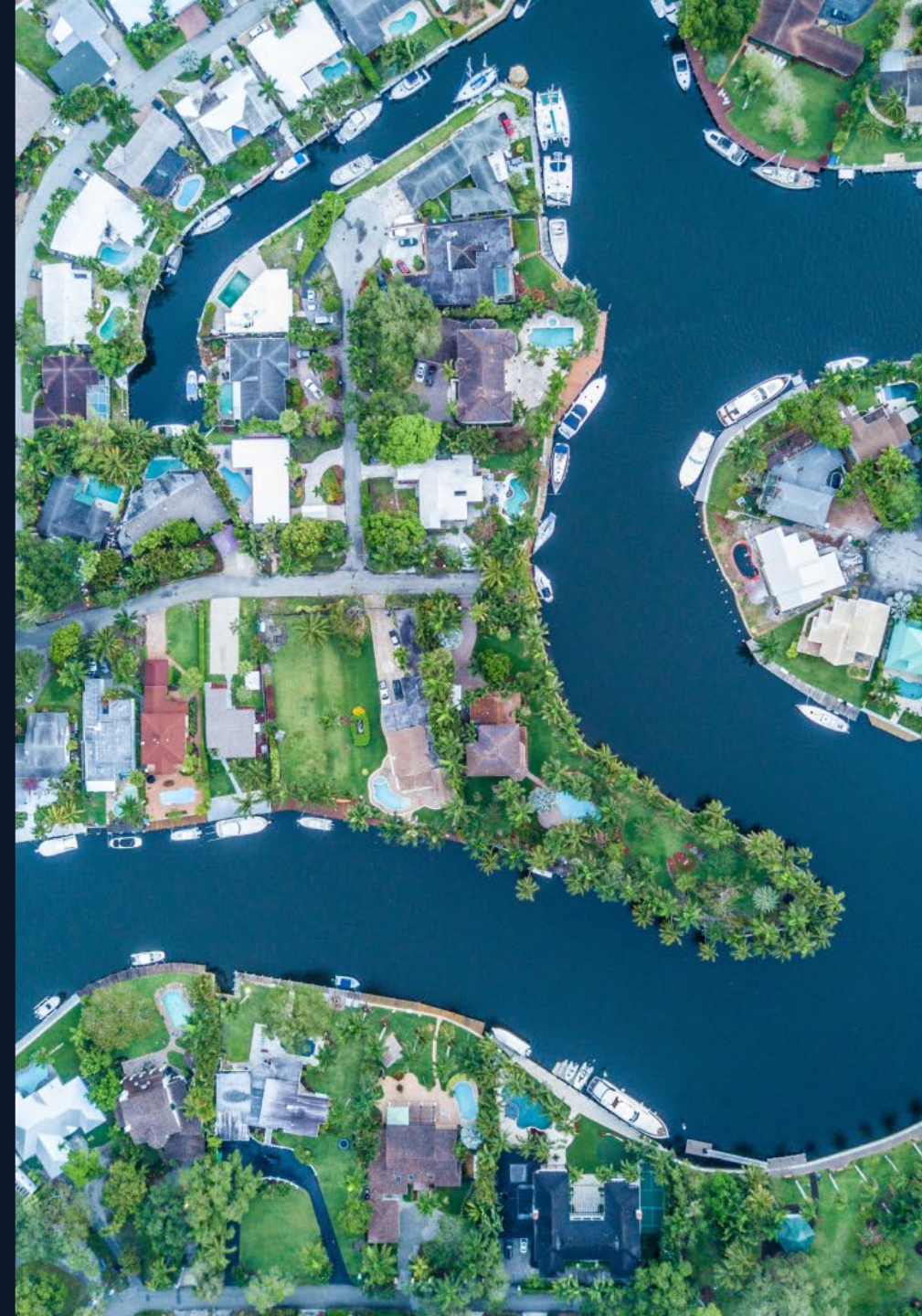


# Planning for the Future: Mobilizing Data and Technology for Floodplain Management

Susanna Pho, CFM | Co-Founder & COO



# Agenda

- 1 Introduction**
- 2 Case Study: Clearwater, FL**
- 3 Case Study: Georgetown County, SC**

