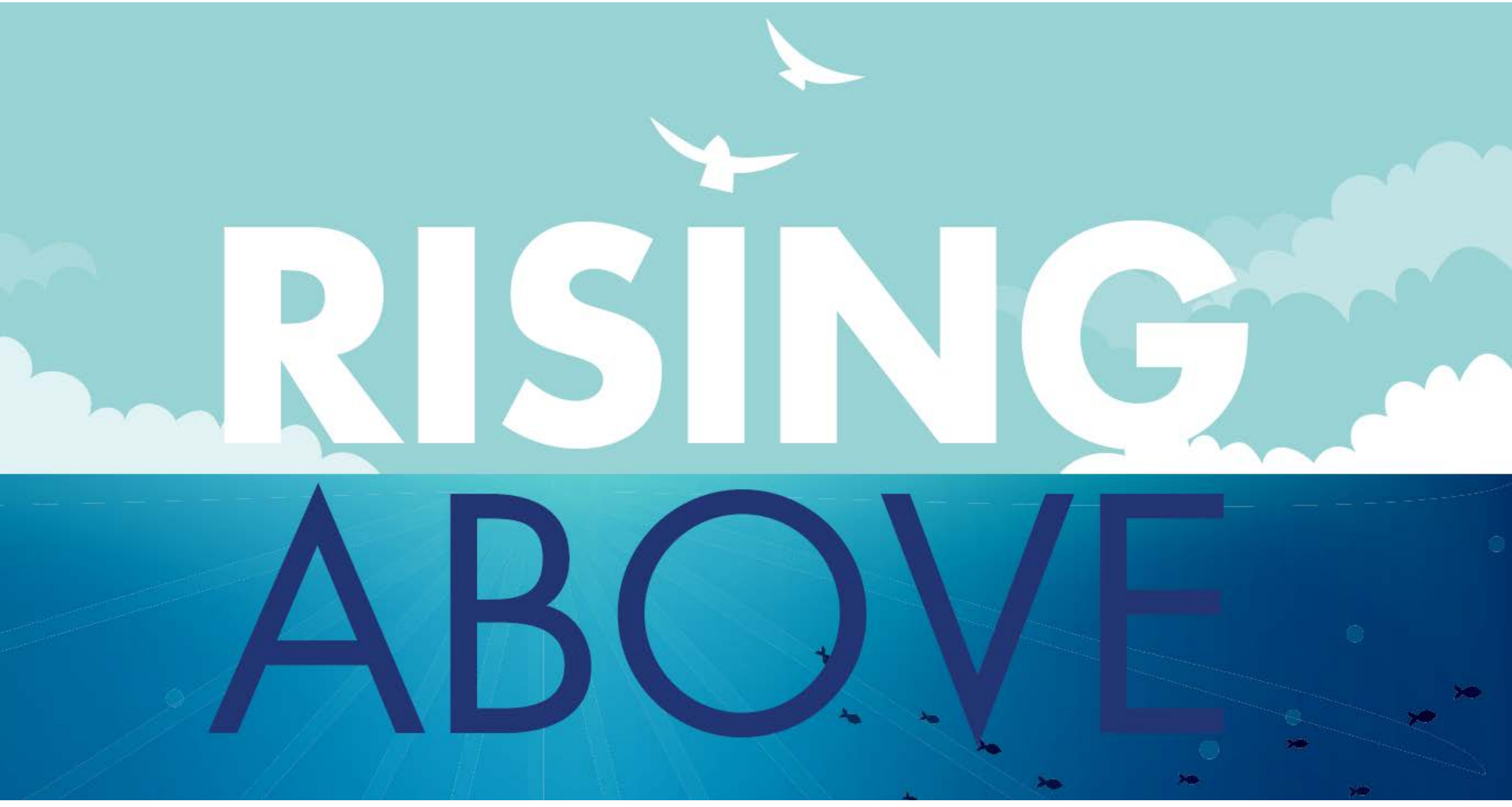
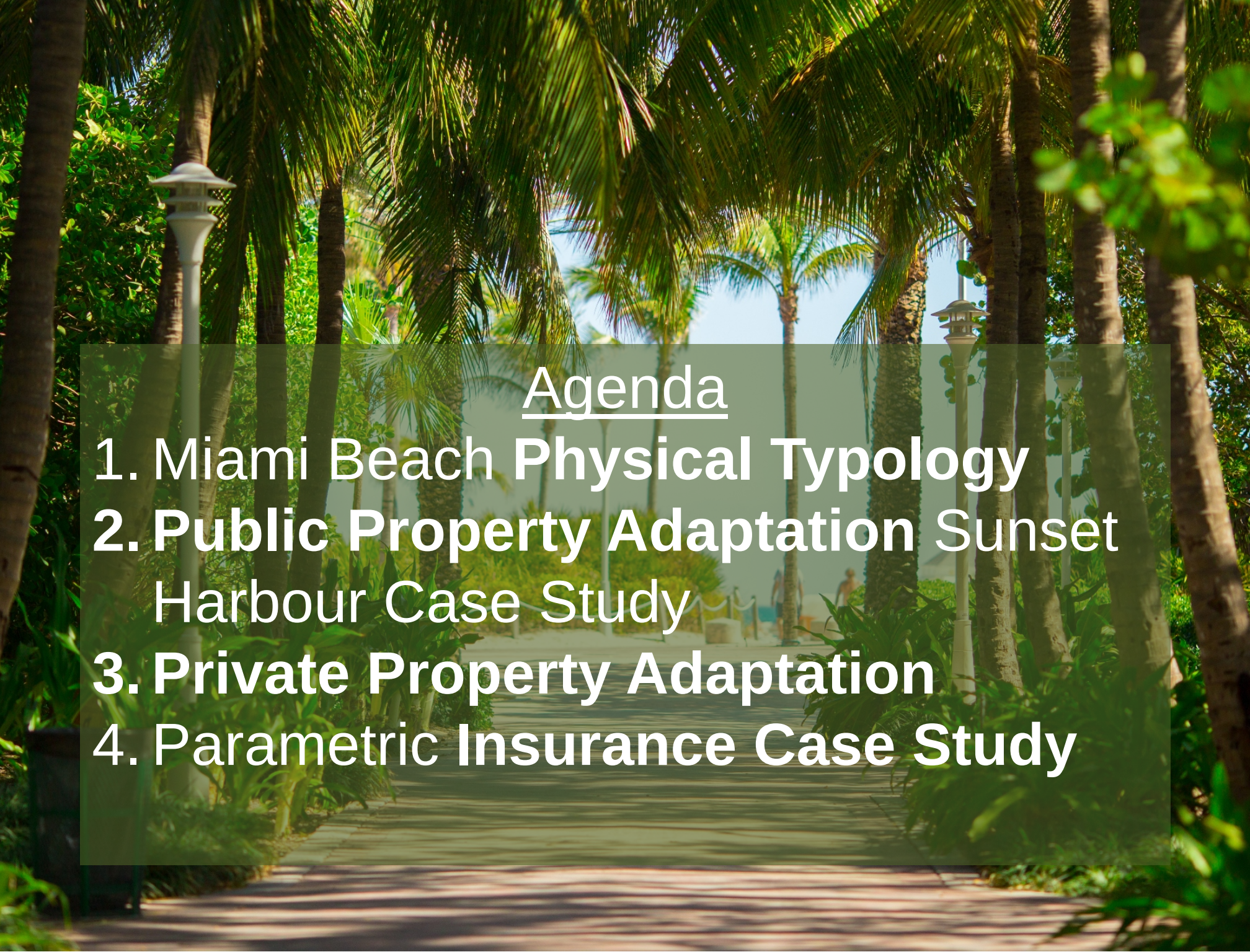


