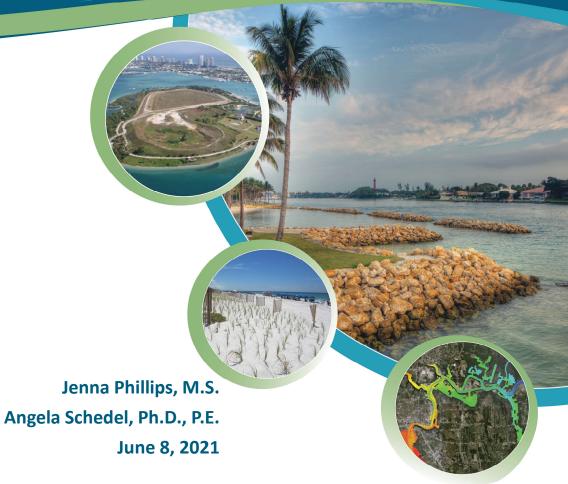


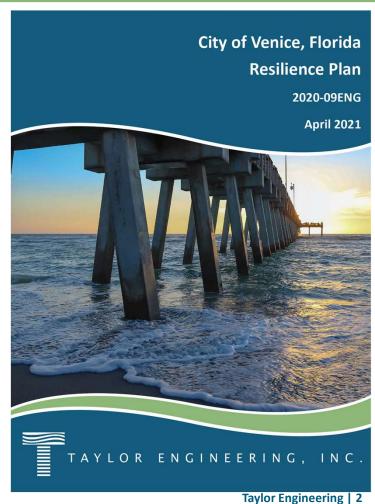
TAYLOR ENGINEERING, INC.

Venice Resilience Plan



Overview

- Project Background
- Context
- Vulnerability Assessment
- Adaptation Strategies
- Implementing Solutions
- Public Outreach
- Next Steps
- Discussion/Questions

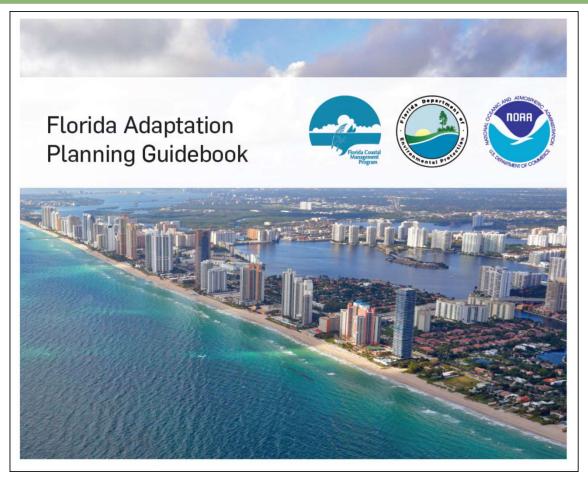


Project Background

- Study funded by FL Resilient Coastlines Program (FRCP) Grant
 - > Grant for Resilience Planning
 - > FRCP is within FL Dept of Environmental Protection
- Work accomplished:
 - > Background Review & Data Identification
 - > Vulnerability Assessment for City Infrastructure
 - Adaptation and Resilience Strategies
 - > Community Outreach and Stakeholder Engagement
 - > Final Resilience Plan Report

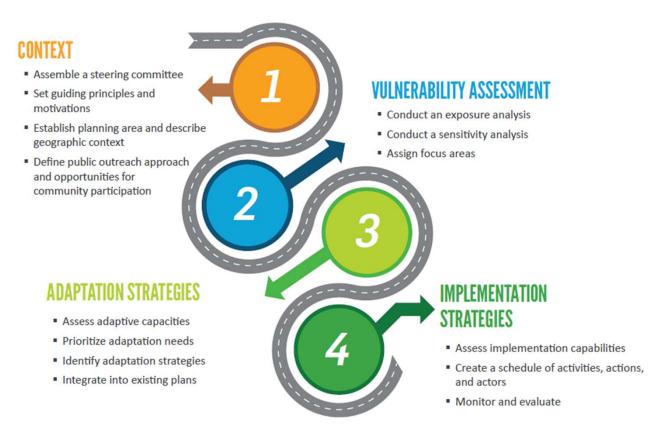


FRCP Planning Guidance



Source: floridadep.gov/rcp/florida-resilient-coastlines-program

Adaptation Planning Process



Source: Florida Adaptation Planning Guidebook

Review of Past Studies

CONTEXT

VULNERABILITY ADAPTATION STRATEGIES

IMPLEMENTATION STRATEGIES

- Tampa Bay Regional Planning Council's Climate Science Advisory Panel (2019)
- Tampa Bay Transportation Pilot US DOT Federal Highway Administration (2020)
- St. Pete Beach Adaptation Plan for Don Cesar Neighborhood (2020)
- City of Sarasota Climate Adaptation Plan (2017)
- Sarasota County Draft Vulnerability Assessment (2021)
- Punta Gorda Adaptation Plan Update (2019)
- Cape Coral Climate Change Resiliency Strategy SW FL Regional Planning Council (2017)
- Southeast Florida Unified Sea Level Projections SE FL Regional Climate Compact (2019)
- NOAA Global and Regional Sea Level Rise Scenarios for the U.S. (2017)
- Intergovernmental Panel on Climate Change AR5 Report (2013)

Assessing Vulnerabilities

Three components of a vulnerability assessment:

Exposure

- How much of the asset is in contact with the stressor
- How long is it in contact with the stressor

Sensitivity

- Degree of impact if in contact with stressor
- Level of existing stress or pressure

Adaptive Capacity

- Ability of the asset to adjust, repair, or respond to stressor





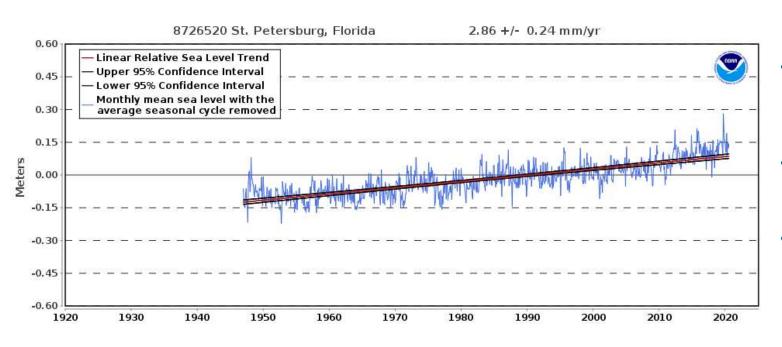
EXPOSURE



SENSITIVITY



ADAPTIVE CAPACITY

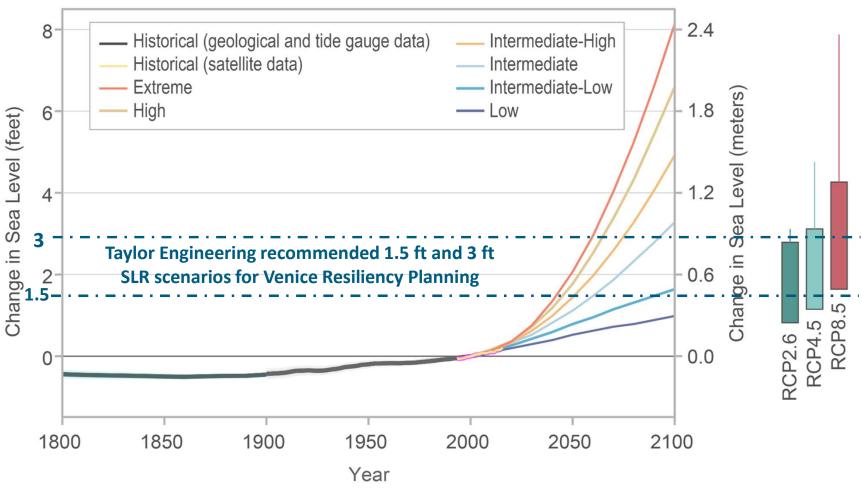


- NOAA Tide Gauge has been collected continuously since 1947
- This historic data shows a trend of about ~1 ft of rise over 100 yrs
- Global SLR is ~ 3mm per year, similar to this