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THE CHALLENGE

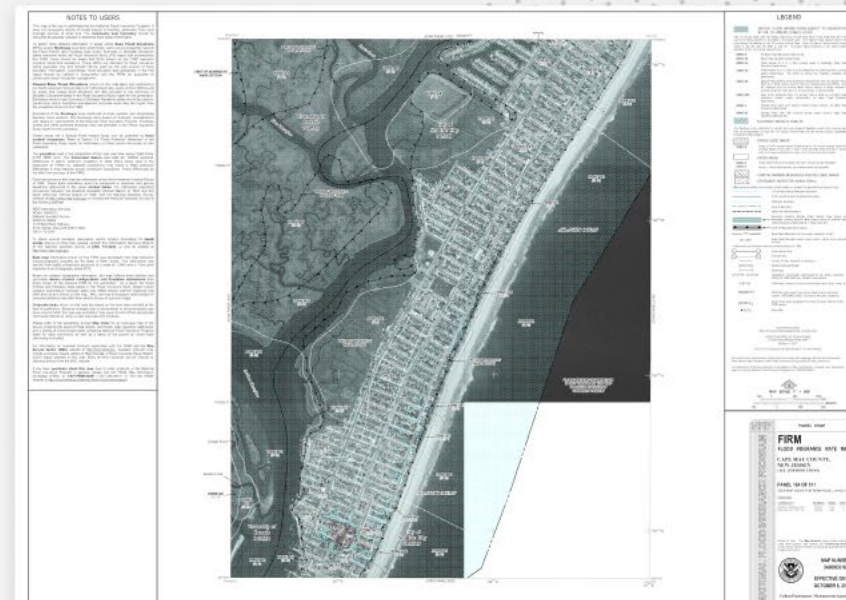
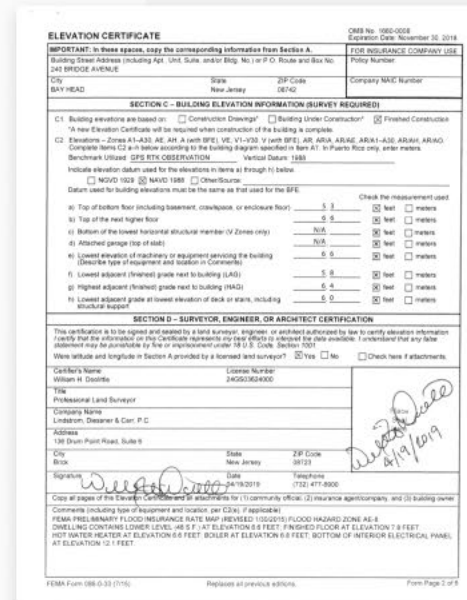
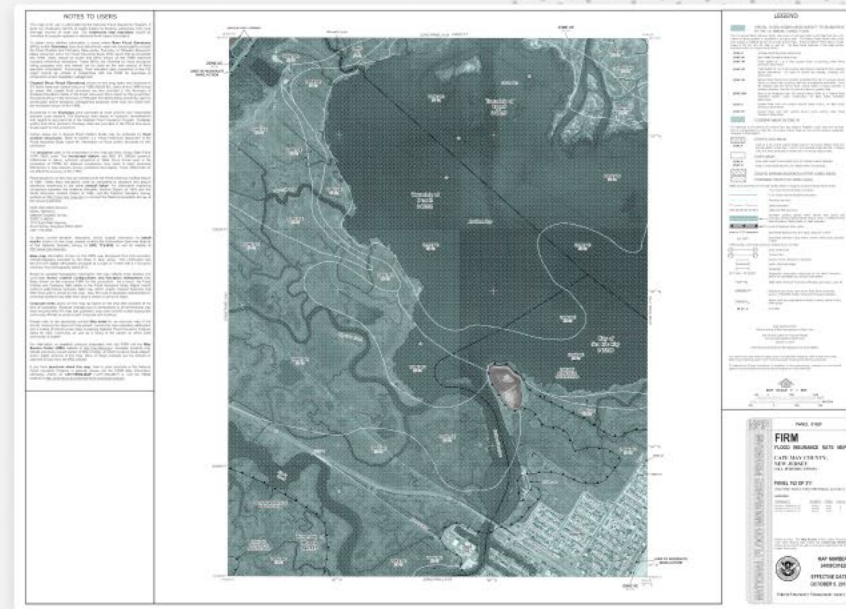
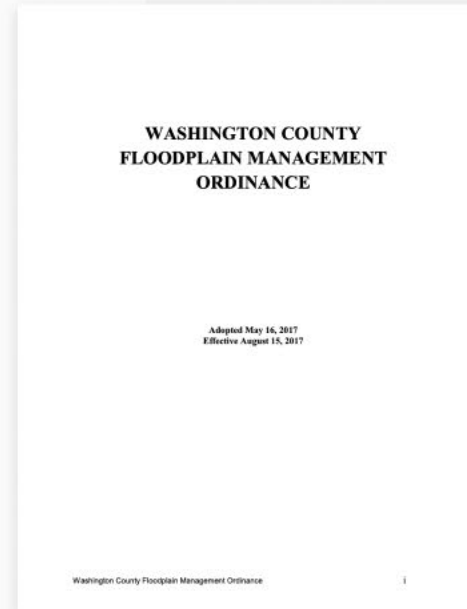
**Floodplain  
management  
and hazard  
mitigation matter  
more than ever.**



