COLLIER COUNTY FLOODPLAIN MANAGEMENT PLAN

FLOODPLAIN MANAGEMENT PLAN WORKING GROUP – MEETING #2

August 4, 2026

Introductions

Floodplain Management Plan Working Group

Name	Government Agency Division & Agency
Kenneth Bills	N/A - Civilian BCC District Representative
Stanley Chrzanowski	N/A - Civilian BCC District Representative
Amy Ernst	N/A - Civilian BCC District Representative
Lisa Koehler	N/A - Civilian BCC District Representative
William Miller	N/A - Civilian BCC District Representative
Linda Orlich	N/A - Civilian BCC District Representative
Paul Shea	N/A - Civilian BCC District Representative
Dennis Vasey	N/A - Civilian BCC District Representative
Terry Smallwood	City of Everglades Building Department
Malek Hall	City of Marco Island Building Department
Robert Dorta	City of Naples Building Department
Amy Howard	Collier County Emergency Management, County Manager Operations Dept.
Eric Johnson	Collier County Planning, Growth Management Dept.
Matthew McLean	Public Utilities Engineering
Francisco Pena Guerra	SFWMD
Peter Hayden	Stormwater/Transportation Engineering, Transportation Mgmt Services Dept.
Joshua Starrett	Collier County Emergency Management, County Manager Operations Dept.
Kari Hodgson	Solid Hazardous Waste, Public Utilities Dept.
Kent Feng	SFWMD
Andrew Miller	Coastal Zone Management, Transportation Management Services Dept.

WSP Consulting Team & Contact Info

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Collier County Leads

Christopher Mason – Community Planning & Resiliency Division Director

Tonia Selmeski – Community Planning & Resiliency Planner III

Howard Critchfield - Engineering Manager – Community Planning & Resiliency

Agenda

- Planning Process Update
- Hazard Identification & Risk Assessment (HIRA) Review
  - HIRA overview
  - Hazards Identification and Flood History
  - Asset Inventory
  - Hazard Profiles – Risk and Vulnerability Assessment
- Survey Update
- Next Steps
- Questions
- *The Hydraulic Squeeze: Reconciling Linear Planning with Exponential Reality,* Dennis P. Vasey

PLANNING PROCESS UPDATE

Planning Process

Step 1	Organize and Prepare the Plan
Step 2	Involve the Public – *ongoing*
Step 3	Coordinate – *ongoing*
Step 4	**Assess the Hazard**
Step 5	**Assess the Problem**
Step 6	Set Goals
Step 7	Review Possible Activities
Step 8	Draft an Action Plan
Step 9	Adopt the Plan
Step 10	Implement, Evaluate, & Revise the Plan

Hazard Identification & Risk Assessment (HIRA) Process

1. Identify Hazards
2. Profile Hazard Events
3. Inventory Assets
4. Estimate Losses

Risk = combination of hazard, vulnerability, and exposure, each factor is assessed in the process

HIRA REVIEW

HIRA Organization

Data collected through this process is organized into the following plan sections:

Section 4: Flood Risk Assessment

- 4.1: Hazard Identification
- 4.2: Risk Assessment Methodology
- 4.3: Asset Inventory
- 4.4: Hazard Profiles, Analysis, and Vulnerability
- 4.5: Risk and Vulnerability Conclusions

Hazard Identification

Flood Hazard	Included in 2023 State Plan?	Included in 2015 Collier County FMP?	Included in 2025 Local Mitigation Strategy?
Sea Level Rise	Discussed with Flood	✓	✓
Coastal/Canal Bank Erosion	✓	✓	✓
Dam/Levee Failure	✓	✓	-
Coastal and Inland Flooding	✓	✓	✓
Stormwater/Localized Flooding	-	✓	Discussed with Flood
Hurricane/Tropical Storm	✓	✓	✓

Flood-Related Disaster Declarations – Collier County

23 Flood-related Disaster Declarations (31 total)

- 18 Hurricanes and Tropical Storms
- 4 Severe Storms
- 1 Coastal Storm

14 Flood-related Emergency Declarations (16 Total)

- 12 Hurricanes and Tropical Storms
- 2 Severe Storms

Only flood declarations included in table and plan

Disaster Declarations

Disaster #	Declaration Date	Incident Type	Incident Title
209	1965-09-14	Hurricane	Hurricane Betsy
955	1992-08-24	Hurricane	Hurricane Andrew
1069	1995-10-04	Hurricane	Hurricane Opal
1195	1998-01-06	Severe Storm	Severe Storms, High Winds, Tornadoes, and Flooding
1306	1999-10-20	Hurricane	FL - Hurricane Irene-dr-req*
1345	2000-10-04	Severe Storm	Severe Storms and Flooding
1393	2001-09-28	Coastal Storm	Severe Storms, Tornadoes and Flooding Associated With Tropical Storm Gabrielle
1539	2004-08-13	Hurricane	Tropical Storm Bonnie and Hurricane Charley
1545	2004-09-04	Hurricane	Hurricane Frances
1551	2004-09-16	Hurricane	Hurricane Ivan
1561	2004-09-26	Hurricane	Hurricane Jeanne
1602	2005-08-28	Hurricane	Hurricane Katrina*
1609	2005-10-24	Hurricane	Hurricane Wilma
1785	2008-08-24	Severe Storm	Tropical Storm Fay*
4068	2012-07-03	Severe Storm	Tropical Storm Debby*
4084	2012-10-18	Hurricane	Hurricane Isaac
4337	2017-09-10	Hurricane	Hurricane Irma*
4673	2022-09-29	Hurricane	Hurricane Ian*
4680	2022-12-13	Hurricane	Hurricane Nicole*
4734	2023-08-31	Hurricane	Hurricane Idalia*
4806	2024-08-10	Tropical Storm	Hurricane Debby
4828	2024-09-28	Hurricane	Hurricane Helene*
4834	2024-10-11	Hurricane	Hurricane Milton*

Source: FEMA, April 2026   * Emergency Declaration Associated with storm event

NCEI Reported Hazard Events for Collier County: 1996-2025

Type	# of Events	Property Damage	Deaths
Coastal Flood	11	$71,000	0
Flash Flood	12	$565,000	0
Flood	29	$43,500	0
Heavy Rain	6	$60,000	0
High Surf	0	$0	0
Hurricane (Typhoon)	10	$2,425,000,000	1
Storm Surge/Tide	11	$8,138,000	3
Tropical Depression	10	$0	0
Tropical Storm	14	$560,415,000	0
Total	**103**	**$2,994,292,500**	**4**

Note: No reported crop loss or injuries

Source: NCEI Storm Events Database, April 2026

NCEI only captures what is reported to the system.

Not an exhaustive report of damage and loss.