NTEXT VULNERABILITY
ASSESSMENT

ADAPTATION STRATEGIES

IMPLEMENTATION STRATEGIES



Source: Fourth National Climate Assessment (2018) and IPCC AR5 (2013)

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Coastal Flooding Vulnerability Assessment



Built Infrastructure



Flood Risks



Vulnerabilities

Data Inputs:

- Location of Asset
- Elevation of Land & Asset
- Ownership (City/County/Private)
- Historic Status

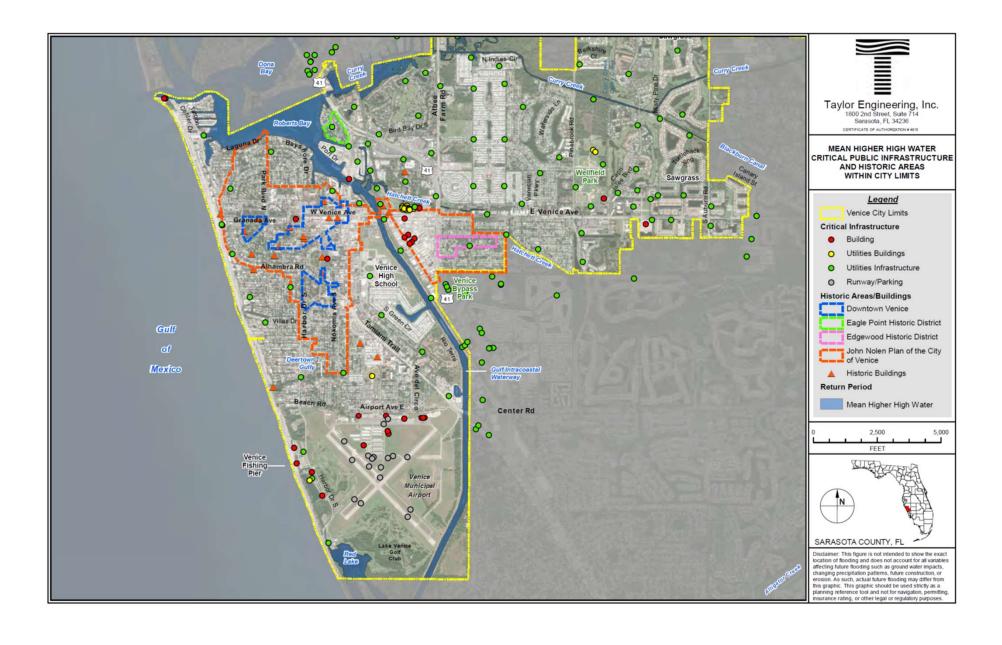
Flood Scenarios:

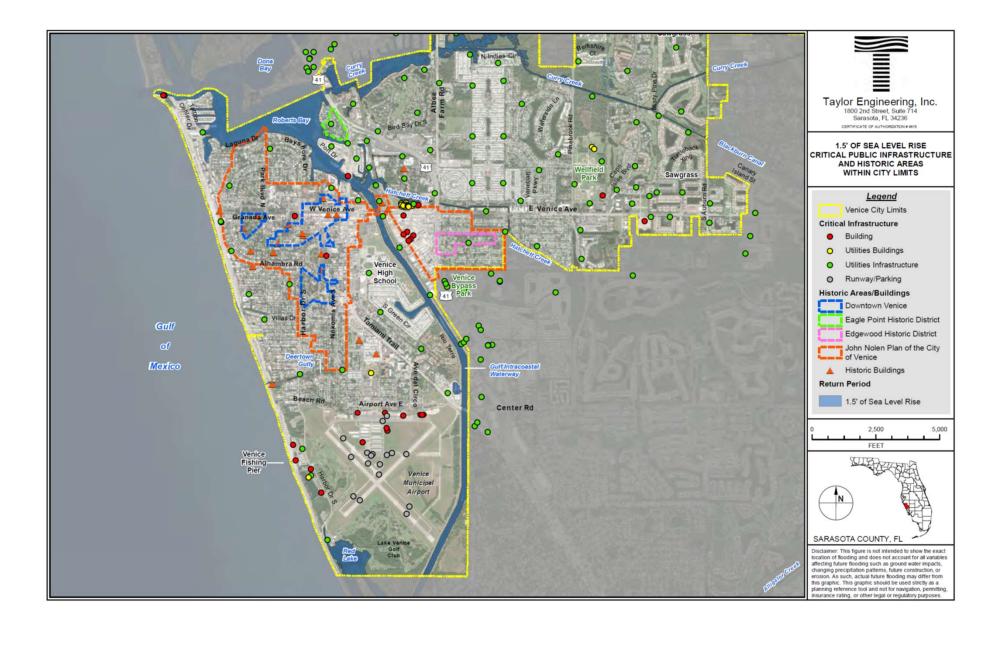
- MHHW (Nuisance Flooding)
- 1.5 ft & 3 ft Sea Level Rise
- 2% (50-yr) & 1% (100-yr) Annual Chance Storm Surge Flooding

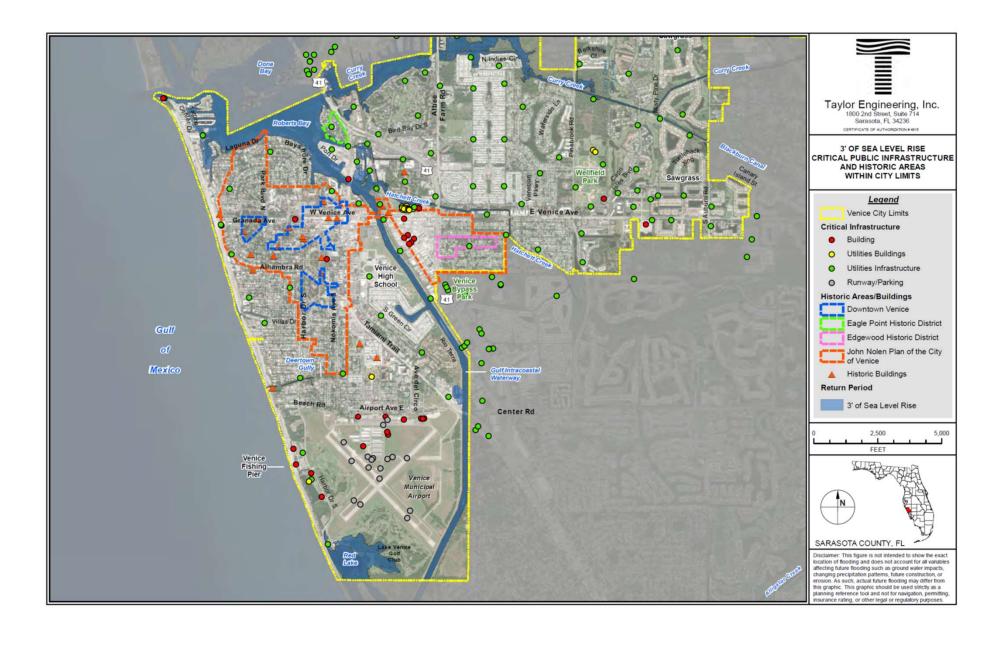
Categorized List of Vulnerable Assets:

