



Venice Resiliency Plan Update

March 1, 2021

Summary Memo of Vulnerability Assessment and Results

Overview: This memo summarizes Task 2 of Taylor Engineering’s work assignment to update the City of Venice’s Resiliency Plan. As part of the Plan update, Taylor Engineering conducted a vulnerability assessment of public infrastructure within City limits, focusing on coastal flooding impacts to critical facilities and historic properties. While vulnerability is often interchangeable with ‘risk’ when measuring hazard impacts, the National Oceanic and Atmospheric Administration (NOAA) definition of vulnerability is “the potential for loss of, or harm/damage to, exposed assets largely due to complex interactions among natural processes, land use decisions, and community resilience” (Florida Adaptation Planning Guidebook, 2018). The purpose of a vulnerability assessment is to help a municipality or community identify and prioritize which structural and social assets are likely to be impacted by future coastal flooding and sea level rise. Performance of a vulnerability assessment also forms the basis for complying with the “Peril of Flood” Comprehensive Plan requirements as found in Section 163.3178(2)(f)(1-6), Florida Statutes.

Using the best available sea level rise projections and flood inundation scenarios, we evaluated the degree of vulnerability under 9 different flood scenarios. This memo summarizes our analysis, which serves as the Task 2 deliverable, and the Adaptation and Resilience Strategies will fully detail this analysis (Task 4).

Methodology: This analysis uses a Geographic Information System (GIS)-based assessment of the City’s public infrastructure with respect to sea level rise projections and tropical storm surge stillwater elevations (SWEL). The elevations of publicly-owned buildings are compared to future sea level rise thresholds and storm surge inundation depths.

The sea level rise projections used to establish the City’s vulnerability thresholds originate from two credible source documents, the 2013 Intergovernmental Panel on Climate Change (IPCC) *Fifth Assessment Report* (AR5) and the 2018 U.S. Global Change Research Program (USGCRP) *Fourth National Climate Assessment Report* (NCA4). The IPCC published its *First Assessment Report* (FAR) in 1990 and has published updated reports within 5 to 7 years of each previous report. The IPCC does not carry out research nor does it monitor climate related data. The lead authors of IPCC reports assess currently



available information about climate change from a variety of published sources. The most recent IPCC report was published in 2013. The IPCC's *Sixth Assessment Report* is expected to be publicly available in 2022. The IPCC's working groups and subsequent reports are well-respected in the international scientific community. The sea level rise projections in the IPCC AR5 are based on future projections of greenhouse gas quantities in Earth's atmosphere. The projections, called Representative Concentration Pathways (RCP), are future scenarios related to the concentration of carbon dioxide in the atmosphere. The AR5 report included four scenarios: RCP 2.6, RCP 4.5, RCP 6.0, and RCP 8.5. The RCP numbers denote radiative forcing in units of Watt per m² of sunlight.

The second set of sea level rise projections used to establish the City's vulnerability thresholds originated from the USGCRP NCA4, released in November 2018. The first NCA was published in 2000, the second NCA in 2009 and the third was released in 2014. The USGCRP consists of 13 federal agencies, with NOAA serving as the lead agency for the NCA4 report. The report is based on an assessment of the peer-reviewed scientific literature, with ongoing participation of scientists and federal and non-federal stakeholders. The NCA4 report's sea level rise projections included six scenarios, created by NOAA: Low, Intermediate-Low, Intermediate, Intermediate-High, High, and Extreme, as shown in **Figure 1**.

Figure 1 is a graphic from the 2018 USGCRP NCA4 showing the historic sea level trend, six sea level scenarios, and the IPCC AR5 sea level rise projections. Vertical bars on the right side of the graphic are the RCP from the 2013 IPCC AR5 report. Vertical lines above the RCP bars show a possible increase in Antarctic contribution due to new ice sheet data available in 2016 after the IPCC AR5 report was published. The figure does not show RCP 6.0 because its sea level rise range is similar to RCP 4.5.

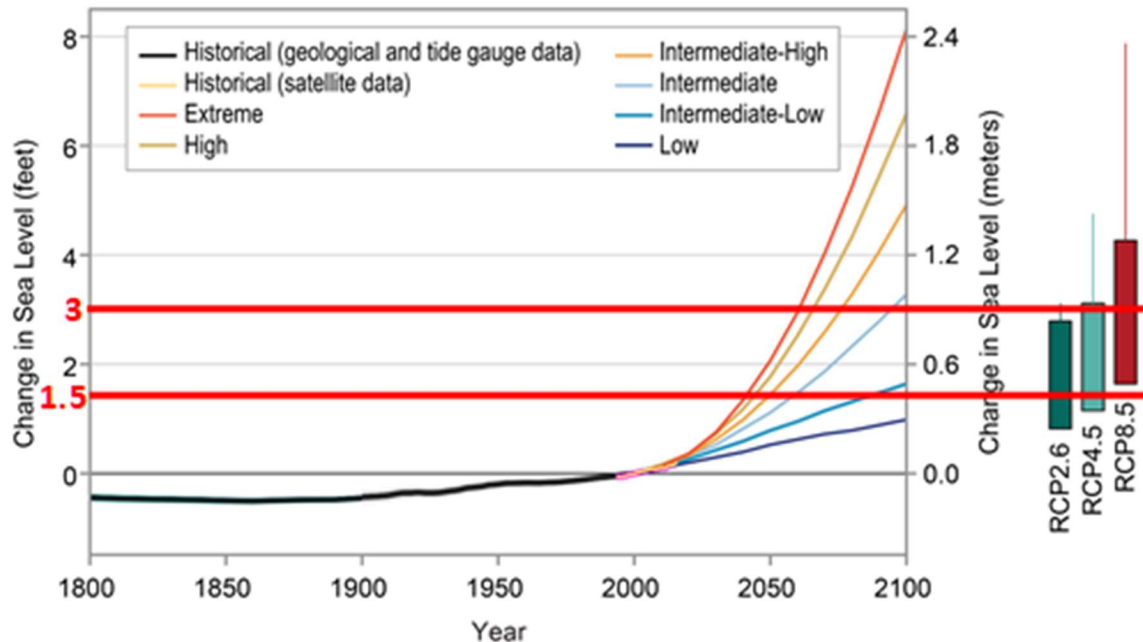


Figure 1. 2013 IPCC and 2018 U.S. National Climate Assessment Sea Level Projections and historical data (Source: Fourth National Climate Assessment, annotated to show Taylor Engineering's recommended thresholds of 1.5 ft and 3 ft for the City of Venice)

Taylor Engineering recommends the City of Venice examine flooding thresholds for this vulnerability analysis of 1.5 ft and 3 ft sea level rise, annotated on **Figure 1**. These thresholds were chosen because the 1.5 ft rise will most likely occur within the time horizon of the City's 2050 Comprehensive Plan or a homeowner's 30-year mortgage, while the 3 ft sea level rise is more suitable for planning Capital Improvement Projects with a 50-year design life. The 0 ft horizontal line on the graphic coincides with 1990, which U.S. federal agencies use as a benchmark for measuring sea level change. The 1.5 ft sea level change, annotated on the figure, shows that the mean sea level in the United States is expected to rise 1.5 ft between 1990 and 2040, if using the Extreme scenario. Depending on which sea level rise scenario is used, 1.5 ft of sea level rise may occur as late as 2090, for example, if using the Intermediate-Low scenario. The annotated 3 ft of sea level rise may occur between 1990 and 2060, with the Extreme scenario. However, it is possible that 1.5 ft or 3 ft of sea level change may occur after 2100, beyond the range of this graphic.

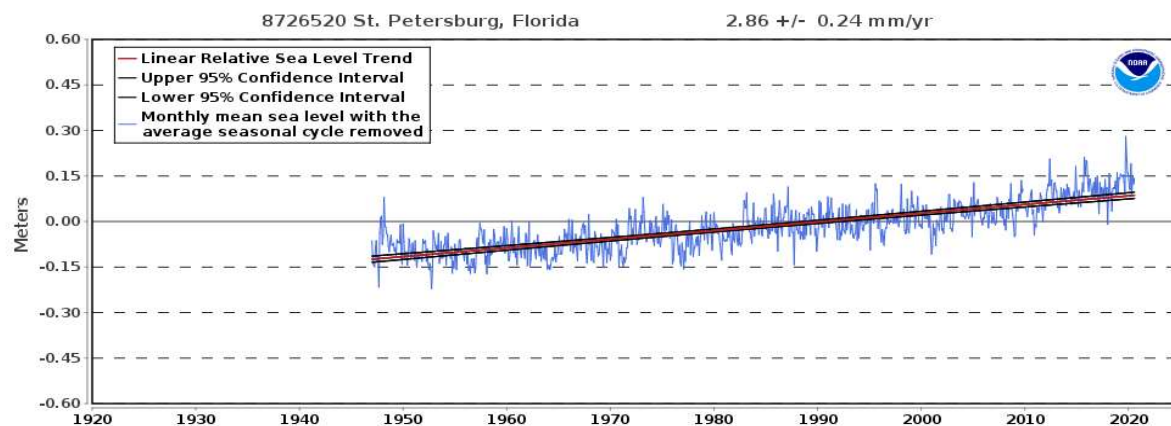
The best representative water level data for the City of Venice is the NOAA tidal gauge is located in St. Petersburg, FL at the U.S. Coast Guard Station municipal pier in the Port of St. Petersburg, south of the Albert Whitted Airport. This tidal gauge is a close approximation for the City of Venice's water level trends



due to the proximity to the City of Venice and duration of data collection. The St. Petersburg gauge (Station ID NO: 8726520) has measured monthly mean water levels since 1947. Stations with datasets longer than 40 years are preferred for calculating sea level trends, as seasonal variability and multi-decadal variability is reduced with a longer duration dataset.

Figure 2 shows the monthly mean water level in meters, referenced to the North American Vertical Datum of 1988 (NAVD88). The trendlines shown on the graphic for the St. Petersburg data illustrate the sea level rise trends of this water level data. The global sea level rise trend data originates from the Fourth National Climate Assessment. The difference between the global and local sea level rise is due to changes in Earth's gravitational field and rotation from melting of land ice in the Antarctic, land subsidence, and changing wind and ocean circulations. The local historic data shows a trend of approximately 1 ft of sea level rise over 100 years, while the Global SLR trend is approximately 3mm per year (0.98 ft per 100 years), a very tight correlation. Although the post-1992 local sea level trend is approximately 40% more than the global trend during the same time period, the IPCC and NCA4 projections are still the best available future sea level projections to use for the City of Venice.

Figure 2. Global and Local Sea Level Trends in Southwest Florida



For comparison of sea level scenarios, Taylor Engineering researched and reviewed thirty local and regional planning documents for cities such as Tampa, St. Petersburg, Sanibel, Captiva, Pelican Cove, Punta Gorda, and Lee and Sarasota counties. The sea level rise projections used by these communities for planning were similar to Taylor's recommendations. For example, the Tampa Bay Regional Planning Council's 2019 Climate Science Advisory Panel estimated 1 ft to 2.5 feet by 2050 and 2 to 8.5 feet by 2100.



The 2017 City of Sarasota Climate Adaptation Plan studied 1 ft, 2 ft, 4 ft, and 6 ft of sea level rise above current mean sea level and estimated 1 ft to 1.5 ft increase of sea level by 2050. The 2019 Punta Gorda Climate Adaptation Plan Update analyzed 1.5 ft and 3 ft of sea level rise in their vulnerability analysis. Cape Coral's 2017 Climate Change Resiliency Strategy, co-authored with the SW FL Regional Planning Council used the IPCC scenarios, but did not plan to a specific sea level rise elevation.

Several of these planning documents included the contribution of coastal storms to future flood conditions, one example being three tropical storm surge types: 25 year (4% annual chance) flood, 100 year (1% annual chance) flood, and 500 year (0.2% annual chance). In this particular study, the 100-year (1%) compared with the 500-year (0.2%) storm models yielded results too similar to justify inclusion in this study. The 50-year and 100-year models are sufficient to identify any areas of concern with the City of Venice.

Datasets Needed and Used: In collaboration with City staff, 278 publicly owned critical facilities, 21 historic buildings, and 4 historic districts were identified for assessment of vulnerabilities. In order to conduct a 'best practices' vulnerability assessment of critical facilities, historic structures, and historic districts, the following data should be included: a) building location, b) first floor elevations (FFE), c) lowest adjacent grade elevations (LAG). To evaluate estimated vulnerability, the projected elevation of various coastal flood scenarios is compared to the building's FFE to assess the risk exposure, sensitivity, and adaptive capacity of these assets. However, based on detailed review of the County Property Appraiser's and City-provided data, much of this information for publicly owned buildings was not available. The FFE and LAG was provided for twenty-seven publicly-owned critical facilities. The data from the elevation certificates provided by the City will be summarized as part of the final resilience plan. The 2007 SWFWMD topographic LiDAR and supplemental 2017 NOAA LiDAR data were used to derive and assess the LAG for all other critical infrastructure.

