



August 2023 Board Meeting

Table of Contents

Agenda	1
Approval of Minutes	3
June 12 th , 2023, Board Meeting	3
Financial Reports	5
July Financials	5
Grant Update	12
New Business	17
Executive Director Performance Review and Salary Adjustment	17
Rules of Procedure and Standard Operating Procedure Edit Summary	24
Rules of Procedure	25
Standard Operating Procedures	47
Comprehensive Plan	66
Vulnerability Analysis	83

Please follow page numbers on top right corner



Board Meeting Agenda

Date: Monday, August 7th, 2023

Time: 1:00 P.M.

Location: <https://us02web.zoom.us/j/88112416447>

Telephone: +1 (305) 224-1968

- 1. Call to Order**
- 2. Roll Call**
- 3. Approval of Minutes**
 - A. June 12th, 2023 Board Meeting
- 4. General Public Comments – Limit 3 minutes per person**
- 5. Changes to the Agenda**
- 6. Financial Reports**
 - A. WWRE
 - B. Grant Update
- 7. Old Business**
 - A. APTIM Update
 - B. Becker Update
 - C. Phase 2 Coastal Resiliency Update
- 8. New Business**
 - A. Executive Director Performance Review and Salary Adjustment
 - B. Budget Hearing Dates
 - C. Rules of Procedure
 - D. Standard Operating Procedures Review
 - E. CEPD Comprehensive Plan Review
- 9. Administrative Update**
- 10. Commissioner Comments**
- 11. Adjournment**

In accordance with the Americans with Disability Act and F.S. 286.26; any person with a disability requiring any additional reasonable accommodation to participate in this meeting should call the CEPD office at phone 239.472.2472 or email a written request to mycepd@mycepd.com. One or more elected or appointed local government officials, including but not limited to the Captiva Erosion Prevention District, may be in attendance at this meeting. Any person who decides to appeal any decision of the Board of Commissioners with respect to any matter considered at this meeting will need a record of the proceedings and for such purposes may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The law

does not require the CEPD to transcribe verbatim minutes; therefore, the applicant must make the necessary arrangements with a private reporter or private reporting firm and bear the resulting expense.



June 2023 Board Meeting Minutes

1. Call to Order – See Video (00:00:00)

Chairman Walter called to order the June Board Meeting for the Captiva Erosion Prevention District at approximately 1 p.m. on June 12th, 2023.

2. Roll Call – See Video (00:00:15)

Commissioners:

- Seat 1, Linda Laird, Secretary (Present)
- Seat 2, Rene Miville, Commissioner (Present)
- Seat 3, Bob Walter, Chairman (Present)
- Seat 4, John Silvia, Vice Chairman (Not Present for Roll)
- Seat 5, Richard Pyle, Treasurer (Not Present for Roll)

CEPD Staff:

- Daniel Munt, Executive Director (Present)
- John Riegert, Deputy Director (Present)
- Ralf Brookes, CEPD Attorney (Present)

3. Approval of Minutes – See Video (00:00:40)

- A. May 8th, 2023, Board Meeting
- B. May 17th 2023, Special Board Meeting

Commissioner Laird made a motion to approve the minutes and Commissioner Miville seconded the motion. The motion passed unanimously.

4. General Public Comments – See Video (00:01:40)

Jon Rosen entered a comment for the record.

5. Changes to the Agenda – See Video (00:04:20)

Executive Director Munt asked for the Becker Update be performed before the Aptim Update as he will provide the Aptim Update by proxy.

6. Financial Reports – See Video (00:05:00)

Executive Director munt provided an update on the financials and current status of CEPD grants.

7. Old Business – See Video (00:32:40)

- A. Becker Update
Nicholas Matthews provided an update for the lobbying efforts of the CEPD.

B. APTIM Update

Executive Director Munt provided an update on the engineering activities for the CEPD.

C. Phase 2 Coastal Resiliency RFP Update

Commissioner Laird and Coastal Resiliency Manager Schuman provided an update on the status of the RFP.

8. New Business – See Video (00:51:40)

A. Mobile Equipment

Commissioner Miville motioned the purchase of mobile equipment for the office NTE \$3,200. Chairman Walter seconded the motion. Discussion was held. The motion passed 3-0.

9. Administrative Update – See Video (01:00:15)

Executive Director Munt updated the board on the administrative actions taken.

10. Commissioner Comments – See Video (01:01:15)

No Commissioner Comments were made.

11. Adjournment – See Video (01:02:15)

Chairman Walter adjourned the meeting.

In accordance with the Americans with Disability Act and F.S. 286.26; any person with a disability requiring any additional reasonable accommodation to participate in this meeting should call the CEPD office at phone 239.472.2472 or email a written request to mycepd@mycepd.com. One or more elected or appointed local government officials, including but not limited to the Captiva Erosion Prevention District, may be in attendance at this meeting. Any person who decides to appeal any decision of the Board of Commissioners with respect to any matter considered at this meeting will need a record of the proceedings and for such purposes may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The law does not require the CEPD to transcribe verbatim minutes; therefore, the applicant must make the necessary arrangements with a private reporter or private reporting firm and bear the resulting expense.

Captiva Erosion Prevention District
General Fund - Budget Performance Summary
For the Ten Months Ended July 31, 2023

Prepared by: JS

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Actual - July '23	Budget - July '23	Actual - July '22	Budget - July '22	Actual YTD	YTD Budget	YTD Variance	Annual Budget	Residual Budget
Ordinary Income/Expense									
Income									
Ad Valorem Tax	\$ -	\$ -	\$ 10,065.37	\$ 54,245.75	\$ 630,571.03	\$ 650,950.00	\$ (20,378.97)	\$ 650,950.00	\$ 20,378.97
Interest Income	1,411.91	12.50	7.17	12.50	3,284.58	125.00	3,159.58	150.00	(3,134.58)
Other Income	771.77	416.67	200.00	416.67	4,987.95	4,166.67	821.28	5,000.00	12.05
Total Income	2,183.68	429.17	10,272.54	54,674.92	638,843.56	655,241.67	(16,398.11)	656,100.00	17,256.44
Expense									
Administrative Expenses	3,776.29	7,916.67	1,330.07	7,312.49	61,218.94	79,166.67	17,947.73	95,000.00	33,781.06
Cost of Collecting Ad Valorem	0.00	1,708.33	0.00	1,625.00	12,541.94	17,083.33	4,541.39	20,500.00	7,958.06
Wages	9,970.52	12,500.00	14,088.90	14,666.67	103,980.70	125,000.00	21,019.30	150,000.00	46,019.30
Professional Fees	1,550.00	2,916.67	1,400.00	3,416.67	26,375.00	29,166.67	2,791.67	35,000.00	8,625.00
Reserves Transfer	7,037.50	7,037.50	7,037.50	7,037.50	70,375.00	70,375.00	0.00	84,450.00	14,075.00
Total Expense	22,334.31	32,079.17	23,856.47	34,058.33	274,491.58	320,791.67	46,300.09	384,950.00	110,458.42
Net Income	<u>\$ (20,150.63)</u>	<u>\$ (31,650.00)</u>	<u>\$ (13,583.93)</u>	<u>\$ 20,616.59</u>	<u>\$ 364,351.98</u>	<u>\$ 334,450.00</u>	<u>\$ 29,901.98</u>	<u>\$ 271,150.00</u>	<u>\$ (93,201.98)</u>

Cash basis- omitted all note disclosures
No assurance is provided on these financial statements.

Captiva Erosion Prevention District
General Fund - Budget Performance Detail
For the Ten Months Ended July 31, 2023

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Actual - July '23	Budget - July '23	Actual - July '22	Budget - July '22	Actual YTD	YTD Budget	YTD Variance	Annual Budget	Residual Budget
Ordinary Income/Expense									
Income									
Ad Valorem Tax	0.00	0.00	10,065.37	54,245.75	630,571.03	650,950.00	(20,378.97)	650,950.00	20,378.97
Interest Income	1,411.91	12.50	7.17	12.50	3,284.58	125.00	3,159.58	150.00	(3,134.58)
Other Income	771.77	416.67	200.00	416.67	4,987.95	4,166.67	821.28	5,000.00	12.05
Total Income	2,183.68	429.17	10,272.54	54,674.92	638,843.56	655,241.67	(16,398.11)	656,100.00	17,256.44
Expense									
Administrative Expenses									
Advertising	22.17	1,250.00	106.96	1,333.33	595.80	12,500.00	11,904.20	15,000.00	14,404.20
Service Charges	340.44	250.00	118.49	83.33	2,397.65	2,500.00	102.35	3,000.00	602.35
Board Meeting Expenses	0.00	83.33	0.00	83.33	504.64	833.33	328.69	1,000.00	495.36
Dues and Subscriptions	0.00	625.00	0.00	416.67	7,505.00	6,250.00	(1,255.00)	7,500.00	(5.00)
Insurance	0.00	1,416.67	0.00	583.33	14,655.00	14,166.67	(488.33)	17,000.00	2,345.00
Office Expense	1,553.70	833.33	0.00	1,729.17	12,717.43	8,333.33	(4,384.10)	10,000.00	(2,717.43)
Postage	0.00	41.67	0.00	41.67	0.00	416.67	416.67	500.00	500.00
Rent Expense	1,170.48	1,250.00	1,104.62	1,250.00	9,889.01	12,500.00	2,610.99	15,000.00	5,110.99
Repairs	12.68	83.33	0.00	83.33	50.98	833.33	782.35	1,000.00	949.02
Travel and Per Diem	0.00	833.33	0.00	625.00	1,768.00	8,333.33	6,565.33	10,000.00	8,232.00
Telephone	278.71	250.00	0.00	208.33	2,287.70	2,500.00	212.30	3,000.00	712.30
Utilities	398.11	333.33	0.00	208.33	3,600.03	3,333.33	(266.70)	4,000.00	399.97
Website & Computer Maintenance	0.00	666.67	0.00	666.67	5,247.70	6,666.67	1,418.97	8,000.00	2,752.30
Total Administrative expenses	3,776.29	7,916.67	1,330.07	7,312.49	61,218.94	79,166.67	17,947.73	95,000.00	33,781.06
Wages and Professional Fees									
Wages	9,970.52	12,500.00	14,088.90	14,666.67	103,980.70	125,000.00	21,019.30	150,000.00	46,019.30
Professional Fees	1,550.00	2,916.67	1,400.00	3,416.67	26,375.00	29,166.67	2,791.67	35,000.00	8,625.00
Total Legal and Professional Fees	11,520.52	15,416.67	15,488.90	18,083.34	130,355.70	154,166.67	23,810.97	185,000.00	54,644.30
Cost of Collecting Ad Valorem									
Property Tax Appraiser Fees	0.00	416.67	0.00	458.33	0.00	4,166.67	4,166.67	5,000.00	5,000.00
Tax Collector Commissions	0.00	1,291.67	0.00	1,166.67	12,541.94	12,916.67	374.73	15,500.00	2,958.06
Total Cost of Collecting Ad Valorem	0.00	1,708.33	0.00	1,625.00	12,541.94	17,083.33	4,541.39	20,500.00	7,958.06
Reserves									
Operating Reserves Transfers	7,037.50	7,037.50	7,037.50	7,037.50	70,375.00	70,375.00	0.00	84,450.00	14,075.00
Total Expense	22,334.31	32,079.17	23,856.47	34,058.33	274,491.58	320,791.67	46,300.09	384,950.00	110,458.42
Net Income	\$ (20,150.63)	\$ (31,650.00)	\$ (13,583.93)	\$ 20,616.59	\$ 364,351.98	\$ 334,450.00	\$ 29,901.98	\$ 271,150.00	\$ (93,201.98)

Cash basis - omitted all note disclosures
No assurance is provided on these financial statements.

2:50 PM
8/3/2023
Prepared: JS

Captiva Erosion Prevention District
Capital Projects Fund - Budget Performance Summary
For the Ten Months Ended July 31, 2023

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Actual - July '23	Budget - July '23	Actual - July '22	Budget - July '22	YTD Actual	YTD Budget	YTD Variance	Annual Budget	Residual Budget
Ordinary Income/Expense									
Income									
Grant Income	\$ 3,826,043.24	\$ 523,333.33	\$ -	\$ 932,250.00	\$ 9,975,396.39	\$ 6,100,000.00	\$ 3,875,396.39	\$ 6,280,000.00	\$ (3,695,396.39)
Interest Income	4,658.81	83.33	5.13	2,250.00	123,528.20	750.00	122,778.20	1,000.00	(122,528.20)
Other Miscellaneous Income	9,101.81	83.33	0.00	83.33	10,846.40	750.00	10,096.40	1,000.00	(9,846.40)
Parking Lot Revenue	26,845.55	0.00	71,256.86	70,833.33	85,408.47	0.00	85,408.47	360,000.00	274,591.53
Reserves - General	7,037.50	7,037.50	7,037.50	7,037.50	70,375.00	63,337.50	7,037.50	84,450.00	14,075.00
Special Assessments	0.00	191,666.67	0.00	0.00	2,901,730.18	2,300,000.00	601,730.18	2,300,000.00	(601,730.18)
Total Income	3,873,686.91	722,204.17	78,299.49	1,012,454.16	13,167,284.64	8,464,837.50	4,702,447.14	9,026,450.00	(4,140,834.64)
Expense									
General Expenses	1,565.36	3,458.33	1,104.61	4,916.66	17,441.89	31,125.00	13,683.11	41,500.00	24,058.11
Parking Lot	7,375.23	9,625.00	8,145.53	17,062.51	41,636.05	86,625.00	44,988.95	115,500.00	73,863.95
Wages	14,987.24	16,666.67	14,088.86	23,512.50	119,128.43	150,000.00	30,871.57	200,000.00	80,871.57
Professional Fees	1,550.00	9,166.67	19,400.00	15,416.67	80,510.00	82,500.00	1,990.00	110,000.00	29,490.00
Capital Projects	0.00	59,583.33	0.00	1,168,790.42	246,522.89	536,250.00	289,727.11	715,000.00	468,477.11
Debt Service	0.00	232,979.08	0.00	0.00	2,793,984.31	2,795,749.00	1,764.69	2,795,749.00	1,764.69
Total Expense	25,477.83	331,479.08	42,739.00	1,229,698.76	3,299,223.57	3,682,249.00	383,025.43	3,977,749.00	678,525.43
Net Income	<u>\$ 3,848,209.08</u>	<u>\$ 390,725.08</u>	<u>\$ 35,560.49</u>	<u>\$ (217,244.60)</u>	<u>\$ 9,868,061.07</u>	<u>\$ 4,782,588.50</u>	<u>\$ 5,085,472.57</u>	<u>\$ 5,048,701.00</u>	<u>\$ (4,819,360.07)</u>

Cash basis - omitted all note disclosures
No assurance is provided on these financial statements.

8/3/2023
2:50 PM
Prepared: JS

Captiva Erosion Prevention District
Capital Projects Fund - Budget Performance Detail
For the Ten Months Ended July 31, 2023

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	Actual - July '23	Budget - July '23	Actual - July '22	Budget - July '22	YTD Actual	YTD Budget	YTD Variance	Annual Budget	Residual Budget
Ordinary Income/Expense									
Income									
Grant Income - Local	\$ -	\$ 448,333.33	\$ -	\$ 488,083.33	\$ 5,250,909.12	\$ 5,200,000.00	\$ 50,909.12	\$ 5,380,000.00	\$ 129,090.88
Grant Income - State	3,826,043.24	75,000.00	0.00	344,166.67	4,724,487.27	900,000.00	3,824,487.27	900,000.00	(3,824,487.27)
Grant Income - Federal (FEMA)	0.00	0.00	0.00	100,000.00	0.00	0.00	0.00	0.00	0.00
Interest Income	4,658.81	83.33	5.13	2,250.00	123,528.20	750.00	122,778.20	1,000.00	(122,528.20)
Other Miscellaneous Revenues	9,101.81	83.33	0.00	83.33	10,846.40	750.00	10,096.40	1,000.00	(9,846.40)
Parking Lot Revenue	26,845.55	0.00	71,256.86	70,833.33	85,408.47	0.00	85,408.47	360,000.00	274,591.53
General Reserves	7,037.50	7,037.50	7,037.50	7,037.50	70,375.00	63,337.50	7,037.50	84,450.00	14,075.00
Special Assessments	0.00	191,666.67	0.00	0.00	2,901,730.18	2,300,000.00	601,730.18	2,300,000.00	(601,730.18)
Total Income	3,873,686.91	722,204.17	78,299.49	1,012,454.16	13,167,284.64	8,464,837.50	4,702,447.14	9,026,450.00	(4,140,834.64)
Expense									
Advertising	0.00	0.00	0.00	833.33	0.00	0.00	0.00	0.00	0.00
Dues & Subscriptions	0.00	0.00	0.00	416.67	500.00	0.00	(500.00)	0.00	(500.00)
Service Charges	108.88	41.67	0.00	83.33	408.79	375.00	(33.79)	500.00	91.21
Cost of Assessment Collections	0.00	833.33	0.00	83.33	1,563.10	7,500.00	5,936.90	10,000.00	8,436.90
Insurance	0.00	416.67	0.00	583.33	4,795.00	3,750.00	(1,045.00)	5,000.00	205.00
Office Expenses	286.01	83.33	0.00	1,666.67	286.01	750.00	463.99	1,000.00	713.99
Rent	1,170.47	1,250.00	1,104.61	1,250.00	9,888.99	11,250.00	1,361.01	15,000.00	5,111.01
Beach Vehicle	0.00	833.33	0.00	0.00	0.00	7,500.00	7,500.00	10,000.00	10,000.00
Total General Expense	1,565.36	3,458.33	1,104.61	4,916.66	17,441.89	31,125.00	13,683.11	41,500.00	24,058.11
Parking Lot Expenses									
Parking Collection Fees	32.95	1,500.00	32.95	1,916.67	1,418.73	13,500.00	12,081.27	18,000.00	16,581.27
Parking Maintenance	250.00	1,250.00	3,693.00	2,916.67	8,230.00	11,250.00	3,020.00	15,000.00	6,770.00
Portable Toilets	5,402.88	5,000.00	0.00	7,500.00	22,199.52	45,000.00	22,800.48	60,000.00	37,800.48
Signage	0.00	0.00	0.00	41.67	50.00	0.00	(50.00)	0.00	(50.00)
Utilities	0.00	0.00	197.18	83.33	0.00	0.00	0.00	0.00	0.00
Sales Tax Expense	1,689.40	1,875.00	4,222.40	4,604.17	9,737.80	16,875.00	7,137.20	22,500.00	12,762.20
Total Parking Lot Expenses	7,375.23	9,625.00	8,145.53	17,062.51	41,636.05	86,625.00	44,988.95	115,500.00	73,863.95
Wages and Professional Fees									
Wages	14,987.24	16,666.67	14,088.86	23,512.50	119,128.43	150,000.00	30,871.57	200,000.00	80,871.57
Professional Fees	1,550.00	9,166.67	19,400.00	15,416.67	80,510.00	82,500.00	1,990.00	110,000.00	29,490.00
Total Wages and Professional Fees	16,537.24	25,833.33	33,488.86	38,929.17	199,638.43	232,500.00	32,861.57	310,000.00	110,361.57
Capital Projects									
Project Expenses	0.00	51,250.00	0.00	1,168,790.42	171,522.89	461,250.00	289,727.11	615,000.00	443,477.11
Grants to other agencies	0.00	8,333.33	0.00	0.00	75,000.00	75,000.00	0.00	100,000.00	25,000.00
Total Capital Projects	0.00	59,583.33	0.00	1,168,790.42	246,522.89	536,250.00	289,727.11	715,000.00	468,477.11
Debt Service									
Interest	0.00	31,940.83	0.00	0.00	381,563.30	383,290.00	1,726.70	383,290.00	1,726.70
Principal	0.00	201,038.25	0.00	0.00	2,412,421.01	2,412,459.00	37.99	2,412,459.00	37.99
Total Debt Service	0.00	232,979.08	0.00	0.00	2,793,984.31	2,795,749.00	1,764.69	2,795,749.00	1,764.69
Total Expense	25,477.83	331,479.08	42,739.00	1,229,698.76	3,299,223.57	3,682,249.00	383,025.43	3,977,749.00	678,525.43
Net Income	3,848,209.08	390,725.08	35,560.49	(217,244.60)	9,868,061.07	4,782,588.50	5,085,472.57	5,048,701.00	(4,819,360.07)

Cash basis - omitted all note disclosures.
No assurance is provided on these financial statements.

	<u>July 31, 2023</u>	<u>July 31, 2022</u>
ASSETS		
Current Assets		
Checking/Savings		
BOTI Checking	\$ 112,446.05	\$ 404,936.04
Fifth Third Checking	23,144.04	-
Fifth Third Savings	568,260.40	-
Total Checking/Savings	<u>703,850.49</u>	<u>404,936.04</u>
Other Current Assets		
Due from Capital Projects Fund	-	293,188.46
Total Other Current Assets	<u>-</u>	<u>293,188.46</u>
Total Current Assets	<u>703,850.49</u>	<u>698,124.50</u>
TOTAL ASSETS	<u>\$ 703,850.49</u>	<u>\$ 698,124.50</u>
LIABILITIES & EQUITY		
Liabilities		
Current Liabilities		
Other Current Liabilities		
Accrued Liabilities	234.94	1,193.93
Due to Capital Projects Fund	29,927.96	-
Total Other Current Liabilities	<u>30,162.90</u>	<u>1,193.93</u>
Total Current Liabilities	<u>30,162.90</u>	<u>1,193.93</u>
Total Liabilities	30,162.90	1,193.93
Equity		
Fund Balance	309,335.61	347,944.30
Net Income	364,351.98	348,986.27
Total Equity	<u>673,687.59</u>	<u>696,930.57</u>
TOTAL LIABILITIES & EQUITY	<u>\$ 703,850.49</u>	<u>\$ 698,124.50</u>

	<u>July 31, 2023</u>	<u>July 31, 2022</u>		
ASSETS				
Current Assets				
Checking/Savings				
BOTI Checking	\$ 59,590.78	\$ 321,120.07		
Fifth Third Checking	70,602.64	-		
Fifth Third Savings	4,232,362.30	-		
Fifth Third Investments Money Market Account	71,687.88	2,876,104.18		
Fifth Third Treasury Bill- Maturity Date 4/15/24	2,929,166.44	-		
Fifth Third Treasury Bill- Maturity Date 4/15/25	2,497,953.86	-		
Fifth Third Treasury Bill- Maturity Date 4/30/26	2,499,925.86	-		
Fifth Third Treasury Bill- Maturity Date 3/15/26	758,687.95	-		
Total Current Assets	<u>13,119,977.71</u>	<u>3,197,224.25</u>		
Other Current Assets				
Utility Deposit	300.00	300.00		
Due From General Fund	29,927.96	-		
Total Other Current Assets	<u>30,227.96</u>	<u>300.00</u>		
Total Current Assets	<u>13,150,205.67</u>	<u>3,197,524.25</u>		
TOTAL ASSETS	<u><u>\$ 13,150,205.67</u></u>	<u><u>\$ 3,197,524.25</u></u>		
LIABILITIES & EQUITY				
Liabilities				
Current Liabilities				
Due to General Fund	<u>\$ -</u>	<u>\$ 293,188.46</u>		
Equity				
Accumulated Reserves	1,083,137.00	2,904,336.18		
Fund Balance	2,199,007.60	13,703,602.42		
Net Income	9,868,061.07	(13,703,602.81)		
Total Equity	<u>13,150,205.67</u>	<u>2,904,335.79</u>		
TOTAL LIABILITIES & EQUITY	<u><u>\$ 13,150,205.67</u></u>	<u><u>\$ 3,197,524.25</u></u>		
Loan Balance:				
Principal and Interest Payment Due May 1st 2024	\$ 15,587,541.47			
Interest Payment Due November 1st 2023	2,628,830.59			
	165,227.94			
Treasury Bills:				
	<u>Purchase Price</u>	<u>Value at Maturity</u>	<u>Interest paid twice a year</u>	<u>Total Gain</u>
4/15/2024-	\$2,929,166.44	3,075,000.00	5,765.53	163,130.15
4/15/2025-	\$2,497,953.86	2,542,000.00	33,363.75	210,864.89
4/30/2026-	\$2,499,925.86	2,588,000.00	30,732.50	303,201.64
3/15/2026-	\$758,687.95	733,000.00	16,950.63	76,015.83
				<u>753,212.51</u>

CAPTIVA EROSION PREVENTION DISTRICT RESERVE ACCUMULATIONS FISCAL YEAR ENDING 9/30/2023												
	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23
Beginning Balance	\$ 2,914,929	\$ 921,966	\$ 929,004	\$ 936,041	\$ 943,079	\$ 950,116	\$ 957,154	\$ 977,672	\$ 1,019,641	\$ 1,049,254	\$ 1,083,137	\$ 1,083,137
Reserves Transferred In												
Parking Revenue	-	-	-	-	-	-	13,481	34,931	22,576	26,846		
Operating Reserves	7,037	7,038	7,037	7,038	7,037	7,038	7,037	7,038	7,037	7,037		
2021 Project Contribution	(2,000,000)	-	-	-	-	-	-	-	-	-		
Increase (Decrease) in Reserves	(1,992,963)	7,038	7,037	7,038	7,037	7,038	20,518	41,969	29,613	33,883	-	-
Total Accumulated Reserves	\$ 921,966	\$ 929,004	\$ 936,041	\$ 943,079	\$ 950,116	\$ 957,154	\$ 977,672	\$ 1,019,641	\$ 1,049,254	\$ 1,083,137	\$ 1,083,137	\$ 1,083,137

Cash basis - omitted all note disclosures
No assurance is provided on these financial statements.

CEPD Grant
Status
Update



Captiva

Erosion Prevention District

FEMA Funding

- ▶ PW 361 (Hurricane Irma) –
 - Closed out
 - \$945,730.55 paid

- ▶ PW 6059 (Direct Administrative Costs – Hurricane Irma)
 - Closed out
 - \$54,094.57 Paid

State Funding FDEP

- ▶ **19LE4 – Hurricane Irma**
 - Anticipated payout estimated \$250,000
 - Submission is under review

- ▶ **21LE1 – Construction**
 - \$3,826,043.24 Paid
 - Remainder submission available for future reimbursement

State Funding Legislative Appropriations

- ▶ **Legislative Appropriations Requests - Under Review**
 - Dune Walkovers - \$500,000
 - Beach Vehicle - \$36,000
 - Loss of Revenue - \$650,000

- ▶ **Legislative Appropriations Requests - On Hold**
 - Beach Nourishment - \$6,886,464 (52% of estimated costs)

- ▶ **Legislative Appropriations Requests Awaiting Contract**
 - Coastal Resiliency Phase 2 - \$400,000

Local Funding

▶ **Lee County Inter Local Agreement**

- Beach Nourishment – 30.15%
- \$5,196,814 Received 1/11/23

▶ **Tourist Development Council**

- Beach Park Maintenance up to \$192,160
- Beach Vehicle Replacement up to \$10,299
- Beach Park Upgrades up to \$231,000

- Beach Park Maintenance Request Next Fiscal Year up to \$261,482.



MEMORANDUM

TO: Captiva Erosion Prevention District Commissioners
FROM: Daniel Munt
DATE: June 30, 2023
SUBJECT: 2022/2023 Executive Director Performance Evaluation Notable Accomplishments

In preparation for my upcoming 2022/2023 performance evaluation this July, I wanted to highlight a few of the many noteworthy accomplishments my staff and I completed this past year, given the unprecedented challenges caused by the persistence of inflation and Hurricane Ian's impacts.

District Operation, Commission Meetings, and Communications

- Presented at the FSBPA on the successful strategies and implementation of the Captiva Island Beach Nourishment program and its resiliency following Hurricane Ian.
- Presented at the Captiva Town Hall meeting to discuss the importance of beach restoration and the positive effects it had on the island of Captiva related to Hurricane Ian.
- Coordinated and conducted an immediate post-storm beach inspection following Hurricane Ian.
- Nominated to serve on Lee County's Coastal Advisory Committee.
- Implemented the District's budget and operations in full public transparency.
- Planned, scheduled, and executed commission meetings and budget hearings to accommodate public participation in meetings.
- Kept the board informed specific to the 2023/2024 legislative session and potential legislation items core to the district's mission, programs, and funding sources.
- Facilitated apportionment payments in full for the property owners on Captiva.
- Generated an amortization schedule for the remainder of property owners for the apportionment assessment.
- Ensured timely communication between property owners and the Property Appraiser's office for properties that had overpaid the Property Appraiser's office and were due a refund.

Grant Funding

- Responsible for the district receiving \$6,142,544.55 in reimbursement grant funding related to the 2021 beach nourishment project from FEMA and Lee County.
- Initiated a request for obligated funds of an estimated \$4.25 million in reimbursement grant funding from FDEP.
- Integral in the application and approval of \$400,000 Legislative Appropriations grant for phase 2 of the CEPD's island-wide coastal resiliency efforts.
- Initiated application for beach nourishment funding from Legislative Appropriations grant for \$6,886,464 – which is approved, subject to Army Corps of Engineers participation.
- Made an application for additional funding from FDEM DEMES for dune walkovers (\$500,000) to reinforce and strengthen Captiva's dune system.
- Received reimbursement grant funding approval from the Lee County Tourist Development Council for beach park maintenance in the amount not to exceed \$261,482.
- Submitted FEMA application for grant funding proportionate to the loss of beach access dune fencing and parking lot repairs.



Major Projects

- Provided oversight to the proposal and completion of the Phase 1 coastal resiliency analysis performed by Aptim.
- Re-opened the Alison Hagerup parking lot within 6 months of Hurricane Ian.
- Completed the permit required tilling and leveling of all beaches on Captiva.
- Made application to both the Army Corps of Engineers and FEMA for beach nourishment following Hurricane Ian.

Directly related to and resulting from the accomplishments over this past year, CEPD staff continue to successfully and strategically position the district to efficiently implement its core charter functions. Additionally, staff has effectively increased the opportunities to procure district funding through grants, interagency partnerships, and Legislative Appropriations.

For my 2022/2023 performance evaluation, I respectfully request a general wage increase that considers a fair cost of living adjustment and a merit raise that is commensurate to my performance and colleagues in similarly placed executive-level positions.

To assist in determining an equitable salary adjustment, I have provided the salary adjustment recommendation from the Sebastian Inlet District, along with the compensation analysis utilized to aid their decision. This analysis concluded that a 2022 competitive salary range would be \$149,305-\$179,305 annually. In addition to the compensation analysis, Florida Inland Navigation District publishes a salary of \$125,000 - \$159,500 for their Assistant Executive Director and a salary of \$210,500 for their Executive Director positions.

I am requesting the board's consideration of a salary increase reflective of a 5% performance-based increase of my current base annual salary of \$130,000 and a 10% cost of living adjustment to my total annual salary and stipends.

Thank you for your consideration,

Daniel Munt

Daniel Munt

Executive Director, CEPD

From: [Richard Pyle](#)
To: [Daniel Munt](#)
Subject: Re: Executive Director Performance Evaluation Discussion with Comparable to Sebastian Inlet District
Date: Tuesday, July 25, 2023 3:12:25 PM

Daniel

In my opinion, you have been doing a very good job with all of your responsibilities. I would be ok with your salary request.

dick pyle

From: Daniel Munt <dmunt@mycepd.com>
Sent: Tuesday, July 25, 2023 10:44 AM
To: richardepyle@outlook.com <richardepyle@outlook.com>
Subject: Fwd: Executive Director Performance Evaluation Discussion with Comparable to Sebastian Inlet District

Hi Mr. Pyle,

I am following up on my evaluation request sent on 6/30.

Thank you,

Daniel Munt
Executive Director

239.472.2472 office

239.214.4560 cell

www.mycepd.com

P.O. Box 365

Captiva, Florida 33924

Please note: Florida has a very broad public records law. Most written communications to or from CEPD Employees and officials regarding CEPD business are public records available to the public and media upon request. Your email communication may be subject to public disclosure.

From: Daniel Munt
Sent: Friday, June 30, 2023 3:57:03 PM
To: bwalter@southseas.com <bwalter@southseas.com>; John Silvia <dynamiceconomicstrategy@outlook.com>; linda_m_laird@msn.com <linda_m_laird@msn.com>; richardepyle@outlook.com <richardepyle@outlook.com>; 'Rene Miville' <rmiville@comcast.net>
Cc: Ralf Brookes <ralfbrookes@gmail.com>
Subject: Executive Director Performance Evaluation Discussion with Comparable to Sebastian Inlet District

THE FOLLOWING IS PROVIDED FOR INFORMATIONAL PURPOSES PURSUANT TO FLORIDA'S SUNSHINE LAW PLEASE REFRAIN FROM RESPONDING OR DISCUSSING EXCEPT AT A NOTICED SUNSHINE LAW MEETING / WORKSHOP:

Good afternoon, all,

In keeping in line with Chairman Walter's direction for a 360 evaluation of the executive director on an annual basis, I am requesting an evaluation from each of the commissioners to be completed by **July 25th**. Please respond individually with the completed forms.

Please find the attached annual evaluation form for each individual board member to complete, a memorandum outlining my accomplishments over this past year with a request for consideration of salary increase, and supporting documentation.

I have provided the performance evaluations and supporting documents utilized by the Sebastian Inlet District surrounding the performance evaluation of their executive director. While these are a matter of their public records, I would request discretion in any distribution.

Ultimately, the Sebastian Inlet District voted to provide their executive director a **10%** cost of living increase along with an **11%** performance increase during their May monthly meeting.

I am requesting the same **10%** cost of living increase, with only a **5%** performance increase based on the accomplishments outlined.

This will be a topic for a vote at the August board meeting.

Thank you,

CEPD Commissioners are reminded to hold replies on other Commissioners' comments until a public meeting. This is to avoid dialogue between each other on matters re this and all matters which are subject to Sunshine Law.



Daniel Munt
Executive Director
239.472.2472 office

239.214.4560 cell

www.mycepd.com

P.O. Box 365

Captiva, Florida 33924

Please note: Florida has a very broad public records law. Most written communications to or from CEPD Employees and officials regarding CEPD business are public records available to the public and media upon request. Your email communication may be subject to public disclosure.

Under Florida law, email addresses are public records. If you do not want your email address released in response to a public records request, do not send electronic mail to this entity. Instead, contact this office by phone or in writing.



Executive Director Performance Evaluation

Employee Name: Daniel Munt

Date of Evaluation:

Category	Rating
I. Relations with Board of Commissioners	
Keeps the Commission informed in an appropriate and timely manner about matters critical to the district	3
Anticipates and follows up promptly on Commissioner's requests for information or action	4
Is available to the Commissioners on official business	4
Advises the Commission of relevant legislation and developments that may affect District governance and function	3
Anticipates, plans, and sets priorities for future needs, programs, and potential challenges confronting the district.	3
II. Administrative Management of District	
Ensures compliance with the District's Charter and other laws and regulations governing the district.	3
Develops, recommends, reviews, implements, monitors, and updates the district's strategic plans as approved by the board.	3
Develops, recommends, reviews, implements, and monitors the district's budgets as approved by the board.	3
Ensures compliance with federal, state, and local reporting requirements governing the district.	3
Ensures compliance with bookkeeping and accounting requirements applicable to the district.	3
Directs, coordinates, and manages District employees, consultants, contractors, and subcontractors with good attitude and initiative.	4
III. Communications	
Coordinates and attends all board meetings and ensures that all meetings are properly noticed and recorded.	3
Coordinates effectively with other governmental agencies (federal, state, and local) in representing the district's programs and projects.	4
Represents the District, attends public meetings, and is available and visible to the public in an appropriate manner.	4
Promotes the District's interests, policies, and objectives with agencies and the public accurately and effectively.	3
Directs public credit to the Commission in its role as the district's governing body.	3
Overall Job Performance	4

Rating Legend

- 4 - Exceeds job requirements and expectations
- 3 - Meets job requirements and expectations
- 2 - Job performance needs improvement
- 1 - Job performance below minimum requirements

Additional Comments:

Recommendation:

1. Cost of Living Increase: 10 %
2. Performance and merit percentage increase: 5 %

 Signature of Evaluator

 Date

Office of the Captiva Erosion Prevention District
 11513 Andy Rosse Lane, Unit 4
 P.O. Box 365
 Captiva, Florida 33924
 (239) 472-2472
mycepd@mycepd.com
www.mycepd.com



Executive Director Performance Evaluation

Employee Name: Daniel Munt

Date of Evaluation:

Category	Rating
I. Relations with Board of Commissioners	
Keeps the Commission informed in an appropriate and timely manner about matters critical to the district	3
Anticipates and follows up promptly on Commissioner's requests for information or action	3
Is available to the Commissioners on official business	3
Advises the Commission of relevant legislation and developments that may affect District governance and function	3
Anticipates, plans, and sets priorities for future needs, programs, and potential challenges confronting the district.	3
II. Administrative Management of District	
Ensures compliance with the District's Charter and other laws and regulations governing the district.	3
Develops, recommends, reviews, implements, monitors, and updates the district's strategic plans as approved by the board.	3
Develops, recommends, reviews, implements, and monitors the district's budgets as approved by the board.	3
Ensures compliance with federal, state, and local reporting requirements governing the district.	3
Ensures compliance with bookkeeping and accounting requirements applicable to the district.	3
Directs, coordinates, and manages District employees, consultants, contractors, and subcontractors with good attitude and initiative.	3
III. Communications	
Coordinates and attends all board meetings and ensures that all meetings are properly noticed and recorded.	
Coordinates effectively with other governmental agencies (federal, state, and local) in representing the district's programs and projects.	3
Represents the District, attends public meetings, and is available and visible to the public in an appropriate manner.	3
Promotes the District's interests, policies, and objectives with agencies and the public accurately and effectively.	3
Directs public credit to the Commission in its role as the district's governing body.	3
Overall Job Performance	3

Rating Legend

- 4 - Exceeds job requirements and expectations
- 3 - Meets job requirements and expectations
- 2 - Job performance needs improvement
- 1 - Job performance below minimum requirements

Additional Comments:

Recommendation:

1. Cost of Living Increase: _____%
2. Performance and merit percentage increase: _____%

TBO BY COMMISSIONER'S VOTES

[Signature]
 Signature of Evaluator
 WALTER

7/20/23
 Date



Rules of Procedure Edit Overview

- Fixed grammatical errors throughout document.
- Created new format for document
- Edited all titles to modern naming conventions.
- Added reference to FL Chapter 161 Beach and Shore Preservation Districts and CEPD Enabling Legislation.
- Added rules for online and closed-door meetings.
- Added rules for Workshop Meetings.
- Added references to quorum rules.
- Removed Parliamentary responsibility of the Secretary and all references to parliamentary law.
- Expanded the spending authority of the Chairman (\$12,000) and Executive Director (\$4,000) within the set annual budget.
- Edited all banking rules to match modern practices, naming conventions, and board philosophy.
- Edited rules for record keeping and public records requests.
- Moved communications rule from Rules of Procedure to Standard Operating Procedures.
- Added references to CEPD Jurisdictional Boundaries and expanded on definitions and requirements in Section VI: District Approval of Erosion Prevention Projects.

Standard Operating Procedures Edit Overview

- Created new format for document.
- Compiled all relevant SOP's to one document.
- Retired obsolete, restrictive, and over complicated SOP's.
- Edited all titles to modern naming conventions.
- Outlined Commissioner responsibilities and duties.
- Outlined all CEPD Personnel responsibilities and duties.
- Created new SOP's for Executive Director, Deputy Director, Attorney, Coastal Resiliency Manager, Accountant, and Beach Ambassador.



RULES OF PROCEDURE

**The following Rules of Procedure shall control the government and proceedings of the
Captiva Erosion Prevention District Board**

SECTION I: PROCEDURE FOR MEETINGS	3
Rule 1.01: Governing Rules	3
Rule 1.02: All Meetings.....	3
Rule 1.03: Regular Meetings	3
Rule 1.04: Special Meetings	4
Rule 1.05: Emergency Meetings	5
Rule 1.06: Workshop Meetings.....	5
Rule 1.07: Agenda	5
Rule 1.08: Officer's Duties	6
Rule 1.09: Authority of the Chairman	6
Rule 1.10: Authority of the Commissioners	7
Rule 1.11: Attorney and Executive Director.....	8
Rule 1.12: Call to Order	8
Rule 1.13: Quorum	8
Rule 1.14: Order of Business	9
Rule 1.15: Rule of Debate	9
Rule 1.16: Reading Minutes	10
Rule 1.17: Method of Voting.....	10
Rule 1.18: Addressing the District Board	10
Rule 1.19: Addressing the District Board. Manner. Time	11
Rule 1.20: Decorum	11
Rule 1.21: Persons Authorized beyond the Podium	12
Rule 1.22: Committees	12
Rule 1.23: Resolutions, Motions, Contracts.....	12
SECTION II: BUDGET AND FINANCES	13
Rule 2.01: Budget.....	13
Rule 2.02: Fiscal Year	13
Rule 2.03: Fees	14
Rule 2.04: Bank Accounts	14

Rule 2.05: Financial Statements.....	14
Rule 2.06: Compensation	15
Rule 2.07: Reimbursement.....	15
SECTION III: APPOINTMENT OF ADDITIONAL COMMITTEES	15
Rule 3.01: Creation of Committees, Terms, Meetings	15
Rule 3.02: Appointment of Emeritus Commissioner.....	15
SECTION IV: ORGANIZATION AND REORGANIZATION OF THE BOARD OF COMMISSIONERS	16
Rule 4.01: Powers	16
Rule 4.02: Annual Organization	16
Rule 4.03: Procedure for Annual Organization	17
Rule 4.04: Reorganization of the Board	17
SECTION V: DISTRICT'S OFFICE AND RECORDS	17
Rule 5.01: District Office.....	17
Rule 5.02: District Records	17
Rule 5.03: Reproduction of Records	17
SECTION VI: DISTRICT APPROVAL OF EROSION PREVENTION PROJECTS	18
Rule 6.01: Jurisdictional Boundaries.....	18
Rule 6.02: Definitions.....	18
Rule 6.03: Requirement for District Approval	19
Rule 6.04: Application Review	19
SECTION VII: EMERGENCY ORDERS	20
Rule 7.01: Emergency Maintenance, Repairs, Orders, Funds	20
SECTION VIII: PROPOSED APPORTIONMENT REVIEW	21
SECTION IX: AMENDMENTS	22
Rule 9.01: Amendments, Manner, Time	22
SECTION X: EFFECTIVE DATE	22

SECTION I: PROCEDURE FOR MEETINGS

Rule 1.01: Governing Rules

The Captiva Erosion Prevention District is a Beach and Shore Preservation District as defined in Chapter 161, Florida Statutes, as established and enabled by the Legislature of the State of Florida HB927-2000. Except as may be provided by these rules of law, questions of other, the methods of organization and the conduct of business of the District Board shall be governed by the most current government edition of Robert's Rules of Order in all cases to which they are applicable.

Rules basically are:

- **Courtesy to all**
- **Justice to all**
- **The rule of the majority**
- **The rights of the minority**
- **Partiality to none**

Rule 1.02: All Meetings

- a) All meetings of the District Board shall be open to the public and the news media.
- b) The minutes of any meeting of the District Board shall be promptly recorded by the Secretary or his/her designee, and such records shall be open for public inspection.
- c) Meeting minutes shall be reviewed by the Chairman or his/her designee for distribution to the commissioners within seven working days of the last meeting.
- d) Executive session meetings must comply with Florida Statutes 286 procedures and notice.
- e) Meetings may be held online or made available online via internet web-based technology.
- f) Meeting agendas shall be posted online.
- g) Meetings that have agenda items that require newspaper or mailing notice (e.g., budget, bonds, etc...) shall comply with all statutory requirements.

Rule 1.03: Regular Meetings

- a) **Annual Schedule of Regular Meetings:**
 - i. The District Board shall file annually a schedule of its regular meetings with the local governing authority (Lee County). The schedule shall include the date, time and location of each scheduled meeting. The schedule shall be sent by certified mail to the County Administrator of Lee County.
 - ii. The District Board shall annually publish this schedule of meetings on the District's website and may publish such other notice of regular meetings as is deemed appropriate by the District board.
 - iii. Any change of regular meeting day or time shall be approved by a resolution or motion adopted by a majority of the Commissioners. Notice of any change shall be promptly sent to the local governing authority (Lee

County) and notice of the change shall be posted at the regular meeting place.

b) Cancellations of Regular Meetings:

- i. Regular meetings may be canceled by a resolution or motion adopted at a regular meeting by a majority of the District Board. Votes to cancel a regular meeting may also include written notice from Commissioners not present stating their inability to attend the regular meeting proposed to be canceled.
- ii. Regular meetings may otherwise be canceled when the Chairman or designee receives notice from a majority of the Commissioners stating their inability to attend a regular meeting. Notice that a regular meeting has been canceled shall be promptly posted at the regular meeting place.

c) Meeting Place:

- i. For purposes of this Rules of Procedure document, the regular meeting place is defined as 11513 Andy Rosse Lane, Unit 4, Captiva, FL 33924.
- ii. Regular, special, and emergency meetings can be held in locations other than the regular meeting place, as long as the address of that other location is included in the public notice for the meeting in question.
- iii. The Executive Director may choose the locations for the regular meetings.