Miami Beach Adaptation Planning

NOAA in the Caribbean (NOAA CARIB)
Partners Workshop
August 19-23, 2019



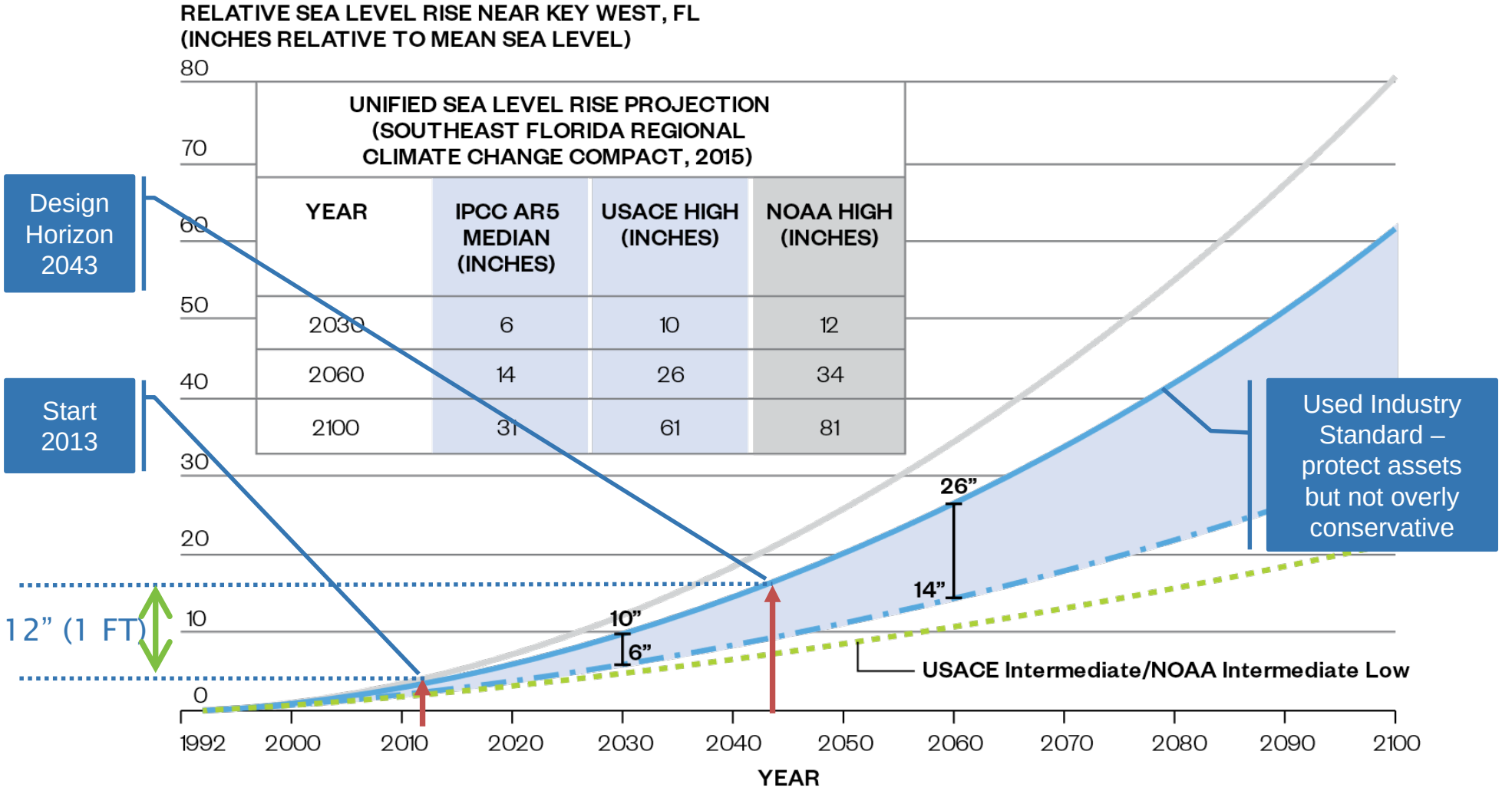
Agenda

1. Miami Beach **Physical Typology**
2. **Public Property Adaptation** Sunset Harbour Case Study
3. **Private Property Adaptation**
4. Parametric **Insurance Case Study**