PROBLEM

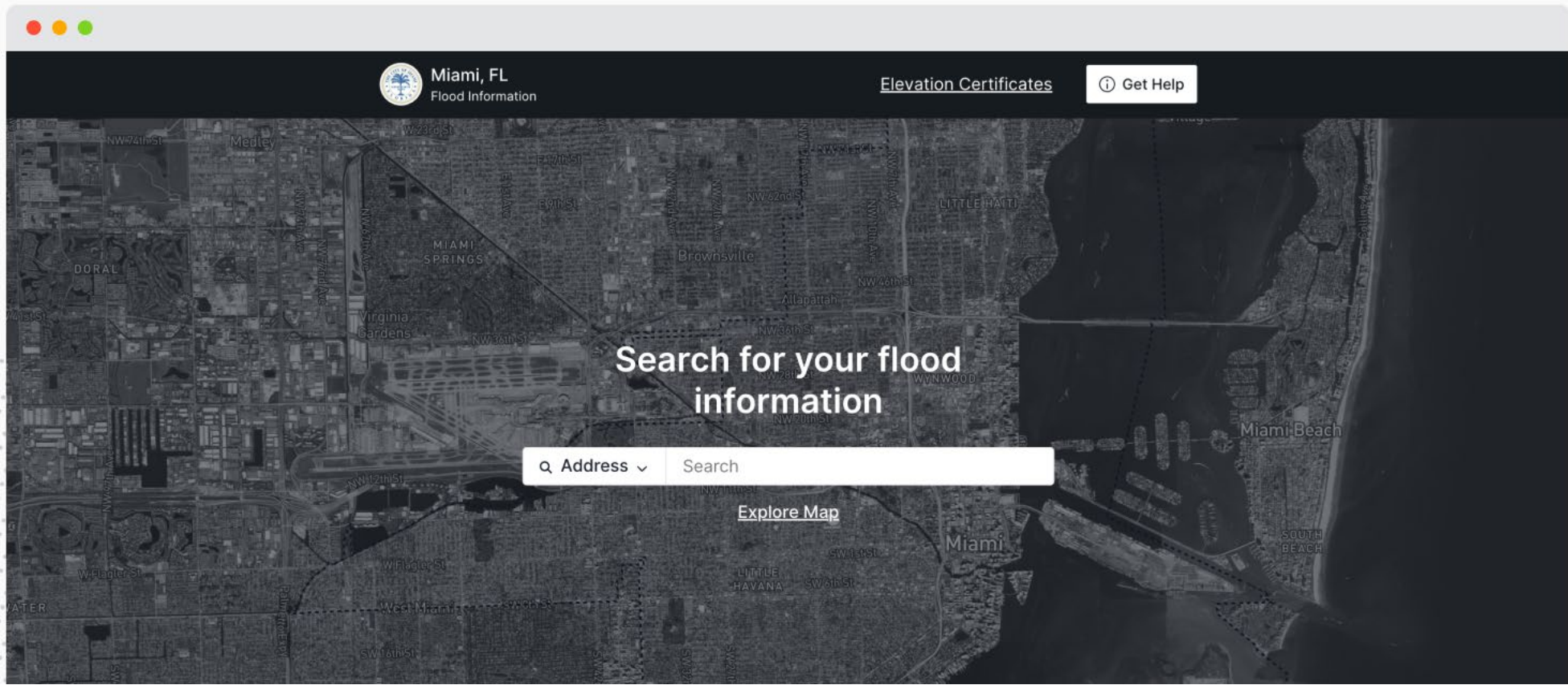
# But it's increasingly hard to link high level planning with on-the-ground action.

- NFIP & CRS regulations are complex
- Manual workflows slow everything down and are error-prone
- Data tracking and analysis can be difficult, especially when working across teams
- Residents want to receive information in a modern way
- Resources are constrained and adding headcount can be expensive
- It is challenging to leverage mapping effectively



OUR SOLUTION

# Forerunner empowers gov. agencies to do more.



GOV. PARTNERS

Our mission is to help communities prepare for the impacts of climate change and adapt to future conditions.