- 2007 SWFWMD topographic LiDAR (3.8 ft horizontal & 0.6 ft vertical accuracy)
- 2017 NOAA topographic/bathymetric LiDAR (1.0 m horizontal & 0.3 m vertical accuracy)
- ArcMap World Imagery basemap
- Google Earth Pro satellite imagery
- City elevation certificates
- City floodproofing certificates



- City CAT flood location questionnaires
- City stormwater system locations
- National Register of Historic Places
- State Historic Preservation Office master site file of historic structures
- City of Venice GIS historic and downtown district shapefiles
- NOAA tide gauge, St. Petersburg, water level observations, 1947-2020
- FEMA stillwater elevations from proposed Flood Insurance Rate Map Study

Categories: The properties analyzed for this study were sorted into three categories: critical public facilities, historic properties, and historic districts. Privately owned buildings were not included for the purpose of this assessment. The historic districts were evaluated based on percentage of inundation within the district limits.

Inundation Scenarios: With approval from City staff, Taylor Engineering used nine scenarios in the exposure analysis. These scenarios consisted of three sea level (rise) scenarios and three storm surge flooding types. These scenario combinations are listed in **Table 1** below.

Table 1. Flood Inundation Scenarios

Sea Level Rise Scenario	Storm Surge Flood Scenario
2020 water level (MHHW)	No storm surge
2020 water level (MHHW)	2% annual chance flood (50 yr)
2020 water level (MHHW)	1% annual chance flood (100 yr)
1.5 ft sea level rise	No storm surge
1.5 ft sea level rise	2% annual chance flood (50 yr)
1.5 ft sea level rise	1% annual chance flood (100 yr)
3 ft sea level rise	No storm surge
3 ft sea level rise	2% annual chance flood (50 yr)
3 ft sea level rise	1% annual chance flood (100 yr)

The three sea level rise states were Mean Higher High Water (MHHW) to simulate a low inundation, 1.5 ft for medium inundation, and 3 ft for high inundation. The three tropical storm surge types analyzed were the no storm surge (MHHW scenario), 50 year (2% annual chance) flood and 100 year (1% annual



chance) flood. The MHHW scenario, defined as “the average of the higher high water heights of each tidal day observed over the National Tidal Datum Epoch” (NOAA). This is representative of today’s nuisance, chronic, or sunny day flooding, also called ‘king tides.’ The occurrence of nuisance flooding will continue to increase with the rate of sea level rise and can be further influenced by the tides and onshore winds.

Inundation Modeling: The GIS-based vulnerability analysis compares the elevation of various inundation scenarios using both a simple bathtub model and a modified bathtub model. A bathtub model simply identifies all areas under a target elevation as potentially flooded, regardless of hydrologic connectivity. The bathtub model was used for the 50 year (2% annual chance) flood plus 1.5 ft of sea level rise shown for comparison on one graphic. The modified bathtub model, used for all other scenarios, applies a hydrologic connectivity filter to remove isolated inundated areas not connected to a major waterway. The City’s stormwater infrastructure GIS layer was used to inform these hydrologic connections in the model.

Several flood inundation scenarios were evaluated using FEMA Stillwater Elevation (SWEL) data, created as part of a Flood Insurance Rate Map study. The SWEL represents the storm surge (not including waves or wave runup) calculated using an ADCIRC computer model analysis which runs hundreds of historic storms over a given topography and bathymetry. For this analysis, the 50 year (2% annual chance) flood and the 100 year (1% annual chance) flood inundation scenarios were chosen and analyzed with and without sea level rise.

Results: Graphics illustrating the distribution of inundation in the nine flood scenarios are included in Appendix A. The low inundation scenario of MHHW shows no flooding of any of the three categories (facilities, historic buildings, historic districts). The medium inundation scenario of 1.5 ft sea level rise indicates no flooding of facilities or properties, with only 2% flooding of Eagle Point Historic District. The high inundation scenario of 3 ft sea level rise indicates 4 critical facilities and 7% flooding of the Eagle Point Historic District. When the 50-year (2% annual chance) storm surge scenario is added to the sea level rise scenarios, we begin to see drastic increase. The MHHW with 50-year scenario indicates flooding of 29 critical structures, zero historical buildings and 72% flooding of Eagle Point Historic District. The 1.5 ft SLR with 50-year scenario indicates inundation of 41 critical structures, 2 historic buildings, and 99% flooding of Eagle point Historic District. 3.0 ft SLR with 50-year flood scenario shows 60 critical facilities and 4 historic properties affected, and 100% flooding of Eagle Point Historic District. As anticipated, the



100-year (1% annual chance) inundation scenario is the most critical. The MHHW with the 100-year 41 critical facilities, 2 historic properties and 96% flooding of Eagle Point Historic District. The 1.5 ft SLR with 100-year scenario includes 58 critical facilities, 4 historic properties, and 94% flooding of Eagle Point Historic District. As anticipated, the worst-case scenario is that of 3.0 ft SLR combined with the 100-year inundation. This model shows flooding for 87 out of the 258 critical facilities and 5 out of the 21 historic buildings. All four historic districts are affected; 100% flooding of Eagle Point Historic District, 23% of John Nolen Plan of the City of Venice, 9% of Edgewood Historic District and 1% of the Downtown Venice Architectural Control District (ACD).

Upon completion of the vulnerability analysis, Taylor Engineering and City staff have been working to refine and prioritize identified vulnerable infrastructure from the inventoried list of assets (as identified in Task 1). A preliminary review of the inundation by geographic region was performed to potentially group vulnerable infrastructure together based on defined characteristics. Such sensitivity analysis is still ongoing though preliminary vulnerable focus areas have been identified in order to develop more comprehensive adaptation strategies. Focus areas were evaluated and derived by using the following criteria:

1. Geographic areas with the greatest density/highest concentration of identified critical facilities and historic infrastructure,
2. Geographic areas that have a variety in the types of infrastructure, and
3. Geographic areas that have vulnerable critical facilities and historic infrastructure in close proximity to one another, and
4. Geographic areas with similar elevations and surrounding conditions.

As a result, up to five (5) focus areas have been preliminarily identified, as shown in **Figures 3 and 4**, known as: Tarpon Center Drive, Curry Creek, Hatchet Creek, Villas Drive, and the Airport region. Additional analysis is needed to refine these focus areas and their boundaries are subject to change based on the City's review.



Figure 3. Assigned Focus Areas, Part A

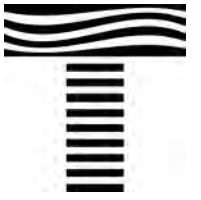


Figure 4. Assigned Focus Areas, Part B

Figures 1 through 18 also illustrate these results in graphical plan view as shown in Appendix A.



APPENDIX A – INUNDATION MAPS



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MEAN HIGHER HIGH WATER
CRITICAL PUBLIC INFRASTRUCTURE
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WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

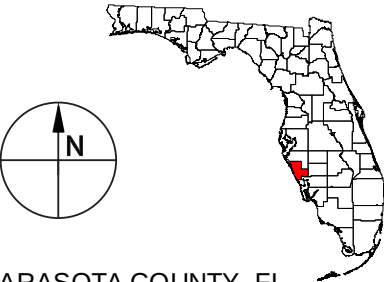
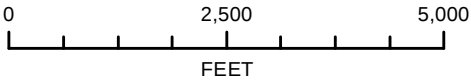
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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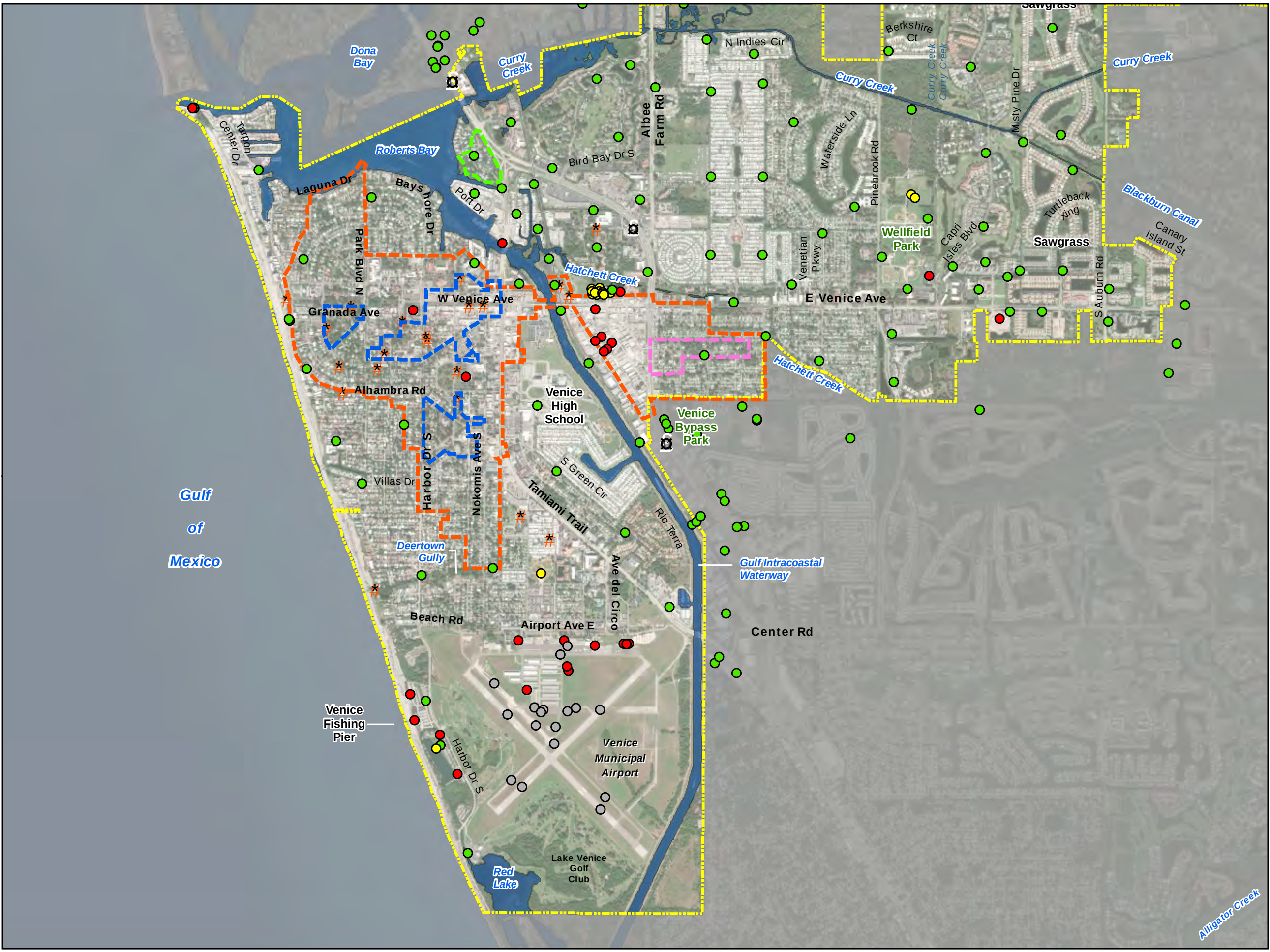
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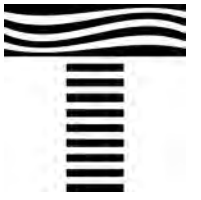
Mean Higher High Water



SARASOTA COUNTY, FL

Disclaimer: This figure is not intended to show the exact location of flooding and does not account for all variables affecting future flooding such as ground water impacts, changing precipitation patterns, future construction, or erosion. As such, actual future flooding may differ from this graphic. This graphic should be used strictly as a planning reference tool and not for navigation, permitting, insurance rating, or other legal or regulatory purposes.





