

HOW TO GET ADDITIONAL FLOOD POLICY DISCOUNTS IN 2022 AND PLANNING FOR SEA LEVEL RISE MITIGATION

A MONROE COUNTY CASE STUDY

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MAYOR
MICHELLE
COLDIRON

Monroe County
Commissioner,
District 2





AGENDA FOR TODAY'S PRESENTATION

1. WHAT is the
Community
Rating System
"CRS"?

2. WHO can
participate in
the CRS
program?

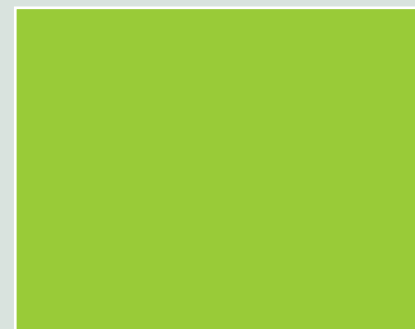
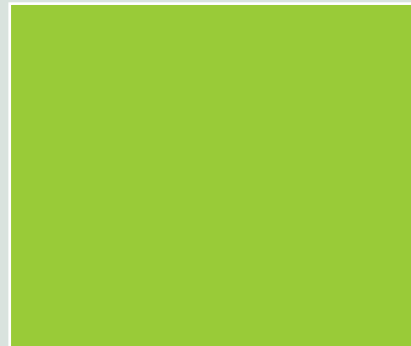
3. WHY should
a local
government
participate?

4. HOW does a
local
government
begin?
Monroe County
Case Study

5. WHAT'S
NEXT for the
CRS program
and NFIP?




**I. WHAT is
the
Community
Rating System
“CRS”?**



WHAT IS THE COMMUNITY RATING SYSTEM?

- The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). Over 1,700 communities participate nationwide.
- In CRS communities, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community's efforts that address the three goals of the program:
- Reduce and avoid flood damage to insurable property
- Strengthen and support the insurance aspects of the National Flood Insurance Program
- Foster comprehensive floodplain management

CRS classes, credit points, and premium discounts.

CRS Class	Credit Points	Premium Reduction	
		In SFHA	Outside SFHA
1	4,500+	45%	10%
2	4,000–4,499	40%	10%
3	3,500–3,999	35%	10%
4	3,000–3,499	30%	10%
 Additional Prerequisites + Points			
5	2,500–2,999	25%	10%
6	2,000–2,499	20%	10%
7	1,500–1,999	15%	5%
8	1,000–1,499	10%	5%
9	500–999	5%	5%
10	0–499	0	0

CRS

300 Series Public Information
400 Series Mapping and Regulations
500 Series Flood Damage Reduction
600 Series Warning and Response

19 Activities

Activity 310 Elevation Certificates
Activity 320 Map Information
Activity 330 Outreach Projects
Activity 340 Hazard Disclosure
Activity 350 Flood Protection Information
Activity 360 Flood Protection Assistance
Activity 370 Flood Insurance Promotion
Activity 410 Mapping
Activity 420 Open Space Preservation
Activity 430 Higher Regulatory Standards
Activity 440 Flood Data Maintenance
Activity 450 Stormwater Management
Activity 510 Floodplain Management Planning
Activity 520 Acquisition and Relocation
Activity 530 Flood Protection
Activity 540 Drainage System Maintenance
Activity 610 Flood Warning and Response
Activity 620 Levee Safety
Activity 630 Dam Safety

95 Elements + Sub-elements



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CRS Community Rating System Participation in Florida

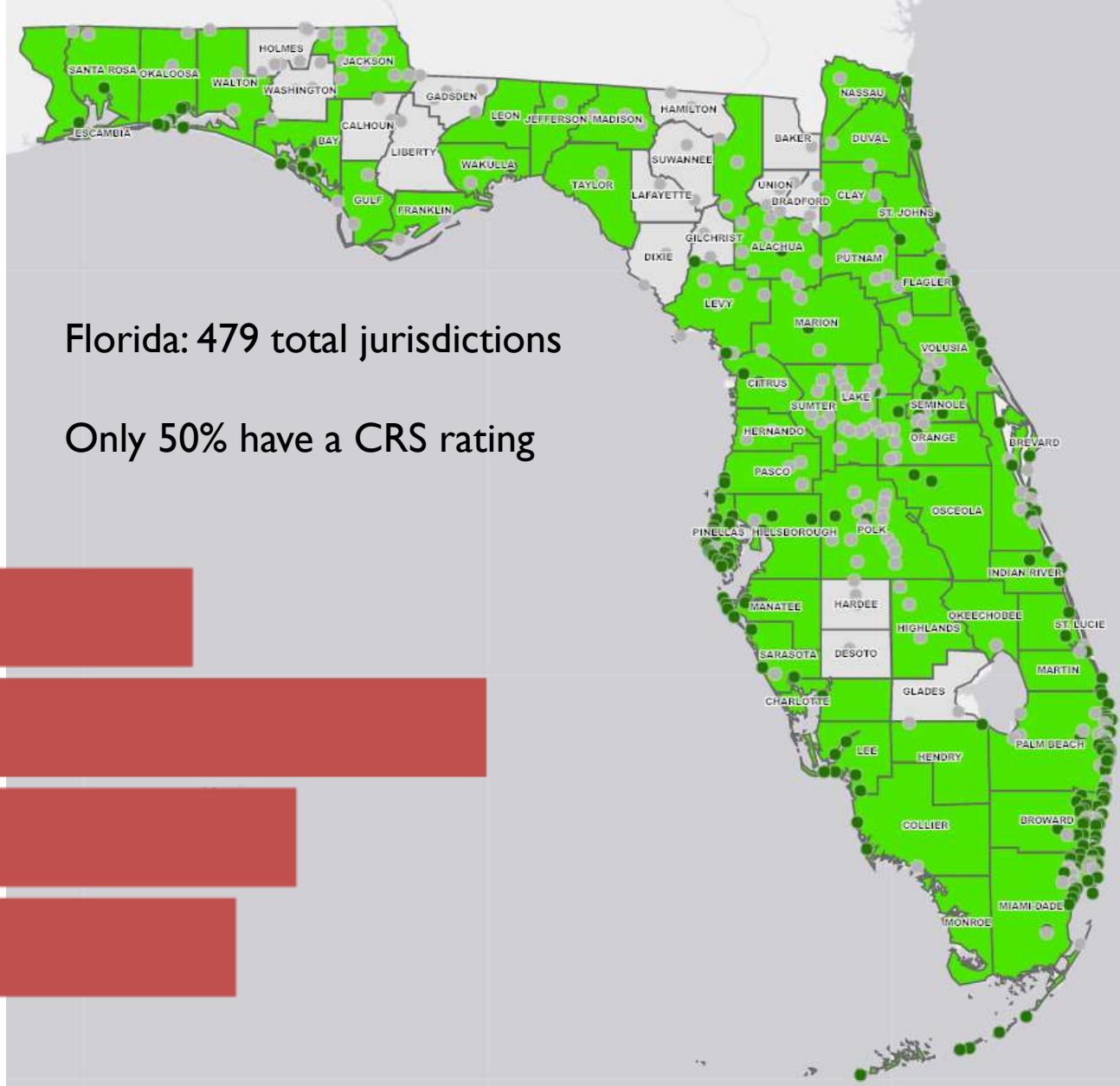
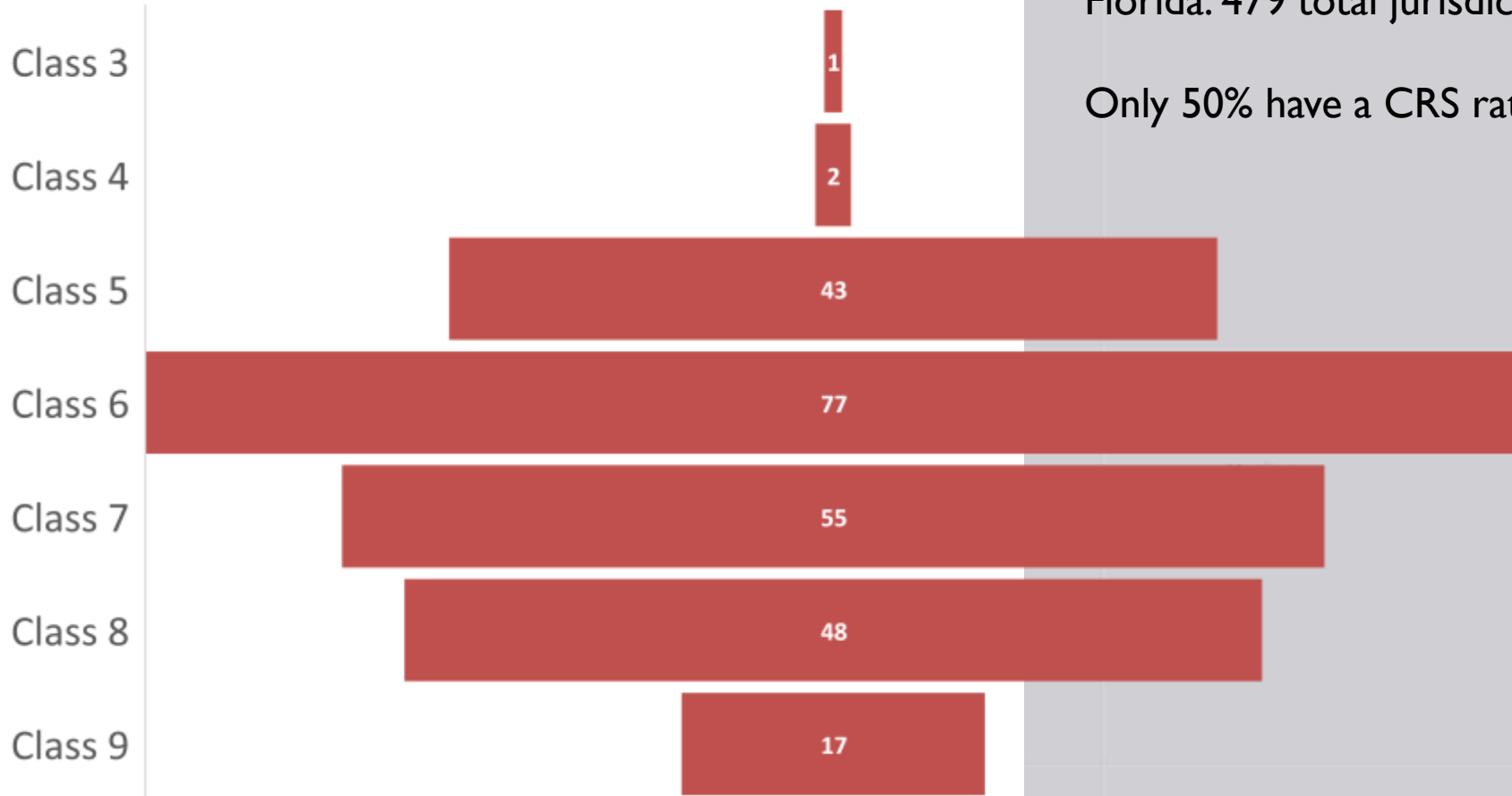
City of Ocala – CRS Class 3