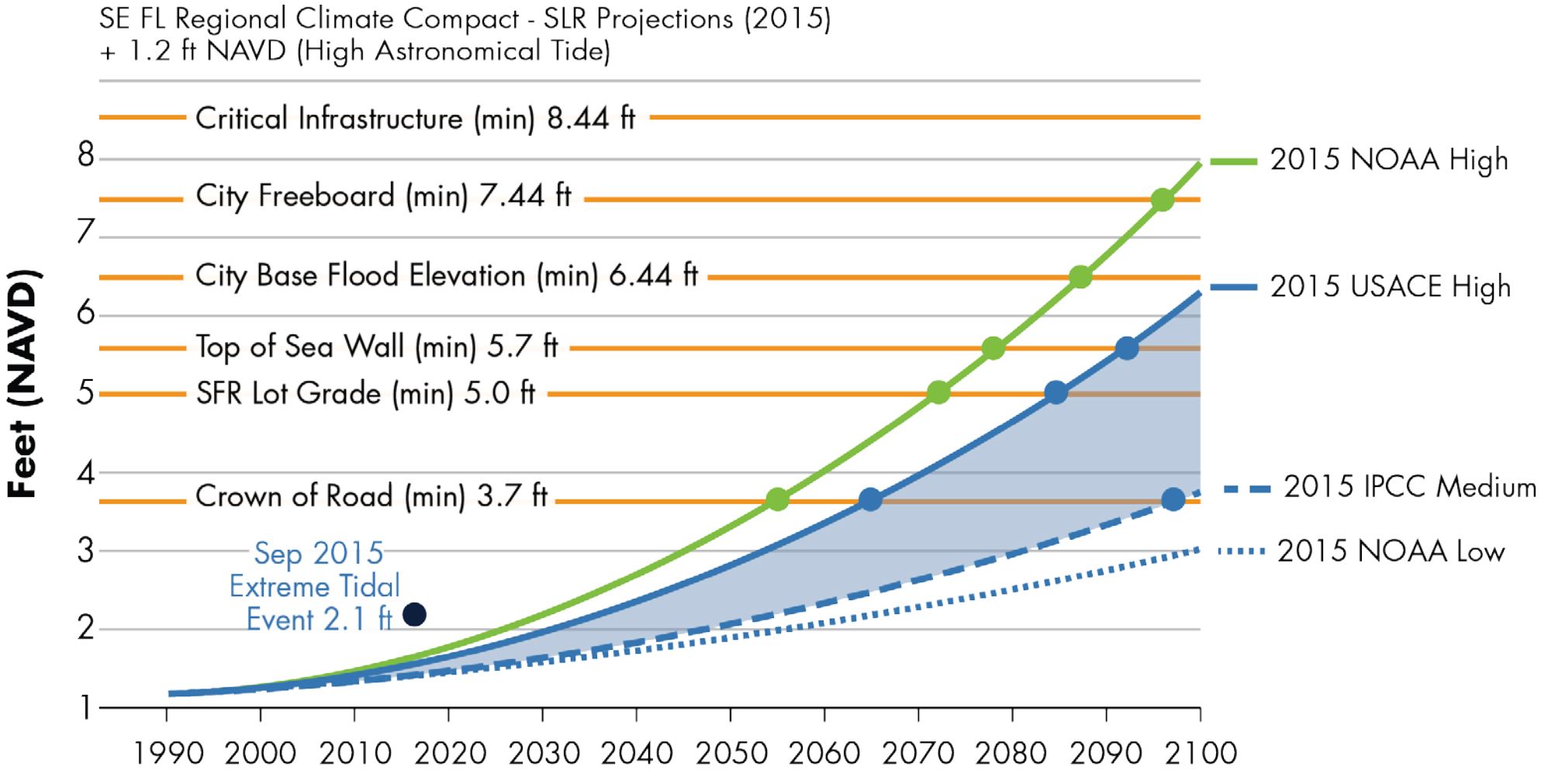
MIAMI BEACH SEA LEVEL RISE ADAPTATION CHALLENGES

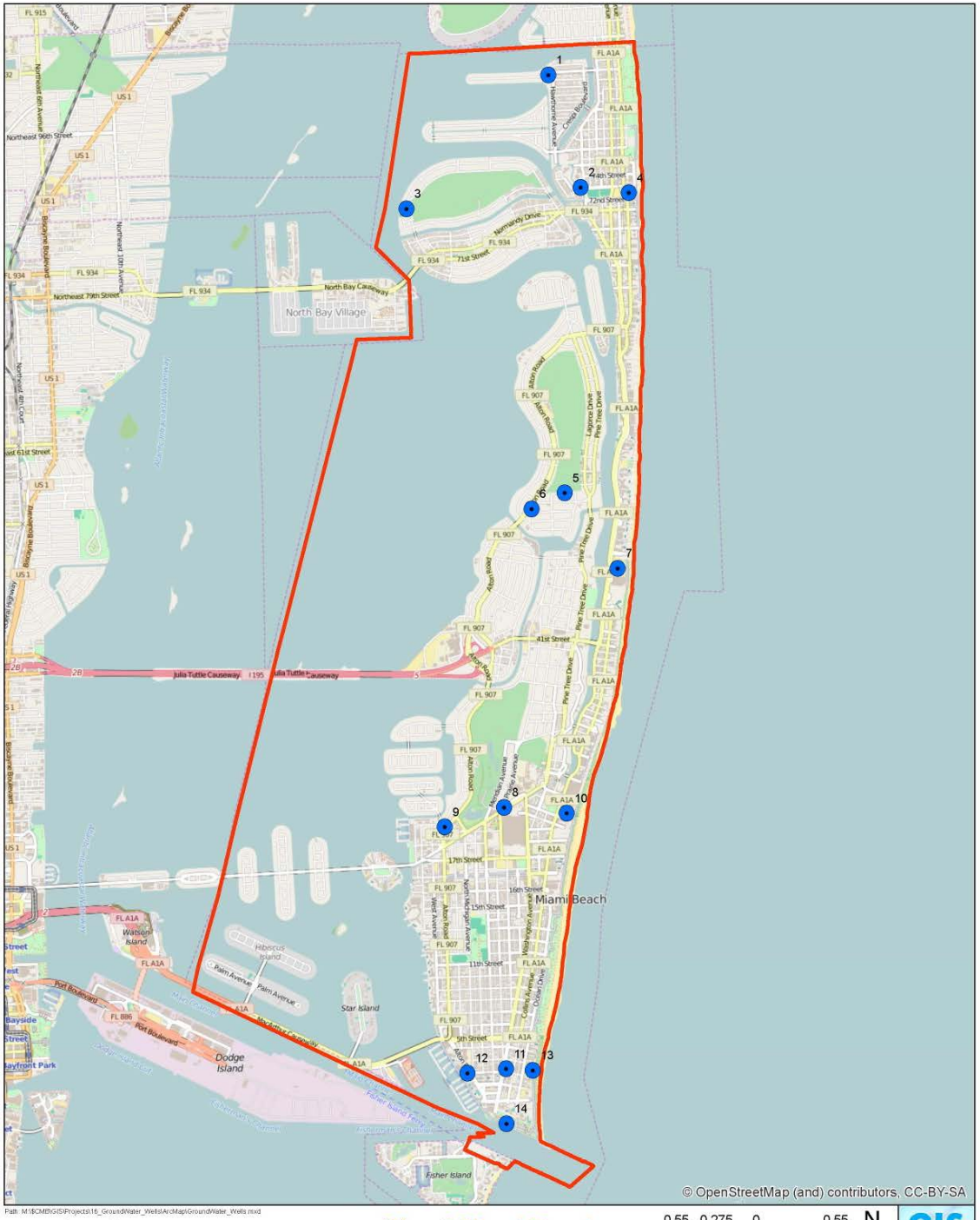
1. Topography & Geology
2. Aging Infrastructure
3. High groundwater
4. Limited Data