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1.5' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

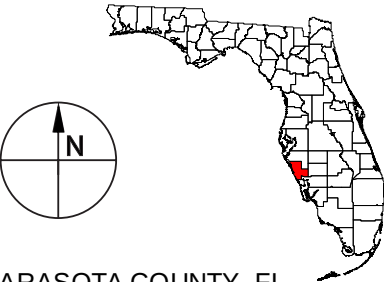
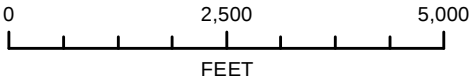
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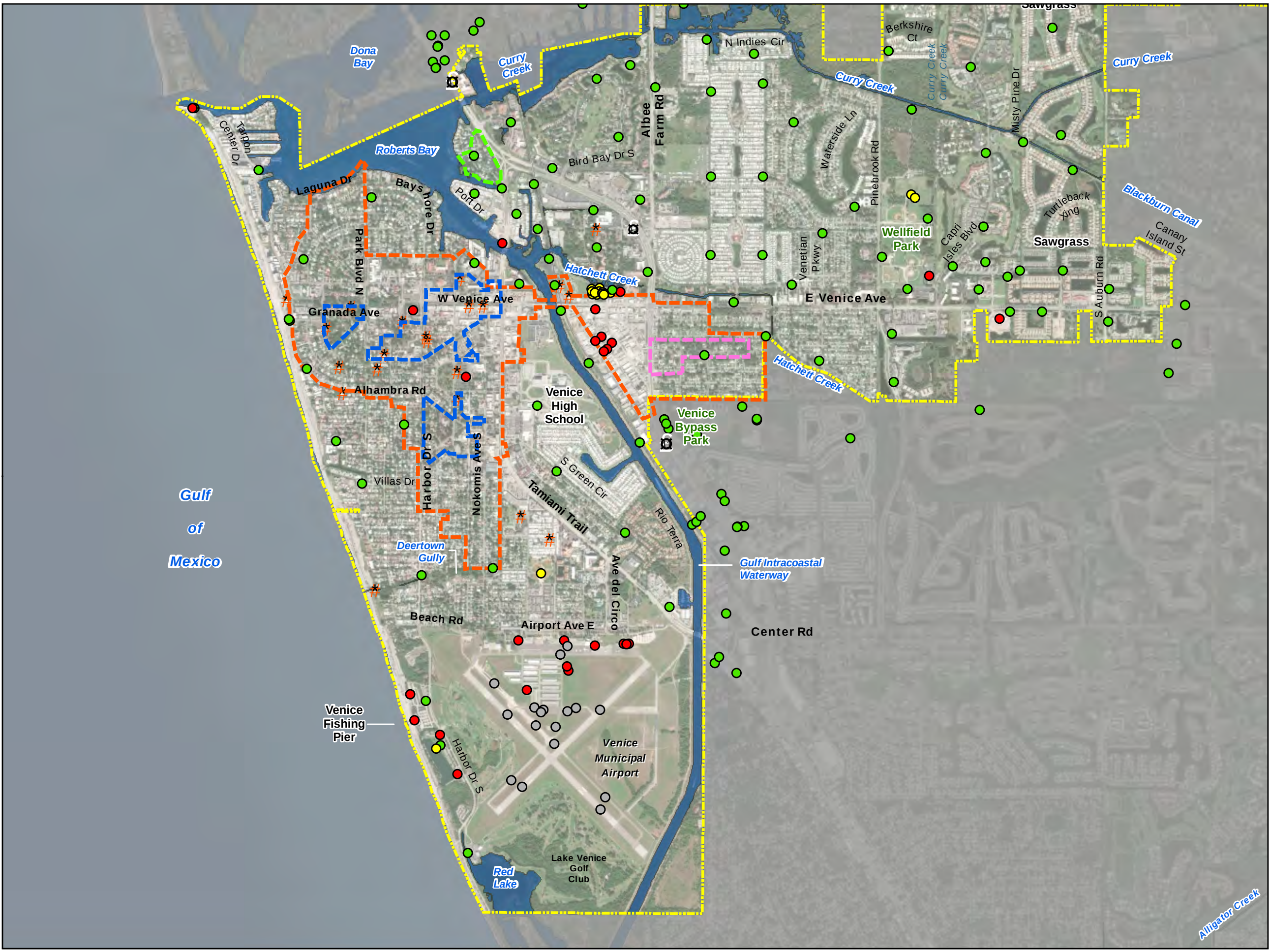
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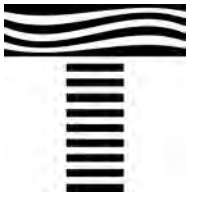
1.5' of Sea Level Rise



SARASOTA COUNTY, FL

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3' OF SEA LEVEL RISE
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Legend

Venice City Limits

Critical Infrastructure

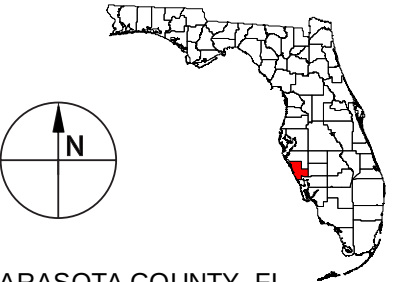
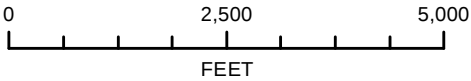
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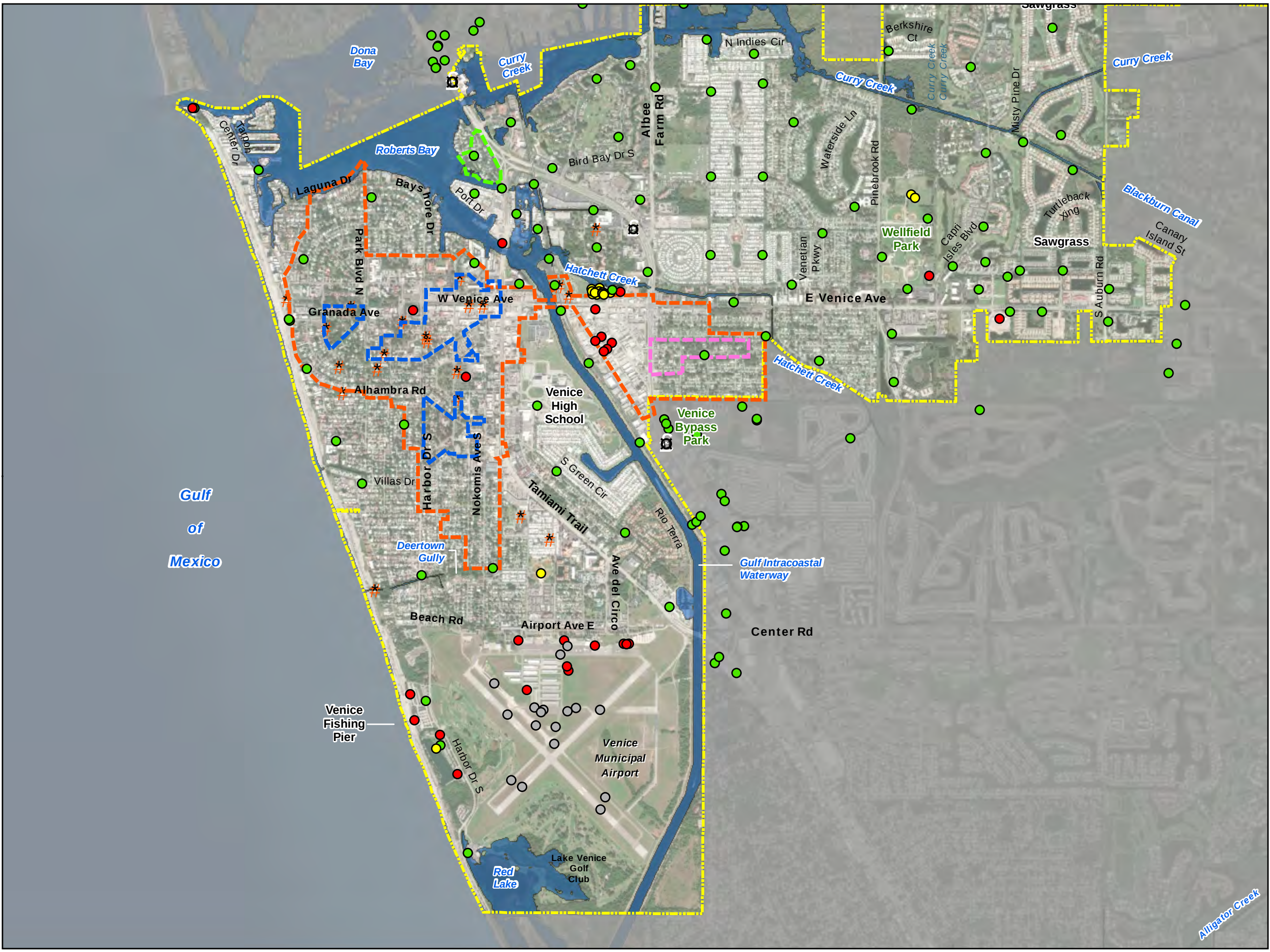
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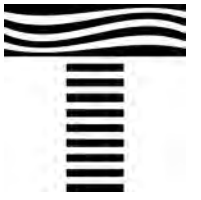
3' of Sea Level Rise



SARASOTA COUNTY, FL

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2% ANNUAL CHANCE SWEL
CRITICAL PUBLIC INFRASTRUCTURE
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Legend

Venice City Limits

Critical Infrastructure

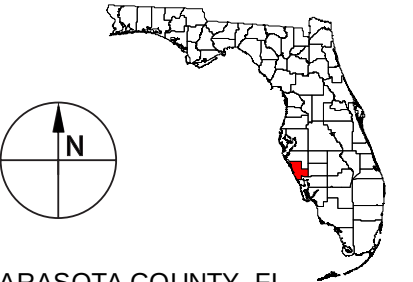
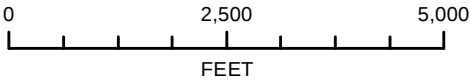
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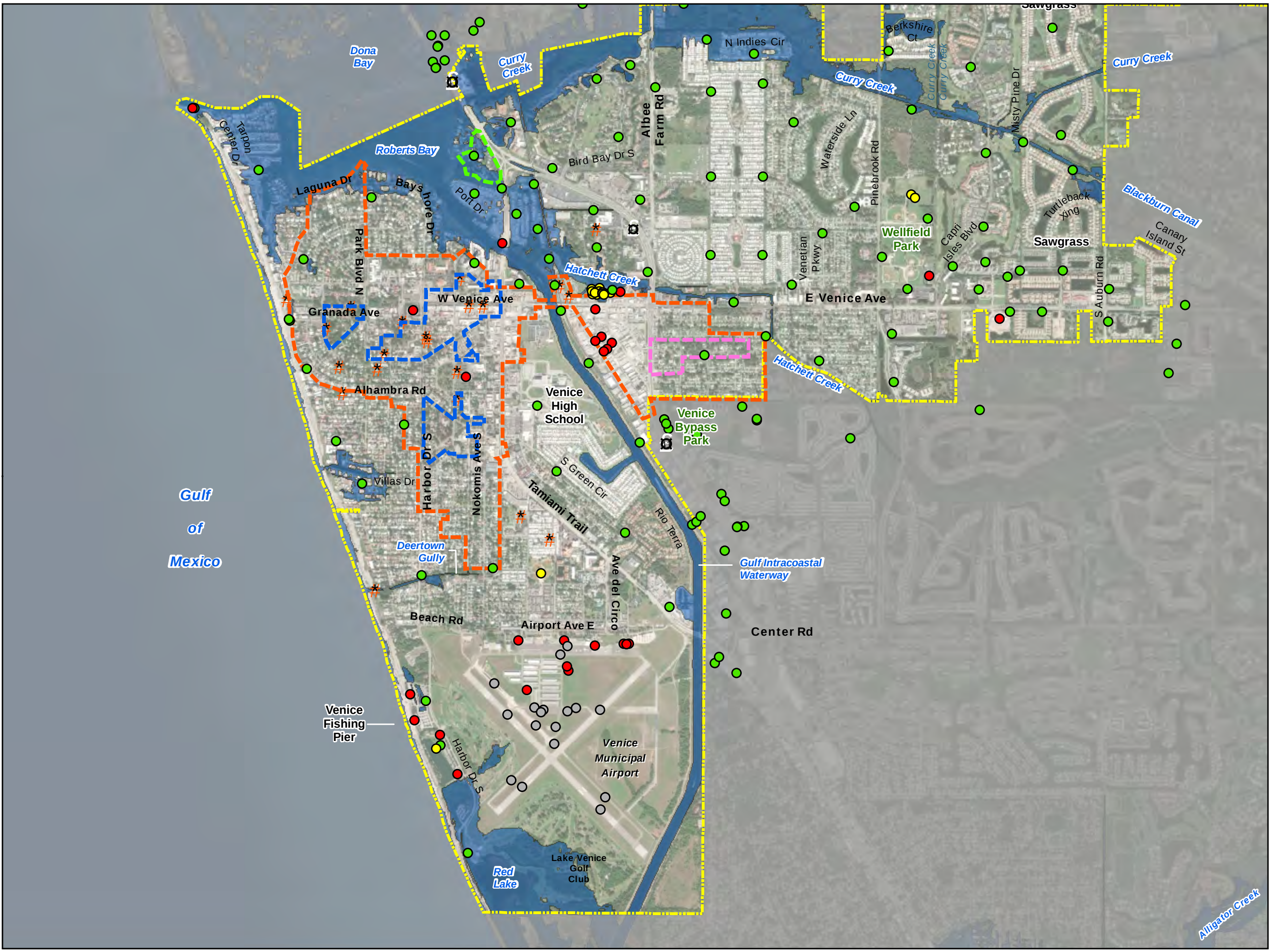
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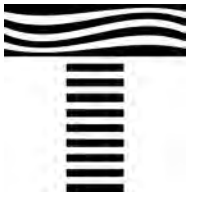
2% Annual Chance SWEL