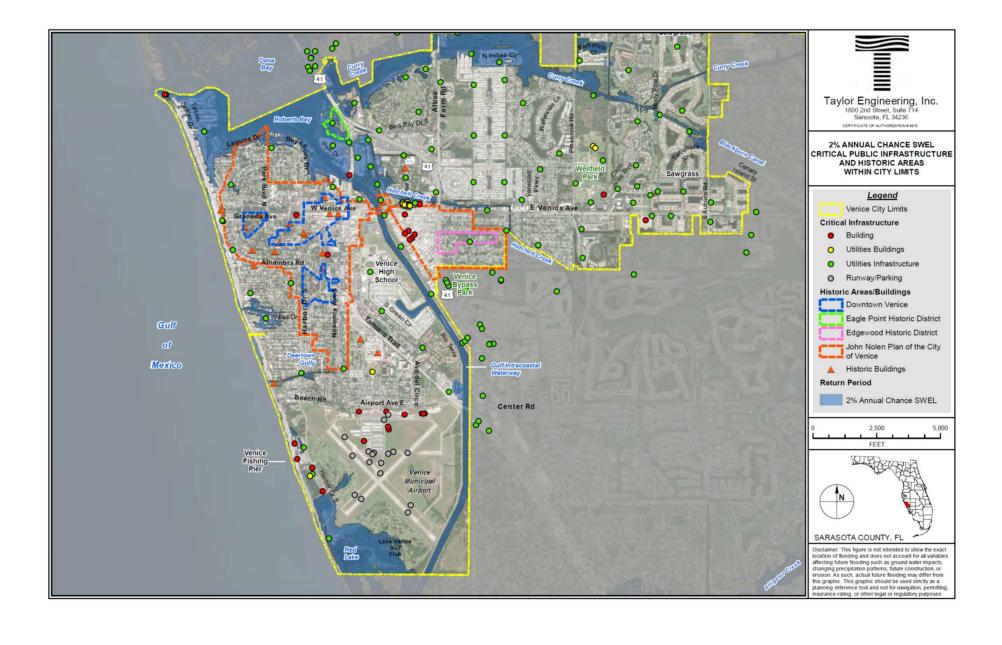
- Critical & Essential Publicly-Owned Facilities
- Historic Structures
- Historic Districts

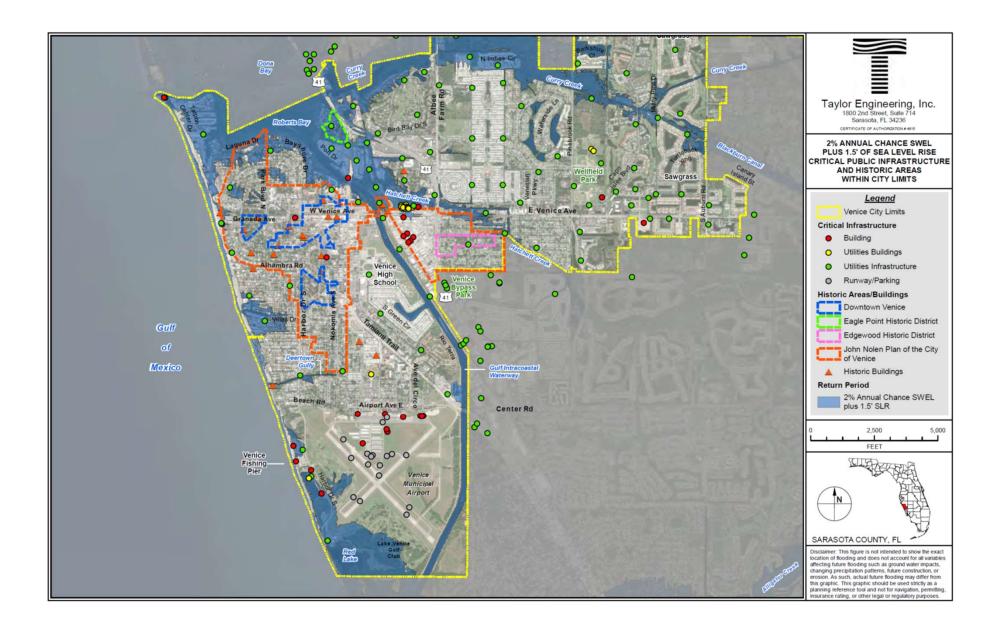
Flood Inundation Scenarios										
1	2020 water level (MHHW)									
2	1.5 ft sea level rise									
3	3 ft sea level rise									
4	2020 water level (MHHW) + 2% annual chance flood (50 yr)									
5	1.5 ft sea level rise + 2% annual chance flood (50 yr)									
6	3 ft sea level rise + 2% annual chance flood (50 yr)									
7	2020 water level (MHHW) + 1% annual chance flood (100 yr)									
8	1.5 ft sea level rise + 1% annual chance flood (100 yr)									
9	3 ft sea level rise + 1% annual chance flood (100 yr)									

