

City of Key West Adaptation Planning Team

Roy Bishop, Planning Director

John Paul Castro, Utilities Director

Kelly Crowe, Engineering P.E.

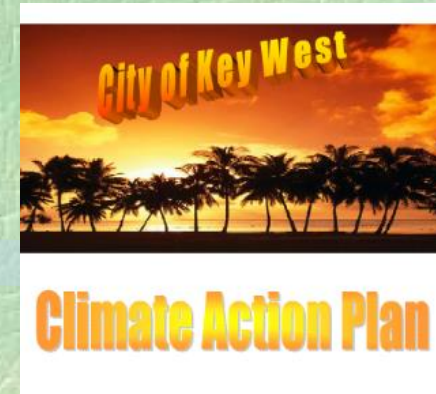
Marcus Davila, Community Services Director

Scott Fraser, Floodplain Manager

Alison Higgins, Sustainability Coordinator

Terry Justice, Chief Building Official

Steve McAlerney, Engineering Director



A Vulnerable Island Home

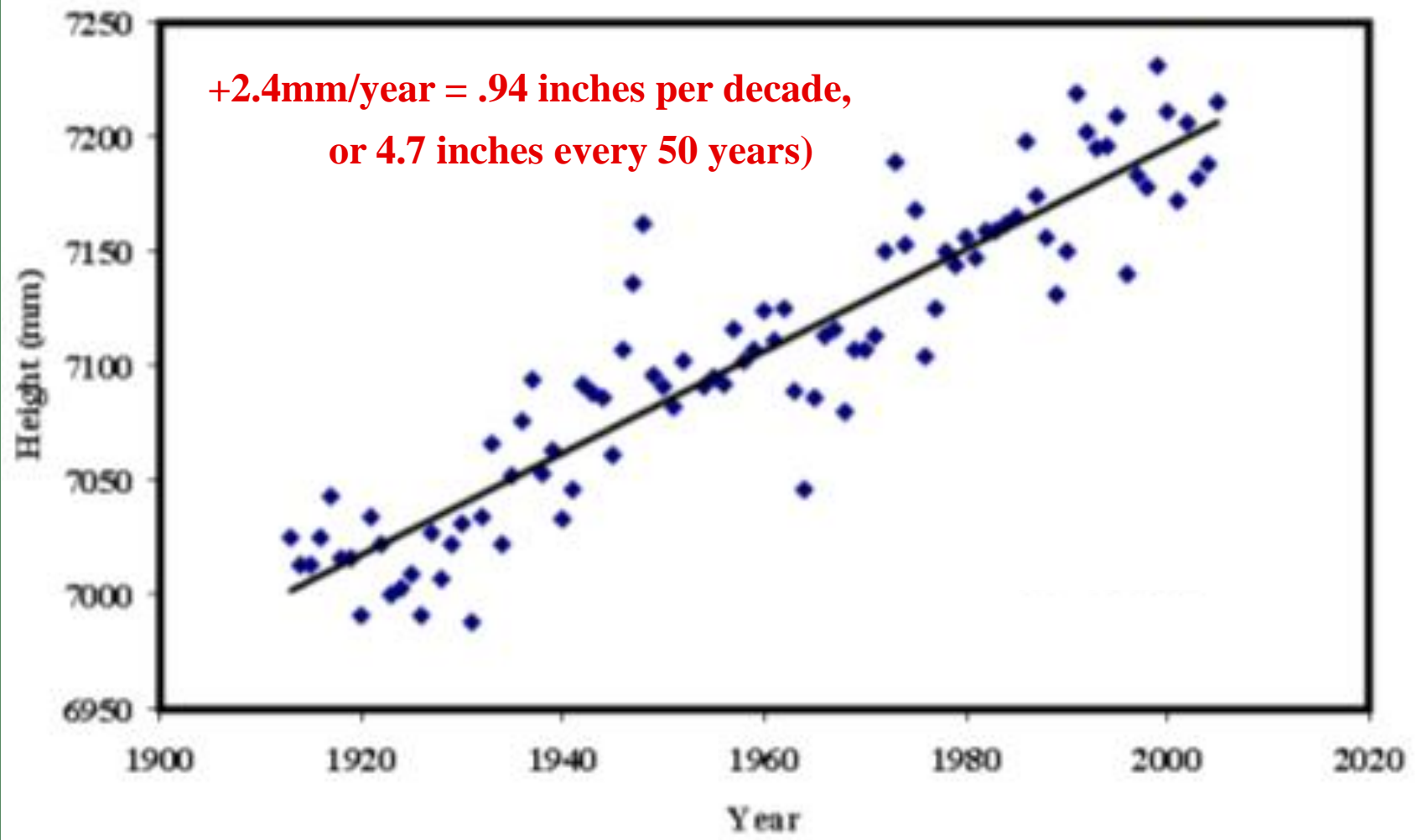
- A Very Long Extension Cord
 - A Very Long Hose
 - Longest Trash Route
 - One Road In, One Road Out
- = Expensive Living!





