



CITY OF KEY COLONY BEACH VULNERABILITY ASSESSMENT

VULNERABILITY ASSESSMENT

APRIL 15, 2024

OTHER RESILIENCY EFFORTS



**CRS Watershed
Management Plan
to maintain or
increase CRS score**



Other efforts:

**Regional collaboration and
outreach (elevation data
and roads planning)**

**Cross-jurisdictional
partnerships**

TEAM CONDUCTING VULNERABILITY ASSESSMENT

Erin L. Deady, P.A. (policy and planning) and Clearview Geographic (GIS and flooding modeling) are known experts on conducting Vulnerability Assessment statewide:

- To date completed: 5
- Ongoing or launching by 1st Quarter 2024: 14

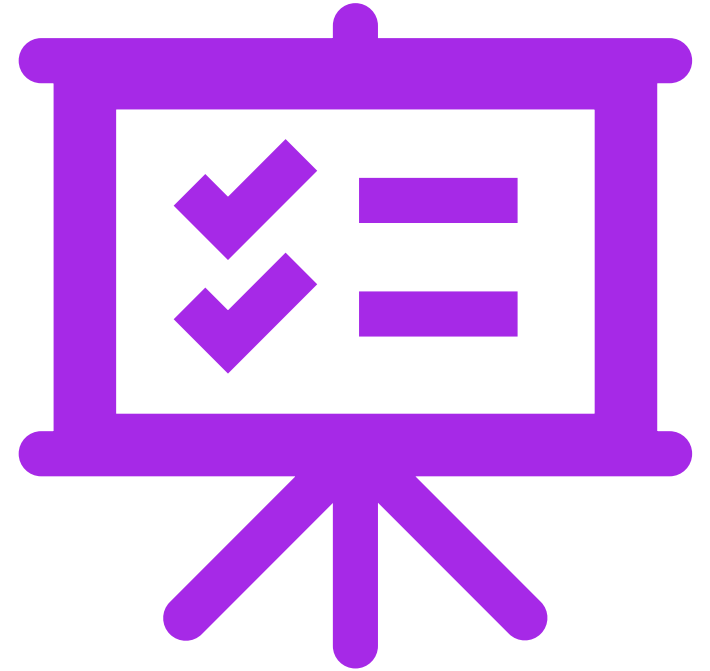
Resilient Florida Grant Support:

- 60 total planning and capital grants totaling \$143,555,663 awarded (\$48,890,647 pending 2024 Legislative appropriations)

Resiliency Comprehensive Plan and Code projects statewide: 8

OUTLINE

- What is a Vulnerability Assessment?
- Section 380.093, Florida Statutes Requirements for Vulnerability Assessment for the Resilient Florida Grant program
- Example Analysis to Date
- Schedule/Tasks/Budget
- How this Aligns with Other Resiliency Efforts/Initiatives
- Questions?