Building Exposure

Estimated building counts are based on 2025 parcel and appraiser data

Content values are estimated using FEMA Hazus methodology

Land Use	Estimated Building Count	Total Building Value	Estimated Content Value	Total Value
Agricultural	579	$79,809,392	$79,809,392	$159,618,784
Commercial	5,301	$9,400,647,214	$9,400,647,214	$18,801,294,428
Education	350	$1,193,660,082	$1,193,660,082	$2,387,320,164
Government	80	$360,862,629	$360,862,629	$721,725,258
Industrial	356	$415,552,605	$623,328,908	$1,038,881,513
Religious	241	$424,220,453	$424,220,453	$848,440,905
Residential	121,977	$72,523,316,298	$36,261,658,149	$108,784,974,447
Total	**128,884**	**$84,398,068,673**	**$48,344,186,827**	**$132,742,255,500**

Source: Collier County Property Appraiser parcel data, 2025-2026

Priority Risk Index (PRI)

- The purpose of the PRI is to categorize and prioritize all potential hazards for the county as high, moderate, or low risk
- The sum of all five risk assessment categories equals the final PRI value
- PRI value can range from 1.0 to 4.0

RISK ASSESSMENT CATEGORY	LEVEL	DEGREE OF RISK CRITERIA	INDEX	WEIGHT
PROBABILITY What is the likelihood of a hazard event occurring in a given year?	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 10 &100% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	100% ANNUAL PROBABILTY	4	
IMPACT In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 DAY	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES > 30 DAYS.	4	
SPATIAL EXTENT How large of an area could be impacted by a hazard event? Are impacts localized or regional?	NEGLIGIBLE	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED	3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED	4	
WARNING TIME Is there usually some lead time associated with the hazard event? Have warning measures been implemented?	MORE THAN 24 HRS	SELF DEFINED	1	10%
	12 TO 24 HRS	SELF DEFINED	2	
	6 TO 12 HRS	SELF DEFINED	3	
	LESS THAN 6 HRS	SELF DEFINED	4	
DURATION How long does the hazard event usually last?	LESS THAN 6 HRS	SELF DEFINED	1	10%
	LESS THAN 24 HRS	SELF DEFINED	2	
	LESS THAN 1 WEEK	SELF DEFINED	3	
	MORE THAN 1 WEEK	SELF DEFINED	4	

PRI = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

Please note any potential changes as we review the hazard profiles

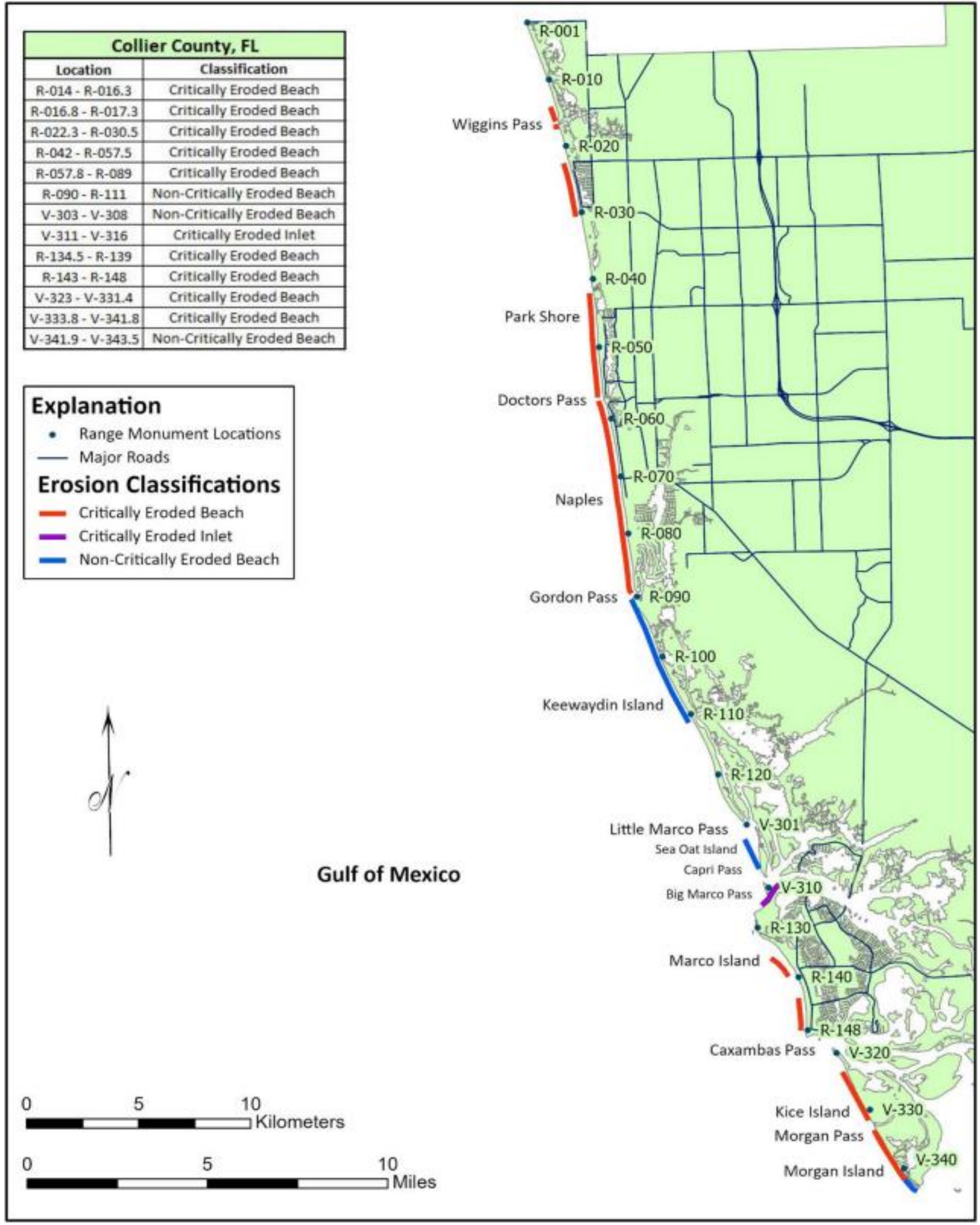
Priority Risk Index Results

High	Moderate	Low
≥3.0	2.0-2.9	<2.0

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Risk Rating
Coastal/Canal Bank Erosion	Highly Likely	Minor	Negligible	More than 24 hrs	More than 1 week	2.2
Dam/Levee Failure	Unlikely	Limited	Negligible	Less than 6 hrs	Less than 1 week	1.8
Coastal and Inland Flooding	Highly Likely	Critical	Large	6 to 12 hours	Less than 1 week	3.5
Stormwater/Localized Flooding	Highly Likely	Limited	Small	6 to 12 hours	Less than 24 hours	2.8
Hurricane & Tropical Storm	Highly Likely	Critical	Large	More than 24 hrs	Less than 1 week	3.3
Sea Level Rise	Likely	Critical	Moderate	More than 24 hours	More than 1 week	2.9

Coastal & Canal Bank Erosion

- Erosion is an ongoing process rather than episodic
- It can intensify during storm events, especially hurricane and storm surge
- FDEP Office of Resilience, *Critically Eroded Beaches in Florida, 2024* Collier County findings*:*
  - 9 critically eroded beach areas (15.5 miles)
  - 3 non-critically eroded beach areas (5.1 miles)
  - 1 critically eroded inlet shoreline area (0.8 mile)
- SFWMD identified Golden Gate Canal as a priority (blockage from debris increases flood risk)
- Canal and coastal erosion is expected to occur in the future