Rule 1.04: Special Meetings

- a) Special meetings are meetings in addition to regular meetings, which are called for a particular purpose or purposes. Only business relating to such purpose(s) may be discussed and /or transacted.
- b) The CEPD shall advertise the day, time, place, and purpose of the special meeting, at least 7 days before such meeting, unless a bona fide emergency situation exists, in which case a meeting to deal with the emergency may be held as necessary, with reasonable notice, so long as it is subsequently ratified by the governing body as provided in F.S. sections 189.015 and 50.011 and shall include the following language: "If a person decides to appeal any decision made by the District Board with respect to any matter considered at such meeting or hearing, he will need a record of the proceedings, and for such purpose he may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based." F.S. Sections 286.0105; 189.015.
- c) A special meeting of the District Board may be called by the Chairman or by consent of a majority of the members of the District Board, whenever a special meeting is called, a Commissioner or his/her designee shall serve either verbal or written notice upon each member of the District Board stating the date, time, place and purpose or purposes of the special meeting.

Rule 1.05: Emergency Meetings

- a) Emergency meetings shall only be called when a bona fide emergency situation exists. Such meetings shall be called by the Chairman or by consent of a majority of the members of the District Board. Only business relating to the emergency situation may be transacted or discussed at such meetings.
- b) Whenever such emergency meeting is called, a Commissioner or representative shall serve either verbal or written notice upon each member or the District Board. If, after reasonable diligence, it was impossible to give notice to each Commissioner, such failure shall not affect the legality of the meeting if a quorum is in attendance.
- c) Such time shall elapse to reasonably notify the news media of such a meeting.
- d) Notice including the date, time, place and purpose of the emergency meeting and that a record is required to appeal (see language for Rule 1.04: Special Meetings) shall be posted on the District's website and the District Office outdoor board or glass door visible from the outside.
- e) Any official acts transacted at any emergency meetings shall be summarized and ratified by the District Board at a subsequent regular meeting.

Rule 1.06: Workshop Meetings

- a) Workshop Meetings are scheduled and advertised for every Thursday of the year at 1:00 p.m. and are used to brief commissioners on upcoming agenda items for Regular Meetings.
- b) As more than one commissioner may be present at briefing meetings, workshops are advertised per all applicable statutes.
- c) The Chairman and Executive Director may call for a Workshop Meeting.
- d) Any Commissioner may request a workshop to be held through the Executive Director who shall review such request.
- e) No regular business may be performed, and no votes may be taken at a Workshop Meeting.
- f) Commissioner attendance at a Workshop Meeting is not required and will not constitute an unexcused absence.

Rule 1.07: Agenda

- a) There shall be an official agenda for every regular meeting of the District Board which shall determine the order of business conducted at the meeting. The Chairman, working with the Executive Director, shall set the agenda for a meeting. Commissioners may contact the Executive Director to request an item to be placed on the agenda.
- b) The District Board shall not take action upon any matter, proposal, or item of business which is not listed upon the official agenda, unless the majority of the entire District Board shall have first consented to the presentation thereof for consideration and action, except for emergency matters.

- c) All requests to be included on the agenda for any regular meeting will have to be filed in the office of the District no later than two working days prior to the meeting.

Rule 1.08: Officer's Duties

- a) The Chairman of the District Board shall preside over all meetings at which he/she is present.
- b) In the absence of the Chairman, the Vice Chairman of the District Board shall preside. In the absence of the Vice Chairman, the Secretary shall preside. The presiding officer shall preserve strict order and decorum at all meetings of the District Board.
- c) He/she shall state every question coming before the District Board and announce the decision of the District Board on all matters coming before it. A majority vote of the Commissioners present shall govern and conclusively determine all questions of order not otherwise covered.
- d) The Secretary of the District Board or other duly authorized Commissioner shall certify all resolutions adopted by the District Board.
- e) In the absence of the Chairman or in the event of his/her inability to serve by reason of illness or accident, the Vice Chairman shall perform the duties and functions of the Chairman until his/her return or recovery and resumption of duty. In the absence of the Vice Chairman or in the event of his/her inability to serve by reason of illness or accident, the Secretary shall perform the duties and functions of the Chairman until his/her return or recovery and resumption of duty.

Rule 1.09: Authority of the Chairman

The Chairman:

- a) May call a member to order if his/her remarks are not relevant to the subject under discussion, or for lack of decorum.
- b) Is obliged to vote on each motion in which he/she has no personal interest. The Chairman may not abstain unless he/she has a bona fide conflict of interest as defined in Section 112.3143 F.S., as amended.
- c) May discuss a motion as any other Commissioner without relinquishing the Chair.
- d) May call for a reading of the motion after discussion, but before voting.
- e) In the event of a tie vote, shall rule the motion is lost.
- f) Shall recognize Commissioners in the order of their request to speak, except the maker of the motion may be the first speaker.
- g) Is authorized to appoint committee or designate members to other committees consisting of Commissioners only if no objection is raised. If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This motion is debatable and amendable.

- h) May call a recess for a reasonable time. If there is an objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is not debatable but is amendable as to time. The length of time of the recess and the time the meetings will be reconvened must be announced before recessing. A meeting may not be recessed for more than five hours and must be reconvened the same day.
- i) May refer the subject to the next regular meeting if no objection is raised. If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is debatable and amendable.
- j) If no motion is pending, may ask, "Is there any further business?" Hearing no response, the Chair may then state, "Since there is no further business the meeting is adjourned." If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is neither debatable nor amendable.
- k) Is authorized to sign for Board approved contracts and to approve administrative expenditures or non-administrative, non-recurring expenditures under \$12,000.

Rule 1.10: Authority of the Commissioners

Each Commissioner:

- a) Must vote on every motion in which he/she has no personal interest. A commissioner may not abstain unless he/she has a bona fide conflict of interest as defined in Section 112.3143, F.S., as amended.
- b) May, only after recognition by the Chair, introduce motions, discuss subjects and vote.
- c) May request to consider a subject informally if no objection. If there is objection, he/she is obliged to put a motion which must be seconded to determine the result by a majority vote. This is debatable, but not amendable.
- d) May appeal a decision of the Chair without a second. This is debatable if the question was debatable, is not amendable and is decided by a majority vote.
- e) May move to refer the subject to the next regular meeting. This is seconded, decided by a majority vote, is debatable and amendable.
- f) May informally request a recess in a meeting for a reasonable time. If there is an objection, the Commissioner shall state the request in the form of a motion, which must be seconded, to determine the result by a majority vote. The length of time of the recess and the time the meeting will be reconvened must be announced before recessing. A meeting may not be recessed for more than five hours and must be reconvened the same day.
- g) If no motion is pending, may move to adjourn. Upon the completion of the agenda, an adjourned meeting may be "moved" by specifying the time and date of the next regular meeting. These motions are seconded and decided by a majority vote. They are not debatable but are amendable as to time.

Rule 1.11: Attorney and Executive Director

- a) The CEPD Attorney:
 - i. or such member of his/her office as he/she may designate shall be available upon request of the District Board at all regular meetings.
 - ii. shall review and approve in a timely manner the legality of all budget procedures outlined in Rule 2.01.
- b) The Executive Director:
 - i. shall respond to all reasonable requests of any Commissioner with priority to be set by the Chairman as necessary.
 - ii. Duties shall include the running of the District's office, attendance at Board meetings, custodian of the records, agent, and all other administrative duties associated with carrying out the duties, responsibilities and policies of the District Board.
 - iii. Is authorized to sign for and to approve administrative expenditures or non-administrative, non-recurring expenditures under \$4,000.
 - iv. Is authorized to sign for and to approve contracts for work or recurring work as necessary to accomplish the duties of the CEPD office within the annual operating budget and the set spending authority for the Executive Director.
 - v. Is authorized to staff the office as needed and to approve and terminate employment contracts that conform with the annual operating budget.

Rule 1.12: Call to Order

- a) The Chairman shall take the chair at the hour appointed for the meeting and shall call the District Board to order immediately.
- b) In the absence of the Chairman and the Vice Chairman, the Secretary shall then determine whether a quorum is present and, in that event, shall take the Chair temporarily. Upon arrival of the Chairman or Vice Chairman, the Secretary shall relinquish the chair upon the conclusion of the business immediately before the District Board.

Rule 1.13: Quorum

- a) A majority of the whole number of members of the District shall constitute a quorum. No resolution or motion shall be adopted by the District Board without the affirmative vote of the majority of all members.
- b) Should no quorum attend within thirty minutes after the hour appointed for the meeting of the District Board, the Chairman, Vice Chairman, or Secretary may adjourn the meeting.
- c) The names of the members present and their action at such meeting shall be recorded in the minutes.
- d) Commissioners' absence may be excused for medical and family emergencies, personal conflict of interest, and other previously noticed and approved absences.

- e) Any Commissioner with three unexcused absences in a year may be removed from the Board by the current Commissioners. A vote for removal must be approved by the majority of the Board.

Rule 1.14: Order of Business

- a) All meetings of the District Board shall be open to the public. Promptly at the hour set for each meeting, the Commissioners and any other designated representatives shall take their stations and the business of the District Board shall be taken up for consideration and disposition in accordance with the agenda for the meeting.

Rule 1.15: Rule of Debate

- a) **Questions Under Consideration:** When a motion is presented and seconded, it is under consideration and no other motion shall be received thereafter, except to adjourn, to lay on the table, to postpone, to substitute, or to amend until the question is decided. These motions shall have preference in the order in which they are mentioned and the first two shall be decided without debate. Final action upon a pending motion may be deferred until a date set by a majority of the members present.
- b) **Getting the Floor, Improper Reference to be Avoided:** Every Commissioner desiring to speak for any purpose shall address the presiding officer, and upon recognition, shall confine himself/herself to the question under debate; avoiding all personalities and indecorous language.
- c) **Interruption:** A Commissioner, once recognized, shall not be interrupted when speaking, unless it be to call him/her to order as herein otherwise provided. If a Commissioner, while speaking, be called to order, he/she shall cease speaking until the question of order be determined by the presiding officer, and if in order, he/she shall be permitted to proceed. Any Commissioner may appeal to the District Board from the decision of the Chairman shall submit to the District Board the question, "Shall the decision of the chair be sustained?" and the District Board shall decide by a majority vote.
- d) **Privilege of Closing Debate:** The Commissioner moving the adoption of a motion or resolution shall have the privilege of closing the debate.
- e) **Roll Call:** Upon any roll call, there shall be no discussion by any Commissioner voting and he/she shall vote yes or no. Any Commissioner upon voting, may give a brief statement to explain his/her vote. A Commissioner shall have the privilege of filing with the Secretary a written explanation of his/her vote. A Commissioner shall abstain from voting on any matter in the event said Commissioner shall have a conflict of interest as defined in Subsection (f), in which case the Commissioner shall, prior to the vote being taken, publicly state to the District Board the nature of his/her interest in the matter from which he is abstaining from voting. Within fifteen (15) days after the vote occurs, the Commissioner must disclose the

nature of his interest as a public record in a memorandum filed with the Secretary, who shall incorporate the memorandum in the minutes.

- f) **Conflict of Interest:** No Commissioner shall participate in the discussion or vote upon any matter under consideration wherein he/she has a conflict of interest as defined in Section 112.3143, of Florida Statutes, as amended. Such a conflict of interest must be made known on the record and in writing.
- g) **Reconsideration:** Action of the District Board may be reconsidered at the same meeting or the very next meeting only upon motion by a Commissioner who voted on the prevailing side of the question and with a concurrence of a majority of those present. Adoption of a motion to reconsider shall rescind the action reconsidered. A motion to reconsider, whenever made, shall not be considered unless at least the same number of commissioners is present as participated in the vote under consideration or upon affirmative vote of the majority of the District Board.
- h) **Vote Change:** Any commissioner may change his/her vote before the next item is called for consideration, or before a recess or adjournment is called, whichever occurs first, but not thereafter.
- i) **Rescind:** A motion to rescind may be made by any Commissioner for the purpose of annulling some previous action taken when it is too late to reconsider. Any action may be rescinded regardless of the time that has elapsed. A motion to rescind is not in order if action has already been taken, which cannot be undone.

Rule 1.16: Reading Minutes

- a) The minutes of prior meetings may be read and approved by a majority of the Commissioners present, and upon such approval, shall become the official minutes.

Rule 1.17: Method of Voting

- a) The vote upon any resolution, motion, or other matter may be voice vote, provided that the Chairman or any Commissioner may ask for a roll call to be taken upon any resolution or motion.

Rule 1.18: Addressing the District Board

- a) **Agenda Items:**
 - i. All proceedings and the order of business at all meetings of the District Board shall be conducted in accordance with the official agenda. Any departure from the order of business set forth in the official agenda shall be made only upon majority vote of the Commissioners present at the meeting.
 - ii. Any citizen shall be entitled to be placed on the official agenda of a regular meeting of the District Board and be heard concerning any matter within the scope of jurisdiction of the District Board. Only Commissioners may place a citizen on the official agenda, except that staff may schedule

permit requests. The deadline for placing a citizen on the agenda is two working days prior to the meeting at which said citizen wishes to be heard.

- iii. Any citizen shall be entitled to speak on any matter appearing on the official agenda under the sections entitled "Public Hearings", "Public Presentation of Matters by Citizens," or "Public Comment."

b) Non-Agenda Matters:

- i. No citizen shall be permitted to address the District Board on any matter not appearing on the official agenda, unless the District Board shall first grant permission to be heard by a majority vote of the entire District Board.

c) Public Discussion on Agenda Items:

- i. No citizen shall be entitled as a matter of right to address the District Board on any matter listed on the official agenda which is not scheduled for public hearing, discussion or debate.
- ii. Citizens shall not be permitted to speak on any matters listed on the official agenda other than those appearing under the section entitled, "Public Hearings," and "Public Comment," "Public Presentation of Matters by Citizens," unless the District Board shall first grant permission to be heard by a majority vote of the Commissioners present at the meeting.
- iii. A public comment period will be held at the beginning of every regular monthly meeting, immediately after the approval of minutes.

Rule 1.19: Addressing the District Board. Manner. Time

- a) Each person addressing the District Board shall give his/her name and address in an audible tone of voice for the minutes, and unless the matter has been reviewed by a Commissioner, shall limit his/her address to three minutes.
- b) All remarks shall be addressed to the District Board as a body and not to any member thereof.
- c) No person, other than Commissioners and the person having the floor, shall be permitted to enter into any discussion, either directly or through a Commissioner, without the permission of the presiding officer.
- d) No question shall be asked a Commissioner except through the presiding officer.

Rule 1.20: Decorum

- a) Any person making impertinent or slanderous remarks or who becomes boisterous while addressing the District Board shall be barred from further audience at that meeting before the District Board by the presiding officer, unless permission to continue or again address the District Board is granted by the majority vote of the Commissioners present.

Rule 1.21: Persons Authorized beyond the Podium

- a) No person shall be permitted beyond the podium in front of the District Board and no person shall be permitted to disturb any Commissioner while on the floor during any meeting without the express permission of the District Board.

Rule 1.22: Committees

- a) The District Board of Commissioners may resolve itself into a committee of the whole at any regular or special meeting and select a chairman to preside over such meeting of the committee of the whole. The District Board is further authorized to appoint standing committees which shall continue in existence until dissolved by vote of a majority of the Commissioners present at any regular meeting, or at a special or emergency meeting called for that purpose. Meetings of standing committees or a committee of the whole shall be called and held in the same manner as meetings of the District Board and shall be open to the public.
- b) Whenever the District Board deems it necessary or desirable that the District Board shall be represented at meetings, conferences, or other occasions involving other governmental entities, agencies, officials, or groups, or non-governmental organizations, or departments, the Chairman and/or any commissioner(s) may designate a representative of the District Board which may include himself/herself to attend such meetings, conferences, or other occasions.
- c) Such attendees shall have no power to act for or on behalf of the District Board or to make any commitment or binding obligation on behalf of the District Board or the District unless previously so authorized.
- d) The Executive Director or his/her designee shall also attend and report to the Board at the next regular meeting.

Rule 1.23: Resolutions, Motions, Contracts

- a) **Preparations of Resolutions:** The CEPD Attorney, when requested by the District Board, shall prepare resolutions which shall be delivered to the District Board.
- b) **Approval of Resolutions by CEPD Attorney:** Resolutions, when requested, and contract documents, before presentation to the District Board, shall have been put in writing and shall have been approved as to form and legality by the CEPD Attorney before adoption or acceptance.
- c) **Introducing for Passage or Approval:** Resolutions and other matters and subjects requiring action by the District Board must be introduced and sponsored by a Commissioner, except that the CEPD Attorney and the District's Executive Director may present resolutions and other matters or subjects to the District Board for consideration and any Commissioner may assume sponsorship thereof by moving that such resolution, matter, or subject be adopted in accordance with law, otherwise they shall not be considered.

- d) **When Action to be Taken by Resolution:** All actions of the District Board may be taken by resolution except that approval of purely administrative matters may be accomplished by motion duly adopted and recorded in the minutes of the meeting. A resolution stating budget and purpose shall be required to initiate any project exceeding \$25,000. The resolution, at a future date, may be amended by motion.
- e) **Numbering of Resolutions:** All resolutions shall be numbered consecutively by the Secretary upon their passage.

SECTION II: BUDGET AND FINANCES

Rule 2.01: Budget

- a) The District Board shall cause to be prepared, in accordance with these Rules and Florida law, a budget for the General Fund and any bond related funds. Within 30 days of certification by the Lee County property appraiser of the taxable value of properties within the District's jurisdiction, the District Board shall advise the property appraiser of its proposed millage rate, of its rolled-back rate, and of the date, time, and place at which a public hearing will be held to consider the proposed millage rate and the tentative budget. Within 80 days of said certification of value, but not earlier than 65 days after certification, the District Board shall hold a public hearing on the tentative budget and proposed millage rate, in accordance with Florida law. Prior to the conclusion of the hearing, the District Board shall amend the tentative budget as it sees fit, adopt the amended tentative budget, recompute its proposed millage rate, and publicly announce the percent, if any, by which the recomputed proposed millage rate exceeds the rolled-back rate previously computed. That percent shall be characterized as the percentage increase in property taxes tentatively adopted by the District Board.
- b) Within 15 days of the meeting adopting the tentative budget, the District Board shall advertise in a newspaper of general circulation in the county its intent to finally adopt a millage rate and budget. A public hearing to finalize the budget and adopt a millage rate shall be held not less than two days of more than five days after the day that the advertisement is first published. The final budget and millage shall be adopted by separate resolutions and forwarded to the property appraiser, the tax collector and the Department of Revenue. The Treasurer or other duly authorized Commissioner shall certify the budget.

Rule 2.02: Fiscal Year

The fiscal year of the District shall commence on the first day of October of each year and the end of the last day of September of the following year.

Rule 2.03: Fees

The District Board may establish fees for its services related to the general cost of providing such service including, but not limited to processing of permit applications.

Rule 2.04: Bank Accounts

- a) The District shall maintain necessary bank accounts.
- b) **SIGNING AUTHORITY:** Each check issued by the District shall be signed by the Executive Director, Chairman, or Treasurer.
- c) **GENERAL FUND:** Each year, any budgeted and collected funds that were not expended shall be rolled over to the Capital Projects fund. Any budget deficit incurred during a budget year must be recouped in the following budget year. Interest earned in the general fund accounts may remain in the General Fund or be transferred to the Capital Projects Fund, whichever yields the highest return. Interest earned from special escrow funds shall go to the General Fund.
- d) **BOND FUND:** The Executive Director will review the debt service fund requirements annually at budget time and transfer all excess funds (i.e. those funds above the 10% holdback requirement) into the Capital Projects Fund. Interest earned on debt service reserve shall flow into the Capital Projects Fund.
- e) **CAPITAL PROJECTS FUND:** The CEPD Board shall set up a Capital Projects Fund to fund start up costs of the next project. In setting up the Capital Projects Fund, the CEPD Board shall take into consideration the annual flow of funds from the Debt Service Reserve. Interest earned in the Capital Projects Fund shall remain in the Capital Projects Fund to counter inflation. If excess funds accrue in the Capital Projects Fund, these funds can be used to offset non ad-valorem expenses such as being applied against future project costs, community-wide assessments, funded interest, etc. Unanticipated costs may be paid with funds borrowed from the Capital Projects Fund, to be repaid by the next year's ad valorem proceeds from the General Fund.
- f) **GRANT MONIES:** Grant Monies are disbursed through reimbursement only. Expenses to be reimbursed must be incurred through the CEPD Office and are only applicable to the specifics of each grant.

Rule 2.05: Financial Statements

The District Board shall prepare or cause to be prepared annually an independently audited financial statement which shall be officially presented at the first regular monthly meeting after its completion. A copy of this statement shall be maintained in the District's office and provided to the Captiva Library. A quarterly financial report shall be completed by the Treasurer or his/her designee.

Rule 2.06: Compensation

Captiva Erosion Prevention District Commissioners shall serve without compensation.

Rule 2.07: Reimbursement

The District has the power to pay from funds available to it under Chapter 81-413, Laws of Florida, all reasonable and necessary expenses incurred in carrying out its purposes, including reimbursement of actual travel expenses (excluding alcoholic beverages) of members of the District Board or their properly designated agents shall be scheduled for consideration at a regular meeting. A travel expense report including receipts shall be provided to the Treasurer or his/her designee prior to reimbursement.

SECTION III: APPOINTMENT OF ADDITIONAL COMMITTEES

Rule 3.01: Creation of Committees, Terms, Meetings

- a) The Commissioners shall have the power to designate or create by resolution or motion such other committees as may be necessary for the administration of the affairs of the District and shall provide the duties of the members of such committees. Members of these committees shall serve without compensation but may be reimbursed in accordance with Rule 2.07.
- b) The length of term of appointees and method of appointment shall be specified in the enabling resolution or motion. Vacancies occurring in the membership of any committee shall be filled for the remainder of the unexpired term in the manner providing for the original appointment. Members of committees may be removed for cause by a two-thirds vote of the District Board.
- c) Meetings of committees shall be called and advertised in the same manner as meetings of the District Board and shall be open to the public.

Rule 3.02: Appointment of Emeritus Commissioner

- a) There shall be a category of Board member known as a *Board Member Emeritus* who is nominated by the Chairperson and elected by the Board of Commissioners. Board Members Emeritus shall be selected from those Board Commissioners who have served with distinction and excellence.
- b) Emeritus members shall serve two (2) year renewable terms for as long as they remain active in the work of Captiva Erosion Prevention District, and either the Board or the Member Emeritus may end the term at any time. Emeritus member candidates will have served the Board with distinction and are considered deserving the same for outstanding service.
- c) A Board Member Emeritus shall be entitled to receive all written notices and information which are provided to the Board of Commissioners, to attend all Board of Commissioners meetings, and encouraged to attend all other events conducted by Captiva Erosion Prevention District.

- d) A Board Member Emeritus shall not be subject to any attendance policy, counted in determining if a quorum is present at a meeting, entitled to hold office, or entitled to vote at any board meeting.
- e) **Eligibility:** In order to be considered for designation as a Board Member Emeritus, a person must be a current or former member of the Captiva Erosion Prevention District Board of Commissioners who:
 - i. Has served the Captiva Erosion Prevention District Board with distinction.
 - ii. Held an important leadership role and made or continues to make significant contributions.
 - iii. Engaged in major volunteer or advocacy activities in his or her service on the board.
 - iv. Completed the term(s) for which he or she was appointed.
- f) **Election:** Any active Board member shall make the recommendation for a potential candidate and may nominate one (1) or more individuals for a Board Member Emeritus position. Nominations will be made at a regular Board meeting. A majority vote of Commissioners at a meeting at which a quorum is present is sufficient to approve an appointment.

SECTION IV: ORGANIZATION AND REORGANIZATION OF THE BOARD OF COMMISSIONERS

Rule 4.01: Powers

Chapter 81-413, Laws of Florida, creating the Captiva Erosion Prevention District, provides that the legislation and governing body of the Captiva Erosion Prevention District shall have the power to carry out its duties to the extent not inconsistent with general or special law. This power shall include, but shall not be limited to, the power to adopt its own rules and procedures, select its officers and set the time and place of its official meetings.

Rule 4.02: Annual Organization

- a) The Board of Commissioners of the Captiva Erosion Prevention District shall, at the first regular meeting in December of each year, or thereafter, organize or re-organize the officers of the District Board as to designating or redesignating a Chairman, Vice-Chairman, Secretary and Treasurer. The Chairman, Vice Chairman, Secretary and Treasurer shall serve for a one-year term unless the District Board shall re-organize as set forth in the procedures below. An individual Commissioner may hold the office of Secretary and Treasurer concurrently.
- b) Any Commissioner who incurs more than three unexcused absences within one year shall be asked to resign his or her seat upon the Board.
- c) The incumbent Chairman, Vice-Chairman or Secretary of the District Board shall be present and conduct the meeting until a new Chairman has been selected.

- d) The organization of the District Board will be the first item on the agenda for that meeting.

Rule 4.03: Procedure for Annual Organization

- a) The Board shall take the time to discuss the positions available, giving a commissioner the chance to decline a post if unable to perform its duties.
- b) The incumbent Chairman shall call for nominations for the new Chairman, taking nominations until a vote is called to close the nominations.
- c) The election of the Chairman will be upon roll call. After a new Chairman is elected the other posts will be elected in the same manner.

Rule 4.04: Reorganization of the Board

- a) Any member of the Board of Commissioners may, at any regular or specially called meeting of the District Board, after being duly recognized by the Chairman, request a reorganization of the Board. For this purpose, the Commissioner, upon being recognized shall request Special Privilege.
- b) The rule governing Special Privilege does not require a second and is not debatable; however, the question of privilege is decided by the Chair. If the Chair elects to grant Special Privilege of reorganization, the procedure for organization as outlined above shall proceed. If the Chair elects to deny the question of Special Privilege unless further action is taken, the ruling of the Chair is final.
- c) If any Commissioner wishes to enforce the Special Privilege Rule, he/she must call for the Orders of the Day. The rule governing this motion does not require a second but does require a two-thirds majority vote not to proceed to the Orders of the Day.
- d) If the Orders of the Day motion passes, the re-organization takes place as outlined under the Organizational Procedures.

SECTION V: DISTRICT'S OFFICE AND RECORDS

Rule 5.01: District Office

The District shall maintain an office where records are kept and the public shall have access to such records via website, public records request, and by in person request.

Rule 5.02: District Records

Agendas, Materials, Meeting Recordings, Resolutions, Interlocal Agreements, and all relevant public documents will be made available on the District's website. Any information that is not available on the District's website will be made available upon a public records request in accordance with all applicable statutes.

Rule 5.03: Reproduction of Records

Anyone desiring to obtain copies of the District records may do so by making the request on the District's website or at the District office. A fee may be applied for the cost of reproduction.

SECTION VI: DISTRICT APPROVAL OF EROSION PREVENTION PROJECTS

Rule 6.01: Jurisdictional Boundaries

The territorial boundaries of the District shall be all of Captiva Island, Florida, more particularly described as follows:

Commence at the corner common to sections 2,3, 10 & 11, T. 46 S., R. 21 E., Lee Co., Florida; thence run Easterly along the South line of said sec. to its intersection of the centerline of Blind Pass and the Northerly limits of the City of Sanibel, said intersection is the P.O.B. of the parcel or tract herein described. From said P.O.B. run Southwesterly along said centerline of Blind Pass and Northerly limits of the City of Sanibel to a point in the Gulf of Mexico which lies 300' from the M.H.T. line of Captiva Island; thence run Northwesterly along the Meanders of a line in the Gulf of Mexico that lies 300' from and parallel to said M.H.T. line of Captiva Island to its intersection with the centerline of Redfish Pass; thence run Easterly along said centerline of Redfish Pass to a point 300' from the M.H.T. line of the Easterly shore of Captiva Island in the waters of Pine Island Sound; thence run Southeasterly along the meanders of a line in the waters of Pine Island Sound that lies 300' from and parallel to the M.H.T. line of Captiva Island to its intersection with the centerline of Roosevelt Channel; thence run Southerly along the Meanders of said centerline of Roosevelt Channel to its intersection with aforementioned centerline of Blind Pass and the Northerly limits of the City of Sanibel; thence run Southwesterly along said centerline of Blind Pass and Northerly limits of the City of Sanibel to the P.O.B. (HB 927 CH 2000-399).

Rule 6.02: Definitions

- a) Erosion Prevention Projects shall include: Any seawalls, groins, breakwaters, bulkheads, fill and other works, structures, equipment or other facilities used for beach renourishment or erosion control, and in each case necessary or useful in the protection of the lands, including beaches, within the District from tidal action and other causes of beach and coastal erosion. Erosion Prevention Projects shall also include activities associated with repairing and replacing any existing projects.
- b) "Erosion Control" includes, but is not limited to, erosion control, hurricane protection, coastal flood control, sea level rise, shoreline and off-shore rehabilitation, and regulation of work and activities likely to affect the physical condition of the beach or shore.
- c) "Minor Structure or Activity" includes, but is not limited to, pile-supported, elevated dune and beach walkover structures; beach access ramps and walkways; stairways; viewing platforms; docks; gazebos; boardwalks; slab patios, and other paved areas not exceeding 144 square feet in area; lifeguard support stands; cantilevered decks or porches on new or existing structures; slab porches on new

or existing structures; sidewalks; driveways; earth retaining walls, sand fences, privacy fences, ornamental walls; ornamental garden structures; aviaries; subgrade utilities (e.g., wells, septic tanks, and drain fields) which require material alteration of topography; and permanent beach or deck furniture.

Rule 6.03: Requirement for District Approval

Any person, firm, corporation, or other business associations and any federal, state or local government, or any agency thereof, planning to establish or construct any erosion prevention project or minor structure or activity within the Jurisdictional Boundaries of the Captiva Erosion Prevention District, to construct any structure seaward of the 1988 gulfshore mean high water line, or to construct any structure within the tidal waters and Jurisdictional Boundaries of the Captiva Erosion Prevention District must first obtain an approval from the Captiva Erosion Prevention District.

Rule 6.04: Application Review

- a) Anyone seeking an approval as required under Rule 6.03 must submit a complete application to the Executive Director prior to action by the Captiva Erosion Prevention District Board of Commissioners. Applications are available in the District offices at 11513 Andy Rosse Lane, Captiva Island, Florida 33924, or by mail at P.O. Box 365, Captiva Island, Florida 33924. Applications shall be reviewed in accordance with the rules and regulations herein promulgated.
- a) Erosion prevention projects as defined previously, construction located seaward of the 1988 gulfshore mean high water line, and construction within the tidal waters and Jurisdictional Boundaries of the Captiva Erosion Prevention District shall require an approval by the District Board prior to construction. The applicant shall submit to the Executive Director a completed application and all supporting materials thereof. The applicant may obtain information regarding the gulfshore 1988 mean high water line from the District offices, and such general assistance as may be necessary to understand the application process.
- b) The Executive Director may at any time request the review assistance of the District Engineer in order to determine the completeness of the application or suitability of the proposed project. The District Engineer shall submit its recommendation as requested to the Executive Director.
- c) Once the Executive Director has determined that the application is complete and has received any requested recommendation from the District Engineer, the Executive Director shall schedule the application for the District Board's review. The Executive Director shall give written notice to the applicant of the date and time of the meeting and of any recommendation, at least ten days prior to the next scheduled regular meeting.
- d) The application, submitted materials, and any recommendation shall be reviewed by the Board of Commissioners of the Captiva Erosion Prevention District at a

regular meeting. The applicant or any agent of the applicant may appear at the meeting and the District Board shall receive any public comment on the application. The District Board shall adopt a recommendation for approval, denial, or modification of the proposed project, and reasons for such recommendation based on the following criteria:

- i. The effect of the proposed project upon the Captiva Erosion Prevention District comprehensive beach and shore preservation program; and
 - ii. The erosional impact of the proposed project upon the subject property and upon adjacent riparian properties within 200 feet of the property boundaries where the proposed project is to be located.
- e) Notice of Recommendation. The recommendation shall be forwarded to the applicant and any appropriate state and federal agency, along with reasons for the recommendation.
 - f) Any changes in the project from the District approved plan shall require a modification of the permit.
 - g) Within 30 (thirty) days of completion of the work authorized by the permit, the permittee shall notify the District of said completion by letter, including a post construction survey certified by the applicant's registered engineer or architect.

SECTION VII: EMERGENCY ORDERS

Rule 7.01: Emergency Maintenance, Repairs, Orders, Funds

- a) When a bona fide emergency exists, the District Board shall, at an emergency or other meeting called pursuant to Rule 1.02 —1.05, have the power to issue an "emergency repair and/or maintenance order" authorizing the repair and/or maintenance of any Erosion Prevention Project constructed by any person, firm, corporation, public or private, within the District. The emergency order shall be signed and approved by a majority of the Commissioners present at such meeting.
- b) The emergency order shall contain a declaration that an emergency situation exists, including a brief explanation of why such declaration has been made, the emergency order shall authorize the maintenance and repair to the extent that in the judgment of the District Board it is necessary and practical to insure the continuing efficient operation of such project.
- c) In no event may any extension or addition to a project beyond that reasonably necessary for repair and/or maintenance of the project be authorized in such an emergency order.
- d) The District Board shall have the power to authorize the payment of funds to the extent permitted by law to accomplish the purpose of this rule. (Authority: SECTION 4 (10) of the Special Act)

SECTION VIII: PROPOSED APPORTIONMENT REVIEW

- a) The District shall provide an opportunity for review of proposed apportionments to any Captiva property owner prior to the preparation of the preliminary assessment roll required under Section X (10) and, Chapter 81-413, Laws of Florida. The purpose of District review shall be to hear concerns by property owners regarding factors particular to their property that may affect the preliminary assessment on that property, and which will avoid errors or omissions in the preparation of the preliminary assessment roll.
- b) The District shall cause to be prepared a proposed apportionment of the estimated total cost of any erosion project ordered by the District and to be financed by special assessments upon benefited property. The proposed apportionment shall be made in accordance with the tentative apportionment as provided in Section X (5), Chapter 81-413, Laws of Florida, but the proposed apportionment shall not be held to limit or restrict the duties of the engineer in the preparation of the preliminary assessment roll.
- c) The proposed apportionment shall be filed with the District board and notice of the proposed apportionment shall be mailed to any person, firm or corporation whose specially benefited lands shall be affected at such address as shown on the last available tax roll. Such notice shall include information regarding:
 - i. The proposed apportionment on the property affected; and
 - ii. The procedure by which the property owner may apply for a review of the proposed apportionment on the particular property, including the time and place for filing an application for review of the proposed apportionment, and the opportunity for an oral presentation to the Board regarding the proposed apportionment.
- d) Each property owner who applies for a review of his proposed apportionment shall be required to submit his objections to the proposed apportionment in writing and shall be afforded the opportunity to provide evidence to support his objections.
- e) The Executive Director shall coordinate the review by Board staff and consultants of all applications for review and evidence submitted in support of the application. The staff and consultants shall provide recommendations to the Board regarding applications which they have reviewed.
- f) The Board shall schedule a hearing to consider the application of any property owner who timely requests a hearing before the Board. At the hearing, the property owner may speak in regard to his written objections, the evidence submitted, and any additional evidence supporting his objection. The hearing shall be an informal hearing. The Board shall consider the recommendations of staff, and any evidence submitted, and may request additional evidence.

- g) The Board shall respond to each application subsequent to any hearing on the application and prior to the filing of the preliminary assessment roll with the District Board. Notice of the Board's decision shall be provided to the property owner in writing.

SECTION IX: AMENDMENTS

Rule 9.01: Amendments, Manner, Time

- a) The Chairman, CEPD Attorney, and Executive Director shall review this code and recommend changes for approval by the District Board.
- b) This code shall be amended by a majority vote of the District Board. All proposed amendments shall be voted on at a regular meeting or a special meeting called for that purpose. Notice of the amendment will be placed on the agenda.

SECTION X: EFFECTIVE DATE

These Rules shall become effective immediately upon adoption. DULY PASSED AND ADOPTED this 7th day of August 2023. Board of Commissioners of the Captiva Erosion Prevention District.

Chairman:

Vice Chairman:

Secretary:

Treasurer:

Commissioner:

Executive Director:

Deputy Director:

CEPD Attorney:



STANDARD OPERATING PROCEDURES

**The following Standard Operating Procedures shall control the operations of the
Captiva Erosion Prevention District**

MISSION STATEMENT	2
SECTION I: Commissioners.....	2
Duties and Responsibilities.....	2
General Elections.....	3
Resignation	5
Appointment.....	5
Organization of the Board	7
Chairman	7
Vice Chairman.....	7
Secretary.....	8
Treasurer	8
Board Member Emeritus	8
SECTION II: Executive Director.....	9
Duties and Responsibilities.....	9
SECTION III: Deputy Director	11
Duties and Responsibilities.....	11
SECTION IV: Attorney.....	12
Duties and Responsibilities.....	12
SECTION V: Accountant	13
Duties and Responsibilities.....	13
SECTION VI: Coastal Resiliency Manager.....	14
Duties and Responsibilities.....	14
SECTION VII: Beach Ambassador	16
Duties and Responsibilities.....	16
Conduct.....	16
Vehicle Operation	17
Coastal Inspection.....	19

MISSION STATEMENT

Captiva Island is a barrier island located four miles off the coast of Southwest Florida, just west of Fort Myers, Florida. Residents and visitors enjoy the slender island's five miles of sandy gulf shoreline. As is the case with most barrier islands, erosion can be a threat to upland development, recreation, and environmental interests.

The Captiva Erosion Prevention District (CEPD) is an independent special beach and shore preservation district established on June 19, 1959 under the provision of Chapter 161, Florida Statutes. It is governed by an independently elected district board possessed of broad powers to do as necessary or desirable to carry out the CEPD comprehensive beach and shore preservation program.

SECTION I: Commissioners

Duties and Responsibilities

The Board of Five Commissioners, who shall constitute the Captiva Erosion Prevention District Board, shall be:

- Qualified electors residing within the District.
- Shall each serve a period of 4 years (unless removed for cause by the Governor of Florida or the CEPD Board).
- Shall receive no compensation.
- Shall be elected by the qualified electors residing within the District.
- Candidates seeking election to the District Board shall qualify between noon of the 50th day and noon of the 46th day prior to the election.
- A candidate seeking election to the District Board must qualify by paying a filing fee or by obtaining the signatures of at least 3 percent of the qualified electors residing within the District on a petition to be verified by the Lee County Supervisor of Elections.
- Any candidates seeking election to the District Board will open a depository and appoint a campaign treasurer before accepting any contributions or expending any funds for the purpose of seeking election to the District Board. However, if the only campaign expenditure of a candidate seeking election to the District Board is the fee required for the checking of signatures on the petition for filing, and the candidate accepts no contributions and expends no other campaign funds, it will not be necessary to open a campaign depository.

Expectations:

- Must abide by all State and Federal laws, ordinances, rules, regulations, and policies.
- Must abide by CEPD Enabling Legislation, Rules of Procedure, and Standard Operating Procedures.

- Must follow the most current edition of Roberts Rules of Order for all meetings.
- Attend all CEPD Board Meetings, Public Hearings, Special Meetings, and Emergency Meetings.
- May request items to be placed on the meeting agenda.
- Any commissioner can serve as an officer (Chair, Vice-Chair, Secretary, or Treasurer) if and when elected by the other commissioners.
- Must vote on every motion in which he/she has no personal interest. A commissioner may not abstain unless he/she has a bona fide conflict of interest as defined in Section 112.3143, F.S., as amended.
- May, only after recognition by the Chair, introduce motions, discuss subjects, and vote.
- May request to consider a subject informally, if no objection. If there is objection, he/she is obliged to put a motion which must be seconded to determine the result by a majority vote. This is debatable, but not amendable.
- May appeal a decision of the Chair without a second. This is debatable if the question was debatable, is not amendable and is decided by a majority vote.
- May move to refer the subject to the next regular meeting. This is seconded, decided by a majority vote, is debatable and amendable.
- May informally request a recess in a meeting for a reasonable time. If there is an objection, the Commissioner shall state the request in the form of a motion, which must be seconded, to determine the result by a majority vote. The length of time of the recess and the time the meeting will be reconvened must be announced before recessing. A meeting may not be recessed for more than five hours and must be reconvened the same day.
- If no motion is pending, may move to adjourn. Upon the completion of the agenda, an adjourned meeting may be "moved" by specifying the time and date of the next regular meeting. These motions are seconded and decided by a majority vote. They are not debatable but are amendable as to time.
- Attendance at the weekly workshops (on Thursdays at 1:00PM) is expected whenever possible. Not attending a weekly workshop shall not be counted as an unexcused absence.
- CEPD Commissioners may reach out directly to any CEPD Personnel as needed via email and shall copy the Executive Director so that they are able to manage the performance of staff and the expectations of Commissioners.

General Elections

CEPD Commissioners are elected in the General Election of even numbered election years to a 4-year term. To ensure the continued efficiency and effectiveness of the CEPD Board and to ensure a smooth transition of new commissioners onto the CEPD Board, not all five commissioner positions are up for election at the same time. In

election years divisible by four, three of the commissioner positions come up for election. In election years that are not divisible by four, two of the commissioner positions come up for election.

The CEPD Executive Director and any CEPD Staff do not provide any election or campaign support to incumbent Commissioners running for re-election, except to inform them of candidate filing deadlines. CEPD Personnel will not assist any potential candidates to qualify. CEPD Personnel will not submit documents to assist a candidate or incumbent Commissioner with their filing status.

- In the spring of every even numbered year, the Lee County Supervisor of Elections Office sends a form letter to all of the districts in the county, including CEPD, indicating each district's Commissioner positions that will come up for election in the upcoming November General Election. The CEPD Executive Director requests the schedule of compliance due dates for the November General Election from the Lee County Supervisor of Elections Office.
- Potential candidates for the CEPD Board positions up for election that year must obtain candidate election packets from the Lee County Supervisor of Elections Office.
- A resolution requesting the election must be passed by the CEPD Board and a copy of the resolution received in the Lee County Supervisor of Elections Office by the compliance due date, usually in early July of the year in which the election is being held. To ensure that the compliance due date is met, the CEPD Attorney ensures that the resolution properly worded and scheduled for the CEPD Board to vote on during the Regular CEPD Board meeting held in May of the year in which the election is being held. The CEPD Board will review the resolution, modify it if necessary, and pass the resolution during the May Regular CEPD Board meeting for which the vote is scheduled.
- Once the resolution has been passed by the CEPD Board during the May Regular CEPD Board meeting, the CEPD Executive Director or CEPD Staff sends a typed copy of the resolution, with original signatures of the Commissioners who formed the quorum to pass the resolution, via certified mail return receipt requested to the Lee County Supervisor of Elections Office prior to the compliance due date by which the resolution is due. (See Appendix B, Example of a CEPD Commissioner Election Resolution and Cover Letter to the Lee County Supervisor of Elections).
- If the Election is not taking place at the same time as a General Election, the CEPD Executive Director takes out a "Notice of Election" advertisement in the Ft. Myers News Press that will appear in print five weeks prior to the election date, and then again 3 weeks prior to the election date. The "Notice of Election" advertisement must conform to the Supervisor of Elections current requirements.

- Once the Election has taken place, the CEPD Executive Director accesses the Lee County Supervisor of Elections' website to determine which candidates won the election. If any candidate won the election who is not an incumbent CEPD Board member, the CEPD Executive Director will contact that individual by telephone to congratulate them and arrange for them to come into the CEPD Office for an orientation meeting prior to the date on which they will take office.
- The CEPD Executive Director will also follow up with the winning candidates, whether or not they are incumbent CEPD Commissioners, about a month after the election to ensure that they received an Oath of Office form from the Lee County Supervisor of Elections and that they returned the signed and notarized form to the Lee County Supervisor of Elections Office.
- The newly elected commissioners take office the first Tuesday after the first Monday in January.

Resignation

The CEPD shall accept a letter of resignation, notice of death, or removal of Commissioner as soon as noticed.

Resignation from Board:

- A signed and dated letter from the resigning Commissioner shall be scanned and emailed to the Supervisor of Elections.
- The same letter shall be shared via email with all Commissioners.
- The original shall be filed in Commissioner's HR file at the office.

Death while Serving on Board:

- Signed and dated letter from the Administrator addressed to the Supervisor of Elections shall be sent upon notification of death.
- The letter shall be placed in Commissioner's HR file at CEPD office.

Removal from Office:

- Any Commissioner with three unexcused absences in a year may be removed from the Board by the current Commissioners.
- A vote for removal must be approved by the majority of the Board. Minutes of that meeting shall be sent to the Supervisor of Elections with an email noticing the removal.
- A formal letter signed by the current Chair shall be sent to the Commissioner being removed.
- The same letter shall be placed in the Commissioner's HR file at CEPD office.
- Form 1F must be submitted to the Supervisor of Elections by the Commissioner removed, within 90 days of removal.

Appointment

The CEPD Executive Director shall solicit applications to fill a vacancy on the CEPD Board of Commissioners.

Solicitation shall be made as follows:

- Announce vacancy at the next Board meeting.
- Send a Beach Brief announcing vacancy within 2 days.
- Announce vacancy at next Captiva Community Panel meeting.
- Place an advertisement in the local newspaper for a minimum of 2 weeks.