Monroe County – CRS Class 3 (April 1, 2022)

Town of Cutler Bay – CRS Class 4

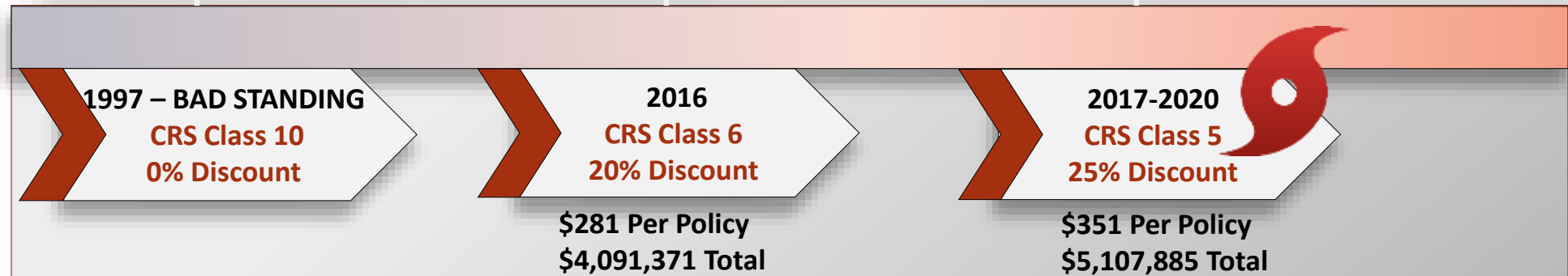
City of Palm Coast – CRS Class 4

CRS Class Florida



Straits of Florida

History of Monroe County in the CRS



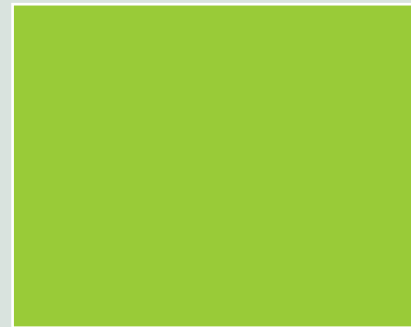
Monroe County Florida



1. WHAT is the Community Rating System “CRS”?

2. WHO can participate in the CRS program?

3. WHY should a local government participate?





BENEFITS

BEHIND THE
SCENES

You have to sell it!



**GIVE THEM
THE **BIG**
PICTURE**

Provide facts:

Unincorporated Monroe County Example

- ❖ National Flood Insurance Policies in Force:
14,442
 - ✓ 13,608 Residential Flood Insurance Policies
 - ✓ 835 Non-Residential Flood Insurance Policies
- ❖ Total Amount of Coverage Annually
\$3,239,628,800
- ❖ Total Amount of Premiums Paid Annual
\$16,508,367



Get buy in from elected officials:

01

Show the elected officials these facts and how you can save their citizens real money.

02

Find private citizens who will get behind you.

03

Involve local business professionals, i.e., insurance agents, Realtors, lenders.

04

Be transparent when presenting the savings verse the cost of implementing the CRS program.


05

Meet individually to explain the “plan” to save money on NFIP policies.



Show what each CRS Class can save:

National Flood Insurance Program
Community Rating System
 A Local Official's Guide to
 Saving Lives, Preventing Property Damage, and
 Reducing the Cost of Flood Insurance
 FEMA B 573 / 2018



FEMA

CRS What-If

Application CRS Coord. 2ndPOC Activity Points Chronology Comments What If GTA

Community: MONROE COUNTY* **State:** FLORIDA
County: MONROE COUNTY **CID:** 125129

Current CRS Class = 5

[\[Printable Version\]](#)

	TOTAL	SFHA *	X-STD/AR/A99 **	PRP ***
PIF	14,443	13,892	216	335
PREMIUM	\$16,508,367	\$16,118,445	\$182,875	\$207,047
AVERAGE PREMIUM	\$1,143	\$1,160	\$847	\$618

CRS Class		TOTAL	SFHA *	X-STD/AR/A99 **	PRP ***
09	Per Policy	\$75	\$77	\$47	\$0
	Per Community	\$1,084,720	\$1,074,560	\$10,160	\$0
08	Per Policy	\$150	\$155	\$47	\$0
	Per Community	\$2,159,294	\$2,149,134	\$10,160	\$0
07	Per Policy	\$224	\$232	\$47	\$0
	Per Community	\$3,233,854	\$3,223,694	\$10,160	\$0
06	Per Policy	\$299	\$309	\$94	\$0
	Per Community	\$4,318,574	\$4,298,254	\$20,319	\$0
05	Per Policy	\$373	\$387	\$94	\$0
	Per Community	\$5,393,148	\$5,372,828	\$20,319	\$0
04	Per Policy	\$448	\$464	\$94	\$0
	Per Community	\$6,467,708	\$6,447,388	\$20,319	\$0
03	Per Policy	\$522	\$541	\$94	\$0
	Per Community	\$7,542,268	\$7,521,948	\$20,319	\$0
02	Per Policy	\$597	\$619	\$94	\$0
	Per Community	\$8,616,842	\$8,596,522	\$20,319	\$0
01	Per Policy	\$671	\$696	\$94	\$0
	Per Community	\$9,691,402	\$9,671,083	\$20,319	\$0

CRS Class 3 Community Rating Discount 35% Discount = \$799



A Stock Company
P.O. Box 33003
St. Petersburg, FL 33733-8003
Customer Service: 1-800-820-3242
Claims: 1-800-725-9472

FFLXX.XXX XXXX
XXXXXXXX
6/21/19
20XX XXXXX XXX
RGLR

FLOOD DECLARATIONS PAGE RENEWAL

Coverage		Deductible	Annual Premium
BUILDING	\$180,400	\$2,000	\$1,912.00
CONTENTS	\$22,300	\$2,000	\$314.00
ANNUAL SUBTOTAL:			\$2,226.00
DEDUCTIBLE DISCOUNT/SURCHARGE:			\$0.00
ICC PREMIUM:			\$56.00
COMMUNITY RATING DISCOUNT: SUB-			- \$799.00
TOTAL:			\$1,483.00
RESERVE FUND ASSESSMENT:			\$257.00
PROBATION SURCHARGE:			\$0.00
FEDERAL POLICY SERVICE FEE:			\$50.00
HFIAA SURCHARGE:			\$25.00
TOTAL WRITTEN PREMIUM AND FEES:			\$1,815.00

THIS IS NOT A BILL

DEAR MORTGAGEE
The Reform Act of 1994 requires you to notify the WYO company for this policy within 60 days of any changes in the servicer of this loan.

