

User Guide
Area of Interest Tool - Resilience Report
March 2023

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Introduction

This document details how to request, access, and use the Resilience Report, an online tool which summarizes and displays analyses of flood exposure for a user-specified area of interest. The report serves as a screening tool to systematically evaluate for potential impacts from multiple flood types.

The tool currently focuses primarily on coastal flooding, with the exception of the FEMA flood hazard areas, which extend across the entire State. However, future versions of this report will likely include more inland data.

Requesting the Resilience Report

The Resilience Report is requested through the Area of Interest (AOI) Tool in the Environmental Screening Tool (EST) Map Viewer. After drawing an AOI, request the Resilience Report to trigger the resilience analyses. When completed, a link to the report webpage is provided.

Below are instructions on how to request, access, and navigate the Resilience Report.

1. **Log into the EST:** <https://www.fl-a-etat.org/est/secure/>

Navigate to the Map Viewer using the map icon in the header bar.

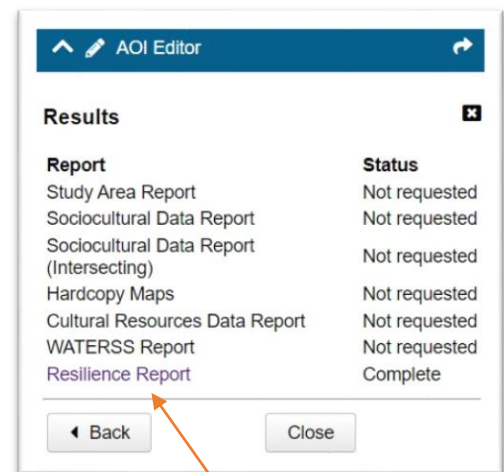
2. **Open AOI Editor widget** > choose “Create” to draw a new AOI.
3. **Enter the Basic Project Information:** project name, type, description, and keep until (date indicating how long to save the results). For Type, choose “Other Area of Interest”.

4. **Draw Feature(s).** Click “Add Feature” to begin drawing the desired area (feature) on the map to be analyzed. Draw a point, line, or polygon, and indicate a buffer amount (optional) around each feature.
 - a. One or more features can be drawn. By default, each feature is analyzed separately. Optionally, features can be grouped into an “analysis area” to analyze together as a single analysis area.
 - b. *Note:* Currently, inland flood data is limited, so inland areas will show less results.
 - c. **Request Resilience Report.** When done drawing, under the “Report Options”, select the checkbox for “Resilience Report” and then choose “Run”.

5. **Wait for the Results.** The report analyses will take approximately 1-3 minutes to run, depending on the number and size of features drawn. Features covering larger geographic areas will take longer to run.

Need help drawing an AOI? See the:

[AOI Editor Tool Quick Guide](#)



When Status = “Complete”, a link to resilience report will appear

For help with EST Map Viewer or AOI Tool, contact the FDOT OEM Help Desk at help@fl-a-etat.org or 850-414-5334.

For questions about the Resilience Report data, please contact sls@geoplan.ufl.edu

Accessing the Report

There are two ways to access the results report webpage for your AOI project:

- In AOI Tool Editor → a link will appear when the analyses are complete (*see figure above*).
- In [EST AOI Dashboard](#) → Click on AOI Project > Choose AOI Details > Link under “Resilience Report”

There are three main pages in the Resilience Report, described below:

Project Information Page

This is the landing page for the AOI Project and the default page a user will see when clicking on the link from the EST (either in the AOI Widget or AOI Dashboard). This page includes information the user submitted about the project and a list of AOI alternatives (or features) associated with the project.

In many cases, there will only be one alternative, but multiple alternatives can be drawn and analyzed. The resilience report display results for one alternative at a time, unless they are grouped into an analysis area.

Project Information

Area of Interest (AOI) Project Information

Project Description

- **Project Name:** Little Ringling (SR 789)
- **Description:** Resilience Report test for Little Ringling (SR 789) from Bird Key Dr to Sarasota Harbour West
- **Date Created:** 3/28/2023
- **Project Number:** #30772

List of Alternatives

This AOI project has the following alternatives. Click on the Alternative Name in the table to see the Resilience Report for that area.