RESILIENCY PLANNING GRANT 22PLN97

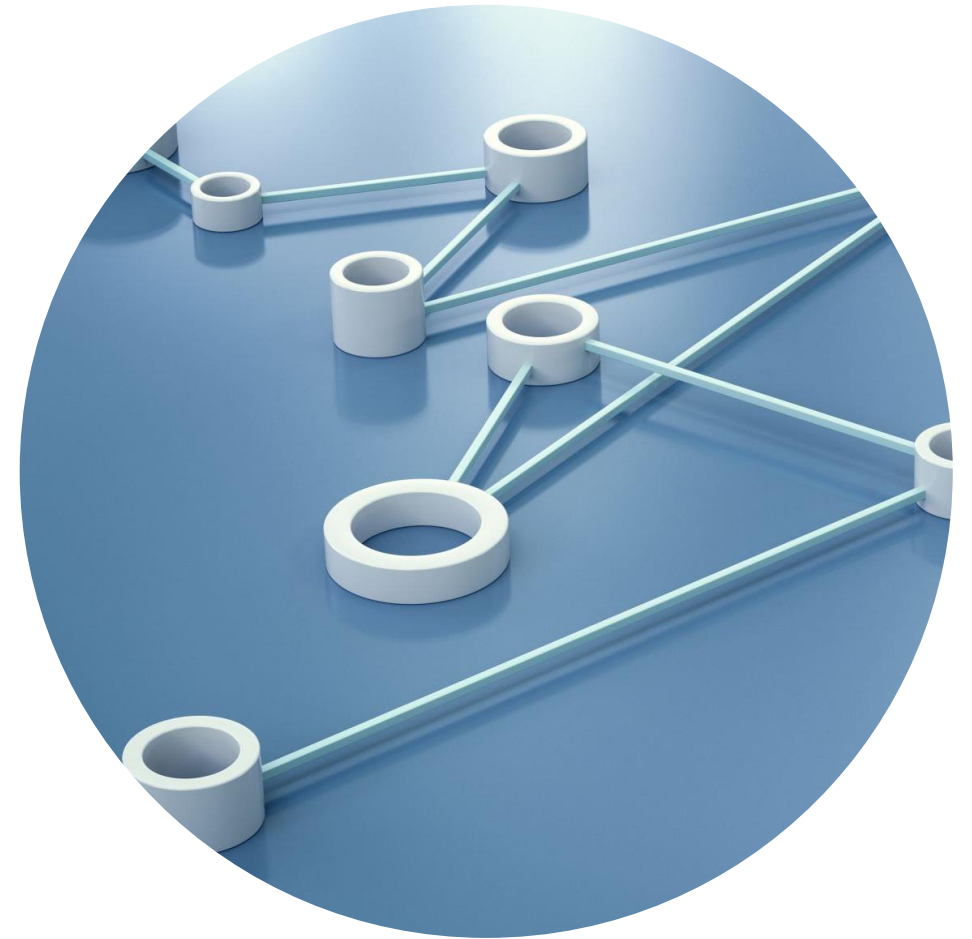
Task	Work Products:
1- Outreach and Stakeholder input	<ul style="list-style-type: none"> • (2) Public Workshops to present results of Preliminary Vulnerability Assessment • (2) City Council Briefings to present project status and outcomes • Agenda and presentation materials. Minutes, agenda and presentation materials will be included. • Story map update to incorporate new modeling output
2- Acquire Background Data	<ul style="list-style-type: none"> • Report of data compiled • Report of recommendations to bridge data “gaps” • GIS files of data
3- Exposure & Sensitivity Analysis	<ul style="list-style-type: none"> • Draft Vulnerability Assessment regarding modeling and resulting tables/maps • Critical Asset / Regionally Significant Asset List identifying flood scenario of impact • GIS files
4- Vulnerability Assessment Report/Tables and Maps	<ul style="list-style-type: none"> • Final VA Report that provides details on the results and conclusions, including illustrations via maps and tables, based on the statutorily-required scenarios and standards in s. 380.093, F.S. The Final VA Report should also include the following: outline the data compiled and the findings of the gap analysis with recommendations to address the identified data gaps and any actions taken to rectify them, if applicable; and provide details on the modeling process, type of models utilized, and resulting tables and maps illustrating flood depths for each flood scenario • A final list of critical and regionally significant assets that are impacted by flooding, which must be prioritized by area or immediate need and must identify which flood scenario(s) impacts each asset • Flooding inundation maps, GIS data
5- Peril of Flood Comp Plan Amendments	<ul style="list-style-type: none"> • Coastal Element – 2015 Statutory updates



**WHAT IS A
VULNERABILITY
ASSESSMENT?**

GENERAL ELEMENTS OF VULNERABILITY ASSESSMENTS

- Vulnerability assessments are used to ascertain the susceptibility of a natural or human system to sustaining damage from climate change. Vulnerability is a function of exposure, sensitivity, and adaptive capacity.
 - Exposure- The presence of people, livelihoods, species or ecosystems, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that could be adversely affected by a hazard.
 - Sensitivity- The degree to which a system, asset, or species may be affected, either adversely or beneficially, when exposed to climate variability or change or geophysical hazards.
 - Adaptive capacity- The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences of hazards.