FDEM  
Florida



Harris County  
Texas



Pasco County  
Florida



Clearwater  
Florida



Jefferson Parish  
Louisiana



California DWR  
California



Las Cruces  
New Mexico



Concord  
California



Orting  
Washington



Monmouth County  
New Jersey



Norfolk  
Virginia



Terrebonne Parish  
Louisiana



Georgetown County  
South Carolina



Longport  
New Jersey



Coral Gables  
Florida



Parkland  
Florida

## **Municipalities are adapting to meet growing needs.**

- Finding ways to work smarter
- Turning to digital tools to streamline work and enhance public communication
- Adopting stricter, more creative regulations
- Pairing regulations with smart data analysis

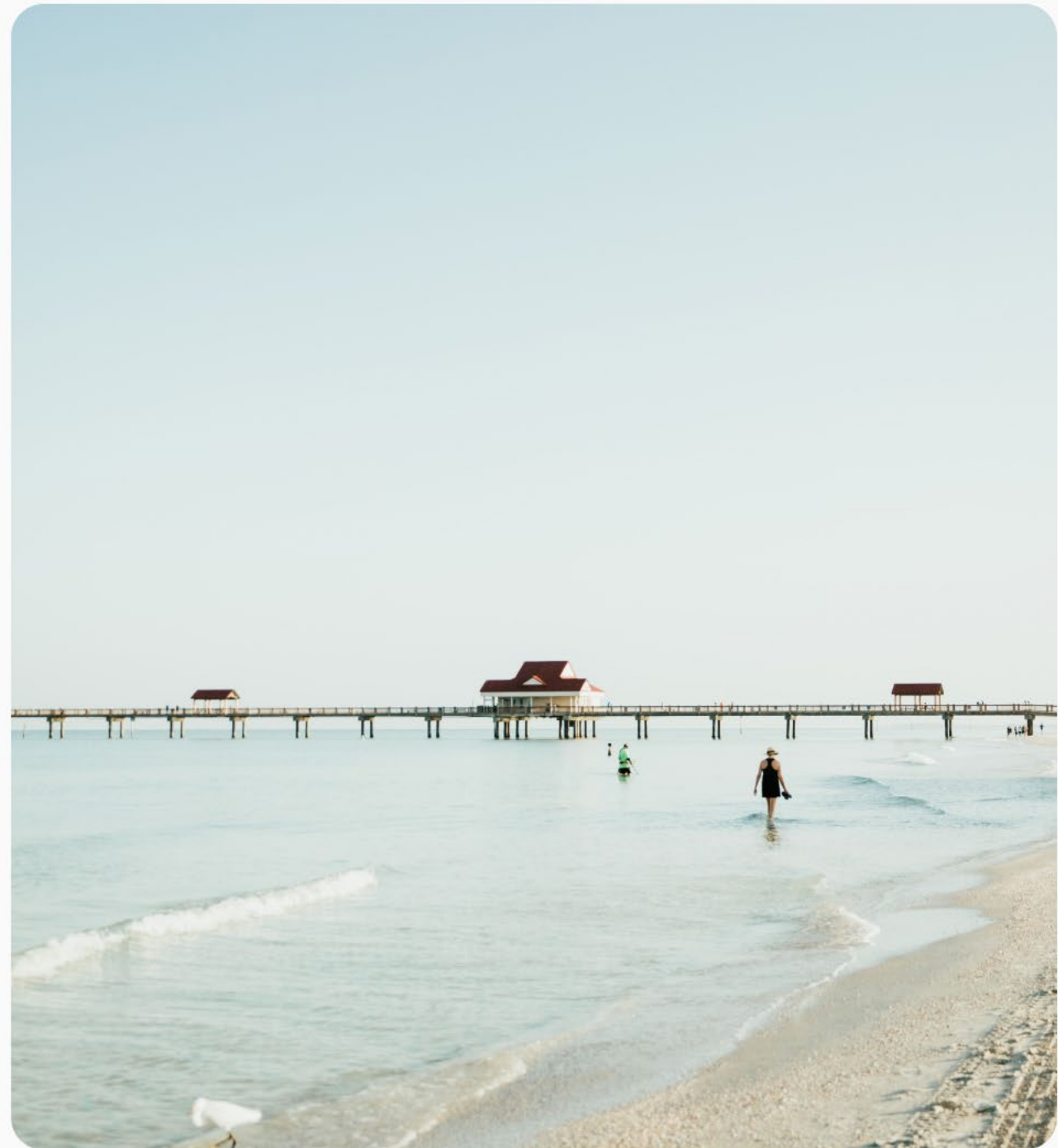
# Agenda

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- 3 Case Study: Georgetown County, SC

CLEARWATER, FL

## Clearwater's floodplain management programs are focused on resident benefits.

- Early in Clearwater's history, beach and entertainment were focal points for development.
- The CRS program and its discounts are crucial priorities.