AOI Alternative Number	AOI Alternative Name	Acres
1	Bird Key Dr to Harbour West (1.208 to 2.0)	20.16

Projects List Page

This page includes a list of all projects for your organization that have requested a resilience report. A link to this page is available from the Resilience Report page. There is a search function to find the project of interest.

All Projects

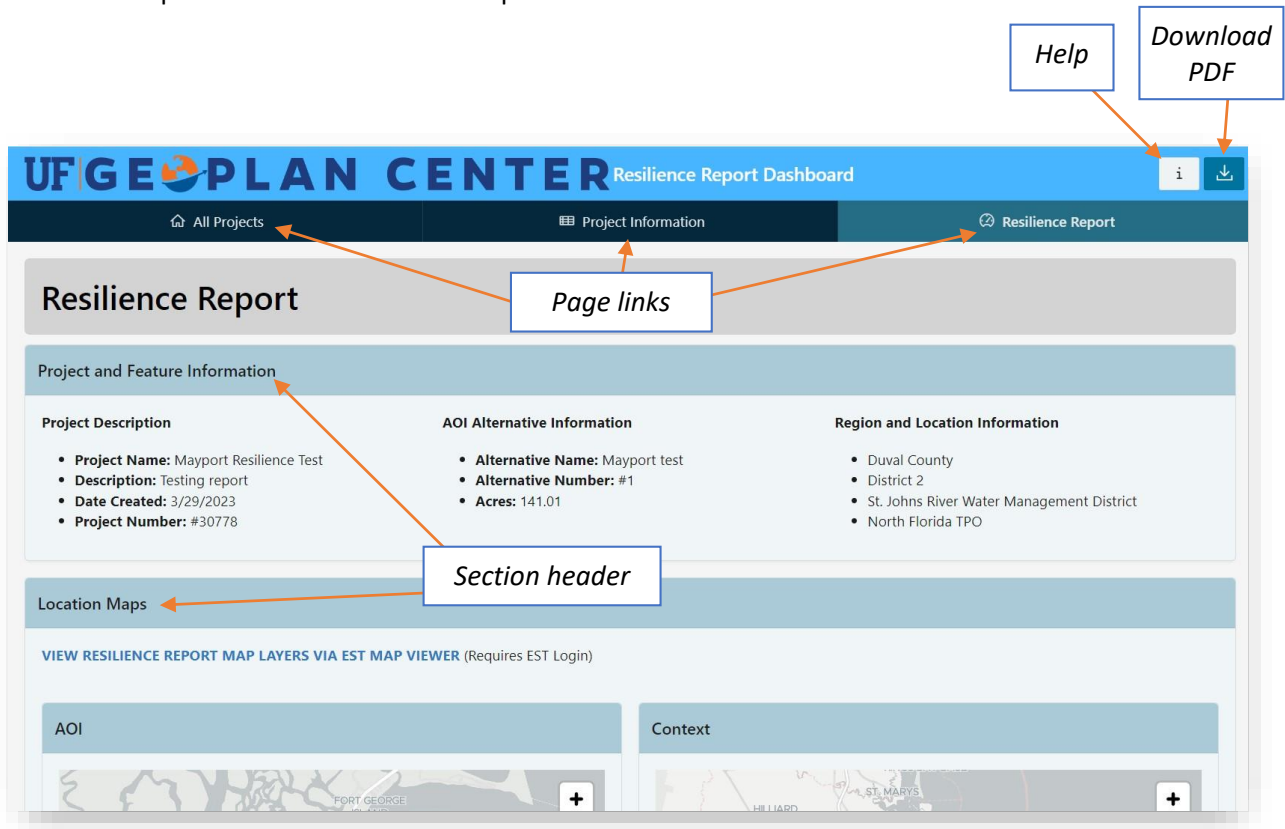
Please select a project number.