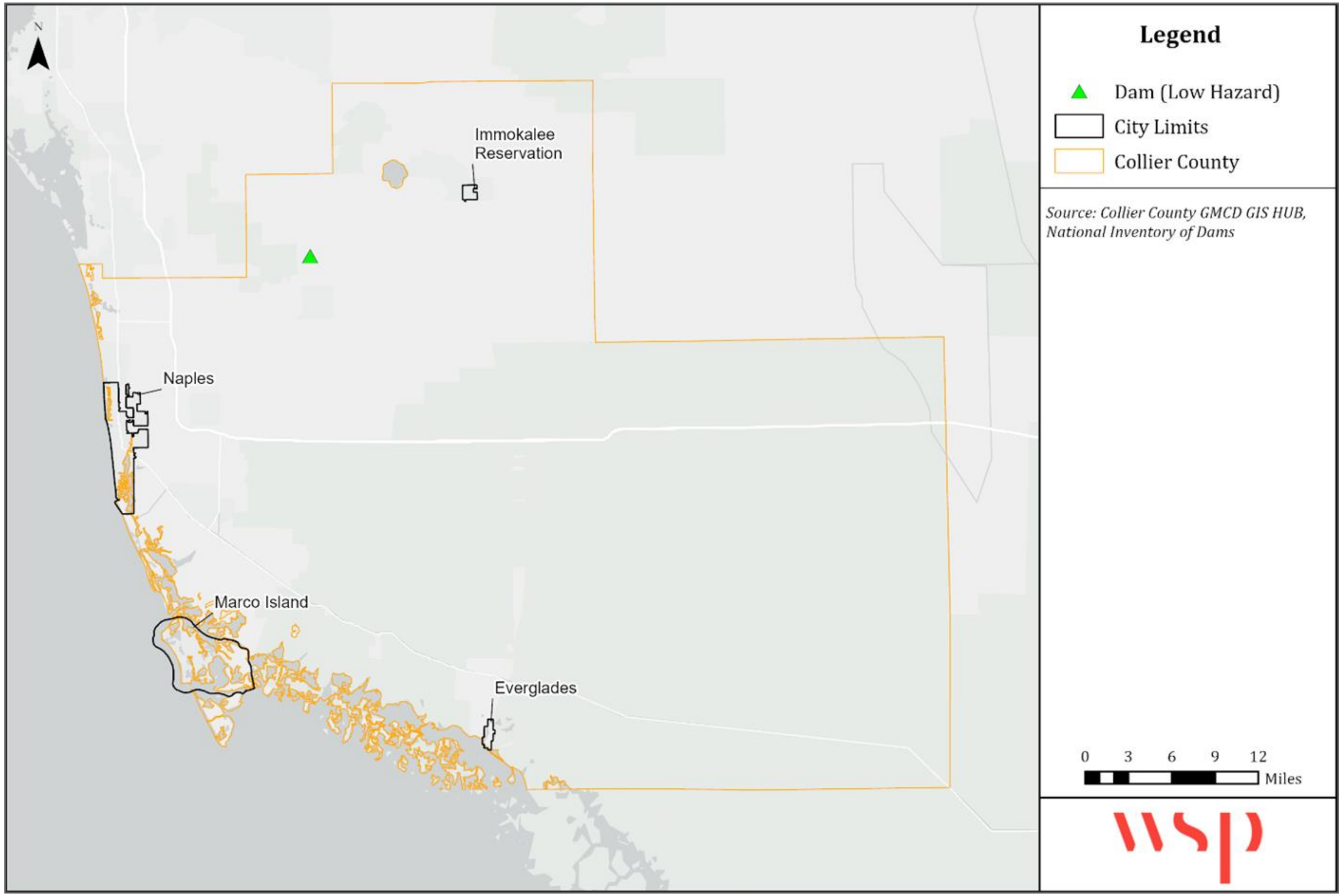


Collier County, FL	
Location	Classification
R-014 - R-016.3	Critically Eroded Beach
R-016.8 - R-017.3	Critically Eroded Beach
R-022.3 - R-030.5	Critically Eroded Beach
R-042 - R-057.5	Critically Eroded Beach
R-057.8 - R-089	Critically Eroded Beach
R-090 - R-111	Non-Critically Eroded Beach
V-303 - V-308	Non-Critically Eroded Beach
V-311 - V-316	Critically Eroded Inlet
R-134.5 - R-139	Critically Eroded Beach
R-143 - R-148	Critically Eroded Beach
V-323 - V-331.4	Critically Eroded Beach
V-333.8 - V-341.8	Critically Eroded Beach
V-341.9 - V-343.5	Non-Critically Eroded Beach

Source: FDEP Critically Eroded Beaches of Florida, 2024

Dam Failure

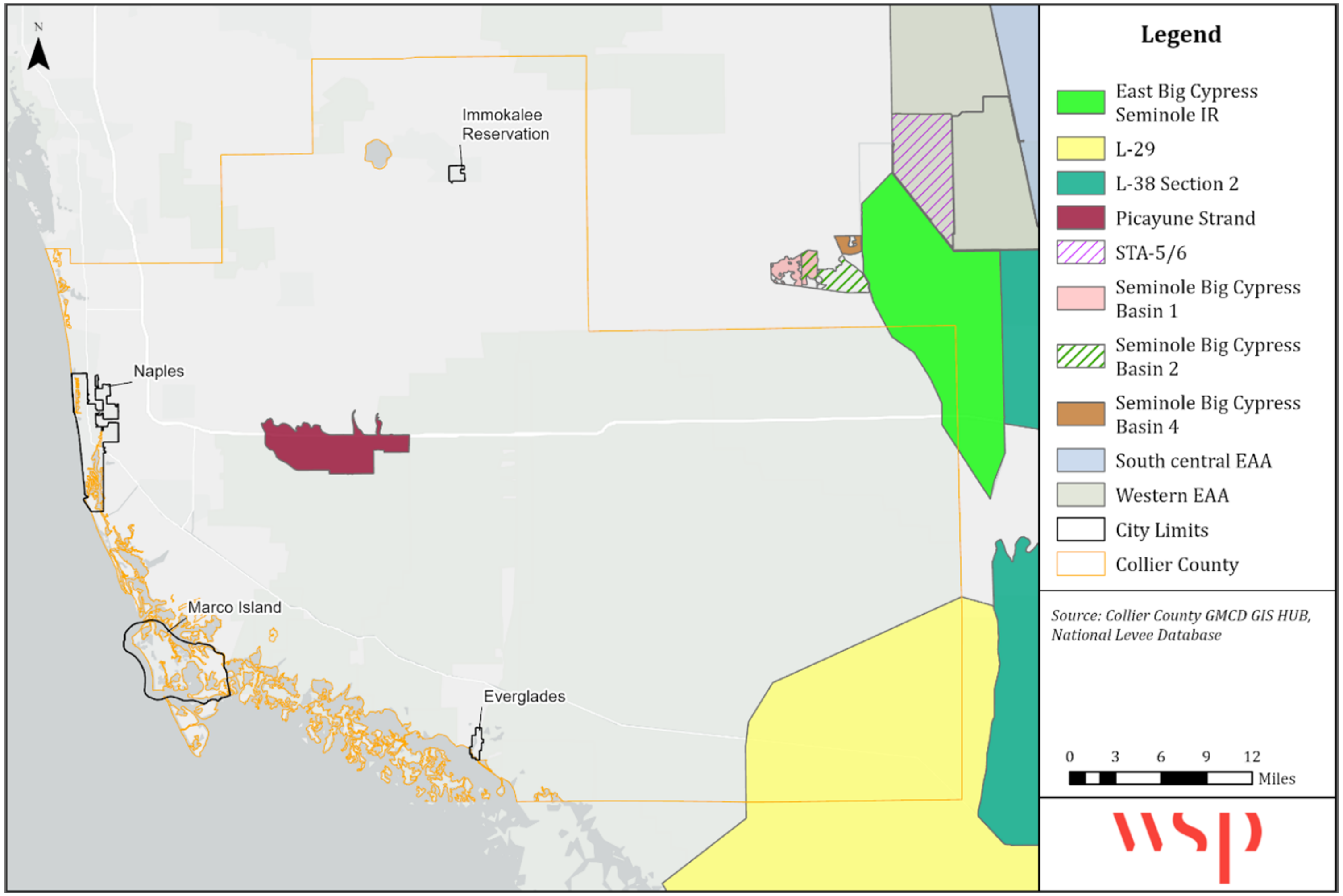
- One dam in Collier County
  - St. Road 846 Land Trust IMP
  - Low hazard rating
  - No residential properties within a mile
  - Primarily agricultural in surround area
- Inundation area not available to estimate exposure
- No past dam failures in Collier County



Levee Failure

Counties	System Name	Sponsor	Length (mi)	Height (ft)	Risk Class	Last Assessment Date
Broward, Collier, Hendry	East Big Cypress Seminole IR	SFWMD	26.1	6	Low	7/2/2019
Broward, Collier, Miami-Dade, Monroe	L-29	SFWMD	45.4	9	Low	7/7/2016
Collier	Picayune Strand	SFWMD	9.4	13	Low	9/3/2020