Applicants will be requested to submit an application, as well as a resume/c. vita, or other background information. Upon receipt of all applications, submitted information will be distributed to current Commissioners. Appointment shall be placed on the agenda as soon as practicable.

Each applicant will be requested to attend a scheduled board meeting to present their qualifications. Each Commissioner will then have time to ask the individual any questions. Each applicant will be provided an equal amount of time at the discretion of the Chairman. If more than one seat is vacant, the following steps should be performed separately for each vacant seat.

Upon completion of the interviews, each Commissioner shall rank the applicants in order of preference with the top applicant receiving the numerical value of one (1) and the next highest applicant receiving the numerical value of two (2) and the ranking process continuing through the remaining number of applicants. These rankings shall be signed by each commissioner and provided to the Board Secretary (or an appointee) who will verbally read the results as required by Sunshine Law and will rank each as follows:

- The person with the most first place votes is announced and the call for motion, second, and vote will be taken.
- In the case of a tie, remove all candidates that are not included in the tie.
- Tally the total numbers for the two candidates that tied.
- The candidate with the lowest total is announced and the call for motion, second and vote is taken.
- If there is still a tie, discussion should ensue, and a vote taken again.
- Re-tally with the most first place votes.
- Should the motion fail, subsequent motion(s) shall be considered until the Board fills the vacancy.

Once the Board has voted on a commissioner the Supervisor of Elections requires a copy of the Board Minutes, the Oath of Office, and Form 1 Statement of Financial Interests to the Lee County Supervisor of Elections office and to the Florida Division of Elections in Tallahassee.

Organization of the Board

The Organization of the CEPD Board of Commissioners occurs once annually during the December Board Meeting. CEPD Commissioners and the CEPD Executive Director will perform the Organization of the Board as outlined in SECTION IV of the CEPD Rules of Procedure.

Chairman

The Chairman:

- May call a member to order if his/her remarks are not relevant to the subject under discussion, or for lack of decorum.
- Is obliged to vote on each motion in which he/she has no personal interest. The Chairman may not abstain unless he/she has a bona fide conflict of interest as defined in Section 112.3143 F.S., as amended.
- May discuss a motion as any other Commissioner without relinquishing the Chair.
- May call for a reading of the motion after discussion, but before voting.
- In the event of a tie vote, shall rule the motion is lost.
- Shall recognize Commissioners in the order of their request to speak, except the maker of the motion may be the first speaker.
- Is authorized to appoint committee or designate members to other committees consisting of Commissioners only if no objection is raised. If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This motion is debatable and amendable.
- May call a recess for a reasonable time. If there is an objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is not debatable but is amendable as to time. The length of time of the recess and the time the meetings will be reconvened must be announced before recessing. A meeting may not be recessed for more than five hours and must be reconvened the same day.
- May refer the subject to the next regular meeting if no objection is raised. If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is debatable and amendable.
- If no motion is pending, may ask, "Is there any further business?" Hearing no response, the Chair may then state, "Since there is no further business the meeting is adjourned." If there is objection, he/she is obliged to call for a motion which must be seconded to determine the result by a majority vote. This is neither debatable nor amendable.
- Is authorized to sign for Board approved contracts and to approve administrative expenditures or non-administrative, non-recurring expenditures under \$12,000.

Vice Chairman

The Vice Chairman:

- Shall serve as the Chairman in his/her absence.
- Should liaise with the Executive Director often to ensure enough knowledge of the current issues to stand in on short notice.

Secretary

The Secretary:

- Shall serve as the Chairman in the absence of the Chairman and Vice Chairman.
- Is the Recording Officer and may delegate recording duties to CEPD Personnel.

Treasurer

The Treasurer:

- Shall provide a financial update to the Board at every Regular Meeting. This duty may be delegated to the accountant.
- Shall provide general oversight of all banking accounts and financial transactions for the District.

Board Member Emeritus

There shall be a category of Board member known as a Board Member Emeritus who is nominated and elected by the Board of Commissioners. Board Members Emeritus shall be selected from those Board Commissioners who have served with distinction and excellence. Emeritus members shall serve two (2) year renewable terms for as long as they remain active in the work of the Captiva Erosion Prevention District, and either the Board or the Member Emeritus may end the term at any time. Emeritus member candidates will have served the Board with distinction and are considered deserving the same for outstanding service.

A Board Member Emeritus shall be entitled to receive all written notices and information which are provided to the Board of Commissioners, to attend all Board of Commissioners meetings, and encouraged to attend all other events conducted by Captiva Erosion Prevention District. A Board Member Emeritus shall not be subject to any attendance policy, counted in determining if a quorum is present at a meeting, entitled to hold office, or entitled to vote at any board meeting. The Commissioner in consideration must no longer be a current member of the Board.

ELIGIBILITY:

In order to be considered for designation as a Board Member Emeritus, a person must be a former member of the Captiva Erosion Prevention District Board of Commissioners who:

- Has served the CEPD Board with distinction.
- Held an important leadership role and made or continues to make significant contributions.
- Engaged in major volunteer or advocacy activities in his/her service on the Board.

- Completed the term(s) for which he/she was appointed or elected.

ELECTION:

Any active Board member shall make the recommendation for a potential candidate and may nominate one (1) or more individuals for a Board Member Emeritus position.

- Nominations will be made at a regular Board meeting via a formal letter from the nominating Commissioner. The nomination shall be placed on the agenda and the letter included in the materials.
- A majority vote of Commissioners at a Regular Board Meeting at which a quorum is present is sufficient to approve an appointment.

SECTION II: Executive Director

Duties and Responsibilities

The CEPD Executive Director shall be responsible for:

- Reporting to and taking direction from the CEPD Board of Commissioners. Primarily, though not exclusively, the Chairman. Such will be in accordance with all CEPD policies and procedures.
- Coastal management functions relative to:
 - State Funding 10-year Projections
 - County Funding Projections
 - Maintaining a firm understanding of the state and federal beach management programs as well as the beach nourishment planning, permitting, construction, and monitoring processes, and coordinating the entire process. Similarly, coastal resilience and coastal erosion in general.
 - Maintaining a firm understanding of the state and federal beach management programs as well as the beach nourishment planning, permitting, construction, and monitoring processes, and coordinating the entire process.
 - Developing and maintaining knowledge and understanding of coastal resilience and coastal erosion in general, and the state and federal initiatives, agencies and programs that focus on those issues.
 - Developing, maintaining, and managing the Beach Nourishment project plan.
 - Developing, publishing, and managing RFIs and RFPs and the vendor selection process for beach nourishment projects.
- Filing quarterly reports and reimbursement requests with federal, state, and local entities for all active grant contracts. Maintaining a detailed accounting record of grant contract tasks, invoices paid, and the funding remaining in existing grant contracts and annual grant requests to appropriate county functions such as TDC/VCB.

- Facilitate the economic apportionment process for the Captiva property local share of funding for beach nourishment projects.
- Conducting periodic and immediate post-storm beach inspections, remaining familiar with the general beach conditions, and articulating beach storm damage assessments quickly to the CEPD Commissioners, state and federal agencies, and the public.
- Coordinate with Lee County on the clean-up of large amounts of debris or fish kills on the beach or in water and mangroves around Captiva Island as required.
- Providing Board meeting support by developing the agenda with the Board Chairperson and assisting the Chairman in facilitating the meeting and reporting/discussing strategic initiatives.
- Managing/overseeing the look and feel and content requirements of the CEPD Website, creating content or coordinating the creation of content for the website.
- Performing special projects for CEPD Board Members or other personnel designated by the CEPD Board as prioritized by the Chairperson.
- Coordinating Legal functions, such as:
 - Timely production of Election relevant processes and resolutions.
 - Legal review by CEPD Attorney of contracts, public communications, and resolutions.
 - Timely submission of Financial Disclosures and other state and county required qualification requirements by CEPD Commissioners.
- Performing public relations functions, such as educating and familiarizing the stakeholders with CEPD coastal resiliency projects.
- Becoming involved with, and attending meetings of, other organizations that have a coastal management dimension to their purview, e.g. Florida Shore and Beach Preservation Association, Lee County Coastal Advisory Committee, Lee County Tourist Development Board, etc..
- Maintaining working relationships and promoting CEPD goals and objectives with other governmental and non-governmental organizations
- Developing and continuing to improve the quality of CEPD Board-approved standard operating procedures and schedules for performing CEPD Administration Functions.
- Populating the CEPD Master Calendar with strategic events and maintaining those events.
- Reviewing the CEPD General Ledger and periodic financial reports produced by the CPA for completeness and accuracy.
- Forecasting funds availability requirements and ensuring they are fulfilled.

- Maintaining working relationships with CEPD’s financial institutions, the CEPD Economist, the Lee County Tax Collectors, Property Appraisal Office, and Captiva Realtors.
- Performing Annual Tax Roll Processing.
- Conduct periodic and immediate post-storm beach inspections, remaining familiar with the general beach conditions, and articulating beach storm damage assessments quickly to the CEPD Commissioners, state and federal agencies, and the public.
- Develop and maintain the CEPD Geographic Information Systems database.
- Maintain and update the CEPD website with relevant information.
- Provide management to CEPD Employees.
- Responding to E-mail, voice mail, and/or regular mail received relative to strategic CEPD functions.
- The Duties and Responsibilities of the Executive Director may be delegated to other staff as the Executive Director sees fit.

SECTION III: Deputy Director

Duties and Responsibilities

The CEPD Deputy Director shall be responsible for:

- Reporting to and taking direction from the Executive Director.
- Any task assigned as outlined in SECTION II: Executive Director that has been delegated by the Executive Director
- Providing board meeting support such as developing each meeting agenda with the Chairman and Executive Director and compiling and distributing meeting materials.
- Publishing legal notices and various related advertisements pursuant to state and local law to ensure public meetings meet statutory requirements.
- Attending all board meetings (onsite and offsite) and taking meeting minutes.
- Overseeing the board election process, including preparation of necessary legal advertisements, and maintaining legally required reports of candidates.
- Assisting with budget preparation and annual tax roll processing.
- Demonstrating continuous effort to improve operational efficiency and work cooperatively to provide quality seamless customer service.
- Assuring accuracy of information processed for distribution and compliance with all applicable statutes.
- Keeping abreast of, and recommending changes to, all aspects of the agency’s processes, including proposed changes or amendments to the operating standards, assessing the impact of changes on current policies and procedures of the agency.

- Maintaining legal and official agency documents; serving as custodian of official agency records and correspondence; providing access to public records; processing requests for public records.
- Managing/overseeing the look and feel and content of the CEPD website, creating content, or coordinating the creation of content for the website.
- Performing special projects at the direction of the Executive Director.
- Fulfill the duties of the Executive Director in their absence.

Coordinating legal functions and review with CEPD Attorney, such as:

- Submission of financial disclosures by Commissioners
- Review and revision of Rules of Procedure and Standard Operating Procedures.
- Contracts
- Public communications
- Performing technical administration functions as required

Administrative functions can be categorized as:

- Relationship management functions.
- General administration functions.
- Financial administration functions.
- Technical coastal management functions.
- Government grant acquisition and grant writing.
- Performs other related duties as assigned.

SECTION IV: Attorney

Duties and Responsibilities

The CEPD Attorney:

- or such member of his/her office as he/she may designate shall be available upon request of the District Board at all regular meetings.
- Shall draft and/or review contracts, resolutions, interlocal agreements, and other legal documents.
- Shall review and approve in a timely manner the legality of all budget procedures as outlined in Rule 2.01: Budget of the CEPD Rules of Procedure.
- Shall advise on District legal matters.
- Shall assist in obtaining financing.
- May provide other miscellaneous types of legal assistance.

The CEPD Executive Director is the primary liaison with any attorney providing legal services to CEPD. The CEPD Executive Director makes the initial contact with the attorney, defines the scope of the work required from the attorney and works out the billing arrangements, subject to the approval of the CEPD Chair or the CEPD Board.

Once the attorney's services are approved, the CEPD Executive Director continues to function as the primary liaison with the attorney, although the CEPD Commissioners, CEPD Deputy Director, and any CEPD Personnel may work with that attorney as well. The CEPD Executive Director is responsible for ensuring that the attorney performs the agreed upon scope of work for CEPD and produces the agreed upon deliverable(s).

SECTION V: Accountant

Duties and Responsibilities

The CEPD Accountant:

- Will perform the bookkeeping function of the CEPD.
- Will record cash receipts from cash receipt reports, deposit slips and/or bank statements.
- Will record cash disbursements from cash disbursement reports, invoices, check stubs and/or bank statements. All information and transactions must be coded and authorized/approved by the management of CEPD.
- Will record the payroll and taxes as calculated by your payroll service provider into QuickBooks and reconcile to their monthly reports.
- Will calculate, prepare and electronically file, on a monthly basis, the sales tax return. Will notify CEPD if there is sales tax due.
- Will remit the sales tax due on behalf of the CEPD.
- Will reconcile the following accounts on a monthly basis:
 - Bank accounts, including the transfer of funds between general and capital bank accounts.
 - Parking lot credit card transactions.
 - Parking lot cash receipts.
 - Payments of non-ad valorem project assessments, including payoff of assessment and Tax Collector disbursements to CEPD ledger of assessments.
 - Disbursement of ad valorem tax payments from Tax Collector to CEPD general account.
 - Financial reconciliation of all grants and projects.
- Will reconcile credit card statements and loan balances, as applicable, using information provided by CEPD.
- Will run detailed general ledgers for CEPD.
- Will prepare and electronically file the annual Forms 1099
- On an as needed basis, will:
 - Support the Board Treasurer in providing a financial report to the Board of Directors at monthly Board meetings.
 - Wire transfer funds when necessary.

- Prepare non-ad valorem project assessment roll for Tax Collector (once a year).
- Determine pay-off balances of project assessments for real estate sales within two workdays of receipt.
- Generate pro forma budget forecast.
- Assist in preparing annual budget.
- Attend monthly Board meetings, annual budget workshops and budget hearings.
- Provide audit support including preparing schedules and drafting MD&A as requested by auditors.
- Provide audit documents to the State Auditor General and AFR to Florida Department of Financial Services.
- Will prepare the monthly, cash basis financial statements of CEPD, which will comprise of the following:
 - Comparative General Fund balance sheet – cash basis.
 - Comparative Capital Projects Fund balance sheet – cash basis.
 - Comparative General Fund budget performance – cash basis (summary and detailed).
 - Comparative Capital Projects Fund budget performance – cash basis (summary and detailed).
 - Reserve accumulations – cash basis.

SECTION VI: Coastal Resiliency Manager

Duties and Responsibilities

CEPD desires to engage and fund an SCCF Coastal Resiliency Manager to perform coastal resilience research, multi-organizational coordination, public education, and related functions (the “Project”).

Project Personnel: SCCF will employ a Coastal Resiliency Manager, as it reasonably deems appropriate, in order to efficiently fulfill the needs of the Project in a professional manner. Any such individual will be solely employed or contracted by SCCF on a full-time basis, on such terms as it reasonably deems appropriate, consistent with SCCF’s compensation and benefit structure, policies and procedures. SCCF may utilize any Project personnel for duties unrelated to the Project including, without limitation, research and education regarding resilience issues affecting Sanibel Island or surrounding watersheds. The Chief Executive Officer of SCCF will determine, in their sole discretion, who will be hired, contracted, or assigned to the Project; the Coastal Resiliency Manager or any Project personnel will report directly to the Policy Director of SCCF, and CEPD will not be considered a “joint employer” of the Coastal Resiliency Manager or any Project personnel.

The Coastal Resiliency Manager will meet with the Executive Director of CEPD on at least a bimonthly basis to report on the goals, strategy and progress of the Project, and the Executive Director of CEPD may function in an advisory capacity on the Project. Both the CEPD Executive Director and a liaison to the CEPD Board can request the completion of tasks that have general board consensus. The SCCF Policy Director and Chief Executive Officer may assess if scope of work and requested timelines are reasonable and in balance with SCCF and CEPD's shared priorities and appropriately matched to the Coastal Resiliency Manager's stated skillset and abilities.

SCCF's Coastal Resiliency Manager will work with CEPD and their partners to coordinate adaptation and resiliency strategies to address sea level rise and other flooding risks on Captiva Island and in the region, taking a collaborative leadership position to usher efforts toward long-term climate solutions, sea level rise adaptation, and resiliency strategies for Captiva within a regional system.

As part of that work, the following, while not exhaustive, are potential ways that the Coastal Resiliency Manager may contribute to the Project:

- Technical scientific review and drafting of planning documents and other written products that will further the Project.
- Assessment of funding opportunities including eligibility requirements, and applicability to the Project. Writing assistance for funding proposals. Attendance of funding webinars, and communication with funding entities.
- Collaboration with CEPD Executive Director, CEPD Lobbyist, and other partners to engage with policy makers in support of CEPD resilience efforts and associated projects.
- Monitoring and sharing of important resilience information and resources from SCCF, and other partners from Captiva, Sanibel, Lee County, and across the State of Florida.
- Development of resilience-focused public education, outreach, and engagement materials.
- Exploration and synthesis of prior scientific research or efforts that may help inform potential adaptation options for Captiva.
- Sharing of policy information on resilience legislation that can supplement the efforts of the CEPD Lobbyist. Coordination of joint letters or technical comments to help further shared policy goals.
- Support in planning community events, provision of SCCF space when feasible, and assistance in coordinating promotion of events through SCCF.

- Coordination with additional experts and resources at SCCF as applicable to CEPD's work and shared goals and objectives. Sharing of SCCF scientific data as applicable, and collection of additional data as feasible.
- Engagement in development of Lee County Hurricane Ian Recovery and Resilience Plan.

SECTION VII: Beach Ambassador

Duties and Responsibilities

The CEPD Beach Ambassador will report to and take direction from the CEPD Executive Director and CEPD Deputy Director in accordance with the CEPD policies and procedures.

The position will be responsible for performing the following functions:

- Providing parking lot support
 - Provide a customer-friendly beach parking experience.
 - Assisting visitors with parking support at the Alison Hagerup Parking Lot.
 - Assisting visitors to make payment for parking.
 - Directing traffic as needed.
 - Assist with parking lot cleanliness.
- Beach Monitoring
 - Perform daily beach reports to the Mote Marine Lab.
 - Pick up debris on the beach as needed.
 - Safely operate and maintain beach vehicle used for CEPD Beach Monitoring.
- Performs other related duties as assigned.
- May perform administrative duties as delegated by the CEPD Executive Director or CEPD Deputy Director.

Conduct

Any CEPD personnel who are performing official CEPD duties shall do so with personal safety in mind. If work is performed outside, CEPD Personnel will take into consideration the current weather (i.e., temperature and storm forecasts) and prepare themselves accordingly.

All public interaction shall be conducted in a friendly and respectful manner with the intent to serve, inform and educate. Access to the beach will be managed in consideration of beachgoers; either entering or leaving the beach.

Subject matter that may come up as a function of observing beachgoers creating a negative impact on the beach, may require a reminder about observing Section 14-172(b) of the Lee County Ordinance No. 05-14. No person may conduct or allow any of

the unauthorized activities on the beach, upon a dune or in the water adjacent to the beach, unless otherwise specifically permitted in accordance with section 14-172(b).

Captiva Erosion Prevention District is not an enforcement agency. If any beachgoers are in violation of the beach rules and do not comply with a verbal warning, please contact the Lee County Sheriff's Office.

Beachgoers are advised to adhere to the following items, while using the beach:

- Do not harass or disturb wildlife.
- Planting vegetation other than native dune vegetation seaward of the Erosion Control Line is prohibited.
- Do not destroy or harm a dune or mow or remove native dune vegetation.
- Maintain the beaches free of litter, garbage, trash or refuse, vegetative clippings or debris.
- It is unlawful to deposit and leave human or animal waste.
- It is harmful to destroy or grossly alter the natural wrack line by grooming or conducting non-selective wracking except as authorized in section 14-174.
- To excavate, mine, remove or haul sand or soil from the beach or dune, except in emergency situations as permitted by DEP, is unauthorized and may result in harm to native wildlife.
- Do not detonate any explosive devices, including fireworks.
- Open fires on the beach are not authorized without a permit.
- It is unacceptable to temporarily reside, camp or sleep after dusk or before dawn anywhere on the beach.
- Administer any commercial activities not explicitly authorized by the County Code or by other county ordinances.

Vehicle Operation

The scope of services for CEPD owned vehicles include routine surveys, participation in the MOTE Marine Beach Conditions Reporting System, post-storm inspections, and maintenance issues. Use of any CEPD owned vehicle is for official use by authorized staff as delegated by the CEPD Executive Director only.

- Driving on beaches by unauthorized vehicles may increase risks and harm to nesting and feeding activities of resident and migratory wildlife. The CEPD will coordinate, work in partnership, and accomplish common goals with the Sanibel-Captiva Conservation Foundation (SCCF), which is the state permit holder for Florida listed wildlife.
- Activities of the CEPD strive to protect, preserve, and enhance the beach, shorelines, mangroves, and dune system to inhibit erosion. The vehicle must be operated with safety as the number one priority.

- The vehicle shall be stored under the office building where CEPD is the tenant, per CEPD agreement with the office Landlord. Gasoline and oil must be checked and refilled whenever at ¼ tank. Gas is to be filled at South Seas Plantation.
- The beach vehicle will be washed down using freshwater after every operation. This will involve washing the undercarriage and removing any beach sand or debris from in and around the running gear.
- Perform a general observation of the condition of the vehicle and report any items requiring repair or replacement to the CEPD Executive Director or CEPD Deputy Director.
- Any person operating CEPD owned vehicles will do so in a non-intrusive manner to respect residents, guests, tourists, and wildlife using the beach.
- The vehicle operator must pay full attention to the condition of the beach to avoid any uneven surfaces, holes, or pits that might cause the vehicle to get stuck or overturn.
- Enter the beach only at designated access points and proceed directly to the hard-packed sand near or below the mean high tide line.
- Never drive into or over any dunes or over beach vegetation. If beach conditions require driving above the high tide line, avoid those areas with identified sea turtle nests or shorebird breeding areas by a minimum of ten feet.
- Avoid the wrack line or areas of dense seaweed, which may contain sea turtle hatchlings or baby birds.
- Drive a maximum of 10 mph. Movement should be slow enough to observe any bird eggs, chicks or sea turtle hatchlings in the vehicle's line of travel. Be aware that recently hatched chicks often feed along the water's edge. They may freeze in place rather than run away when approached.
- No driving on the beach at night.
- Do not park vehicles adjacent to nests or posted areas.
- Vehicle use must not be before 9:00 a.m. or before completion of daily monitoring for turtle nesting activity by an FWC-authorized marine turtle permit holder.
- If a sea turtle crawling out of the surf is observed, stop the vehicle and turn off all lights. No additional movement should occur until the turtle moves across the beach and begins digging her nest or moves into deeper water. Do not approach the turtle. Call the SCCF Sea Turtle Hotline at (978) 728-3663 for further guidance.
- Driving below the most recent high tide line can be difficult to accomplish while respecting beachgoers, but remaining low on the beach is the highest priority to minimize beach impacts.

Coastal Inspection

CEPD staff members will inspect the coastal conditions for significant concern. Some of the physical surveys of the beach are as follows but are limited to the evaluation scope:

- Narrow Beach Width
- Escarpments
- Debris
- Destruction to Dunes or Wildlife
- Invasive Species
- Seawalls
- Mangroves
- Seagrass Beds
- Unauthorized signage
- Fish Kills
- Harmful Algal Blooms

A COMPREHENSIVE PLAN

TO MAINTAIN CAPTIVA'S BEACHES

CAPTIVA EROSION PREVENTION DISTRICT

The Board of Commissioners:

Doris Bowen, Chair
Dave Jensen, Vice Chair
Rene Miville, Secretary Treasurer
Eric Stang, Commissioner
John Madden, Commissioner

Consultant:

Coastal Planning & Engineering, Inc.

Adopted: July, 1990
Amended: December, 2000

Table of Contents

PART I - THE DISTRICT	3
History.....	3
Authority and Responsibility	3
Structure.....	3
PART II – THE SHORE PROTECTION PROGRAM.....	4
Overview.....	4
Project History	4
Design	5
Borrow Area Resources	5
Monitoring	5
Economic Planning	6
Permitting.....	6
Funding	6
Federal Funding	6
State Funding	7
County Funding.....	7
Captiva Funding.....	7
Emergency Maintenance Plan	8
Public Beach Access and Parking	8
Turner Beach Park.....	8
Captiva Road Parking.....	8
Hurricane Evacuation Route Protection	8
Natural Resource Protection.....	9
Clam Bayou.....	9
Blind Pass.....	9
Redfish Pass	10
PART III - GOALS, OBJECTIVES AND POLICIES.....	12
GOAL AREA I: Shoreline Protection.....	12
Objective I.A	12
Policy I.A.1	12
Policy I.A.2	12
Policy I.A.3.....	12
Policy I.A.4	12
Policy I.A.5	12
Policy I.A.6	13
Policy I.A.7	13
Policy I.A.8	13
Objective I.B	13
Policy I.B.1	13
Policy I.B.2	13
Policy I.B.3	13
Policy I.B.4	13
Objective I.C	13
Policy I.C.1	13
Policy I.C.2	14
Objective I.D.....	14
Policy I.D.1.	14
Policy I.D.2.	14
GOAL AREA II: Natural Resource and Recreation Protection	14
Objective II.A.....	14

Policy II.A.2 14
Policy II.A.3 14
Objective II.B..... 15
GOAL AREA III: Cost and Funding Protection 15
Objective III.A 15
Policy III.A.1..... 15
Policy III.A.2..... 15
Policy III.A.3..... 15
Policy III.A.4..... 15
Objective III.B..... 15
Policy III.B.1 15
Policy III.B.2 16
Policy III.B.3 16
Policy III.B.4..... 16

PART I - THE DISTRICT

History

The CEPD was created in 1959 by an act of the Legislature. During the period between 1959 and 1981, the Board was active in helping residents construct structural solutions to erosion, and installing experimental structures to prevent erosion damage.

The Captiva Erosion Prevention District, as we know it today, was reestablished by the Florida Legislature in 1981 as a beach and shore preservation authority.

Authority and Responsibility

The Captiva Erosion Prevention District is an independent special district with taxing authority. The boundaries of the District include all of Captiva Island, from the centerline of Blind Pass to the centerline of Redfish Pass, and extend 300 feet into the Gulf of Mexico and Pine Island Sound.

The District has all the powers and duties of a beach and shore preservation authority under the provisions of Chapter 161.32, F.S. These include:

- Developing and executing a logical and suitable program for comprehensive beach and shore preservation.
- Constructing and maintaining erosion prevention projects.
- Exercising jurisdiction, control and supervision over erosion prevention projects within the District. This includes making and enforcing rules and regulations.
- Establishing rules for its government and proceedings.
- Purchasing, holding, leasing and disposing of real estate and personal property, such as offices and equipment.
- Borrowing funds.
- Exercising the power of eminent domain.
- Entering into contracts and agreements with other governments.
- Contracting for the services of consultants such as engineers, attorneys and accountants. Hiring employees and agents.
- Exercising other legal powers and duties of a government, including the ability to sue and be sued, enforce its rules and regulations, receive and accept grants, and pay its debts.

Structure

The Captiva Erosion Prevention District is governed by an elected board of five Commissioners, each of whom is a qualified elector residing within the District. Commissioners are elected to four year terms and receive no compensation. The Board sets the policies of the District, and employs a District Administrator to carry out day to day operations.

PART II – THE SHORE PROTECTION PROGRAM

Overview

The Captiva Shore Protection Project is an on-going beach nourishment program that mitigates erosion of the island by periodically placing sand dredged from offshore sources onto the beach. Performance of the beach is monitored and assessed annually. Maintenance nourishment projects are constructed to replace sand lost to erosion over the nourishment cycle - the interval between scheduled beach nourishment projects. Based on experience to date, the nourishment cycle for the Captiva Shore Protection Project is approximately eight years. Other aspects of the Shore Protection Program include the Emergency Maintenance Plan and the District's participation in hurricane evacuation route protection, natural resource protection and the management of Blind Pass and Redfish Pass.

Project History

Between 1961 and 1981, a number of structures and a small fill project were constructed in response to erosion. A beach fill, in conjunction with construction of a groin field, placed 107,000 cubic yards of material from the bay side of the island onto the beach in 1961. Structures built in the 60's and 70's included over 100 groins and several sandbag breakwaters. In 1972, a rock groin was constructed at Blind pass by Lee County to protect the bridge and the evacuation route. A terminal rock groin at Redfish Pass was built in 1977 as part of an erosion control project that later placed sand on South Seas Plantation.

In 1981, South Seas Plantation constructed a beach nourishment project consisting of the placement of 655,000 cubic yards of fill dredged from the Redfish Pass ebb shoal. The fill area extended from Redfish Pass south for 1.9 miles. The project also included upgrading of a terminal groin at Redfish Pass. The funding for this private initiative was provided by a municipal services taxing unit (MSTU) of property owners within South Seas Plantation.

Initial construction of the current island-wide Shore Protection Project took place in 1988/1989, with the placement of 1.6 million cubic yards of sand dredged from the Redfish Pass ebb tidal shoal. The fill extended along 4.6 miles of Captiva Island. This project also included a 100' extension of the terminal groin that had been constructed by Lee County at Blind Pass.

The first maintenance nourishment of the Shore Protection Project was completed in 1996, placing 817,300 cubic yards of sand on 4.8 miles of Captiva Island, and an additional 237,100 cubic yards on 0.74 miles of Sanibel Island, for a total of 1,054,400 cubic yards. Fill was dredged from offshore borrow areas.

Design

Project design includes an evaluation of previous designs and beach performance based on the results of annual monitoring and borrow area investigations for each nourishment. A design report is developed to determine the required beach cross section needed for storm protection and the amount of additional fill (advance fill) needed to allow for erosion between nourishments. Since the CEPD intends to pursue long-term permits, this report will address multiple maintenance projects. Final design includes the development of plans and specifications for bidding each beach nourishment project.

The project area includes all of Captiva Island, and approximately the northern 6,000 feet of Sanibel Island. Sand is dredged from offshore borrow areas and placed on the beach in a specific cross section. This cross section provides storm protection and recreation beach.

Beach nourishment projects are designed to maintain the integrity of the design beach section by the placement of a sufficient volume of sand, known as advance fill, seaward of the design section. The design section is defined as the cross section needed to provide a protection against upland damage. The advance fill volume is consistent with the projected erosion during the time interval between the periodic renourishment projects, known as the nourishment cycle. As a result, the established level of storm protection is designed to be maintained over the nourishment cycle.

Borrow Area Resources

Borrow areas are offshore sand sources consisting of deposits of material with a grain size similar to the existing beach, and a low proportion of silts and clays. Borrow areas are developed through geotechnical investigations that identify and map sand deposits meeting the criteria for beach nourishment. Beach nourishment fill is dredged from these borrow areas and brought to the beach using hydraulic or hopper dredge techniques. In line with policies to utilize a long-term permit approach, borrow areas with a sufficient volume of sand to construct two scheduled maintenance nourishment projects and one emergency maintenance project are identified. Therefore, borrow area resources will be updated after every other beach nourishment, or approximately every sixteen years.

Monitoring

Monitoring studies are performed to track the performance of the beach nourishment project, and to identify erosion and accretion patterns within the project limits and along adjacent shorelines. The District's monitoring program also maintains an updated baseline from which to assess the actual storm damage from major storms in order to qualify for FEMA funding. Monitoring studies are used as planning tools, estimating the timing of the next periodic maintenance project and refining the project design needs and advance fill. The monitoring program currently consists of the following:

Beach and hydrographic surveys of DEP profiles R84 to R109 on Captiva Island, and DEP profiles R110 to R120 on the northern 11,000' of Sanibel Island.

Color aerial photographs of the Captiva and northern Sanibel shorelines at an approximate scale of 1" = 1,000'.

A comprehensive coastal analysis and monitoring report, detailing results of monitoring performed.

Bathymetric surveys of the Blind Pass and Redfish Pass ebb tidal shoals are performed in alternate years.

Economic Planning

An economic plan is developed for each maintenance nourishment project to assess the project costs. The assessment is based upon the appraised value properties and their benefit category.

Permitting

Permits are required from both State and Federal agencies for construction of the beach nourishment project. The permit review process addresses both the engineering and environmental protection issues related to the project. Permits grant the authority to place a specific volume of sand, taken from a specific borrow area, in a defined project area.

Since future beach nourishment projects will consist of periodic maintenance, the District has determined that a long-term permit approach will be the most cost effective option for obtaining necessary permits. Therefore, permit application will identify multiple nourishment project over a period of approximately 15 - 25 years, and will include sufficient borrow area resources for several projects.

Funding

The Shore Protection Project is eligible for funding by Federal, State and County sources, based upon the level of accessibility by the general public and its protection of upland resources.

Federal Funding

Federal participation in the project area was authorized as part of the Lee County erosion control project in 1970. Federal interest in the Captiva Island segment was confirmed by the U.S. Army Corps of Engineers through a summary Report in 1987. Authority for the local sponsor to construct the project was provided by the Secretary of the Army through a local cooperation agreement with the CEPD in 1988.

In 1999, the authority for Federal participation was extended to 50 years from the date of initial construction. This means that the Federal government may appropriate funds to share in the project related costs, on a reimbursement basis, through 2039.

The Federal interest in each maintenance nourishment project is justified through an update of the General Design Memorandum (GDM). The GDM establishes the technical, economic, and environmental parameters of the project, and the Federal share of costs. The Federal share of project cost is a function of the amount of eligible shoreline in the project area. Storm protection and recreation benefits provided by the project design must be greater than the cost projected. Eligibility is a function of public accessibility and the protection of public resources.

The Federal share of project costs is appropriated by Congress through the Energy and Water Resources Appropriations Act, as part of the Federal budget process.

The Federal share of project costs are reimbursed by the U.S. Army Corps of Engineers (USACE) through a Project Cooperation Agreement (PCA). This agreement summarizes the authorities and project parameters established in law and in the GDM, as well as defining the method and schedule of payments of Federal funds.

State Funding

The project area has been designated as a critical erosion area by the State, which allows the State to participate in project funding. The State shares in project costs for the eligible portions of the project. Eligibility is a function of public accessibility and the protection of public resources.

The State share of project cost is appropriated by the Florida Legislature as a part of the State budget process. The State share of project cost is reimbursed by the Florida Department of Environmental Protection through a funding contract.

County Funding

The local share of funds for the project currently includes an assessment to Lee County as a property owner, which has historically been funded by bed taxes. County funding is addressed through an interlocal agreement.

Captiva Funding

The District's operating costs are funded by the residents through ad valorem taxes. Ad valorem taxes are assessed and levied for the CEPD by Lee County to pay for the maintenance, operation and other corporate purposes of the District.

The local share of funds for beach projects is provided by the residents of Captiva through special assessments. The levy of such assessments requires approval of a referendum. General obligation bonds are issued to pay project costs. Bond costs are

then retired through the payment of special assessments and reimbursements by State and Federal agencies. Based on an economic analysis of the project, the nature and extent of benefits expected to accrue from the project are allocated to recipients by benefit categories or zones of comparable benefits. Areas of equal benefit are placed in the same zone.

Emergency Maintenance Plan

In December, 1998, the Board adopted the Captiva Island Emergency Maintenance Plan. This plan addresses the planning and actions needed to respond to major storm damage to the shore protection project. Planning issues to position the District for immediate response are described including permitting, plans and specifications, and funding options. Actions to implement the plan are defined and described. The Emergency Maintenance Plan should be reviewed annually, and updated as needed.

Public Beach Access and Parking

Public access to the beach is available at a number of locations throughout the project area. Specific types of accessibility make the Shore Protection Program eligible for State funding. Generally these include public parking, pedestrian access points, and hotels. Public parking areas include:

Turner Beach Park

Located on both sides of Blind Pass, Turner Beach Park provides a total of 59 metered parking spaces (32 spaces on Captiva, 27 spaces on Sanibel). This park also includes restroom facilities.

Captiva Road Parking

Located at the end of Captiva Road adjacent to South Seas Plantation, this area provides 45 metered parking spaces.

In addition to public parking areas, there are a number of areas that provide pedestrian access. These include street ends at Laika Lane, Wightman Lane, Andy Rosse Lane, and the Captiva Road parking area; a pedestrian access near the cemetery at the end of Captiva Lane; northern Sanibel from Blind Pass to Bowman's Beach; and the area where Sanibel-Captiva Road (SR 867) abuts the beach.

Area resorts also provide beach access and parking for their guests.

Hurricane Evacuation Route Protection

Captiva Drive (SR 867), is the designated evacuation route for Captiva Island, and is the only road access to and from the island. Throughout much of the length of the island, this road parallels and directly abuts the beach. Historically, parts of Captiva Drive have been threatened by erosion, and have been closed due to undermining from beach

erosion. Protection of the evacuation route is an important goal of the shore protection project. Maintenance of the design section provides a buffer that protects Captiva Drive from undermining.

Natural Resource Protection

The Captiva Erosion Prevention District is involved in and endorses a number of programs to protect natural resources on Captiva and in the region. Included among these are:

Sea Turtle monitoring is performed annually by the Sanibel Captiva Conservation Foundation, a non-profit organization. Nesting patterns are monitored for both Sanibel and Captiva Islands by volunteers. The nesting data is utilized by the District in its planning for the Shore Protection Program.

The District has included dune revegetation in its beach nourishment project plans to reestablish or enhance dune areas damaged by erosion. In addition, the District encourages property owners to plant native vegetation on the dune and in adjacent areas and to remove exotic plant species. As part of its regulatory function, the District reviews coastal planting plans on private property and requires appropriate plant diversity.

Clam Bayou

Water quality monitoring and reopening as needed are a nourishment project permit condition. Water quality is monitored twice a year by the City of Sanibel. Water quality reports are submitted to the Florida Department of Environmental Protection by the District. Excavation to reopen Clam Bayou is scheduled when water quality falls below state standards. To date, excavation of the Clam Bayou entrance has been performed by the City of Sanibel and paid for by the District.

Blind Pass

Blind Pass is located between Captiva Island and Sanibel Island. Historically, the pass opened and closed naturally, at a number of locations near the northern end of Sanibel Island, in response to storm events and erosion patterns. The 1921 opening of Redfish Pass impacted Blind Pass, capturing a significant portion of the tidal prism, thus restricting water flow through the pass. The littoral transport of sand from north to south could, therefore, be captured at the inlet, increasing erosion on northern Sanibel and southern Captiva. Since 1972 with the construction of a bridge and abutments, the pass has not functioned naturally; bridge construction stabilized the inlet location.

A terminal groin at the south end of Captiva Island was constructed in 1972 to protect the road and bridge abutments at Blind Pass. The groin was reconstructed and extended in 1988 to help stabilize a beach nourishment project on Captiva Island. The cap rocks of

the groin were left unsealed, allowing some sand to move through and around the structure.

As part of the 1996 beach nourishment project, additional sand was placed on Captiva's beaches to allow movement of sand through and around the groin to Sanibel Island. The beaches south of the pass along the first mile of Sanibel Island were also nourished to provide recreational beach and protection for the hurricane evacuation route. The nourishment project helped to reinstate the littoral movement of sand around the inlet, and to mitigate for the effects of road and beach improvements since 1972.

The Florida Department of Environmental Protection, in partnership with Lee County and the District, sponsored an inlet management study of Blind Pass in the early 1990's. This study, to evaluate the erosion impact of the pass on adjacent beaches and recommend corrective measures to mitigate identified impacts, resulted in the Blind Pass Inlet Management Plan [Study] (1993).

At the encouragement of the State, a technical review committee was established which included Lee County, the West Coast Inland Navigation District, the City of Sanibel, the Florida Department of Environmental Protection, and the District. The technical advisory committee adopted a summary of findings report and recommended implementation plan in 1998. The report identified the area of influence for Blind Pass. Within this area, which is 6,000 feet to the north and 10,000 feet to the south of the pass, the annual erosion impact of the pass was estimated at 37,250 cubic yards. The recommended implementation plan included by-passing sand equal to the inlet impact through beach nourishment of southern Captiva and northern Sanibel from all acceptable sources; and developing an interlocal agreement to address the long term management of Blind Pass. These recommendations are currently under study by the Florida Department of Environmental Protection.

In 2000, Lee County, the City of Sanibel, and the District entered into an agreement to provide for a method for allocation of future costs and responsibilities associated with Blind Pass. Through this agreement, the District and County will place sand, if needed, on the northern 6,000 feet of Sanibel Island with each regularly scheduled Captiva Island beach nourishment project. The maximum volume of sand placed will be the equivalent of 25,000 cubic yards per year. The City of Sanibel will be responsible for the cost of sand placed in other areas or beyond the maximum amount.

Blind Pass closed in 1999. In response, the District, in partnership with Lee County, the West Coast Inland Navigation District, the City of Sanibel, and the Florida Department of Environmental Protection, designed a project to restore tidal flow in the pass, placing the excavated material on Sanibel Island at the south end of Bowman's Beach Park.

Redfish Pass

Redfish Pass was cut through the barrier island by a hurricane in 1921, forming the islands of North Captiva and Captiva. During the early stages of Redfish Pass, tidal

currents transferred large amounts of sand from adjacent shorelines to rapidly developing flood shoals inside the pass and ebb shoals offshore of the pass.

Since its initial opening in 1921, the beaches adjacent to Redfish Pass have been impacted by a large number of storms. There is evidence that the opening of Redfish Pass in 1921 captured a significant portion of the tidal prism of Blind Pass, which has affected the beach processes in the area of both passes. Beaches both north and south of Redfish Pass exhibited significant erosion through the mid-1950s. There was a general accretion trend both north and south of the inlet within a few thousand feet of the inlet through the 70s. The 1980s and 90s have seen the beaches adjacent to the inlet in North Captiva erode, while beaches on Captiva Island have been stabilized by a beach restoration project and the construction of a terminal groin and the placement of a rock revetment on the north end of Captiva Island.

Portions of the ebb shoal of Redfish Pass were used as a borrow area for 1981 and 1988/89 beach nourishment projects, providing approximately 655,500 cubic yards and 1,595,000 cubic yards, respectively, for the projects. The 1981 project placed sand along 10,000 feet of beach immediately south of Redfish Pass, while the 1988/89 nourishment placed sand along the entire island, approximately 4.7 miles in length.

South of the inlet the erosion area has progressively expanded since 1921 and moved south and currently affects all of Captiva Island (4.7 miles). North of the pass, the southern beaches of North Captiva Island have eroded rapidly in the 80's and 90's threatening homes. The north interior shoreline of Captiva Island has likewise experienced recent erosion. The effect on shorelines north of the inlet extends 1.2 miles north of the pass. The total quantity captured by the inlet each year is approximately 75,000 cubic yards.

The Florida Department of Environmental Protection, in partnership with Lee County and the District, sponsored an inlet management study of Redfish Pass in the early 1990's. This study, to evaluate the erosion impact of the pass on adjacent beaches and recommend corrective measures to mitigate identified impacts, resulted in the Redfish Pass Inlet Management Plan [Study] (1995).

At the encouragement of the State, a technical review committee was established which included Lee County, the West Coast Inland Navigation District, the North Captiva property owners, the Florida Department of Environmental Protection, and the District. The technical advisory committee adopted a summary of findings report and recommended implementation plan in 2000. The report identified the area of influence for Redfish Pass and a recommended implementation plan currently under study by the Florida Department of Environmental Protection.

PART III - GOALS, OBJECTIVES AND POLICIES

GOAL AREA I: Shoreline Protection

MANAGE THE SHORE PROTECTION PROGRAM TO PROVIDE PROTECTION OF UPLAND PROPERTY AND FACILITIES ON CAPTIVA ISLAND FOR PUBLIC HEALTH, SAFETY, AND WELFARE.

Objective I.A

Mitigate erosion and storm damage to preserve the shoreline of Captiva and protect upland property.

Policy I.A.1

The CEPD assumes management responsibility for the beach maintenance program including the decision of when to undertake maintenance projects, which maintenance projects to undertake and their design and permitting.

Policy I.A.2

The CEPD will establish and maintain an efficient planning and operational program directing that maintenance projects will be automatically undertaken as needed.

Policy I.A.3.

The CEPD will pursue long-term permits for maintenance of the shore protection project.

Policy I.A.4

The CEPD will initiate periodic maintenance beach nourishment projects when any of the following conditions are present:

- (a) Volumetric loss: beach nourishment will occur when there are 800,000 cubic yards left from the initial beach restoration, or about 4/7 of the original 1988/89 placement.
- (b) Loss of beach: beach nourishment will occur when the advanced fill has eroded back to the Federal design berm width of 40 feet.

Policy I.A.5

The CEPD will not engage in emergency repair to isolated washouts. This is considered to be the responsibility of the property owner, and the repairs must be consistent with the beach management plan and all government permitting regulations.

Policy I.A.6

Existing terminal structures will be maintained to reduce erosion losses from the island.

Policy I.A.7

The CEPD will comply with all permit requirements imposed for the Beach Management Project.

Policy I.A.8

The shore protection program will be designed and managed to minimize adverse impacts of beach maintenance on adjacent areas.