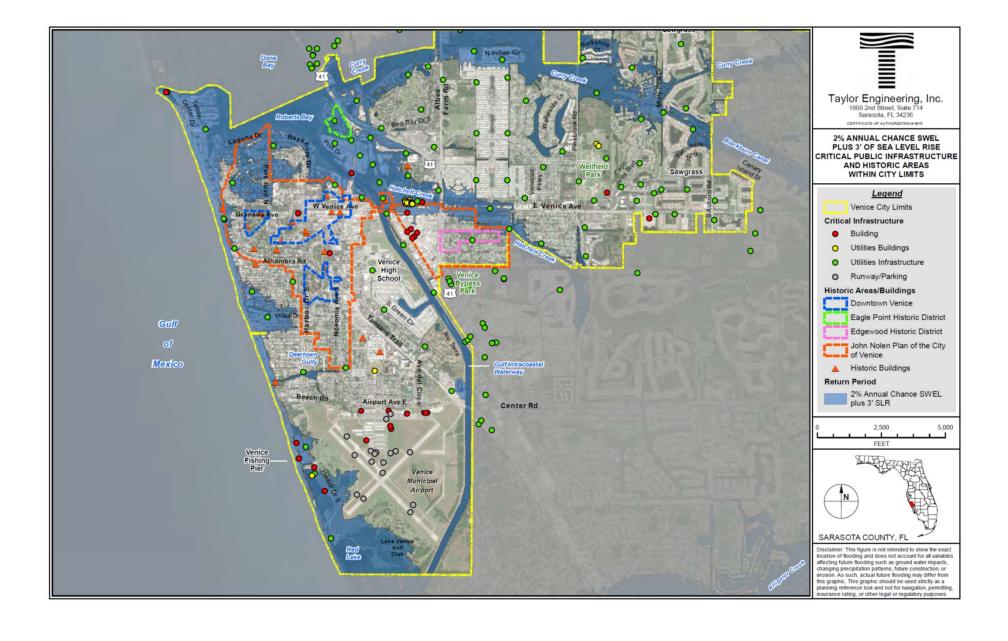


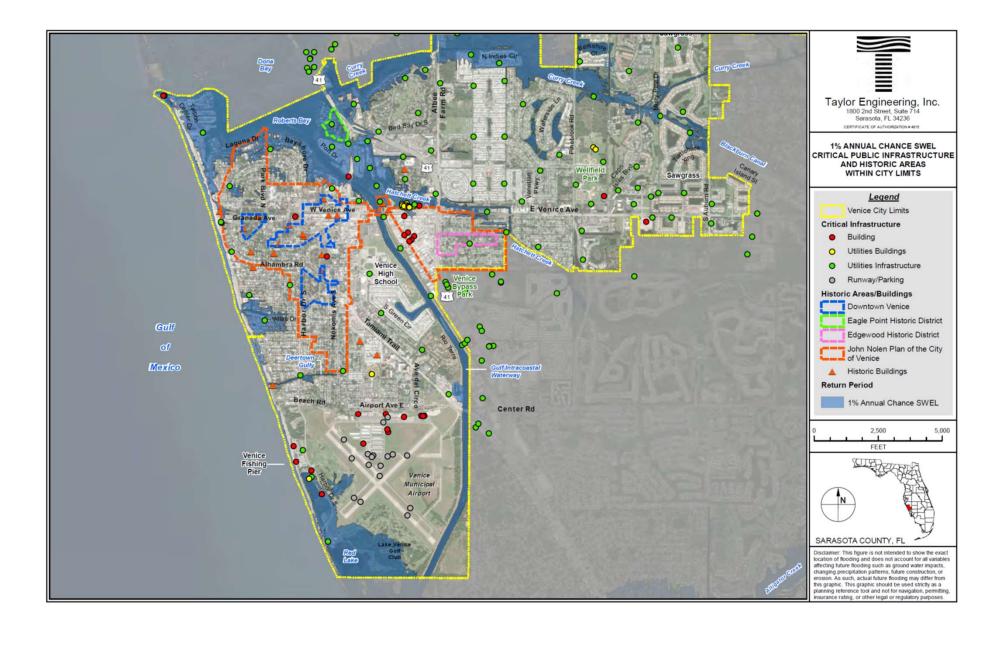


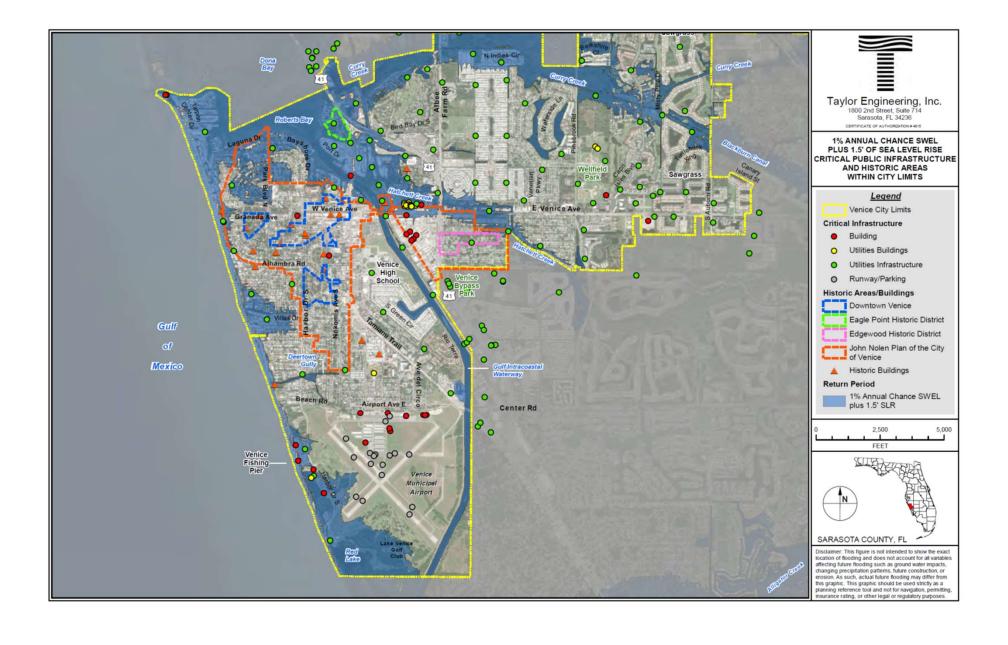


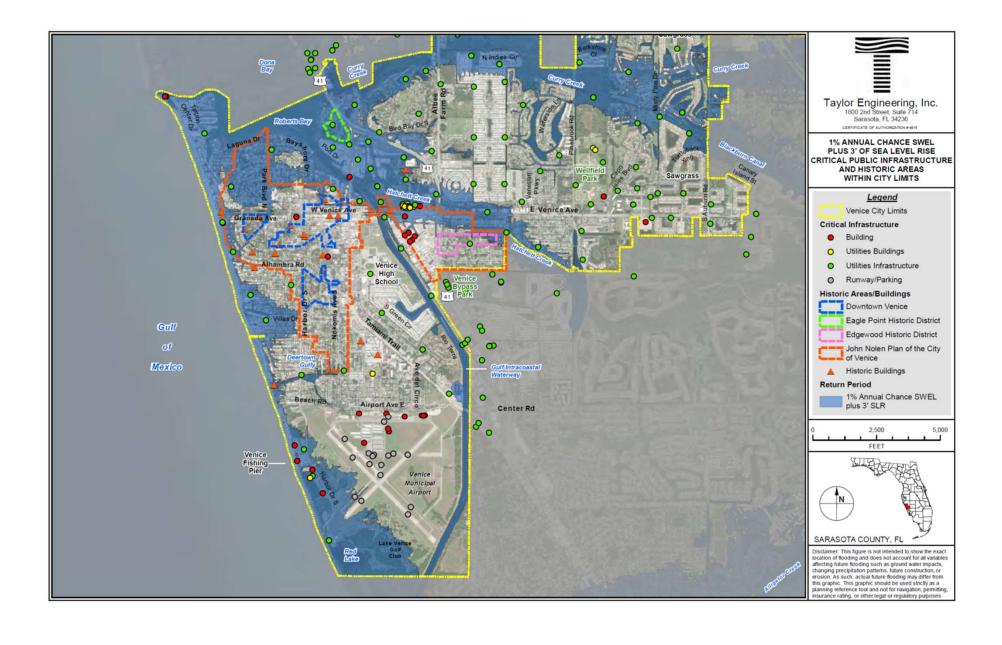


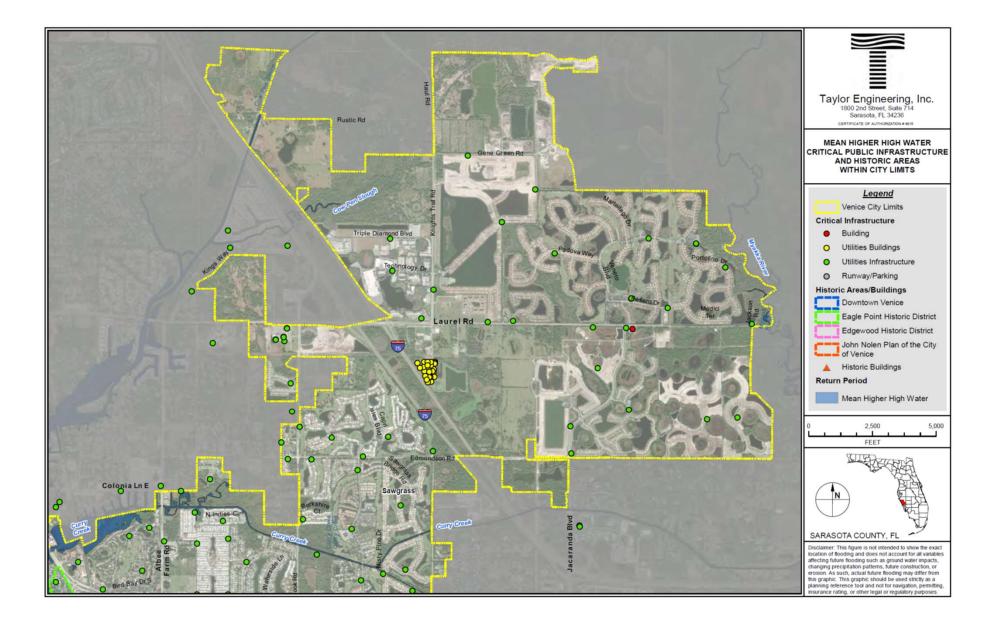


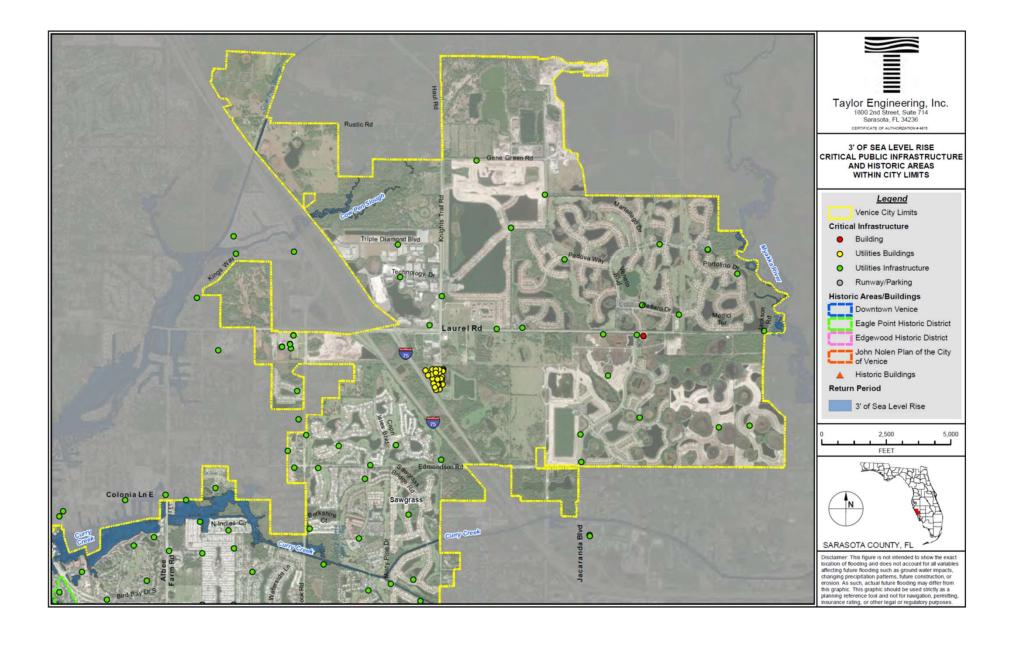


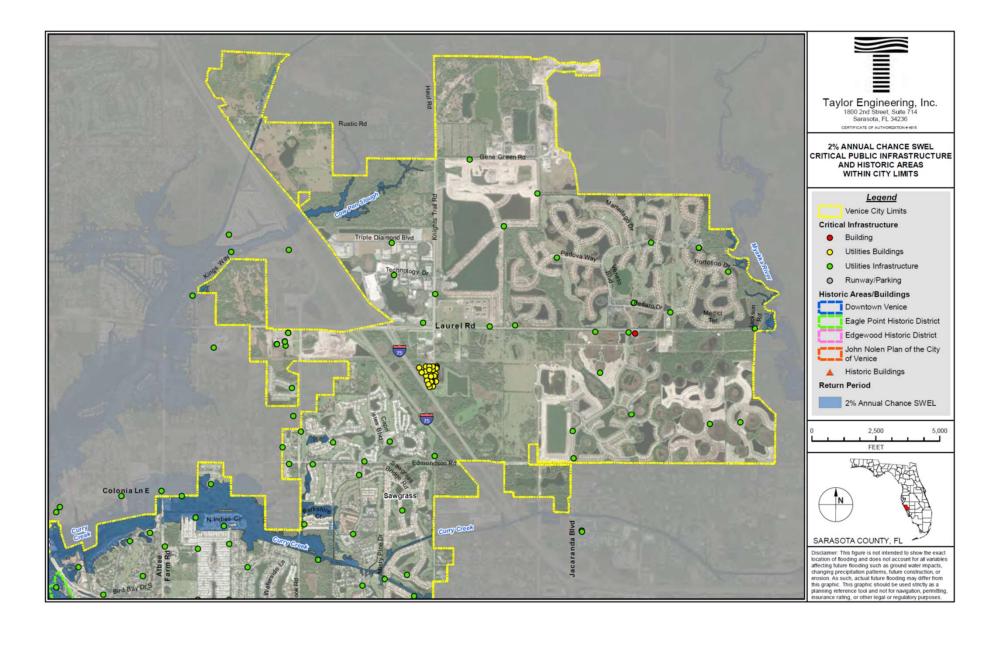