- Three levees in Collier County
  - East Big Cypress Seminole IR
  - L-29
  - Picayune Strand
- All three are low risk
- Property exposure within the inundation areas of the three levees:
  - 90 properties totaling approximately $34 million in combined structure and content value
    - East Big Cypress: 3 properties
    - L-29: 39 properties
    - Picayune Strand: 48 properties
- No past levee failures in Collier County



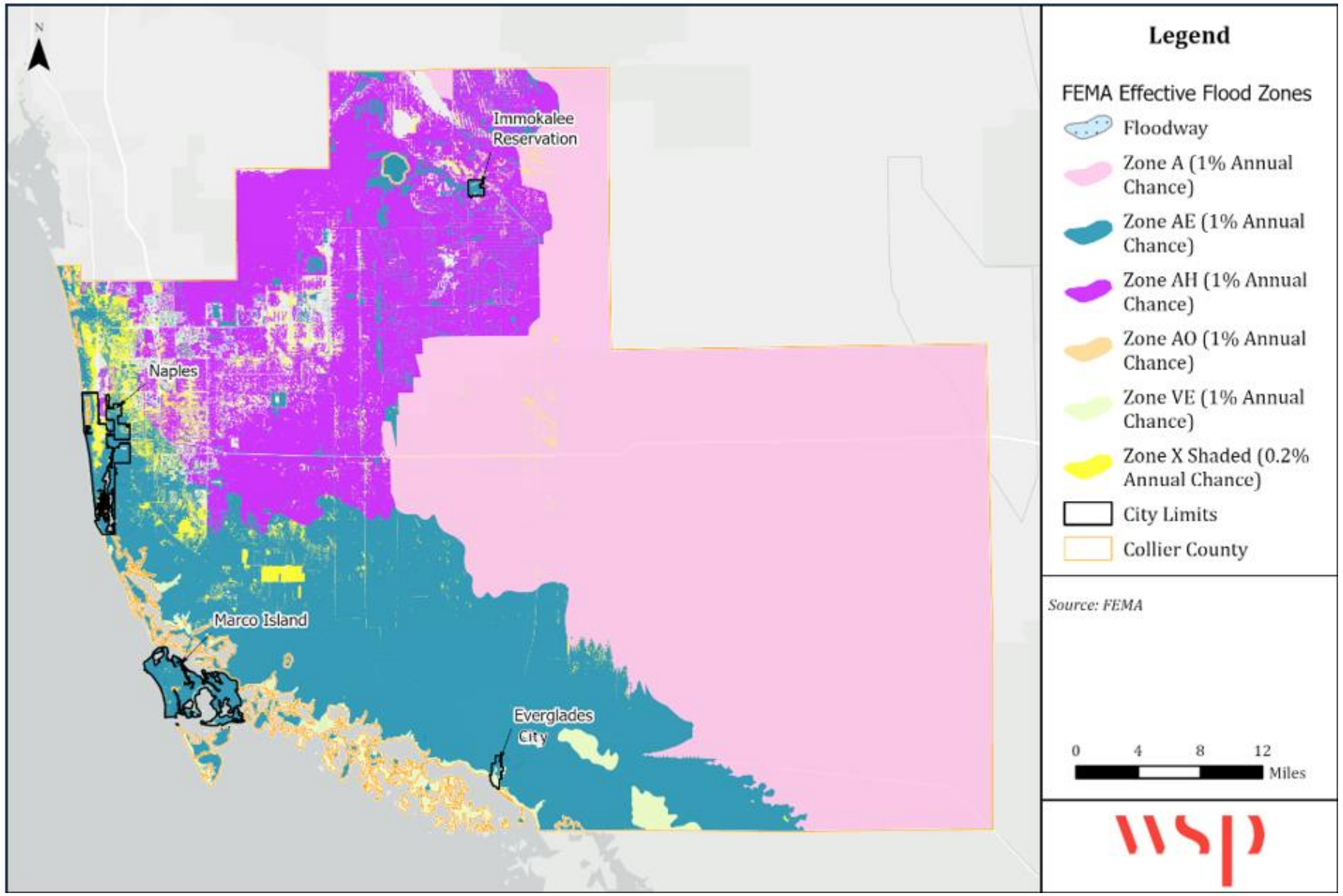
Coastal and Inland Flooding

Flood Zone Acreage for the Unincorporated County

Flood Zone	Acreage	Percent of Total (%)
A	631,285.75	49%
AE	315,977.15	25%
AH	246,656.99	19.2%
VE	26,153.27	2%
Shaded X (0.2% Annual Chance)	13,934.03	1%
Unshaded X	52,845.04	4%
Total	**1,286,952.2**	**--**
SFHA Total	**1,220,173.16**	**95%**

Source: FEMA 2024 Effective FIRM

- From 1995-2025, NCEI reports 58 flood-related events
- Over $730,000 in property damages