SARASOTA COUNTY, FL

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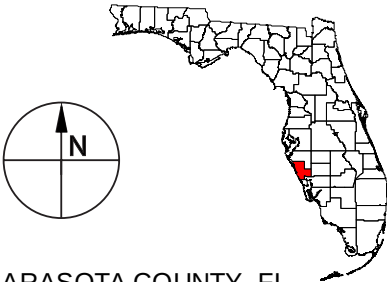
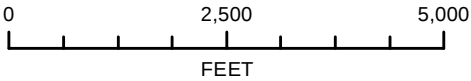
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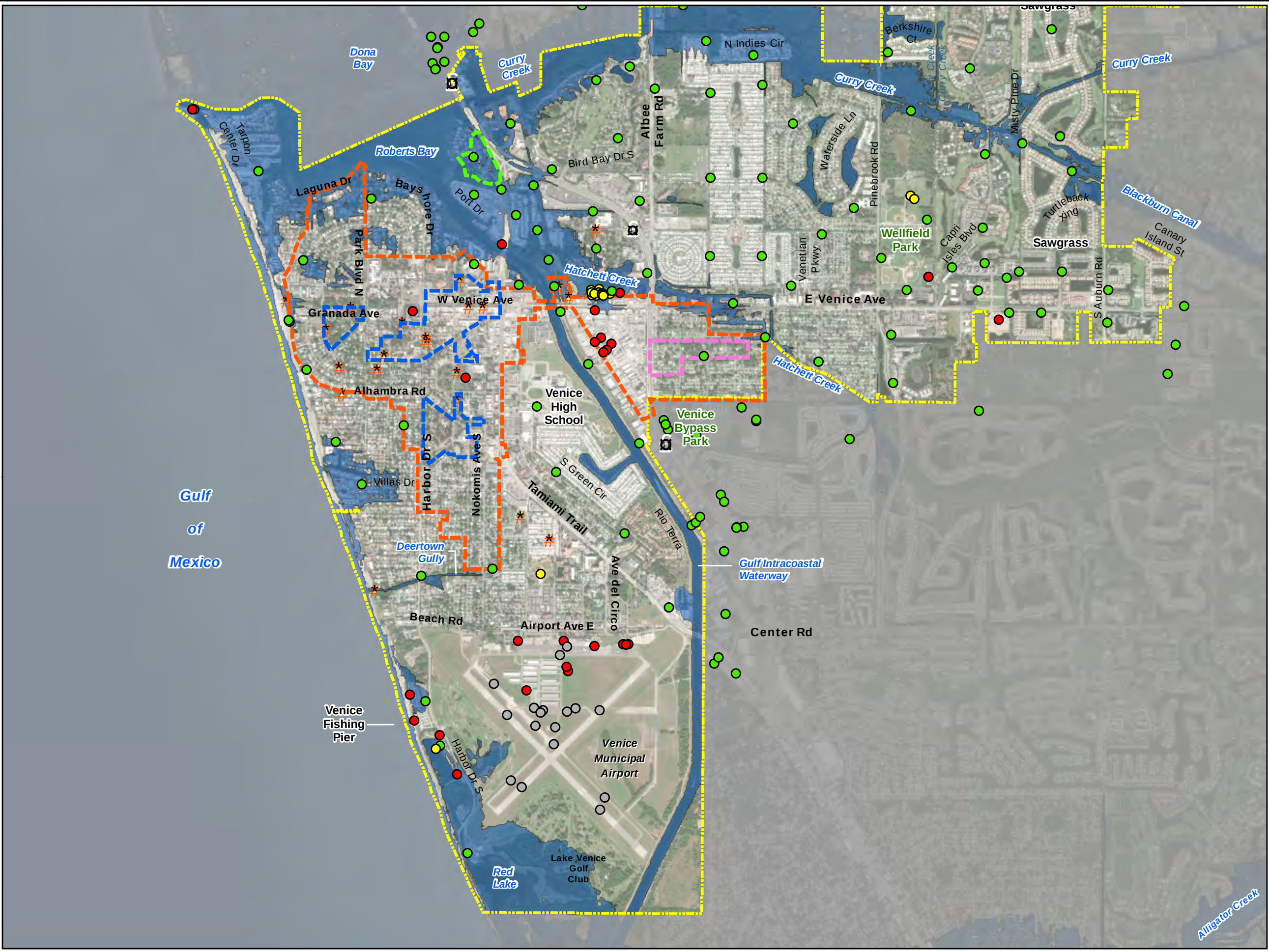
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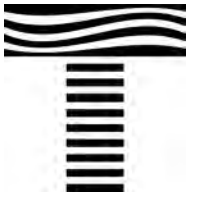
2% Annual Chance SWEL
plus 1.5' SLR



SARASOTA COUNTY, FL

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Venice City Limits

Critical Infrastructure

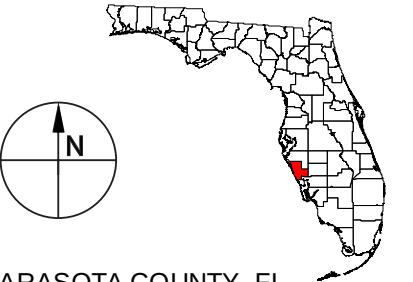
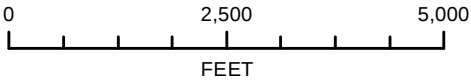
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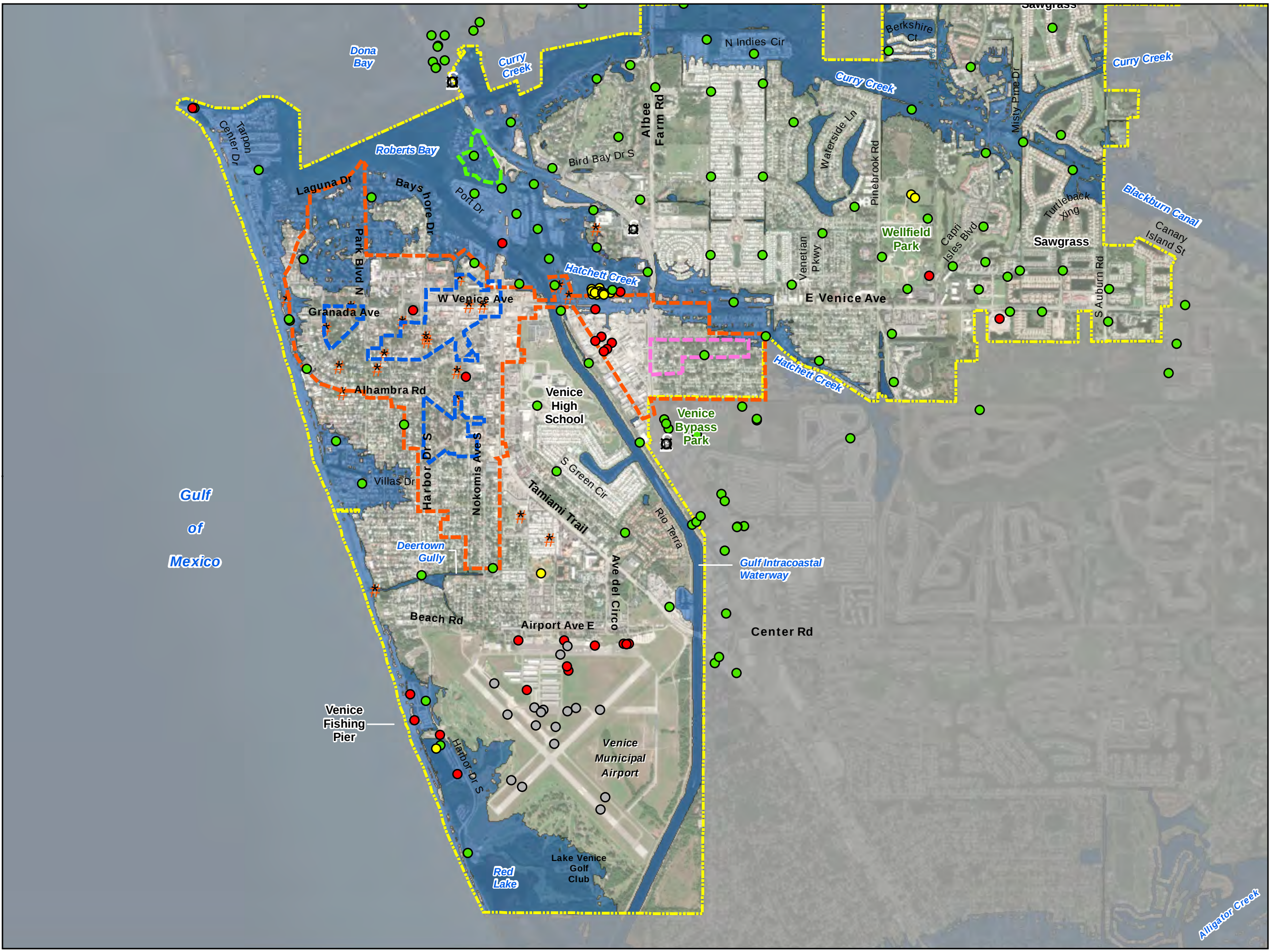
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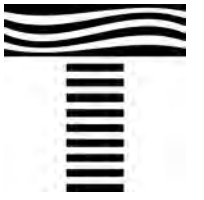
2% Annual Chance SWEL
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Critical Infrastructure

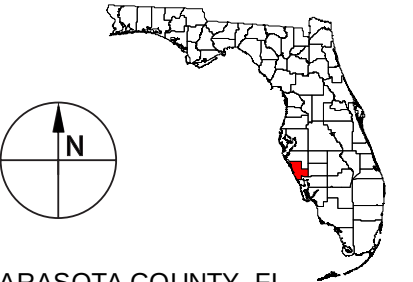
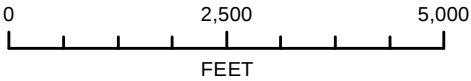
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

- Downtown Venice
- Eagle Point Historic District
- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

