MIAMI BEACH

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BASIC DEMOGRAPHICS

Land area is 7 square miles

Permanent population ~ 88,000
Average daily population ~ 182,000
Annual beach patrons 16 million

Highly urban
Housing units per sq. mile 9,300

Taxable property value $23 billion

TOPOGRAPHIC DATA

Low and relatively flat terrain
- Coastal dune
- Mangrove swamp
- Manmade islands

High imperviousness
- Existing Development
- New Construction

Tidal constraints

High groundwater table

Aging infrastructure in corrosive conditions

STORMWATER MANAGEMENT MASTER PLAN

STORMWATER BASICS

Storm water flows to catch basins
Through large pipes
Outfalls into Biscayne Bay

Biscayne Bay

MHW

City of Miami Beach

Underground Drainage System

When the sea level rises:
Water flows more slowly or even
flows from the Bay to the streets

Biscayne Bay

MHW

City of Miami Beach

Sea Level Rise

Underground Drainage System

STORMWATER MANAGEMENT MASTER PLAN

The previous City Stormwater Management Master Plan was developed in 1997.

Old Plan determined needs by:
- water quality
- flooding potential
- citizen complaints
- City staff ranking

New Plan determined needs by:
- City-wide model analysis
- water quality
- incorporates sea-level rise projections

RAINFALL INUNDATION MAPPING

6 inch rainfall event flooding with tidal elevation of 0.5 ft NAVD up from -0.9 ft NAVD normal tide condition
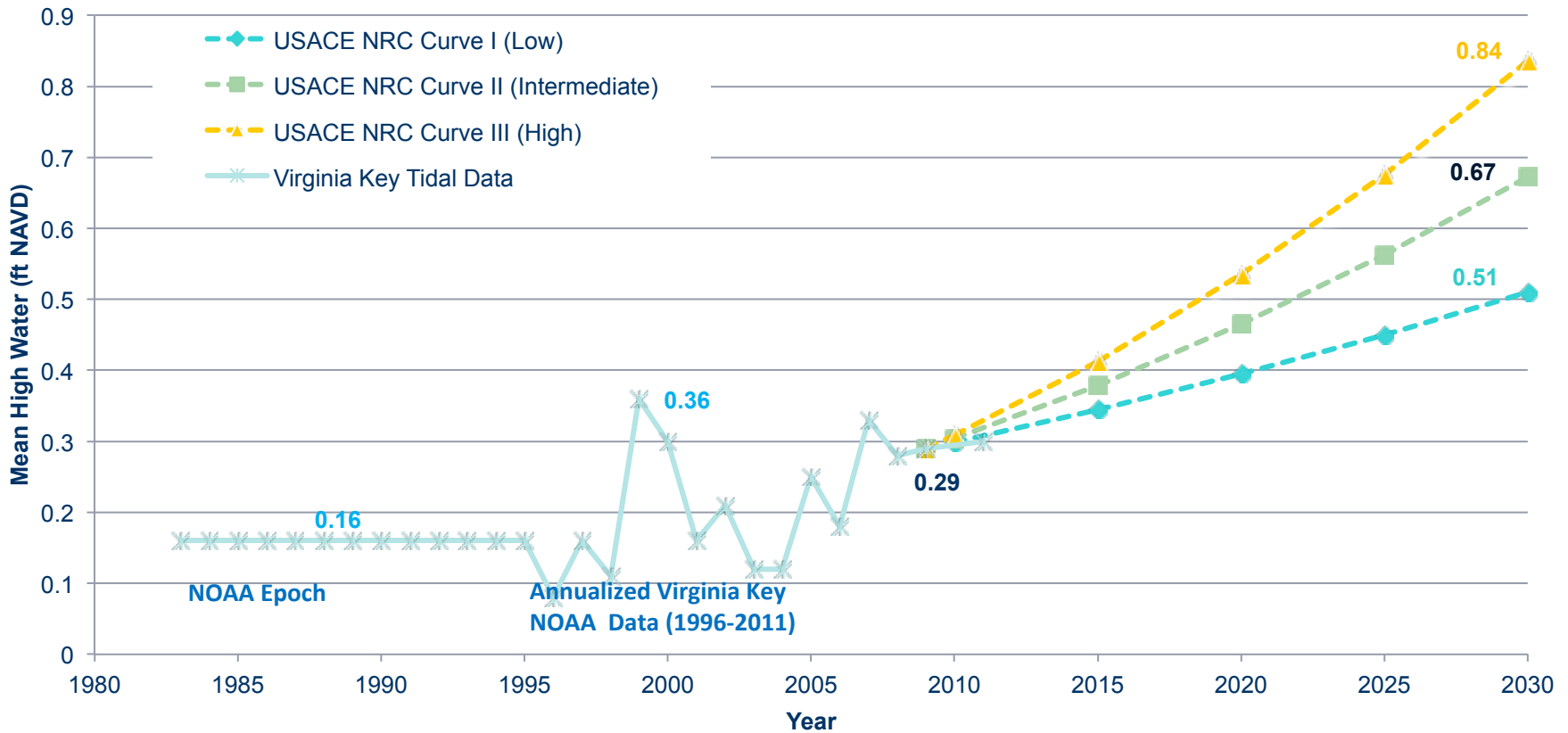

