RESILIENT CEDAR KEY/PORT ST. JOE

Digital Outreach And Placed-based Approaches For Flood Resilience Planning

Webinar: Navigating the Atlantic Hurricane Season: Science, Strategies, and Successes



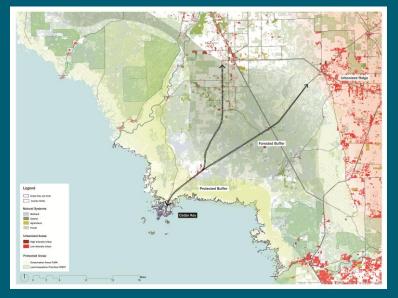


College of Design, Construction & Planning UNIVERSITY of FLORIDA





Case Studies - Cedar Key / Port St. Joe The Context







Port St. Joe

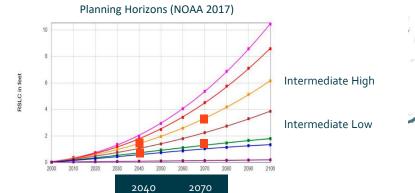
FDEP Vulnerability Assessment

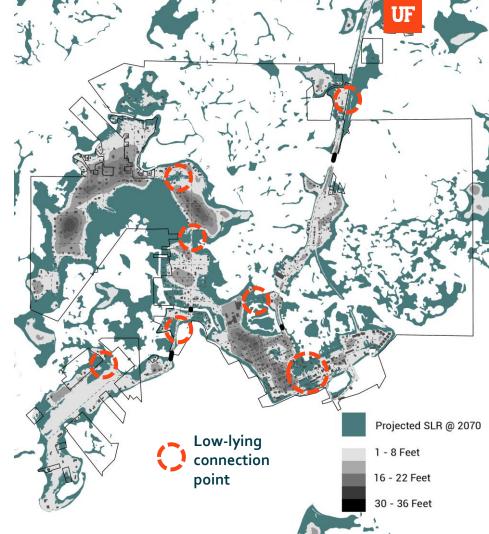
Exposure and sensitivity of critical assets to different types of flood sources:

- Tidal flooding
- Coastal Flooding FEMA 100-year, Storm Surge
- Rainfall flooding

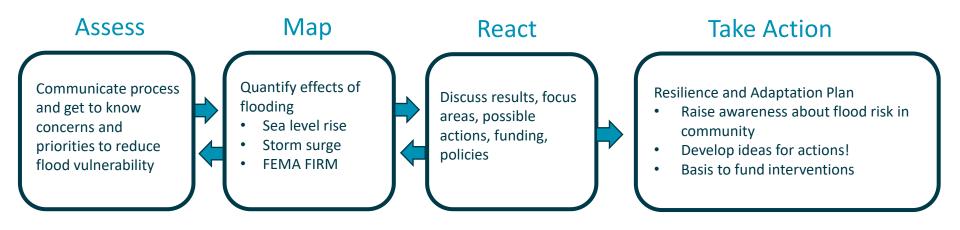
Sea Level Rise Planning Horizons

NOAA Intermediate-Low and High, 2040/2070





Action-Focused Planning Process



Collective Mapping

Resilient Cedar Key / Port St. Joe WebApp

Adaptation Plan Spatial Framework Adaptation Overlays

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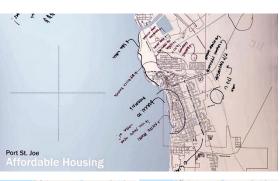
Digital Tools for Outreach