The above message applies only when there is a mortgagee on the insured location.

Premium Paid by: First Mortgagee

REGULATORY CHANGE

One (1) Foot Freeboard throughout the SFHA – Numbered A Zones for Residential to Include Manufactured Home

The County's code had to be changed to disallow Manufactured Homes to be placed on 36' piers instead of being required to be built above the flood zone minimum elevation. The reason is the county's code MUST not allow any structures to be built below the required flood zone elevation to get from a class 5 to a class 4. In 2021, the elevation of manufactured homes became a requirement to participate at a CRS Class 8 or better.



WATERSHED MANAGEMENT PLAN CLASS 4 PREREQUISITE



Adopted watershed master plan that:

- a. Evaluates the impact of future conditions for at least on watershed that drains into the community for multiple storm events, including the 100-year storm. The plan must identify the natural drainage system and constructed channel: **OR**
- b. Evaluates the future conditions, including the impacts of a intermediate-high sea level rise (based on the National Oceanic and Atmospheric Administration's (NOAA's) "intermediate-high" projection for the year 2100) on the local drainage system during multiple rainfall events, including the 100-year rainfall event. This option is for coastal communities with no natural or constructed channels.

Monroe County Watershed Management Plan

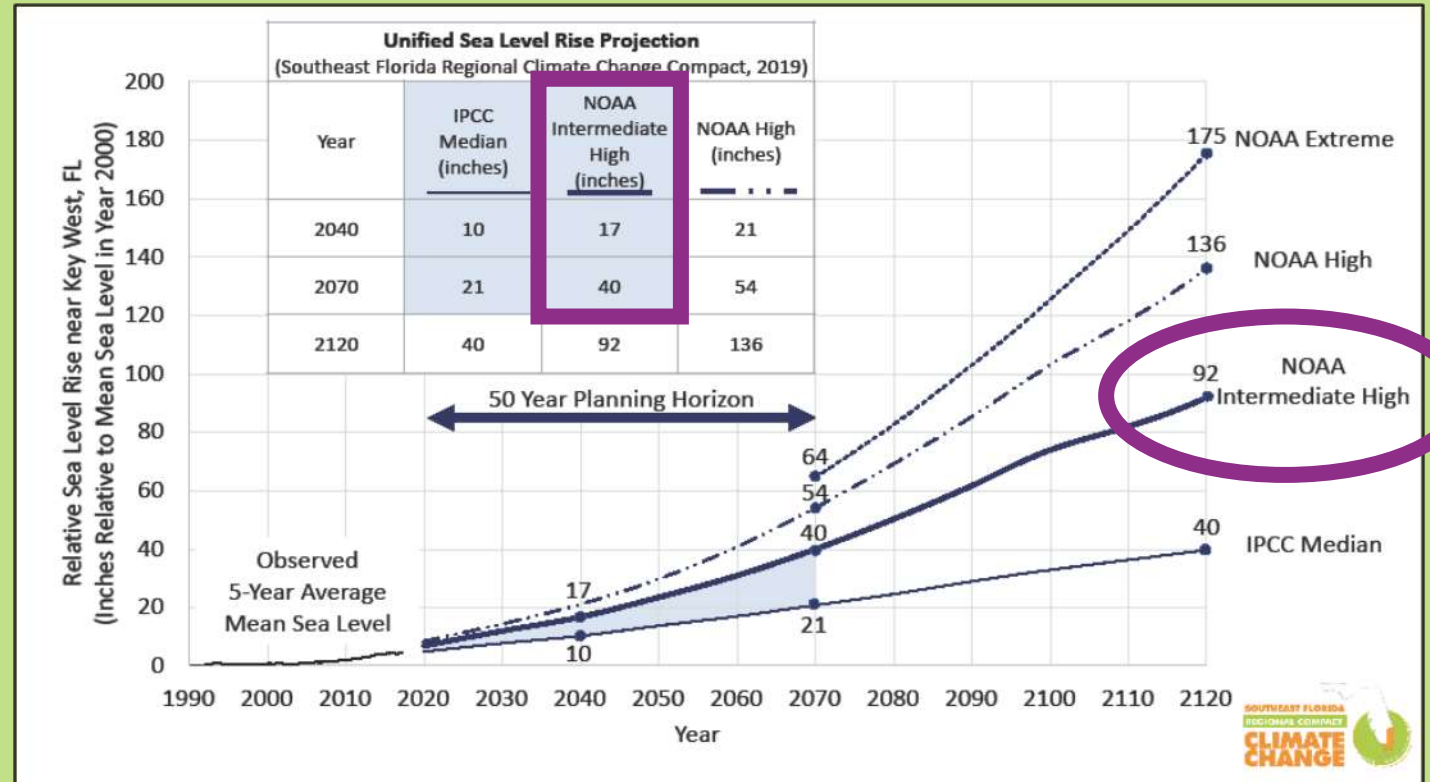
Report by:
 Jason M. Evans¹, Alex Clark², Erin L. Deady, Esq.³ and Monroe County
¹Institute for Water and Environmental Resilience, Stetson University
²Clearview Geographic, LLC
³Erin L. Deady, P.A.

**Project conducted through funding support provided by the Florida Sea Grant College Program and Monroe County, Florida

August 2019



D MANAGEMENT PLANS



NOAA INTERMEDIATE-HIGH PROJECTION FOR 2100 SEA LEVEL RISE: SAMPLE OUTPUT

Structure/Facility Type	2030 (.69' SLR)		2060 (1.82' SLR)		2100 (4.13' SLR)	
	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
Catch Basins (300 Total)	0	9	3	148	260	295
Injection Wells (41 Total)	0	0	0	24	35	40
Manholes (67 Total)	0	0	2	41	59	62
Trench Drains (84 Total)	0	3	4	60	48	67
Pipe Outfalls (37 Total)	16	32	29	37	37	37

Note: “*Low*” = Monroe County and FDOT stormwater drainage infrastructure with calculated bare ground heights lower than projected mean lower low water (MLLW) by sea-level rise scenario (lowest low tide of the day). *Impact at MLLW means continuously non-functional (no functionality at all).*

“*High*” = Monroe County and FDOT stormwater drainage infrastructure with calculated bare ground heights lower than projected mean higher high water (MHHW) by sea-level rise scenario (highest high tide of the day). *Impact at MHHW means non-functional around high tide (less or no functional capability).*

Note also: *Pipe outfall analysis* is based upon the top of pipe elevation being lower than the MHHW and MLLW by sea level rise scenario. *Impact means inundation at “end of pipe” and reduced or eliminated drainage capacity.*

KEY RECOMMENDATIONS OF WATERSHED MANAGEMENT PLAN

1. Secure the Data: Elevation Data
2. Develop Accurate Vulnerability Information for Roads and Stormwater: Countywide Roads Analysis
3. Set Policy Based on Future Vulnerability: Future Stormwater Design Standards
4. Long Range Planning: Integration with the Comprehensive Plan





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Monroe County
Case Study**



WHERE TO START FOR RESILIENCY PLANNING

Step 1

- Analyze what's been done & **DETERMINE "GAPS"**
- Determine what tools will answer the question posed for **IMPACTS** to roads, buildings, habitat, etc.