SEA LEVEL RISE Projections



DESIGNING for SEA LEVEL RISE





Legend

- Proposed monitoring wells
- City Limits

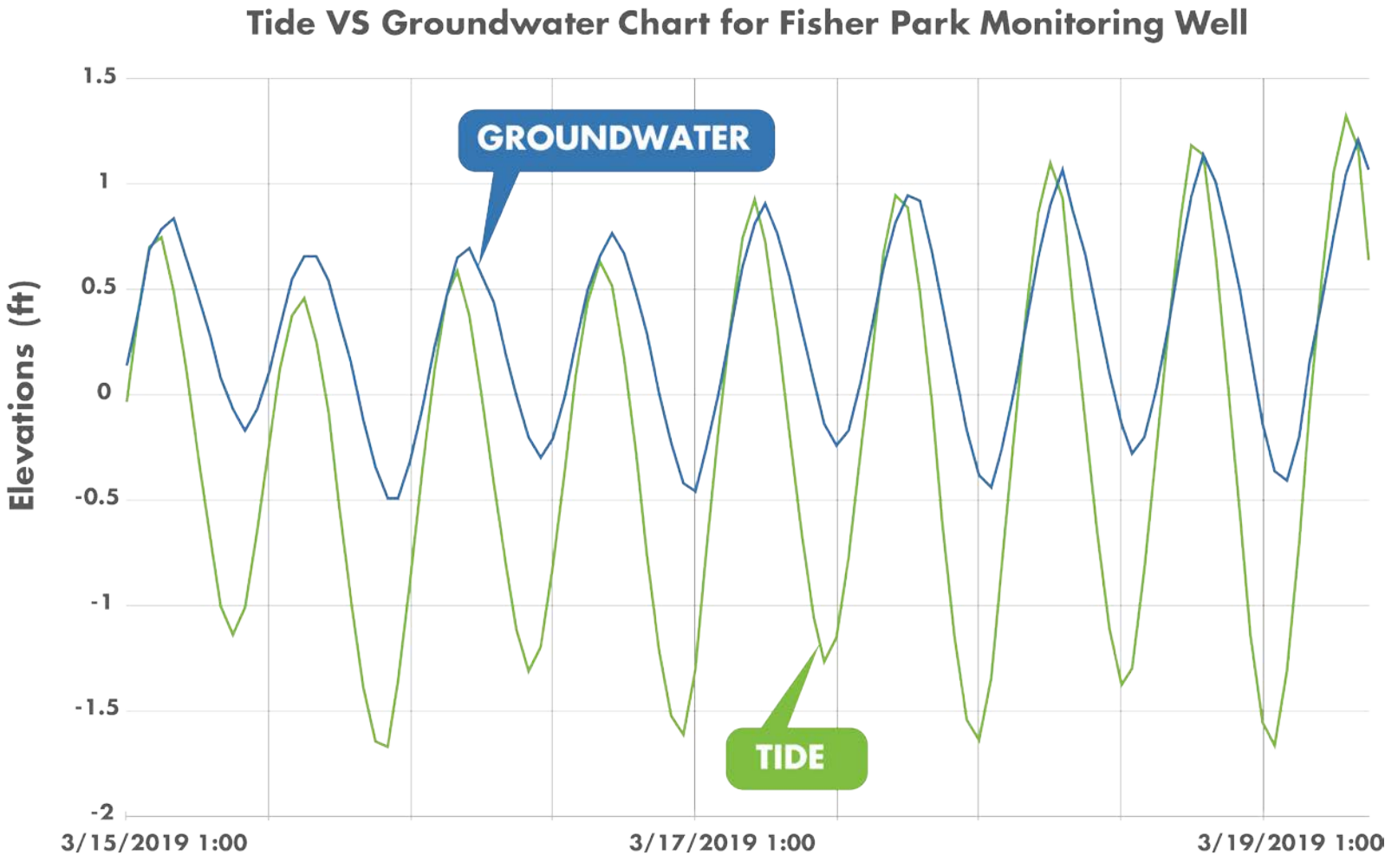
City of Miami Beach: Groundwater Monitoring Wells