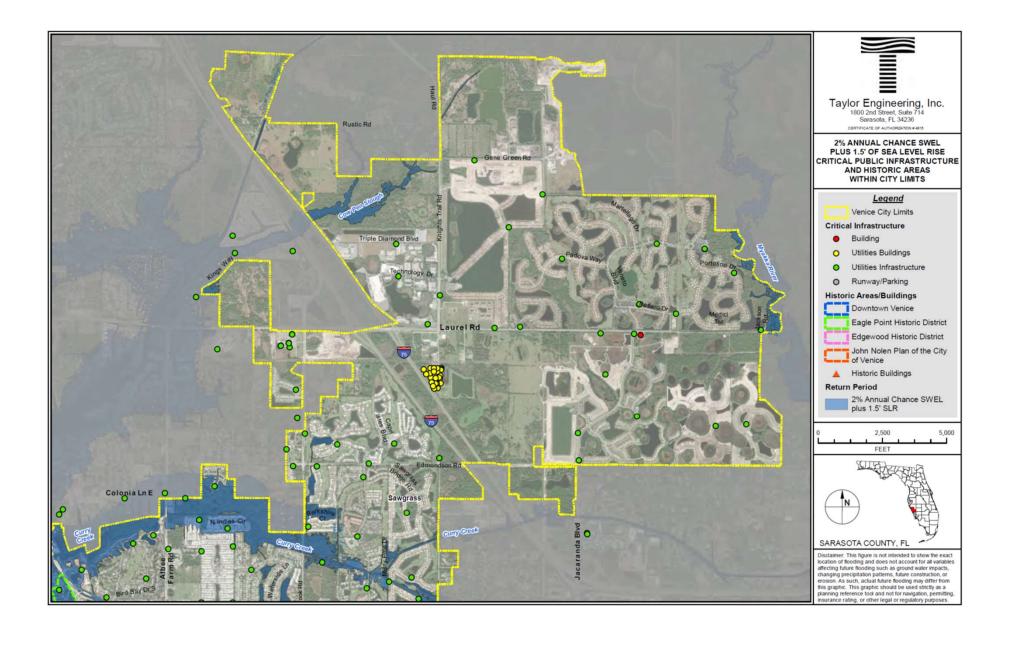


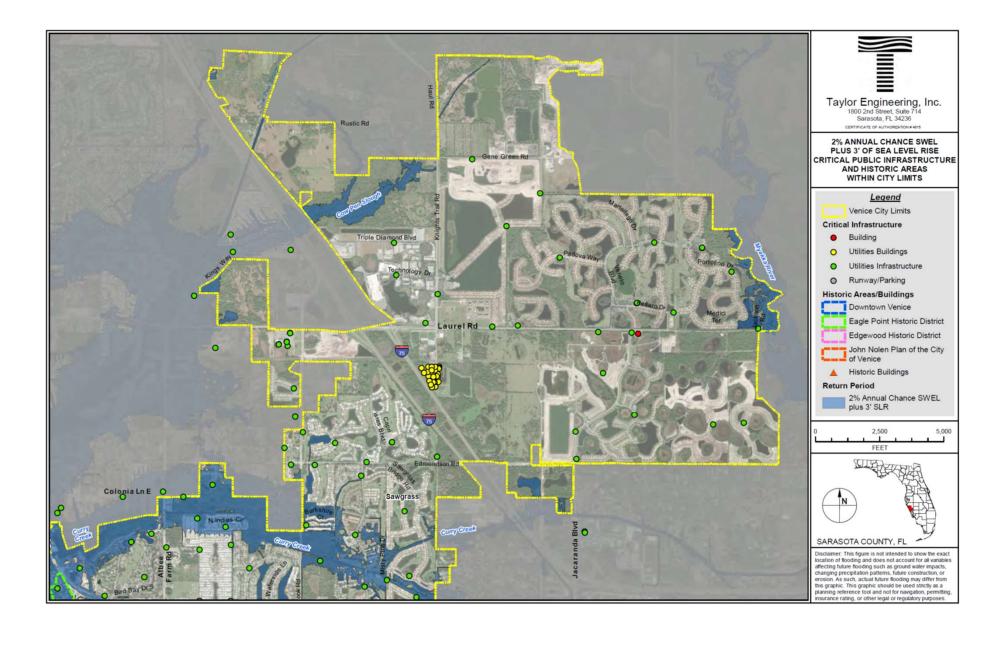












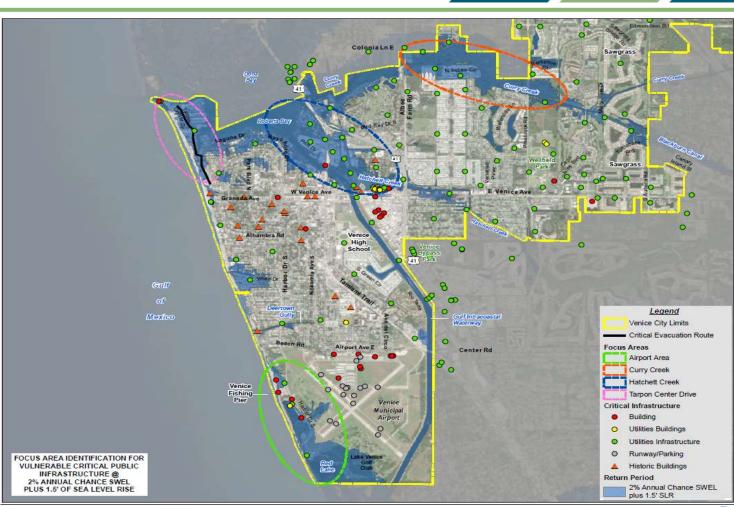
	Total Number of Assets Evaluated (or Square Ft for District)	1.5 ft SLR	3.0 ft SLR	2% Annual Chance Flood	1% Annual Chance Flood	1.5 ft SLR + 2% Annual Chance			
Critical Assets	258	0%	2%	11%	16%	16%	22%	23%	34%
Historic Assets	21	0%	0%	0%	10%	10%	19%	19%	24%
Edgewood Historic District	1,224,335	0%	0%	0%	0%	0%	0%	0%	9%
Eagle Point Historic District	653,998	2%	7%	72%	96%	99%	94%	100%	100%
John Nolen Plan	34,595,339	0%	0%	0%	0%	0%	0%	0%	23%
Downtown Venice ACD	4,994,235	0%	0%	0%	0%	0%	0%	0%	1%