**SECTION
380.093, F.S.
OVERVIEW**



STATUTORY FRAMEWORK

Section of the Law	Significance
Intent and definitions	<ul style="list-style-type: none"> Coastal and inland communities can participate Critical assets defined
Resilient Florida Grant Program	<ul style="list-style-type: none"> Items that can be funded (planning and projects) Standards for vulnerability assessments
Comprehensive Statewide Flood Vulnerability and Sea Level Rise Dataset and Assessment	Dataset to support a comprehensive statewide flood vulnerability and sea level rise assessment (inland and coastal infrastructure, geographic areas and vulnerable communities and their risk).
Statewide Flooding and Sea Level Rise Resilience Plan (local governments, flood control districts, regional resilience entities or WMDs).	Due to Legislature 12/1, 3-year planning horizon & ranked projects that address risks of flooding and sea level rise to coastal and inland communities. First one submitted for this year, December 1, 2021, will be a “preliminary plan” to address risks already identified in existing local government vulnerability assessment. 50% cost share unless disadvantaged community. Includes ranking criteria.
Regional Resilience Entities	(a) providing technical assistance to counties and municipalities, (b) coordinating multijurisdictional vulnerability assessments and (c) developing project proposals to be submitted for inclusion in the Statewide Flooding and Sea Level Rise Resilience Plan.
Florida Flood Hub for Applied Research and Innovation (USF)	Lead institution and engage other academic and research institutions, private partners, and financial sponsors to coordinate efforts to support applied research and innovation to address the flooding and sea level rise challenges of the state
Annual assessment of Florida's water resources and conservation lands	Expand the requirements of the existing annual assessment of Florida's water resources and conservation lands (conducted by the Office of Economic and Demographic Research) to now include flooding information

REQUIRED COMPONENTS OF VULNERABILITY ASSESSMENTS FOR FLORIDA

- Required assets:
 1. Transportation assets and evacuation routes, including airports, bridges, bus terminals, ports, major roadways, marinas, rail facilities, and railroad bridges.
 2. Critical infrastructure, including wastewater treatment facilities and lift stations, stormwater treatment facilities and pump stations, drinking water facilities, water utility conveyance systems, electric production and supply facilities, solid and hazardous waste facilities, military installations, communications facilities, and disaster debris management sites.
 3. Critical community and emergency facilities, including schools, colleges, universities, community centers, correctional facilities, disaster recovery centers, emergency medical service facilities, emergency operation centers, fire stations, health care facilities, hospitals, law enforcement facilities, local government facilities, logistical staging areas, affordable public housing, risk shelter inventory, and state government facilities.
 4. Natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.
- 2040/2070 NOAA Intermediate Low and High Sea Level Rise
- Tidal flooding (+ future high tide), current/future storm surge > or = to 100-year flood event, rainfall for 100-year and 500-year + future conditions (to extent practicable) and combination flooding (to extent practicable)
- Compliance with FDEP Checklist is a requirements for VAs and Grant Agreements

Appendix E: Vulnerability Assessment Compliance Checklist

VULNERABILITY ASSESSMENT COMPLIANCE CHECKLIST

In accordance with subsection 380.093(3), F.S., the following components, scenarios, data, and information are required for a comprehensive Vulnerability Assessment (VA). The checklist must be completed and submitted with the final VA Report deliverable, pursuant to Attachment 3, Grant Work Plan. The Grantee must abide by the Department's GIS Data Standards found on the Resilient Florida Program webpage at the link below:

<https://floridadep.gov/rcp/resilient-florida-program/documents/resilient-florida-program-gis-data-standards>

Part 1 – Subparagraph 380.093(3)(c)2., F.S.

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
a	<input type="checkbox"/>	Final Vulnerability Assessment Report that provides details on the results and conclusions, including illustrations via maps and tables.	
All electronic mapping data used to illustrate flooding and sea level rise impacts that are identified in the VA must be provided in the format consistent with the Department's GIS Data Standards and include the following three (3) items:			
b	<input type="checkbox"/>	Geospatial data in an electronic file format.	
c	<input type="checkbox"/>	GIS metadata.	
d	<input type="checkbox"/>	List of critical assets for each jurisdiction, including regionally significant assets, that are impacted by flooding and sea level rise. The list must be prioritized by area or immediate need and must identify which flood scenario(s) impacts each asset	

Part 2 – Subparagraphs 380.093(3)(d)1. and 380.093(3)(d)2., F.S.

Item ID	Check if Included	Item Description	Page Reference in VA Report (if applicable)
e		Peril of Flood Compliance Plan amendments developed that address paragraph 163.3178(2)(f), F.S., if applicable. <input type="checkbox"/> Not applicable <input type="checkbox"/> Already in compliance	
f		Depth of tidal flooding, including future high tide flooding, using thresholds published and provided by the Department.	
g		To the extent practicable, analysis geographically displays the number of tidal flood days expected for each scenario and planning horizon. <i>(optional)</i>	
h		Depth of current and future storm surge flooding using publicly available NOAA or FEMA storm surge data. <i>(check one)</i> <input type="checkbox"/> NOAA data <input type="checkbox"/> FEMA data	
i		Initial storm surge event equals or exceeds current 100-year flood event.	
j		Higher frequency storm analyzed for exposure of a critical asset. <i>(optional, but must provide additional detail if included)</i>	

Exhibit I
2 of 4

WHY CONDUCT A VULNERABILITY ASSESSMENT?