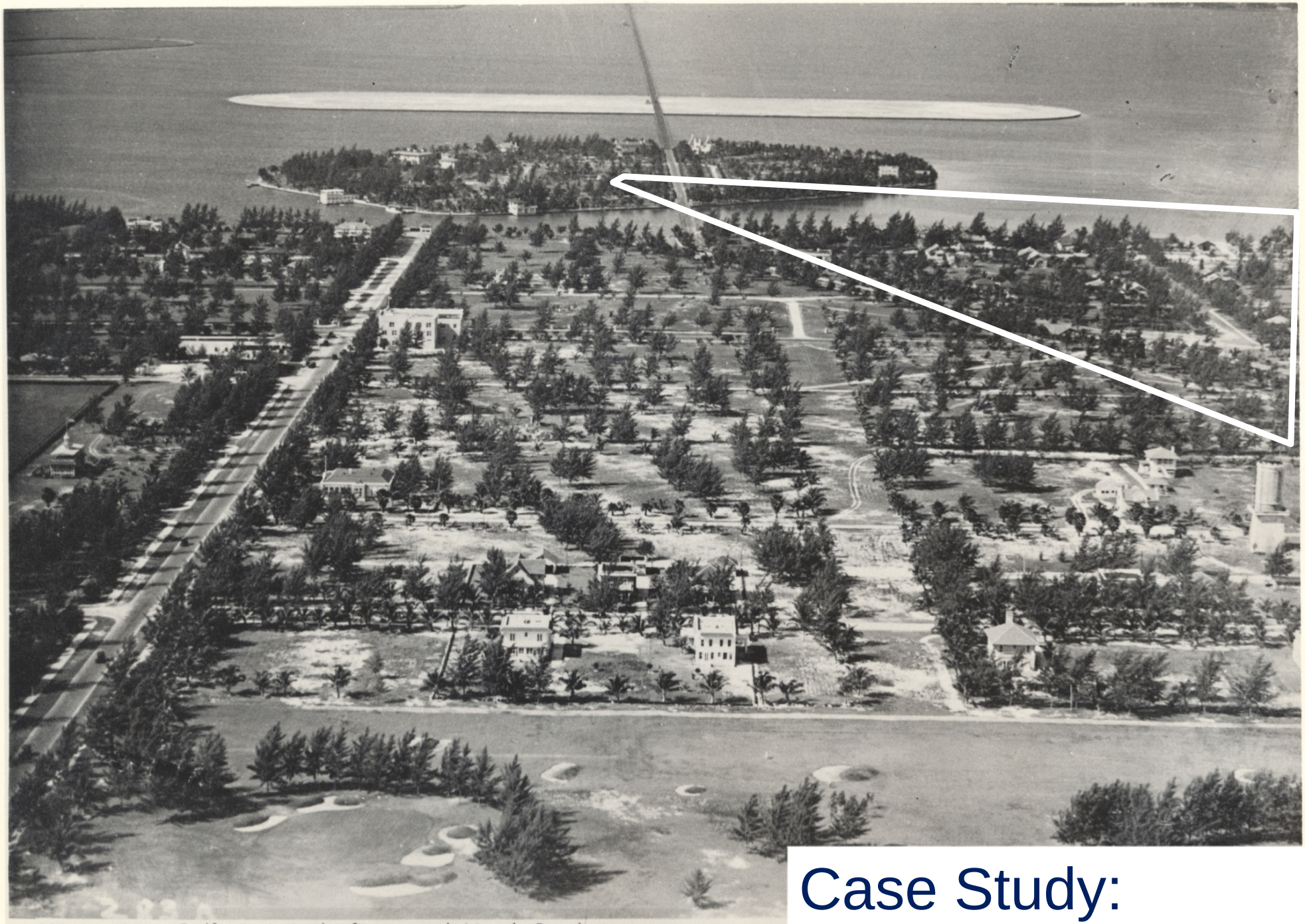
0.55 0.275 0 0.55 Miles

N

GIS MIAMIBEACH

Groundwater / Tidal Connection





283-A. 1923—Golf course in the foreground; Lincoln Road at the left, Belle Isle and the Collins Bridge.