Objective I.B

Conduct a monitoring and research program to: investigate causes and solutions for excessive erosion in specific areas; investigate ways to conserve sand and reduce annual erosion rates; and evaluate alternative technologies to beach nourishment for beach maintenance.

Policy I.B.1

The CEPD will undertake beach monitoring to evaluate the performance of the restoration project and to determine the need for maintenance projects.

Policy I.B.2

The CEPD will monitor significant areas of excessive erosion and significant washouts and investigate the causes and solutions for such excessive erosion.

Policy I.B.3

The District Engineer will provide the Board with an assessment of the anticipated date of the next maintenance project and its cost each time the beach is monitored.

Policy I.B.4

After the results of each performance monitoring are presented, the Board will review, update and adjust the objectives of the beach maintenance program

Objective I.C

Protect property and facilities on the island that are essential to public health, safety and welfare, including but not limited to hurricane evacuation and the public water supply.

Policy I.C.1

The Emergency Maintenance Plan will be reviewed annually, and updated as necessary.

Policy I.C.2

Special attention will be paid to problems that arise in the in the area where Captiva Drive (SR 867) abuts the beach to maintain the viability of the hurricane evacuation route and water mains.

Objective I.D

The CEPD will seek support for beach maintenance by residents and property owners of Captiva.

Policy I.D.1.

Voter approval, and the approval of property owners will continue to be secured for beach nourishment projects.

Policy I.D.2.

The CEPD will investigate methods to keep residents informed of District activities, including the potential for a newsletter and annual report.

GOAL AREA II: Natural Resource and Recreation Protection

MANAGE THE SHORE PROTECTION PROGRAM TO PRESERVE THE RECREATIONAL VALUE OF CAPTIVA'S BEACHES AND ITS NATURAL RESOURCES, INCLUDING FISH, WILDLIFE AND VEGETATION

Objective II.A

Determine environmentally sensitive means of implementing the beach maintenance program.

Policy II.A.1

The CEPD will continue to encourage property owners to remove exotic vegetation from the dune area and to plant appropriate native species.

Policy II.A.2

The CEPD endorses and encourages the existing sea turtle monitoring efforts of the Sanibel Captiva Conservation Foundation.

Policy II.A.3

The CEPD will comply with environmental requirements of permits issued for the shore protection program.

Objective II.B

The shore protection program will endeavor to provide and maintain equitable recreational benefits to residents and property owners of Captiva.

GOAL AREA III: Cost and Funding Protection

ALLOCATE THE FINANCIAL COSTS OF BEACH MAINTENANCE SUCH THAT THEY ARE IN PROPORTION TO BENEFITS RECEIVED, AND PAID FOR IN PROPORTION TO THEIR BENEFITS.

Objective III.A

Pursue a cost efficient and effective beach maintenance program using accepted economic and engineering principles.

Policy III.A.1

The CEPD will undertake economic studies to assess the economic impact of the beach and to determine beach use and benefits.

Policy III.A.2

There will be sufficient local contribution to the cost of the maintenance program to continue local management responsibility.

Policy III.A.3

The CEPD will establish a beach maintenance revolving account to help meet the anticipated design and permitting costs to be reimbursed from special assessments and reimbursements from government grants.

Policy III.A.4

The Captiva share of the cost of renourishment will be paid in arrears by special assessment.

Objective III.B

Secure as much Federal and State and County funding for beach maintenance as is practical.

Policy III.B.1

County, State and Federal regulations governing funding of beach projects will be monitored. The CEPD will work to enable Captiva's goals to be understood and its needs recognized.

Policy III.B.2

The CEPD will enter into agreements with other units of government, such as Lee County, the State of Florida and the Federal Government that provide for appropriate financial support for beach maintenance.

Policy III.B.3

The beach maintenance program will be coordinated with the Lee County Comprehensive Plan.

Policy III.B.4

Continue the Emergency Maintenance Plan to qualify Captiva Beach Nourishment Projects for FEMA funding to replace sand after a storm event.



CAPTIVA EROSION PREVENTION DISTRICT RESOLUTION 2023-02

A RESOLUTION OF THE CAPTIVA EROSION PREVENTION DISTRICT APPROVING THE VULNERABILITY ANALYSIS; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the CEPD Board has published on a duly noticed agenda, reviewed, discussed and taken public comment on April 17th, 2023;

WHEREAS, the CEPD Board desires to approve or approve with conditions the following attachments and course of action;

NOW THEREFORE, BE IT RESOLVED by the CAPTIVA EROSION PREVENTION DISTRICT:

Section 1. The CEPD Board resolves and approves the following:

Approve the Vulnerability Analysis as provided by APTIM in Exhibit A

Section 2. This Resolution shall take effect immediately upon adoption.

DULY INTRODUCED, PASSED AND ENACTED by the Board of Commissioners of the CAPTIVA EROSION PREVENTION DISTRICT, on Captiva Island, in Lee County, Florida on April 17th, 2023.

DocuSigned by:
Robert Walter
0B05BA9464E4428...

CEPD Chairman Bob Walter

ATTEST:

DocuSigned by:
Daniel Munt
DC0A8779E14D4C5...

CEPD Executive Director Daniel Munt

Approved as to legal sufficiency:

DocuSigned by:
Ralf Brookes
0CBB79C95D79490...

CEPD Attorney Ralf Brookes

Record of the Vote:

Commissioner Miville	<u>Aye</u>
Treasurer Pyle	<u>Aye</u>
Secretary Laird	<u>Aye</u>
Vice Chairman Silvia	<u>Aye</u>
Chairman Walter	<u>Aye</u>

Sea Level Rise Vulnerability Analysis Draft V4



PHASE 1

MARCH 2023, REVISED



SUBMITTED TO
**Captiva Erosion Prevention
District (CEPD)**
11513 Andy Rosse Lane
Captiva, FL 33924

SUBMITTED BY:
**Aptim Coastal Planning
& Engineering, LLC (APTIM)**
6401 Congress Avenue, Suite 140
Boca Raton, FL 33487

Table of Contents

03

List of Tables

04

List of Figures

07

Executive Summary

09

Inundation Tipping Points

10

Report Organization

11

Introduction

26

CEPD Exposure Analysis

31

Critical Infrastructure
Sensitivity Analysis

49

Transportation Assets and
Evacuation Routes Sensitivity
Analysis

61

Critical Community and
Emergency Facilities
Sensitivity Analysis

69

Natural, Cultural, and
Historical Resources
Sensitivity Analysis

75

Risk Assessment

84

Conclusions

87

Appendices

SEA LEVEL RISE VULNERABILITY ANALYSIS

List of Tables

Table 1. Original Water Level Elevations for Captiva, FL.....	19
Table 2. Consolidated Water Level Elevations for Captiva, FL.....	20
Table 3. Number of Current and Projected Flooding Days Per Year.....	22
Table 4: PDS-based Precipitation Frequency Estimates with 90% Confidence Intervals (in inches).....	27
Table 5. Wastewater Treatment Plant Average Inundation (in feet) Under Inundation Tipping Point Scenarios.....	41
Table 6. Lift Station Average Inundation (in feet) Under Inundation Tipping Point Scenarios.....	42
Table 7. Stormwater Infrastructure Inundation Under Inundation Tipping Point Scenarios.....	44
Table 8. Stormwater Infrastructure Average Inundation (in feet) Under Inundation Tipping Point Scenarios.....	44
Table 9. Inundated Roadways Classified by Owner Under Inundation Tipping Point Scenarios.....	51
Table 10. Bridge Average Inundation Depth (in feet) for Relevant Scenarios.....	52
Table 11. Evacuation Route Elevation Summary Under Inundation Tipping Point Scenarios.....	54
Table 12. Marina Average inundation Depth (in feet) Under Inundation Tipping Point Scenarios-Part 1.....	56
Table 13. Marina Average inundation Depth (in feet) Under Inundation Tipping Point Scenarios-Part 2.....	57
Table 14. Marina Impact Under inundation Tipping Point Scenarios.....	58
Table 15. Nearest Bus terminal, Airport, Port, and Seaplane Base.....	60
Table 16. On Island Critical Community Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios.....	63
Table 17. Off Island Critical Community Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios.....	65
Table 18. On Island Emergency Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios.....	67
Table 19. Off Island Emergency Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios.....	68
Table 20. Flood Likelihood per Scenario	75
Table 21. Impact Score per inundation Depth Range (in feet)	76
Table 22. Risk Ranks per Score Range	76
Table 23. Risk Matrix	77
Table 24. Risk Ranks for On Island Singular Assets.....	78
Table 25. Risk Rank Counts for Grouped Island Assets.....	81

List of Figures

Figure 1. Tide Gauge Locations Near Captiva, FL.....	16
Figure 2. NOAA 2017 Relative Sea Level Change Scenarios for Fort Myers, FL.....	17
Figure 3. Comparison of Local Tidal Datum Elevations and Flood Elevations.....	21
Figure 4. Hurricane Damage on Captiva Island.....	23
Figure 5. Hurricane Ian Water Elevation Data near Sanibel, FL	24
Figure 6. Captiva Inundation Under Eight Feet Sea Level Rise - NOAA Sea Level Rise Viewer.....	25
Figure 7. Hurricane Ian Damage on Captiva.....	25
Figure 8. Percentage of Captiva Inundated Under All Flood Scenarios	27
Figure 9. Island Inundation Comparison Map for NOAA Scenarios- 2040 NOAA Intermediate-High and 2070 NOAA Intermediate-Low	28
Figure 10. Captiva Exposure Map 1.....	29
Figure 11. Captiva Exposure Map 2.....	29
Figure 12. Captiva Exposure Map 3.....	29
Figure 13. Predicted Number of Impacted Parcels Across All Flood Scenarios.....	32
Figure 14. Percentage of Parcel Inundation Under Inundation Tipping Point Scenarios.....	32
Figure 15. Parcel Inundation Map for Inundation Tipping Point Scenarios.....	33
Figure 16. Parcel Inundation Depth Under Inundation Tipping Point Scenarios.....	33
Figure 17. Impacted Parcels by Decade Built and Parcel Value.....	34
Figure 18. Building Footprint Inundation Across All Flood Scenarios.....	35
Figure 19. Percentage of Building Footprint Inundation Under Inundation Tipping Point Scenarios.....	35
Figure 20. Building Footprint Inundation Map for Inundation Tipping Point Scenarios.....	36
Figure 21. Building Footprint Inundation Depth Under Inundation Tipping Point Scenarios.....	36
Figure 22. Impacted Building Footprints by Decade Built and Property Value.....	37
Figure 23. Seawall Inundation Across All Flood Scenarios.....	38
Figure 24. Percentage of Seawall Inundation Under Inundation Tipping Point Scenarios.....	39
Figure 25. Seawall Exposure Map for Inundation Tipping Point Scenarios.....	39
Figure 26. July 2021 Kimley-Horn Study- Unsewered Service Areas of Captiva.....	40

SEA LEVEL RISE VULNERABILITY ANALYSIS

Figure 27. Wastewater Treatment Plant and Lift Station Inundation Map for Inundation Tipping Point Scenarios.....	41
Figure 28. Stormwater Infrastructure Inundation Map for Inundation Tipping Point Scenarios.....	43
Figure 29. Electrical Transformers and Utility Boxes Location & Inundation Map for Inundation Tipping Point Scenarios.	45
Figure 30. Electrical Transformers and Utility Boxes Inundation Depth Under Inundation Tipping Point Scenarios.....	45
Figure 31. Communications Facilities Inundation Map for Inundation Tipping Point Scenarios.....	46
Figure 32. Lee County Solid and Hazardous Waste Facilities	47
Figure 33. Disaster Debris Management Sites Inundation Map for Inundation Tipping Point Scenarios.....	48
Figure 34. Roadway Exposure Across All Flood Scenarios (in linear feet)..	50
Figure 35. Captiva Roads Elevation Map.....	51
Figure 36. Percentage of Roadway Inundation by Roadway Type for Inundation Tipping Point Scenarios.....	51
Figure 37. Bridge Inundation for Inundation Tipping Point Scenarios.....	52
Figure 38. Captiva Evacuation Route Elevation.....	53
Figure 39. Captiva Evacuation Route Average Inundation Depth Across All Flood Scenarios.....	54
Figure 40. Evacuation Route Inundation Map for Inundation Tipping Point Scenarios.....	54
Figure 41. Captiva Marinas.....	55
Figure 42. 1057-1900 South Seas Plantation Road Marina Inundation Map.....	56
Figure 43. 2800-5640 South Seas Plantation Road Marina Inundation Map.....	56
Figure 44. 11401 Andy Rosse Lane Marina Inundation Map.....	56
Figure 45. 15107 Captiva Drive Marina Inundation Map.....	56
Figure 46. 15183 Captiva Drive Marina Inundation Map.....	57
Figure 47. 15903 Captiva Drive Marina Inundation Map.....	57
Figure 48. 15951 Captiva Drive Marina Inundation Map.....	57
Figure 49. Lee County Airports, Ports, Bases, and Bus Terminals.....	59
Figure 50. Off Island Critical Community Facilities.....	62
Figure 51. On Island Critical Community Facilities.....	63
Figure 52. Off Island Emergency Facilities Map.....	66
Figure 53. On Island Emergency Facilities Map.....	67

SEA LEVEL RISE VULNERABILITY ANALYSIS

Figure 54. Conservation Land Inundation Map for Inundation Tipping Point Scenarios.....	70
Figure 55. Park Inundation Map for Inundation Tipping Point Scenarios.....	71
Figure 56. Shoreline Elevation Map.....	72
Figure 57. Shoreline Inundation Map for Inundation Tipping Point Scenarios.....	72
Figure 58. Historical and Cultural Assets Inundation Map for Inundation Tipping Point Scenarios.....	73

Executive Summary

Continuing to protect coastal infrastructure and valued resources through strategic adaptation will become increasingly pertinent as sea level rise accelerates and tidal flooding and severe storm surge events increase in frequency. The Captiva Erosion Prevention District (CEPD) has actively invested in coastal resilience for decades through beach and dune nourishment and shoreline enhancement projects. The CEPD authorized the development of the "Sea Level Rise Vulnerability Analysis" for Captiva Island to complete the following objectives:

1. Form a deliverable, consistent with state guidance for vulnerability assessments, which is inclusive of sea level rise scenarios for planning horizons in 2040 and 2070 based on the NOAA Intermediate-Low and Intermediate-High projections and inclusive of findings from the 2020 Captiva Island Resiliency Assessment and other recent publicly available assessments.
2. Develop a series of aerial maps to show the potential inundation under sea level rise scenarios in 2040 and 2070 and additional potential water level elevation scenarios.

This vulnerability assessment was conducted in alignment with state guidance and legislation. The analysis accounts for sea level rise projected for 2040 and 2070, tidal flooding, storm surge, and rainfall and surge flooding expected from a 100-year storm and 500-year storm under current sea level conditions. The flood and sea level scenarios were visualized and mapped to determine the extent of the island and the on and off island critical infrastructure that would be exposed. The potential impacts associated with each scenario were summarized by asset type including critical infrastructure, critical facilities, and valued resources on Captiva Island. The likelihood of occurrence of specific scenarios and the associated magnitude of impact of the flooding was analyzed island-wide and by asset to assess risk and rank vulnerabilities. The findings of the vulnerability assessment are intended to support subsequent funding pursuits and project conceptualization to increase community and coastal resilience. This effort may support the incorporation of future conditions planning into the CEPD's Beach and Shore Preservation Program and will serve as the first phase of development of a comprehensive resilience strategy.

Key findings and takeaways are presented on the next page, followed by a summary of Inundation Tipping Points. To simplify the presentation of analysis findings, these three Inundation Tipping Points are described in detail in the main document sections while the results from the ten scenarios analyzed are included in the appendices. An outline of the organization of this document is then provided, followed by a glossary that defines key technical terms. Appendices I and III-IX include detailed analysis results, followed by Appendix X which contains an introductory presentation to the topics discussed in this analysis.

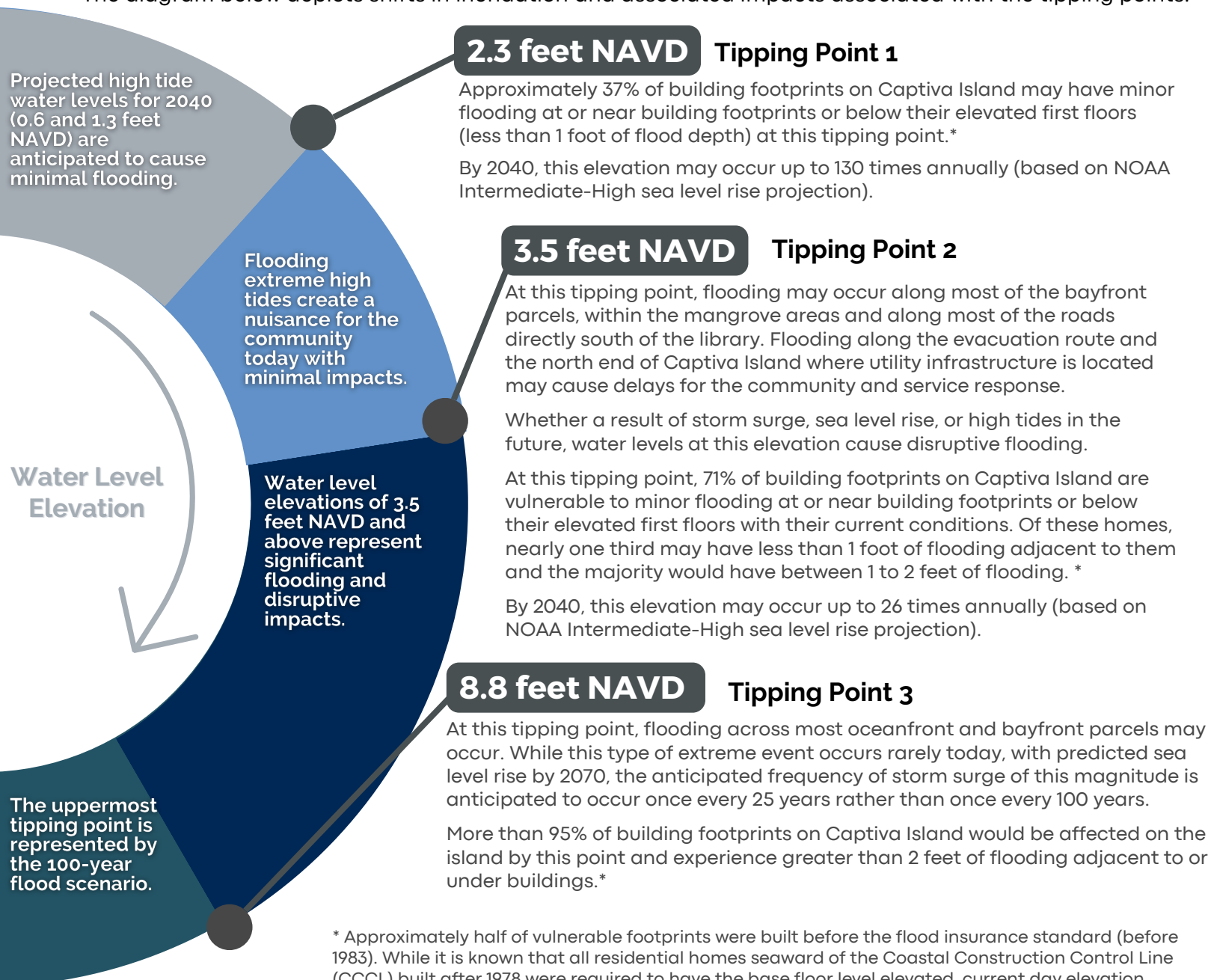
SEA LEVEL RISE VULNERABILITY ANALYSIS

Key Findings and Takeaways:

- Across current and predicted water level elevations associated with tidal flooding, sea level rise, and storm surge, **bayfront shorelines and associated infrastructure prove to be more vulnerable** to flooding more often than the gulf-front shorelines.
- Flooding across the bayfront shorelines may cause critical infrastructure to be vulnerable in the near term (prior to 2040). **Approximately 97% of bayfront seawalls are currently vulnerable, the majority of which are in the central part of the island.**
- Storm surge protection of bayfront properties and infrastructure will likely be reduced once mangroves are permanently inundated. The majority of on-island and island-adjacent mangroves may be inundated during high and low tides by 2040, leaving properties and assets at the north end of the island and along the Roosevelt Channel less protected. This report focuses on vulnerabilities not adaptation strategies. A mangrove expert may be consulted to evaluate potential seeding or sediment resupply options for the mangroves.
- Approximately 11% of roads including portions of Captiva Drive and local roads at the northern end of Captiva Island may flood during extreme high tides under current conditions. By 2040, up to 62% of roads may temporarily flood during extreme high tides. The majority of local roads north of Chadwick's Square may be inundated during high tides in 2040.
- **Key critical infrastructure vulnerable under current conditions** includes the Wastewater Treatment Plant (WWTP) along South Seas Plantation Road, Lift Station #3 (South of the Fire Station), and the majority of stormwater assets identified in the 2011 Captiva Water Quality Assessment Project Final Report. The Captiva Shores Condominium and Sunset Captiva WWTP may be vulnerable to flooding by 2040.
- Approximately 8% of surveyed **electrical transformers** and utility boxes may be vulnerable to extreme high tides today, and **35% may be vulnerable by 2040** (sixteen located in close proximity to the Fire Station may experience flooding at a depth of >1 foot).
- By 2040, the Communication Tower located along South Seas Plantation Road may experience inundation with an average depth of 0.8 feet.
- The following **assets are not projected to experience significant flooding** under current extreme and 2040 conditions: the Captiva Fire Station, Post Office, and Community Center (on island) and Health Park Hospital and the closest Emergency Operations Center (off island).

Inundation Tipping Points⁹²

- Ten water level elevations ranging from 0.6-11.1 feet above the North American Vertical Datum (NAVD) were utilized for this analysis to evaluate the impact and risk that flooding of various kinds poses to Captiva.
- Three of the ten water level elevations represent "tipping points" or points of notable change in overall island flooding and in degree of impact to critical assets.
- The following elevations represent tipping points for various flood scenarios:
 - **2.3 feet NAVD**- represents 2 feet of sea level rise and also was the highest tidal flooding event in 2017.
 - **3.5 feet NAVD**- represents the peak water elevation during a storm surge that reoccurs every 10 years statistically. This elevation is coincidentally the same as the projected extreme high tide in 2040 and as the average high tide projected in 2070 based on the NOAA Intermediate-High projection.
 - **8.8 feet NAVD**- represents the water level elevation that will statistically occur every 100 years.
- The selected tipping point elevations are relevant to Captiva in that they have either occurred in the past 10 years or they represent future scenarios that will occur with increased frequency as sea level rises.
 - The elevation of 2.3 feet NAVD occurred or was exceeded 6 times in the past 10 years.
 - The elevation of 3.5 feet NAVD occurred once in the past 10 years.
 - The elevation of 8.8 feet NAVD may have occurred at least once (based on high water data from Hurricane Ian (SCCF, 2022).
- The diagram below depicts shifts in inundation and associated impacts associated with the tipping points.



Introduction

Provides background context, technical definitions, introduces sea level rise scenarios and planning horizons, and discusses recent storms in context

Exposure Analysis

Determines what parts of Captiva Island are likely to be affected by each flooding scenario and when flooding may occur. Compares differences in flood extents for each of the selected tipping points.

Sensitivity Analysis

Determines the depth of flooding for each scenario. Summarizes impacts and flood depths by asset sectors. Asset impacts are described in five sections: critical infrastructure, transportation and evacuation route, critical facilities and Captiva resources.

Risk Assessment

Ranks risks to assets based on likelihood of flood scenario occurrence and impact of flooding.

Next Steps

Highlights opportunities for CEPD to enhance resilience strategy

Introduction

12

Glossary

14

Background

15

Datums

16

Flood Scenarios

21

Context for Elevations

22

Context from Historic Occurrence

23

Context from Recent Storms

SEA LEVEL RISE VULNERABILITY ANALYSIS

Glossary

The following definitions provide explanation of technical terms and provide context for how the terms are used in the report. The introductory community presentation attached in Appendix X provides additional visuals for improved understanding of some of the listed terms.

100 Year Flood

The level of flooding that has a 1% chance of occurring in any given year, and has an equal chance of occurring every year, regardless of whether or not it occurred in previous years.

500 Year Flood

The flood level that has a 0.2% chance of occurring in any given year.

Asset

A physical resource containing economic value and/or future benefit. A critical asset is one whose loss, damage, disruption, or degradation would result in significant adverse impacts to human life, health, or security,

Compound Flooding

Compound flooding results from two or more flooding sources occurring simultaneously or subsequently within a short period of time. The combination of flood sources (storm surge, sea level rise, and heavy rainfall) can lead to higher inundation levels. Compound flooding is often the result of major storms or hurricanes.

Depth

The distance between the top of water surface and the ground/seafloor.

Disturbance

Higher levels of inundation than nuisance flooding (1 to 2 feet) that poses more significant threats to public safety or causes greater property damage.

Elevation

Elevation of a geographic location is its height above or below a fixed reference point, i.e., a datum.

Exposure

A measure of how much change in inundation an asset or community is likely to experience.

Heavy Rainfall

Inland flooding caused by rainfall occurs as the result of steady rainfall occurring over several days and/or a short and intense period of rainfall, often associated with a storm or hurricane.

Impact

Extreme levels of inundation than nuisance flooding (>2 feet) associated with rainfall flooding, which poses extreme threats to public safety or causes major property damage.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Inundation

The rising of a body of water and its overflowing onto normally dry land. Generally, refers to the condition of being flooded.

Nuisance

Low levels of inundation (<1 foot) associated with rainfall flooding, river flooding, and/or coastal flooding. Nuisance flooding does not pose significant threats to public safety or cause major property damage, but can disrupt routine day-to-day activities, put added strain on infrastructure systems such as roadways and sewers, and cause minor property damage.

NAVD

The North American Vertical Datum of 1988 (NAVD 88) is the official vertical datum of the United States. See NOAA Tidal Datums web page to observe how NAVD relates to the tidal datums such as Mean Sea Level and Mean Higher High Water for the location of interest.

Risk

A function of the likelihood of inundation occurrence and the impact of inundation.

Sea Level Rise

Global warming is causing global mean sea level to rise in two ways- thermal expansion caused by warming of the ocean (water expands as it warms) and increased melting of land-based ice

(glaciers and ice sheets). The ocean is absorbing more than 90 percent of the increased atmospheric heat associated with emissions from human activity, which causes sea level to rise. Sea level plays a role in flooding, shoreline erosion, and hazards from storms. Higher sea level also means more frequent high-tide flooding or "nuisance flooding".

Sensitivity

A measure of whether and how an asset or community is likely to be affected by a given change in inundation.

Storm Surge

Storm surge is the rise in seawater level caused solely by a storm. The surge is caused primarily by a storm's winds pushing water onshore. Higher sea levels mean that storm surges push farther inland.

Tidal Flooding

The temporary inundation of low-lying areas, especially streets, during exceptionally high tide events, such as at full and new moons. The highest tides of the year may be known as the king tide, with the month varying by location.

Vulnerability

A measure of how susceptible a given asset or community is to the impacts of flooding.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Background

As the frequency and intensity of climate-related hazards increases, it is becoming important for local municipalities and entities to identify and quantify vulnerability and determine appropriate measures to address risk. Flooding caused by sea level rise, storm surge, and precipitation, is a climate-related hazard impacting communities worldwide, nationwide, and especially within the state of Florida. The Captiva Erosion Prevention District (CEPD) recognizes this threat and has contracted APTIM to produce a state guidance compliant, vulnerability analysis. This assessment is necessary for state funding eligibility and additional immediate preparatory actions to support applications for resilience and coastal infrastructure funding.

In 2020, Integral Consulting produced a Captiva Island Resiliency Assessment, which served to summarize if roads, parcels, structures and specific on-island critical facilities would be affected under 1, 2, 4 and 7 foot sea level rise scenarios. The results of this assessment helped lay the foundation for understanding flood vulnerability for this area. The value added by this current analysis includes adding sea level rise scenarios for 2040 and 2070 and a sensitivity and risk analysis of the on-island and off-island infrastructure upon which the community depends.

In 2021, state legislation 380.093 F.S. provided criteria for establishing a statewide risk assessment and resilience plan inclusive of projects ranked by priority for potential funding allocations. The Florida Department of Environmental Protection (FDEP) has initiated implementing this legislation by collecting grant applications for resilience projects to be included in the state plan and providing guidance on vulnerability assessments with the requirement that guidance-consistent reports and geodata from assessments to be submitted with applications.

This "Sea Level Rise Vulnerability Analysis" (2023) accounts for the sea level rise scenarios required by the state (NOAA Intermediate-High and Intermediate-Low in 2040 and 2070) and several additional scenarios. These scenarios represent inundation levels caused by storm surge, tidal flooding, and additional extreme flood events, which paints a comprehensive picture of flood vulnerability. Moreover, it completes the analysis of the regional asset inventory of Captiva Island (including on and off island critical infrastructure) for both exposure and sensitivity to flooding and ranks Captiva's vulnerabilities by risk level. Preliminary actions and next steps are outlined to support development of the next phase of the comprehensive resilience strategy and funding applications.

Datums

In order to determine, discuss, and compare water elevation levels for various flood scenarios, it is first necessary to understand the relevant vertical datum and tidal datums that will be referenced. The following definitions were derived directly from the NOAA Tides and Currents glossary. In general, a **datum** is reference point on the earth's surface from which to measure positions. A **vertical datum** is fixed elevation to which heights of other surfaces (like sea level) are referenced. The commonly used vertical datum for the contiguous United States is the North American Vertical Datum of 1988 (NAVD88).

A **tidal datum** is a standard elevation defined by a certain phase of the tide. Tidal datums are used as references or benchmarks to measure local water levels. The National Tidal Datum Epoch is a 19-year period adopted by the National Ocean Service as the official time period over which tide observations are taken to determine mean values for tidal datums. The current tidal epoch from which tidal datums are based is from 1983 to 2001. As such, the tidal datums are based on historic observations not current tide elevations. In areas where sea level is rising, the published tidal datums are underrepresenting current tides. Specific tidal datums that will be referenced within this report include the following:

Mean Higher High Water (MHHW)

The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch.

Mean High Water(MHW)

The average of all the high water heights observed over the National Tidal Datum Epoch.

Mean Sea Level (MSL)

The arithmetic mean of hourly heights observed over the National Tidal Datum Epoch.

Mean Low Water (MLW)

The average of all the low water heights observed over the National Tidal Datum Epoch.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Flood Scenarios

The Captiva Erosion Prevention District (CEPD) is located in close proximity to two tide gauges- station 8725520 in Fort Myers, FL and station 8725110 in Naples, FL (see **Figure 1**). Both gauges are operated and maintained by NOAA/NOS/CO-OPS, and published on NOAA's Tides & Currents website (<http://tidesandcurrents.noaa.gov>).



Figure 1. Tide Gauge Locations Near Captiva, FL

Sea level rise projections utilized for mapping purposes in this assessment were retrieved from the Fort Myers station as it is the closest gauge with the highest mean sea level (-0.41 NAVD, compared to -0.62 MSL at the Naples, FL gauge). State guidance for vulnerability assessments suggests the closest gauge with the highest mean sea level be used. It is noted that the gauge is located inland and may be an underestimate of actual individual high tide events on Captiva Island. Relative to the current Mean Higher High Water (MHHW) level at the Fort Myers gauge, the sea level change scenarios for Fort Myers indicate a water level of 0.63 feet NAVD according to the 2040 Intermediate-Low scenario, a water level of 1.31 feet NAVD according to the 2040 Intermediate-High scenario and a water level of 3.2 feet NAVD according to the 2070 Intermediate-High scenario. These projections were selected based on state guidance. **Figure 2** depicts the NOAA 2017 relative sea level rise change scenarios for Fort Myers.

SEA LEVEL RISE VULNERABILITY ANALYSIS

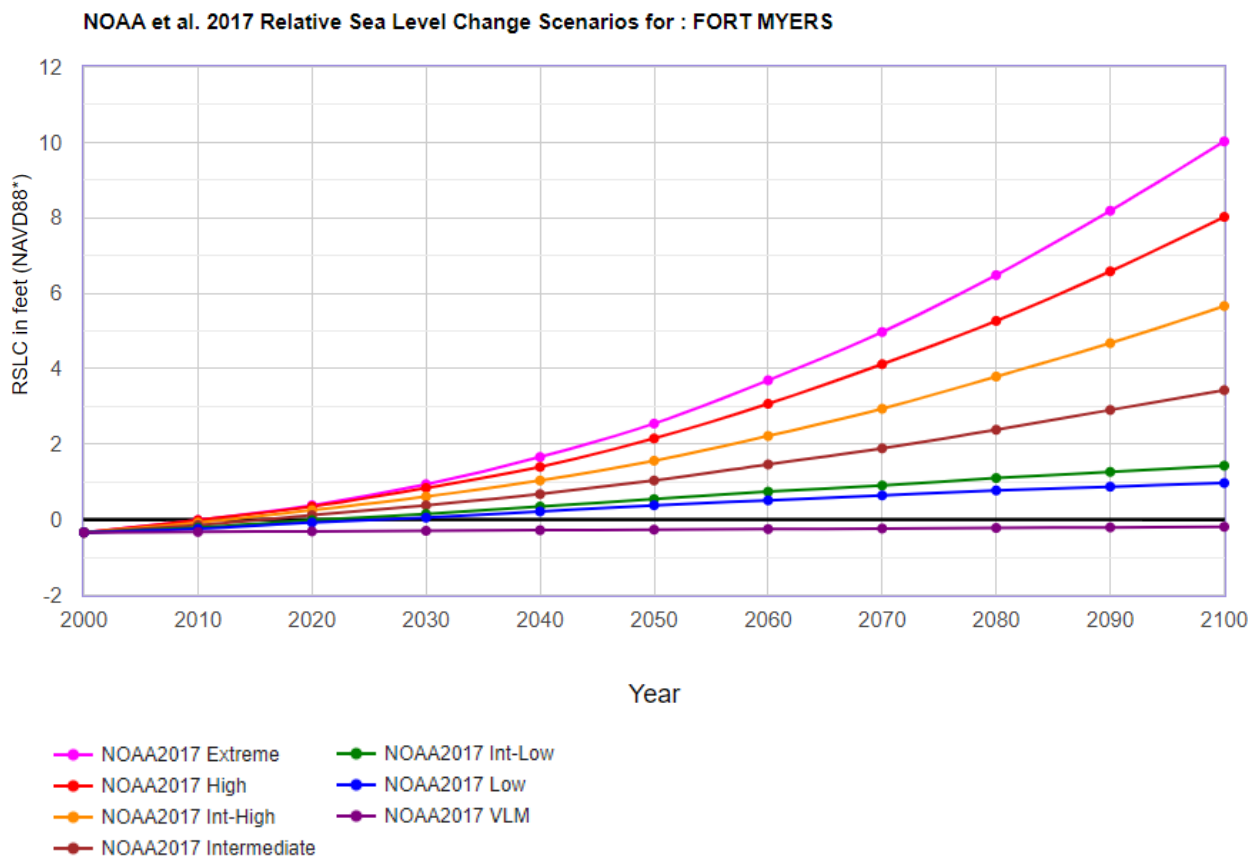


Figure 2. NOAA 2017 Relative Sea Level Change Scenarios for Fort Myers, FL

Additional sea level rise projections representing 1 foot Sea Level Rise, 2 of feet sea level rise, 4 feet of sea level rise, and 7 feet of sea level rise relative to the current Mean Higher High Water (MHHW) level based on the tidal epoch from 1983 to 2001 at the Fort Myers gauge were also included. The inclusion of these water level elevations represents the intent to compare levels and associated impacts to those measurements of identical methodology from the 2020 Captiva Island Resiliency Assessment.

Tidal flooding conditions were also considered within this assessment. High tide flooding occurs in low-lying coastal areas during extreme high tides, or "king tides." To select a tidal flood elevation for this assessment, a review of high tide events from 2017 to 2022 at both the Fort Myers and Naples tide gauges was performed. Extreme current high tide events with elevations ranging from 1.3 to 2.3 feet were measured by the tide gauges.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Rather than representing the current tidal flooding scenario as simply the average of the highest daily tides (also known as mean higher high water), which was found to be lower than typical extreme tides in the area, the highest recent individual tide was selected for the tidal flooding scenario. The highest extreme tide in recent past was measured as 2.3 feet NAVD in Fort Myers on October 7, 2017. This selected elevation is consistent with the elevation embedded in the NOAA Assess Flood Risks Tool. **NOAA indicated the high tide flooding threshold is 1.99 feet NAVD for Fort Myers, and 2.34 feet NAVD for Naples.** Based on these thresholds, from 2017 to 2022, there have been 0 to 7 flood event days per year. This measurement was used to represent the upper bound of current tidal flooding for the purpose of this assessment to avoid an underestimation of tide levels.

To represent **future extreme tidal flooding conditions** (in 2040 and 2070), the NOAA Intermediate-High sea level rise projections were added to the selected 2.3 feet NAVD tidal flood elevation for current extreme conditions. The tidal flood elevations for current extreme conditions, 2040 and 2070 conditions selected were 2.3, 3.5 and 5.2 feet NAVD, respectively.

The water level elevation for the **10 Year storm surge scenario** was sourced from the Lee County FEMA Flood Insurance Study (FIS). The FIS indicated that the stillwater elevation for a 10-year storm for Matlacha Pass would be 3.5 feet NAVD. Also derived from the FIS, were the stillwater elevations for a 1 percent annual chance flood or an **Existing 100 Year Flood Event** (8.8 feet NAVD) and a 0.2 percent annual chance flood or an **Existing 500 Year Flood Event** (11.1 feet NAVD).

The Existing 100 and 500 year flood extents proved to be slightly different from their associated current (effective) FIRM flood zone(s). Instead, they are more consistent with the future (preliminary) FIRM zones resulting from 2019 FEMA's Coastal Flood Risk Study. The future flood zones align with the Category 1 and Category 2 storm surge risk zones, and thus, the storm surge zones were utilized to conduct the sensitivity analysis for the Existing 100 Year and 500 Year Flood Events.

Future storm surge scenarios (in 2040 and 2070) were developed by adding the NOAA Intermediate-High sea level rise projections to the 10-year storm surge elevation for existing conditions. The storm surge elevations for existing, 2040 and 2070 conditions selected were 3.5, 4.5 and 6.4 feet NAVD, respectively.

SEA LEVEL RISE VULNERABILITY ANALYSIS

A summary of the **water level elevations** sourced and derived from the methods outlined in this section are listed in **Table 1**. Technical water level names are listed and those in red represent "duplicate" elevations, as there is a difference of less than six inches between them and other water levels.

In a sensitivity test, the results of the impacts of water level elevations that were considered "duplicates" were found to be insignificant in terms of the critical infrastructure exposed. As such, consolidating and selecting representative scenarios was determined to be helpful in streamlining the assessment while still identifying relevant findings and benchmarks of inundation.

Table 1. Original Water Level Elevation Scenarios for Captiva, FL

Scenarios	Feet NAVD
2040 NOAA Intermediate-Low MHHW	0.6
2070 NOAA Intermediate-Low MHHW	1.2
MHHW 0.28' NAVD @ Fort Myers +1' Sea Level Rise	1.3
2040 NOAA Intermediate-High MHHW	1.3
MHHW 0.28' NAVD @ Fort Myers 2' Sea Level Rise	2.3
Tidal Flooding, Current Extreme Conditions	2.3
2070 NOAA Intermediate-High MHHW	3.2
Tidal Flooding, 2040	3.3
10 Year Surge, Existing	3.5
MHHW 0.28' NAVD @ Fort Myers +4' Sea Level Rise	4.3
10 Year Surge, 2040	4.5
Tidal Flooding, 2070	5.2
10 Year Surge, 2070	6.4
MHHW 0.28' NAVD @ Fort Myers +7' Sea Level Rise	7.3
1 percent annual chance flood	8.8
.2 percent annual chance flood	11.1

Note: The red text indicates the water level is less than 0.5 feet in difference from an adjacent water level elevation and is duplicative.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Final scenario selection included selecting an approximate, representative water level elevation for each of the scenarios in **Table 1** and reducing the overall number of scenarios to simplify presentation of results. The following scenarios were not mapped for exposure or sensitivity purposes as their inundation extent and resulting impact are accounted for by proxy by the water elevations close in measurement. More specifically:

- 2070 NOAA Intermediate-Low scenario (1.2 feet NAVD) and MHHW 0.3' NAVD @ Fort Myers +1' sea level rise are "duplicates" of 2040 NOAA Intermediate-High scenario (1.3 feet NAVD)
- MHHW 0.3' NAVD @ Fort Myers +2' sea level rise (2.3 feet NAVD) is a "duplicate" of Existing Tidal Flooding scenario (2.3 feet NAVD)
- 2040 Tidal Flooding scenario (3.3 feet NAVD) and Existing 10 Year Surge scenario (3.5 feet NAVD) are "duplicates" of 2070 NOAA Intermediate-High MHHW (3.2 feet NAVD)
- 2040 10 Year Surge scenario (4.5 feet NAVD) is a duplicate of MHHW 0.3' NAVD @ Fort Myers 4' sea level rise scenario (4.3 feet NAVD)

Table 2 depicts the finalized ten scenarios that were utilized for the exposure and sensitivity analysis of Captiva, FL.

Table 2. Consolidated Water Level Elevations for Captiva, FL.

Water Level Elevation (feet NAVD)	Scenarios Represented by Water Level
0.6	2040 NOAA Intermediate-Low sea level rise
1.3	2040 NOAA Intermediate-High Sea Level Rise 2070 NOAA Intermediate-Low Sea Level Rise 1 foot Sea Level Rise*
2.3	Current Extreme Tidal Flooding 2 Foot Sea Level Rise*
3.5	2070 NOAA Intermediate-High Sea Level Rise Existing 10 Year Surge 2040 Tidal Flooding
4.5	2040 10 Year Surge 4 Foot Sea Level Rise*
5.2	2070 Tidal Flooding
6.4	2070 10 Year Surge
7.3	7 Foot Sea Level Rise*
8.8	Existing 100 Year Flood
11.1	Existing 500 Year Flood

*1 foot, 2 feet, 4 feet, and 7 feet sea level rise projections are referenced above the current Mean Higher High Water (MHHW) elevation datum at Fort Myers tide gauge, respectively.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Context for Elevations

Figure 3 depicts the Fort Myers water elevations for relevant tidal datums in comparison to the flood scenarios outlined in **Table 2**. The purpose of this comparison is to help visualize the water level discrepancy and incrementation between the mean local elevations and the predicted flood elevations. All levels are in feet NAVD88. These water level elevations were utilized to determine the depth of flooding experienced by Captiva assets and areas throughout this report. As an example, under current extreme tidal flooding conditions (2.3 feet NAVD), an asset with an elevation of 2 feet NAVD would experience inundation with a depth of 0.3 feet or approximately 4 inches.

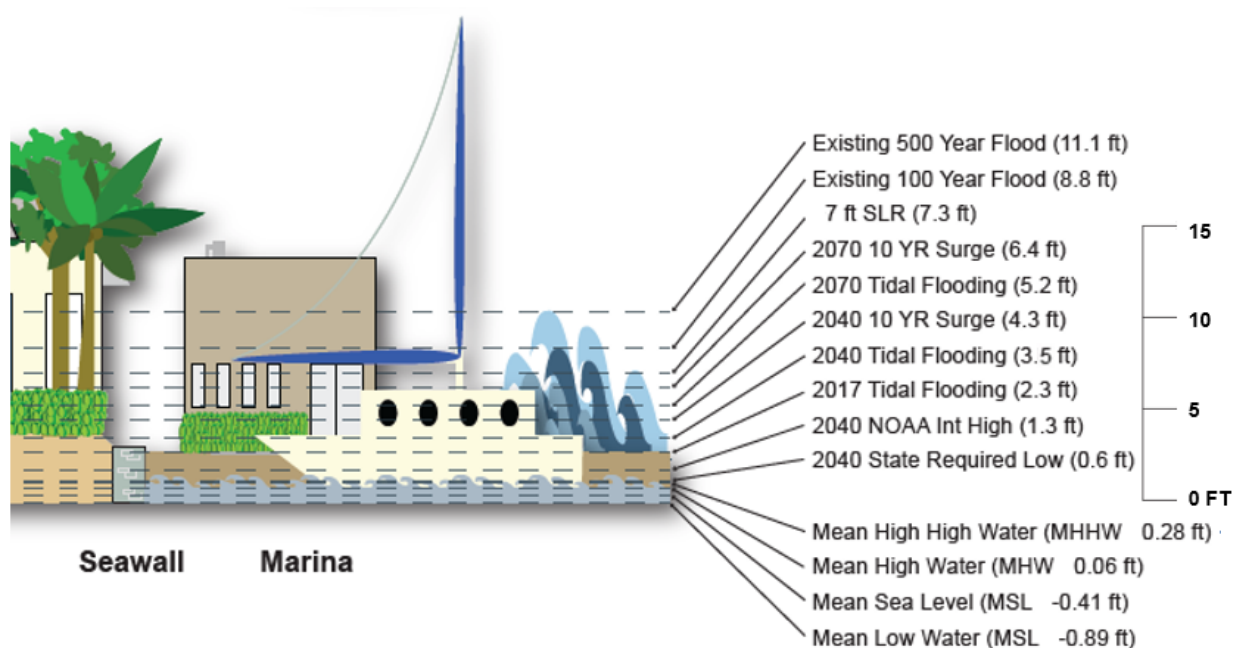


Figure 3. Comparison of Local Tidal Datum Elevations and Flood Elevations

Context from Historic Occurrence

Table 3 shows how often select water level elevations have already occurred and are projected to occur in 2040 and 2070, according to the NOAA Intermediate-High Sea Level Rise Projections as published in 2017.