Step 2

- **COLLECT DATA** to use tools: County/City-specific data for roads, water, wastewater, buildings and habitat

Step 3

- **ANALYZE THE DATA:** Do you need more or can you create it?
- Workshop with Staff on results of data collection to **ADDRESS MISSING DATA** and problems and confirm approach

Step 4

- Confirm use of best tools to show **CITY-SPECIFIC IMPACTS**
- Use **TOOLS** that have support of agencies / organizations
- Provide feedback and **IMPROVE TOOLS AND INPUTS**

Monroe County Case Study – Early Years of Resiliency Planning and Data Gathering

Year 2007-2011

US Mayor's Climate Agreement
Green Building/Green Initiatives Task Force
EECB Energy Grant
Sustainability Vision
Greenhouse Gas Inventories
Sea Level Rise Scenarios of 1, 2, and 3 feet

Year 2012

EAR for Comprehensive Plan (Energy & Climate Element)
Communitywide Greenhouse Gas "GHG" Reductions
EECS for County GHG reductions
Climate Compact's Regional Climate Action Plan

Year 2013

Monroe County Climate Action Plan

Solicit for Sustainability / Resilience Action Plan

Year 2014

GreenKeys! launched
Data collection – Vulnerability Analysis
SLR modeling for 2030 and 2060
Community Sea Level Rise Modeling
Outreach
Plan Development

Year 2015

Finalize GreenKeys! Plan

Begin implementing recommendations from 5 year plan



Monroe County Case Study – More Efforts

1. County's sea level rise planning launched in 2016: GreenKeys

- 5-year **work plan**, 165 recommendations
- Recommendations included:
 - **Amendments to Comprehensive Plan**
 - Pilot Roads Projects
 - Improve elevation data
 - Engineering level analysis of transportation impacts countywide

2. Energy and Climate Element of Comprehensive Plan (2016)

3. Pilot Road Elevation Projects (Big Pine and Twin Lakes) initiated in 2016 and design/permits completed 2020

4. New Roads Mobile LiDAR elevation data (2019 completed)

5. Grants for Sea Level Rise planning



Monroe County Case Study – Most Recent Efforts

1. Roads Adaptation Plan -launched 2019

- Identify sea level rise impacts to roads and drainage comprehensively
- **Develop Ranking Criteria –with Planners assistance**
- **Identify policy options –with Planners assistance**
- Develop engineering alternatives and Implementation Plan

2. Vulnerability Assessment for other County non-road assets being updated separately

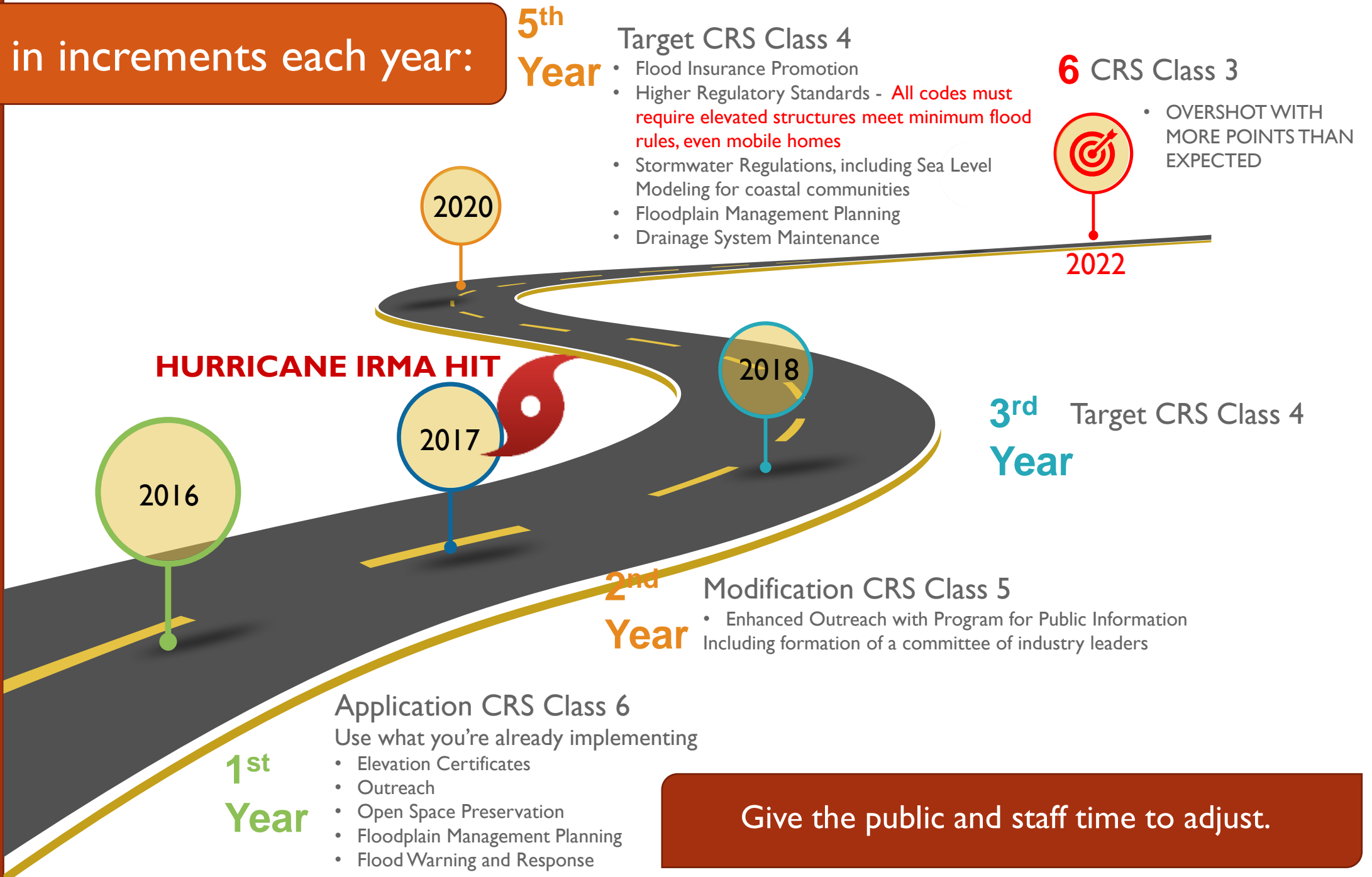
- For habitat, buildings, and infrastructure

3. Comprehensive Plan - 2021 update

- Peril of Flood amendments to address State requirements (drafted 2019)
- Adaptation Action Areas (in process 2020)
- Other amendments as necessary



Tackle it in increments each year:



Give the public and staff time to adjust.



Monroe County overshot the target

CRS Class 3
April 1, 2022

\$552 average annual per policy

**\$5,542,268 annual, with
cumulative savings since starting
the program**

**Approximately \$22 Million for
policy holders**



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RECAP OF NFIP

**** THE CRS DISCOUNT ON PREMIUMS WILL BECOME INCREASINGLY VALUABLE AS THE NFIP FACES ONGOING PRESSURE TO RAISE PREMIUMS****

- Florida has the most NFIP policies in the country – and the most at stake with changes to the NFIP that result in increased premiums.
- Nationally, 5M NFIP policies, \$4.6B in rev from policy holders' premiums, \$1.3T in coverage.
- **Florida – most impacted State: 1.7M policies , \$974M in premiums paid, \$440B in total coverage**
- NFIP Authorized by federal law that must be renewed or “reauthorized” every five years.
- Last big reforms: Biggert Waters (2012) and Homeowner Flood Insurance Affordability Act (HFIAA) (2014)
 - Current important provision – **glide paths**: 18% (primary res) and 25% for second homes, commercial, SRL props (average annual increase is about 11%.)
- 17 extensions since 2014 -- Current extension thru Sept 2021

RISK RATING 2.0

**** RISK RATING 2.0 IS ONE OF THE MOST SIGNIFICANT CHANGES TO NFIP SINCE ITS INCEPTION ****

- FEMA's new system for rating the risk of each property to determine their NFIP premium amount.
- MUCH more granular than current "zones." Per FEMA it will capture the "true risk" of properties, and assign a more accurate risk and insurance cost.