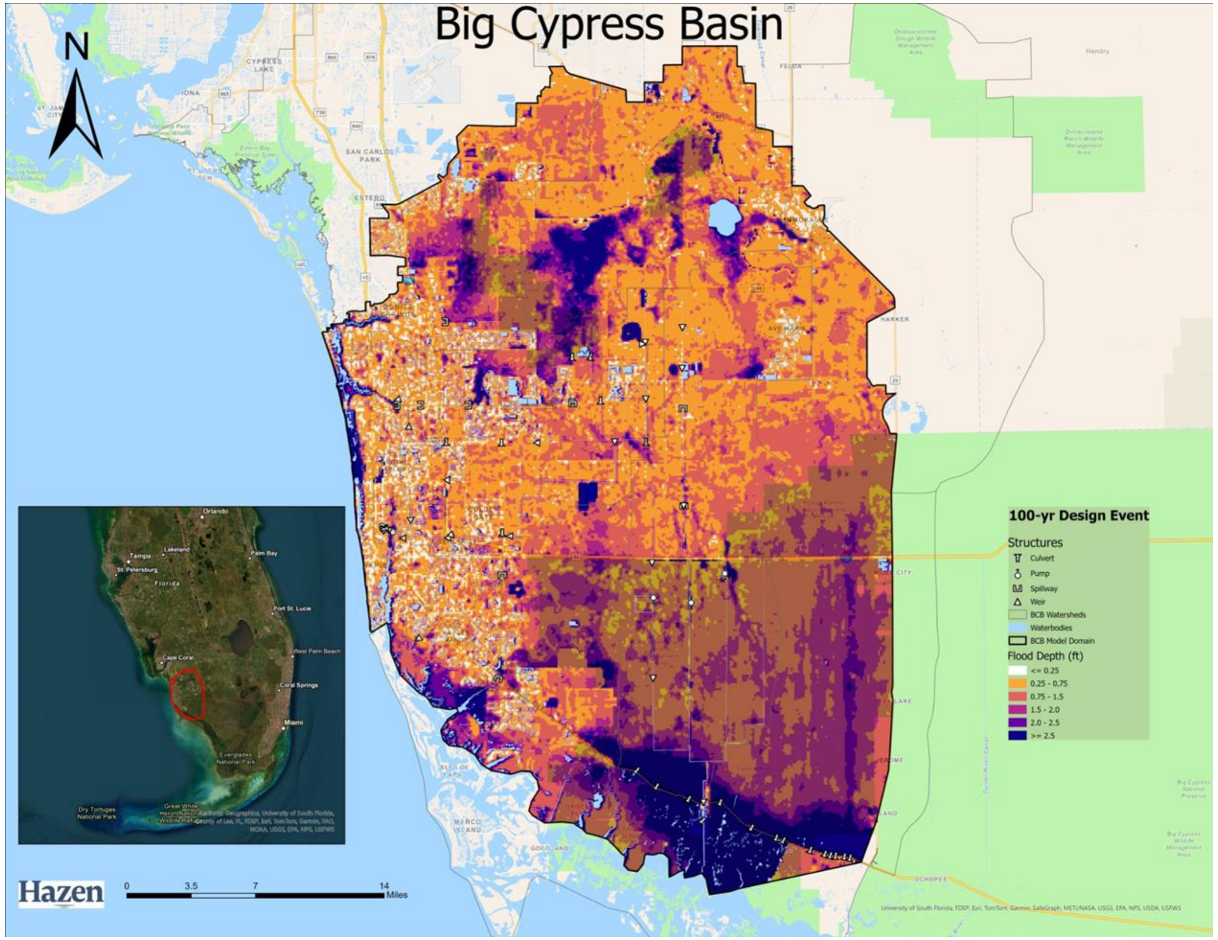


Coastal and Inland Flooding

Included findings from the SFWMD Big Cypress Basin Model Update report

- Incorporated Performance Metrics (PM) 1 and 5
- PM #1 Maximum Stage in Primary Canals – estimates the highest water levels across four design storms
  - Identifies canals that do not meet flood protection level of service
  - 15 canals do not meet flood protection level of service (not along entire canal - plan indicates specific areas)
- PM #5 Frequency of Flooding – modeled the depth of flooding across four design storms
  - HIRA includes 25-yr and 100-yr analysis

Flood Depth: 100-yr Design Event



Source: Big Cypress Basin Model Update, 2025

Coastal and Inland Flooding

Property Exposure by Flood Zone

Flood Zone	Total # Buildings	Building Value	Estimated Content Value	Total Value
A	159	$30,809,985	$25,235,266	$56,045,250
AE	37,724	$30,864,099,551	$18,133,434,972	$48,997,534,523
AH	39,261	$19,997,399,539	$10,976,529,647	$30,973,929,186
VE	126	$44,863,314	$22,914,497	$67,777,811
Shaded X (0.2% Annual Chance Flood)	28,168	$20,608,158,382	$11,683,096,391	$32,291,254,774
Unshaded X	23,439	$12,851,240,106	$7,326,092,764	$20,177,332,870
Total	**128,877**	**$84,396,570,877**	**$48,167,303,537**	**$132,563,874,414**
SFHA Total	**77,270**	**$50,937,172,389**	**$29,158,114,382**	**$80,095,286,770**

Source: Collier County parcel data, 2025; FEMA Effective DFIRM

Critical Facilities Exposure by Flood Zone

	Flood Zone					
FEMA Lifeline	**A**	**AE**	**AH**	**VE**	**X SHADED**	**X UNSHADED**
Communications	3	12	6	0	0	3
Energy	0	35	13	1	33	29
Food, Hydration, Shelter	0	9	4	0	10	13
Hazardous Materials	4	18	20	0	19	13
Health and Medical	0	13	2	0	20	8
Safety and Security	0	14	4	0	15	21
Transportation	7	8	2	1	0	1
Water Systems	4	11	11	0	3	12
Total	**18**	**120**	**62**	**2**	**100**	**100**

Source: FEMA, Collier County, 2024

Coastal and Inland Flooding

Estimated Building Damage – 1%-Annual-Chance-Flood

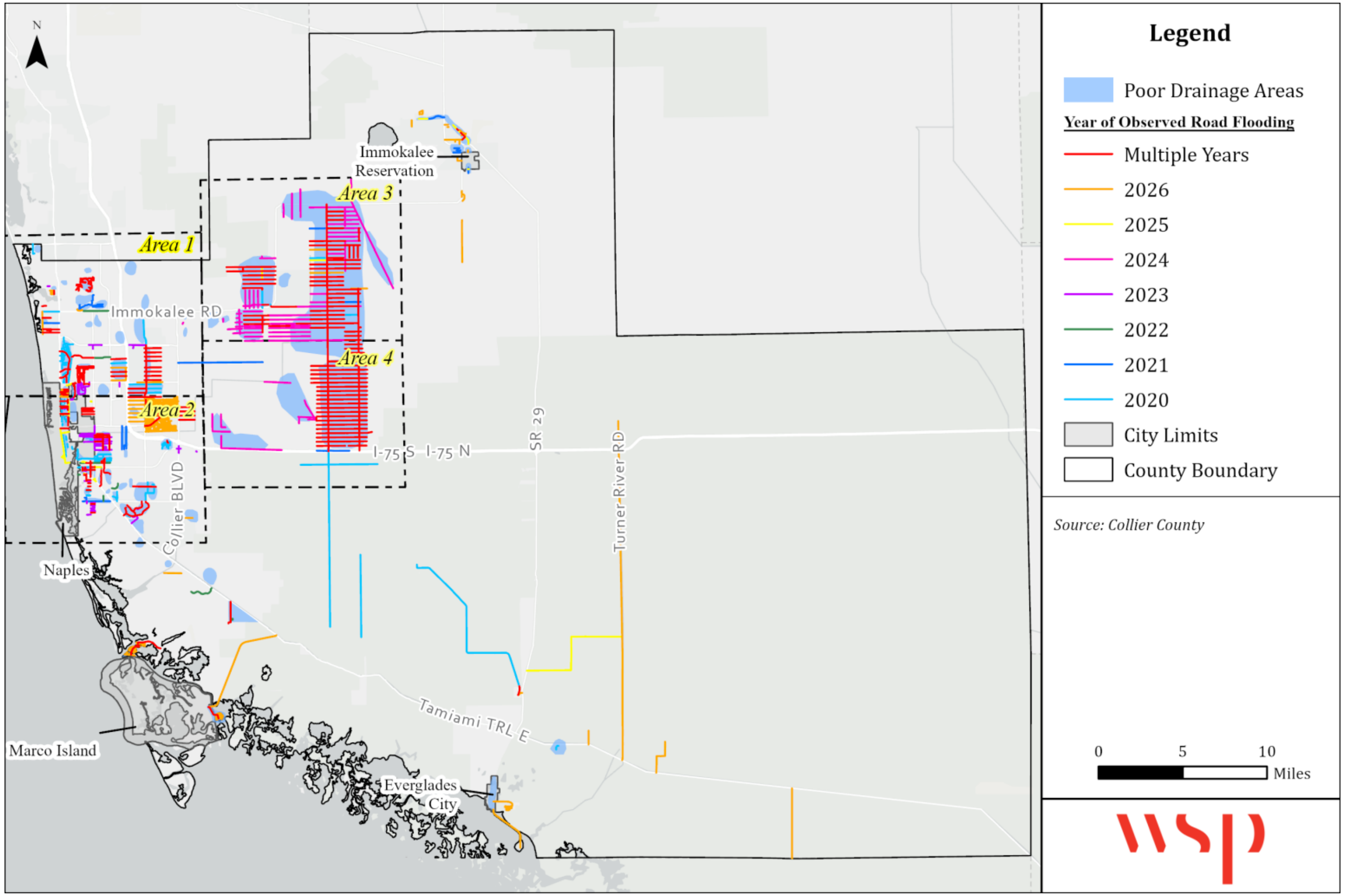
Flood loss estimates developed using Hazus FAST tool