- The **"Current"** column of **Table 3** shows the average number of days per year where the water levels have exceeded the selected water level elevations of 1.3 ft, 2.3 ft, and 3.5 feet NAVD thresholds in the past 10 years in Naples and Fort Myers. Water levels have exceeded 1.3 feet NAVD between 19 (Fort Myers) and 46 times (Naples) between 2012 and 2022, or on average approximately 2 to 5 times per year. Tidal flooding is not currently observed at this low elevation (1.3 feet NAVD) based on anecdotal information on Captiva Island. At a slightly higher elevation, 2.3 feet NAVD, tidal flooding has been observed. Measured data indicates on average this water level elevation has been exceeded on an average of 6 times per year over the past 10 years (Fort Myers, Table 3). This comparison adds further justification for the selection of 2.3 feet NAVD as the tidal flooding scenario.
- The **"2040"** column of **Table 3** lists the number of days that the selected water levels may be exceeded in 2040 based on the 2017 NOAA Intermediate-High Sea Level Rise projection. Land elevations at or below 1.3 feet NAVD would be expected to be submerged daily or continuously submerged (inundated). Land below 2.3 feet NAVD would be expected to be flooded or submerged 80 days (Naples) to 130 days (Fort Myers) per year. This amount of tidal flooding is a tipping point for the island.
- The **"2070"** column of **Table 3** suggests that by 2070, some temporary flooding or continuous inundation may occur at the three selected elevations. Land areas lower than 1.3 feet NAVD may likely be continuously submerged. Land between mean low water and 3.5 feet NAVD may likely be inundated by tides daily.

Table 3. Number of Current and Projected Flooding Days Per Year

Location/ Threshold (NAVD)	Current			2040			2070		
	Average number of days per year where water levels exceeded the threshold in the past 10 years			Number of days that water levels will exceed threshold in 2040			Number of days that water levels will exceed threshold in 2070		
	1.3 ft	2.3 ft	3.5 ft	1.3 ft	2.3 ft	3.5 ft	1.3 ft	2.3 ft	3.5 ft
Naples	46	13	3	365	80	13	365	365	365
Fort Myers	19	6	1	365	130	26	365	365	365

Context from Recent Storms

Captiva Island is located off the southwest coast of Florida and is part of the barrier islands along the state's southern peninsula. The island connects to Sanibel Island through a road bridge at Blind Pass. The coastline of Captiva Island includes gulf-front beaches, bayside shorelines and inlet shorelines. According to the Captiva Island Resiliency Assessment from 2020, Captiva's coastline is comprised of mangroves (39%), beaches (27%) and a mix of intermittent mangroves and landscaping (22%). Since 1900, there have been eight hurricanes within 20 nautical miles from the island of Captiva.

The geomorphic composition of the island is actually the result of a 1921 hurricane which separated Captiva into two islands (now Captiva and North Captiva) at Redfish Pass. Two intense hurricanes that impacted the Island since 1990, include Hurricane Charley (2004) and Hurricane Ian (2022). Both storms resulted in power outages, disruption to communications and water treatment plants, and destruction and inundation to major roadways.



Figure 4. Hurricane Damage on Captiva Island

On August 13, 2004, **Hurricane Charley** made landfall near North Captiva Island as a Category 4 storm, which resulted in impacts along Captiva Island.

According to a 2005 report from the Lee County Division of Natural Resources entitled "Impacts of Hurricane Charley on the Southwest Florida Coastline Focusing on Lee County", Captiva Island lost an average of 13 feet of shoreline, most prominently at its southern end, as a result of Hurricane Charley. The report also details a significant increase in the heights of escarpment across the island, from 2 to 3 feet before Hurricane Charley, to 5 or 6 feet after the storm. Maximum storm surge was recorded at 8 feet high- a water level elevation higher than the majority of the Island itself.

SEA LEVEL RISE VULNERABILITY ANALYSIS

On September 28, 2022, during the completion of this assessment, Captiva was impacted by **Hurricane Ian**. Hurricane Ian made landfall on Captiva Island as a Category 4 storm with storm surge nearing 12 feet in some areas of the Island and 155 mph sustained winds. More specifically, according to the Sanibel- Captiva Conservation Foundation (SCCF) team, who located an intact water logger on west Sanibel, the maximum water level elevation recorded was over 11.2 feet NAVD (11.6 feet, Mean Sea Level) at 2:05 p.m. on September 28, 2022 (**Figure 5**). This level of storm surge was comparable to water level elevations anticipated for a 500-year flood event in the area.

The SCCF team also noted a significant decrease in beach elevation relative to mean sea level across Sanibel and Captiva after Hurricane Ian. The average elevation of Captiva's sea turtle nest sites was of 7.2 feet before the storm and decreased to 3.6 feet after the storm.

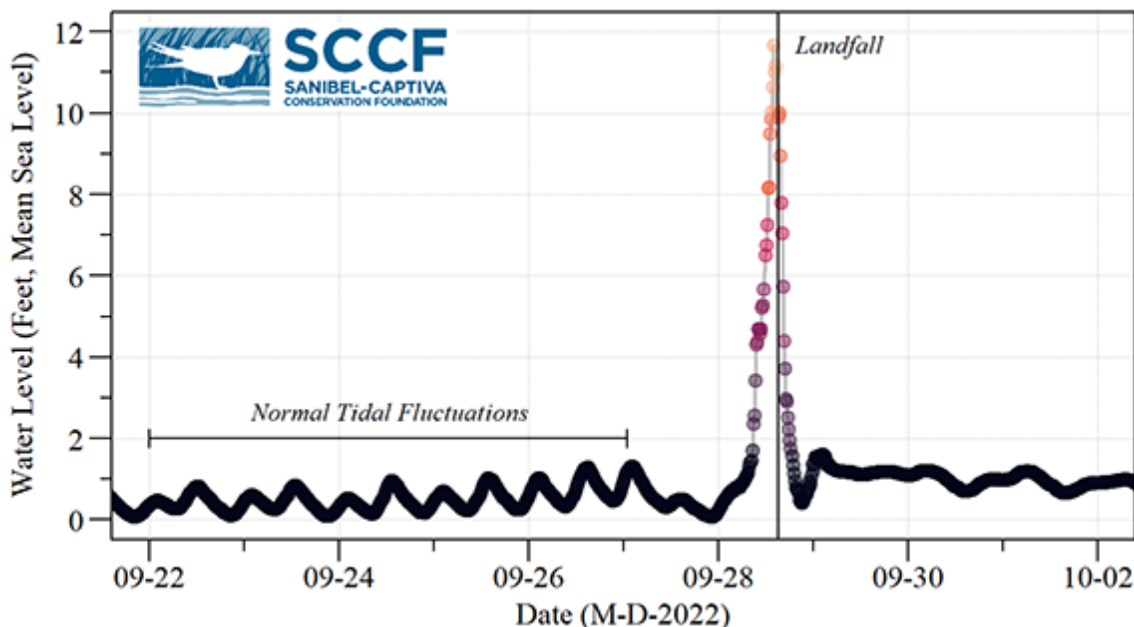


Figure 5. Hurricane Ian Water Elevation Data near Sanibel, FL

The SCCF team reported water elevations over 7.6 feet NAVD (8 feet mean sea level) from 12-3:30 pm, which is a water level that is close to the "7-foot sea level rise scenario" but less than the 100 year water elevation published by FEMA in the Flood Insurance Study. **Figure 6** depicts the approximate inundation extent for the area, under these conditions, according to the NOAA Sea Level Rise Viewer.

SEA LEVEL RISE VULNERABILITY ANALYSIS

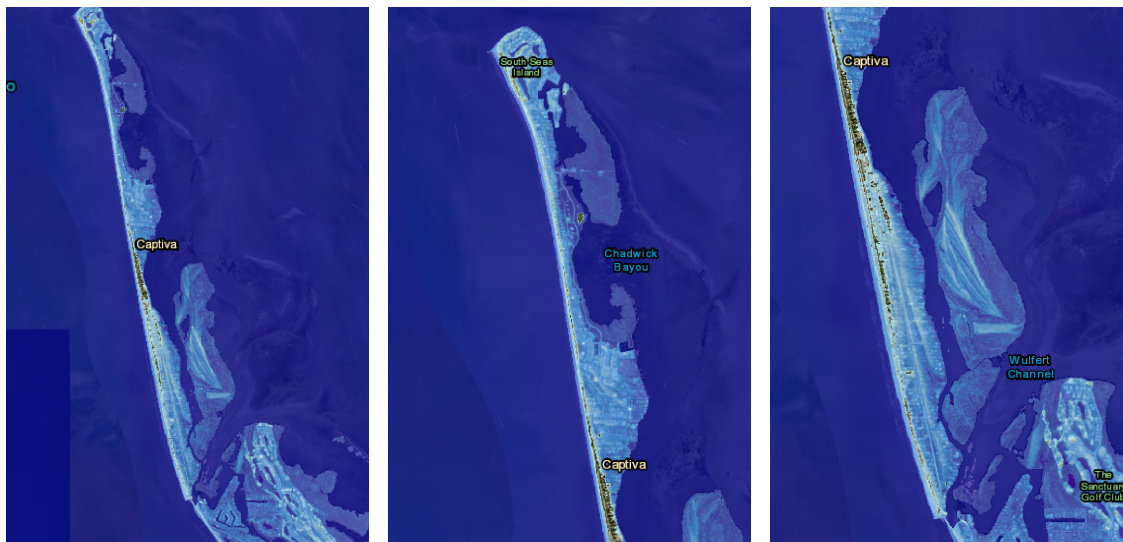


Figure 6. Captiva Inundation Approximating Peak 3 Hour Period in Hurricane Ian - NOAA Sea Level Rise Viewer (Water Level Elevation at 8.3 Feet NAVD)

The bayside of Captiva Island experienced a high degree of flooding, which resulted in impacts to communication facilities and roadways. According to FPL's Power Tracker (electric utility), 85% of Lee County FPL customers were without power the morning after the storm. Much of Captiva's key infrastructure such as water treatment plants, and evacuation route were all impacted by inundation. **Figure 7** highlights an example of infrastructure damage in the aftermath of Ian. Of significance was the collapse of approximately 50 to 65 feet of the Sanibel Causeway bridge, which resulted from the storm's aggressive storm surge and powerful winds. This bridge serves as the only vehicle connection from Captiva and Sanibel to the mainland of Florida, and thus its destruction served as a significant hinderance to Captiva Island residents as they were unable to access resources and aid.



Figure 7. Hurricane Ian Damage to Sanibel Causeway (FDOT, 2022)

CEPD Exposure Analysis

27

Overview
Rainfall

28

NOAA Scenario Consolidation

29

Island Exposure Maps

30

Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

Overview

To provide a comprehensive view of inundation, it is important to review the exposure predictions of Captiva Island under all relevant scenarios and planning horizons mentioned. By doing so, various inundation depths and spatial extents can be compared to each other and in relation to the depths utilized in the 2020 Captiva Island Resiliency Assessment and more incremental flooding can be visualized (Figures 9-12). Figure 8 compares the overall percentage of island inundation for each of the scenario water level elevations. Table 3 can be referenced to identify the associated scenarios represented by each of the water level elevations depicted in Figure 8.

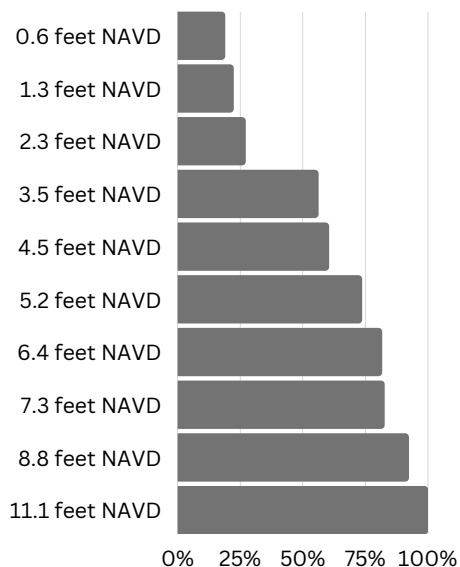


Figure 8. Percentage of Captiva Inundated Under All Flood Scenarios

Rainfall

In this analysis, rainfall was accounted for in conjunction with surge and tidal flooding in the 100 year flood scenario (8.8 feet NAVD). Rainfall flooding was not independently analyzed as it was not required per state guidance, hydrologic modeling results were not publicly available, and rainfall alone was anticipated to pose less flooding threat than surge and other compound flooding scenarios. Tidal, sea level rise, and storm surge flooding will be the prevalent drivers for flooding on Captiva Island.

Table 4 outlines the precipitation frequency estimates with 90% confidence intervals (in inches) for the Fort Myers station, according to the NOAA Precipitation Frequency Data Server (PFDS). A 100 year rainfall event, with precipitation of 8 to 12 inches for a 6-hour and 24-hour duration storm, respectively, would likely result in nuisance or disruptive flooding depending upon soil storage capacity. As an example, on June 4, 2022, over 11 inches of rain fell overnight and resulted in a few inches of standing floodwaters in low lying areas, much of the rain drained into the soil or was diverted off island as runoff. In the future such an event may be more disruptive if soil storage capacity is limited by sea level rise and high tides.

Table 4: PDS-based Precipitation Frequency Estimates with 90% Confidence Intervals (in inches)

Duration	Approximate Rainfall Amounts with a 100%, 20%, and 1% Probability of Being Exceeded Within a Given Year		
	1 Year Event (100% chance)	5 Year Event (20% chance)	100 Year Event (1% chance)
6 hour	3 inches	5 inches	8 inches
24 hour	4 inches	6 inches	12 inches

NOAA Scenario Consolidation

The state guidance for vulnerability assessments requests the use of the NOAA intermediate-low and intermediate-high sea level rise projections (published in 2017) for the planning horizons of 2040 and 2070. As stated previously, due to the close proximity of water elevation levels, the 2040 NOAA Intermediate-High (1.2 feet NAVD) and 2070 NOAA Intermediate-Low (1.3 feet NAVD) do not represent significant differences in inundation extent or depth. To confirm there is no critical difference between the inundation extents of these two elevations, the results of both were compared (**Figure 9**). The lack of difference further validates the consolidation of similar water levels into one scenario. **It is important to note that while Buck Key is included within figures, it was not included in inundation percentages or key metrics presented within this report.**

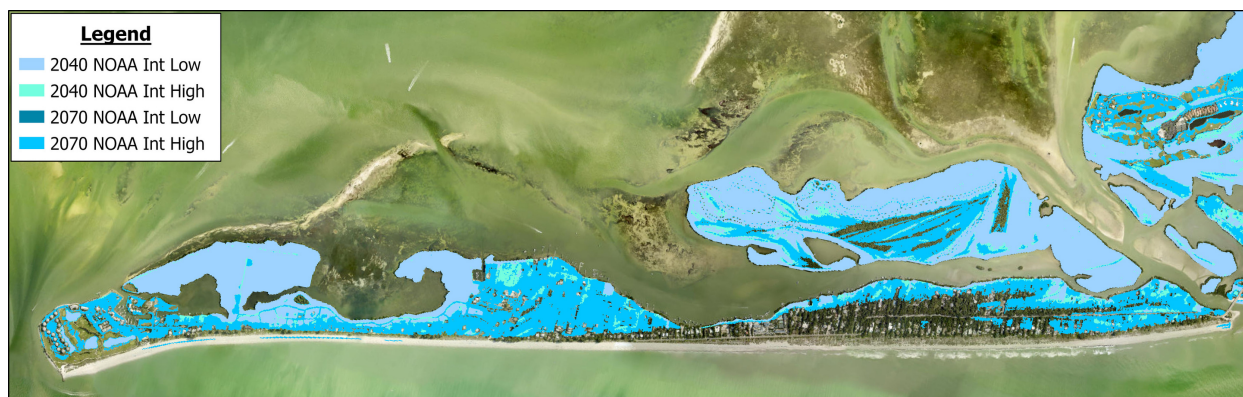


Figure 9. Island Inundation Comparison Map for NOAA Scenarios- 2040 NOAA Intermediate-High and 2070 NOAA Intermediate-Low

Island Exposure Maps

The results of the exposure analysis for the ten scenarios outlined in **Table 3** are represented in **Figures 10-12**. Scenarios were layered and mapped in order of increasing water level elevation to show incremental inundation change across the island. The ten scenarios were mapped across three figures in order to show relative change within specific water elevation level increments and to prevent visual confusion.

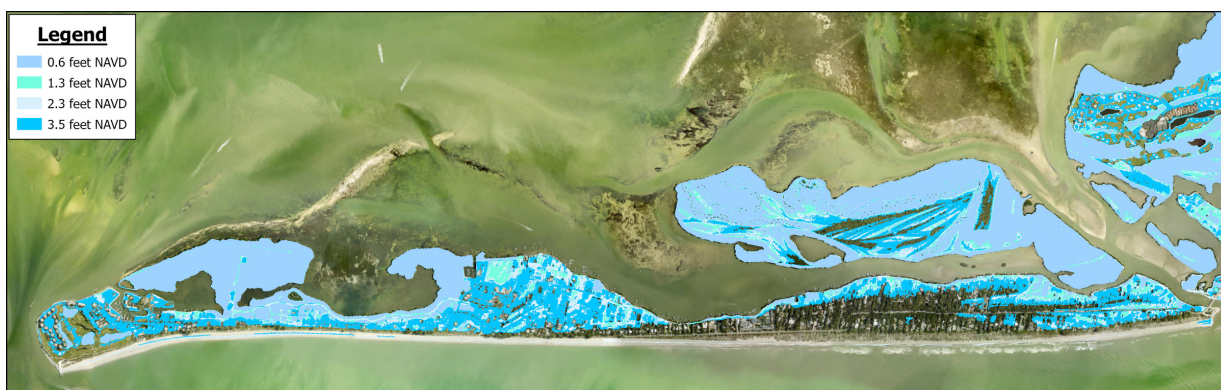


Figure 10. Captiva Exposure Map 1



Figure 11. Captiva Exposure Map 2

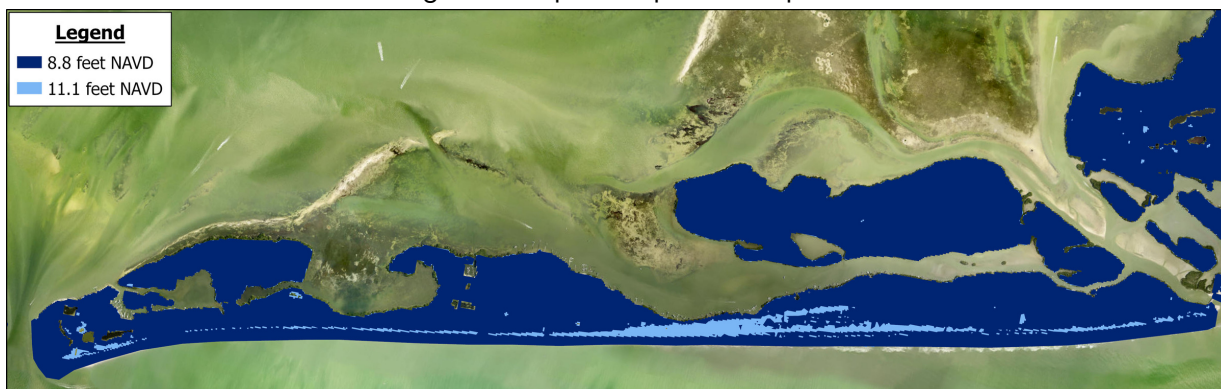


Figure 12. Captiva Exposure Maps by Scenario

Inundation Tipping Point Scenarios

The assessment of asset and infrastructure sensitivity was conducted for all of the ten flood scenarios outlined in **Table 3**, in order to satisfy the new state requirements for resiliency grant funding eligibility. Throughout this report, the overall sensitivity per scenario will be briefly outlined at a high level, however the entirety of the analysis results per critical asset will be detailed in Appendices III-VII. For the purpose of this report and to identify key areas of concern, three of the twelve scenarios were identified as "tipping points" of impact for Captiva Island and these three scenarios will be fully explored and addressed within the report. These three scenarios, outlined below, represent significant changes in overall island inundation and in degree of impact to critical assets and thus will be the focus of this analysis:

1

2.3 feet NAVD

What does this water level represent? This level represents the water level elevation for Current Extreme Tidal Flooding which is also representative of the water level for feet of sea level rise.

Why was this water level chosen as a tipping point? At this level, inundation begins to occur from the bay side, flooding around stormwater infrastructure, minimal flooding of evacuation route, and flooding impacts to some roads.

2

3.5 feet NAVD

What does this water level represent? This level represents the water level elevation for the 2070 NOAA Intermediate-High Sea Level Rise Scenario, which is also representative of the Existing 10 Year Surge and is also representative of the 2040 Tidal Flooding conditions.

Why was this water level chosen as a tipping point? At this level, flooding of roads directly south of the Captiva Library, flooding of all parcels along the shoreline, and mangrove inundation becomes more significant.

3

8.8 feet NAVD

What does this water level represent? This level represents the water level elevation for an Existing 100-year Flood Event.

Why was this water level chosen as a tipping point? At this level, flooding of all almost all parcels is predicted to occur (Figure 12).

Critical Infrastructure Sensitivity Analysis



32	Parcels
35	Buildings
38	Seawalls
40	Wastewater Treatment Facilities and Lift Stations
43	Stormwater Treatment Facilities and Pump Stations
45	Electrical Transformers and Utility Boxes
46	Communication Facilities
47	Solid and Hazardous Waste Facilities
48	Disaster Debris Management Sites

SEA LEVEL RISE VULNERABILITY ANALYSIS

Parcels

Parcel data was obtained from the Florida Department of Revenue (FDOR) and analyzed for inundation impact from the various flood scenarios. A total of 1,105 parcels exists within Captiva Island. **Figure 13** depicts the number of parcels likely to experience flooding per scenario.

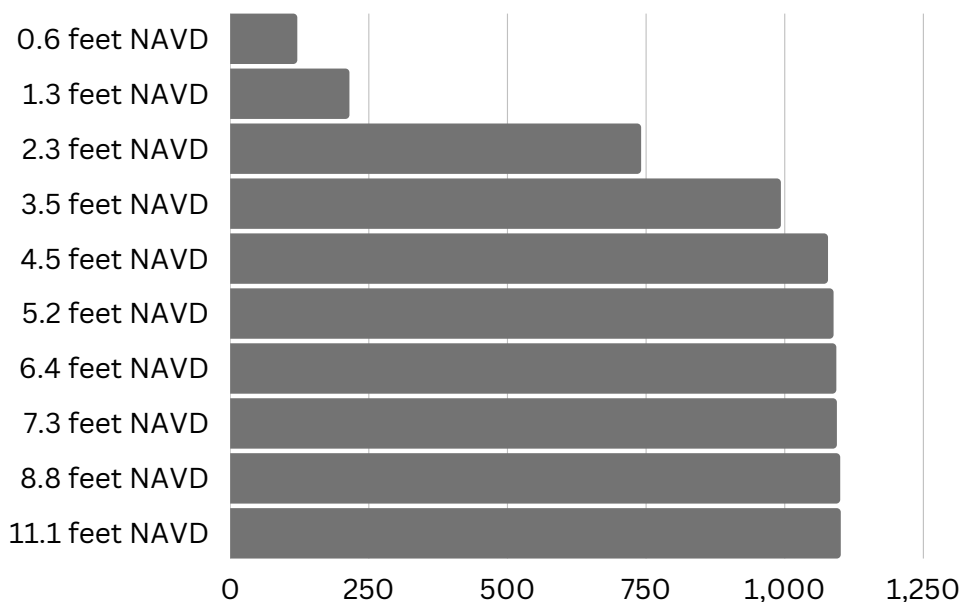


Figure 13. Predicted Number of Impacted Parcels Across All Flood Scenarios

Figure 14 displays the number and percentage of inundated parcels for each of the three inundation tipping point scenarios. **Figure 15** depicts a spatial view of the results of this analysis.

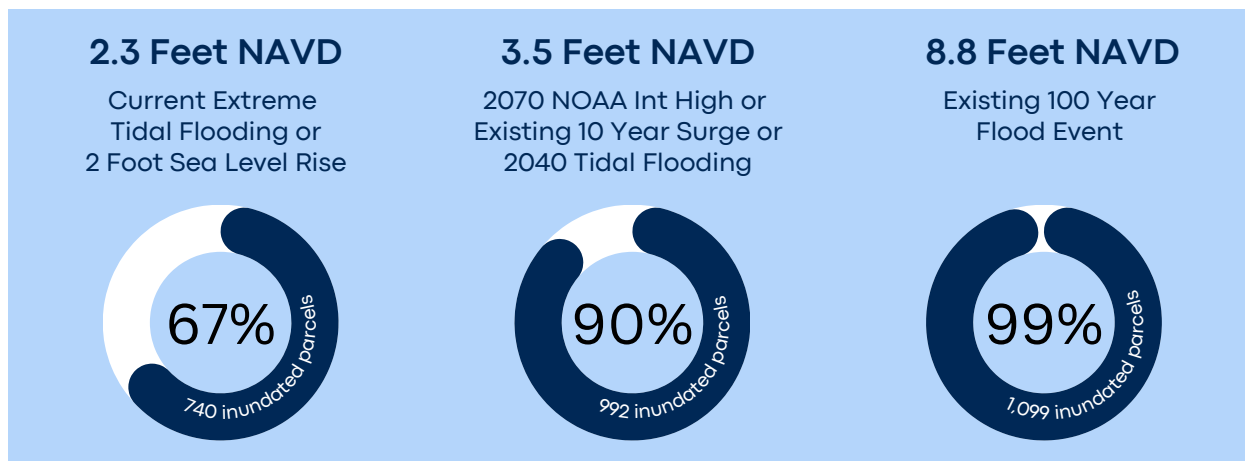


Figure 14. Percentage of Parcel Inundation Under Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS



Figure 15. Parcel Inundation Map for Inundation Tipping Point Scenarios.

Further analysis included estimating the average inundation depth of parcels per flood scenario. The overall results of the inundation depth analysis for the three inundation tipping point scenarios can be seen in **Figure 16**. The further analysis also involved estimating the value of impacted parcels by totaling the value of relevant building footprints within each parcel.

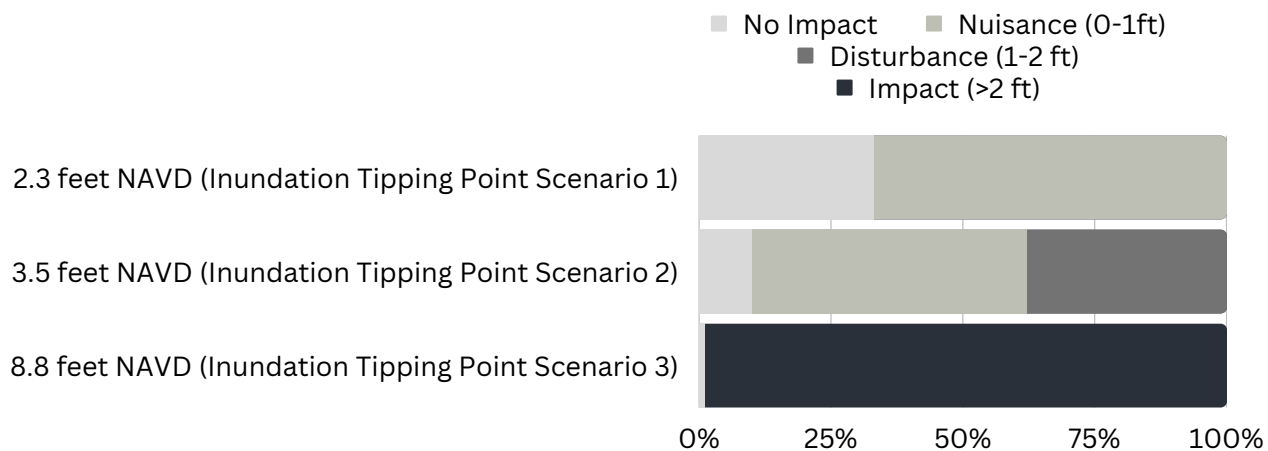


Figure 16. Parcel Inundation Depth Under Inundation Tipping Point Scenarios

Under the Inundation Tipping Point Scenario 1 (2.3 feet NAVD), 67% of all parcels on Captiva Island will experience nuisance flooding of a depth of below one foot. The market value of affected parcels is \$1.1 billion; however, damage costs of nuisance flooding would be anticipated to be minimal or null.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Under Inundation Tipping Point Scenario 2 (3.5 feet NAVD), 52% of island parcels are subject to nuisance flooding and 38% of all parcels are subject to flooding >1 foot of depth. The inundation from this scenario is projected to impact parcels totaled at a value of \$1.3 billion. Under the Inundation Tipping Point Scenario 3 (8.8 feet NAVD), 99% of island parcels will experience flooding at a depth greater than 2 ft. The value of the parcels impacted equates to \$1.6 billion.

The age of the structures built were reviewed in relation to the 1983 FEMA base flood elevation standard (Figure 17). For presentation purposes, structure ages were grouped by decade and compared to 1980 rather than 1983. Specifically, under the Inundation Tipping Point Scenario 1 (2.3 feet NAVD), 60% of vulnerable parcels were built before 1980, with an estimated present market value of \$500 million. Under the Inundation Tipping Point Scenario 2 (3.5 feet NAVD), 64% of the total vulnerable parcels were built before 1980, with an estimated present market value of \$610 million. According to the Inundation Tipping Point Scenario 3 (8.8 feet NAVD), 60% of impacted parcels were built before 1980, and 40% were built after. The impacted parcels have an estimated present market value of \$650 million. For the purpose of this evaluation, those parcels without a designated built year (labeled "N/A"), were not included in the total parcel count as it is unclear if these parcels were built before or after the implementation of the 1983 FEMA base flood elevation standard.

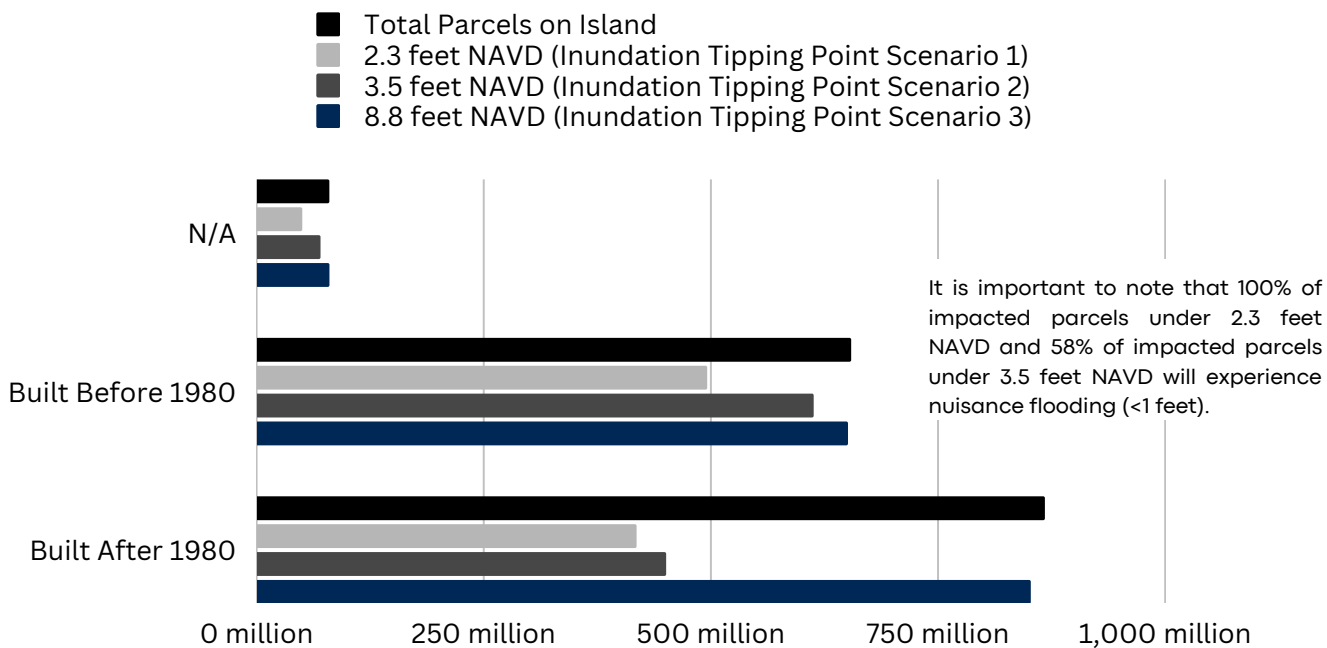


Figure 17. Impacted Parcels by Decade Built and Parcel Value

Buildings

Seven hundred and forty-seven buildings are located on Captiva. The building footprints for Captiva Island were obtained from Lee County and analyzed for initial inundation impact under the various flood scenarios. **Figure 18** displays the number of building footprints that may experience flooding if their elevations is at ground level. **This analysis does not account for elevation certificates or actual structure first floor elevations. An elevated building will not be inundated.**

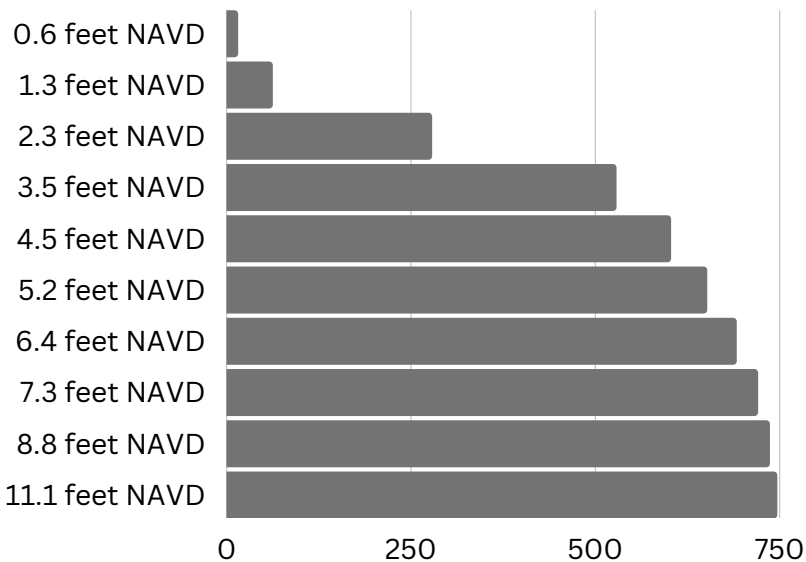


Figure 18. Building Footprint Inundation Across All Flood Scenarios

Figure 19 displays the number and percentage of inundated building footprints for each of the three inundation tipping point scenarios. The location and extent of building impact per scenario can be seen in **Figure 20**.

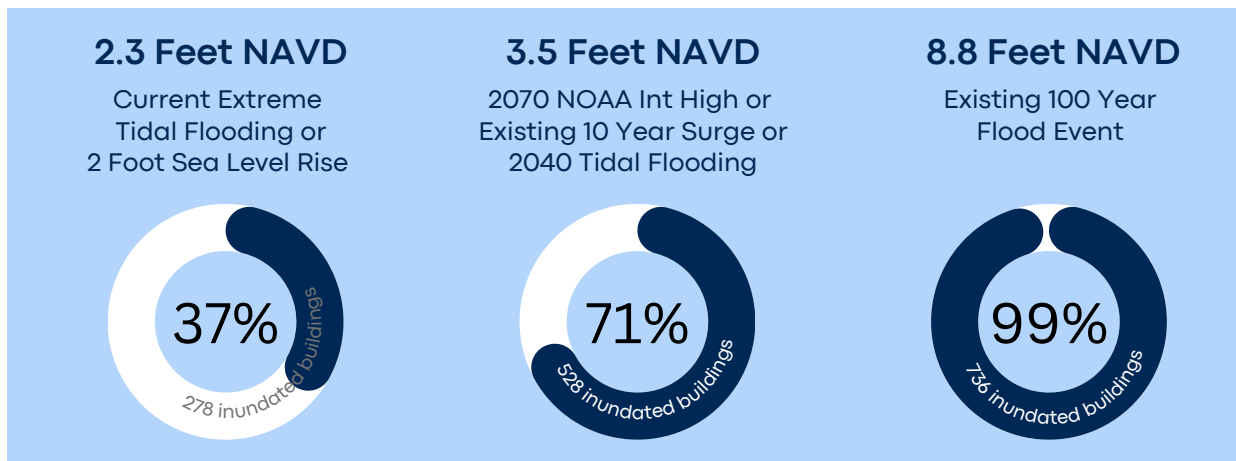


Figure 19. Percentage of Building Footprint Inundation Under Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS



Figure 20. Building Footprint Inundation Map for Inundation Tipping Point Scenarios

A more thorough analysis of building footprint inundation included estimating average building footprint inundation depth, classifying the building footprint data by decade built, and estimating building value per scenario. The methodology used here is the same as that used to complete the parcel inundation analysis. Average depth is represented by the center of the grid of inundation. Thus, the total number of impacted building footprints is reduced as not every footprint that intersects the inundation polygons has its center point fall within the inundation grid. **Figure 21** details building sensitivity per scenario and the associated flooding type- nuisance (< 1 foot of flooding), disturbance (1 to 2 feet of flooding), and impact (> 2 feet of flooding).

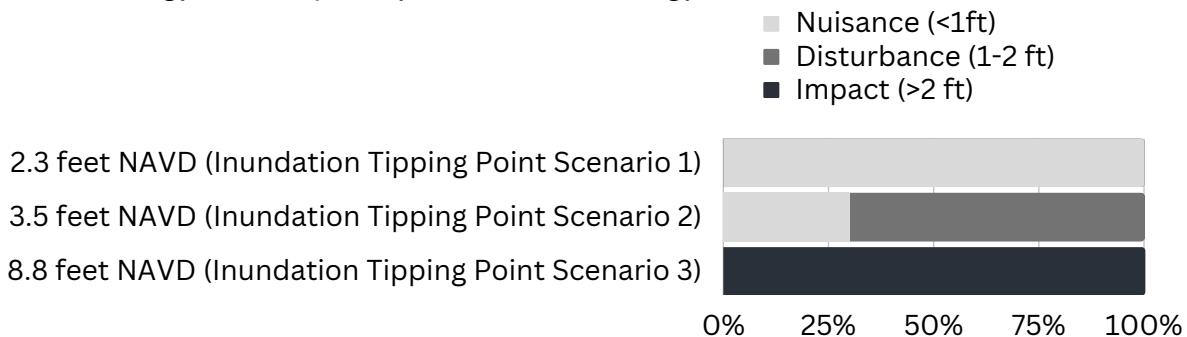


Figure 21. Building Footprint Inundation Depth Under Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

When classifying projected inundated buildings by flooding type, 100% of all impacted buildings under the 2.3 feet NAVD water level elevation will experience flooding at a depth below 1 foot. This percentage decreases to 30% under the 3.5 feet NAVD water level elevation, with 60% of buildings projected to experience flooding of 1-2 feet deep. Both the degree and depth of flooding across impacted building footprints increases over time. Under the 8.8 feet NAVD water level elevation, 100% of all impacted buildings will experience flooding at a depth greater than 2 feet.

When reviewing the distribution of the predicted inundated building footprints and their associated estimated value over the decades (**Figure 22**), it is clear that the approximately half of the vulnerable footprints were built before the flood insurance standard (before 1983). Again, it is important to note that this analysis does not take into account the current base floor elevations of the buildings. While it is known that all residential homes seaward of the Coastal Construction Control Line (CCCL) built after 1978 were required to have the base floor level elevated, current day elevation certificates were unavailable, and thus, this analysis solely serves as a first order assessment. In general, the findings of this analysis depict the building footprints that are predicted to have flooding at the ground level adjacent to the building.

Under the 2.3 feet NAVD water level elevation, 36% of the buildings experiencing inundation will have been built before 1980. These buildings have a combine estimated value of \$150 millionllars. According the 3.5 feet NAVD water level elevation, 49% of the buildings predicted to be inundated are buildings built before 1980, with a total estimated value of 240 million. Under the 8.8 feet NAVD water level elevation, 46% of effected buildings were built before 1980, with an estimated value of 250 million. As stated previously, parcels without a designated built year were not included in the total parcel count.

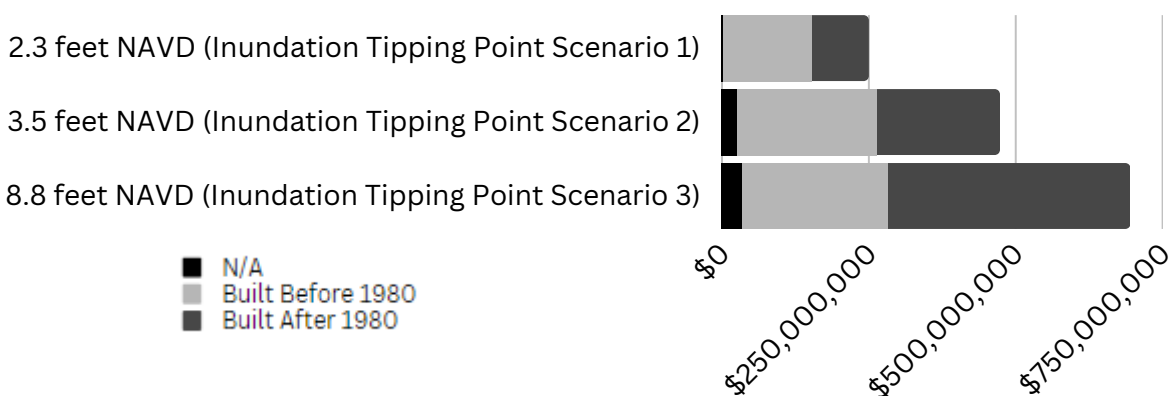


Figure 22 Impacted Building Footprints by Decade Built and Property Value

SEA LEVEL RISE VULNERABILITY ANALYSIS

Seawalls

Seawalls line portions (not all) of Captiva's bayfront shorelines, serving to control erosion and preventing inundation by high tides and surges. Local seawalls along Captiva Island were digitized from 2021 aerial imagery. It is important to note that vegetation exists along the shoreline of the island which obscures the view of some areas, and thus it is possible that not all seawalls were seen and digitized. The result of this digitization depicts a total of approximately 8,600 linear feet of seawall along the bayfront Captiva Island. Seawalls along the gulf front were not included in this analysis.

As-built survey data was not available for the analysis of seawall height, so an alternative method to represent seawalls in the analysis was performed using available ground elevation data for parcels. The predicted exposure (in linear feet) of seawalls per scenario is depicted in **Figure 23**. All seawalls are expected to be exposed under all water level elevations 4.5 feet NAVD and above.

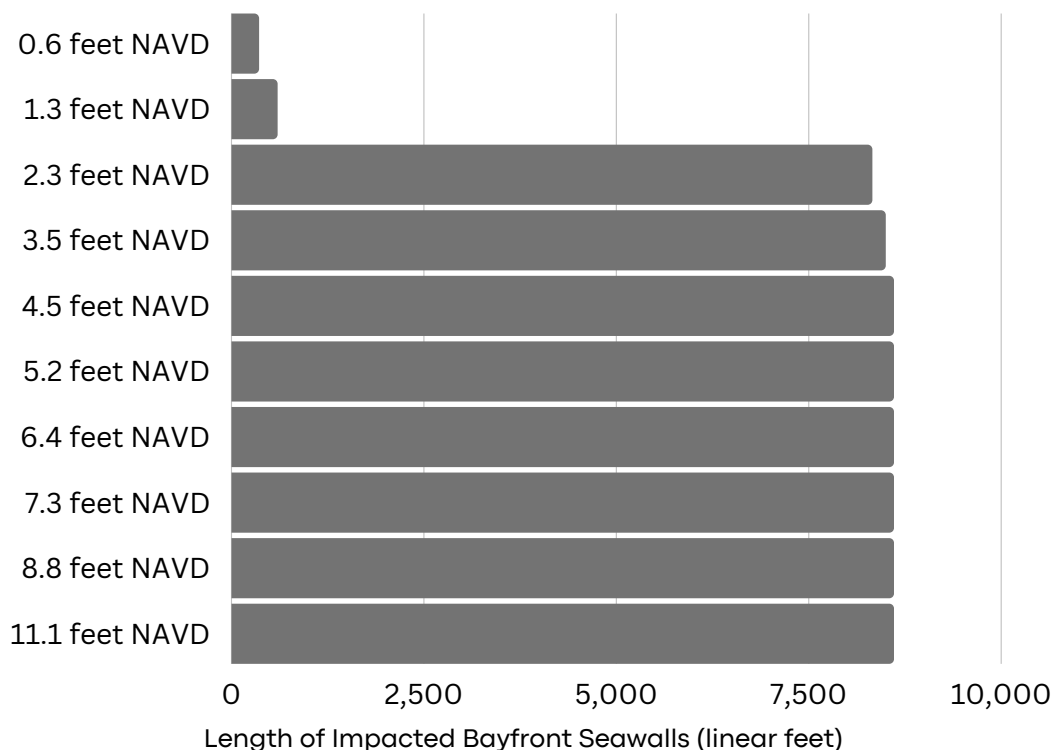


Figure 23. Length of Seawalls Inundated for Each Flood Scenario (Linear Feet of Seawall)

SEA LEVEL RISE VULNERABILITY ANALYSIS

The majority (>97%) of bayfront seawalls are expected to experience flooding under all flood scenarios. Approximately 8,319 linear feet of seawalls are expected to be exposed under the first inundation tipping point scenario (2.3 feet NAVD). Seawall inundation increases to 8,493 linear feet under the 3.5 feet NAVD water level elevation. Under tipping point scenario 3 at 8.8 feet NAVD, all of Captiva's seawalls will experience flooding. The locations and extents of inundated seawalls per tipping point scenario can be viewed in **Figure 25**.