Community Input Collective Mapping

3



POORV	Asset	
99	Complementary sources	
8	Assisted Housing Inventory - Levy Clip	
Ŷ	Naturally occurring affordable housing (NOAH)	
	FDEP Requirements	
	Airports	
Transportation	bridges	
tat	bus terminals	
ğ	ports	
ž	major roadways	
2	marinas	
	rail facilities	
	rairoad bridges	
	FDEP Requirements	
2	wastewater treatment facilities and lift stations	
Ð	stormwater treatment facilities and pump stations	
3	drinking water facilities	
č	water utility conveyance systems	
2	electric production and supply facilities solid and hazardous waste facilities	
3	military installations	Copped.
Critical Infrastructure	communications facilities	Contract of the local division of the local
0	disaster debris management sites	·
_		
12	FDEP Requirements schools, colleges and universities	
1	community centers	
Dis .	correctional facilities	
2	disaster recovery centers	
5	emergency medical service facilities	
5	emergency operation centers	
Critical community and emergency facilities	fire stations	
2	health care facilities	
ž	hospitals	
1	law enforcement facilities	
E	local government facilities	
5	logistical steping areas	
ă	affordable public housing	Legend
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0	state government facilities	A Land
_	FDEP Requirements	A local
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and historical resources	parks	A. Douglas
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and a	wetlands	A 1000
	historical and cultural assets	





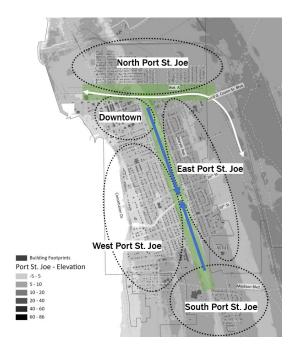






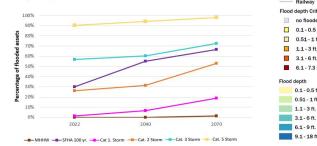


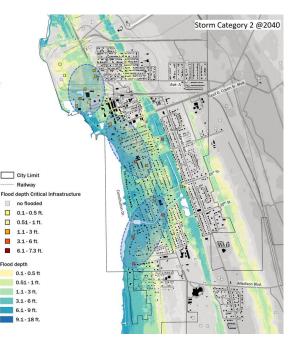
Vulnerability Assessment Results



Critical Infrastructure Exposure Analysis

- By 2040, a Category 2 storm will flood over 30% of critical infrastructure, by 2070 this percentage rises to over 50% (almost double of flooded assets in 2022).
- By 2040, a Category 3 storm will flood almost 60% of critical infrastructure, with several assets including lift stations, hazardous waste facilities, and communication facilities getting over 3ft and even 6ft of water.





Vulnerability Assessment Results

Zone 1, Downtown

Critical	assets	inven	tory.	exposure	levels

14144007		10 110 200		241	-		1000	Accest CURRENT 2040 Score		Scena	rio	2070 Sceru			eiu									
Aquat Norte		Address	1		et Class	Asset	A Tupe	AMACHIE	-	-	-547.5	-	1411 - 10			-549-5	645.0	-	441.0			-	644.9	581 I I
PORT ST JOE MARMA	342 M	arvie Dr		0	_	HAZARDOUS W	ASTE PACILITY	0	1	1.80			434 1		3.80	0		6.62				0.03	3.76	7.40 1
PORT ST JOE MARRAA INC	340 M	orina Dr.		0		STORANE TER	FACILITY			2.04		0.86	4.36 2		3.95		1.00	5.66	11.67		5.83	0.13	3.76	750 5
	254 %	id Area		CCR		COMMUNITY OF	INTER			e 79		19.75	145 8	-	2.01		-	1.11	10.17		3.05	-13	1.83	4.97 1
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DITY OF PORT SAINT JOE OTY HALL	346.6	nd G Center 1	ir Bhuil	CCH		GOVERNMENT I	FACILITY	0.52		0.25			3.00 50	100			0.01	4.20	31.30		3.99		3.40	0.12 1
BULF COUNTY SUPERVISOR OF ELECTIONS	405 Lo	mg Ave		CCR		DOVERMENT F		0.54					0.41 1	44	0.41			1.70			2.45		10.11	3.54 3
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ST JOE AUTO PARTS CO.INC		DA BOX				INAZABOOUS W		0.57						25	0.4			1.04			1.17			1.00 .0
CVD PHARMACY #5246	330 W	Highway 84		0		INALARDONIS W	CANTE PACIA/TY	+.75					4.00 10	492	-3.81						-6.97		-5.54	-4.60
SULF COAST CYCLE PERFORMANCE	412 M	season Ave		0		INAZARDOUS W	ASTERACUTY	0.55		2.63		0.71	4.10 2	1.367	3.80		1.99	2.64	12.45		6.75	6.62	3.60	T.481 3
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HRS GULF CO-PUBLIC HEALTH UNIT		ing Avenue		0		SOLID WASTER		9.56						54	0.76			1.80	8.83		2.54		-0.04	8.64
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Resilient Cedar Key

