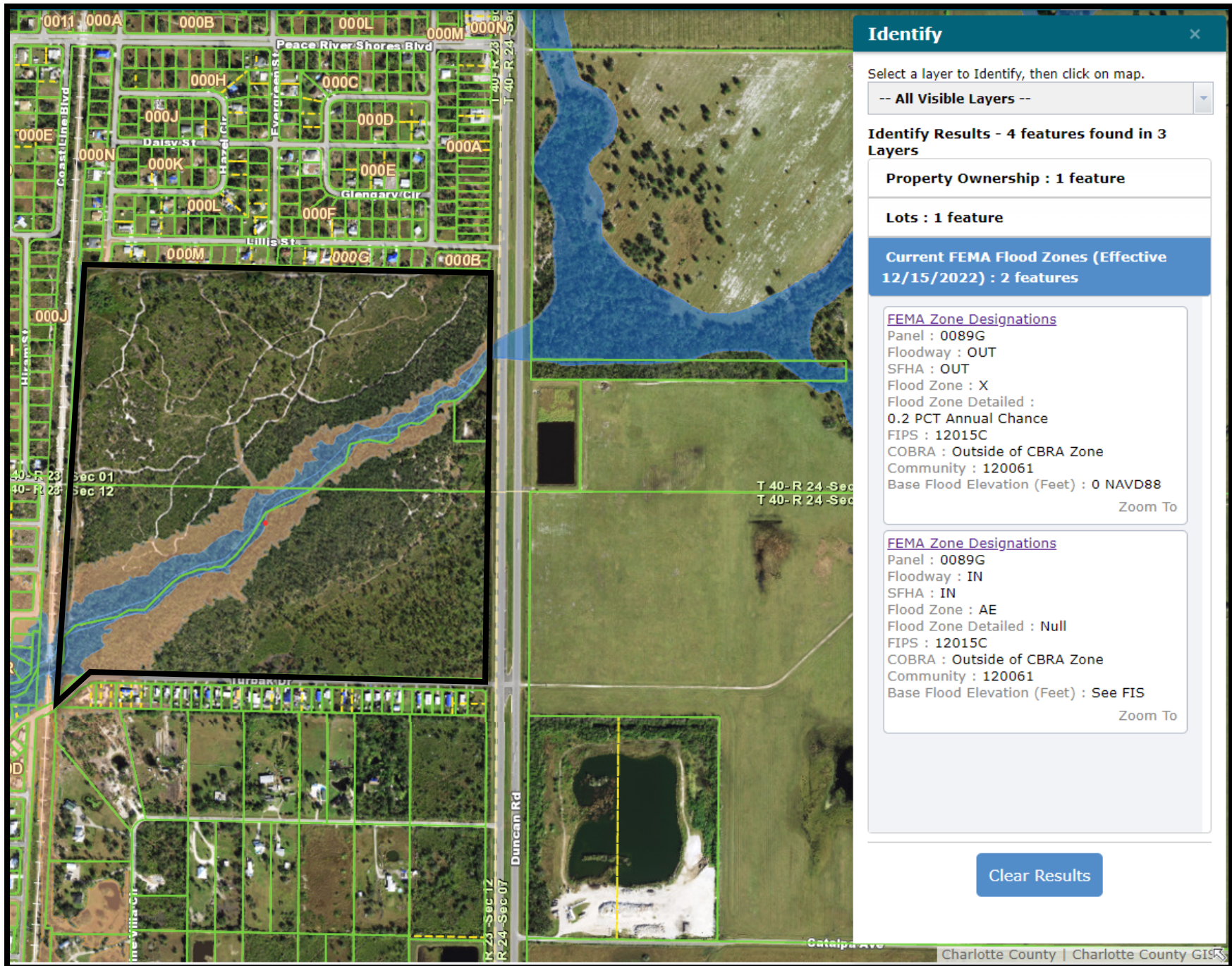


DEVELOPMENT SUMMARY – STORM SURGE

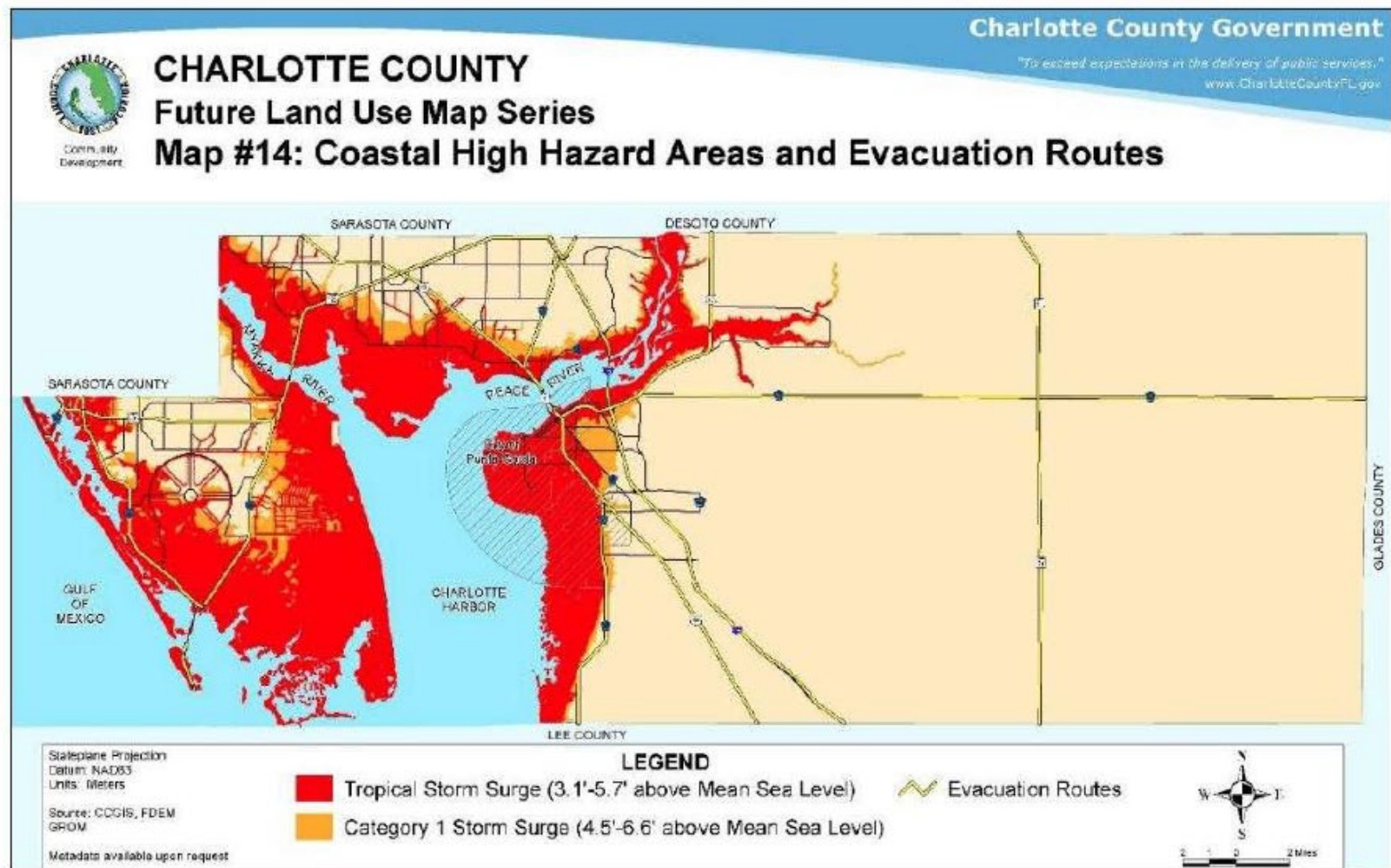
- DEVELOPMENT AREA EXISTING GRADE RANGE: 12.5 FEET to 17.5 FEET
- AVERAGE EXISTING GRADE: CREEK AREA 12.5 - 13.5 FEET – *AVERAGE 13.0 FEET*
REMAINDER AREA 13.5 - 17.5 FEET – *AVERAGE 15.5 FEET*
- REQUIRED FINISHED FLOOR PER FEMA: N/A – NO BUILDINGS LOCATED IN FEMA ZONE
- REQUIRED FINISHED FLOOR FLORIDA BUILDING CODE: N/A
- ANTICIPATED FINISHED FLOOR PER STORMWATER DESIGN: 18.0 FEET (2.5 FEET ABOVE EXISTING GROUND); BASED ON REMAINDER AREA; SHARED STORMWATER SYSTEM SO ALL BUILDINGS ANTICIPATED TO HAVE APPROXIMATELY THE SAME ELEVATION
- MAX STORM SURGE ELEVATION PER CHARLOTTE COUNTY CHHA MAP:
 - TROPICAL STORM: 5.7 FEET
 - CATEGORY 1: 6.6 FEET
- ESTIMATED SURGE LEVEL PER SLOSH MAPS – EVALUATED UP TO CATEGORY 2 STORM ONLY
 - CATEGORY 1: NO BUILDINGS LOCATED WITHIN LIMITS
 - CATEGORY 2: ONE BUILDING POSSIBLY IN LIMITS (CREEK AREA)
13.0 – 16.0 FEET (LESS THAN 3 FEET ABOVE EXISTING)