Occupancy Type	Total Parcels with Loss	Total Value (Building & Content)	Estimated Building Loss	Estimated Content Loss	Estimated Total Damage	Loss Ratio
Agricultural	353	$97,528,964.58	$18,284,130.64	$23,325,079.27	$41,609,209.92	42.7%
Commercial	2,205	$6,401,419,161.05	$467,185,218.40	$1,524,454,950.81	$1,991,640,169.21	31.1%
Education	142	$964,945,956.72	$22,485,621.75	$102,712,258.59	$125,197,880.34	13.0%
Government	34	$255,781,737.01	$20,980,783.49	$92,086,937.27	$113,067,720.76	44.2%
Industrial	119	$603,613,253.98	$66,309,505.12	$168,286,006.95	$234,595,512.08	38.9%
Religious	108	$427,915,520.57	$18,987,533.77	$106,454,264.72	$125,441,798.50	29.3%
Residential	61,703	$51,691,441,562.62	$20,628,297,528.35	$10,310,109,743.60	$30,938,407,271.96	59.9%
Total	**64,664**	**$60,442,646,156.53**	**$21,242,530,321.54**	**$12,327,429,241.22**	**$33,569,959,562.76**	**55.5%**

Source: Collier County parcel data, 2025; FEMA Effective DFIRM; Hazus

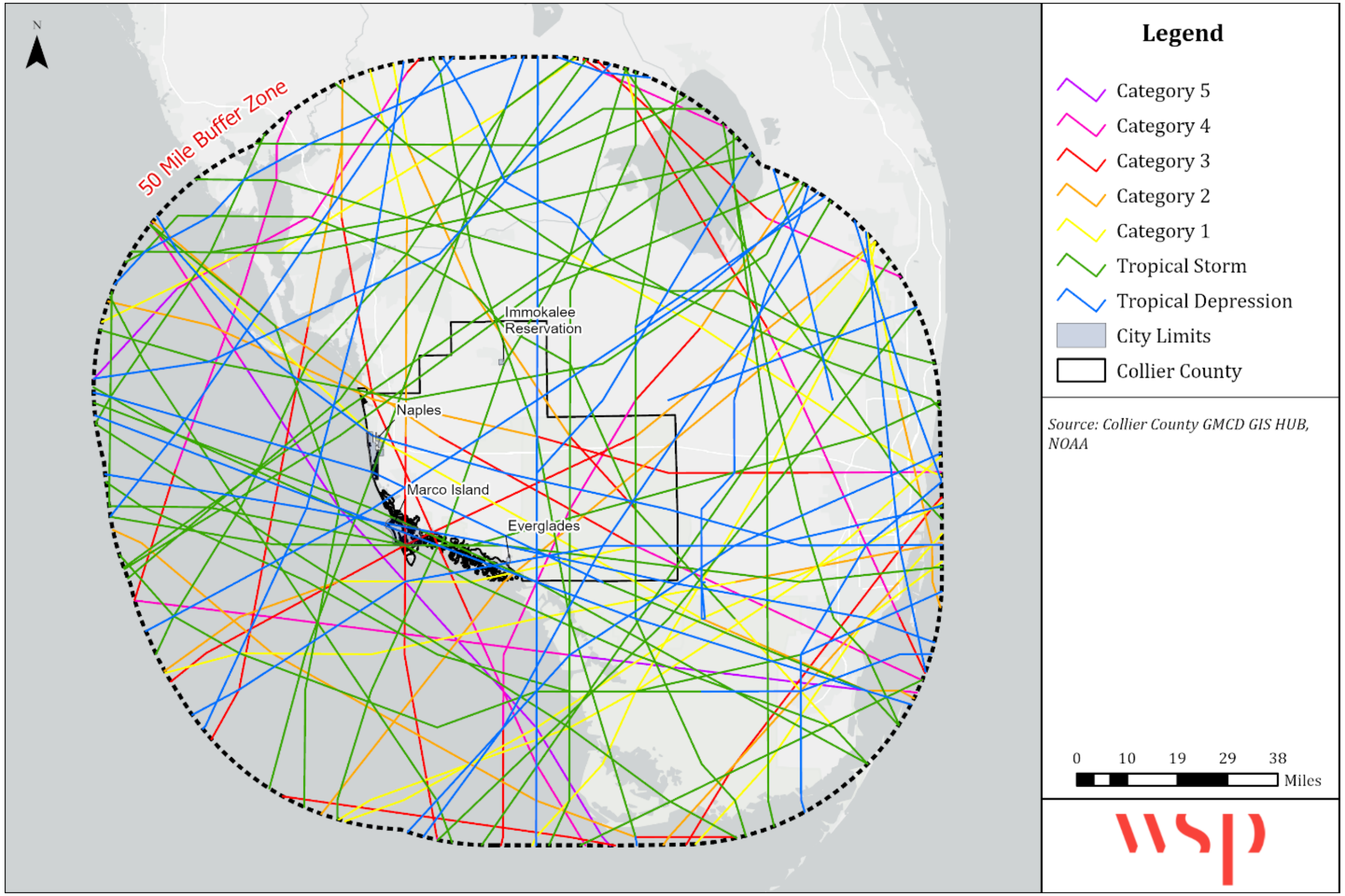
Stormwater/Localized Flooding

- 85 drainage problem areas
  - Some are being addressed by Public Utility Projects
- NCEI reports 16 flash flooding events
- Chronic problem with smaller spatial extent
  - Low level flooding/ponding issues



Hurricane & Tropical Storm

- NOAA Historical Hurricane Tracks (1900-2025): 84 within 50-mile buffer
- From 1995-2025, NCEI reports 45 hurricane & tropical storm events causing over $2.9 billion in property damages and 4 deaths
- Majority of disaster declarations and emergency declarations are hurricanes and tropical storms