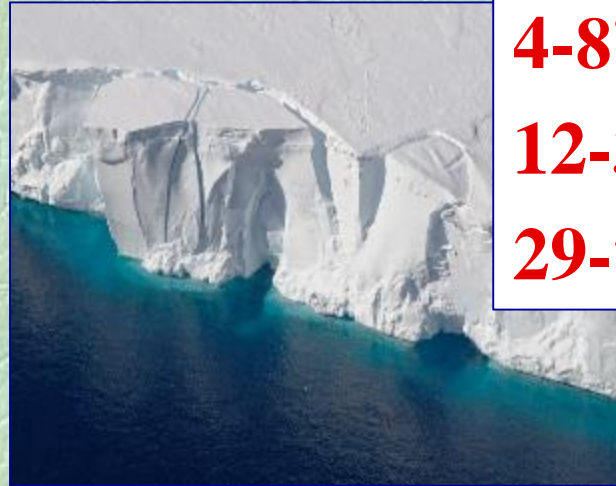
PRESERVE ISLAND LIFE

Annual Mean Key West Sea Level



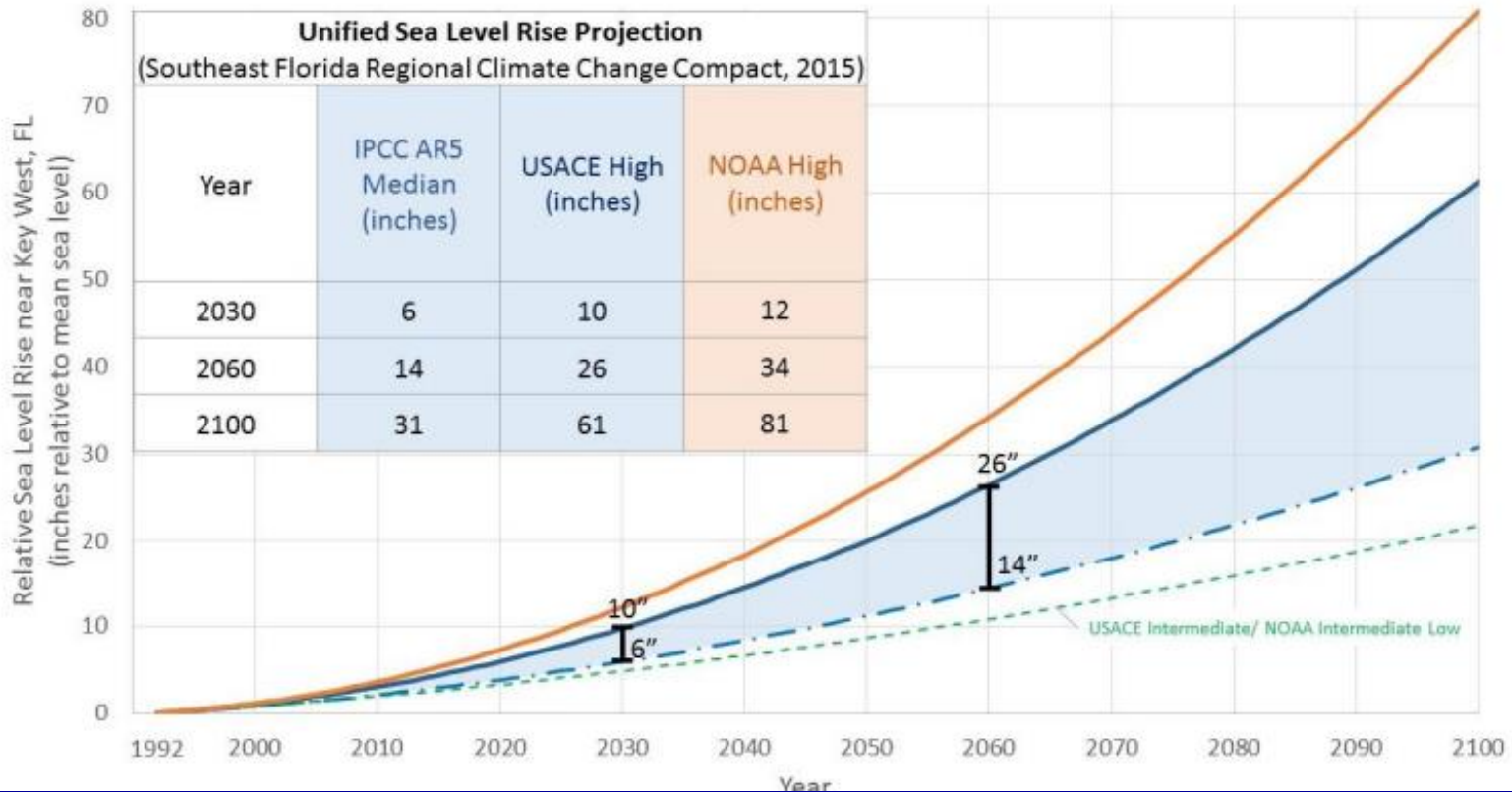
UNIFIED SEA LEVEL RISE PROJECTION

SOUTHEAST FLORIDA



4-8" by 2030
12-32" by 2060
29-79" by 2100

October 2017
Prepared by the