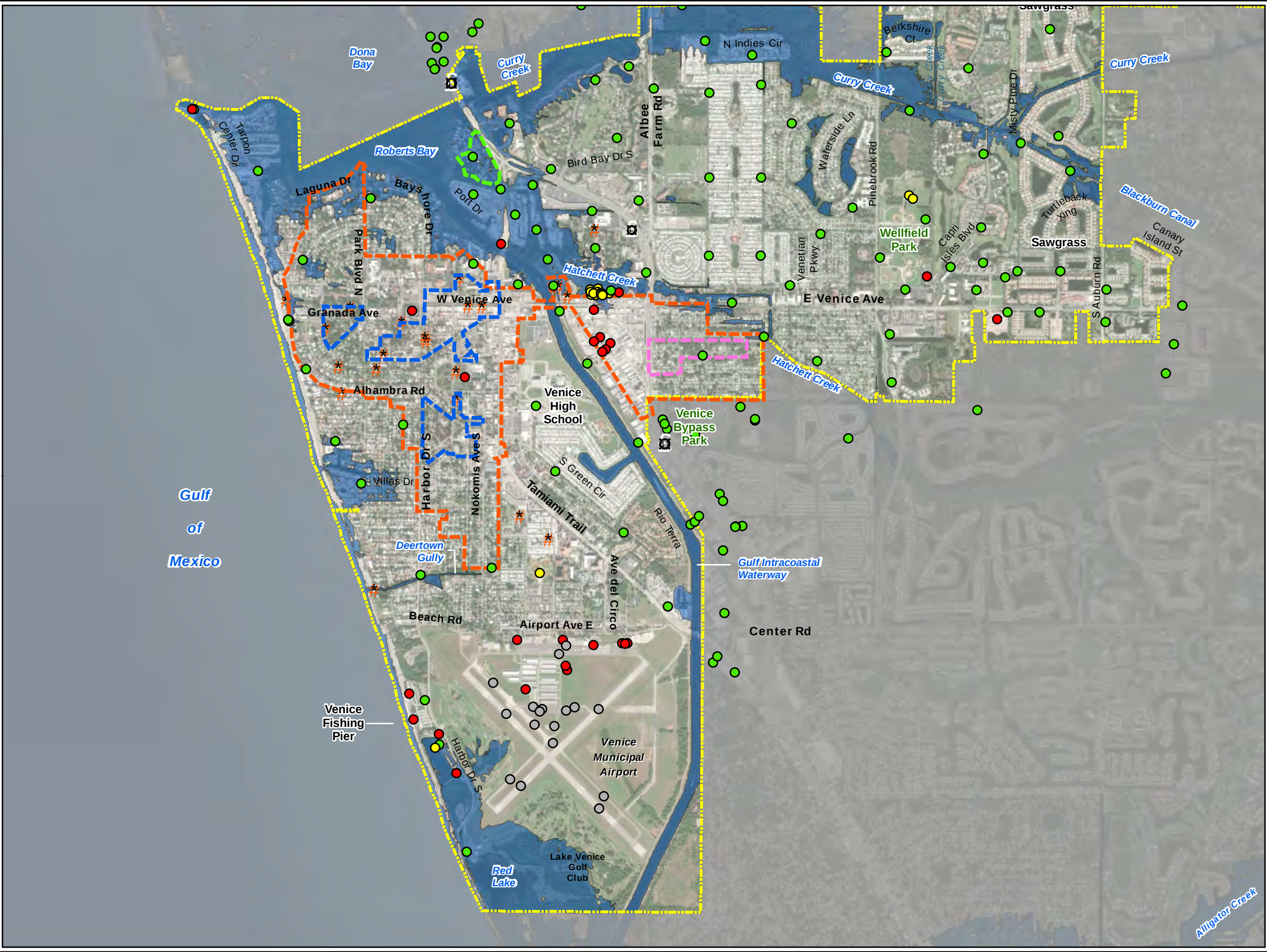
Return Period

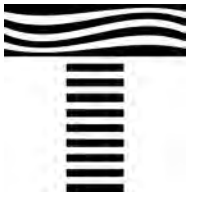
1% Annual Chance SWEL



SARASOTA COUNTY, FL

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Sarasota, FL 34236

CERTIFICATE OF AUTHORIZATION # 4815

1% ANNUAL CHANCE SWEL
PLUS 1.5' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

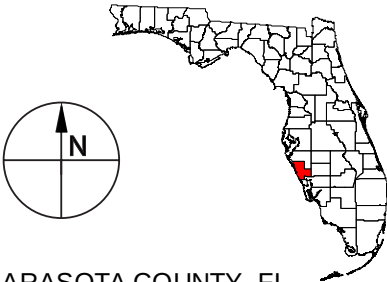
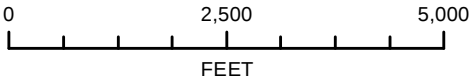
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

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- Edgewood Historic District
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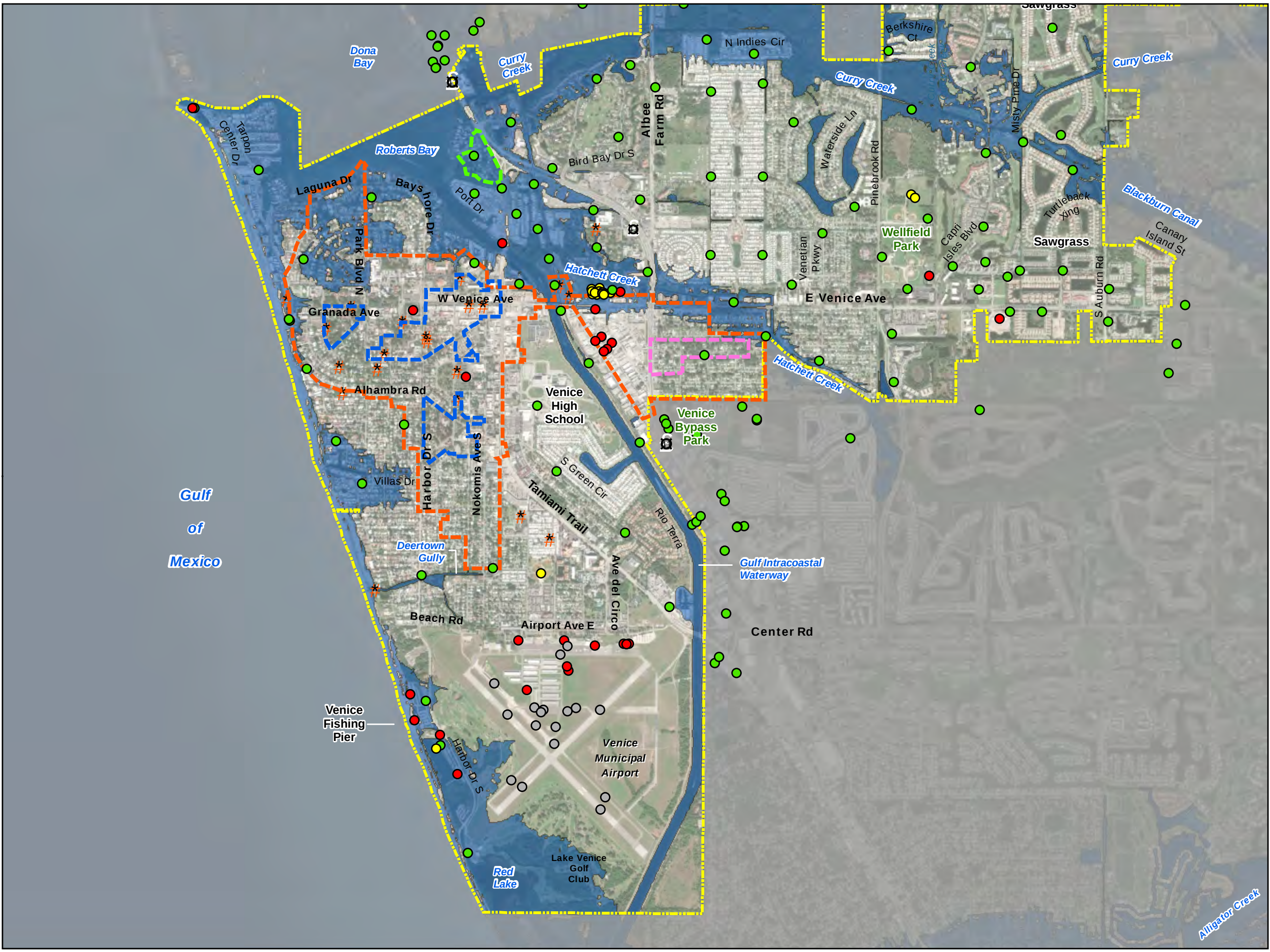
Return Period

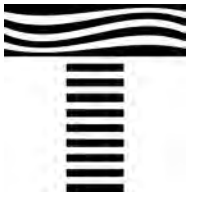
- 1% Annual Chance SWEL plus 1.5' SLR



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

1% ANNUAL CHANCE SWEL
PLUS 3' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

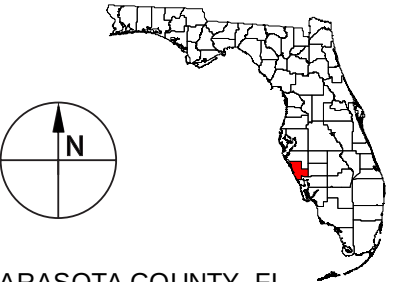
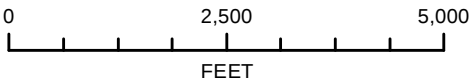
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

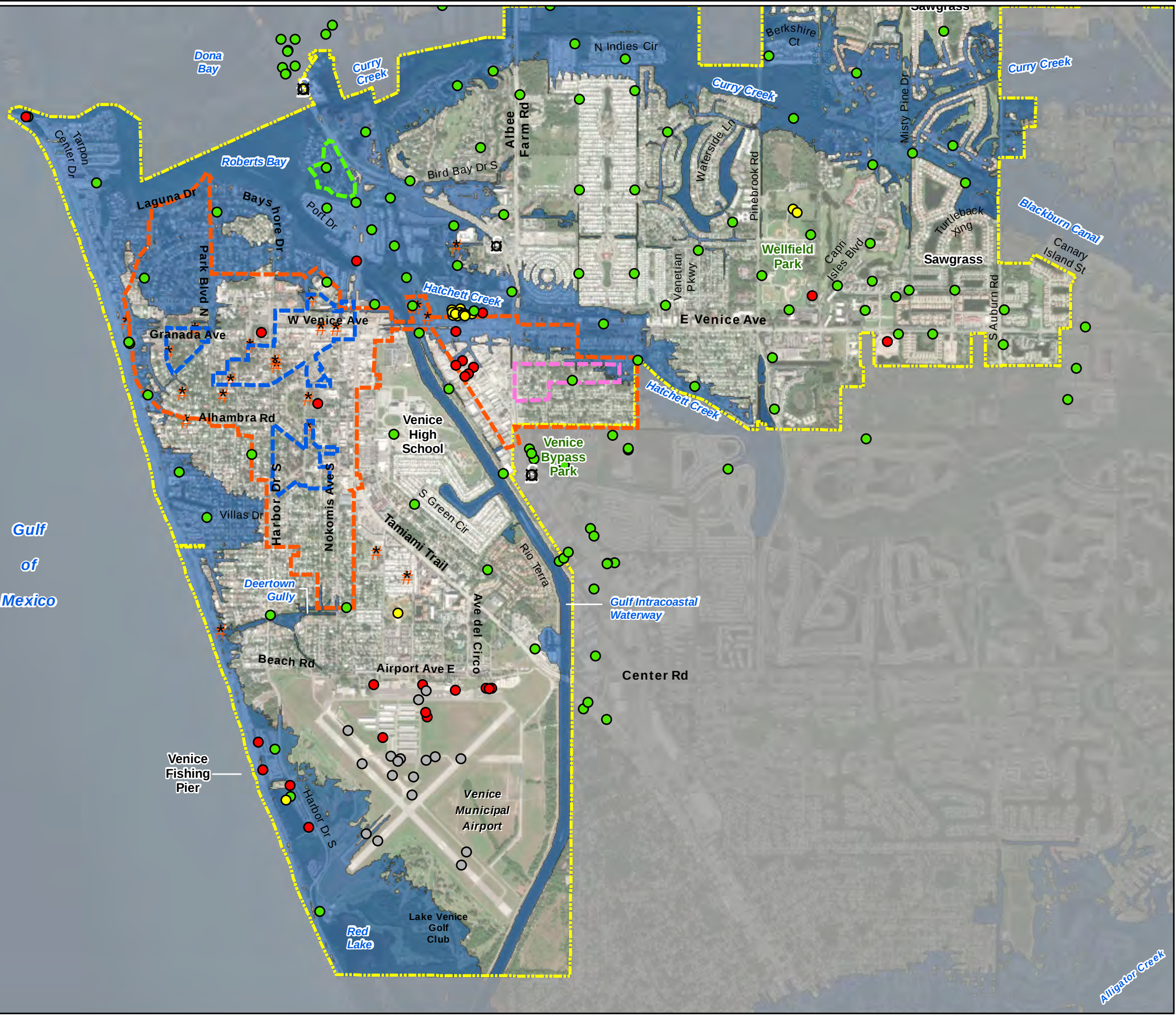
Return Period

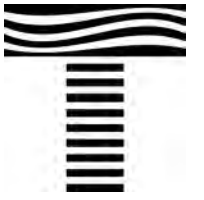
- 1% Annual Chance SWEL plus 3' SLR



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

MEAN HIGHER HIGH WATER
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

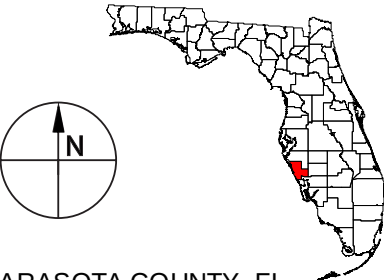
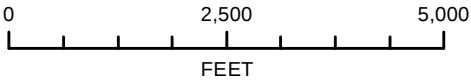
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Eagle Point Historic District
- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