Search: All Text Columns

Project Number	Project Name	Description	Date Created ↑	Organization
30768	S. Patrick Drive (Satellite Beach)	Resilience Report for S. Patrick Dr.	3/27/2023	FIHS Central Office
30772	Little Ringling (SR 789)	Resilience Report test for Little Ringling (SR 789) from Bird...	3/28/2023	FIHS Central Office
30774	FPID 439545-1 TSM&O Feasibility Study		3/29/2023	FDOT District 1
30775	US 41 Drainage Improvements - Naples	US 41 Drainage Improvements - Naples	3/29/2023	FDOT District 1

Resilience Report Page & Data Sources

This page contains the results of the overlay analyses for the alternative(s) drawn in the EST Map Viewer. Currently, there are 12 sections in the report. Additional sections and data may be added as identified and prioritized. Below are descriptions of the data included in each section.



Project and Feature Information

- **Project Description:** displays the project name and description (submitted by the user), date created and project number.
- **AOI Alternative Information:** displays the alternative information for which this report has analyzed (name, number, and size in acres). If there is only one, it will be named “Alternative #1”.
- **Region and Location Information:** displays the county, MPO, WMD, and FDOT District in which the project is located.

Location Maps

This section contains an embedded map zoomed into the alternative area and a context map showing the overview location of the feature. This section also contains a link to the EST Map Viewer, where the user can view and interact with the Resilience Report layers.

Coastal Region Information

This section indicates whether the AOI alternative is located in or intersects with these coastal regions:

- Coastal Building Zone (CBZ): number of acres located in CBZ.
- Coastal Construction Line (CCCL): number of linear feet intersecting the CCCL.

If the feature does not intersect with either, then a message will be displayed: “Feature is not located in the ...”. For projects in the CBZ, a Sea Level Impact Projection (SLIP) Study may be required (Section 161.053, F.S.). The CBZ and CCCL data is sourced from the FL Department of Environmental Protection.

Sea Level Rise – Tide Station Information

Displays the tide station located closest to the AOI alternative, along with the current MSL and MHHW datum values, referenced to NAVD88 and the current National Tidal Datum Epoch (NTDE 1983-2001).

Sea Level Rise Scenarios

Includes SLR values from two sources (NOAA 2022 and NOAA 2017) and links to the source documentation.

1. NOAA 2022 SLR Scenarios – Feet (NAVD88) by Decade

- Table of SLR values, representing future MSL in feet (referenced to NAVD88) for each decade between 2040 – 2100 and for each of the five NOAA 2022 SLR scenarios (Low, Intermediate-Low, Intermediate, Intermediate-High, and High). Baseline year is 1992.
- Data obtained from NOAA in spreadsheet format, with SLR scenario values listed by tide station, relative SLR amount in centimeters (cm), and baseline year 2005. The Team converted the values from cm to feet and added the two offsets provided by NOAA to align the values with the midpoint (1992) of the NTDE 1983-2001. The Team used the median SLR values from NOAA. Data obtained from:
<https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-data.html>
- For full documentation of the NOAA 2022 SLR Scenarios, see the 2022 Technical Report at:
<https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html>