1. Position the City for future grant opportunities by having a plan of action (and its required in Section 380.093(5), F.S. to qualify for capital project funding after 2024)

2. Establish adaptation project priorities, examples:

- Road elevation, drainage and infrastructure
- Protection of shorelines and policies (natural and hardening)

3. Establish other implementing policies, examples:

- Linking recovery and rebuilding more resiliently
 - Addressing vulnerable neighborhoods
 - Framing infrastructure commitments (deficiencies, maintenance and enhancements/upgrades)

4. Priorities for land acquisition

5. Maintaining access for recreation and open space

6. Integration of adaptation response fully into Comprehensive Plan / Code (example infrastructure design criteria)

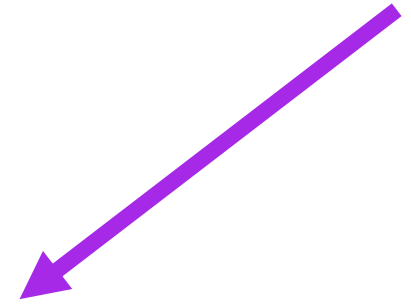


EXAMPLE ANALYSIS TO DATE

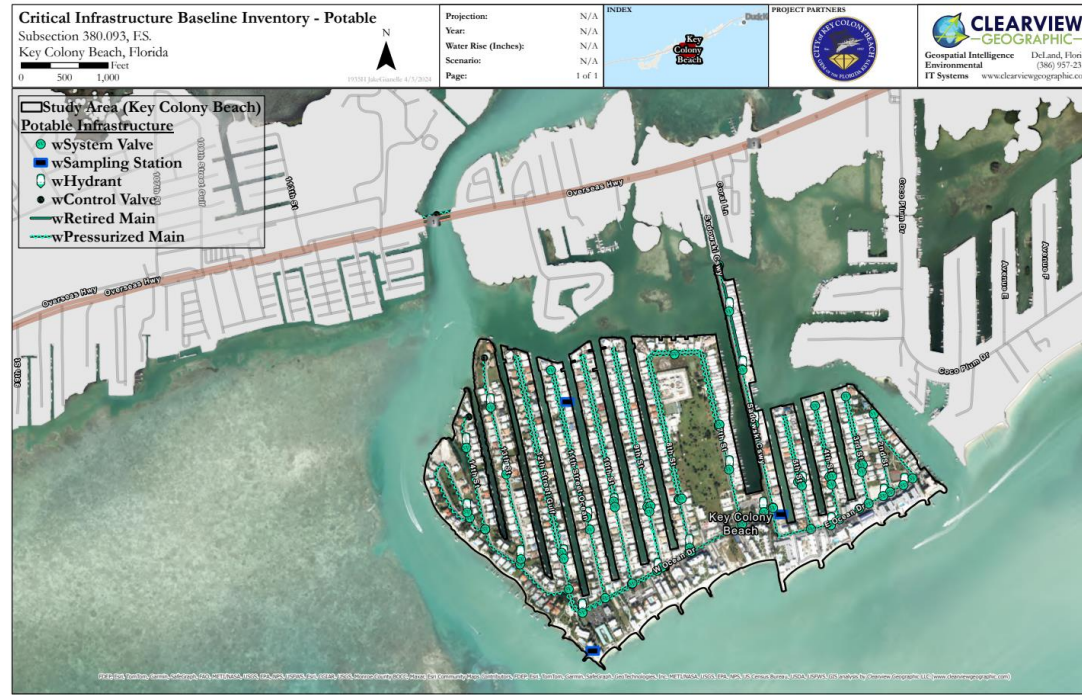
EXAMPLE MAPPING OF ASSETS AND INUNDATION



Projection:	NOAA Intermediate High
Year:	2070
Water Rise (Inches):	54.36
Scenario:	Sea Lvl Rise+High Tide Flood
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EXAMPLE MAPPING OF ASSETS AND INUNDATION



Projection:	NOAA Intermediate High
Year:	2070
Precipitation (Inches):	16.3
Scenario:	Sea Level Rise+Rainfall
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**HOW THIS
ALIGNS
WITH
OTHER
RESILIENCY
EFFORTS/
INITIATIVES**