Recommended Focus Areas

CONTEXT

VULNERABILITY ADAPTATION STRATEGIES

IMPLEMENTATION STRATEGIES



Adaptation Strategies: Main Categories

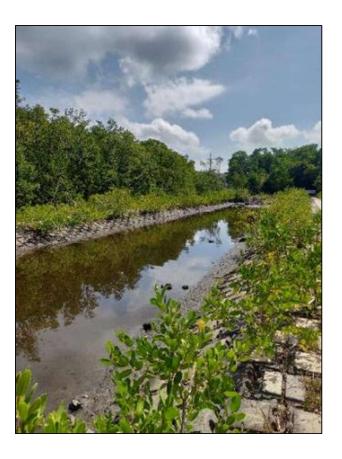
CONTEXT VULNERABILITY ASSESSMENT

ADAPTATION STRATEGIES

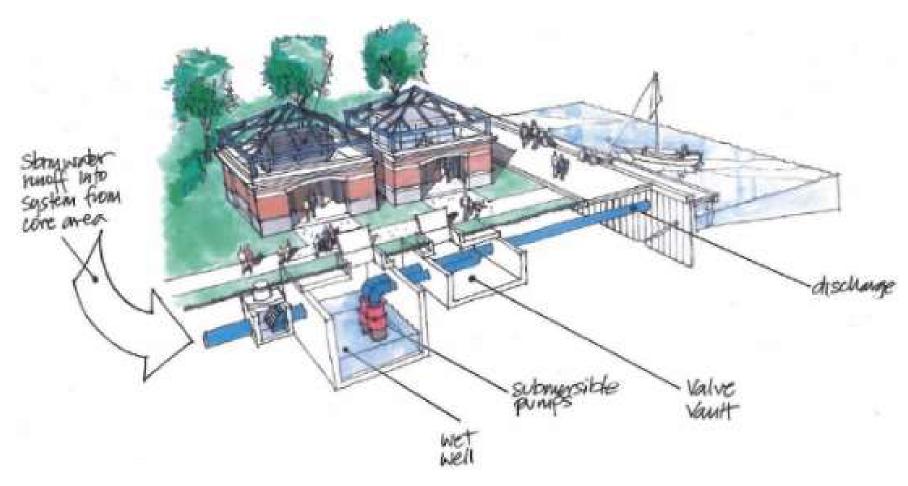
IMPLEMENTATION STRATEGIES

- Accommodate
- Protect
- Strategic Relocation
- Avoidance



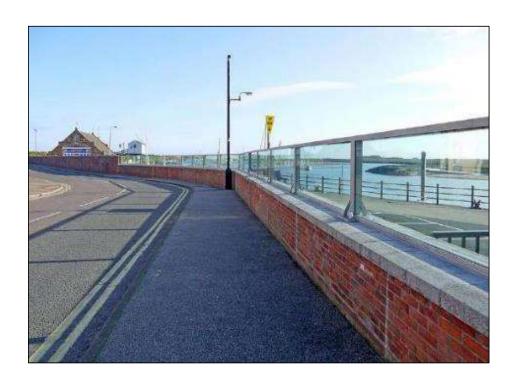






Protect: Raising Seawalls





Protect: Stormwater Improvements







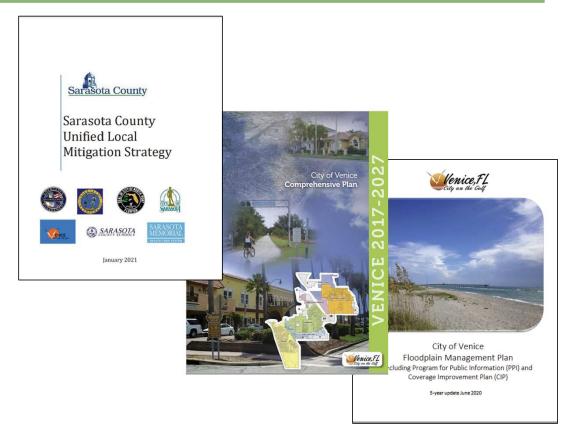


Regulatory and Planning

- Local Mitigation Strategy
- Comprehensive Plan

Infrastructure Upgrades

- Capital Improvements Plan
- Stormwater Management Plan
- Floodplain Management Plan

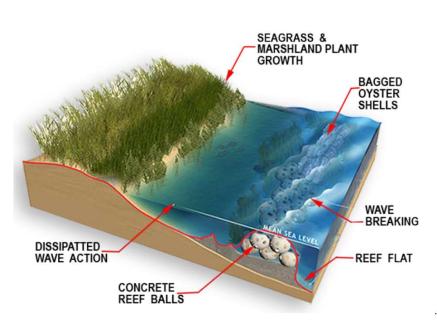


Construct Living Shorelines

CONTEXT

VULNERABILITY ADAPTATION STRATEGIES

IMPLEMENTATION STRATEGIES



Coast Guard Way

PLANTING AREA (TYP)

MANY ELL-0.05

MILW EL-1.987

A D RELOCATE MANGROVÉ SEEDLINGS 8

WITHIN POCK POOTPRINT

T.MEER SEARS (TYP)

B SEAGRASS (TYP)

LIMESTONE BREAKWATER POOTPRINT (TYP)

E954897.73

D RELOCATE MANGROVÉ SEEDLINGS 8

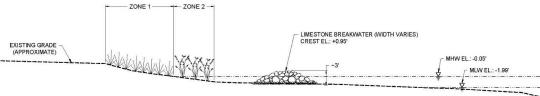
WITHIN POCK POOTPRINT

T.MEER SEARS (TYP)

B SEAGRASS (TYP)

OBSERVATION DOCK

OBSERVATIO

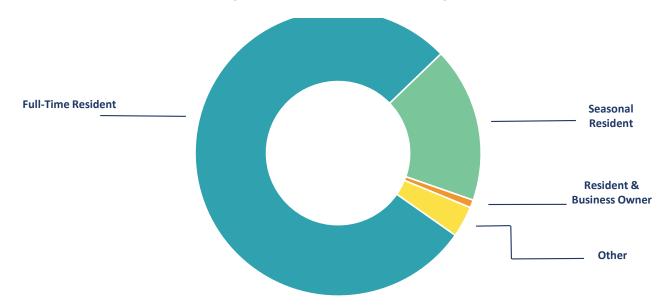


(Source: USACE EWN)

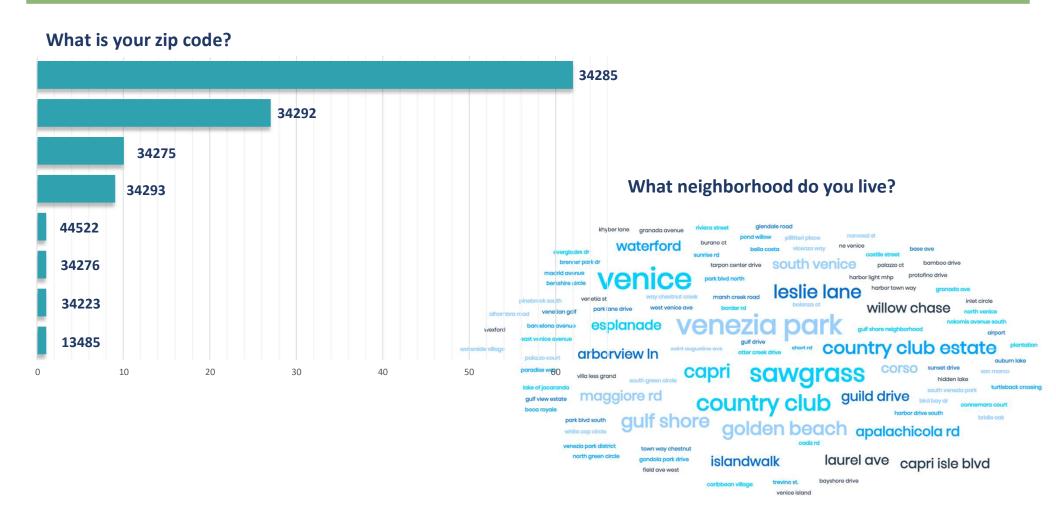
Outreach Survey & Responses

- Live survey posted January 5th
- 8 questions
- 114 responses as of Feb. 11th

How are you affiliated with the City of Venice?