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TWO SEA LEVEL RELATED QUESTIONS

What is the present sea level?
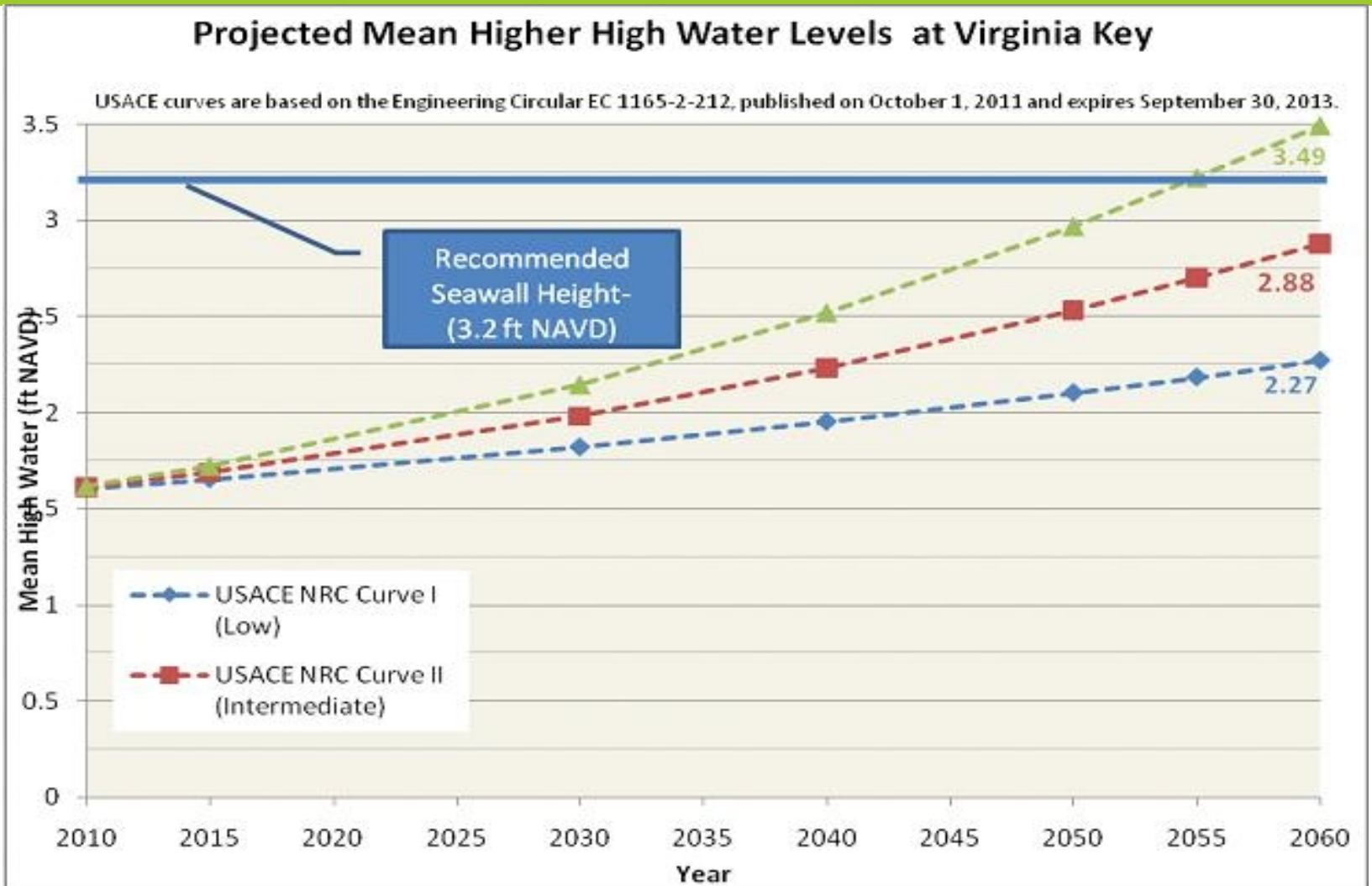
How fast is it rising?