\$\$\$ FOR PROJECTS

- Projects must be identified in Vulnerability Assessments
- After 2024, applicants will not be eligible to apply for projects if they are not identified in a Vulnerability Assessment



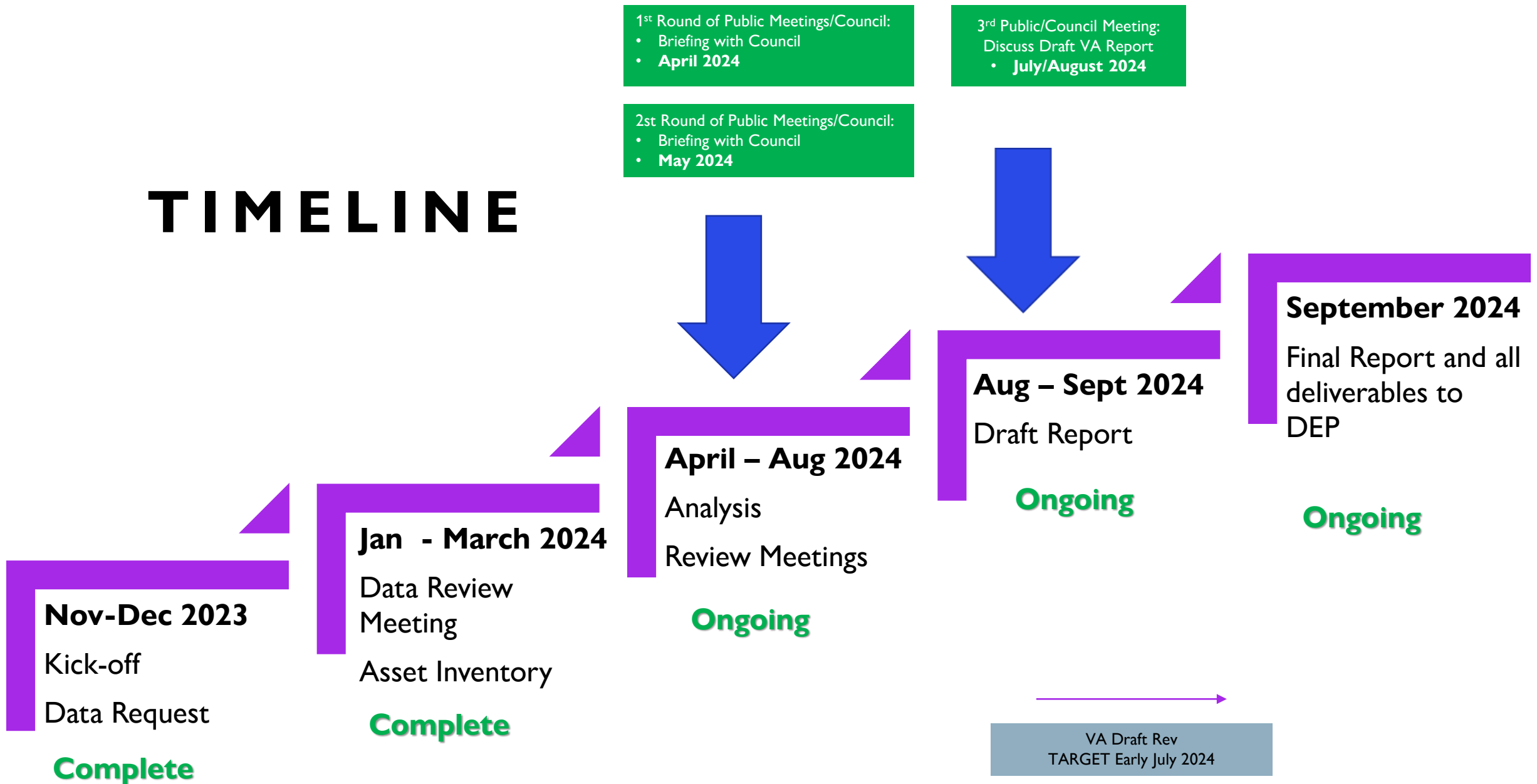
Statewide Resilience Plan
Fiscal Year 2024-25

Office of Resilience and Coastal Protection
Florida Department of Environmental Protection
December 2023

**SCHEDULE/
TASKS/
BUDGET**



TIMELINE



QUESTIONS?