CLEARWATER, FL

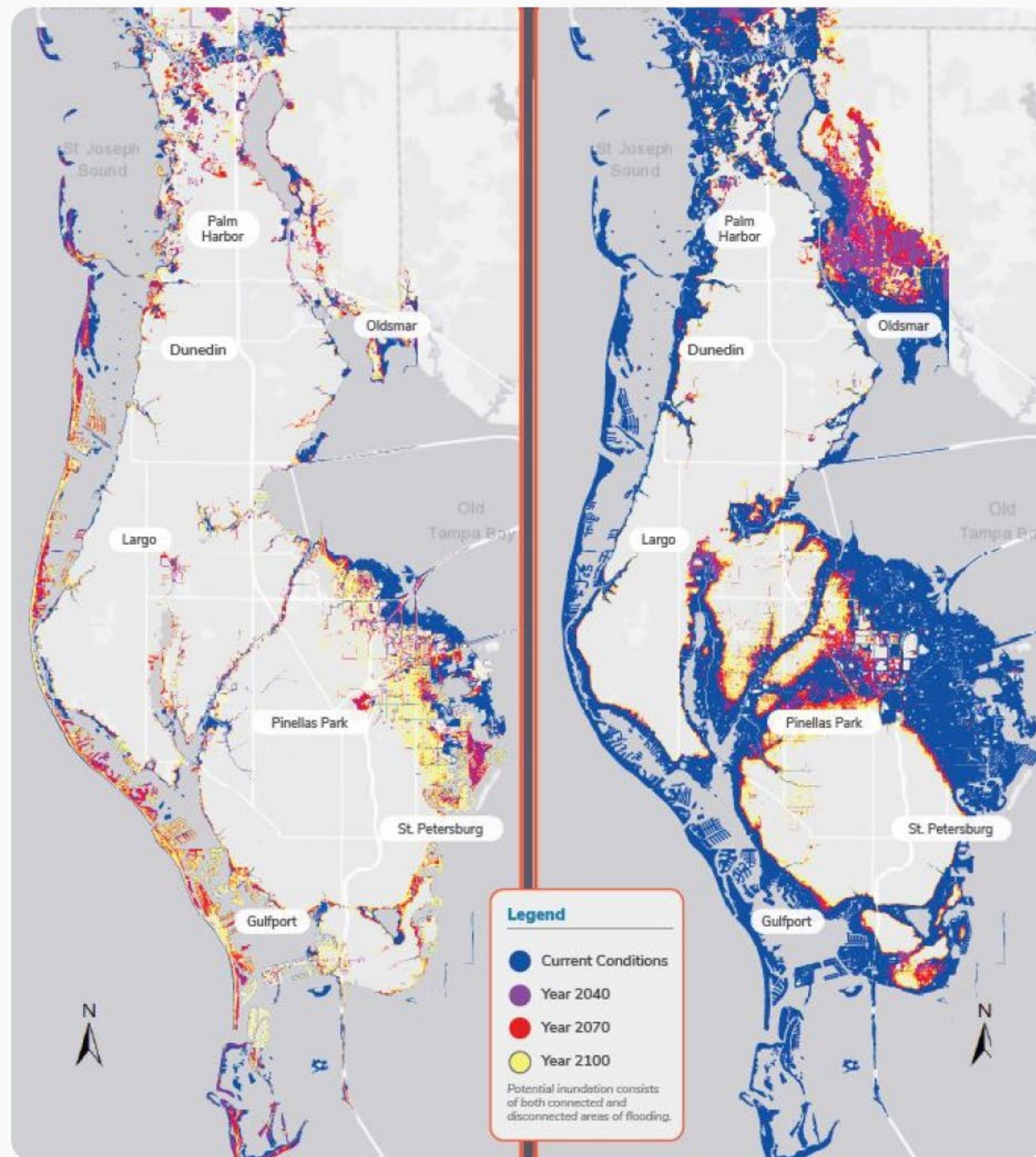
## They were focused on a few key floodplain management objectives.