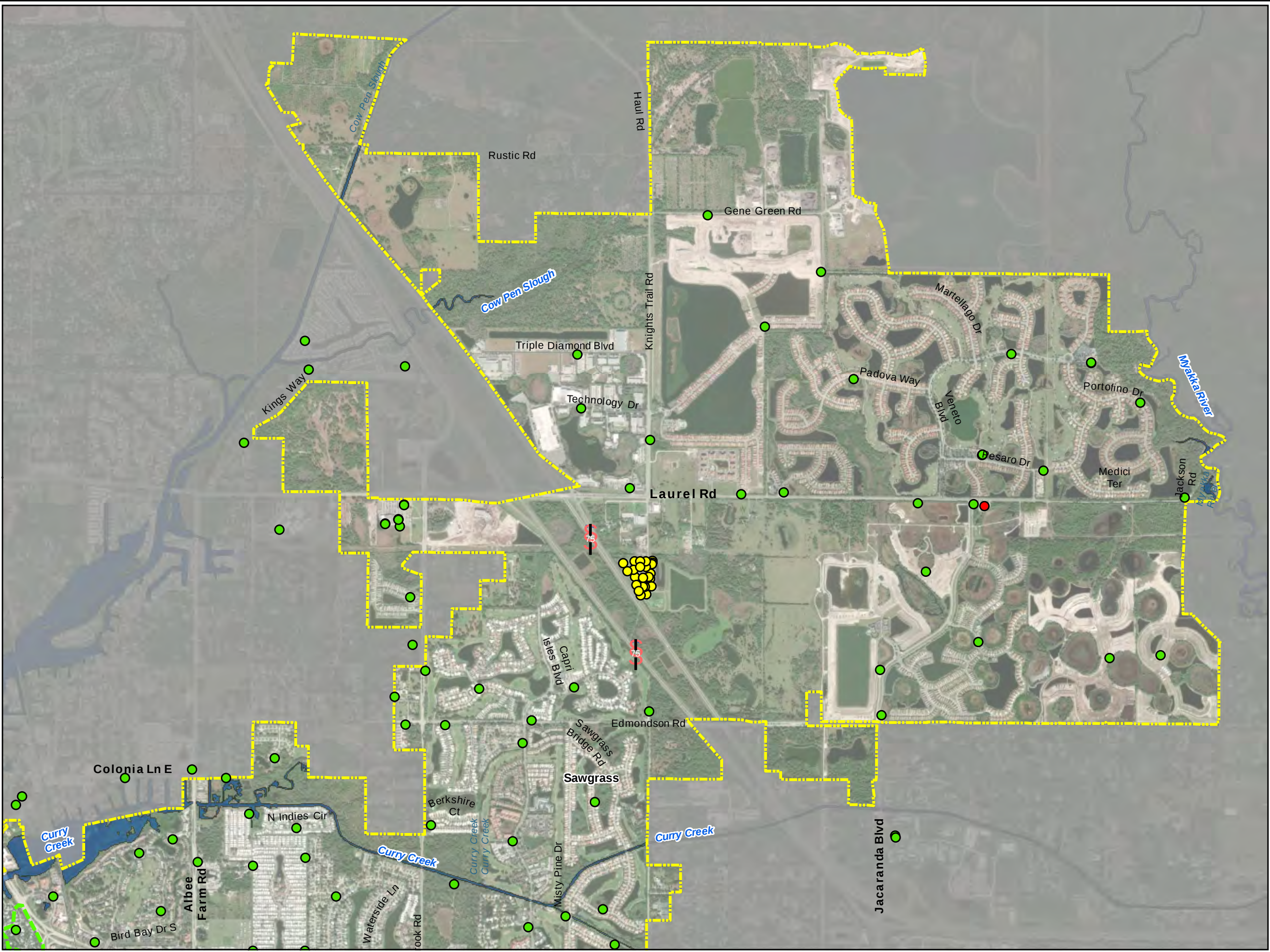
Return Period

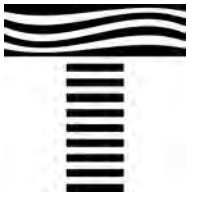
Mean Higher High Water



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

1.5' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

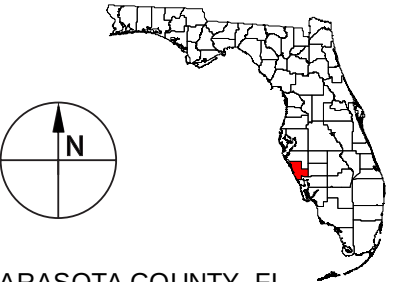
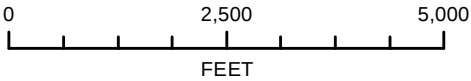
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Eagle Point Historic District
- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

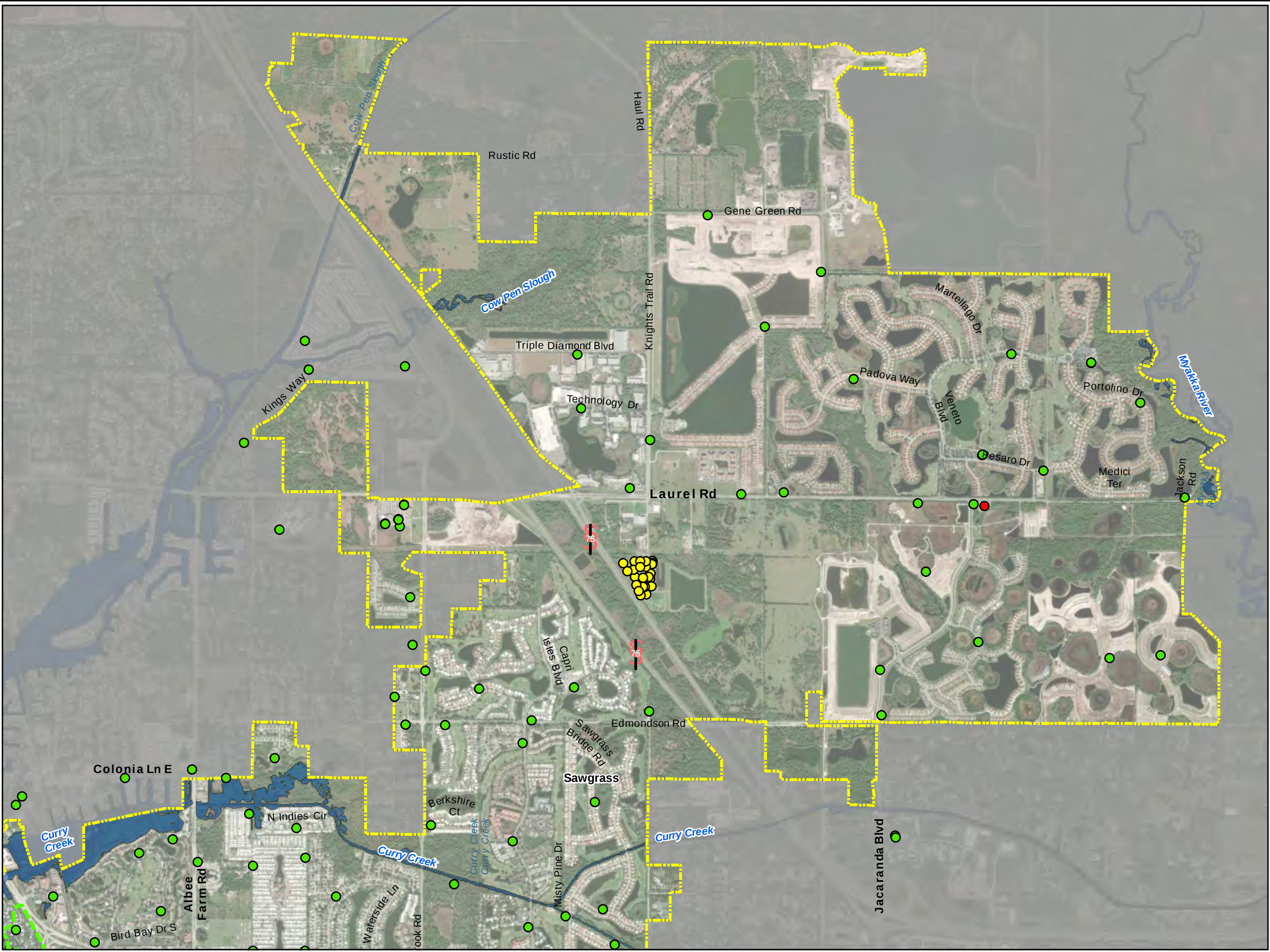
Return Period

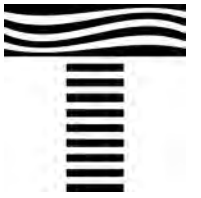
1.5' of Sea Level Rise



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

3' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

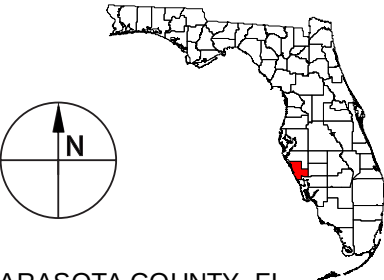
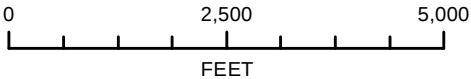
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Eagle Point Historic District
- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

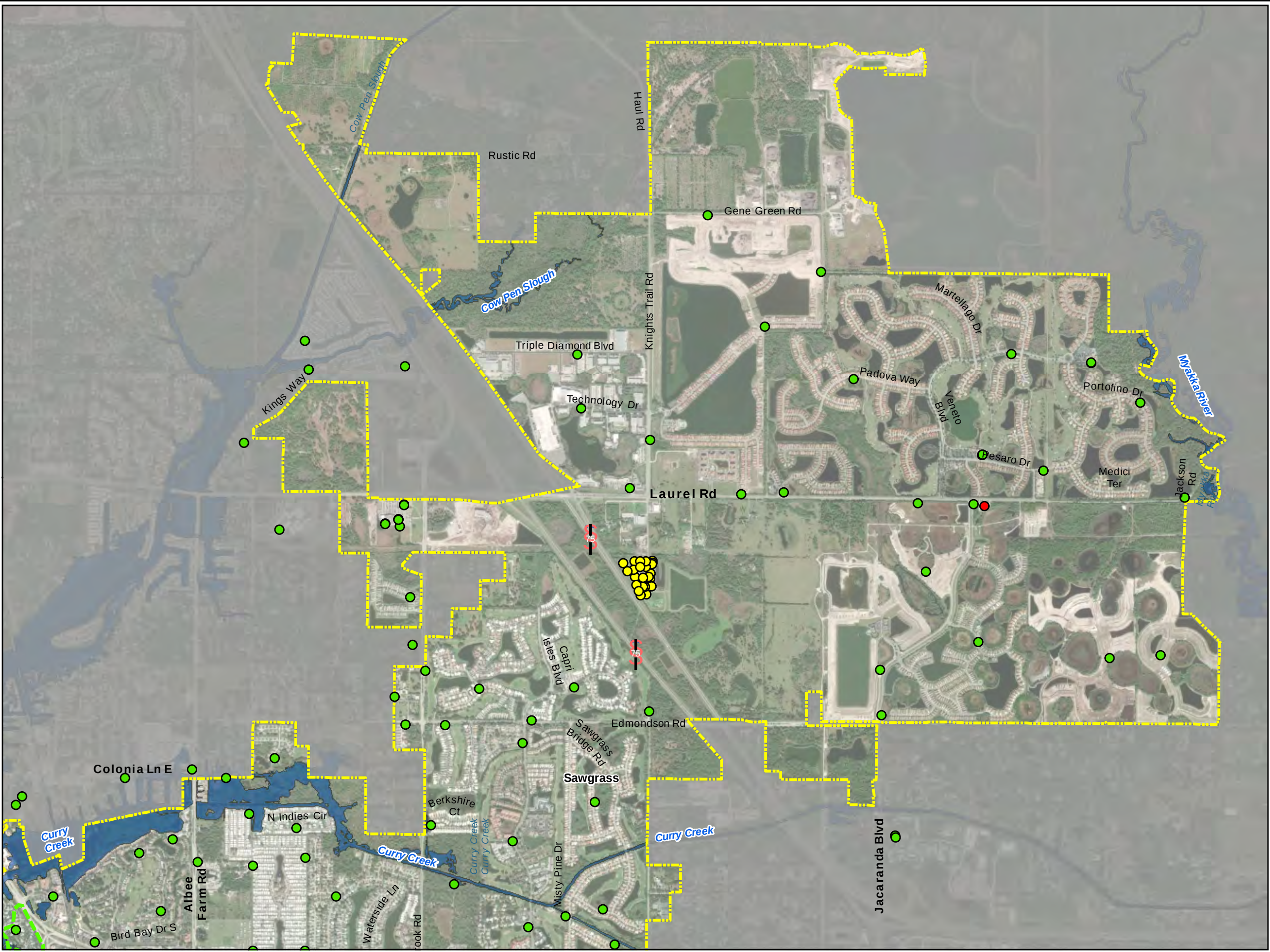
Return Period

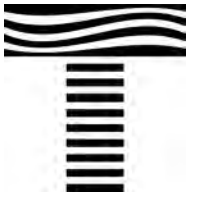
3' of Sea Level Rise



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

2% ANNUAL CHANCE SWEL
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

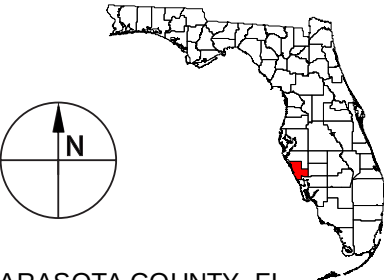
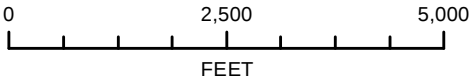
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Historic Buildings