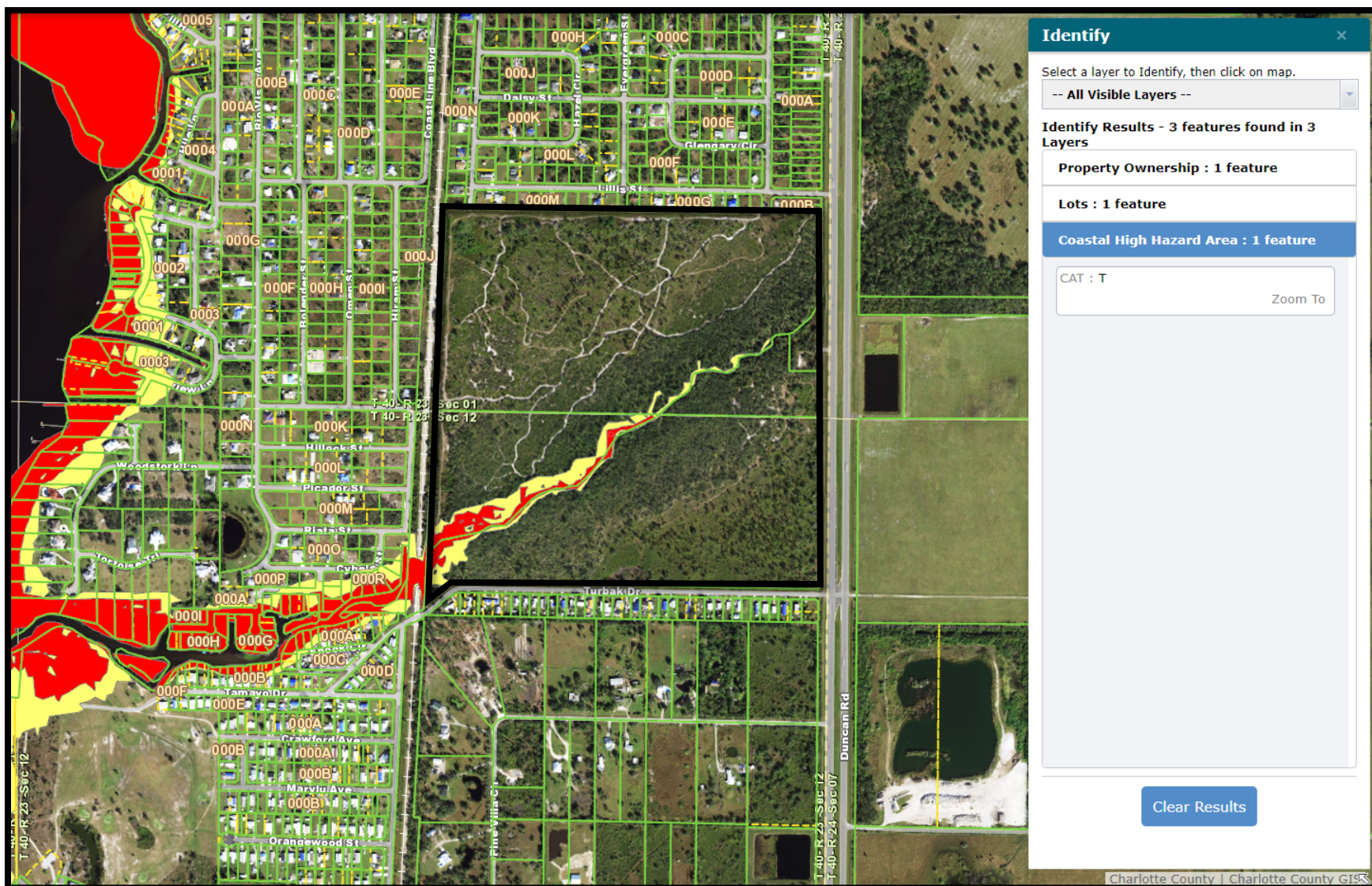
DEVELOPMENT CONDITIONS COMPARED TO DATA

- MINIMUM ANTICIPATED FINISHED FLOOR OF 18 FEET IS:
 - MINIMUM FEMA REQUIRED FINISHED FLOOR – N/A
 - 12.3 FEET ABOVE MAX TROPICAL STORM SURGE ELEVATION OF CHHA MAP – NO BUILDING IMPACTS
 - 11.4 FEET ABOVE MAX CAT. 1 STORM SURGE ELEVATION OF CHHA MAP – NO BUILDING IMPACTS
 - CATEGORY 1 ELEVATION OF THE SLOSH MAP – NO BUILDINGS IN THIS ZONE
 - CATEGORY 2 ELEVATION OF THE SLOSH MAP – ONE BUILDING IN CREEK AREA; APPROXIMATELY 2.0 FEET ABOVE MAX CATEGORY 2 ELEVATION OF THE SLOSH MAP
 - FURTHER MITIGATION – SITE HAS DIRECT ACCESS TO US 17 FOR EVACUATION PURPOSES



MAP 14: Coastal High Hazard Areas and Evacuation Routes





SLOSH DATA (NOAA)

Introduction

The National Oceanic and Atmospheric Administration (NOAA), specifically the National Weather Service's (NWS) National Hurricane Center (NHC), utilizes the hydrodynamic **Sea, Lake, and Overland Surges from Hurricanes (SLOSH)** model to simulate storm surge from tropical cyclones. Storm surge information is provided to federal, state, and local partners to assist in a range of planning processes, risk assessment studies, and operational decision-making. In regards to the former, tens of thousands of climatology-based hypothetical tropical cyclones are simulated in each SLOSH basin (or grid), and the potential storm surges are calculated. Storm surge composites – Maximum Envelopes of Water (MEOWs) and Maximum of MEOWs (MOMs) – are created to assess and visualize storm surge risk under varying conditions. While MEOWs and MOMs provide a local assessment of storm surge risk, they do not provide a seamless perspective of the hazard owing to the many discrete SLOSH grids. This section briefly describes the scientific techniques used to create the seamless inundation maps for Category 1-5 hurricanes using the SLOSH MOM product as well as a description of the datasets and map viewer available to the public.

