

FKNMS Steering Committee Meeting - November 29, 2023

Monroe County Roadway Vulnerability Analysis and Capital Plan

— Rhonda Haag —
Chief Resilience Officer

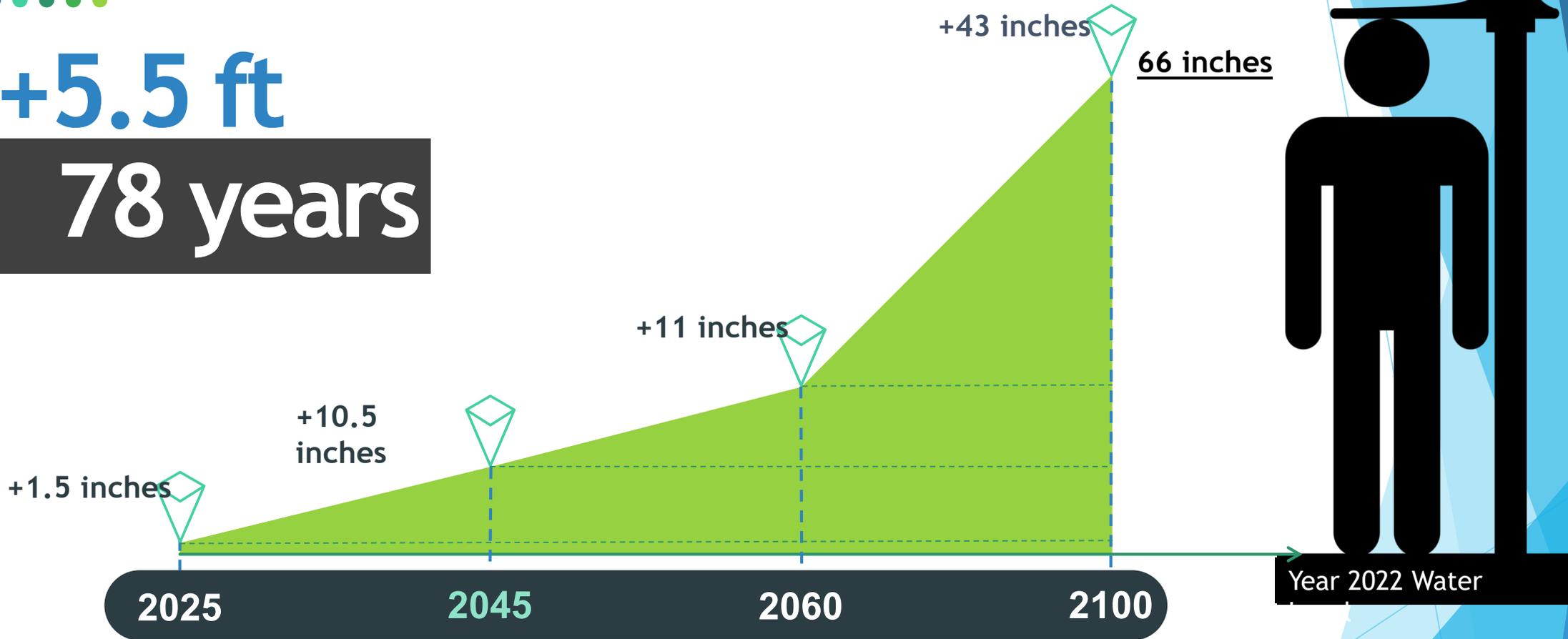


Sea Level Rise Projections



+5.5 ft

78 years



SLR Condition: NOAA 2017 Intermediate-High
SE FL Regional Climate Compact Updated Projections
2019

Monroe County Vulnerability



Based on Future Predictions



Current Vulnerability



Avenue G- Big Pine 2020



Stillwright Point - N Blackwater 2020



Stillwright Point -Sexton Way Oct 2023



What was analyzed?