Current risk rating accounts for:

- BFE
- Flood zone on flood map
- Elevation of structure (via elevation certificate)
- 1% chance of flooding

RR 2.0 will account for:

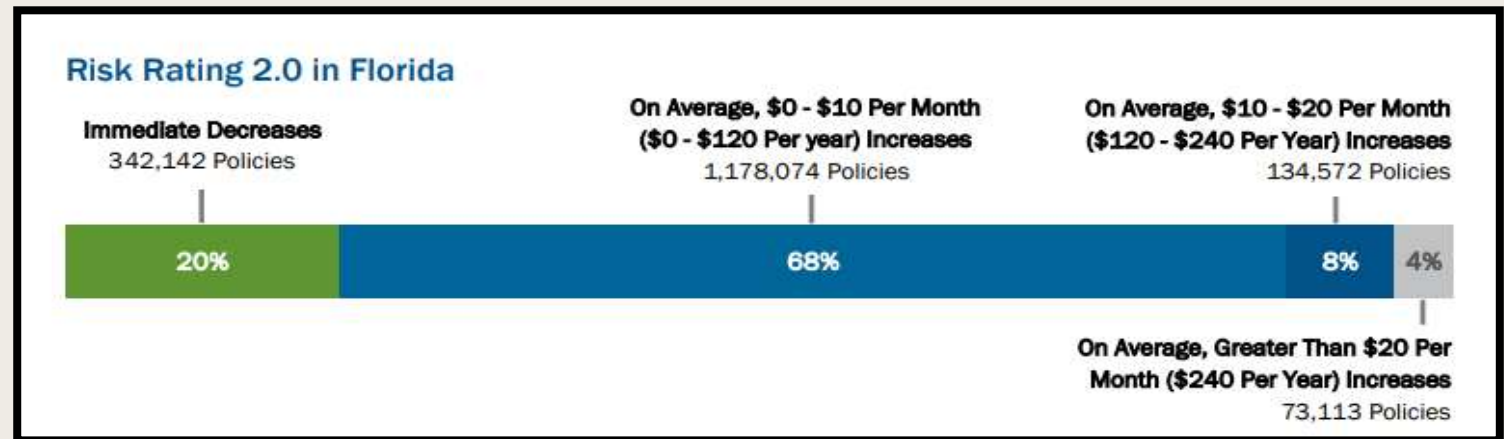
- Proximity to coast
- Structural (construction/foundation)
- Elevation (based on its own internal data, not elevation certificates)
- Propensity for storm surge, excessive rainfall.
- Cost to rebuild

RISK RATING 2.0 CONTINUED

**** NEW RR 2.0 RATES TO GO INTO AFFECT OCT 2021 FOR NEW POLICIES, AND APRIL 2022 FOR EXISTING POLICIES (ROLL OUT DELAYED TWICE) ****

RR2.0 Comparison Legacy to Year 1		
Florida		
Monthly Change	Count All Policies	
< -\$100	22,865	Green bar
-\$100 to -\$90	2,979	
-\$90 to -\$80	3,460	
-\$80 to -\$70	4,318	
-\$70 to -\$60	5,092	
-\$60 to -\$50	6,324	
-\$50 to -\$40	8,879	
-\$40 to -\$30	11,722	
-\$30 to -\$20	20,732	
-\$20 to -\$10	55,049	
-\$10 to \$0	200,689	
Total Green Bar	342,109	
\$0 to \$10	1,178,031	Blue Bar
\$10 to \$20	134,564	Dk. Blue Bar
\$20 to \$30	45,961	Grey bar
\$30 to \$40	15,789	
\$40 to \$50	4,141	
\$50 to \$60	2,957	
\$60 to \$70	1,367	
\$70 to \$80	846	
\$80 to \$90	539	
\$90 to \$100	347	
> \$100	1,160	
Total Grey Bar	73,107	

- No property level premium information has been released yet; only State level data is available.
- 200K policies will increase, 340K policies will decrease.
- New premiums will not be able exceed the statutory limits on annual increases.
- Good news: CRS discounts will continue to apply to all policies



NFIP POLICIES IN SOUTH FLORIDA - WHAT'S AT STAKE FOR OUR COMMUNITIES?

**** FLORIDA'S POLICY HOLDERS – AND ESPECIALLY THOSE IN THE COUNTIES OF MIAMI DADE, BROWARD AND MONROE -- HAVE THE MOST AT STAKE WITH THE CHANGES TO NFIP'S RISK FACTORS AND PREMIUM CALCULATIONS.****

- With 1.7M policies, Florida is most impacted state.
- In Florida , these counties are most impacted:
 - **MD county: 342K policies**, \$76B in coverage (*most policies and highest coverage in State*)
 - **Broward County: 210K policies**, \$52B in coverage (*second highest polices and coverage in State*)
 - **Monroe County: 30K policies**, \$7B in coverage (*highest percentage of properties insured with NFIP.*)

 RR 2.0's increased premiums will make CRS discounts ever more important. 

RISK AND RESILIENCE \$\$

- **FEMA's suite of Mitigation Grant Programs:**
 - Pre-Disaster Mitigation, now **Building Resilient Infrastructure and Communities "BRIC"**
<https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>
 - **Flood Mitigation Assistance (FMA)** <https://www.fema.gov/grants/mitigation/floods>
 - **Hazard Mitigation Grant Program (HMGP)** <https://www.fema.gov/grants/mitigation/hazard-mitigation>
- **HUD's CBGB Disaster Recovery and CDBG Mitigation** – Post-disaster recovery funding available after presidentially declared disasters to assist with recovery – funds for long term recovery, restoration and infrastructure resilience (CDBG –Mit doesn't even need a tie back to the disaster)
- **STATE:**
 - **HB 7019** – passed by Legislature - \$100M a year – new grant program 50-50 match with local govts for resilience planning and projects (under DEP)
 - **Federal ARP \$** – FI Legislature allocated \$500M for resilience – will flow thru the new DEP program
 - Failed this session but look out for next session – legislation to give counties option to use **tourist development tax** for flood mitigation.
 - Big idea: **Extra1% sales tax**



6. Bigger Picture Monroe County Efforts

ALIGNING EFFORTS TO ACHIEVE RESULTS

Creating the Data

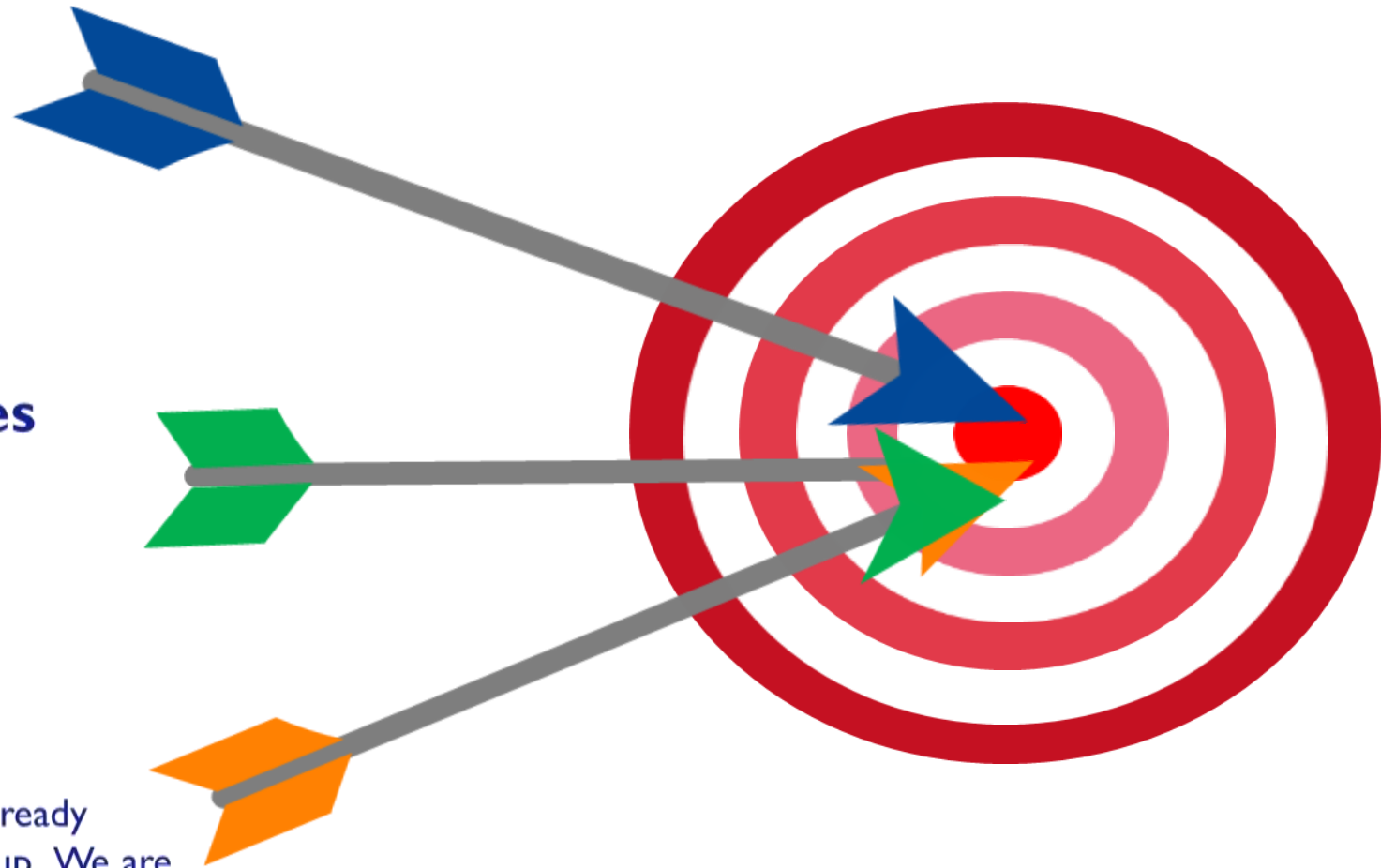
- Information gained from vulnerability assessment overall (Entire County)
- Watershed Management Plan further analyzed vulnerability (stormwater and County buildings/facilities)
 - Recommendation: Roads/Flood mitigation

Making the Decisions and Responses to the Data

- Comprehensive Plan
- Code
- Projects/Programs
- Funding

Tracking Other Activities

The resiliency planning work we do now, means that we are ready when these initiatives come online or funding sources open up. We are tracking 1) various regulatory efforts to ensure that when we are ready to design or permit a project, we don't run into surprises and 2) funding sources to fund our projects.