SLOSH Storm Surge Modeling

SLOSH has been used operationally for more than three decades. Over this time, SLOSH has provided valuable and accurate storm surge forecasts. For planning purposes, the NHC uses a representative sample of **hypothetical storms to estimate the near worst-case scenario of flooding for each hurricane category**. These SLOSH simulations are used to create a set of operational and planning products.

The NHC provides two products based on hypothetical hurricanes: MEOWs and MOMs. MEOWs are created by **computing the maximum storm surge resulting from up to 100,000 hypothetical storms simulated through each SLOSH grid of varying forward speed, radius of maximum wind, intensity (Categories 1-5), landfall location, tide level, and storm direction**. A MEOW product is created for each combination of category, forward speed, storm direction, and tide level. SLOSH products exclude Category 5 storms north of the NC/VA border and for Hawaii. For each storm combination, parallel storms make landfall in 5 to 10 mile increments along the coast within the SLOSH grid, and the maximum storm surge footprint from each simulation is composited, retaining the maximum height of storm surge in a given basin grid cell. These are called MEOWs and no single hurricane will produce the regional flooding depicted in the MEOWs. SLOSH model MOMs are an ensemble product of maximum storm surge heights. SLOSH MOMs are created for each storm category by retaining the maximum storm surge value in each grid cell for all the MEOWs, regardless of the forward speed, storm trajectory, or landfall location. SLOSH MOMs are available for mean tide and high tide scenarios and represent the near worst-case scenario of flooding under ideal storm conditions. A high tide initial water level was used for the storm surge risk maps.