- ▶ County maintained roads. Municipalities are undergoing a separate effort.
- ▶ **311 Miles** of county-maintained roads analyzed.
- ▶ **166 miles (53%)** are anticipated to become **vulnerable** to Sea Level Rise + King Tide using 2045 projections
- ▶ Approximately **13,399 Residences (76%)** along the anticipated vulnerable limits and within approximately 260 subdivisions will have accessibility impacts.
- ▶ A total of **97 Neighborhood Areas** are anticipated to be vulnerable to SLR+ King Tides for 2045

Adaptation Plan and Cost



Adaptation Plan



01

Evaluation of all Areas

97 Neighborhood Areas *



Identify areas with at least 6 in of flooding due to projected **2045 SLR** water level and **6 in or more** of flooding due to projected **2045 King Tide** water level

Rank 48 areas identified in the first step based on criticality score, from highest to lowest

2025

48 Neighborhood areas

Areas for 2025

02

03

Areas for 2030

10 Neighborhood Areas

2030

Areas with **minimal to no** flooding for projected **2030 SLR** water level, with **6 in or more** of flooding due to projected **2030 King Tide** water level

Areas with **minimal to no** flooding for projected **2035 SLR** water level, with **6 in or more** of flooding due to projected **2035 King Tide** water level

2035

9 Neighborhood areas

Areas for 2035

04

05

Areas Beyond 2035

10 Neighborhood Areas

2035 →

Areas with **minimal to no** flooding for projected SLR water level **beyond 2035**, with **6 in or more** of flooding due to projected **King Tide** water level **beyond 2035**

* Includes 14 areas separated into two phases

Adaptation Plan and Program Cost



49 Neighborhood areas

10 Neighborhood areas

10 Neighborhood areas

28 Neighborhood areas

Areas for 2025

Areas for 2025

Areas for 2035

Areas for 2035

\$888,825,245

\$179,591,227

\$159,316,236

\$378,007,456

\$1,630,803

\$339,356

\$307,851

\$683,432

(O&M)

(O&M)

(O&M)

(O&M)

\$1.8 Billion*
(Avg \$9.6 Million / Mile)

\$3.0 Million
(Annual Operation & Maintenance)



Range of Projects

- ▶ Highest grade elevation change: 3.17-feet (Ramrod, Little Torch)
- ▶ Average road raising elevation: 6 inches
- ▶ Longest project in length: 7 miles (Middle Torch Key)
- ▶ Shortest project in length: 0.03 miles (Buttonwood Shores In Key Largo)
- ▶ Highest construction cost est: \$100 Million Stock Island.



Conceptual Design

What do Road Elevations Look Like?



www.keysroadsplan.com



Keys Roads Plan

Home Project Who We Are **Maps** Updates Gallery Contact Us

Monroe County Roads Elevation Viewer

Based on LIDAR Data for 2019

Existing Monroe County Roads Elevation

PROJECT INFORMATION

Monroe County Roads Vulnerability Analysis Project

Monroe County - 2040 Proposed Improvements Limits Viewer

Neighborhood Areas Recommendations

Monroe County Criticality Evaluation Viewer

Criticality Evaluation Viewer

RELATED LINKS

County Website on Keys!



Projects Moving Forward

Pilot Projects:

- ❑ Twin Lakes
Est. \$12.4 M, \$9.4 M Funded,
- ❑ Sands Subdivision
Est \$22 M, \$8 M funded

New Project Awards:

- ❑ Stillwright Point-\$1.5 M Design Underway
Est. \$40 Million, \$0 Funded
- ❑ Conch Key
Est. \$12 M, \$3.2 M funded
- ❑ Winston Waterways Key Largo
Est. \$51 M, \$14 M Funded
- ❑ Big Coppit
Est. \$83 M, \$22 M Funded



U.S. ARMY

MONROE COUNTY, FLORIDA KEYS



MONROE COUNTY
FLORIDA



THE AUTHORIZED PLAN

COASTAL STORM RISK MANAGEMENT (CSRМ)

THE PROJECT FEATURES INCLUDES:

1. Dry floodproofing 53 critical infrastructure buildings
2. Dry floodproofing 1,052 commercial structures
3. Elevating 4,698 residential structures
4. Shoreline stabilization in Six (6) locations along U.S. Route 1
 - West Summerland Key (550 Ft.)
 - Bahia Honda Key (1,300 Ft.)
 - Long Key (870 Ft.)
 - Fiesta Key West (1,350 Ft.)
 - Fiesta Key East (900 Ft.)
 - Indian Key Fill (400 Ft.)



THANK YOU