Adaptation Action Areas (AAAs)

Comprehensive Plan Policy

Directing the creation of AAAs – County to propose AAA's to regulate public infrastructure and private development

Policy 1502.1.4

Within five (5) years after the adoption of the 2030 Comprehensive Plan, **Monroe County shall identify criteria to define adaptation action areas (AAA), or a similar concept to be defined by the County, which may include infrastructure. Pursuant to Chapter 163, F.S., AAA are those areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning.** In the AAAs, strategies will be developed to address vulnerabilities from these effects as well as the rate of impact and available adaptation options.



Source: DEP 2018 AAA Guidebook

Adaptation Action Areas (AAAs)

TYPES OF ADAPTATION STRATEGIES

Once major needs and priorities are defined, specific adaptation strategies can be developed, vetted, and defined.

01

01 Protection

Protection strategies are structurally defensive measures that directly protect vulnerable structures, allowing them to be left largely unaltered.

02

02 Accommodation

Accommodation strategies alter physical design of vulnerable structures to allow the structure or land use to stay in place with modification.

03

03 Retreat

Retreat from areas or infrastructure where protection or accommodation will not be efficient or effective can be voluntary, incentivized, or done gradually.

04

04 Avoidance

Avoidance involves guiding new development away from areas that are subject to coastal hazards and can be done by implementing policy and/or offering of incentives.

Potential Approaches:

- Increased structure elevation, open space, setbacks, stormwater retention, etc.
- Negative points in ROGO/NROGO for vulnerable locations
- Targeted acquisitions of inundation areas and prioritized funding
- Infrastructure improvements, funding priorities, location priorities, elevation, etc. (ex: stormwater facilities)
- Increased habitat protections (areas for habitat transitions) and targeted acquisitions and/or beach renourishment
- Shoreline stabilization – living shorelines, potential hardening, increased seawall heights, etc.
- Roadway elevation targets and prioritization (notice of areas to not be elevated)
- Financial incentives (grant programs) to encourage additional resilient construction in AAAs

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0

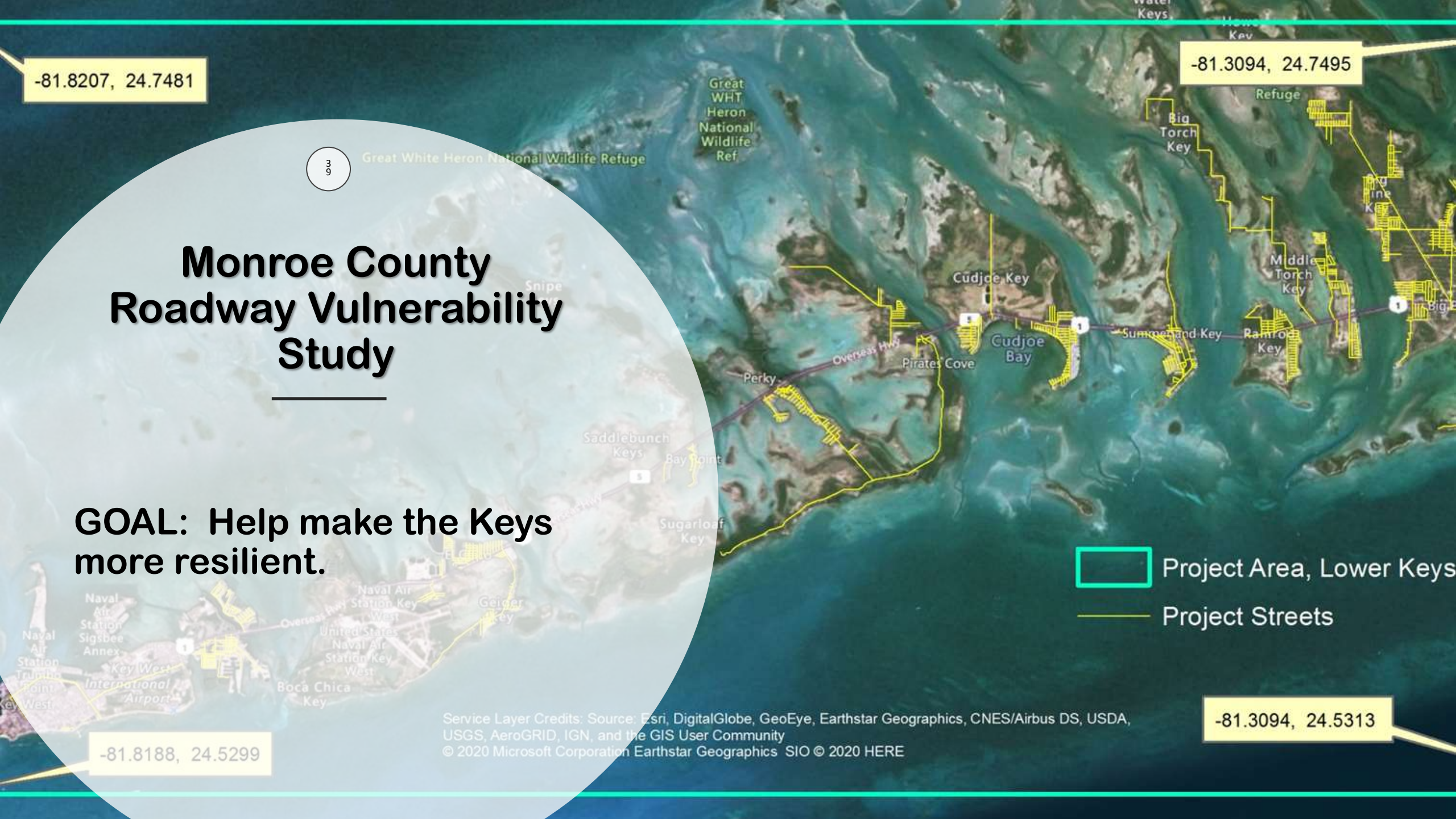
Monroe County Roadway Vulnerability Study

GOAL: Help make the Keys more resilient.

-81.8188, 24.5299

-81.3094, 24.7495

-81.3094, 24.5313



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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Why the Urgency? Key Issues



DUVAL COUNTY
FLORIDA



© Jan Darden

Key Largo – Stillwright Point
(85 days)



© Kim Weatherly

Rose Marie Cromwell
for The New York Times

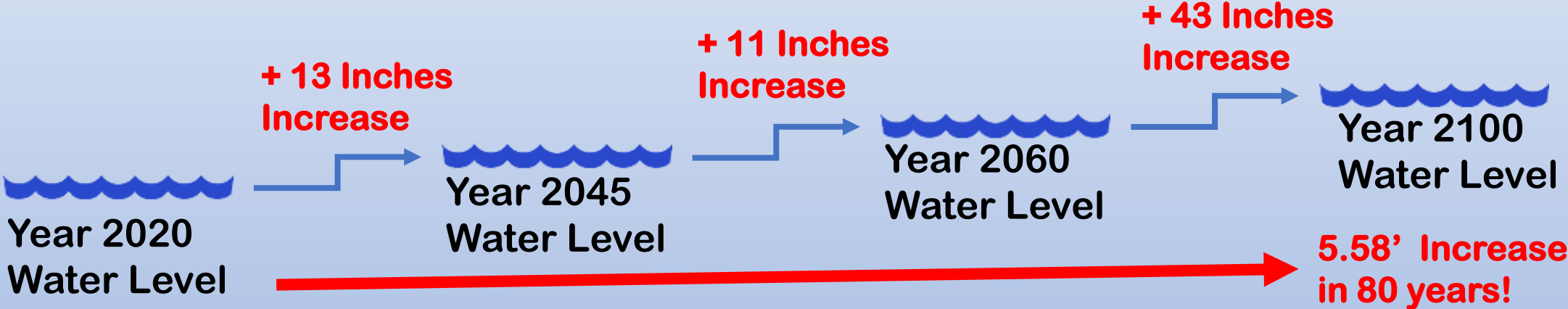
Key Largo – Twin Lakes

Big Pine

Monroe County Roadway Vulnerability Study

Increasing Projected Water Levels Throughout County...