SLOSH employs curvilinear polar, elliptical, and hyperbolic telescoping mesh grids to simulate the storm surge hazard. The spatial coverage for each SLOSH grid ranges from an area the size of a few counties to a few states. The resolution of individual grid cells within each basin ranges from tens to hundreds of meters to a kilometer or more. Sub-grid scale water features and topographic obstructions such as channels, rivers, and cuts and levees, barriers, and roads, respectively are parameterized to improve the modeled water levels. Figure 1 shows the SLOSH basins used to create the surge risk maps.

National Hurricane Center Storm Surge Risk Maps

Category 1

Category 2

Category 3

Category 4

Category 5



This is not a real-time product. For active tropical cyclones, please see [hurricanes.gov](https://www.hurricanes.gov) and consult local products issued by the National Weather Service

This national depiction of storm surge flooding vulnerability helps people living in hurricane-prone coastal areas. These maps make it clear that storm surge is not just a beachfront problem, with the risk of storm surge extending many miles inland from the immediate coastline in some areas. Storm Surge Risk Maps are provided for the US Gulf and East Coasts, Hawaii, Southern California, US territories - Puerto Rico, US Virgin Islands, Guam and American Samoa. Additional mapped areas include Hispaniola and parts of the Yucatan Peninsula.

Atlantic

US East and Gulf Coast

Puerto Rico and USVI

Hispaniola

Yucatan

Pacific

Hawaii (category 1-4)

Southern California (category 1-2)

Guam

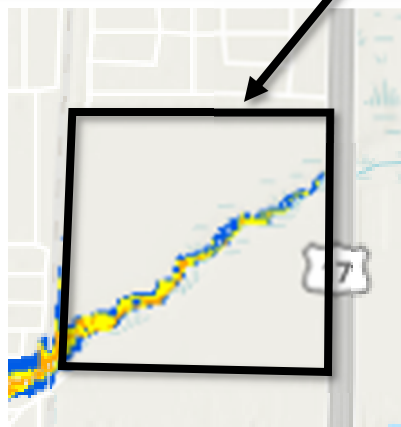
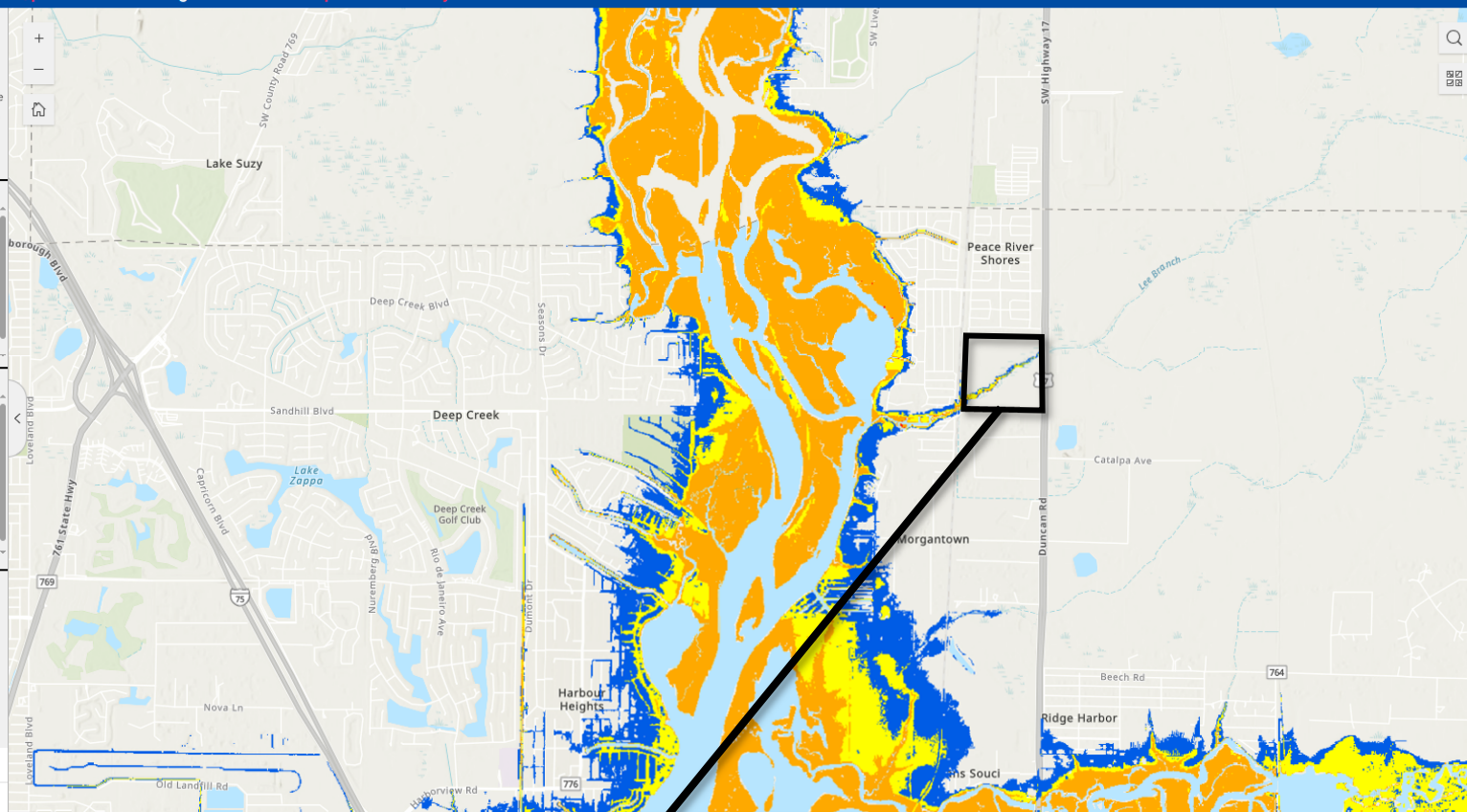
American Samoa