Case Study: SUNSET

Case Study: SUNSET HARBOUR

MIAMI BEACH

City of Miami Beach
1700 Convention Center Dr.
Miami-Beach, Fl 33139

Sea Level Rise Projects
Flood Prevention & Relief
City of Miami Beach, FL

Legend

Pump Station Locations

Feet
0 250 500 1,000

Case Study: SUNSET

Case Study: SUNSET HARBOUR

Case Study: SUNSET HARBOUR

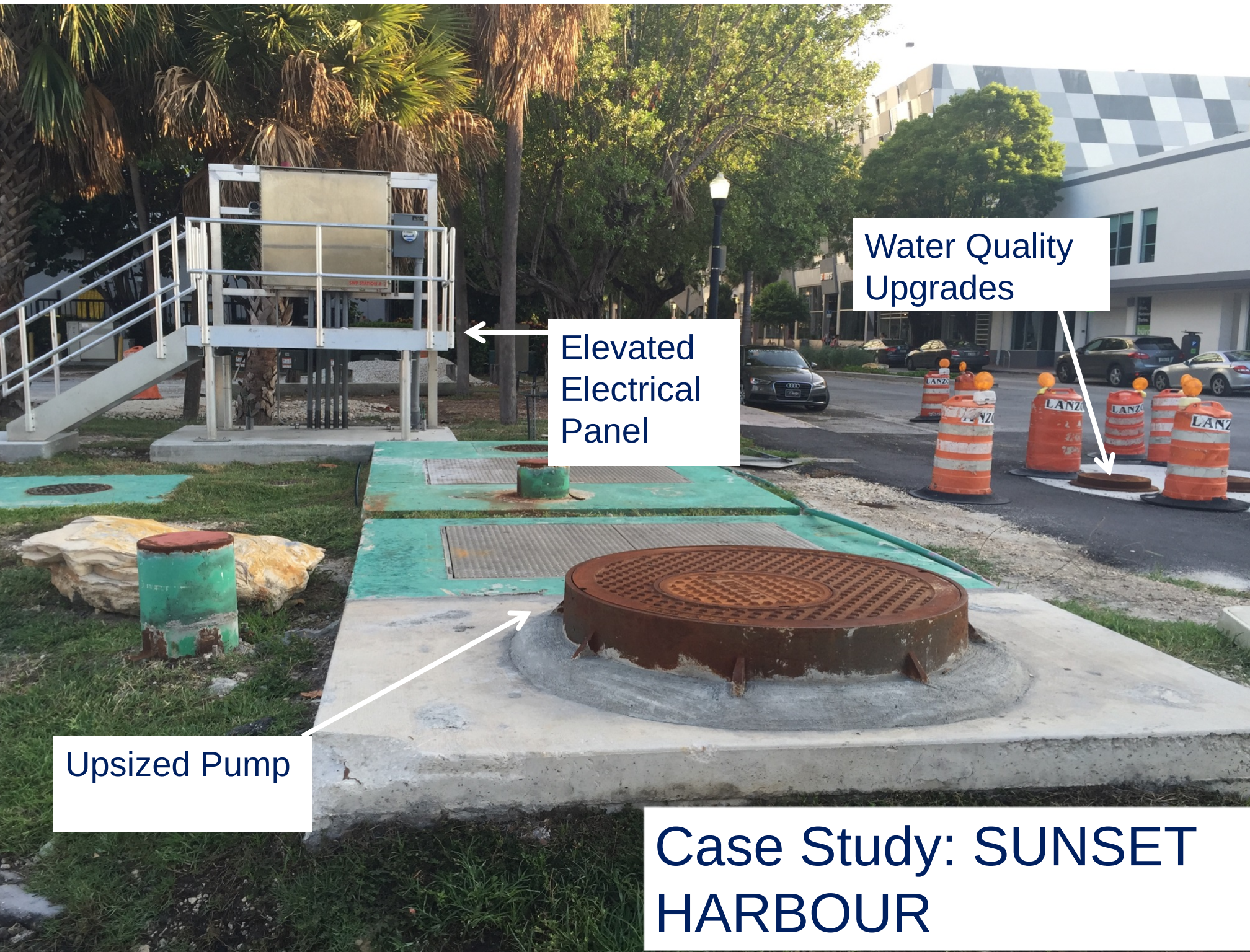
Case Study: SUNSET HARBOUR

Hurricane Irma 2.8ft Sept 10

2017 KING TIDES
2.3ft Oct 5

7 Tides over old road

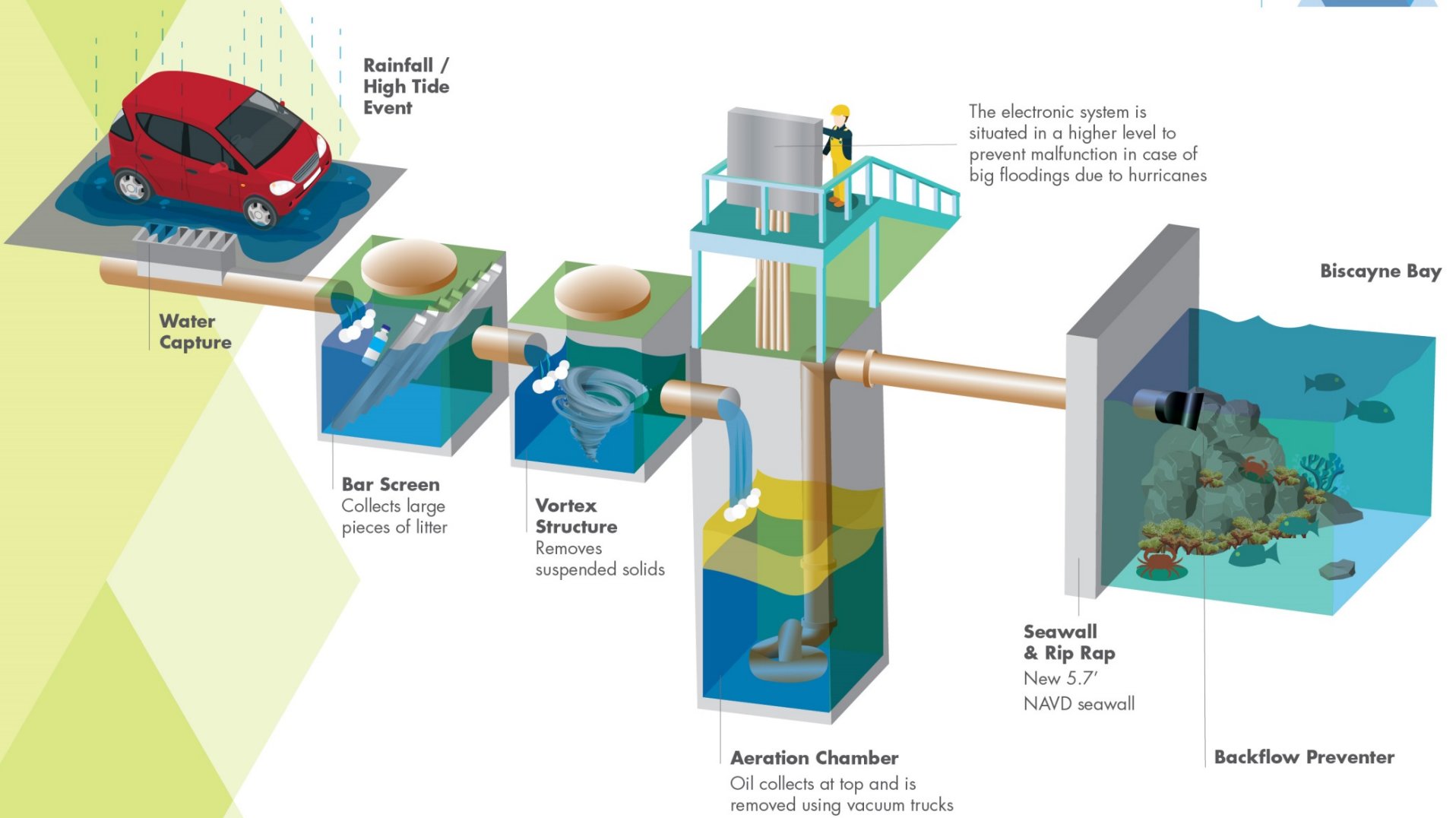
1.7ft Old Crown Road



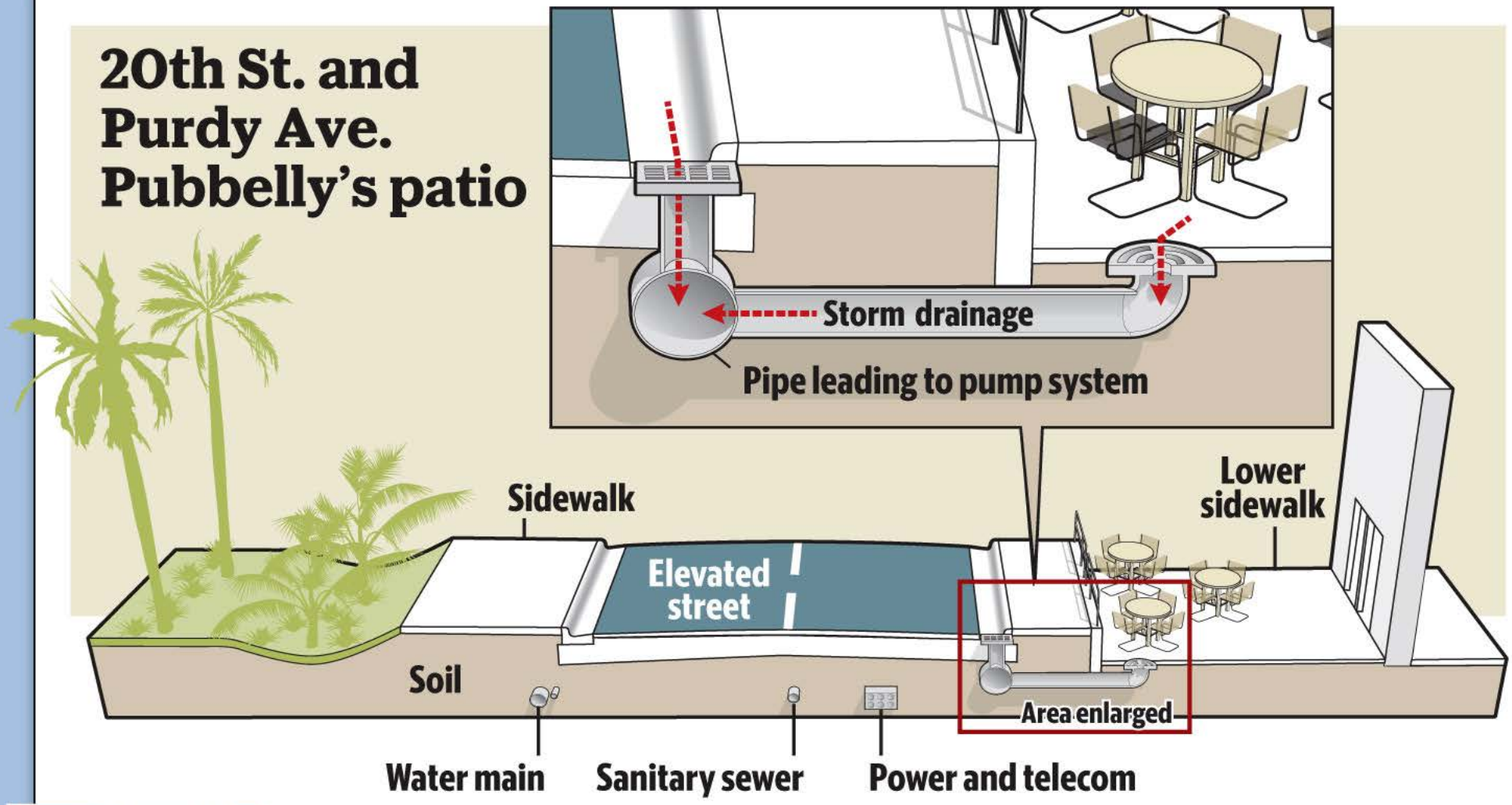
Case Study: SUNSET HARBOUR

Stormwater Pump Station UPGRADES

MIAMIBEACH RISING ABOVE



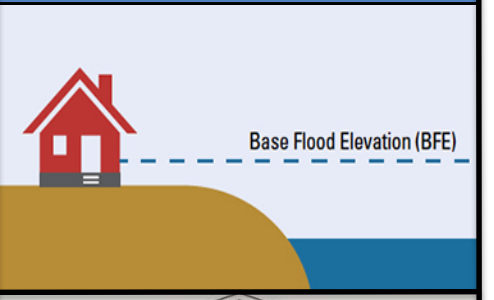
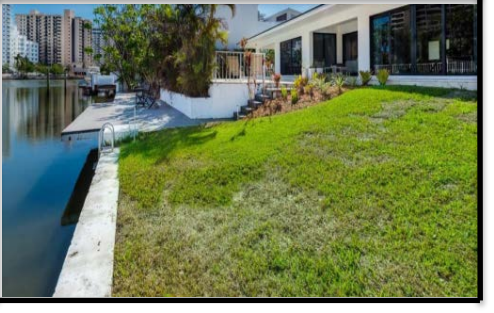
20th St. and Purdy Ave. Pubbelly's patio