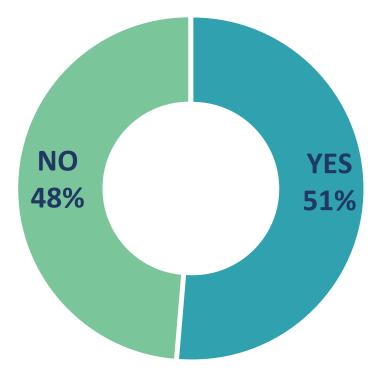


Outreach Survey & Responses



Outreach Survey & Responses

Do You Know What Adaptation Planning Is?





Avoid

Identify future 'no-build areas' and use planning tools to prevent new development in areas at risk now or in future







Accommodate

Continue to use the land but accommodate changes by building on piles, converting agriculture to fish farming or growing flood- or salt-tolerant crops







Protect

Use hard structures (eg sea walls) or soft solutions (eg dunes and vegetation) to protect land from the sea. May be prohibitively expensive, especially in the long term







Retreat

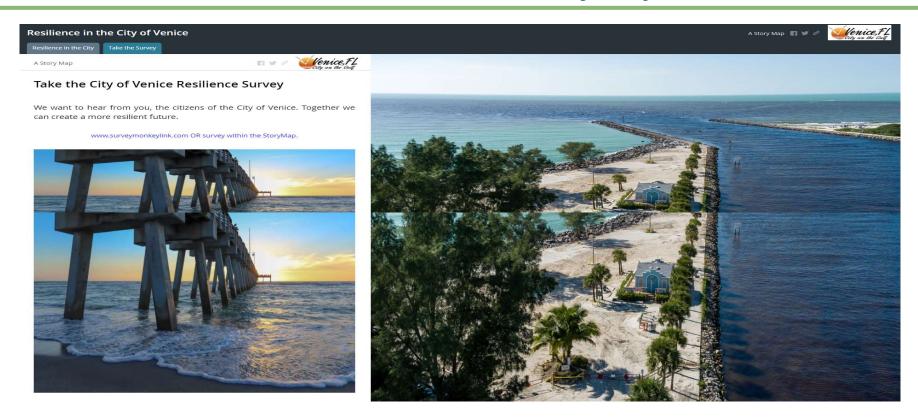
Withdraw, relocate or abandon assets that are at risk; ecosystems are allowed to retreat landward as sea levels rise





https://coastadapt.com.au/sites/default/files/infographics/15-117-NCCARFINFOGRAPHICS-3-Updated.pdf

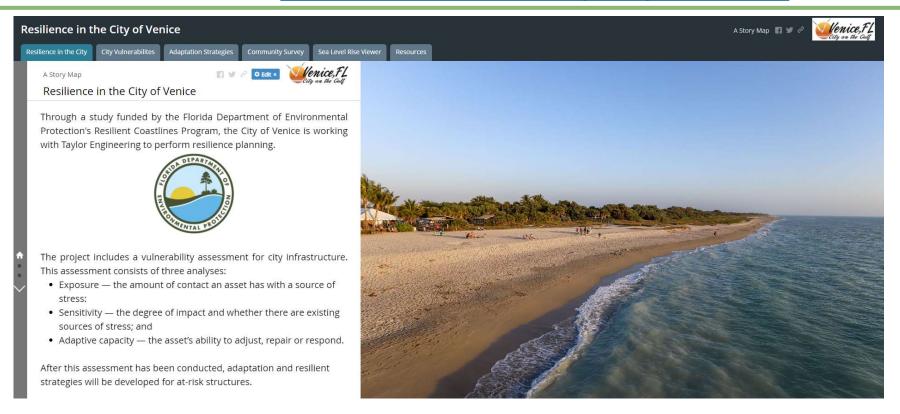
Public Outreach - Resilient Venice StoryMap Website



Two Phase Rollout of StoryMap

- Phase I: Project Introduction & Survey Link January 2021
- Phase II: Full Interactive StoryMap March 2021

Public Outreach - Resilient Venice StoryMap Website



- Project Overview: Adaptation and Resilience Defined
- Vulnerable Infrastructure: Overview and Highlights
- Adaptation Strategies: Outline Opportunities

- Sea Level Rise Viewer
- Survey Results: Citizen Priorities
- Resources: City, Regional, and National Resources

Next Steps

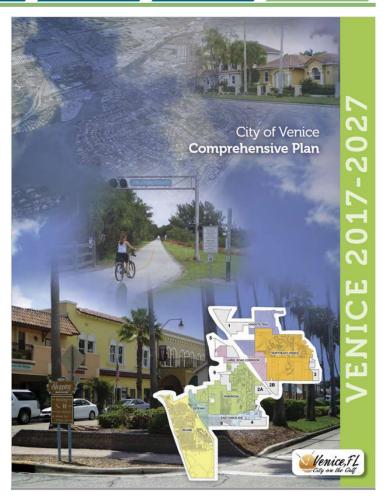
CONTEXT

VULNERABILITY
ASSESSMENT

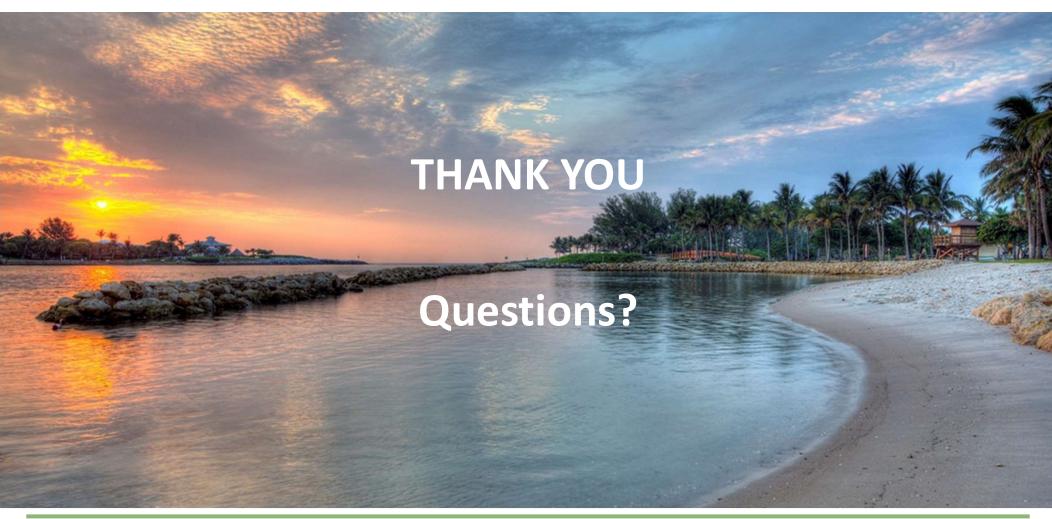
ADAPTATION
STRATEGIES

IMPLEMENTATION
STRATEGIES

- Identify and Prioritize Projects
 - > Tarpon Center Drive Seawall
 - > Stormwater System Upgrades
 - > Water Treatment Plant Protection
- Utilities AWIA Risk & Resiliency Assessment (underway)
- Pursue Funding via Grant Opportunities
- Pursue Public-Private-NGO Partnerships
- Add Resilience to Comprehensive Plan
- Update Resilience Plan With New Data



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