SLR Condition: NOAA 2017 Intermediate-High



Monroe County Roadway Vulnerability Study

Step 1: Vulnerability Assessment – What did it reveal?

Old State Rd 4A (SLR Projection + King Tide measured from Roadway Surface Elevation)



Monroe County Roadway Vulnerability Study

Increasing Projected Water Levels Throughout County...

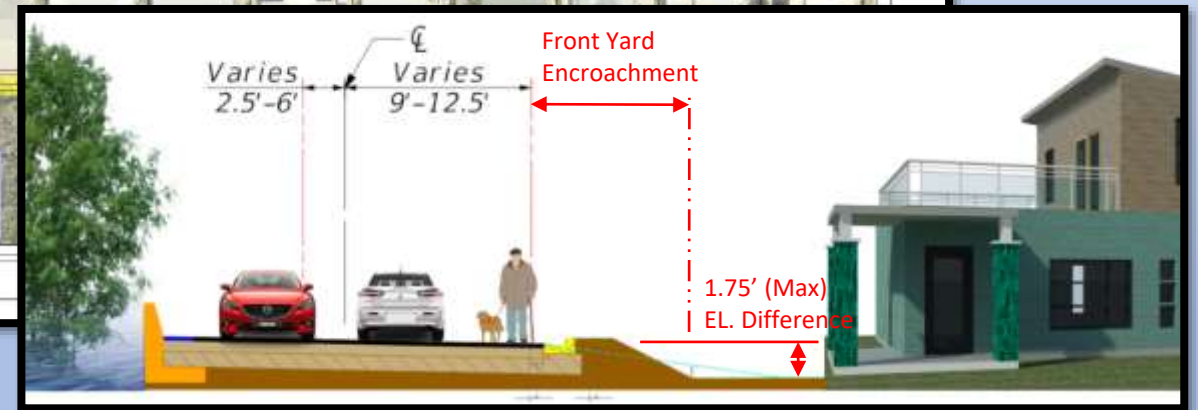
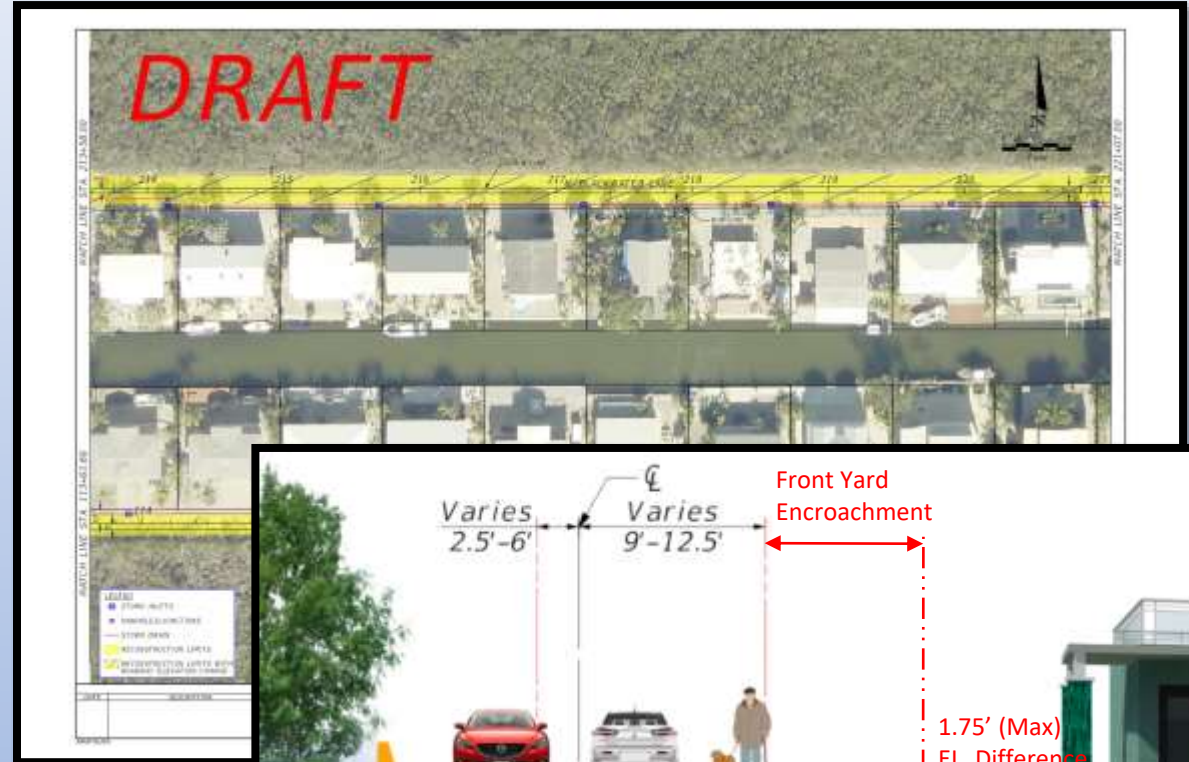
SLR Condition: NOAA 2017 Intermediate-High + King Tides



Monroe County Roadway Vulnerability Study

What Road Design will work and where?

- Develop preliminary **conceptual** design of roadway and flood mitigation improvements
 - Future water levels
 - Existing ground elevations
 - Safety
 - Accessibility
 - Utility Impacts
 - R/W Impacts
 - Collection, conveyance, treatment, and disposal of water on the roadways
- Deliverable: Roadway Plan Sheets and Typical Sections for each neighborhood.



Monroe County Roadway Vulnerability Study

Increasing Projected Water Levels Throughout County...

SLR Condition: NOAA 2017 Intermediate-High + King Tides

\$1.8 Billion*

Projected SLR + King Tides will affect the following:	2045	Unincorporated Countywide %	2060	Unincorporated Countywide %	2100	Unincorporated Countywide %
Miles of Vulnerable and Critical County Maintained Roadways	152 MI	49%	206 MI	66%	252 MI	81%
# of Residential Units along County Maintained Roadways	12,585 Res. Units	71%	14,501 Res. Units	82%	16,370 Res. Units	92%

311 Total Road Miles County Wide

* Cost estimate is conceptual and assumes reconstruction of the roadway and use of an injection well system. Cost estimates do not include design, right-of-way acquisition, harmonization/cost to cure, and legal fees. Cost estimates are preliminary and subject to change.

Would adding a couple of asphalt inches and installing an exfiltration drainage system work?

- Inability to get a permit
- Minimum short-term benefits
- Private property flooding potential
- With or without drainage features, saltwater flooding will still occur along the roadsides
- With or without drainage features condition will be exacerbated by rain events
- Flooding will accelerate roadway deterioration
- Is it legal?



November 13,
2019

County Adaptation + Parcel Adaptation

Projected SLR impacts to private properties (due to low elevation) will continue to increase along vacant lots, shorelines and property lines

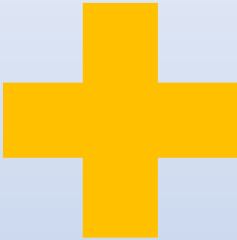


2025
2035
2045

County Adaptation + Parcel Adaptation

Countywide Adaptation

- Roads
- Habitat/Resources
- Elevate or mitigate County buildings
- Infrastructure



Private Property Response

- Elevate or mitigate private structures
- Lot fill and driveways
- Shorelines



Achieving Resilience

- County
- People
- Habitat
- Economy



WORK TO DEVELOP ROADS AND FLOOD MITIGATION IMPLEMENTATION STRATEGY

- **Decision Framework of Adaptation Approaches**
 - **Analysis of Future Growth**
 - Where is the remaining growth (and demand for services) going to go?
 - **Level of Service issues**
 - Differing levels of service across neighborhoods
 - Case studies related to “natural hazards” and government providing services (ie; flooding, snow plowing, fire management, etc.)
 - **“Road Maintenance”**
 - County obligations to maintain its roads and authority to upgrade
- **Regulatory requirements**
 - Feds, State & County related to sea level rise
- **Funding**
 - Case studies in resiliency funding
- **Implementation strategies:**
 - Comprehensive Plan, Ordinances, Code, Special Districts/MSBU, etc.