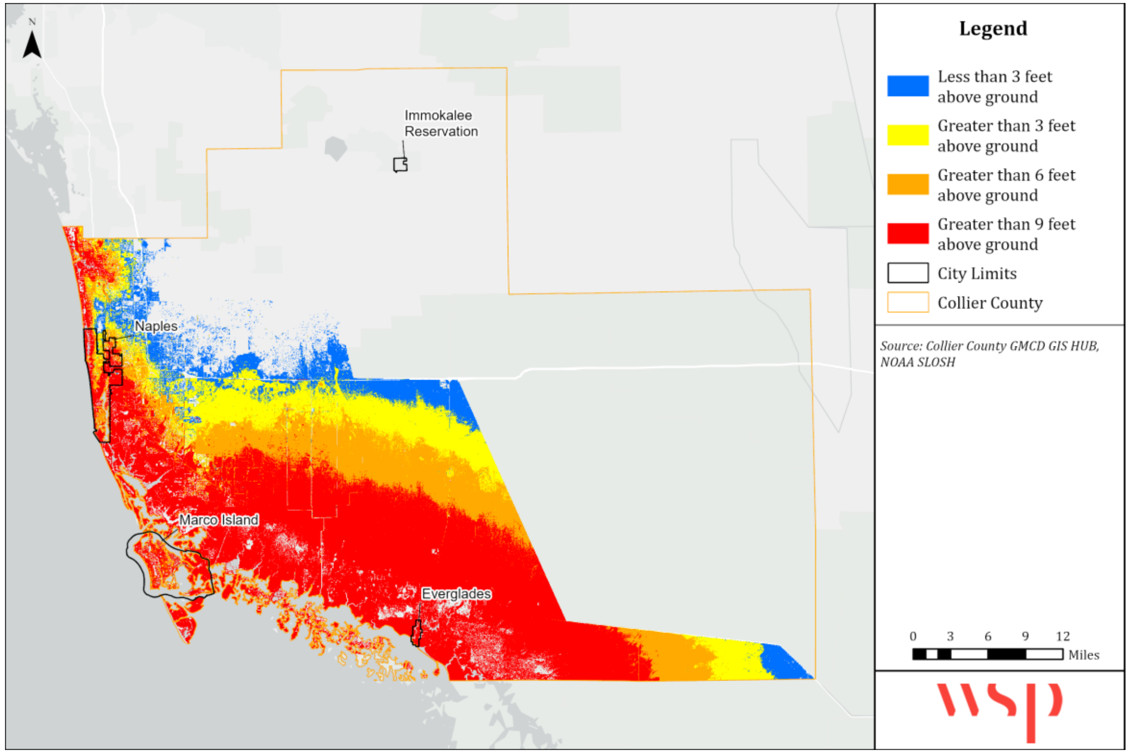


CAT 3

Hurricane & Tropical Storm

Occupancy	Buildings Affected by Storm Surge	Building Value	Estimated Content Value	Total Value
Category 1				
Agricultural	95	$12,936,304	$11,154,766	$24,091,071
Commercial	1,359	$4,334,493,026	$4,334,493,026	$8,668,986,052
Education	53	$236,552,251	$236,552,251	$473,104,502
Government	19	$116,460,110	$116,460,110	$232,920,220
Industrial	29	$41,948,568	$54,688,452	$96,637,020
Religious	44	$41,754,223	$41,227,959	$82,982,181
Residential	24,156	$21,529,014,798	$10,764,507,399	$32,293,522,197
Total	**25,755**	**$26,313,159,280**	**$15,559,083,963**	**$41,872,243,243**
Category 5				
Agricultural	402	$45,738,799	$34,080,209	$79,819,008
Commercial	4,769	$9,144,756,733	$9,144,756,733	$18,289,513,465
Education	297	$942,469,606	$934,684,648	$1,877,154,254
Government	67	$339,899,002	$338,530,448	$678,429,450
Industrial	340	$360,720,556	$430,251,630	$790,972,186
Religious	186	$392,176,347	$388,401,390	$780,577,737
Residential	111,635	$70,275,352,853	$35,137,676,427	$105,413,029,280
Total	**117,696**	**$81,501,113,897**	**$46,408,381,483**	**$127,909,495,380**

Source: Collier County parcel data, 2025; NOAA SLOSH



Facility Type	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Not at Risk
Communications	7	10	14	18	19	7
Energy	29	48	73	96	96	29
Food, Hydration, Shelter	7	14	21	29	29	7
Hazardous Materials	12	31	41	49	50	12
Health and Medical	12	28	36	41	41	12
Safety and Security	14	24	30	44	47	14
Transportation	4	6	8	9	9	4
Water Systems	7	12	13	22	22	7
Total	**92**	**173**	**236**	**308**	**313**	**92**

Source: SLOSH, FEMA, Collier County FMP Working Group

Sea Level Rise

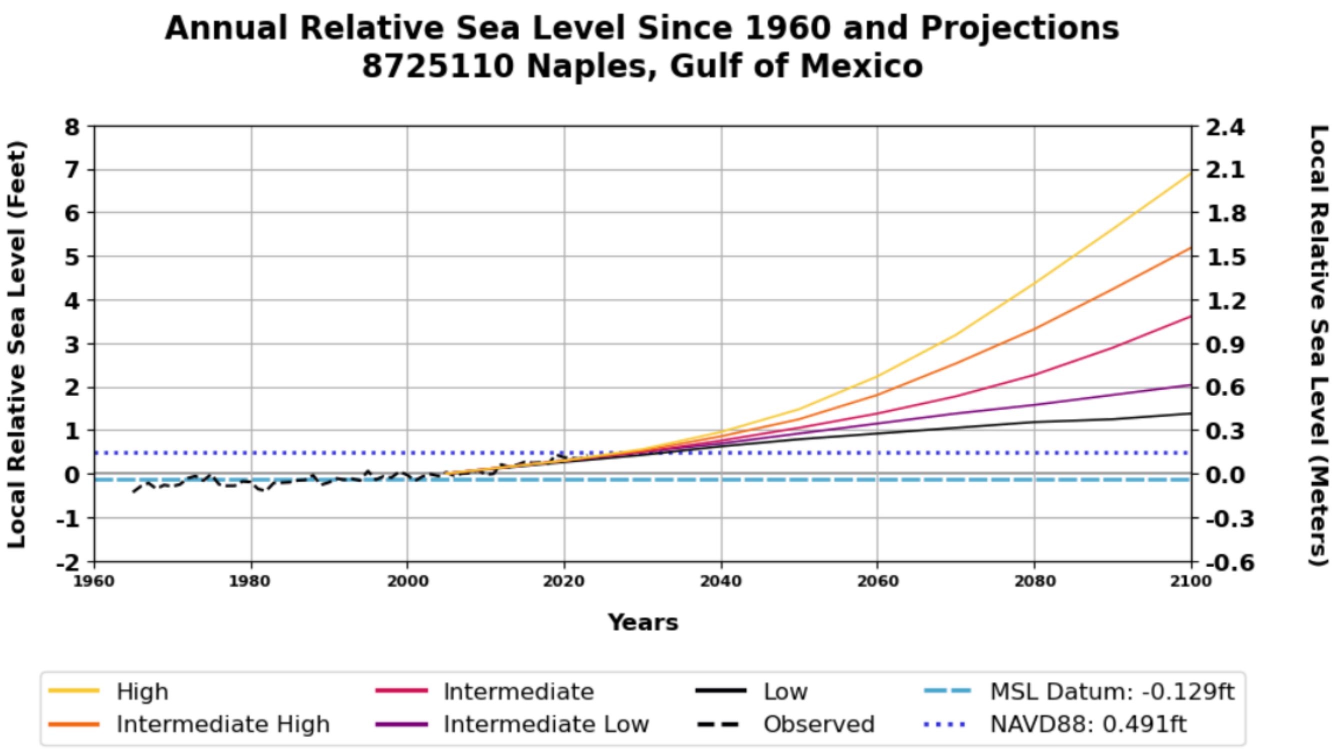
Sea level rise projections for the region, above 2000 mean sea level (MSL) (intermediate):

Short term: by 2040, ~ 0.82 feet above 2000 MSL.