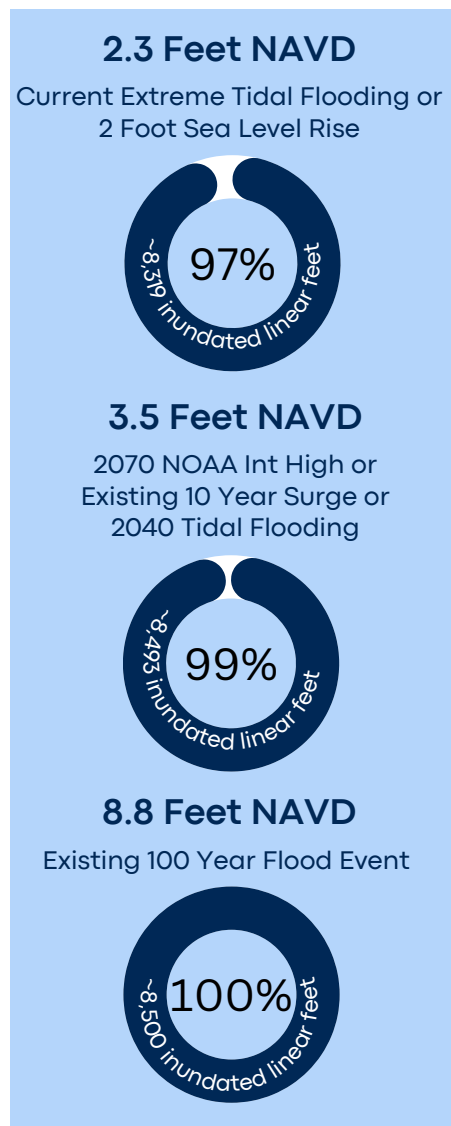


Figure 24. Percentage of Seawall Exposure Under Inundation Tipping Point Scenarios



Figure 25. Seawall Exposure Map for Inundation Tipping Point Scenarios

Wastewater Treatment Facilities and Lift Stations

In July 2021, Kimley-Horn completed an engineering study to determine the best ways a central sewer system can fit within Captiva's landscape. The firm prepared a conceptual layout for a wastewater collection and conveyance system for the unsewered portion of Captiva Island that consists of the areas outside the South Seas Resort, which has its own system. More specifically, this includes three areas currently serviced by package Wastewater Treatment plants- the Village Service Area, the Tween Waters Service Area, and the Estates Service Area (**Figure 26**).

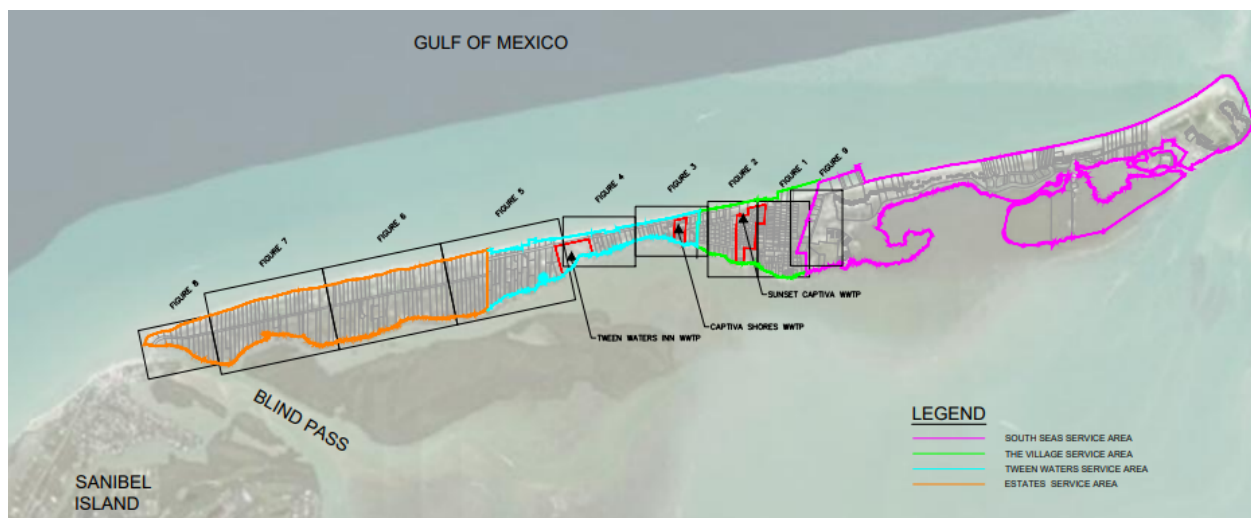


Figure 26. July 2021 Kimley-Horn Study - Unsewered Service Areas of Captiva

Data acquired from Lee County was utilized to map the four Wastewater Treatment Plants (WWTP) located on Captiva Island to determine potential inundation impacts. The analysis results depict the average depth of inundation occurring at the South Seas Plantation WWTP, which is the only WWTP at risk of inundation across the three inundation tipping point scenarios. The South Seas Plantation WWTP is likely to experience inundation at an average depth of 0.3 feet under the 2.3 feet water level elevation, 3.4 feet under the 3.5 feet NAVD water level elevation, and 6 feet under the 8.8 feet NAVD water level elevation (**Table 5**). The Tween Waters Inn WWTP is not expected to experience flooding under any of the three inundation tipping point scenarios.

SEA LEVEL RISE VULNERABILITY ANALYSIS

The results of the analysis depict an average flood depth of 1.5 feet for the Captiva Shores Condominium WWTP under the 3.5 feet NAVD water level elevation and an average depth of 4 feet under the 8.8 feet NAVD water level elevation. Lastly, for the Sunset Captiva WWTP, nuisance flooding is anticipated under the 3.5 feet NAVD water level elevation (with an average depth of 0.7 feet), and flooding with an average depth of 3 feet is anticipated under the 8.8 feet NAVD water level elevation (Table 5).

Table 5. Wastewater Treatment Plant Average Inundation Depth (in feet) Under Inundation Tipping Point Scenarios

WWTP Location	2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
South Seas Plantation	0.3	1.5	6.8
Tween Waters Inn	None	None	None
Captiva Shores Condominium	None	1.1	6.1
Sunset Captiva	None	None	4.8

Three lift stations are located on the island of Captiva- one at each of the package plant stations and one City of Sanibel lift station at Turner Beach that serves the Lee County Park. The locations of the lift stations were identified by Kimley Horn (2021) and were approximated for the purposes of this assessment. Figure 27 highlights the locations of the lift stations, and the wastewater treatment plants on Captiva Island.

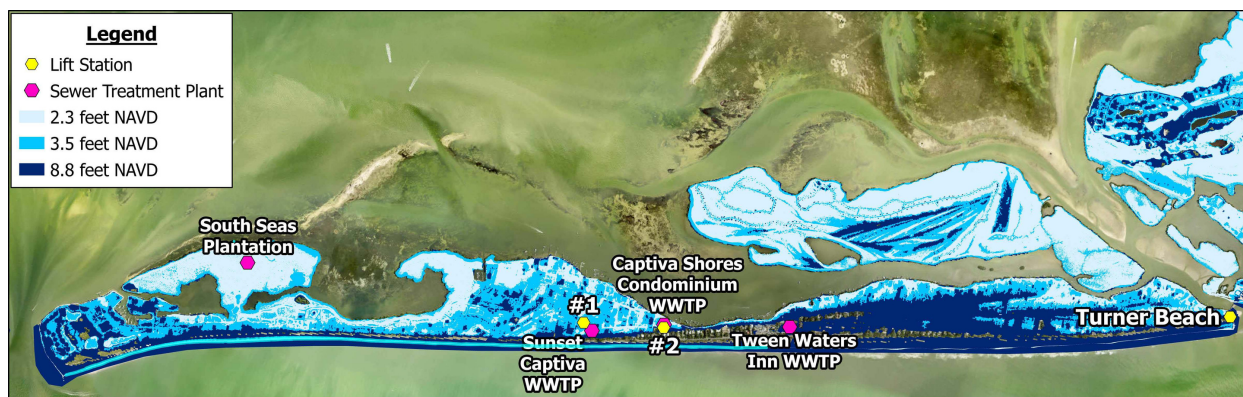


Figure 27. Wastewater Treatment Plant and Lift Station Inundation Map for Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

While not flooded at tipping point Scenario 1, lift station #1 will likely flood at the remaining two scenarios. Under tipping point Scenario 2, the average inundation depth is 1 foot. Under tipping point Scenario 3, the lift station is predicted to experience an average flood depth of 4 feet. Lift station #2 and the Turner Beach lift station are not likely to experience flooding under inundation tipping point Scenarios 1 and 2 but will experience flooding under inundation tipping point Scenario 3 with an average depth of 4 and 3 feet, respectively. Average inundation depths are outlined in **Table 6**.

Concern for sea level rise is one of the motivators for a wastewater collection system, as the existing septic systems will become largely inoperable due to high ground water if sea level rises as predicted. Consideration of the impacts of sea level rise, following NOAA guidance, helped guide the collection system design. In order for the collection systems to be functional in high ground water situations, lift stations will need to be hardened to storm surge and existing lift stations will need to be rebuilt to a higher “utility grade” standard.

The Kimley-Horn conceptual design also proposes new lift stations for future use, the locations of which were not analyzed for the purpose of this assessment. It is important to note that future wastewater treatment infrastructure may be vulnerable to storm surge, sea level rise, and tidal flooding if not factored into future design.

Table 6. Lift Station Average Inundation Depth (in feet) Under Inundation Tipping Point Scenarios

Lift Station	2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Lift station #1	None	1	4
Lift station #2	None	None	4
Turner Beach Lift Station	None	None	3

Stormwater Treatment Facilities and Pump Stations

Comprehensive stormwater data for Captiva Island was not available for the purpose of this assessment. Instead, limited longitudinal data was extracted from the 2011 Captiva Water Quality Assessment Project Final Report prepared by the SCCF Marine Laboratory in Sanibel, FL. This report was generated for the Lee County Tourist Development Council (TDC) and the Captiva Community Panel (CCP), and its overall purpose was to investigate the conditions of Captiva's nearshore waters and the potential problems contributing to local water quality. Included within the data collection was a list of all water quality sites established for the project, which included site types related to stormwater infrastructure and storm water occurrences. Specifically, longitudinal data for Captiva catch basins and pipes, swales and retention ponds, standing water, sewer, and outfalls from the report were plotted and assessed for inundation impacts (**Figure 28**).

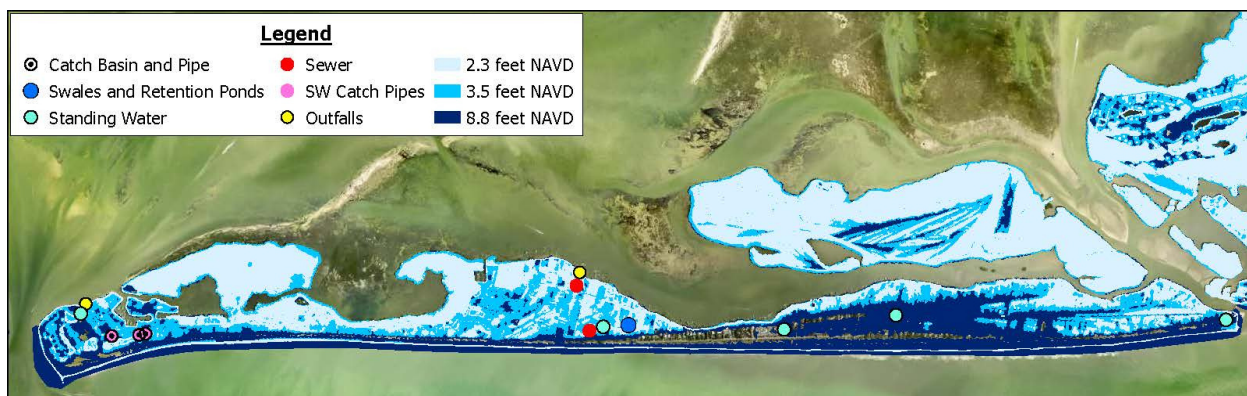


Figure 28. Stormwater Infrastructure Inundation Map for Inundation Tipping Point Scenarios

The water quality report includes sites for three catch basin pipes, one retention pond, six standing water areas, two sewers, and two outfalls located on Captiva Island. These assets do not represent the entirety of the stormwater infrastructure on the island, and with more complete surveying, a future, more comprehensive analysis should be completed. The retention pond is vulnerable to flooding across all three inundation tipping point flood scenarios. Regarding the other stormwater infrastructure types, the number of assets impacted by flooding increase across the tipping point scenarios (**Table 7**). Similarly, the average depth of the predicted inundated increases across tipping point scenarios (**Table 8**).

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 7. Stormwater Infrastructure Inundation for Inundation Tipping Point Scenarios

Type	Total Number	Inundation (feet)		
		2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Catch Basin Pipe	3	0	2	3
Swales and Retention Pond	1	1	1	1
Standing Water	6	2	2	5
Sewer	2	0	1	1
Outfalls	2	2	2	2

Table 8. Stormwater Infrastructure Average Inundation Depth (in feet)
Under Inundation Tipping Point Scenarios

Type	Average Inundation (feet)		
	2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Catch Basin Pipe	N/A	0.9	3.7
Swales and Retention Pond	0.5	1.9	5
Standing Water	0.4	2.4	3.5
Sewer	N/A	1.5	5
Outfalls	1.8	1.2	6

SEA LEVEL RISE VULNERABILITY ANALYSIS

Electrical Transformers and Utility Boxes

Official electrical data was not available for Captiva Island, so to account for the electrical transformers and utility boxes on Captiva, the street view of Google maps was used to map their locations along Captiva Drive. This exercise was conducted for assets on Captiva Island, outside the South Seas Island Resort area. A total of eighty transformers and utility boxes were surveyed and accounted for the purpose of this analysis, the locations of which are depicted in **Figure 29**. A portion of the utility boxes mapped may represent communication boxes, but additional site visits would need to be conducted in order to verify. Under Inundation Tipping Point Scenario 1, 8% of the assets will be affected by flooding, under Inundation Tipping Point Scenario 2, 35% will be affected, and under Inundation Tipping Point Scenario 3, 100% will be affected. The depth of flooding anticipated for the eighty assets, under each scenario are summarized in **Figure 30**. The sixteen electrical transformers and utility boxes projected to experience tidal flooding at a depth of >1 foot by 2040 are located in the area denoted by a circle within **Figure 29**.

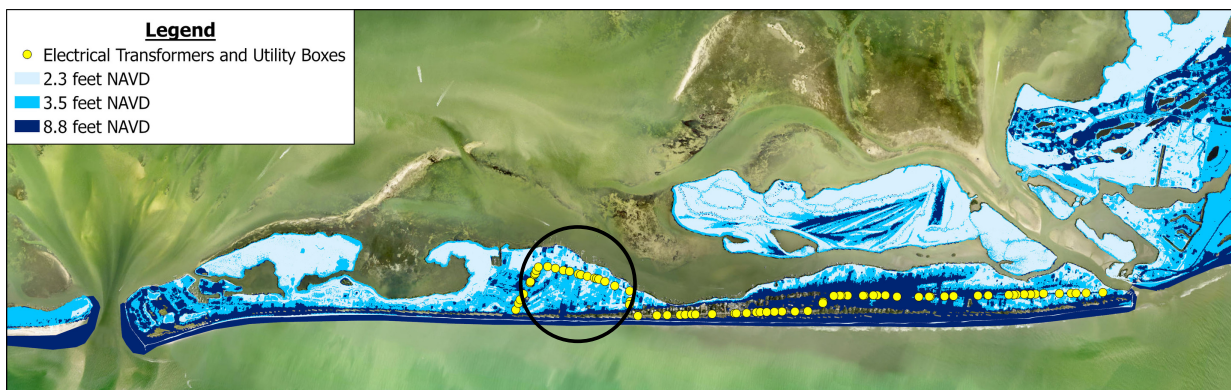


Figure 29. Electrical Transformers and Utility Boxes Location & Inundation Map for Inundation Tipping Point Scenarios.

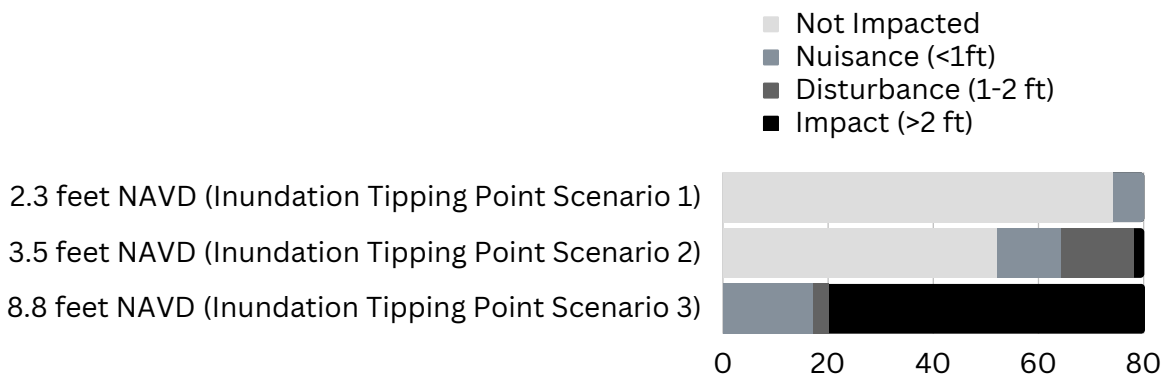


Figure 30. Electrical Transformers and Utility Boxes Inundation Depth Under Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

Communication Facilities

Individuals rely on communication facilities to relay information, connect with others, call for help, etc. If a communication tower is flooded and inoperable, it could result in nearby residents and facilities being unable to reach or receive calls which can be dangerous, especially because the local Emergency Medical Services (EMS) facility is located on Captiva Island. **Figure 31** depicts the communication facility on Captiva Island located directly west of the South Seas Wastewater Treatment Plant. The South Seas tower was identified in the 2020 Captiva Island Resiliency Assessment produced by Integral consulting. Additional communication facilities across Lee County can be viewed in Appendix I.

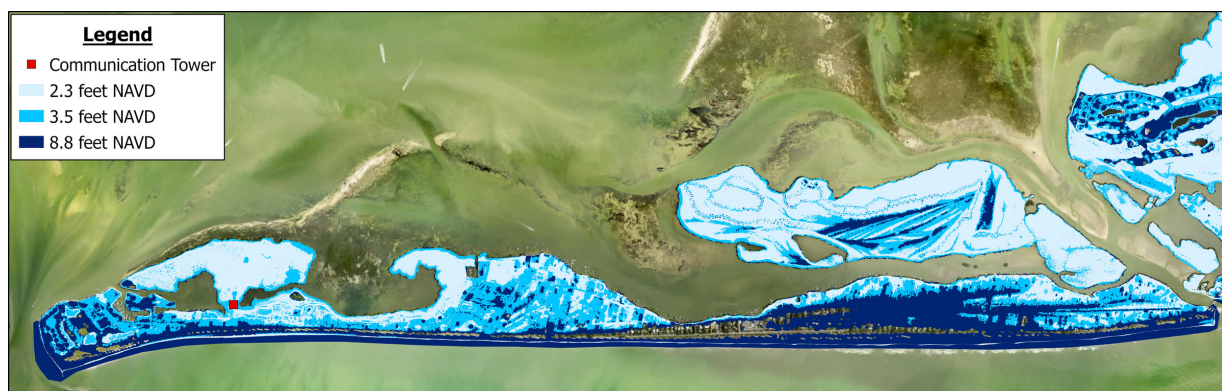


Figure 31. Communications Facilities Inundation Map for Inundation Tipping Point Scenarios

The closest inundation point was utilized to predict potential flood impacts to the communication tower. The results of this analysis predict that under the 2.3 feet NAVD water level elevation, the communication tower will not experience flooding. According to the Inundation Tipping Point Scenario 2 (3.5 feet NAVD), the South Seas Tower will experience inundation with an average depth of 0.8 feet. The flooding threat to the tower increases under the 8.8 feet NAVD water level elevation, with an average projected flood depth of six feet.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Solid and Hazardous Waste Facilities

A Solid and Hazardous Waste Facility does not exist on Captiva Island. The nearest facility, the Sanctuary Golf Club was examined for the purpose of this assessment and is located one mile from Captiva's southern tip (**Figure 32**). The average depth of anticipated inundation under the three inundation tipping point scenarios are as follows:

- 1 2.3 feet NAVD: 0.4 feet
- 2 3.5 feet NAVD: 0.8 feet
- 3 8.8 feet NAVD: 3.1 feet

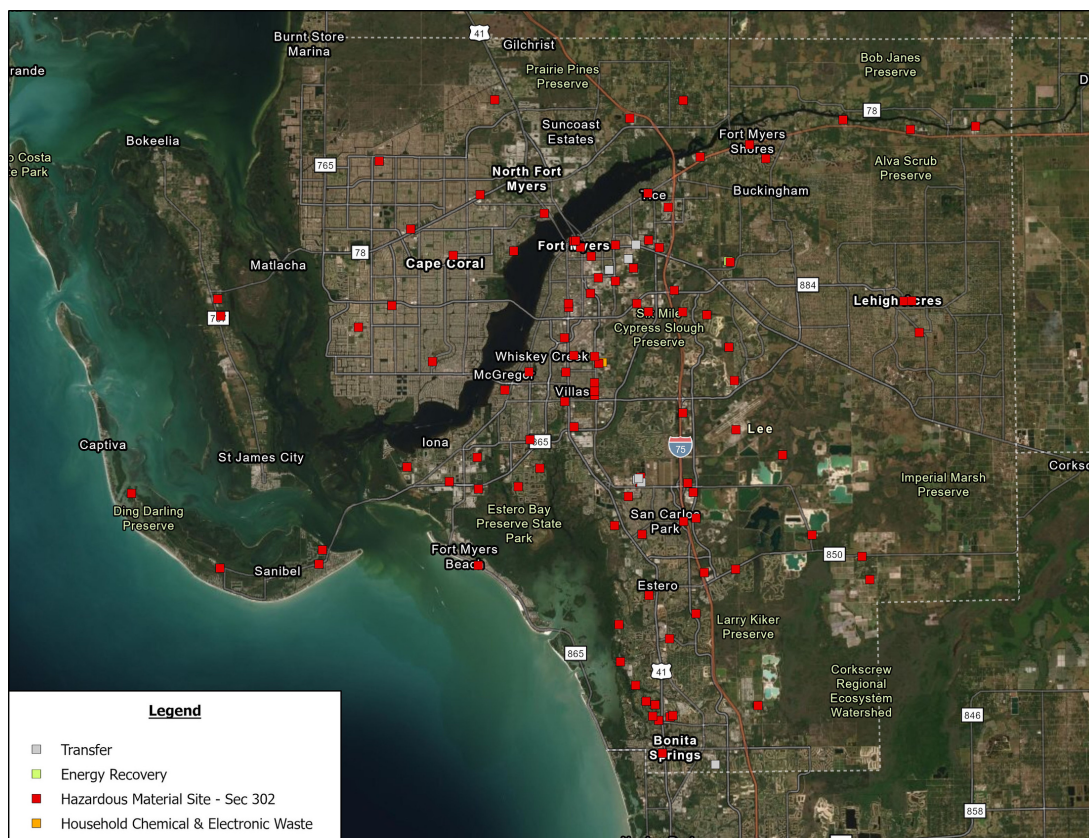


Figure 32. Lee County Solid and Hazardous Waste Facilities

SEA LEVEL RISE VULNERABILITY ANALYSIS

Disaster Debris Management Sites

One Disaster Debris Management Site (DDMS) is located on Captiva Island (Figure 33). A DDMS is a temporary staging area for disaster debris including demolition waste and yard waste. The DDS is located within South Seas, so is generally not accessible to all of Captiva residents. However, Disaster Debris Management Sites are a state defined critical asset, and thus it was included within this assessment.

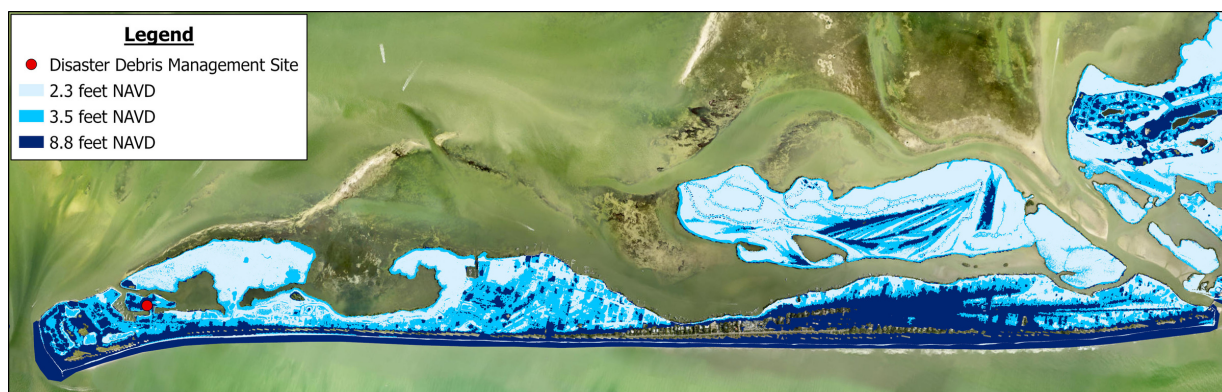


Figure 33. Disaster Debris Management Sites Inundation Map for Inundation Tipping Point Scenarios

The site itself does not intersect with the Inundation Tipping Point Scenarios 1 and 2 (2.3 feet NAVD and 3.5 feet NAVD, respectively). However, the surrounding parcels, roads, and infrastructure are projected to be inundated by 2070, which would decrease or eliminate the accessibility of the site. Under Inundation Tipping Point Scenario 3 (8.8 feet NAVD), the site will be impacted by inundation with an average depth of 3 feet.

Transportation Assets and Evacuation Routes Sensitivity Analysis

50

Roadways and Bridges

53

Evacuation Routes

55

Marinas

59

Airports, Ports, Bases, and Bus Terminals

SEA LEVEL RISE VULNERABILITY ANALYSIS

Roadways and Bridges

Major roadways along Captiva Island are essential not only in emergencies, but in everyday life as residents depend on them to sustain their lifestyles. The functionality of roadways determines the mobility of people and the accessibility of places and resources. Flooding can impact road networks making them unusable and unreliable. Even in non-evacuation scenarios, roadways need to be navigable for emergency purposes so emergency response services such as fire trucks and ambulances can access residents and infrastructure. To determine the level of impact flooding is predicted to have on roads within Captiva Island, roadway data was downloaded from UF Geoplan Center. Linear footage of roadway inundation and roadway type were identified for each flood scenario.

A total of 48,797 linear feet of roads exist on Captiva Island and **Figure 34** outlines linear feet of roadway exposed per scenario.

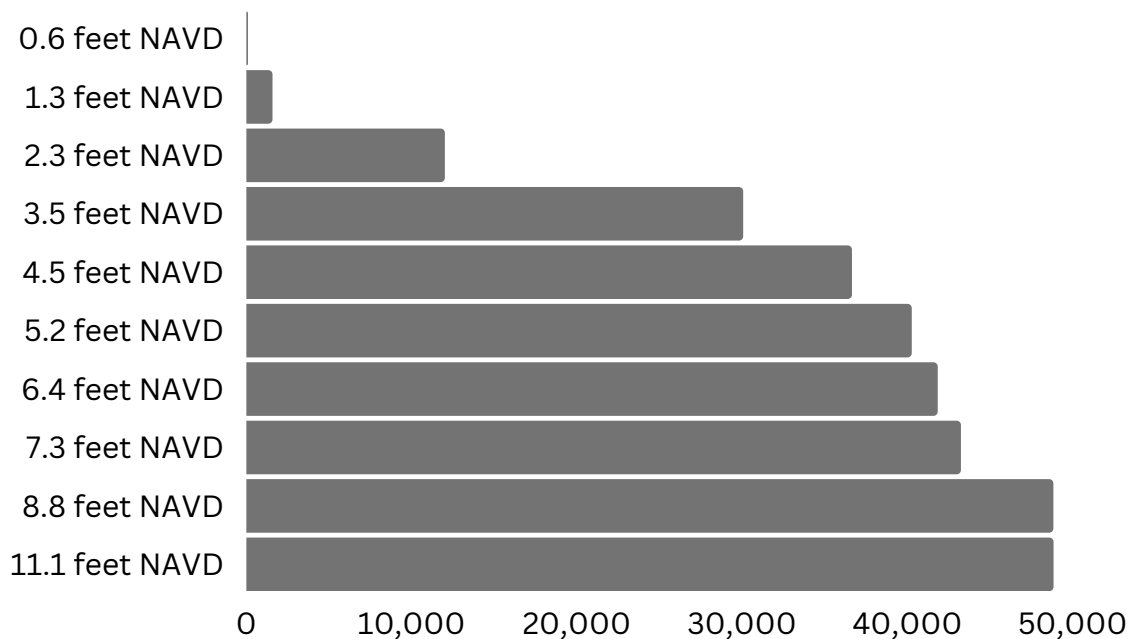


Figure 34. Roadway Exposure Across All Flood Scenarios (in linear feet)

Figure 35 depicts road elevation for all roads on Captiva, which helps to visualize low lying areas and road segments that would be the first to flood. It is evident that the majority of roads on the northern half of the island are at lower elevations than roads on the southern half of the island.

SEA LEVEL RISE VULNERABILITY ANALYSIS



Figure 35. Captiva Roads Elevation Map

Inundated roads were also classified by owner (**Table 9**). For the purpose of this analysis, public and private roads were identified. This evaluation and level of detail helps to characterize the impact of inundation on public roads vs private roads. **Figure 36** displays this breakdown via percentages to show approximately half of inundation impacts occur to public roads and half occur to private roads, under the three tipping point scenarios.

Table 9. Inundated Roadways Classified by Owner Under Inundation Tipping Point Scenarios

	Road Owner - Linear feet (% of total)		
	Public Roads	Private Roads	Total Roadways
2.3 feet NAVD	5,640 (47%)	6,359 (53%)	11,999
3.5 feet NAVD	16,1496 (46%)	19,097 (54%)	35,246
8.8 feet NAVD	17,417 (41%)	25,488 (59%)	42,905

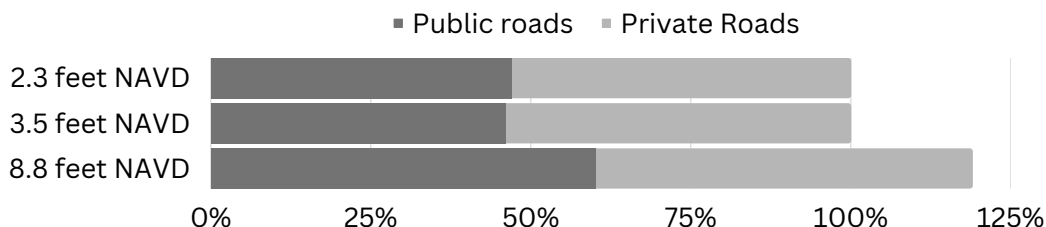


Figure 36. Percentage of Roadway Inundation by Roadway Type for Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

When evaluating the vulnerability of roadways, it is important to identify any bridges along major routes that may also be vulnerable to flooding. The only bridge that exists on Captiva Island connects the Island to Sanibel Island. The road before the bridge on the Captiva side is predicted to experience inundation as is the parcel adjacent to the bridge (**Figure 37**). The vulnerability of the surrounding infrastructure and connected roadways will consequently impact the bridge's accessibility and reliability. If connected roadways are flooded and residents are unable to access the bridge, the mobility and movement of people and resources will be impacted.

The elevation of the lowest point of the ascending bridge is 6.9 feet NAVD, resulting in anticipated flooding of the bridge itself at 7 feet of sea level rise, and during an Existing 100 Year Flood Event (8.8 feet NAVD) and a 500-year Flood Event (11.1 feet NAVD). **Table 10** depicts the predicted average inundation depths for each of these scenarios.

Table 10. Bridge Average Inundation Depth (in feet) for Relevant Scenarios

Scenario	Average Inundation Depth (feet)
7 Foot Sea Level Rise	0.4
Existing 100 Year Flood Event (8.8 feet NAVD)	1.9
Existing 500 Year Flood Event (11.1 feet NAVD)	4.2

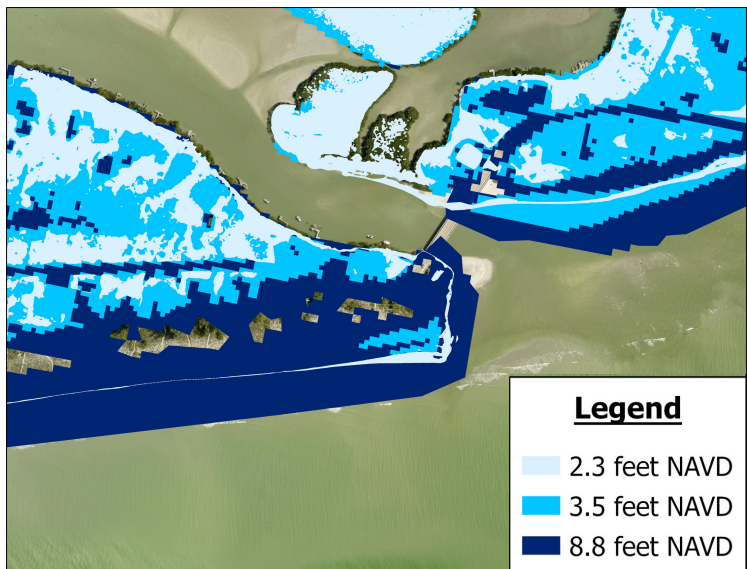


Figure 37. Bridge Inundation for Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

Evacuation Routes

Captiva Drive serves as the island's evacuation route and its only connection to Sanibel. Inundation along this roadway could result in service interruptions, road closures, traffic delays, emergency service delays and overall loss of evacuation. The elevation of this roadway was assessed to determine the specific segments of the roadway at the lowest elevations, as these areas are most likely to flood first and to pose threat to service and evacuation interruptions. **Figure 38** depicts the results of the initial elevation evaluation. Overall, the northern portion of Captiva Island sits at a lower elevation than the remainder of the roadway and runs in close proximity to the bayside edge of Captiva Island with little to no buffer against the water body. It is important to note that Captiva Island is within evacuation zone A, and thus, it is expected that during storm surge events, the island will be evacuated, and roadway accessibility will not be required. However, flooding from tidal conditions, sea level rise, and compounded sources, pose inundation threats to the evacuation route, which residents would rely on to leave the island if circumstances necessitated.



Figure 38. Captiva Evacuation Route Elevation

Utilizing the approximate centerline of Captiva Drive, road segments were then assessed to determine specific locations and magnitudes of inundation per scenario. The average inundation depth in feet for the evacuation route per scenario is outlined in **Figure 39**.

SEA LEVEL RISE VULNERABILITY ANALYSIS

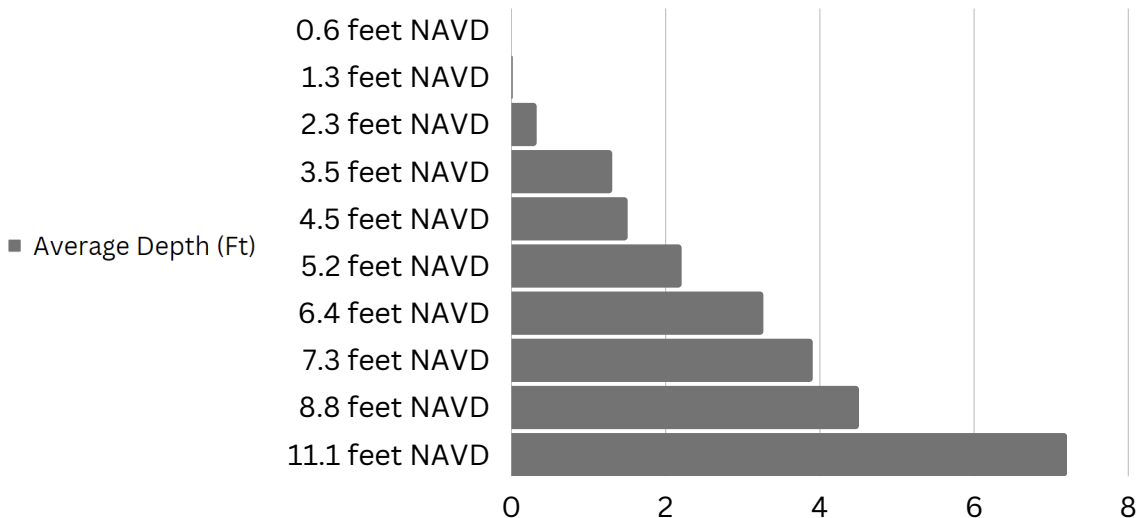


Figure 39. Captiva Evacuation Route Average Inundation Depth Across All Flood Scenarios

The average, minimum, and maximum, inundation depth for each inundation tipping point scenario is outlined in **Table 11**. Flooding depths greater than one foot have the ability to not only inhibit mobility but can eliminate the ability of emergency response and evacuation to and from the northern region of Captiva Island. In instances of hurricanes and storms, this can be extremely dangerous, leaving residents stranded without the ability to reach resources and aid. **Figure 40** depicts the predicted evacuation route inundation for the three inundation tipping point scenarios.

Table 11. Evacuation Route Elevation Summary Under Inundation Tipping Point Scenarios

	Inundation Depth (feet)		
	Average	Minimum	Maximum
2.3 feet NAVD	0.3	0	0.9
3.5 feet NAVD	1.3	0	2.4
8.8 feet NAVD	4.5	1	8

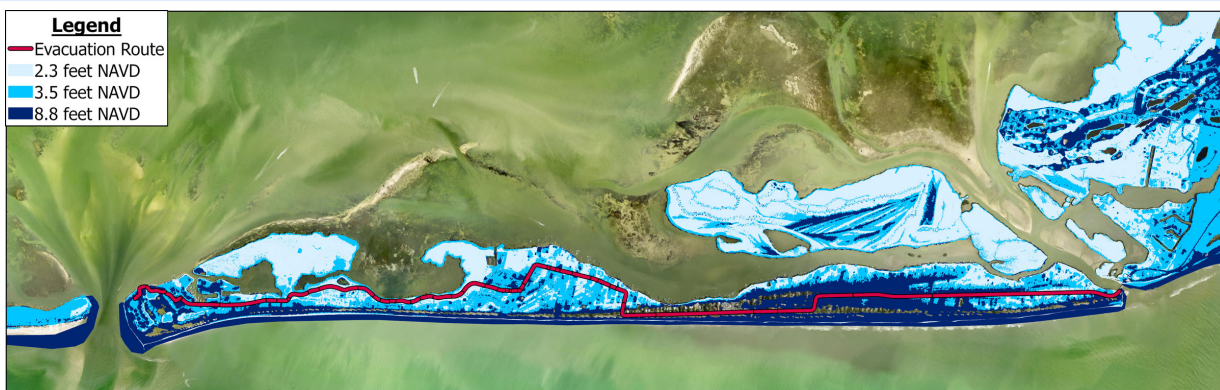


Figure 40. Evacuation Route Inundation Map for Inundation Tipping Point Scenarios

SEA LEVEL RISE VULNERABILITY ANALYSIS

Marinas

Seven marinas exist on Captiva Island (**Figure 41**). The associated parcel for each marina coordinate point was utilized to estimate inundation under the ten flooding scenarios.



Figure 41. Captiva Marinas

All scenarios cause flooding to all seven marinas, except for the scenarios with the two lowest water level elevations (0.6 feet NAVD and 1.3 feet NAVD), which impact four and six marinas respectively. To better understand the magnitude of this inundation, inundation depth was estimated for each marina, under each flood scenario. The results of this analysis for the three inundation tipping point scenarios are summarized in the subsequent pages, in **Figures 42-48** and **Table 12** and **Table 13**.

Depth represents the average across the relevant parcel so while a greater extent of inundation may exist under certain scenarios, the flooding depths across the expanded area vary and reduced depths in some areas can result in a reduced overall average depth. Under Inundation Tipping Point Scenario 1 (2.3 feet NAVD), six of the seven marinas will experience nuisance flooding (<1 foot deep), and one marina (located at 2800-5640 South Seas Plantation Road) will experience more significant flooding at 1.6 feet deep. According to Inundation Tipping Point Scenario 2 (3.5 feet NAVD), the average inundation at all impacted marinas will be greater than 1.5 feet. Again, the marina located at 2800-5640 South Seas Plantation Road is anticipated to experience flooding at a greater depth than the others, at an average of 2.8 feet deep. The marina located at 15903 Captiva Drive is also projected to experience more impactful flooding, with an average inundation depth of 2.4 feet. The extent of flooding exposure for each marina was examined in detail to identify specific impacts on infrastructure and accessibility. The results of this qualitative review for Inundation Tipping Points 1 and 2 are summarized in **Table 14**. Inundation Tipping Point Scenario 3 (8.8 feet NAVD) was not included in **Table 14** because the majority of the island is inundated under this scenario, resulting in the inundation of all marinas.