A Dashboard to explore the impacts of compound flooding with different storm events under different sea-level rise scenarios.



Disclaime

The data and maps in this tool illustrate the scale of potential flooding, not the exact location, and do hot account for erosion, subsidence, or future construction. Although every effort has been made to ensure that information is comprehensive and accurate, errors and omissions may exist. The data and the information included therein is provided on an "as its" basis. The Forda Institute for Built Environment Resultence (FIBER), Forda See Grant, the University of Florida, or any of their respective faculty, staff, or administration specifically disclaim any warranty, either expressed or implied, including but not limited to the implied warranties of merchantability and thiness for a particular use. The efficiency and performance is with the user. This tool should be used strictly as a planning reference tool and not for any addition permittings or obsets.

https://resilientcedarkey.web.app/

https://resilientpsj.web.app/

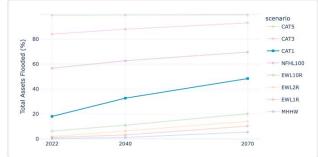
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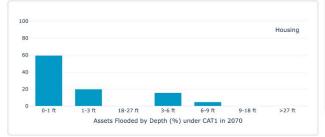
JSING TRANSPORTATION CRITICAL INFRASTRUCTURE COMMUNITY SERVICES NATURAL & CULTURAL LOCAL ECONOMY

Affordable Housing

Overview: Cedar Key is a historic community with a range of housing stock, ages, construction types, and economic values. This housing stock traditionally supported a diverse community across race, age, and economic status.

Challenges: Like many coastal communities in Florida, Cedar Key has seen property values rise substantially in recent years, making housing unaffordable to many people. Coupled with increased risk from rising tides/coastal flooding, structure age, and costs of upkeep, Cedar Key's housing stock is vulnerable to storm damage as well as conversion to short-term rental properties.







Place-Based Flood Resiliency Planning

Adaptation Plan Spatial Framework Ensemble **Adaptation Plan** Vulnerability Assessment **Adaptation Project** Area 1 Overarching Value **Statements** Themes Adaptation Project Area 2 Adaptation Prioritization Actions Asset exposure **Adaptation Project** & sensitivity Area 3 Needs **Focus** Areas

Adaptation Overlays

Implementation

Adaptation Project Area 3

Cedar Key Overarching Themes





Theme:

Cedar Key depends on its transportation network.

Theme:

Cedar Key is a collection of diverse districts.

Theme:

Cedar Key's natural systems have defined its identity and will sustain its future.



Approach:

Preserve Natural Systems and Functions that Sustain the Local Economy

Approach: Strengthen Transportation Network

Approach:

Tailor Adaptation Actions for Diverse Districts

Cedar Key Adaptation Action Areas



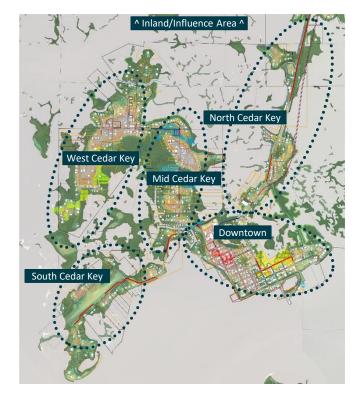
Zone 1, Downtown Connect and Redevelop



Zone 2, Mid Hydrologic Connectivity



Zone 3, West Land Conservation





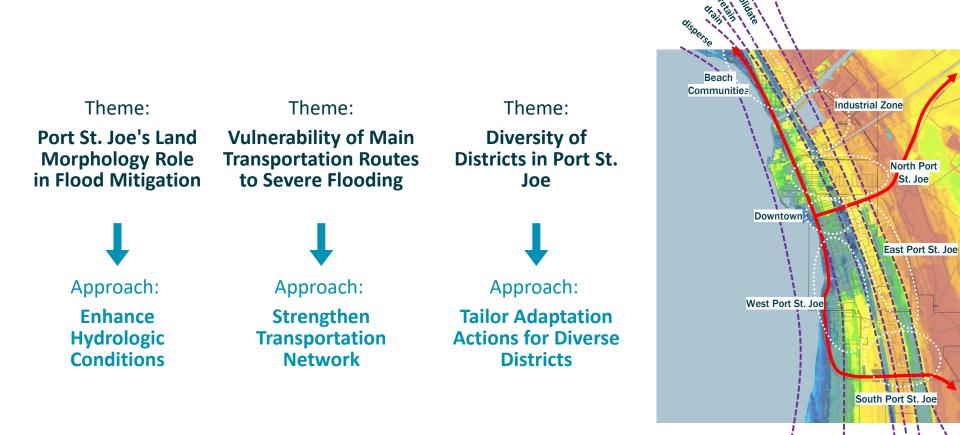
Zone 4, North Local and Bypass



Zone 5, South Infrastructure & Shorelines

Zone 3, Influence Area Protect and Plug-In UF

Port St. Joe Overarching Themes



Port St. Joe Flood Protection Layers

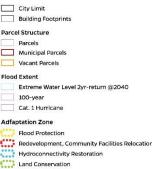




Adaptation Project Areas Restoring Hydrologic Connectivity Cedar Key

- Focus on let water to flow through the island at 3 vulnerable locations.
 Establish a replicable process for other emergent areas of the island.
- New bridge from Indiana Ave. to Cemetery access will restore the hydroand road connectivity at extreme high tide scenarios.
- Elevate section Gulf Blvd. at Hodges Ave., re-structure Andrews Circle section to allow through traffic in days of extreme high tides.





Structural Interventions

Elevate Housing

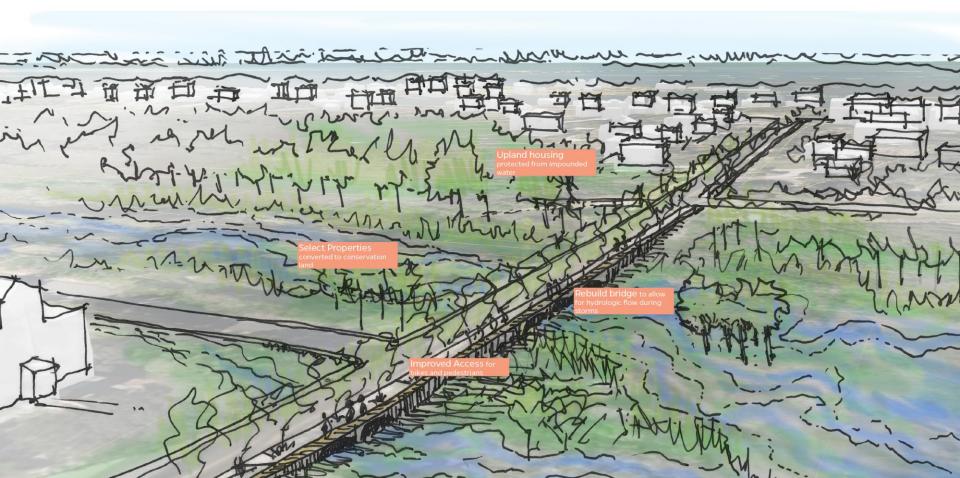
----- Street Section Re-structure

Non-Structural Interventions

- Hydroconnectivity Restoration
- Groin Field+Beach Nourishment
- Maintain Beach OR Offshore Breakwaters +Beach Nourishment (vegetation optional)
- Maintain or Enhance Marsh/Mangrove
- Plant Marsh/Mangrove with Sill
- Revetment (Rip-Rap)