Sea Level Rise Work Group





We are already living amongst change....





ISSUED FEB 23rd
Key West
 AT 4:30 PM EST

RECORD HIGHS SET!

KEY WEST & MARATHON - 2/23/2019

KEY WEST SET A DAILY HIGH
 TEMPERATURE RECORD TODAY:

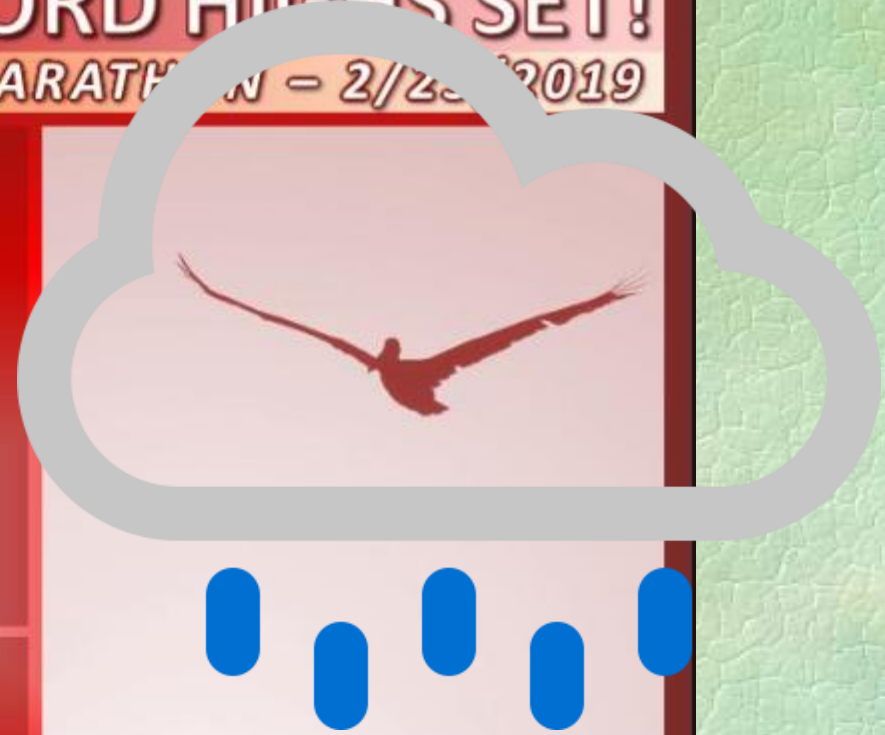
85°F!