SEA LEVEL RISE VULNERABILITY ANALYSIS

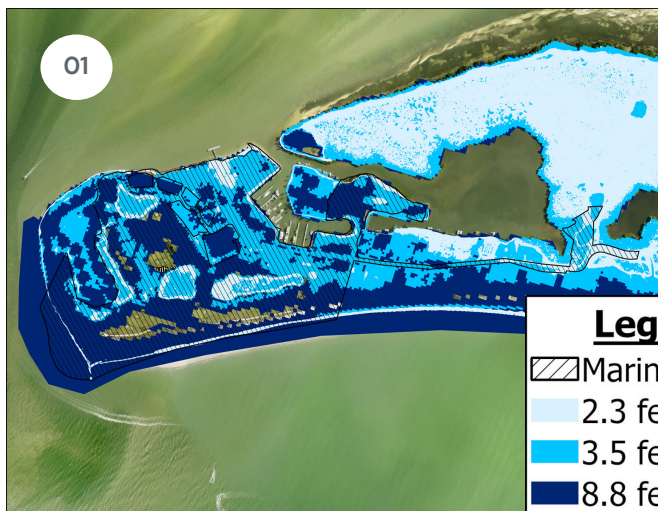


Figure 42. 1057-1900 South Seas Plantation Road Marina Inundation Map

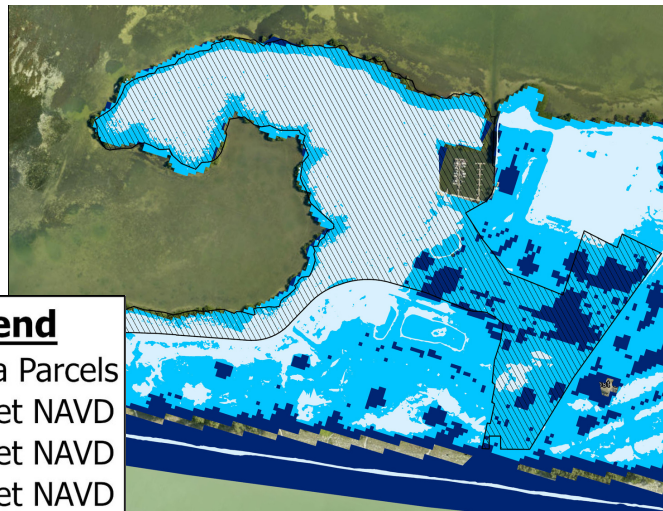


Figure 43. 2800-5640 South Seas Plantation Road Marina Inundation Map

Legend

- Marina Parcels
- 2.3 feet NAVD
- 3.5 feet NAVD
- 8.8 feet NAVD

Table 12. Marina Average inundation Depth (in feet) Under Inundation Tipping Point Scenarios-Part 1

		Average Inundation Depth (feet)		
<u>Marina Address</u>		<u>2.3 Feet NAVD</u> (<u>Inundation Tipping Point 1</u>)	<u>3.5 Feet NAVD</u> (<u>Inundation Tipping Point 2</u>)	<u>8.8 Feet NAVD</u> (<u>Inundation Tipping Point 3</u>)
01	1057-1900 South Seas Plantation Road	0.7	1.6	4
02	2800-5640 South Seas Plantation Road	1.6	2.8	6
03	11401 Andy Rosse Lane	0.2	1.7	6
04	15107 Captiva Drive	0.3	1.7	6

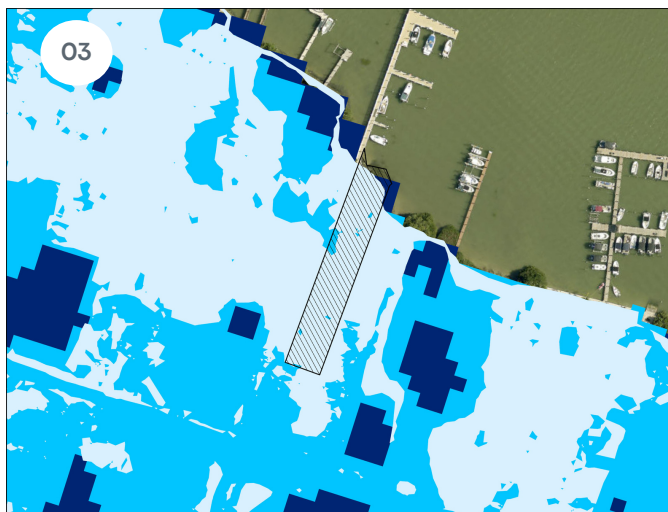


Figure 44. 11401 Andy Rosse Lane Marina Inundation Map

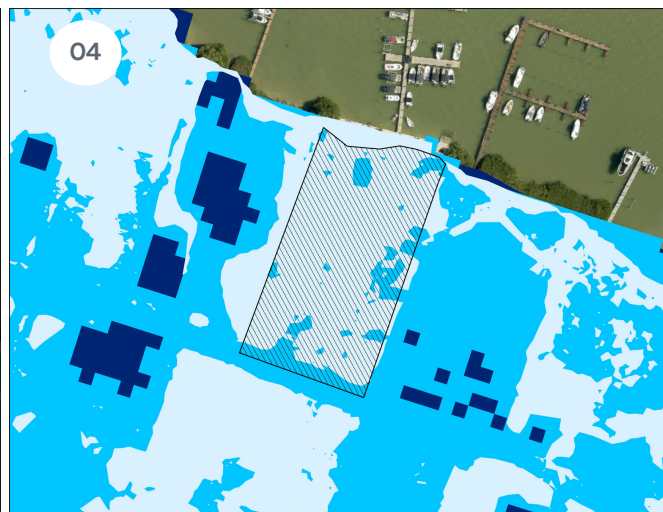


Figure 45. 15107 Captiva Drive Marina Inundation Map

SEA LEVEL RISE VULNERABILITY ANALYSIS

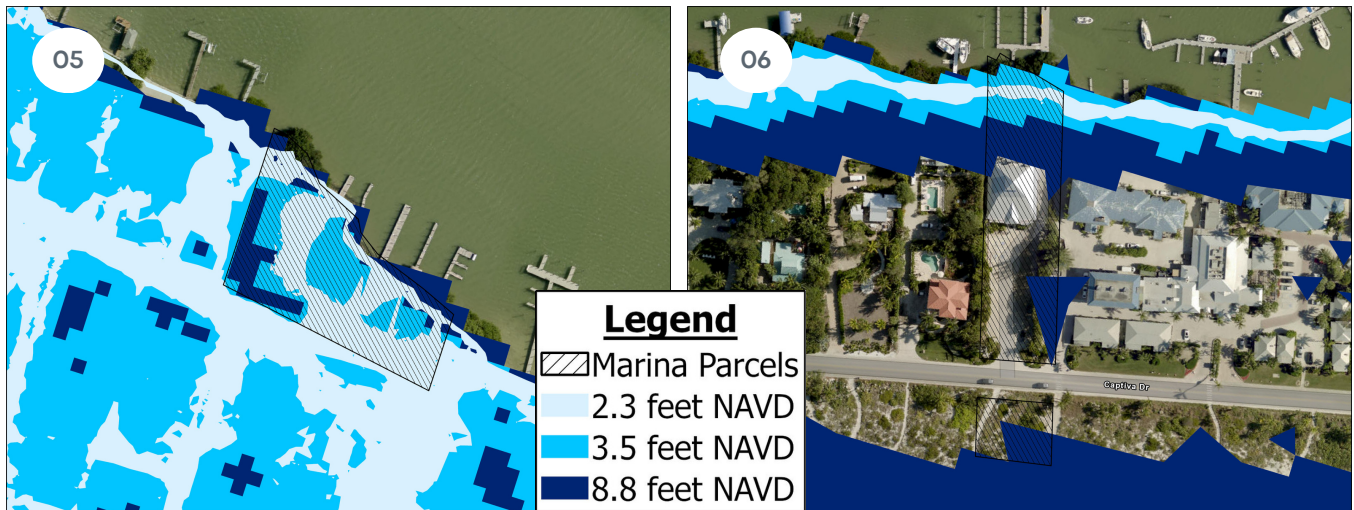


Figure 46. 15183 Captiva Drive Marina Inundation Map

Figure 47. 15903 Captiva Drive Marina Inundation Map

Table 13. Marina Average inundation Depth (in feet) Under Inundation Tipping Point Scenarios-Part 2

Average Inundation Depth (feet)

Marina Address	2.3 Feet NAVD (Inundation Tipping Point 1)	3.5 Feet NAVD (Inundation Tipping Point 2)	8.8 Feet NAVD (Inundation Tipping Point 3)
05 15183 Captiva Drive	0.2	1.5	5
06 15903 Captiva Drive	0.7	2.4	3
07 15951 Captiva Road	0.9	1.8	3

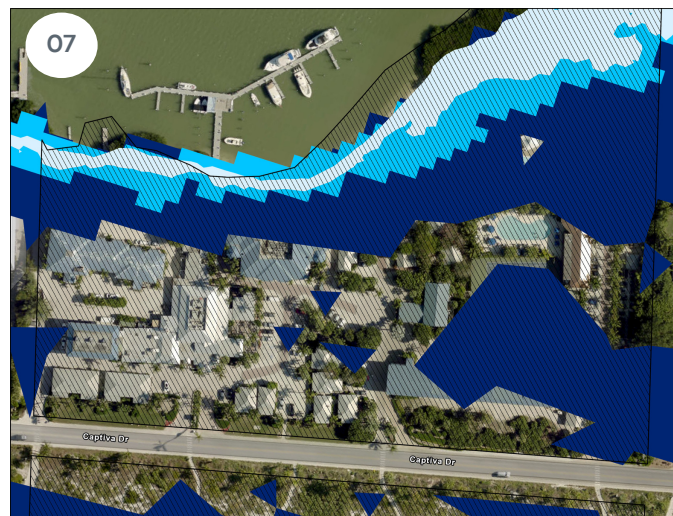


Figure 48. 15951 Captiva Road Marina Inundation Map

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 14. Marina Impact Under Inundation Tipping Point Scenarios

	Marina Address	2.3 Feet NAVD (Inundation Tipping Point 1)	3.5 feet NAVD (Inundation Tipping Point 2)
01	1057-1900 South Seas Plantation Road	Entire mangrove area impacted by flooding. Southern portion of Plantation Road and bayside parcels begin to flood. Portions of South Seas Resort flooded.	The majority of Plantation Road and local roads experience inundation. Major points of entry, bayside properties, resorts, and marina infrastructure impacted.
02	2800-5640 South Seas Plantation Road	Significant portions of mangroves and inland greenspace flooded, along with Plantation Road, local roads surrounding marina, and bayfront properties.	Anticipated flooding along major segments of Bayside VIs and Bayside Marina and other local roads, and along the parking lot and structures at the entrance of marina.
03	11401 Andy Rosse Lane	Initial inundation to the entire marina parcel- major roads, parking lot, and marina structures.	All land access to marina is estimated to be inundated- major roads, parking lot, and marina structures.
04	15107 Captiva Drive	Initial inundation to majority of marina parcel and to bayfront. Majority of Captiva Drive not impacted.	All land access to marina is estimated to be inundated- major roads, parking lot, and marina structures.
05	15183 Captiva Drive	Majority of marina parking lot and building impacted by flooding. Neighboring parcels and Captiva Drive flooded.	The remainder of the marina parking lot is inundated, along with all nearby roads and parcels.
06	15903 Captiva Drive	Minor anticipated flooding along the pathway from marina to parking lot and vegetation.	Greater extent of anticipated flooding along the pathway from marina to parking lot and inland along eastern edge of parking lot.
07	15951 Captiva Road	Similar conditions as observed for Marina 6, as they are adjacent. Initial flooding along bayside impacting pathway from marina to parking lot.	More flooding along the pathway from marina to parking lot and along eastern edge of parking lot.

Airports, Ports, Bases, and Bus Terminals

While there are no airports, ports, or seaplane bases located on Captiva, the nearest facilities were mapped (**Figure 49**). There are no bus terminals or routes on Captiva either. **Table 15** depicts the names of these facilities and the distance to them from Captiva.

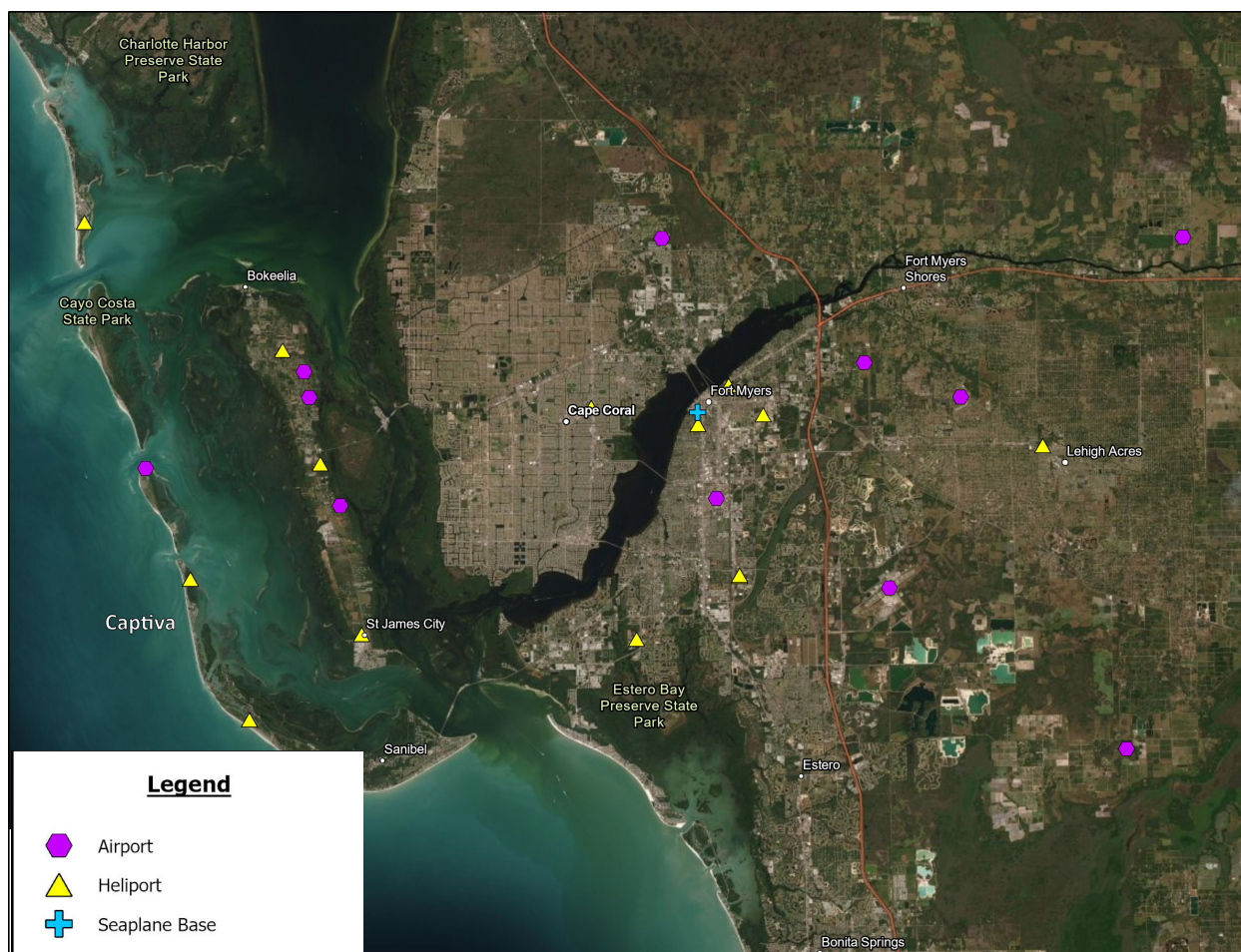


Figure 49. Lee County Airports, Ports, Bases, and Bus Terminals

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 15. Nearest Bus terminal, Airport, Port, and Seaplane Base

Facility Type	Facility Name	Approximate Distance from Captiva (miles)
Bus Terminal	Lee Tran Intermodal Transfer Center	15
Airport	Page Field Airport	21
Seaplane Base	Caloosa Downtown Seaplane Base	22
Port	Port Manatee	85

The heliport location on Captiva Island was assessed for anticipated inundation, as it is a critical asset to the Island of Captiva. According to the analysis results, the Captiva heliport is likely to experience flooding with an average depth of 1.8 feet under Inundation Tipping Point 1 (2.3 feet NAVD), an average doeth of 3.6 feet under Inundation Tipping Point 2 (3.5 feet NAVD), and an average depth of 7 feet under Inundation Tipping Point 3 (8.8 feet NAVD). A flooding depth greater than one foot is expected to disturb functioning and accessibility, and greater than two feet is expected to have serious impacts on the facility. Depths of 3.6 feet and 7 feet would likely pose severe impacts to the heliport.

Critical Community and Emergency Facilities Sensitivity Analysis

62

Critical Community Facilities

Schools and Colleges

Community Centers

Fire and Police Stations

Local and State Government Facilities

Correctional Facilities

Health Care Facilities and Hospitals

Affordable Public Housing

66

Emergency Facilities

Disaster Recovery Centers

Logistical Staging Areas

Emergency Medical Service Facilities

Emergency Operations Centers

Risk Shelter Inventory

SEA LEVEL RISE VULNERABILITY ANALYSIS

Critical Community Facilities

Critical community facilities are those facilities that are vital to the community's functioning, safety, and health. For the island of Captiva, critical facilities include schools, community centers, fire stations, law enforcements facilities, correctional facilities, local and state government facilities, healthcare facilities and hospitals. Point data for the nearest critical facilities were obtained and utilized for this analysis. As is evident in **Figure 50**, while some critical facilities serving Captiva are located on the island, many are located outside of the CEPD boundary. These facilities within the larger area of Lee County were still included within this analysis as they are critical to the functioning and wellbeing of the CEPD community and any risk of inundation and potential disturbance to these facilities would impact the lives of the CEPD residents dependent on them.

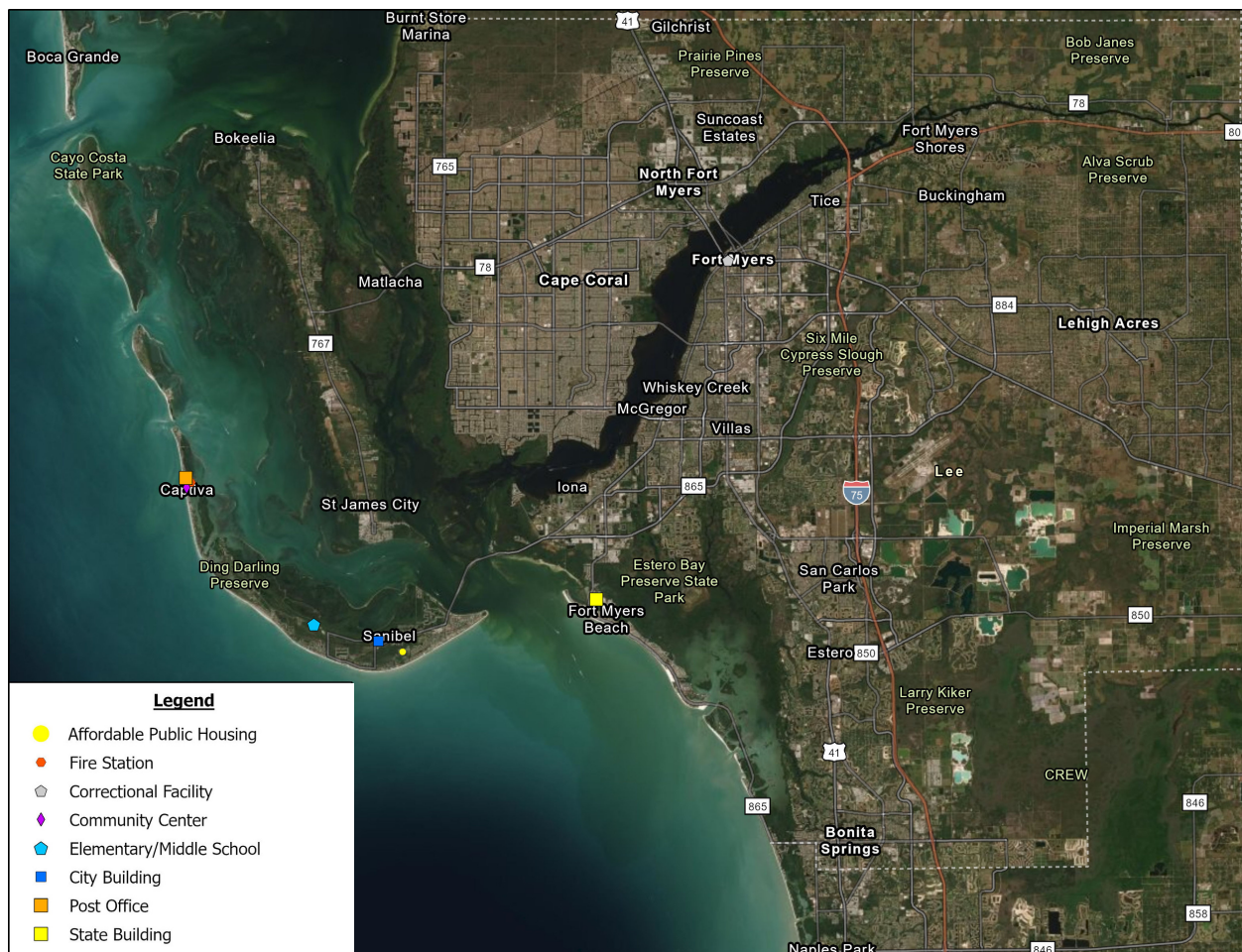


Figure 50. Off Island Critical Community Facilities Map

SEA LEVEL RISE VULNERABILITY ANALYSIS

In summary, point data for the closest critical facilities to CEPD were analyzed for initial inundation impact under the three inundation tipping point scenarios. One community center (Captiva Civic Association, Inc), one fire station (Captiva Fire Station #181), one federal government facility (U S. Postal Service Captiva), and one local law enforcement building are located on the island of Captiva and serve the island's community (Figure 51).

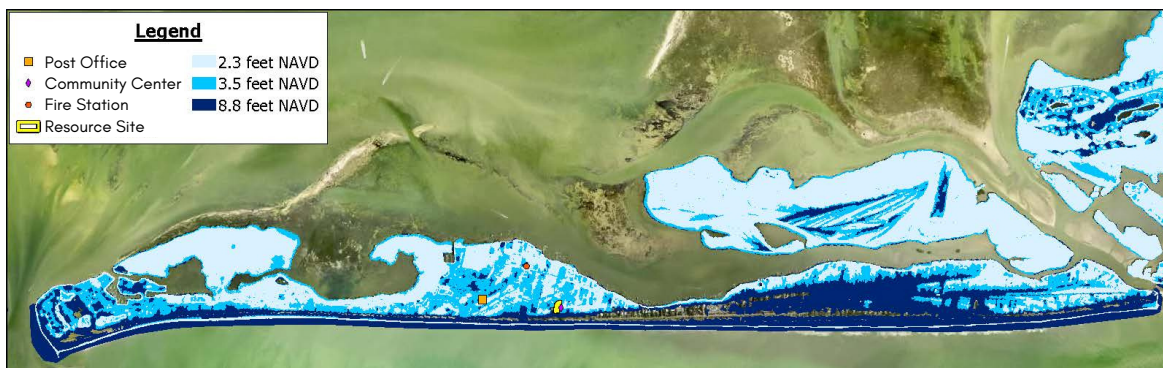


Figure 51. On Island Critical Community Facilities Map

2022 LiDAR data associated with Hurricane Ian was utilized to approximate elevations and inundation depths for these four assets, as the 2017 LIDAR used for all other assets within this report did not account for building construction and elevation increases of these four buildings that occurred after 2017. Flooding is not anticipated for the four critical community assets under current extreme tidal flooding conditions (2.3 feet NAVD) (Table 16). Under 2040 tidal flooding conditions (3.5 feet NAVD), the resource site is anticipated to experience nuisance flooding. Captiva's Post Office proves to not be vulnerable to flooding, even under 8.8 feet NAVD. Under this flood scenario, the fire station, community center, and resources site are expected to experience impactful flooding with an average depth of 3.2 feet NAVD, 4.6 feet, and 5.5 feet NAVD, respectively.

Table 16. On Island Critical Community Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios

Facility Type	Island Total	Facility Name	Inundation Depth (feet)		
			2.3 Feet NAVD Current Extreme Tidal Flooding/ 2 Foot Sea Level Rise	3.5 Feet NAVD 2070 NOAA Int High/ Existing 10 Year Surge/ 2040 Tidal Flooding	8.8 Feet NAVD Existing 100 Year Flood Event
Community Centers	1	Captiva Civic Association, Inc	-	-	4.6
Fire Stations	1	Captiva Fire Station #181	-	-	3.2
Federal Government Facilities	1	U S. Postal Service Captiva	-	-	-
Local Law Enforcement	1	Resource Site	-	0.8	5.5

SEA LEVEL RISE VULNERABILITY ANALYSIS

The remaining critical facility types included in this assessment do not exist on the island of Captiva, and thus, for the purpose of this analysis, the closest location within Lee County representing each facility type was assessed for future inundation. **Table 17** details the facility type, the approximate distance in miles to the closest facility outside of Captiva Island (straight line from end of island to facility), the facility name, and the estimated inundation under the three inundation tipping point scenarios.

Correctional Facility, Hospital, and Local Government Facility

The nearest correctional facility (Lee County Jail), located 5 miles from Captiva Island, is not estimated to experience any inundation across the scenarios. The nearest hospital (Lee Health- Health Park Hospital) located 17 miles from Captiva Island and the nearest local government facility (Island Civic Center) located 7 miles from Captiva Island will not experience flooding under the inundation tipping points 1 and 2, however will experience impactful inundation under the Inundation Tipping Point 3. The average inundation depth for these two facilities under this scenario is around 3 feet.

School and Health Care Facility

The closest school serving the island of Captiva is the Sanibel School K-8, located 5 miles off the Southern tip of Captiva Island. Flooding is anticipated at this location for all tipping point scenarios at a depth of 1.3 feet, 1.8 feet, and 5 feet, respectively. The San-Cap Medical Center serves as the health care facility for Captiva residents and is approximately 4 miles from the Captiva's southern tip. This center proves to be at risk for inundation, with an estimated inundation depth of 1.8 feet under Inundation Tipping Point 2 and a depth of 5.8 feet under Inundation Tipping Point 3.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Law Enforcement Facility and State Government Facility

The nearest official law enforcement facility (Sanibel Police Department) and the nearest affordable housing unit (unit 2) experience a similar incremental inundation pattern. Minimal flooding (0.08 feet) under Inundation Tipping Point 1 is unlikely to cause disruption or impact the functionality of these facilities. However, under Inundation Tipping Point 2, both facilities will experience disturbance from flood levels which could limit or prohibit normal operations and under the Inundation Tipping Point 3, the facilities will be inoperable. Flooding of the police department could result in reduced response time and reduced ability and accessibility to immediate aid. The state government facility (SW Florida Marine Institute) would not be of highest priority in the case of a flood, but similar to other facilities, it still proves to be highly vulnerable under Inundation Tipping Point 1 (with an average flood depth of 7.5 feet). The inundation depths per scenario are outlined in **Table 17**.

Table 17. Off Island Critical Community Facilities Inundation Depth (in feet)
Under Inundation Tipping Point Scenarios

Facility Type	Distance to Closest (mi)	Facility Name	Inundation Depth (feet)		
			2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Schools and colleges	5	The Sanibel School K-8	1.3	1.8	5
Correctional Facilities	22	Lee County Jail	0	0	0
Health Care Facilities	4	San-Cap Medical Center	0	1.8	5.8
Hospitals	17	Lee Health - Health Park Hospital	0	0	3.1
Law Enforcement	7	Sanibel Police Dept	0.1	1.7	5.7
Local Government Facilities	7	Island Civic Center	0	0	3
State Government Facilities	15	SW Florida Marine Institute	0	.3	7.5
Affordable Public Housing	8	Community Housing and Resources Minor Subdivision at Sanibel Highlands	0.1	1.2	7

SEA LEVEL RISE VULNERABILITY ANALYSIS

Emergency Facilities

Emergency facilities included in this assessment consist of three facilities on Captiva and two outside of Captiva, displayed in **Figure 52**. These facilities can be critical to the safety and survival of residents during and after a hazard or disaster.

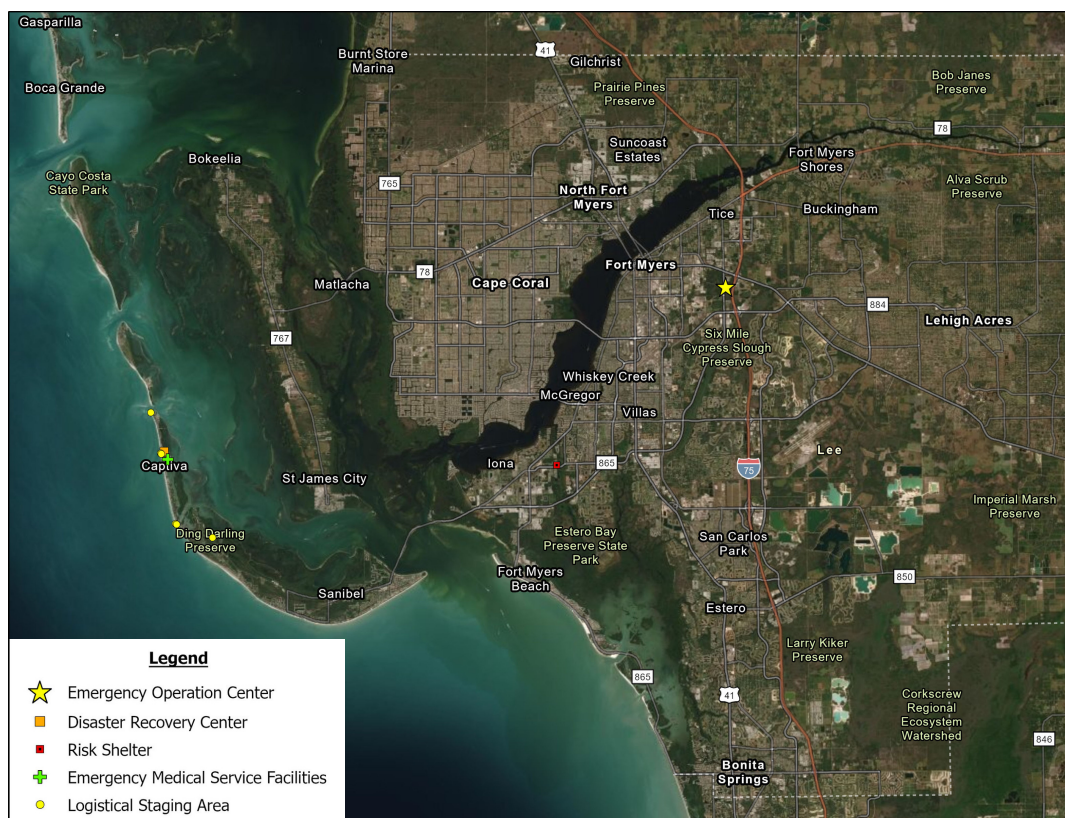


Figure 52. Off Island Emergency Facilities Map

The emergency medical service facility, disaster recovery center, and logistical staging area are located on the island of Captiva (**Figure 52**). The local fire station (Captiva Fire Station #18) mentioned previously serves as the local emergency medical service facility and will respond to emergency calls on the island of Captiva. The results of the fire station inundation analysis were reviewed in the previous section.

Chadwick's at South Seas Plantation is the on-island disaster recovery center (DRC) which serves as the dedicated, accessible and established location where survivors are assisted through the recovery process via information and resources. This DCR is not expected to experience any flooding under the 2.3 feet NAVD water level elevation.

SEA LEVEL RISE VULNERABILITY ANALYSIS

However, according to the 3.5 feet NAVD and 8.8 feet NAVD water level elevations, Chadwick’s is likely to experience impactful inundation at an average depth of 2.8 and 5.8 feet, respectively. This degree of flooding has the potential to make the DCR inoperable, which would prohibit residents from receiving the aid and assistance needed. The logistical staging areas along Captiva are predicted to experience nuisance flooding under 2.3 feet NAVD (with an average depth of 0.6 feet) and under 3.5 feet NAVD (with an average depth of 0.1 feet). While the 3.5 feet NAVD scenario represents a higher water level elevation, the type of flooding impacts the direction and introduction of water to the area, and when averaged across multiple parcels, the average can sometimes be reduced. Inundation depths for the individual Staging Areas can be reviewed in Appendix VI. **Table 18** summarizes inundation depths and **Figure 53** represents the spatial impacts to the facilities under the three inundation scenarios.

Table 18. On Island Emergency Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios

Facility Type	Island Total	Facility Name	Inundation Depth (feet)		
			2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Emergency Medical Service Facilities	1	Captiva Fire -Station #181	-	-	0.6
Disaster Recovery Centers	1	Chadwick’s at South Seas Plantation	0	2.8	5.8
Logistical Staging Areas	5	Multiple	0.6	0.1	4

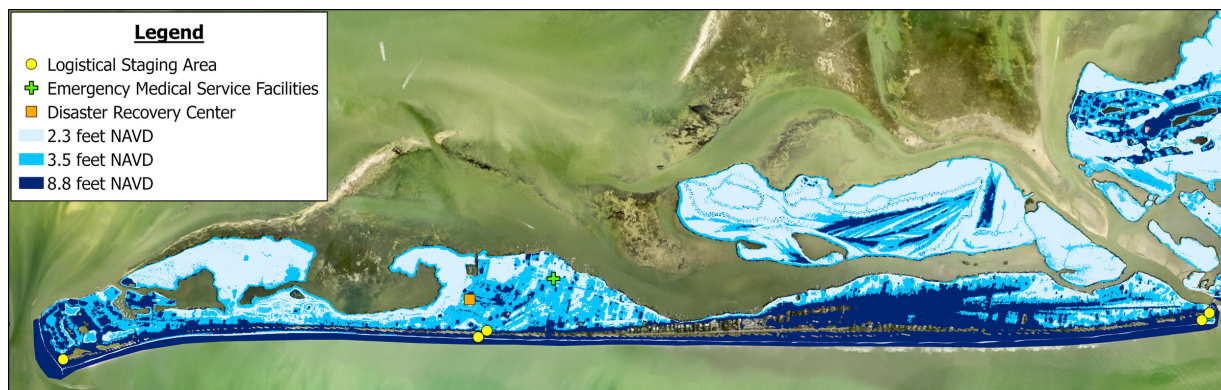


Figure 53. On Island Emergency Facilities Map

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 19 outlines the off-island emergency facilities and their average inundation depths under the relevant scenarios. The closest emergency operations center to Captiva Island is located in Fort Myers, about 25 miles from the Southern tip of Captiva Island. According to FEMA, an Emergency Operations Center is a protected site from which State and local civil government officials coordinate, monitor, and direct emergency response activities during an emergency. Situated inland and away from the coast, no inundation is anticipated for this center, however, road inundation between Captiva Island and the center could serve as an obstacle for Captiva residents under various flood scenarios.

Approximately 16 miles from Captiva Island, the nearest risk shelter (Heights Elementary School) will likely not experience flood risk under Inundation Tipping Points 1 and 2 and would thus be operable and accessible to Captiva residents. Under the greater water elevation level predicted for Inundation Tipping Point 3, flooding is predicted at a depth of 5 feet. Flooding at this depth would eliminate the accessibility and protection of the shelter. A shelter slightly closer to Captiva Island is located on Fort Myers but was not included in this assessment because the included shelter at approximately the same distance is located more mainland and should experience less flooding.

Table 19. Off Island Emergency Facilities Inundation Depth (in feet) Under Inundation Tipping Point Scenarios

Facility Type	Distance to Closest (mi)	Facility Name	Inundation Depth (feet)		
			2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Emergency Operations Centers	25	Emergency Operations Center	0	0	0
Risk Shelter Inventory	16	Heights Elementary School	0	0	5

Natural, Cultural, and Historical Resources Sensitivity Analysis

70

Conservation Lands
Wetlands

71

Parks, Preserves, and Beach Access Areas Related to Greenspace

72

Shorelines

73

Historical and Cultural Assets

Conservation Lands

While not necessarily critical to the survival or basic functionality of the island, the natural and cultural and historical resources on Captiva prove to be essential to the island's integrity and identity. The natural resources considered in this report include conservation lands, parks, and wetlands. Conservation land data was downloaded from the Florida Natural Areas Inventory and was analyzed for impact and average depth over the entire areas. In general, the acreage of conservation lands inundated for each flood scenario remains rather constant across all flood scenarios, increasing by only four acres from the 0.3 feet NAVD water level elevation to the 11.1 feet NAVD water level elevation. It is important to note that the results of this analysis and the subsequent analysis of mangrove inundation represent some degree of overlap. **Figure 54** depicts the locations of conservation lands across the Island of Captiva. While Buck Key was not factored into the calculation of inundation acreage of conservation land, it is identified within **Figure 54**, as it plays a role in storm surge and wave protection for Captiva Island.

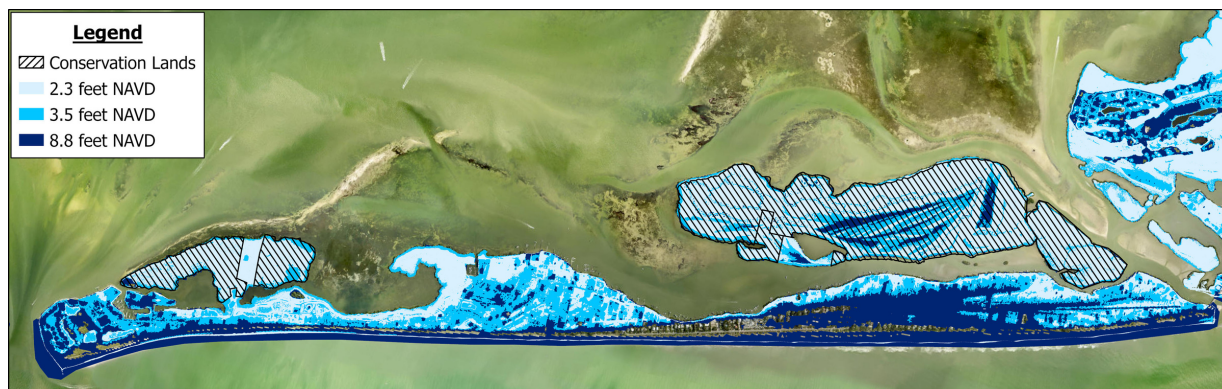


Figure 54. Conservation Land Inundation Map for Inundation Tipping Point Scenarios

Wetlands

Data from the Fish and Wildlife Research Institute depicted the location and extent of the mangroves along Captiva Island. As previously stated, when analyzing mangroves for inundation extent and depth, it is important to note that some of these areas overlap with conservation lands and thus some of the resulting metrics may be duplicative in nature. 96% of all wetlands will be inundated under 3.5 feet NAVD, and 100% will be inundated under 8.8 feet NAVD.

Parks, Preserves, and Beach Access Areas Related to Greenspace

County parks, preserves, zoned parks, and beach access areas related to greenspace, totaling 2.4 acres, were included in the following analysis as they are mostly all managed by CEPD. **Figure 55** depicts projected inundation impacts for all parks along Captiva Island under the inundation tipping point scenarios. Park inundation does not prove to be a major anticipated threat under 2.3 feet NAVD (Inundation Tipping Point 1), which estimates that only 8% of parks will experience

flooding with an average depth of 0.7 feet. The predicted average inundation depth is the same under 3.5 feet NAVD (Inundation Tipping Point 2), with only 12% of parks inundated. As was the case with the conservation lands and wetlands, under 8.8 feet NAVD (Inundation Tipping Point 3), 100% of all parks will experience flooding (average depth: 6.5 feet).

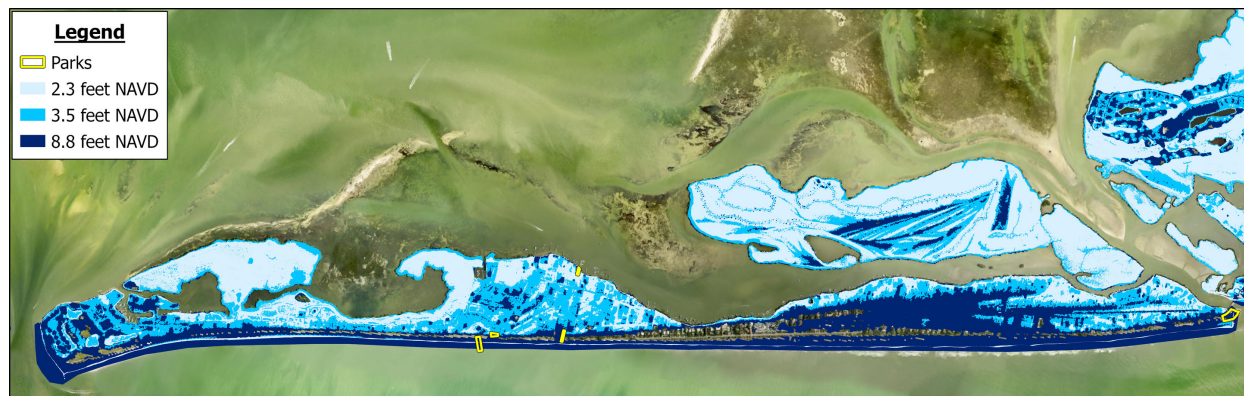


Figure 55. Park Inundation Map for Inundation Tipping Point Scenarios

Shorelines

To determine estimated gulf-front shoreline inundation, the 1982 and 1983 Erosion Control Lines (ECL) were assessed under the relevant inundation scenarios. The ECLs cover the island's beach front running from the groin at South Seas to the groin at Turner Beach. Beach profiles were not utilized to estimate inundation. **Figure 56** highlights the elevation of Captiva's shoreline.



Figure 56. Shoreline Elevation Map.

Captiva Island possesses 25,823 linear feet of gulf-front shoreline and under 2.3 feet NAVD (Inundation Tipping Point 1), 0% of the shoreline will experience inundation. The degree of shoreline inundation increases to only 1% according to the 3.5 feet NAVD water level elevation (Inundation Tipping Point 2). Gulf-front shoreline inundation increases drastically under the 8.8 feet NAVD water level elevation (Inundation Tipping Point 3), which anticipates that 60% of shorelines will be impacted by flooding (**Figure 57**).

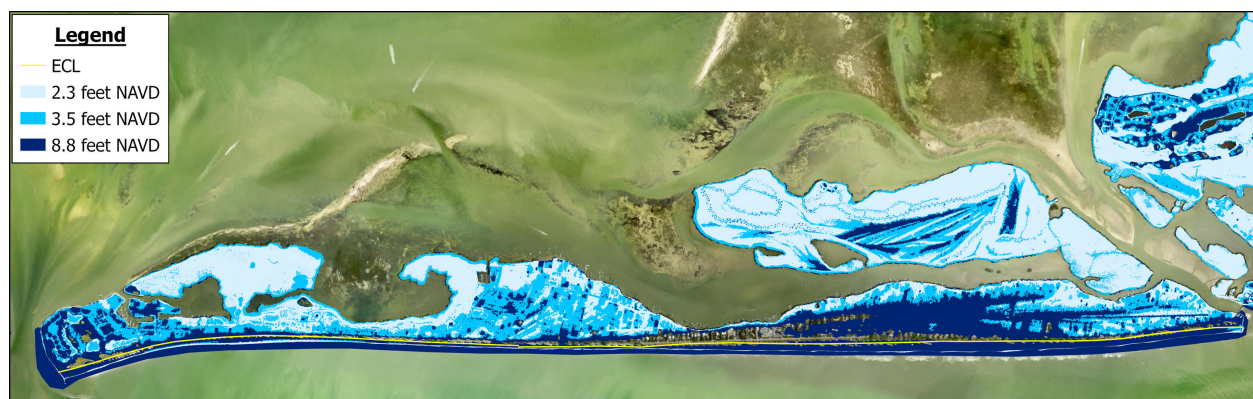


Figure 57. Shoreline Inundation Map for Inundation Tipping Point Scenarios.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Historical and Cultural Assets

Historic and cultural facility data are logged and maintained at the state level by the Florida's State Historic Preservation Offices (SHPO) of the Florida Bureau of Historic Preservation (BHP). Nationally, facilities are tracked by the National Park Service (NPS) who compile the National Register of Historic Places (NRHP). The NRHP is the official list of properties and areas recognized as historical and nationally preserved, two of which are located within Captiva Island (the Tween Waters Inn Historic District and the Chapel-by-the-Sea Historic District). **Figure 58** depicts the general locations of these historic districts, indicated by stars on the map. An additional 73 properties have been identified by the SHPO as potential historical and cultural sites, labeled on **Figure 58** as "Not Evaluated by SHPO".

When assessing the NRHP districts and the SHPO potential historical places for predicted inundation, 21% are likely to experience flooding under Inundation Tipping Point 1, 45% are likely to experience flooding under Inundation Tipping Point 2, and 69% are likely to experience flooding under Inundation Tipping Point 3.



Figure 58. Historical and Cultural Assets Inundation Map for Inundation Tipping Point Scenarios

Risk Assessment



75

Methodology Overview and Risk Matrix

77

Risk Scores per Asset

SEA LEVEL RISE VULNERABILITY ANALYSIS

Methodology Overview and Risk Matrix

Determining the risk of the several types, degrees, and occurrences of flooding helps to qualify the susceptibility of critical assets on the island of Captiva. Determined inundation depths and flood scenarios are utilized to generate a standardized risk score on a scale to help compare vulnerabilities and prioritize risks to assets.

More specifically, flood risk is a combination of the probability (likelihood or chance) of an event happening and the consequences (impact) if it occurred. Risk was calculated by multiplying likelihood by impact and then assigning a rank of high low, medium, or high risk based on value. The following equation and descriptions outline the evaluation of risk per asset:

$$\begin{array}{ccc}
 \text{Likelihood} & & \text{Impact Score} \\
 \text{(or probability)} & & \text{(based on the anticipated} \\
 \text{of a given flood scenario} & \times & \text{depth) of the asset under} \\
 \text{occurring in a year} & & \text{the given flood scenario} \\
 \text{[Table 18]} & & \text{[Table 19]} \\
 & & = \text{Risk Score} \\
 & & \text{[Table 20]}
 \end{array}$$

The likelihood of occurrence of each flood scenario was assigned a probability based on annual probability of occurrence. Annual probability of occurrence ranges are outlined in **Table 20**.

Table 20. Flood Likelihood per Scenario

Water Level Elevation (feet NAVD)	Scenario	Likelihood/ Probability
0.6	2040 NOAA Int Low	4.345
1.3	2040 NOAA Int High/ 2070 NOAA Int Low/ 1 Foot Sea Level Rise	1.873
2.3	Current Extreme Tidal Flooding Conditions/ 2 Foot Sea Level Rise	0.53
3.5	2070 NOAA Int High/ Existing 10 Year Surge/ 2040 Tidal Flooding	0.143
4.5	2040 10 Year Surge/ 4 Foot Sea Level Rise	0.075
5.2	2070 Tidal Flooding	0.053
6.4	2070 10 Year Surge	0.031
7.3	7 Foot Sea Level Rise	0.021
8.8	Existing 100 Year Flood	0.01
11.1	Existing 500 Year Flood	0.002

SEA LEVEL RISE VULNERABILITY ANALYSIS

The impact of flood scenario was determined by the anticipated inundation depth of an asset under the relevant flood scenario. Each asset was assigned an impact score of 0, 1, 33, 66, or 100 based on the inundation depth ranges outlined in **Table 21**. Calculated risk scores were then assigned a qualitative risk rank based on the risk score value according to the ranges outlined in **Table 22**.