Adaptation Project Areas

Lighthouse Park > Disperse

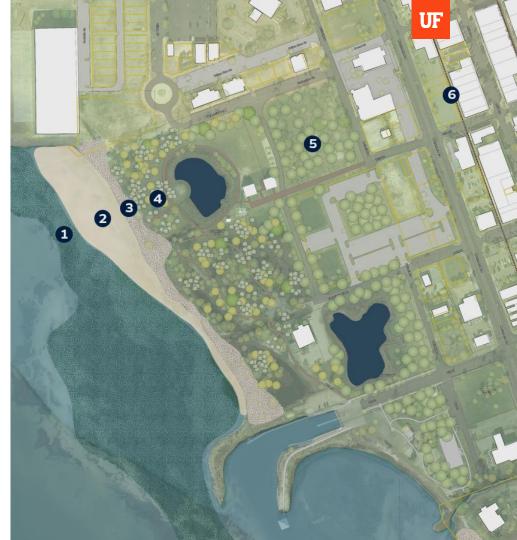
Port St. Joe

Re-structure Marina Drive, ensure connectivity

Sand Hills Pond Park, Shipyard Cove, and Maddox Park

- 1. marsh restoration
- 2. beach nourishment
- 3. dune restoration and retrofit revetment
- 4. mix low vegetation and deciduous trees
- 5. high vegetation

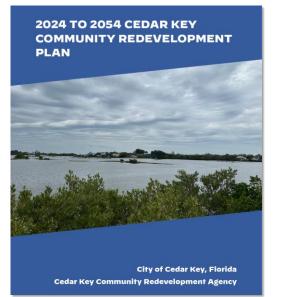
6. Dry floodproof Reid Ave.





Legal Frameworks Implementing the Adaptation Plan

Cedar Key

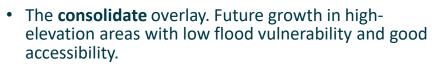


- Linking adaptation plan with City's CRA plan
- Catalyzing mitigation projects:
 - Relocation of City Hall & other city departments
 - Land acquisition grants
 - Prioritization of FEMA relief funds
 - Identifying target properties for buyout offers
- Preparing future applications for infrastructure funds

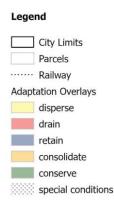
Legal Frameworks

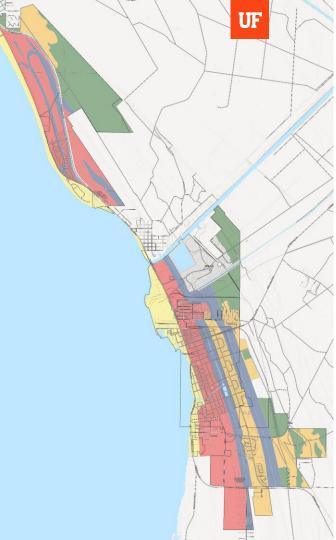
Adaptation Overlays, Coastal Management Element Comprehensive Plan Port St. Joe

- The disperse overlay. Land closest to the coast, bolstering natural defenses and infrastructure for surge, tidal waters, and extreme storm events.
- The **drain** overlay. Low-elevation areas, enhance drainage.
- The **retain** overlay. Increase water retention capacity and natural condition restoration.



- The **conserve** overlay. Preserving ecosystem functions and managing building development.
- The "**special conditions**". Improving stormwater drainage and retention for certain facilities with preexisting nonconforming uses.





THANK YOU resilientcedarkey.web.app resilientpsj.web.app