- Less than 3 feet above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground
- Leveed area
- Consult local officials for flood risk

Toggle Map Opacity

map window

> Storm Surge Risk Maps Category1 v3



National Hurricane Center Storm Surge Risk Maps

Category 1

Category 2

Category 3

Category 4

Category 5



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This national depiction of storm surge flooding vulnerability helps people living in hurricane-prone coastal areas. These maps make it clear that storm surge is not just a beachfront problem, with the risk of storm surge extending many miles inland from the immediate coastline in some areas. Storm Surge Risk Maps are provided for the US Gulf and East Coasts, Hawaii, Southern California, US territories - Puerto Rico, US Virgin Islands, Guam and American Samoa. Additional mapped areas include Hispaniola and parts of the Yucatan Peninsula.

Atlantic

US East and Gulf Coast

Puerto Rico and USVI

Hispaniola

Yucatan

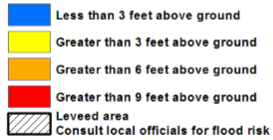
Pacific

Hawaii (category 1-4)

Southern California (category 1-2)

Guam

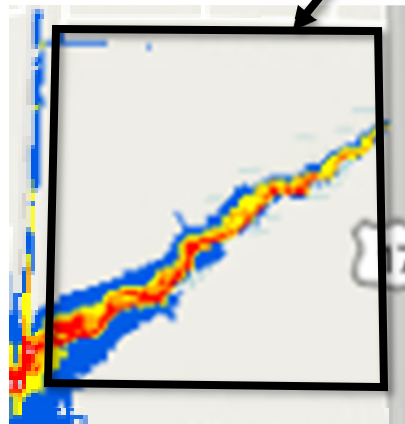
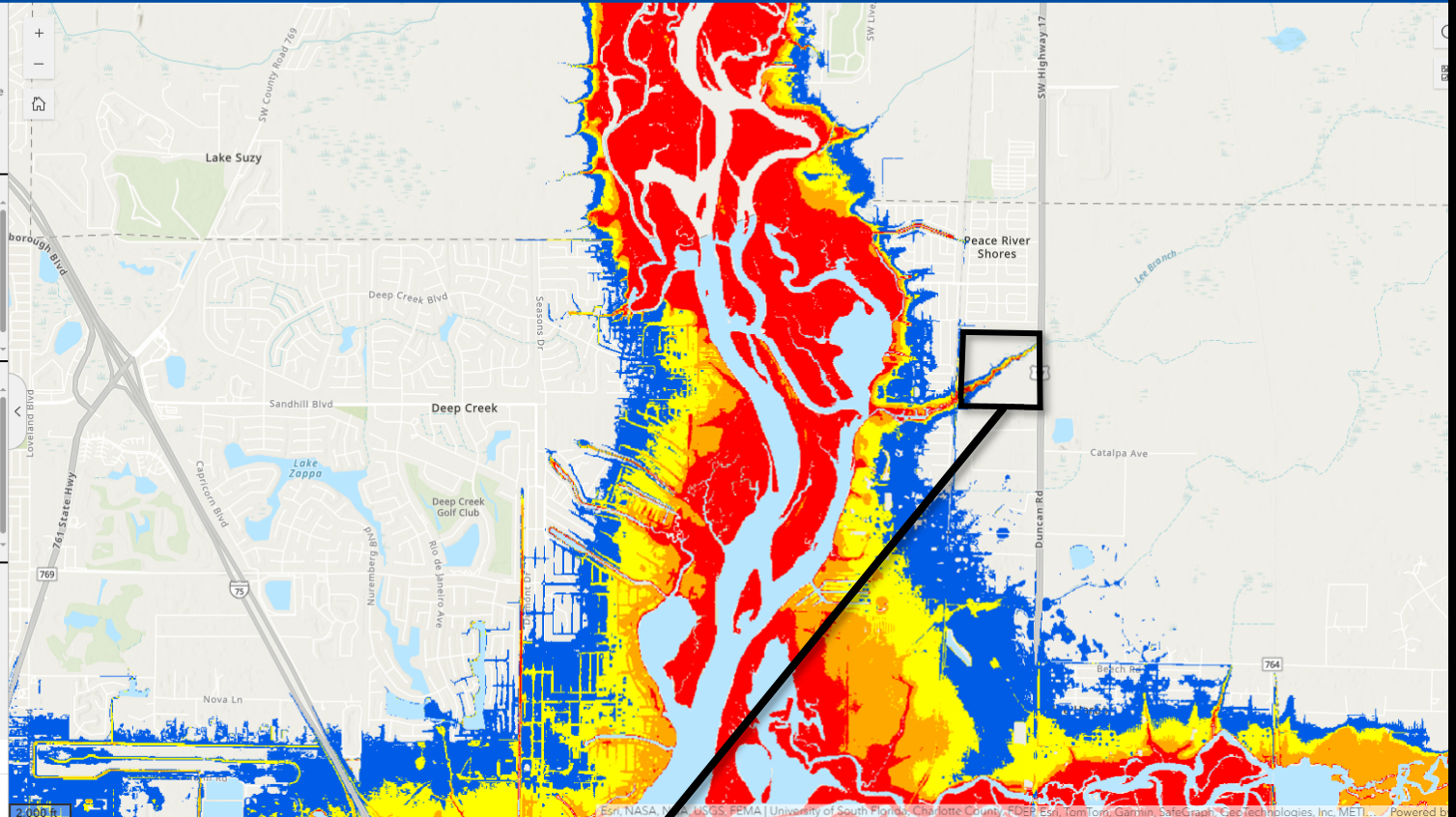
American Samoa