Twin Lakes

How Communities Are Implementing Resilience for Infrastructure or Allowing Private Property Adaptation



<u>Sample Adaptation Implementation Strategies for Communities</u>	Comprehensive Plan	LDRs & Other Code provisions	Local Govt. Capital Improvement Funding	Private Property Owner Funding (assessments or other sources)¹.
1. Public- Road elevation & flood mitigation	X	X (Design standards)	X	X
2. Private property- Shoreline, fill & driveways, etc.	X	X (Site development)		X
3. Public or private property- Available lands for road adaptation, management of acquired lands and vacant parcels where flooding crosses onto roads	X	X (Uses/Mgmt. of lands)	X	X

MONROE COUNTY RESILIENCY ACTIVITIES TO DATE

Activity/Date	Scope	Summary Results
Vulnerability Assessment (2013)	Work with best available data, start to understand vulnerabilities, priorities and where more data and analysis may be needed	<ol style="list-style-type: none"> 1. Impacts are near term 2. County needs better elevation data 3. Roads/flooding highest priority 4. Resiliency needs to be discussed across all departments and our decisions needs to account for these impacts
Pilot Roads Project (2015-2016)	Big Pine and Twin Lakes pilot road elevation projects to create a methodology to evaluate extent of road elevation necessary for sea level rise	<ol style="list-style-type: none"> 1. Use Compact's projections 2. 25 year useful life of road projects 3. Stormwater technologies and design considerations 4. Permit / regulatory issues
Site Specific Vulnerability Assessments (2016-2018)	Two DEP Coastal Partnership Initiative grants for and adaptation planning at Bayshore Manor and Harry Harris Park	<ol style="list-style-type: none"> 1. What site specific adaptations can be used for different types of assets 2. Rough order costs
Comprehensive Plan (2016)	Energy and Climate Element of Comprehensive Plan	<ol style="list-style-type: none"> 1. New Element of Comprehensive Plan outlining initial policies 2. Commits to identify criteria to adopt AAAs
NOAA Grant (2017-2019)	Grant funded effort to improve data on stormwater structures, analyze future impacts & what legal constraints and opportunities exist	<ol style="list-style-type: none"> 1. Watershed Management Plan meeting FEMA's CRS requirements 2. White Paper on Road Elevation, Regulatory Framework and Levels of Service
Elevation data (2017-2019)	Acquire mobile LiDAR data and first floor elevations for County buildings	<ol style="list-style-type: none"> 1. Update elevation data from that used in 1stVA (reduce margin of error in future modeling and gain better data to make infrastructure decisions)
Coastal Storm Risk Management Study (2018-2021)	Federal authorization for 3 year/\$3M study on coastal risk response (\$2.6B, 35/65% cost share)	<ol style="list-style-type: none"> 1. Final Plan (Fall 2021) 2. Revetments, flood mitigation and home elevation
Peril of flood DRAFT Comprehensive Plan amendments initially completed (2020)	Grant funded effort to draft initial Comp Plan amendments to comply with Peril of Flood requirements in Chapter 163	<ol style="list-style-type: none"> 1. Research, drafting and outreach 2. Language to be adopted through Comp Plan update process (2021-2023)

MONROE COUNTY RESILIENCY ACTIVITIES- CURRENT

Activity/Date	Scope	Summary Results
In process: Update Vulnerability Assessment and EXAMPLE Adaptation Action Areas Comprehensive Plan language (2021)	Grant funded effort to update Vulnerability Assessment and draft EXAMPLE AAAs maps/language to help inform adaptation strategies beyond just roads and flooding	<ol style="list-style-type: none"> 1. Update 2013 VA with new SLR projections 2. Create new impact maps 3. Create method to establish AAAs & create EXAMPLE language 4. Commission and public presentations
In process: Countywide Roads/Flood Mitigation (2019-2021)	Create method to evaluate and prioritize road elevation/flood mitigation projects	<ol style="list-style-type: none"> 1. Updated SLR projections (2019) 2. Building on CRS Watershed Management Plan (stormwater) and elevation data 3. Prioritize road/flood mitigation projects 4. Determine funding sources 5. Implementation strategy to memorialize evaluation process used
In process: EAR / Comp Plan Update	Evaluate and update entire Comprehensive Plan	<ol style="list-style-type: none"> 1. Peril of Flood amendments 2. Other policies at direction of BOCC
In process: Roads Elevation Grants	State and Federal grant applications submitted for road elevation	<ol style="list-style-type: none"> 1. 1 awarded to date for Big Pine Road Pilot Project 2. Apps previously submitted for Twin Lakes and Stillwright Point
In process: Natural Resources Adaptation Grant	DEP Resilience Planning Grant to evaluate natural resource adaptation options, partnerships and costs	<ol style="list-style-type: none"> 1. Estimated award notification is anticipated this spring

COORDINATING THE RESPONSE

Examples of what we mean by “Implementation”

1. Comprehensive Plan

- Peril of flood
- Policies for maintaining v. upgrading levels of service
- New policies in various elements
- Examples of Adaptation Action Areas

2. Code

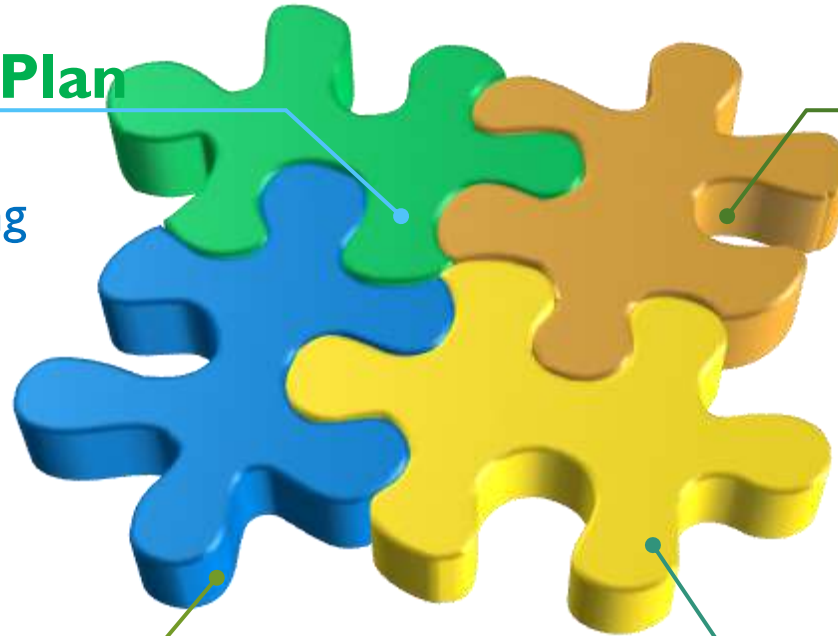
- Road design criteria and flooding levels of service
- Driveway elevations
- Fill and onsite retention
- Seawall elevations

3. Funding

- County funding for adaptation projects
- Federal/State Grants
- 35% Cost share for Corps study
- Assessments, utility or user fees

4. Partnerships

- SFWMD/USGS- Rainfall data
- Florida DEP- Planning, projects and grants





2040



2070



2100

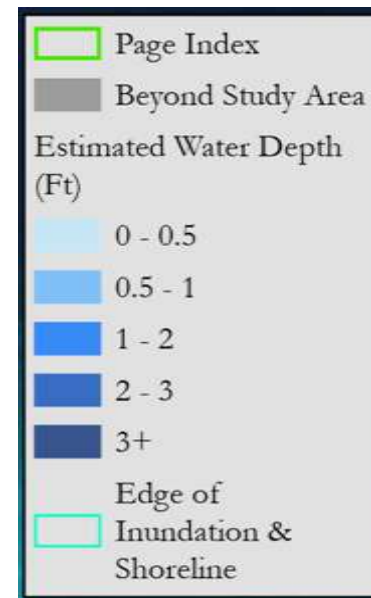
Stock Island

DRAFT PROJECTED SEA LEVEL RISE

2040 -> 17 INCHES

2070 -> 40 INCHES

2100 -> 74 INCHES



KEY TAKEAWAYS

CRS

- **With the rising cost of insurance, the CRS program is a vital piece to the services you can offer to your citizens.**
- **Start out by Analyzing your community savings to see what your current programs would earn in the program.**
- **Sell the participation to the elected officials, based on savings.**
- **Keep working on programs to make your community resilient and achieve discounts for policy holders.**

Resiliency Planning

- **If you haven't started any resilience work yet, start with a vulnerability assessment. The State has a generous grant program that funds this type of work.**
- **If you are already doing resilience work, great. Much of the information will be useful for the CRS points. Now is the time to review the CRS program to learn where you may want to focus your resilience efforts to meet CRS requirements AND become more resilient.**



MAYOR
MICHELLE
COLDIRON

Monroe County
Commissioner,
District 2



Thank You