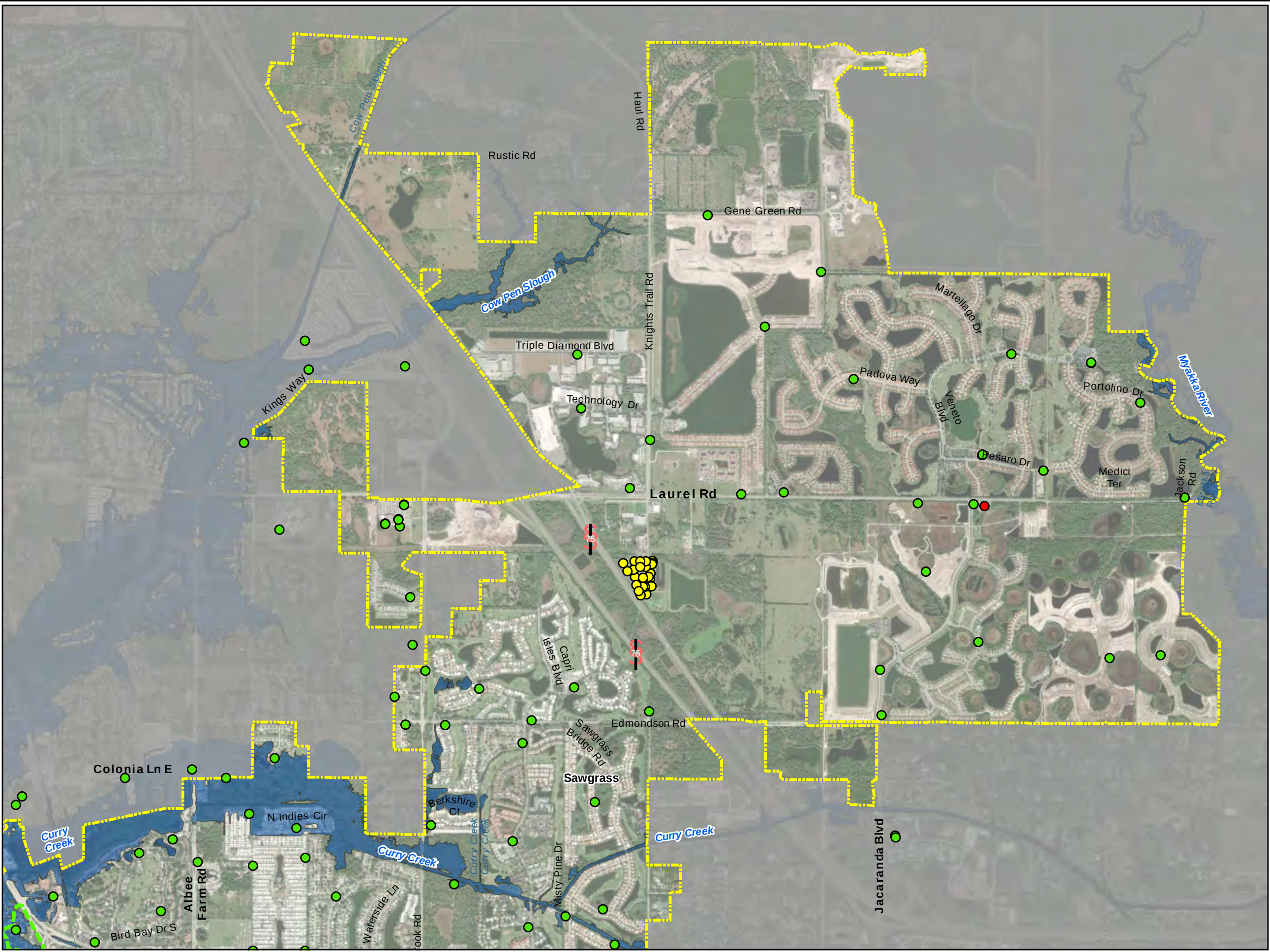
Return Period

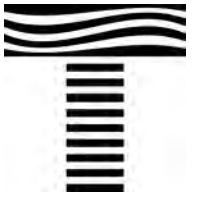
2% Annual Chance SWEL



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

2% ANNUAL CHANCE SWEL
PLUS 1.5' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

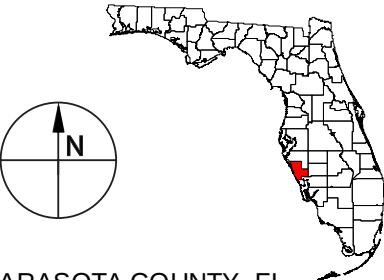
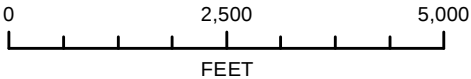
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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- Edgewood Historic District
- John Nolen Plan of the City of Venice
- Historic Buildings

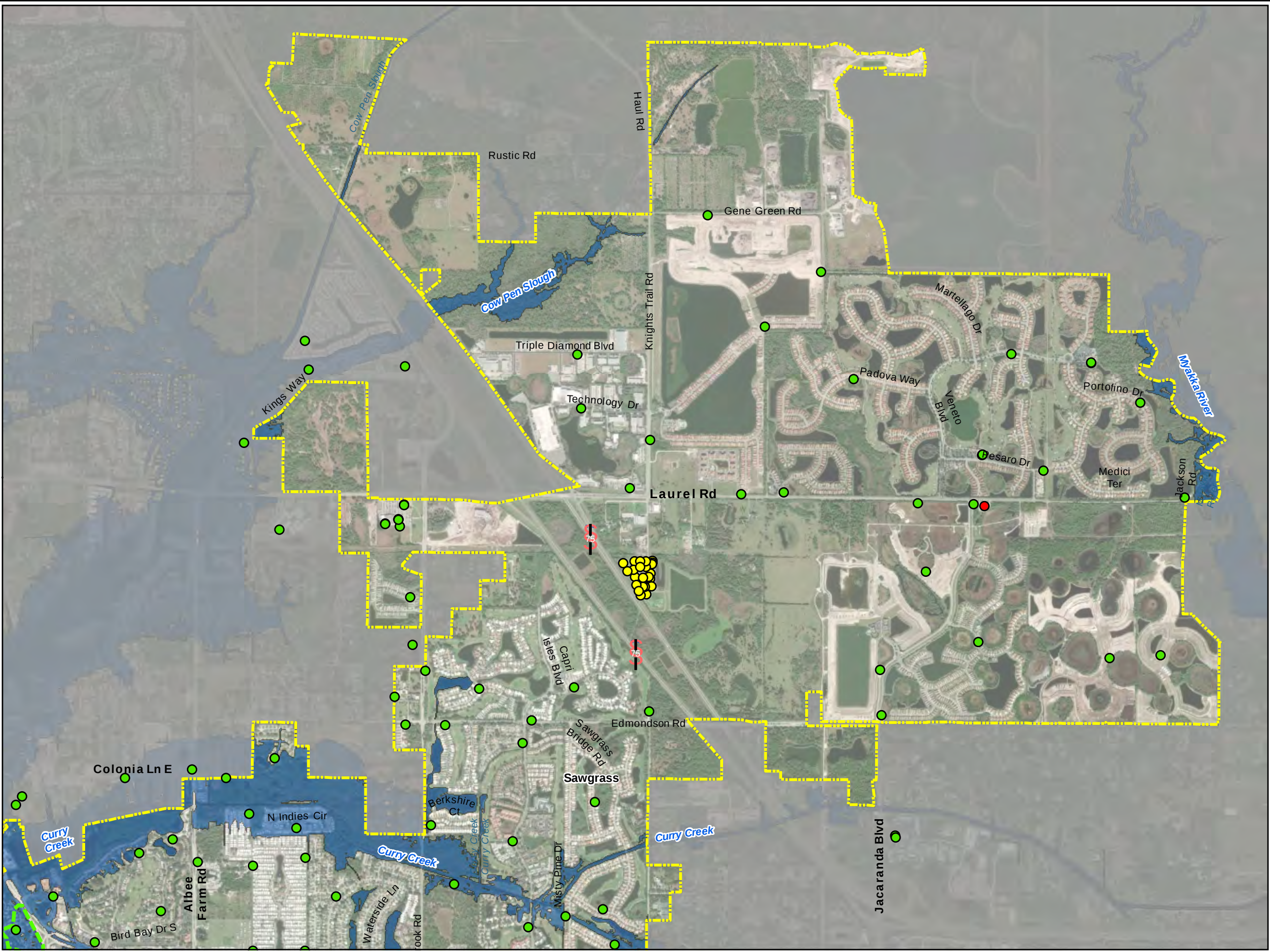
Return Period

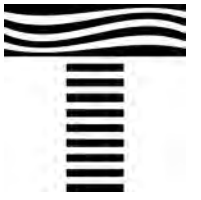
2% Annual Chance SWEL
plus 1.5' SLR



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

2% ANNUAL CHANCE SWEL
PLUS 3' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

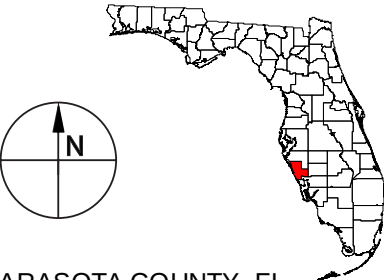
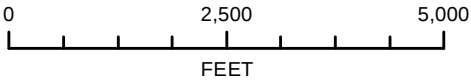
- Building
- Utilities Buildings
- Utilities Infrastructure
- Runway/Parking