2. NOAA 2017 SLR Values – Feet (NAVD88) by Decade

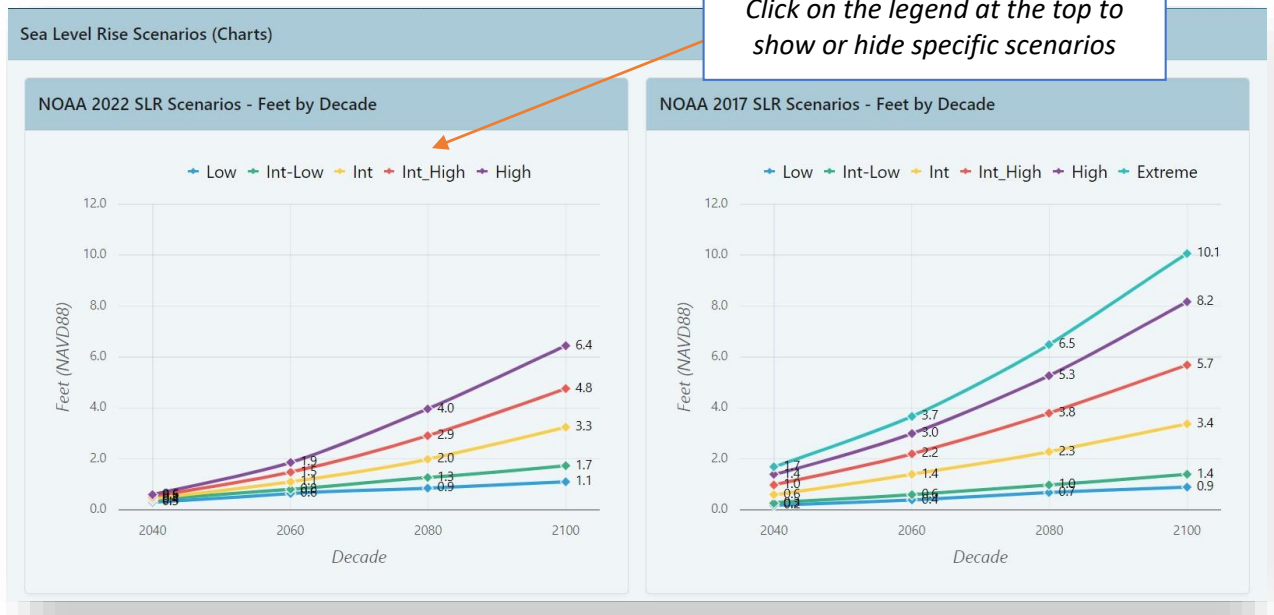
- Table of SLR values, representing future MSL in feet (referenced to NAVD88) for each decade between 2040 – 2100 and for each of the six NOAA 2017 SLR scenarios (Low, Intermediate-Low, Intermediate, Intermediate-High, High, and Extreme). Baseline year is 1992.
- Data obtained from the U.S. Army Corps of Engineers Sea Level Change Calculator:
https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html. Values were downloaded by tide station relative to local MSL and adjusted to baseline year 1992 (midpoint of NTDE 83-01). The Team applied a datum conversion to NAVD88 (sourced from NOAA).
- For full documentation of the NOAA 2017 SLR Scenarios, see the 2017 Technical Report at:
https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf

Why are multiple sets of SLR scenarios included in the report?

While NOAA 2022 SLR scenarios reflect the most current sea level science, the NOAA 2017 scenarios are currently still in use by many communities, MPOs, and FDOT partners in the state. Under HB7053: “Statewide Flooding and Sea Level Rise Resilience” (s. 14.2031, F.S.), which became effective July 1, 2022, FDOT’s Resilience Action Plan (RAP) is directed to use NOAA 2022 SLR scenarios and local vulnerability assessments funded through the Resilient Florida Grant Program are directed to use NOAA 2017 SLR scenarios. Both sets of projections are included to accommodate these various use cases.

Sea Level Rise Scenarios (Charts)

This section provides a visual representation (in chart format) of the SLR values shown in the previous section. The NOAA 2022 SLR Scenarios (feet by decade) are shown on the left, while the NOAA 2017 SLR Scenarios (feet by decade) are shown on the right. These values are referenced to NAVD88 and represent future MSL values.



Sea Level Rise Exposure analysis (NOAA 2017 only)

This section includes an exposure analysis using the NOAA 2017 SLR inundation layers from the Sea Level Scenario Sketch Planning Tool (<https://sls.geoplan.ufl.edu>).

Summary of AOI Exposure to NOAA 2017 Scenarios

Acres and percentage of AOI alternative exposed to SLR inundation under three scenarios and decades:

- NOAA2017 Intermediate-Low: 2040, 2070, 2100
- NOAA2017 Intermediate: 2040, 2070, 2100
- NOAA 2017 Intermediate-High: 2040, 2070, 2100

Below the table are three charts showing a depth analysis for the intermediate-high scenario at 2040, 2070, and 2100. These charts represent the depth of permanent flooding under each of these scenarios.