Table 21. Impact Score per inundation Depth Range (in feet)

Inundation Depth (feet)	Impact Score
0	0
0-1 foot	1
1-2 feet	33
2-5 feet	66
>5 feet	100

Table 22. Risk Ranks per Score Range

Risk Score	Risk Rank
0	No Foreseeable Risk
0 -4.5	Low Risk
4.5 -20	Medium Risk
> 20	High Risk

An example of the risk calculation is outlined below for an asset under the 2070 Tidal Flooding Scenario experiencing inundation at a depth of 2.5 feet:

$$.053 \text{ (Likelihood)} \times 66 \text{ (Impact Score)} = 3.5 \text{ Low Risk}$$

Table 23 displays the finalized risk matrix that was utilized to determine risk per asset for this assessment. **Table 24** summarizes risk across the inundation tipping point scenarios for singular on island assets and **Table 25** summarizes risk rank counts for grouped island assets. Note that the 8.8 feet NAVD scenario has a lower likelihood and despite potential higher impacts, the calculation resulted in a lower risk score than the 2.3 feet NAVD or 3.5 feet NAVD scenarios.

SEA LEVEL RISE VULNERABILITY ANALYSIS

Risk Scores per Asset

Table 23. Risk Matrix

		Impact Score per Flood Water Depth Range				
		0	1	33	66	100
Water Level Elevation (Feet NAVD)	Probability of a given flood scenario occurring in a year (P)	Water Depth =0	Water Depth 0-1 ft	Water Depth 1-2 ft	Water Depth 2-5 ft	Water Depth >5 ft
0.6	4.345	No Foreseeable Risk	Low Risk	High Risk	High Risk	High Risk
1.3	1.873	No Foreseeable Risk	Low Risk	High Risk	High Risk	High Risk
2.3	0.534	No Foreseeable Risk	Low Risk	Medium Risk	High Risk	High Risk
3.5	0.143	No Foreseeable Risk	Low Risk	Medium Risk	Medium Risk	Medium Risk
4.5	0.075	No Foreseeable Risk	Low Risk	Low Risk	Medium Risk	Medium Risk
5.2	0.053	No Foreseeable Risk	Low Risk	Low Risk	Low Risk	Medium Risk
6.4	0.031	No Foreseeable Risk	Low Risk	Low Risk	Low Risk	Low Risk
7.3	0.021	No Foreseeable Risk	Low Risk	Low Risk	Low Risk	Low Risk
8.8	0.01	No Foreseeable Risk	Low Risk	Low Risk	Low Risk	Low Risk
11.1	0.002	No Foreseeable Risk	Low Risk	Low Risk	Low Risk	Low Risk

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 24. Risk Ranks for On Island Singular Assets

		Asset Risk Under Inundation Tipping Point Scenarios		
Asset Type	Name of Asset(s)	2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Community Centers	Captiva Civic Association, Inc. (11550 Chapin Lane, Captiva, FL 33924)	Low Risk	Low Risk	Low Risk
Fire Station/ EMS	Captiva Fire Station #181 (14981 Captiva Dr, Captiva, FL 33924)	Low Risk	Low Risk	Low Risk
Federal Government Facilities	U.S. Postal Service Captiva (14812 Captiva Dr SW, Captiva, FL 33924)	Low Risk	Low Risk	Low Risk
Disaster Recovery Centers	Chadwick's at South Seas Plantation (5400 Plantation Rd, Captiva, FL 33924)	No Foreseeable Risk	Medium Risk	Low Risk
Heliport	Captiva Heliport	Medium Risk	Medium Risk	Low Risk
Wastewater Treatment Facilities	South Seas Plantation	Low Risk	Medium Risk	Low Risk
	Tween Waters Inn WWTP	No Foreseeable Risk	No Foreseeable Risk	No Foreseeable Risk
	Captiva Shores Condominium WWTP	No Foreseeable Risk	Medium Risk	Low Risk
	Sunset Captiva WWTP	No Foreseeable Risk	Low Risk	Low Risk
Lift Stations	Lift station #1	No Foreseeable Risk	Medium Risk	Low Risk
	Lift station #2	No Foreseeable Risk	No Foreseeable Risk	Low Risk
	Turner Beach Lift Station	No Foreseeable Risk	No Foreseeable Risk	Low Risk
Communications Facilities	East Side of Chadwick's Square Shopping Center	No Foreseeable Risk	Medium Risk	Low Risk
	Communication Tower at north end near Wastewater Treatment	No Foreseeable Risk	Low Risk	Low Risk

SEA LEVEL RISE VULNERABILITY ANALYSIS

Asset Type	Name of Asset(s)	Asset Risk Under Inundation Tipping Point Scenarios		
		2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Marinas	1057-1900 South Seas Plantation Road	Low Risk	Medium Risk	Low Risk
	11401 Andy Rosse Lane	Low Risk	Medium Risk	Low Risk
	15107 Captiva Drive	Low Risk	Medium Risk	Low Risk
	15183 Captiva Drive	Low Risk	Medium Risk	Low Risk
	15903 Captiva Drive	Low Risk	Medium Risk	Low Risk
	15951 Captiva Drive	Low Risk	Medium Risk	Low Risk
	2800-5640 South Seas Plantation Road	Medium Risk	Medium Risk	Low Risk
Historical and Cultural Assets	Tween Waters Inn Historic District	No Foreseeable Risk	No Foreseeable Risk	No Foreseeable Risk
	Chapel-by-the-Sea Historic District	No Foreseeable Risk	No Foreseeable Risk	Low Risk
Conservation Lands/ Wetlands	Mangrove Swamp North	Medium Risk	Medium Risk	Low Risk
	Mangrove Swamp South	Medium Risk	Medium Risk	Low Risk
	J. N. Ding Darling National Wildlife Refuge 1	Medium Risk	Medium Risk	Low Risk
	J. N. Ding Darling National Wildlife Refuge 2	Medium Risk	Medium Risk	Low Risk
	J. N. Ding Darling National Wildlife Refuge 3	Medium Risk	Medium Risk	Low Risk
	J. N. Ding Darling National Wildlife Refuge 4	High Risk	Medium Risk	Low Risk
	Sanibel-Captiva Conservation Foundation Conservation Lands 1	Medium Risk	Medium Risk	Low Risk
	Sanibel-Captiva Conservation Foundation Conservation Lands 2	Medium Risk	Medium Risk	Low Risk

SEA LEVEL RISE VULNERABILITY ANALYSIS

Asset Type	Name of Asset(s)	Asset Risk Under Inundation Tipping Point Scenarios		
		2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Parks	Turner Beach	Low Risk	No Foreseeable Risk	Low Risk
	Andy Rosse Lane Kayak Launch	Low Risk	Medium Risk	Low Risk
	Andy Rosse Lane Beach Access	Low Risk	Low Risk	Low Risk
	Alison Hagerup Beach Park 1	Medium Risk	No Foreseeable Risk	Low Risk
	Alison Hagerup Beach Park 2	No Foreseeable Risk	Low Risk	Low Risk
Logistical Staging Areas	South Seas Island Resort	Medium Risk	No Foreseeable Risk	Low Risk
	Allison Hagerup Beach Park A	Medium Risk	No Foreseeable Risk	Low Risk
	Allison Hagerup Beach Park B	No Foreseeable Risk	Low Risk	Low Risk
	Turner Beach A	Low Risk	Low Risk	Low Risk
	Turner Beach B	No Foreseeable Risk	No Foreseeable Risk	Low Risk
Stormwater Treatment Facilities and Pump Stations	Catch Basin 1 (SSPGCCB1)	No Foreseeable Risk	Low Risk	Low Risk
	Catch Basin 2 (SSPGCCB2)	No Foreseeable Risk	Medium Risk	Low Risk
	Catch Basin 3 (SSPGCCB3)	No Foreseeable Risk	No Foreseeable Risk	Low Risk
	Retention Pond	Low Risk	Medium Risk	Low Risk
	Swale10	No Foreseeable Risk	No Foreseeable Risk	Low Risk
	Swale19	No Foreseeable Risk	No Foreseeable Risk	Low Risk
	Swale20	No Foreseeable Risk	No Foreseeable Risk	Low Risk
	Swale21	Low Risk	Medium Risk	Low Risk
	Swale23	No Foreseeable Risk	Low Risk	Low Risk
	Sewer 1- ST62	Low Risk	Medium Risk	Low Risk
	Sewer 2- Influent at Sunset Captiva WWTP	No Foreseeable Risk	No Foreseeable Risk	No Foreseeable Risk
	AROUT	High Risk	Low Risk	Low Risk
SSPOutFall1	Medium Risk	Low Risk	Low Risk	

SEA LEVEL RISE VULNERABILITY ANALYSIS

Table 25. Risk Rank Counts for Grouped Island Assets

	Risk (NFR, L, M, H)	2.3 Feet NAVD (inundation tipping point scenario 1)	3.5 Feet NAVD (inundation tipping point scenario 2)	8.8 Feet NAVD (inundation tipping point scenario 3)
Parcels (#)	No Foreseeable Risk	358	103	12
	Low Risk	747	582	1,093
	Medium	-	420	-
	High	-	-	-
	Total at Risk	747	1,002	1,093
Building Footprints (#)	No Foreseeable Risk	469	219	37
	Low Risk	278	160	710
	Medium	-	368	-
	High	-	-	-
	Total at Risk	278	528	710
Roadways (ft)	No Foreseeable Risk	36,825	18,777	11
	Low Risk	11,799	9,421	48,788
	Medium	132	20,599	-
	High	41	-	-
	Total at Risk	11,972	30,020	48,788
Oceanfront Shorelines (non-armored with seawalls) (ft)	No Foreseeable Risk	25,810	25,618	7,143
	Low Risk	5	156	18,680
	Medium	5	49	-
	High	3	-	-
	Total at Risk	13	205	18,680

SEA LEVEL RISE VULNERABILITY ANALYSIS

The risk ranks for individual and grouped assets across Captiva Island and across flood scenarios help to identify the assets most susceptible when considering not only flood extent and depth but also timeframe. All conservation lands and Captiva marinas prove to be at risk across all inundation tipping point scenarios, all of which are at medium risk under Scenario 2 (3.5 feet NAVD). The Marina located at 2800-5640 South Seas Plantation Road and the J. N. Ding Darling National Wildlife Refuge 4 are most at risk under Scenario 1 (2.3 feet NAVD).

Three critical community assets-the Captiva Civic Association, Fire Station, and U.S Postal Service- prove to be at low risk across all Inundation Tipping Point Scenarios. The Captiva Heliport and South Seas Plantation WWTP are at risk across all Tipping Points, proving to be at medium risk under 2040 tidal flooding conditions. It is important to also note the assets that are under no risk across the tipping point scenarios- Tween Waters Inn WWTP, Tween Waters Inn Historic District, and Sewer #2. Aside from these assets, all individual assets are at low risk under the inundation tipping point Scenario 3 (**Table 24**).

The following subsection outlines additional takeaways from the risk assessment for each of the three inundation tipping point scenarios. As was mentioned previously, there are 1,105 parcels, 747 building footprints, and 48,797 linear feet on Captiva Island. The metrics below represent the percentages of the total number of assets at risk compared to the total number of assets on the island and the percentage of low-risk assets compared to all at risk assets under each inundation tipping point scenario. These metrics are based on the counts outlined in **Table 25**. Risk per asset for the remaining scenarios can be viewed in Appendices VII and VIII.

- 1**

2.3 feet NAVD

67% of parcels at risk (100% at low risk)
 37% of buildings at risk (7% at low risk)
 25% of linear feet of roads at risk (10% at low risk)
- 2**

3.5 feet NAVD

90% of parcels at risk (58% at low risk)
 71% of buildings at risk (30% at low risk)
 62% of linear feet of roads at risk (31% at low risk)
- 3**

8.8 feet NAVD

98% of parcels at risk (100% at low risk)
 95% of buildings at risk (100% at low risk)
 100% of linear feet of roads at risk (100% at low risk)

Conclusions



84

Conclusions

86

Compilation of Findings To Date

Conclusions

The Sea Level Rise Vulnerability Analysis for Captiva Island has identified the geographic areas and physical assets vulnerable to current and future flooding.

Key takeaways from the analysis include the following:

- Potential flooding across the bayfront shorelines near the central area of the island causes critical infrastructure to be vulnerable in the near term.
- Under the NOAA intermediate Low Sea Level Rise flood scenario, 4% of bayfront seawalls are exposed to flooding by 2040 and 7% are exposed by 2070. Under the NOAA Intermediate-High scenario, 99% of bayfront seawalls will be exposed by 2070.
- Under the NOAA Intermediate-Low Sea Level Rise flood scenario, gulf-front shorelines are not anticipated to be at risk to flooding by 2040 or 2070. Under the Intermediate-High scenario, 1% of gulf-front shorelines will be at risk to flooding by 2070 (76% at low risk and 24% at medium risk).
- Key critical infrastructure vulnerable to extreme high tides in near term that may experience interruptions to operation and accessibility include:
 - 8% of surveyed electrical transformers and utility boxes
 - WWTP located along South Seas Plantation Road
 - Lift Station #3 (South of the Fire Station)
 - Majority of stormwater assets identified in the 2011 Captiva Water Quality Assessment Project Final Report
 - Captiva Heliport
- At water elevations of 3.5 feet NAVD which may occur during storm surge in the near term or future extreme and high tides, up to 62% of roads, three water treatment facilities, and up to 71% of building footprints are at risk of flooding.
- 35% of surveyed electrical transformers and utility boxes may be vulnerable by 2040 (sixteen located in central and south Captiva) will experience flooding at a depth of >1 foot).

SEA LEVEL RISE VULNERABILITY ANALYSIS

Three tipping points were defined through the analysis as leading to particularly problematic flooding for the community.

- 1** **2.3 feet NAVD** Current Extreme Tidal Flooding OR 2 Foot Sea Level Rise
 Extreme tide found to temporarily affect 67% of all Captiva parcels with an average inundation depth under one foot.
- 2** **3.5 feet NAVD** 2070 NOAA State Required High OR Existing 10 Year Surge OR 2040 Tidal Flooding
 Determined to potentially affect 90% of Captiva parcels. While more than half of these parcels may flood less than one foot, the remainder may flood up to two feet.
- 3** **8.8 feet NAVD** Existing 100 Year Flood Event
 Resulted in island-wide flooding. 98% of Captiva parcels and 95% of building footprints on Captiva Island would be affected and experience greater than 2 feet of flooding adjacent to or under buildings.

Mapping assets and projected conditions and analyzing risk was an essential first step for resilience strategy development. Planning now for future water levels benefits property owners in multiple ways including risk mitigation, value preservation, bond rating security and insurance and maintenance cost avoidance. With consideration of CEPD's responsibilities and authority to prevent erosion and protect shorelines, an adaptation strategy consisting of alternative pathways or sequences of progressive actions triggered by changing conditions can be developed as a next step. Additionally, there are funding partnership opportunities that would likely assist in addressing the vulnerabilities of the evacuation route, the oceanfront shorelines and recurrent flood risks in the floodplain. The findings of this analysis will directly support advancement of future work including the future conceptualization, feasibility analysis and evaluation of adaptation and resilience strategies for the community.

Compilation of Findings To Date

The findings from this Sea Level Rise Vulnerability Analysis were intended to be compiled with findings from the 2020 Captiva Island Resiliency Assessment and other recent publicly available assessments.

- The 2020 Captiva Island Resiliency Assessment found the "probable threshold for severe impact to infrastructure and roads" was when daily high tides reached elevations between 2.3 feet NAVD (2 feet of sea level rise) and 4.3 feet NAVD (4 feet of sea level rise).
 - This 2023 Sea Level Rise Vulnerability Analysis refined this finding, suggesting that when high tides reach 3.5 feet NAVD as early as 2040 (depending upon the rate of sea level rise), the majority of critical infrastructure analyzed will be impacted by nuisance flooding between 13 to 26 days per year based on NOAA projections for tidal flooding and sea level rise. At this tipping point, these assets are at medium risk. Impacts to roads, communication, electrical, wastewater utility infrastructure and stormwater infrastructure may cause disruption to service depending on the interconnectivity and redundancy of these systems (see Critical Infrastructure Sensitivity Analysis, Transportation and Evacuation Sensitivity Analysis and Risk Assessment sections).

- In 2022, WS SSIR Owner, LLC commissioned the Captiva Island Vulnerability Assessment and Adaptation Plan. The plan noted the most vulnerable asset to be the Florida Government Utility Authority wastewater treatment plant (also known as South Seas Plantation Wastewater Treatment Plant). The remaining vulnerable assets noted included nine public right-of-way areas.
 - This 2023 Sea Level Rise Vulnerability Analysis analyzed exposure, depth of impact and the risk to critical infrastructure on- and off-island based on likelihood and consequence of impacts required by the state guidance for vulnerability assessments. Critical Infrastructure including the wastewater treatment plant south of South Seas, the lift station near the Fire Station, the heliport, 8% of communication and on-ground electrical infrastructure and specific stormwater infrastructure assets were highlighted as vulnerable by 2040.

Compilation of Findings Cont.

- The 2020 Captiva Island Resiliency Assessment also noted exposure at the South Seas wastewater treatment plant, McCarthy's Marina, Jensen's Twin Palm Cottages and Resort, a restaurant, the road along South Seas Plantation Road north of Chadwick Bayou, and infrastructure supporting Tween Waters Inn. The 2023 Analysis adds complimentary impact and risk findings to the exposure analysis in the 2020 Resiliency Assessment.
- The 2020 Captiva Island Resiliency Assessment found present day flooding may affect 6 structures. Under future water levels inclusive of 1, 2, and 4 of sea level rise, as many as 13, 94, and then 374 structures, respectively, may be affected.
 - This 2023 Sea Level Rise Vulnerability Analysis provides counts of parcels, shorelines, seawalls, and building footprints (categorized by year built, and quantified by real estate market value) to provide further insight into potential impacts to private property (see Critical Infrastructure Sensitivity Analysis, pages 32-38). Additionally, the results from the flood exposure, sensitivity and risk analysis for 10 water level elevations representing 16 scenarios were provided in this report (results for an additional 6 water level elevations not included in the 2020 Assessment).
- There is overlap in findings across the three documents discussed in this section. Each provides useful, complimentary information regarding the vulnerabilities on Captiva Island. As guidance, these sections, maps and datasets may provide uniquely useful from each.
 - 2023 Sea Level Rise Vulnerability Analysis
 - Digitized seawalls and shoreline shapefiles (created for project)
 - Digitized electric and communication utility infrastructure (was not publicly available at this level of detail)
 - Risk matrix for critical infrastructure
 - Map series for inundation representing 16 flood scenarios
 - 2022 Captiva Island Vulnerability Assessment and Adaptation Plan
 - Map series of exposure for Category 1 Hurricane plus sea level rise
 - Tidal flooding depth and number of flood day maps
 - Precipitation extent maps for 25-year 1 day storm with sea level rise
 - 2020 Captiva Island Resiliency Assessment
 - Table of road lengths impacts by owner (county, non-County, private) and bike paths impacted

Appendices

Appendix I: Lee County Facilities Maps

Appendix II: References and Data Sources

Appendix III: Parcel and Building Impacts for all Scenarios

Appendix IV: Parcel Impacts, Inundation Depths, and Estimated Values for all Scenarios

Appendix V: Building Impacts, Inundation Depths, and Estimated Values for all Scenarios

Appendix VI: Evacuation Route Inundation for all Scenarios

Appendix VII: On Island Singular Asset Inundation Depths and Risk Scores for all Scenarios

Appendix VIII: Risk Rank Counts for Grouped Island Assets for all Scenarios

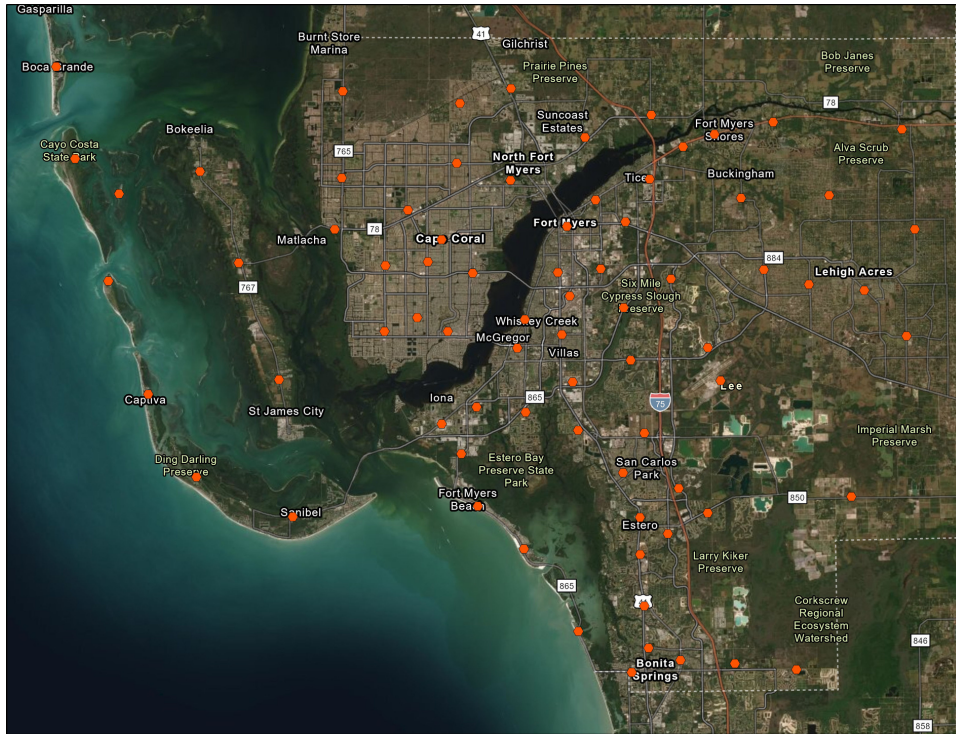
Appendix IX: Off Island Singular Asset Inundation Depths and Risk Scores for all Scenarios

Appendix X: Community Presentation

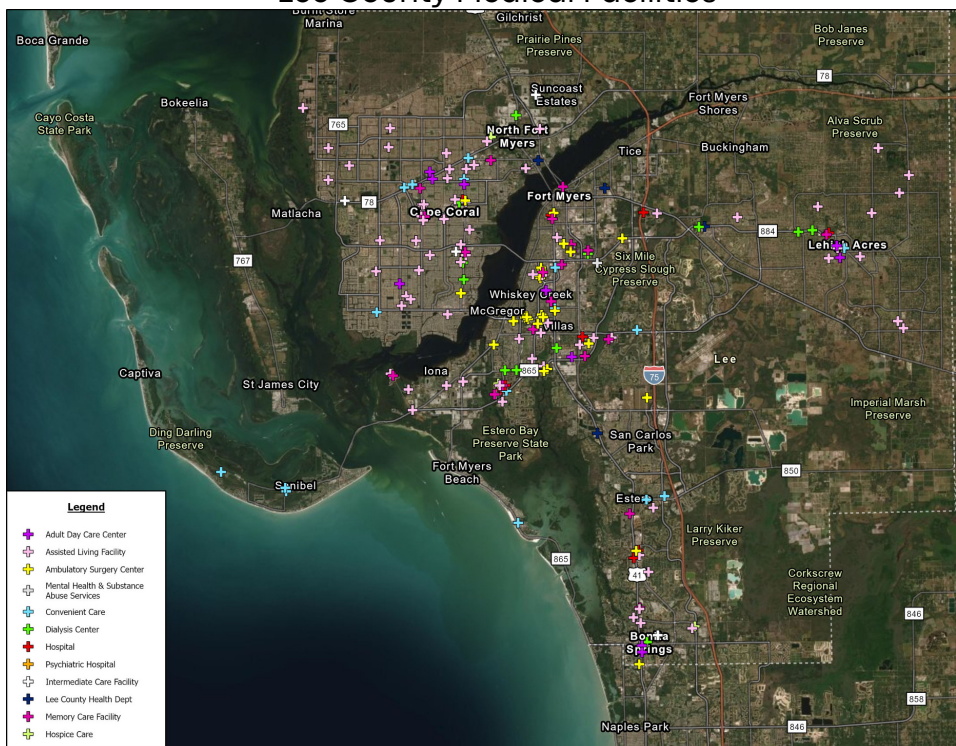
SEA LEVEL RISE VULNERABILITY ANALYSIS

Appendix I: Lee County Facilities Maps

Lee County Fire Stations

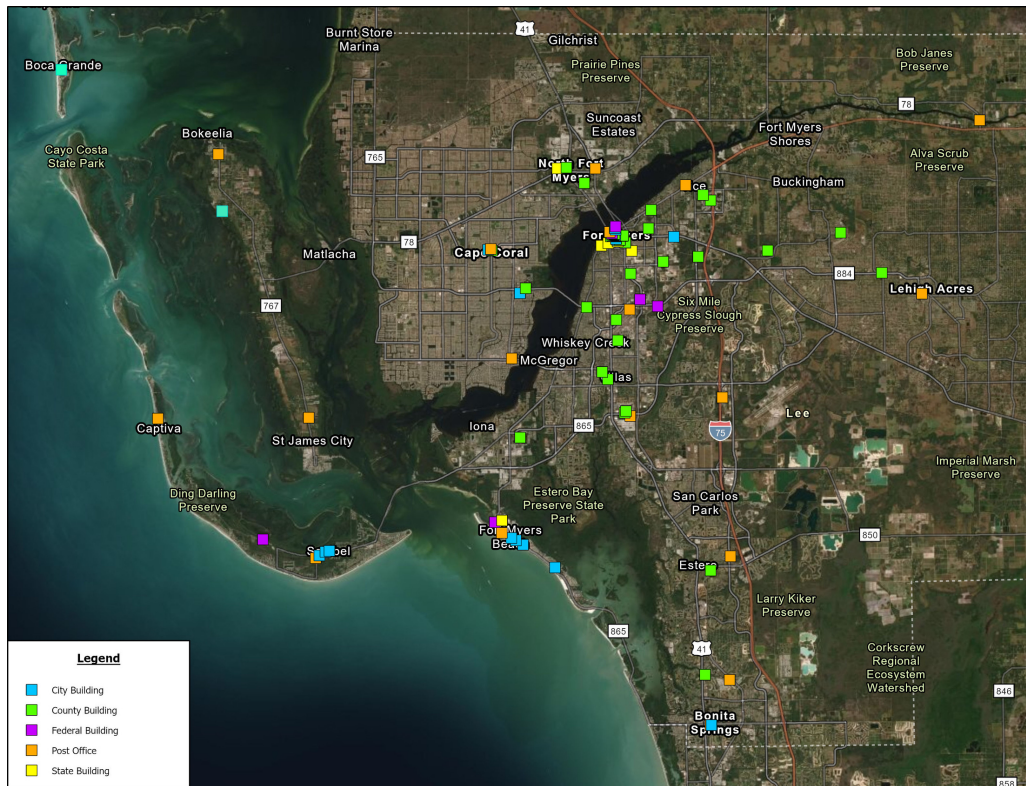


Lee County Medical Facilities

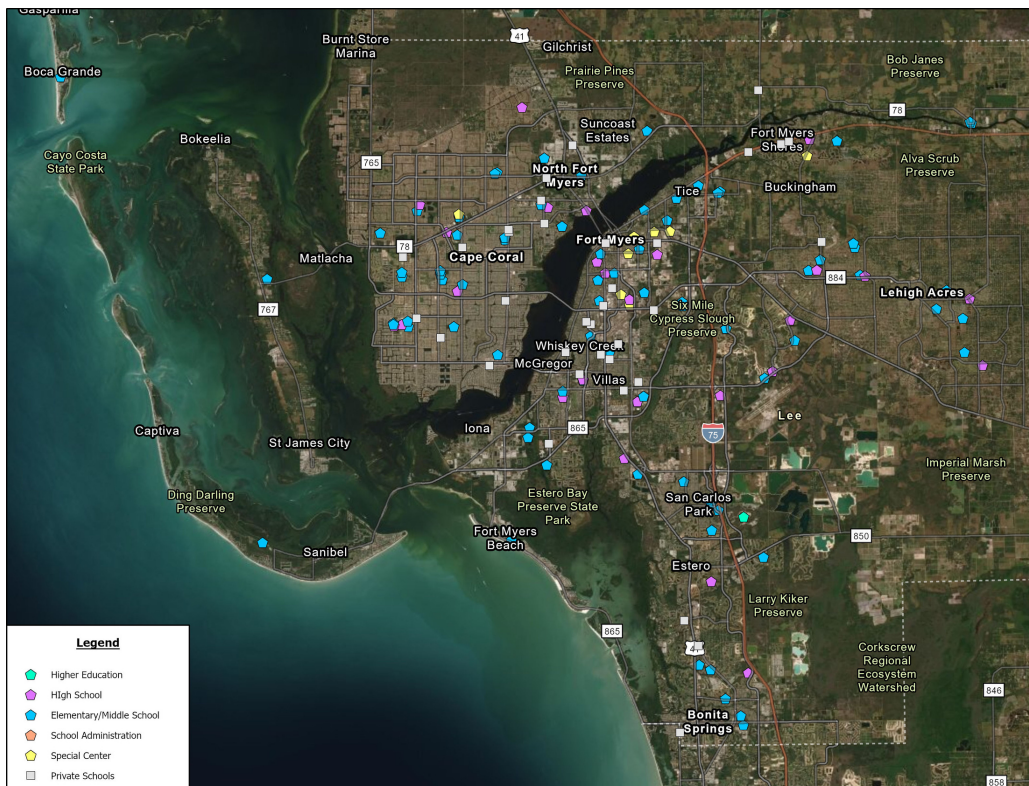


SEA LEVEL RISE VULNERABILITY ANALYSIS

Lee County Local Government.

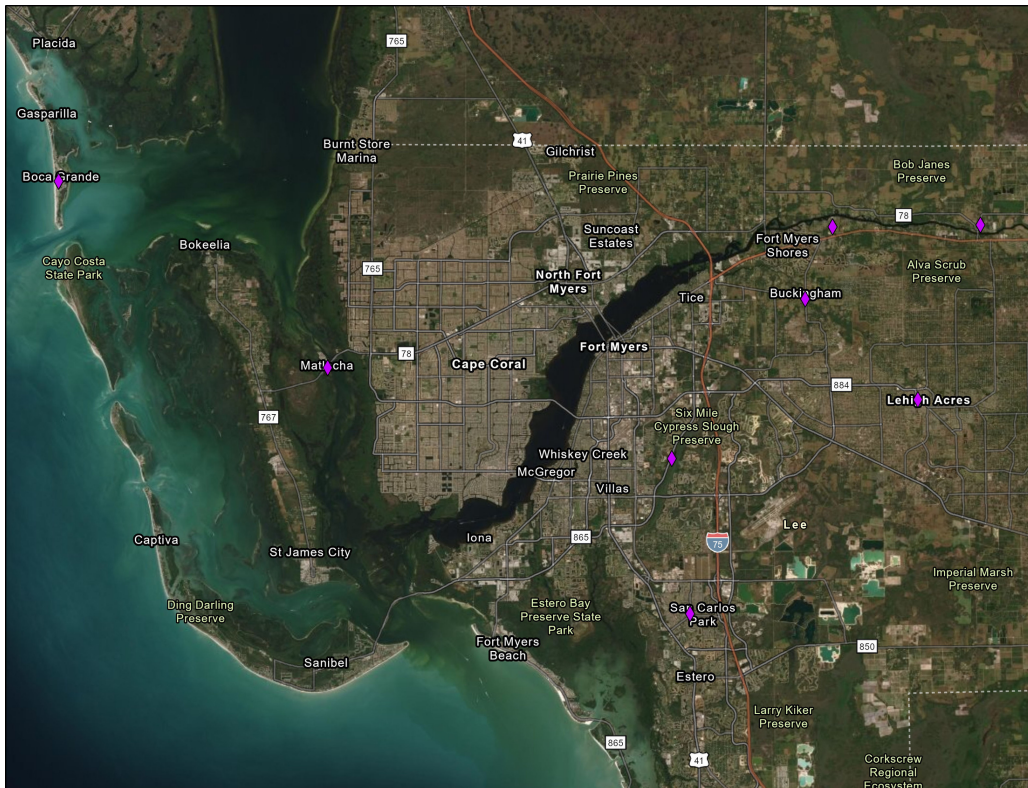


Lee County Schools

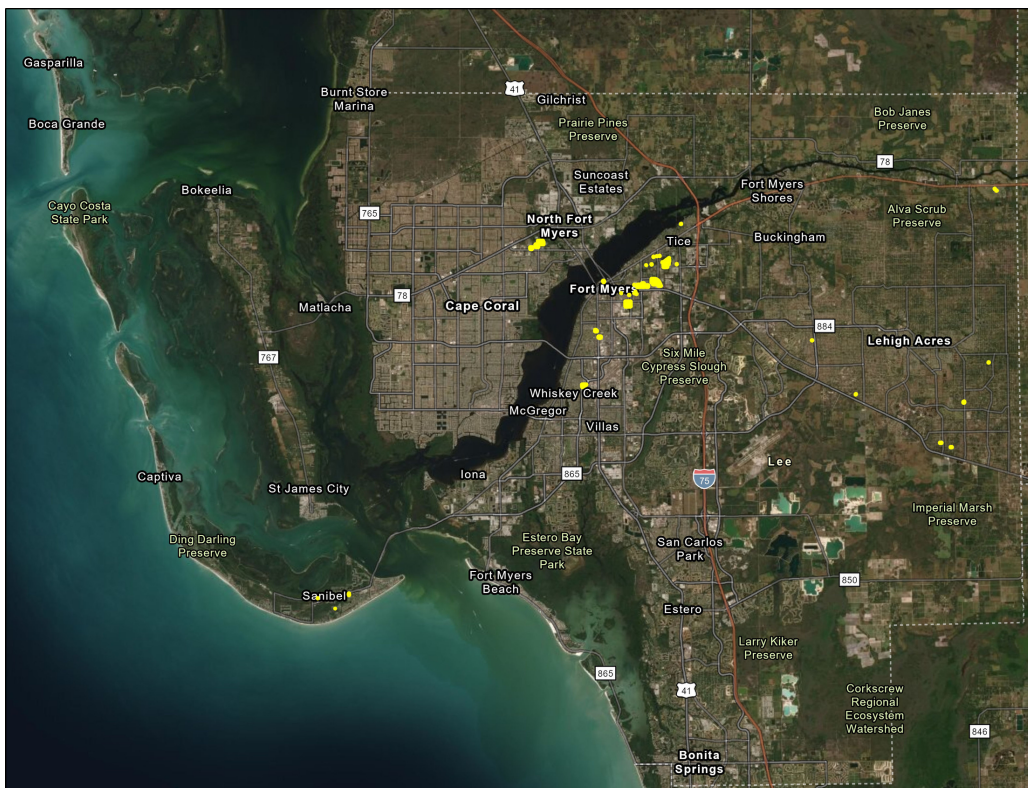


SEA LEVEL RISE VULNERABILITY ANALYSIS

Lee County Community Centers

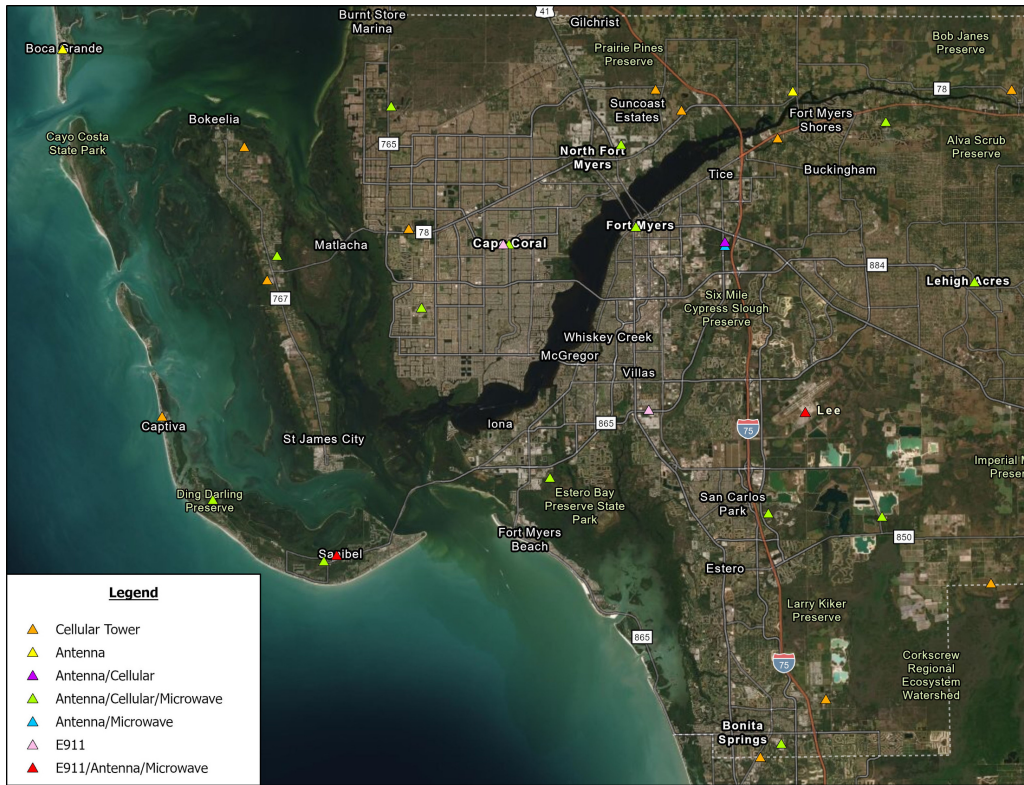


Lee County Affordable Housing

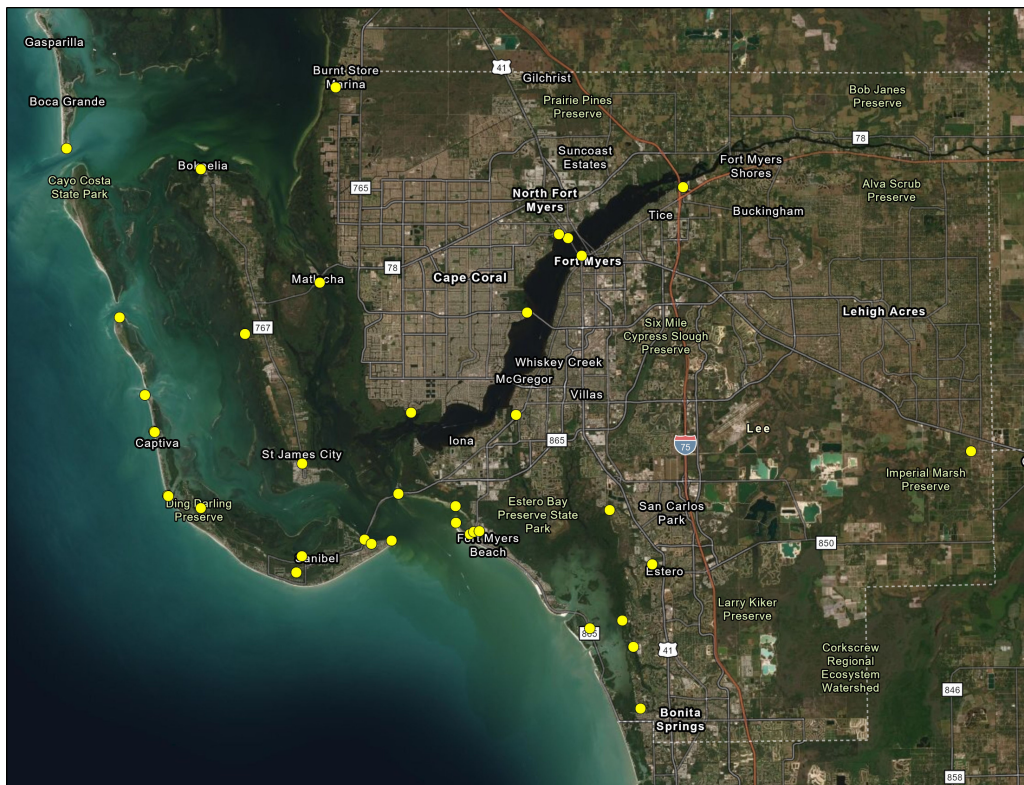


SEA LEVEL RISE VULNERABILITY ANALYSIS

Lee County Communication Facilities



Logistical Staging Areas



Appendix II: References & Data Sources

2022 Aerials - ESRI Aerial Imagery

FEMA. Future Flood Insurance Studies (FIS). [Lee County, FL] (2018) FEMA Flood Map Service Center: <https://msc.fema.gov/portal/home>

Find My Flood Zone:

<https://leegis.maps.arcgis.com/apps/instant/sidebar/index.html?appid=f1e5ab7d08514f93b1f04f252d42f389>

Flood Zones - Effective and Preliminary Coastal Study:

<https://leegis.maps.arcgis.com/apps/webappviewer/index.html?id=48494a7a717d4213aff365c7d830d250>

Hapke, C., Revell, D., Jamieson, M. (April 03, 2020). Captiva Island Resiliency Assessment - Technical Memorandum. Integral Consulting Inc.

Joint Airborne Lidar Bathymetry Technical Center of Expertise - 2022 [Preliminary] Pre-lan LiDAR. <https://www.sam.usace.army.mil/Missions/Spatial-Data-Branch/JALBTCX/>

Kimley-Horn and Associates, Inc. (2021). Captiva Central Sewer Study

Lee County Division of Natural Resources (2015). Impacts of Hurricane Charley on the Southwest Florida Coastline Focusing on Lee County.

National Storm Surge Risk Maps - Version 3:

National Storm Surge Risk Maps - Version 3 (noaa.gov)

NOAA Tides & Currents: https://tidesandcurrents.noaa.gov/datum_options.html

OCM Partners, 2023: 2018 USGS/NRCS Lidar: Southwest Florida, <https://www.fisheries.noaa.gov/inport/item/59066>

Sea Level Rise Scenario Sketch Planning Tool - University of Florida GeoPlan Center <https://sls.geoplan.ufl.edu/download-data/>

Sea Turtle Nest Found, Beach Impacts Discussed. Sanibel Captiva Conservation Foundation (SCCF). (2022, October 28). <https://www.sccf.org/news/blog/sea-turtle-nest-found-beach-impacts-discussed>

Thompson, M., Coen, L., Milbrandt, E., Rybak, A., & Bartleson, R. (2011). Captiva Water Quality Assessment Project Final Report. Sanibel, FL: SCCF Marine Laboratory

Zachry, B. C., W. J. Booth, J. R. Rhome, and T. M. Sharon, 2015: A National View of Storm Surge Risk and Inundation. *Weather, Climate, and Society*, 7(2), 109–117. DOI: <http://dx.doi.org/10.1175/WCAS-D-14-00049.1>

SEA LEVEL RISE VULNERABILITY ANALYSIS

Asset Types	Data Source
Schools and Colleges	Lee County GIS & Homeland Infrastructure Foundation- Level Data (private schools)
Health Care Facilities and Hospitals	Lee County GIS
Emergency Operations Centers	Lee County GIS
Risk Shelter Inventory	Homeland Infrastructure Foundation- Level Data
Airports	Lee County GIS
Seaplane Base	Lee County GIS
Ports	Homeland Infrastructure Foundation- Level Data
Community Centers	Lee County & Fort Myers Websites
Fire Stations	Lee County GIS
Government Facilities	Lee County GIS
Emergency Medical Service Facilities	Lee County GIS
Heliport	Lee County GIS
Disaster Recovery Centers	https://www.leegov.com/publicsafety/Documents/EmergencyManagement/LeeCountyAPPROVED_2019CEMPRedacted.pdf
Logistical Staging Areas	FDEP & APTIM Staging areas from last nourishment
Correctional Facilities	Lee County GIS
Law Enforcement	Lee County GIS
Solid and Hazardous Waste Facilities	Lee County GIS, Oak Ridge National Laboratory (ORNL); National Geospatial-Intelligence Agency (NGA) Homeland Security Infrastructure Program
Wastewater Treatment Facilities and Lift Stations	Lee County GIS and Kimley Horn Study
Bus Terminals	Lee County GIS
Communications Facilities	Lee County GIS & FCC
Rail Facilities and Railroad Bridges	Federal Railroad Administration (FRA)
Affordable Public Housing	Lee County Parcels
Parcels	Florida Department of Revenue
Building Footprints	Lee County GIS

SEA LEVEL RISE VULNERABILITY ANALYSIS

Flood Hazards and LiDAR	Data Source
NOAA 2040 and 2070 Intermediate-Low and Intermediate-High Sea Level Rise Scenarios	Sea Level Rise Scenario Sketch Planning Tool - University of Florida GeoPlan Center
Tidal Flooding, Current Extreme Conditions	NOAA's Tides & Currents website (http://tidesandcurrents.noaa.gov).
10 Year Storm Surge Scenario	Lee County FEMA Flood Insurance Study (FIS)
100 and 500 Year Flood Event	Lee County FEMA Flood Insurance Study (FIS) and NOAA. (n.d.) National Hurricane Storm Surge Risk Maps. https://experience.arcgis.com/experience/203f772571cb48b1b8b50fdcc3272e2c/page/Category-3/ .
2018 LiDAR	2018 USGS/NRCS Lidar DEM, Southwest FL
2022 LiDAR	APTIM Preliminary Pre-lan data from 05/25/2022