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STORMWATER MANAGEMENT MASTER PLAN

USACE curves are based on the Engineering Circular EC 1165-2-212, published on October 1, 2011 and expires September 30, 2013.

STORMWATER MANAGEMENT MASTER PLAN

Projected Mean Higher High Water Levels at Virginia Key

USACE curves are based on the Engineering Circular EC 1165-2-212, published on October 1, 2011 and expires September 30, 2013.

Recommended Seawall Height- (3.2 ft NAVD)

USACE NRC Curve I (Low)
USACE NRC Curve II (Intermediate)

GOING FORWARD

Add flexibility to stormwater system
- backflow preventers at outfalls
- stormwater pump stations
- future storage
- raise seawalls

Monitor change in sea level and refine future adaptation strategies

Re-prioritize infrastructure requirements, as needed

Gain community acceptance
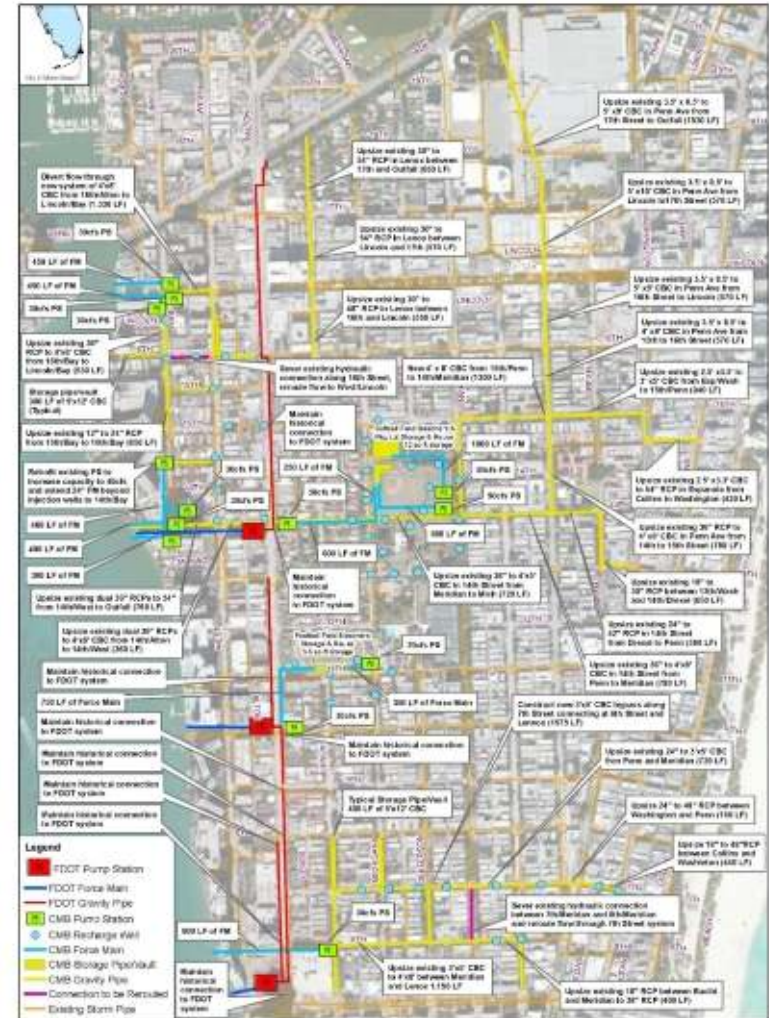
Develop long-term financing

MIAMI BEACH IN 20 YEARS AND BEYOND

After over $200 million in stormwater infrastructure investment

- Improved drainage system
- Adaptable system
- City more resilient

Future policy considerations
- Seawalls
- Surge protection
- City climate action plan

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