Source: City of Miami Beach

MARCO RUIZ mruiz@miamiherald.com

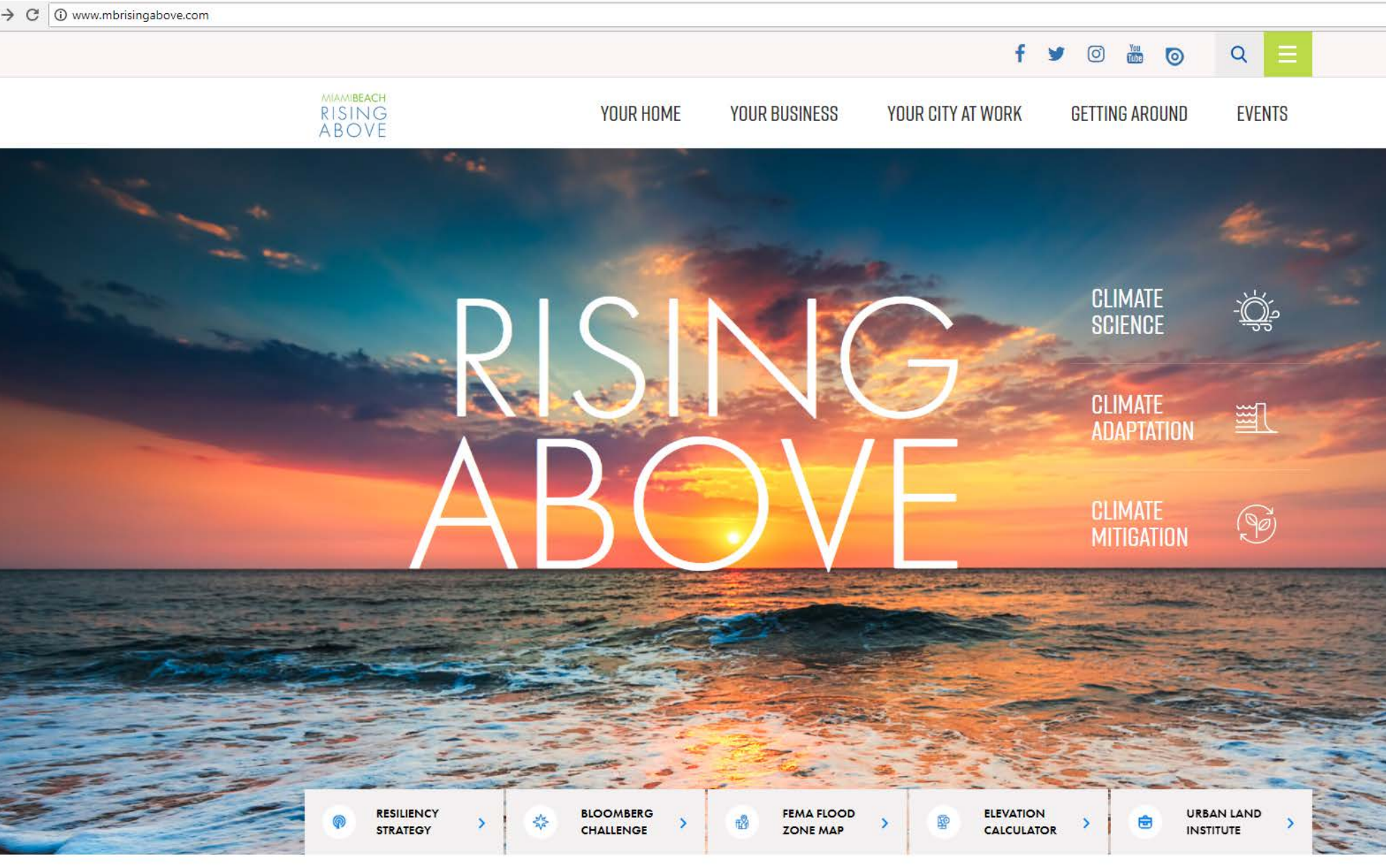
PRIVATE PROPERTY ADAPTATION: Land Development Regulations Updates

	Old Requirements	New Requirements	
Base Flood Elevation (BFE)	5.44 Feet NAVD (7 Feet NGVD)	6.44 Feet NAVD (8 Feet NGVD)	
Freeboard	0 feet above BFE	+1 to +5 feet above BFE	
Seawall Elevation (Private)	3.2 FT NAVD 4.76 FT NGVD	4 to 5.7 FT NAVD 5.56 to 7.26 FT NGVD	
Seawall Elevation (Public)	3.2 FT NAVD 4.76 FT NGVD	5.7 FT NAVD 7.26 FT NGVD	
Minimum required yard elevation	No minimum required	5.0 Feet NAVD (6.56 Feet NGVD)	

PRIVATE PROPERTY ADAPTATION:
Land Use Board Review Criteria

The photo shows the front of the property elevated 5 feet above BFE (13 feet NGVD and 11.44 feet NAVD).