Historic Areas/Buildings

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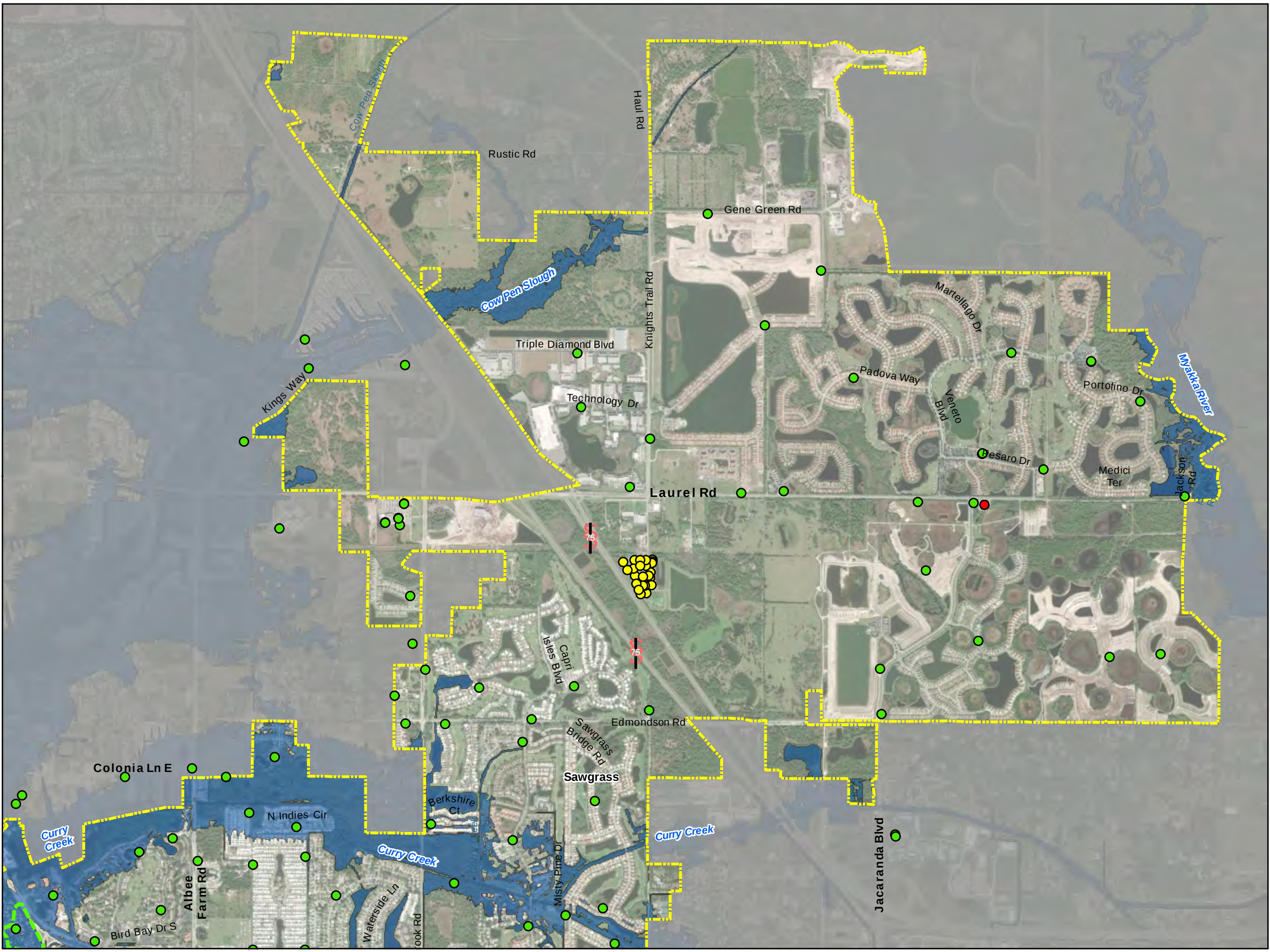
Return Period

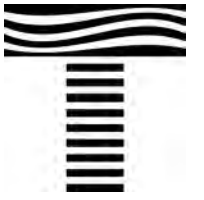
- 2% Annual Chance SWEL plus 3' SLR



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

1% ANNUAL CHANCE SWEL
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

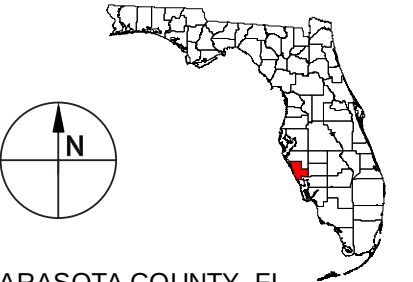
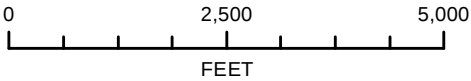
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- Utilities Infrastructure
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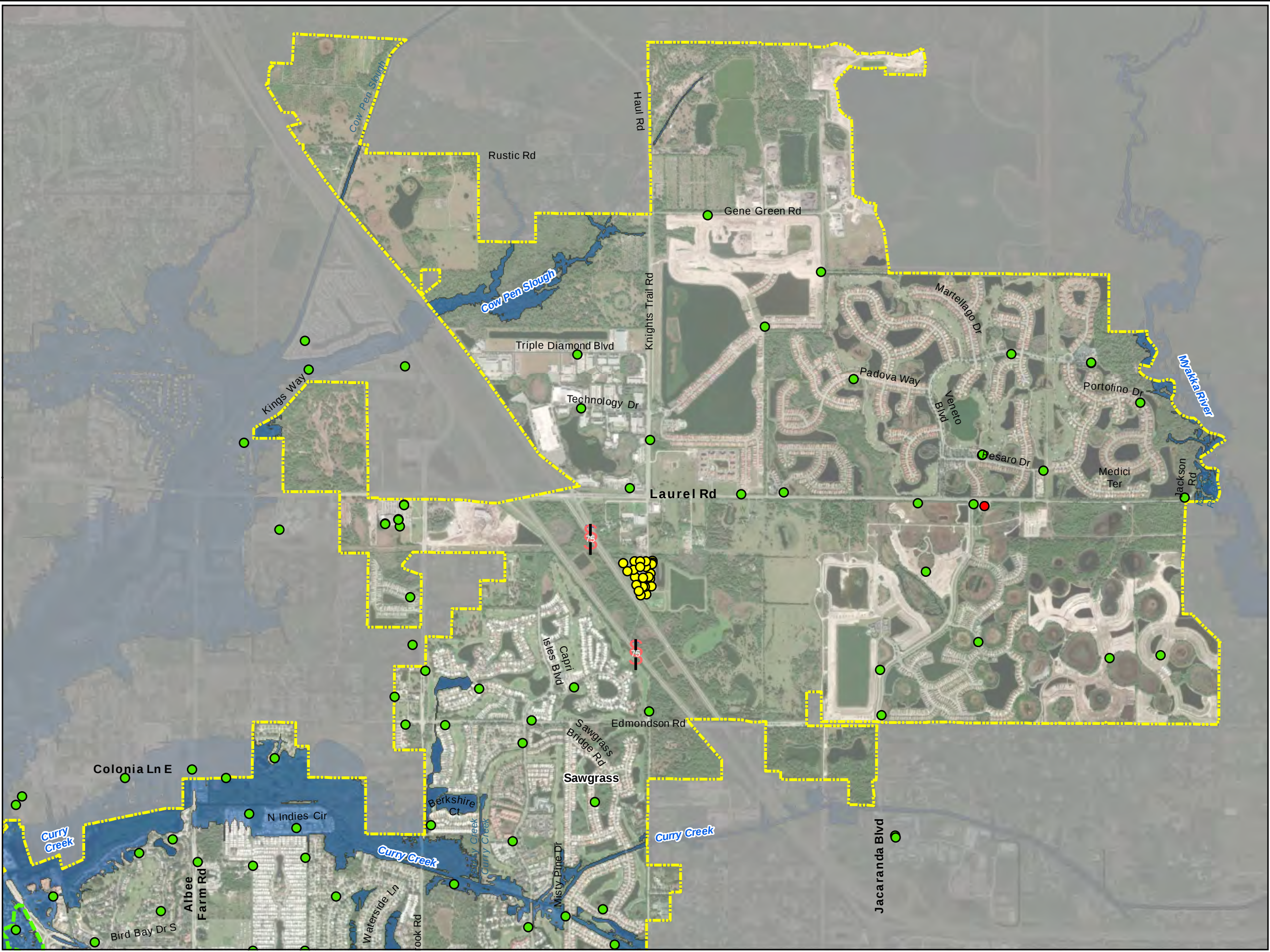
Return Period

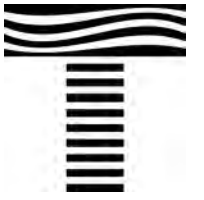
1% Annual Chance SWEL



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

1% ANNUAL CHANCE SWEL
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CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

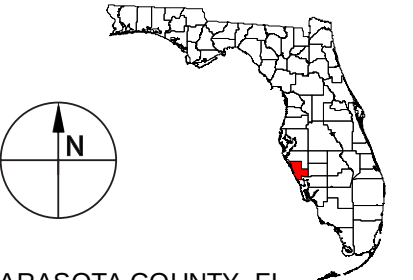
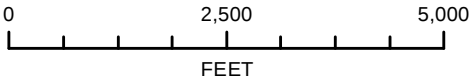
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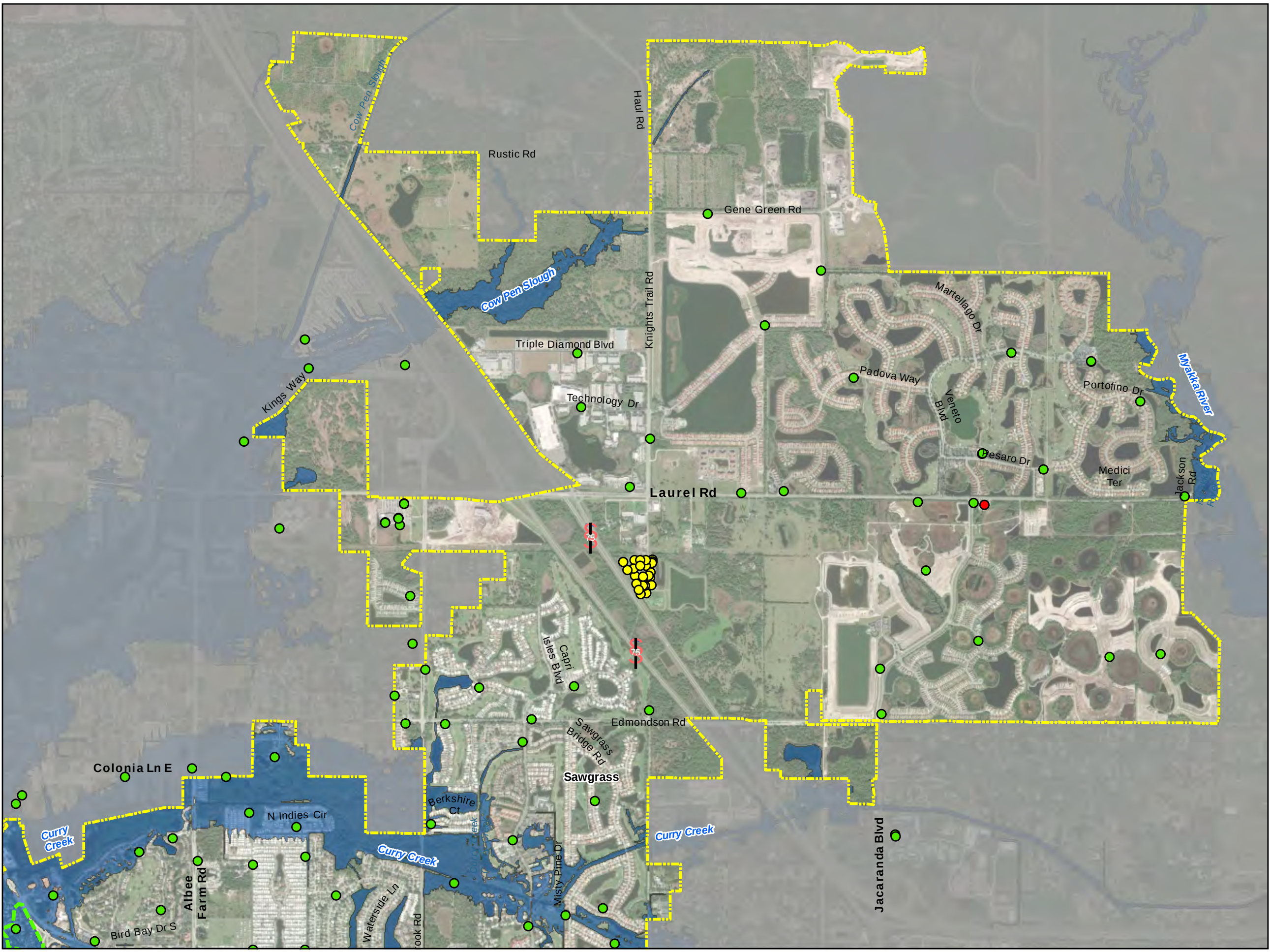
Return Period

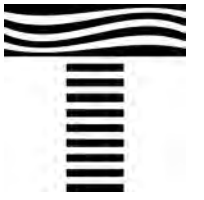
1% Annual Chance SWEL
plus 1.5' SLR



SARASOTA COUNTY, FL

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CERTIFICATE OF AUTHORIZATION # 4815

1% ANNUAL CHANCE SWEL
PLUS 3' OF SEA LEVEL RISE
CRITICAL PUBLIC INFRASTRUCTURE
AND HISTORIC AREAS
WITHIN CITY LIMITS

Legend

Venice City Limits

Critical Infrastructure

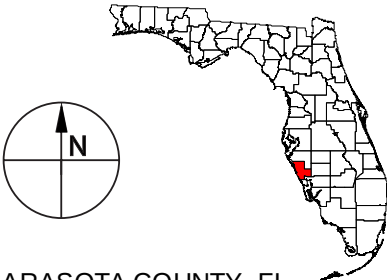
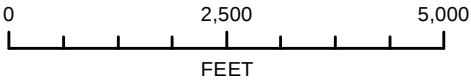
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- Historic Buildings

Return Period

1% Annual Chance SWEL
plus 3' SLR



SARASOTA COUNTY, FL

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