Note: Only NOAA 2017 scenarios are included here, as that is what is available in the Sketch Planning Tool. In the future, this section will likely be updated with new inundation depth layers from NOAA.

Current High Tide Flooding

This section contains data on high tide flooding (HTF), also known as nuisance flooding, tidal flooding, and sunny-day flooding. HTF is recurrent, temporary flooding that occurs during high tides. HTF is now twice as frequent in U.S. coastal areas as it was 20 years ago, and is expected to increase in frequency with rising sea levels.

NOAA delineates and maps three HTF levels: minor, moderate, and major, using standard thresholds above the daily average high tide (mean higher high water).

- Minor HTF includes when tides exceed approximately 0.55m (1.8ft)
- Moderate HTF when tides exceed 0.85m (2.8ft)
- Major HTF when tides exceed 1.2m (3.9ft)

Summary of AOI Exposure to Current High Tide Flooding

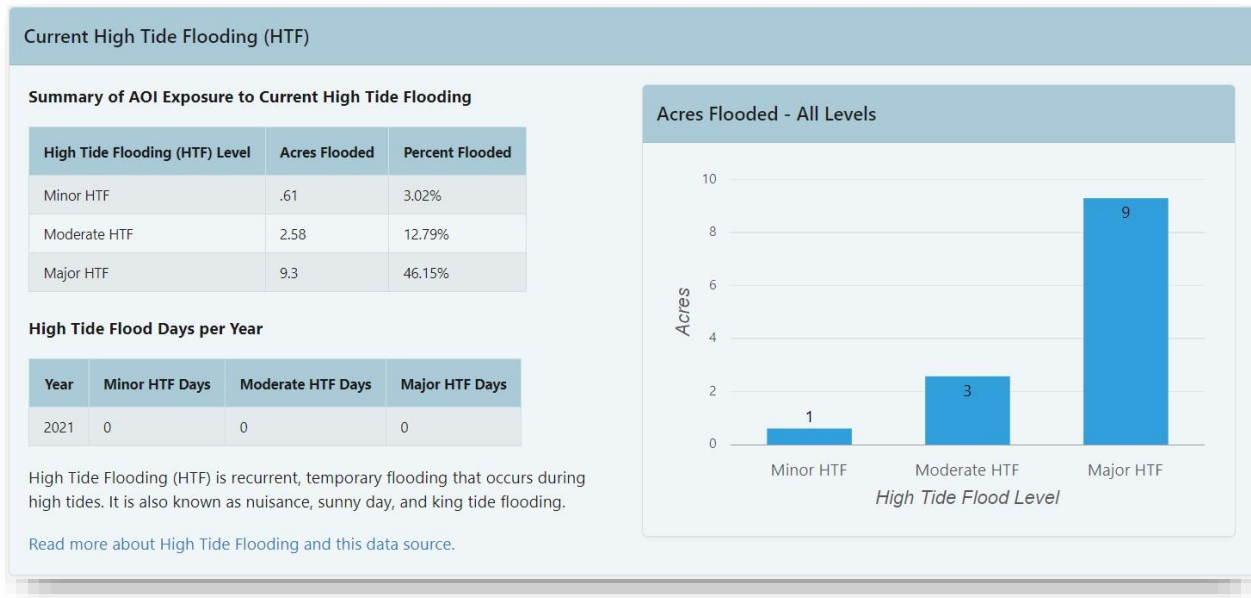
- Table showing acres flooded and percent of AOI alternative flooded under each HTF threshold.
- Raster data layers for each threshold were downloaded from NOAA and used in the overlay analysis: https://coast.noaa.gov/htdata/Inundation/NOS_Mapping/NOS_HTF_2022.zip

High Tide Flood Days per Year

- Table showing the number of observed HTF days for each threshold for the prior year.
- Note: The year tracked here is Spring 2021 – Spring 2022 (not January – December). At the time this resilience report was released, the 2022 – 2023 HTF data was still being collected.