Red line shows the lowest living floor elevation of the house.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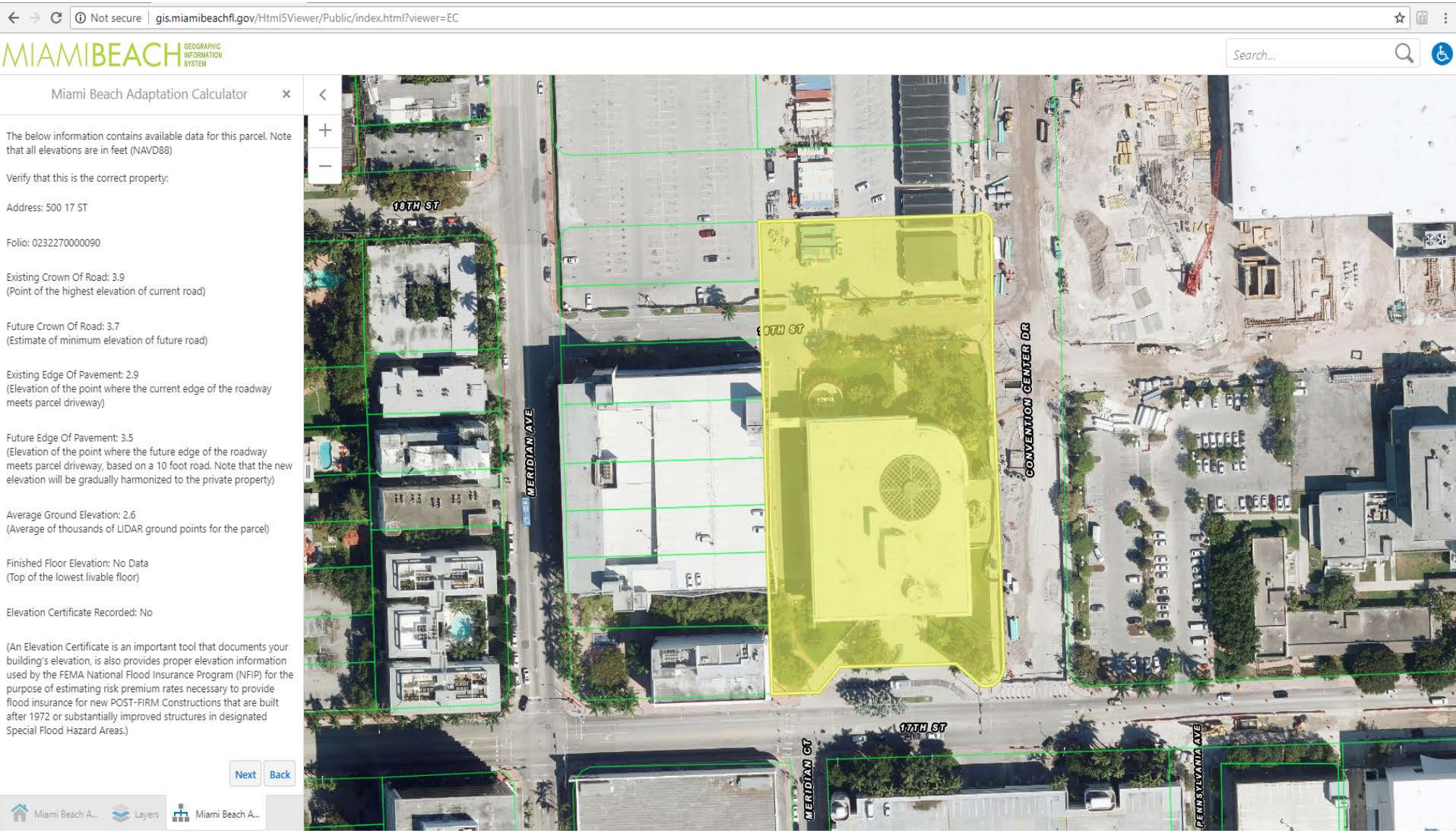
FEMA FLOOD
ZONE MAP
ELEVATION
CALCULATOR
URBAN LAND
INSTITUTE

ADAPTATION CALCULATOR



Miami Beach Convention Center Insurance Case Study

- Parametric Insurance: Payment upon the occurrence of a triggering event.
- Benefits: provides coverage for losses excluded under traditional property policies, rapid claims payout, uses a threshold deductible wherein once the threshold is met, losses are covered up the limit triggered.

Miami Beach Convention Center Insurance Case Study

Premium Indication

Limit	Rate	Premium*
20,000,000	5.15%	$ 1,030,434
25,000,000	5.15%	$ 1,288,033
30,000,000	5.15%	$ 1,545,631
35,000,000	5.15%	$ 1,803,237

Indications include applicable taxes and fees

STRUCTURE:
96-129 MPH Escalating or CAT-IN-A-CIRCLE

WINDSPEED QUALIFYING EVENT:
Coverage is Triggered if the 60-Second Sustained Wind Speed meets or exceeds the MPH Thresholds, at any anemometer.

CAT-IN-A-CIRCLE QUALIFYING EVENT:
Coverage is Triggered if an Event Track Point falls on or within the boundaries of the Circle, or intersects the Circle, as reported by the National Hurricane Center's Public Advisory Reports; at any of the three circles.

QUALIFYING EVENT MAXIMUM PAYOUT:
The highest Payout of either the Wind Trigger or the Cat-In-A-Circle Triggers. The Cumulative Payouts are not additive within the same Named Storm, however, the payouts can be added over multiple Named Storms, not to exceed the Limit during the Contract Period.

Rates are INDICATIVE, non-binding, and subject to change.

Anemometer	Latitude	Longitude	Circle Radius
BBH	25.76690	-80.14534	10 Miles
MSP	25.8228	-80.1783	

Wind Speed	Payout	Wind Speed	Payout	Wind Speed	Payout
96	1.0%	111	18.0%	126	70.0%
97	1.5%	112	20.0%	127	80.0%
98	2.0%	113	22.0%	128	90.0%
99	2.5%	114	24.0%	129	100.0%
100	3.0%	115	26.0%		
101	4.0%	116	28.0%		
102	5.0%	117	30.0%		
103	6.0%	118	32.0%		
104	7.0%	119	34.0%		
105	8.0%	120	36.0%		
106	9.0%	121	38.0%		
107	10.0%	122	30.0%		
108	12.0%	123	40.0%		
109	14.0%	124	50.0%		
110	16.0%	125	60.0%		

Hurricane Intensity	10 Mile Radius
Category 1	0.00%
Category 2	0.00%
Category 3	25.00%
Category 4	60.00%
Category 5	100.00%

NEW PARADIGM UNDERWRITERS *We cover what others exclude.* 5/28/2019 17

THANK YOU!

MIAMIBEACH
RISING
ABOVE

Elizabeth Wheaton
Environment & Sustainability
City of Miami Beach
ewheaton@miamibeachfl.gov