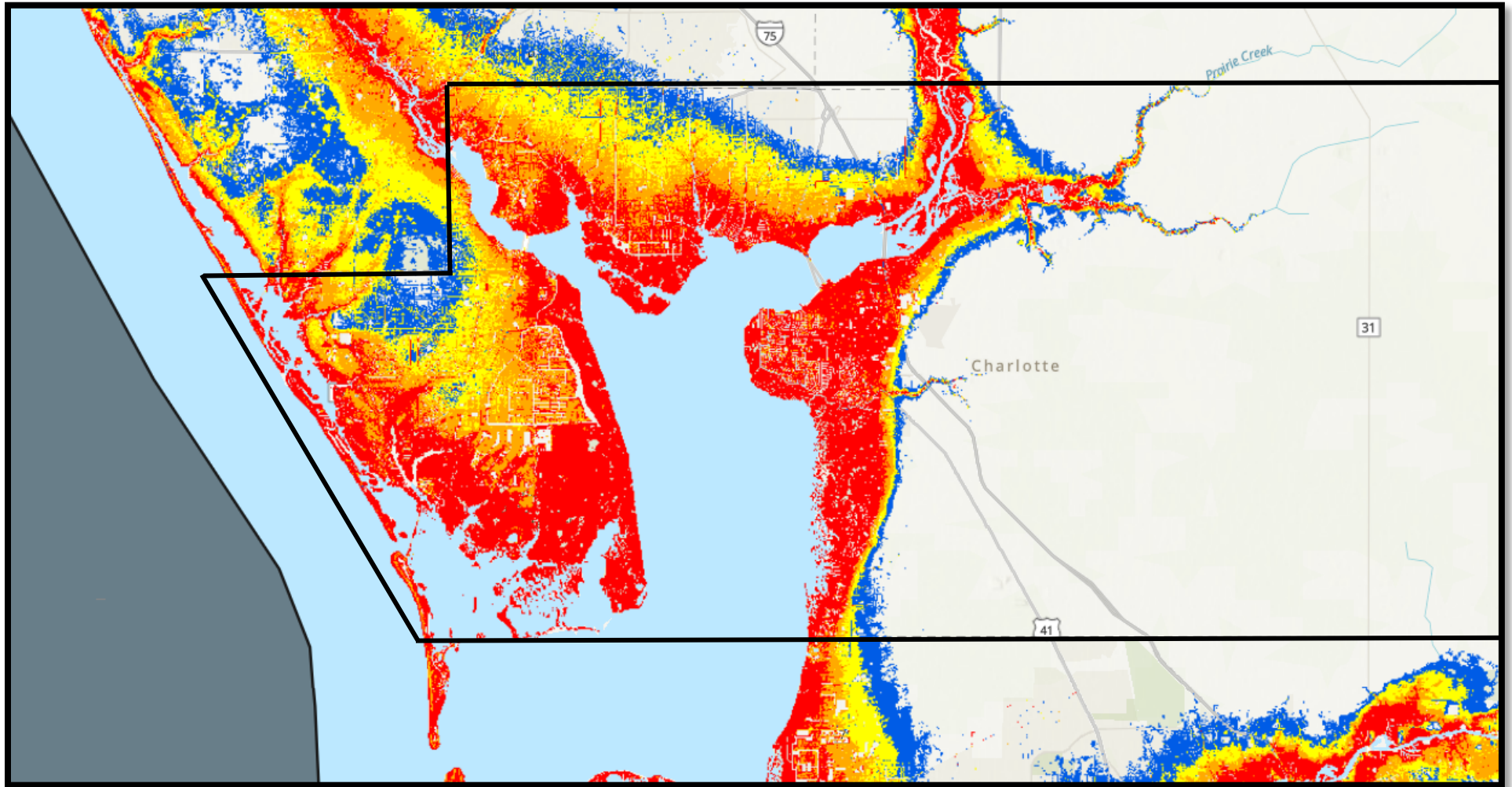
Toggle Map Opacity

map window

> Storm Surge Risk Maps Category2 v3



CHARLOTTE COUNTY – CATEGORY STORM SURGE MAP



National Hurricane Center Storm Surge Risk Maps

Category 1

Category 2

Category 3

Category 4

Category 5



This is not a real-time product. For active tropical cyclones, please see hurricanes.gov and consult local products issued by the National Weather Service

This national depiction of storm surge flooding vulnerability helps people living in hurricane-prone coastal areas. These maps make it clear that storm surge is not just a beachfront problem, with the risk of storm surge extending many miles inland from the immediate coastline in some areas. Storm Surge Risk Maps are provided for the US Gulf and East Coasts, Hawaii, Southern California, US territories - Puerto Rico, US Virgin Islands, Guam and American Samoa. Additional mapped areas include Hispaniola and parts of the Yucatan Peninsula.

Atlantic

US East and Gulf Coast

Puerto Rico and USVI

Hispaniola

Yucatan

Pacific

Hawaii (category 1-4)

Southern California (category 1-2)

Guam

American Samoa

- Less than 3 feet above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground
- Leveed area
- Consult local officials for flood risk

Toggle Map Opacity

map window

> Storm Surge Risk Maps Category3 v3