Acres Flooded – All Levels

- Bar chart showing acres flooded under each HTF threshold.



Percent of Area Impacted by Current High Tide Flooding

Displays three pie charts with the percentage of the AOI alternative exposed to each HTF threshold. This corresponds to the “Percent Flooded” column in the table above: “Summary of AOI Exposure to Current High Tide Flooding.” The percent flooded is shown in blue and percent not flooded is shown in green.

Open the EST Map Viewer link (in the “Location Maps” section) to see where the AOI alternative will be impacted by each HTF threshold.

Projected Annual Days of Minor High Tide Flooding by Decade and NOAA 2022 SLR Scenario

This section includes the projected annual days of *minor* HTF per decade and under each of the NOAA 2022 SLR scenarios. These projections can be used to understand how SLR will increase the frequency of minor tidal flooding events. Used in combination with the percent of area impacted by minor HTF, users can get a sense of what areas will be impacted by future minor HTF flooding and how often the flooding will recur. Projections are only included for minor HTF events (not moderate or major).

Projections were pulled from: NOAA CO-OPS Derived Product API v0.1, querying the “High Tide Flooding – Decadal Projections” for 14 tide stations: <https://api.tidesandcurrents.noaa.gov/dpapi/prod/>

Storm Surge Zones

Results of an overlay analysis of storm surge zones by hurricane category (1-5). Zones obtained from the Florida Division of Emergency Management and developed by Florida's Regional Planning Councils (August 2021). Zones were derived from National Hurricane Center SLOSH model runs and provide a worst case snapshot of surge for each hurricane category under perfect storm conditions. *Note:* this data represents current storm surge and does not account for surge under future SLR conditions.

Also note: impacts are calculated for each category individually. However, impacts are additive for each lower category of surge. For ex: if the Cat 1 surge exposure is 127 acres and Cat 2 is 13 acres, then the total exposure for Cat 2 would equal 140 acres (127 + 13).

Metadata: https://fgdl.org/zip/metadata/xml/storm_surge_zones_aug21.xml

FEMA Flood Zones

Results of an overlay analysis of the 1% annual chance flood event ("100-year") and 0.2% annual chance flood event ("500-year"), as defined by the Federal Emergency Management Agency (FEMA). Data sourced from FEMA's National Flood Hazard Layer and downloaded from the Florida Geographic Data Library (www.fgdl.org). *Note:* this data represents current flood hazard areas and does not account for future climate conditions or changing precipitation patterns.

Metadata: https://fgdl.org/zip/metadata/xml/dfirm_fldhaz_dec22.xml

Saving the Report

In the top right corner of the Resilience Report page, there is a download button. Clicking the button will first create a "PDF Preview" (**may take 10-30 seconds*). The user then has the option to download a PDF version of the Resilience Report page.



Requesting Access to the AOI Tool

For FDOT staff or consultants with FDOT IT accounts:

- District users request access through your FDOT District ETDM Coordinator
- Central Office users request through Statewide ETDM Coordinator or contact ETDM Help Desk
- Once approved by ETDM Coordinator, submit an AARF selecting the EST – AOI Only application

For MPO and FDOT consultants without FDOT IT accounts:

- Request access through your MPO or FDOT Project Manager
- Your Project Manager can then request through the appropriate ETDM Coordinator
- The ETDM Coordinator can then email authorization to the ETDM Help Desk

For MPO staff:

- Request access through your MPO ETDM Coordinator
- If MPO ETDM Coordinator position is vacant, contact the FDOT District ETDM Coordinator
- The ETDM Coordinator can then email authorization to the ETDM Help Desk

For help with EST Map Viewer or AOI Tool, contact the FDOT OEM Help Desk at help@fla-etat.org or 850-414-5334.

List of ETDM contacts: <https://etdmpub.fl-a-etat.org/est/index.jsp?url=contacts.jsp>

For questions about the Resilience Report data, please contact sls@geoplan.ufl.edu