Medium term: by 2060, ~ 1.44 feet above 2000 MSL

Long term: by 2100, ~ 3.67 feet above 2000 MSL

Note: 1 meter = 3.281 feet



Source: NOAA Tides and Currents

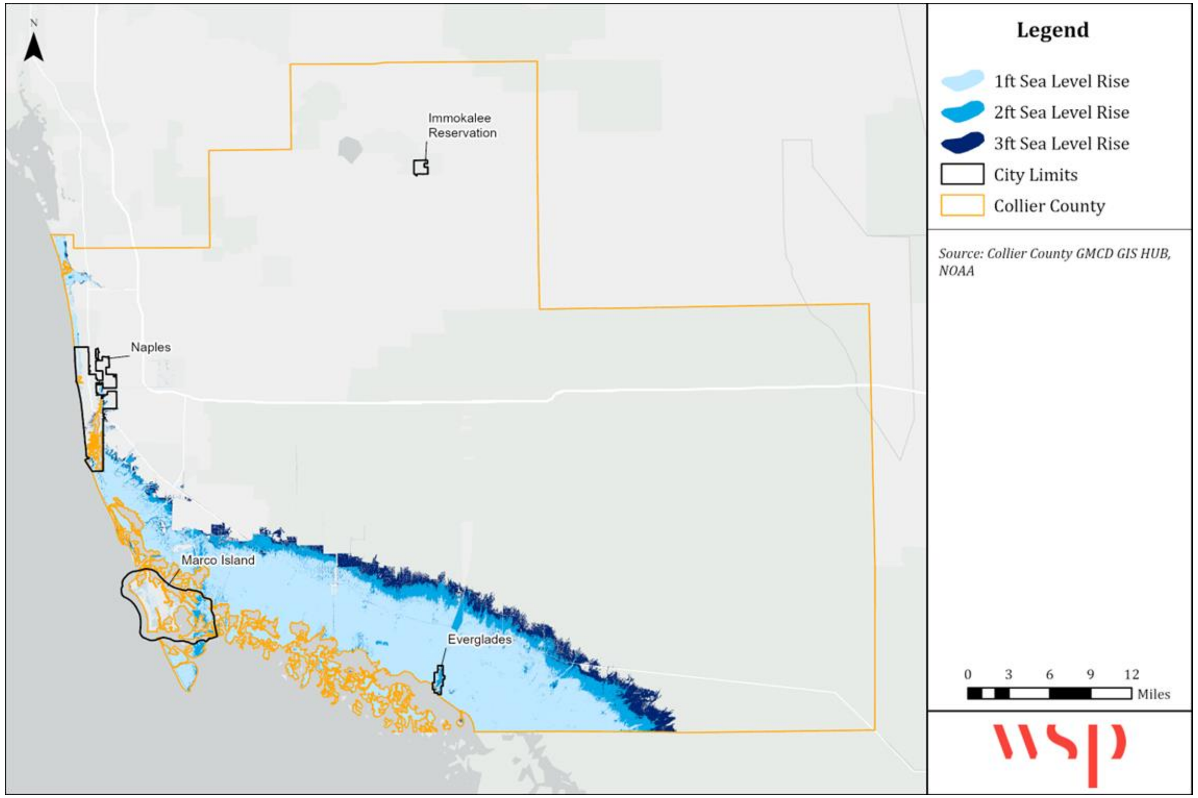
Sea Level Rise

Property Exposure to Sea Level Rise

Occupancy	Estimated Parcel Count	Structure Value	Estimated Content Value	Total Value
1-Foot SLR	**345**	**$413,698,312**	**$237,788,891**	**$651,487,204**
Commercial	37	$61,734,010	$61,734,010	$123,468,019
Government	1	$145,460	$145,460	$290,920
Residential	307	$351,818,843	$175,909,421	$527,728,264
2-Foot SLR	**804**	**$694,479,790**	**$383,619,469**	**$1,078,099,260**
Commercial	54	$72,613,688	$72,613,688	$145,227,377
Government	1	$145,460	$145,460	$290,920
Residential	749	$621,720,642	$310,860,321	$932,580,963
3-Foot SLR	**2,121**	**$1,528,074,455**	**$865,562,276**	**$2,393,636,731**
Agriculture	1	$40,649	$20,324	$60,973
Commercial	109	$177,335,483.9	$177,335,483.9	$354,670,968
Government	3	$166,338	$166,338	$332,676
Industrial	1	$12,690,359	$19,035,539	$31,725,898
Religious	2	$231,500	$199,528	$431,028
Residential	2,005	$1,337,610,126	$668,805,062.8	$2,006,415,188

Source: NOAA; Collier County Property Appraiser Parcel Data, 2025-2026

Note: each SLR category is cumulative



SURVEY UPDATE

Survey Update

16 responses so far

- 63% of respondents have been impacted by flooding
  - Impacted by Hurricanes Irma, Ian, Milton, Helene (66% of answers mentioned these storms)
  - Flooding from summer of 2024
  - Slow drainage causing road flooding
- 63% are somewhat concerned about flooding, 31% very concerned
- 56% have flood insurance
- 60% have not taken any actions to protect their homes
- Measures taken by those that have implemented protections:
  - Maintain driveway culvert
  - High impact windows and doors
  - Elevate home higher than minimum code
  - Sandbags
- Best way to reach residents: email, public workshops, mail, county website

Collier County, FL Floodplain Management Plan Public Survey

Another survey push!

NEXT STEPS

Project Schedule

March	**Project Kickoff Meetings** Working Group & Public Meetings
August	**Meeting 2** FMP Risk Assessment Review
September	**Meeting 3** FMP Capability & Mitigation Strategy
September	**Draft Plan Review Meetings** Working Group & Public Meetings
October	**Final Plan**

Next Steps

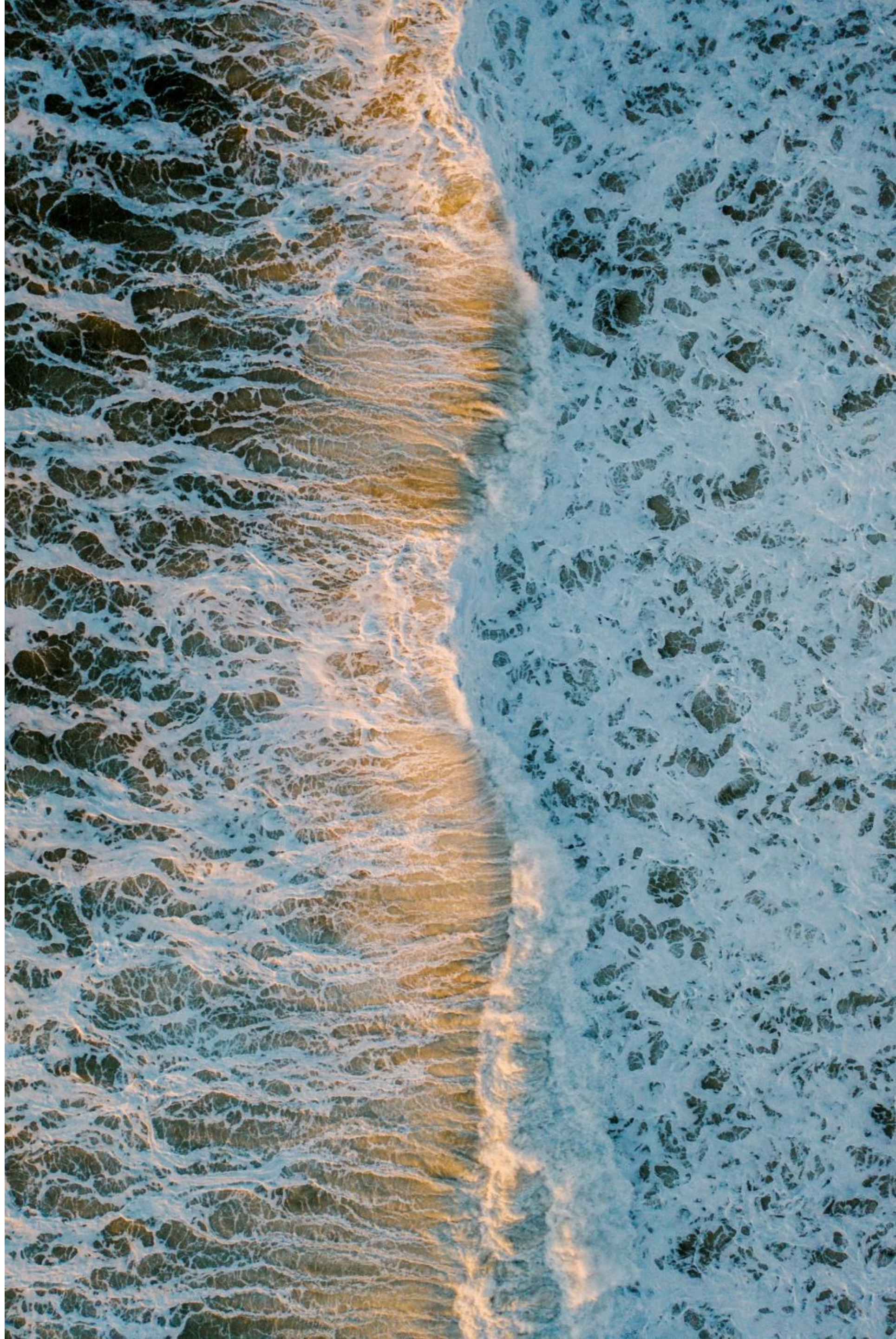
WSP team action item:

- WSP team will share draft HIRA and presentation and minutes for your review
- Schedule third Working Group meeting

Requests for FMPWG input:

- Share the public survey link/QR code
- Review draft HIRA once made available

www.CollierCountyFL-FMP.com



THANK YOU

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