PREVIOUSLY 84° SET IN 1994, 1992, 1990, & 1878

MARATHON SET A DAILY HIGH
 TEMPERATURE RECORD TODAY:

88°F!

PREVIOUSLY 87° SET IN 2008



Currently 2° hotter than 1970's
 Predicted 9° hotter in 2100
 95 between 45-90 days per year.

More frequent short term
 downpours

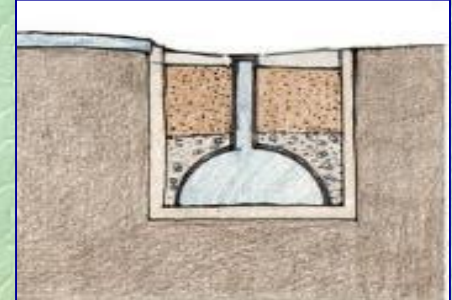
What Have We Done?



PRESERVE ISLAND LIFE

Stormwater Management

- ✓ 1989: Stormwater Comprehensive Planning
- ✓ 1994: 20 Gravity Wells
- ✓ 1997: “Duckbill” Tidal Control valves
- ✓ 2003: Stormwater Utility Created
- ✓ 2003: First Pump Assist Injection Wells
- ✓ 2011: Mapped elevation of all Storm Drains



What Have We Done?



Stormwater Management

- ✓ 2016-18: New Town Road Shoulders



- ✓ 2018: FEMA Mitigation Grants
 - ✓ Tide Valves & Outfalls (\$4.6M)
 - ✓ Windstorm Hardening (\$517K)
 - ✓ Generators (\$170K)

What Have We Done?



Policies

- ✓ Building Permit Allocation System (BPAS)
 - ✓ 1.5 feet above BFE (67% went higher)
- ✓ Height Referendum
 - ✓ Enables Single Family Zone to elevate above 25'
- ✓ Key West Comprehensive Plan
 - ✓ Capital Improvements: Current projections

What Have We Done?



Adaptation

- ✓ 2016: Accepted into FEMA Community Rating System
- ✓ 2017: Mitigation Workshops for Flood Risk Homeowners
- ✓ 2018: First Concrete Raised Home!

CRS Class and Premium Reductions

Class	Points	SFHA	X Zone
1	4,500	45%	10%
2	4,000	40%	10%
3	3,500	35%	10%
4	3,000	30%	10%
5	2,500	25%	10%
6	2,000	20%	10%
7	1,500	15%	5%
8	1,000	10%	5%
9	500	5%	5%
10		0	0



FIRM

FAIR INSURANCE RATES IN MONROE

What Comes Next?



Adaptation Planning Team:

1) Assess Vulnerability and Adaptation Needs for Public Service.

- Flood Zone
- Material
- Life Cycle
- Cost
- Budgets/CIPs
- Legislative Priorities



2) Increase Adaptation Financing Options:

- Property Assessed Clean Energy
- Revolving Loan Funds
- Stormwater / Imperviousness
- Grants



Growth of Non-Pervious Surfaces in Key West

1995	2004	2006	2015	2017
38%	43%	43%	45%	46%

What Comes Next?

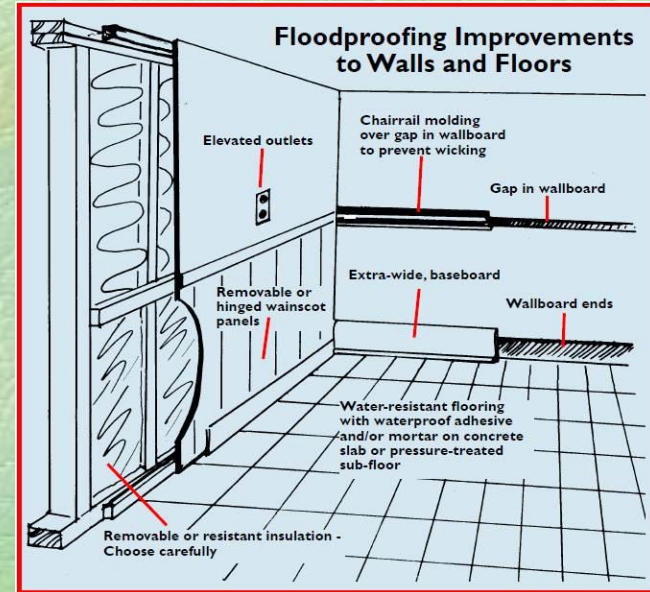


Adaptation Planning Team:

- 3) Upgrade Land Development Regulations
- 4) Continue Collaborations
- 5) Decrease Stormwater Impacts



US Army Corps
of Engineers®



Monroe Countywide Flood Mitigation and Sea Level Rise Resiliency Program



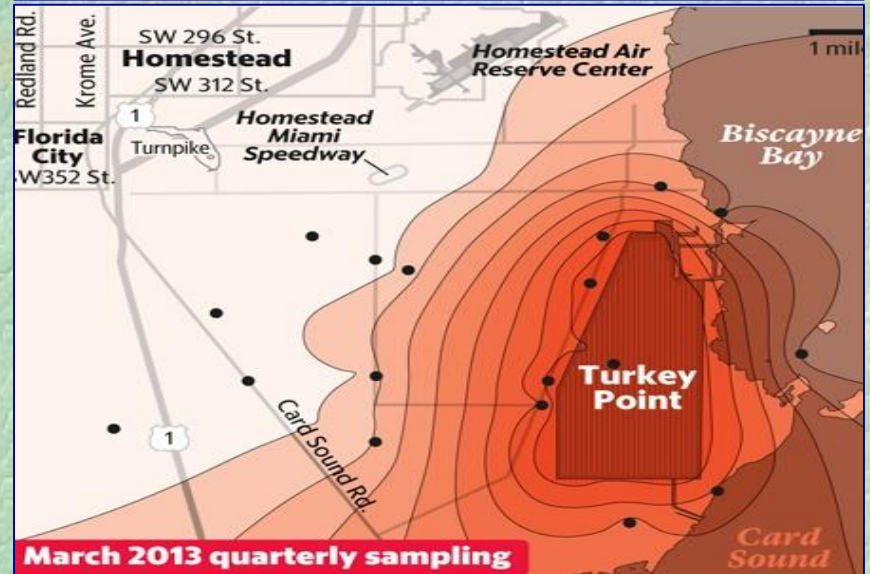
What Comes Next?



Adaptation Planning Team:

- 6) Protect our Wellfield
- 7) Decrease Insurance Burdens
- 8) Increase Energy Independence

Turkey Point's leaky cooling canals



How Elevation Reduces Flood Insurance:

PREMIUM AT 4 FEET BELOW
BASE FLOOD ELEVATION

\$9,500/year
\$95,000/10 years



PREMIUM AT
BASE FLOOD ELEVATION

\$1,410/year
\$14,100/10 years



PREMIUM AT 3 FEET ABOVE
BASE FLOOD ELEVATION

\$427/year
\$4,270/10 years



Florida's Renewable Portfolio Standard

None

Grade: F

What Does It Cost?



Buildings, Parks, Pumps & Policies:

- Stock Island Fire Station
- Bernstein Park
- Ashby Pump Station
- Increase Freeboard



What Does It Cost?



PRESERVE ISLAND LIFE

Roads:



Partners in Financing



- **FEMA**
 - Hazard Mitigation GP
 - Community Devt Block Grant-DR
 - Community Devt Block Grant-MIT
- **Monroe County** – Flood Mitigation & SLR Resiliency Program
- **FDEP** - Coastal Resilience Grant
- **National Fish and Wildlife Foundation**
 - National Coastal Resilience Fund
- **NOAA** - Coastal Resilience Grant
- **EPA** - Climate Showcase & Smart Growth Grants

Timeline



Q1: Fall	Planning/Prioritizing
Q2: Winter	6 Month Report
Q3: Spring	Cost Estimates
Q4: Summer	Budgeting



SOUTHEAST
FLORIDA
REGIONAL
CLIMATE
LEADERSHIP
SUMMIT

Dec 3-5
Casa Marina

For discounted tickets, email:
Romano-Kim@MonroeCounty-FL.gov

Or call 305-292-4413

<https://www.climatesummitmonroe.com/agenda>