- Maintaining CRS participation.
- Future-proofing construction and development.
- Protecting necessary natural buffers and shoreline.



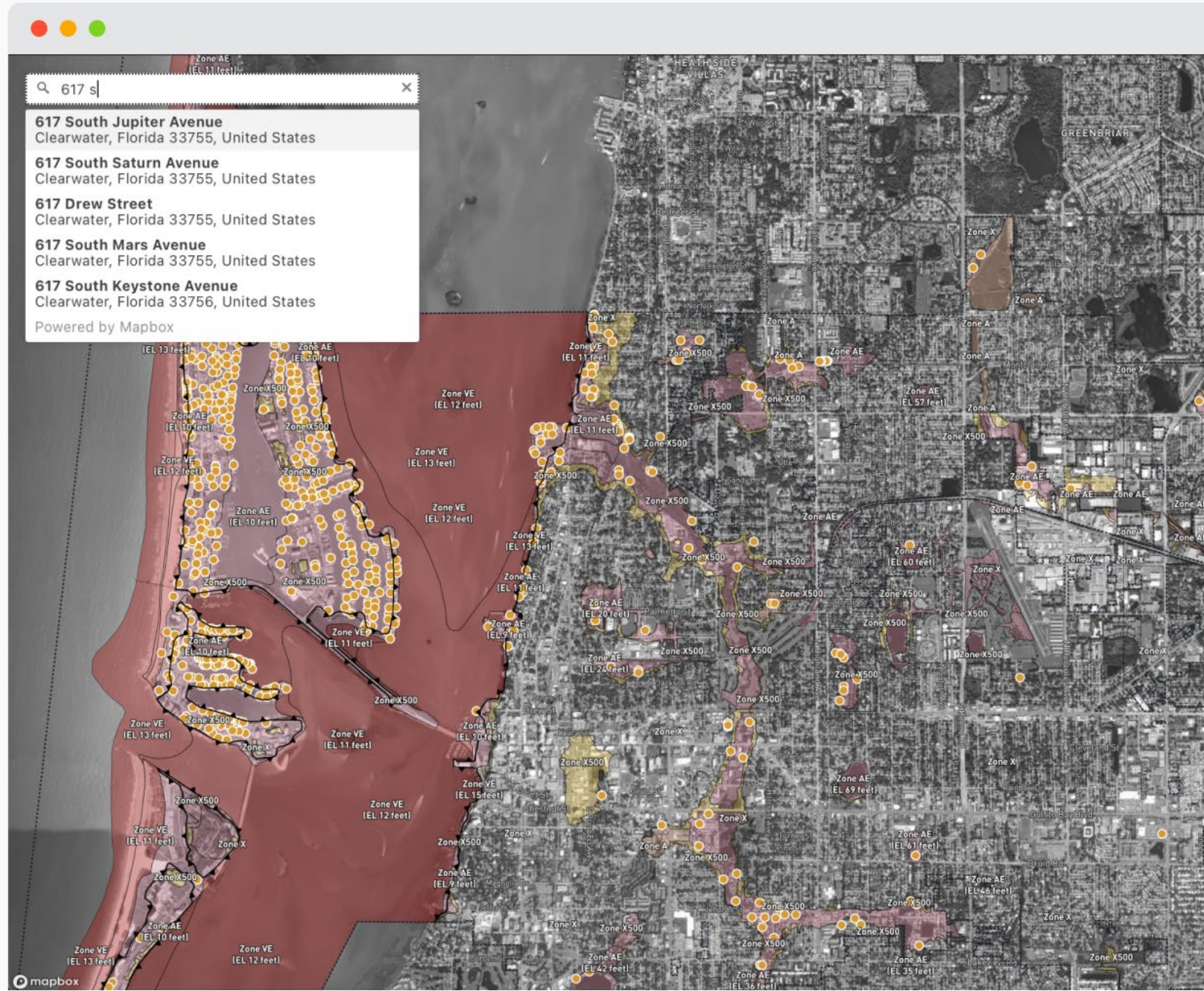
## They adopted some key regulatory tools to ensure their residents are safe.

- New floodplain management ordinance in 2018.
  - 2 ft freeboard
  - More stringent enclosure requirements
  - Coastal A Zone (preemptively)
  - Critical facilities above 500-year floodplain
  - Manufactured home restrictions
- Coastal Vulnerability Assessment
  - Differences between the VA and the FIRM



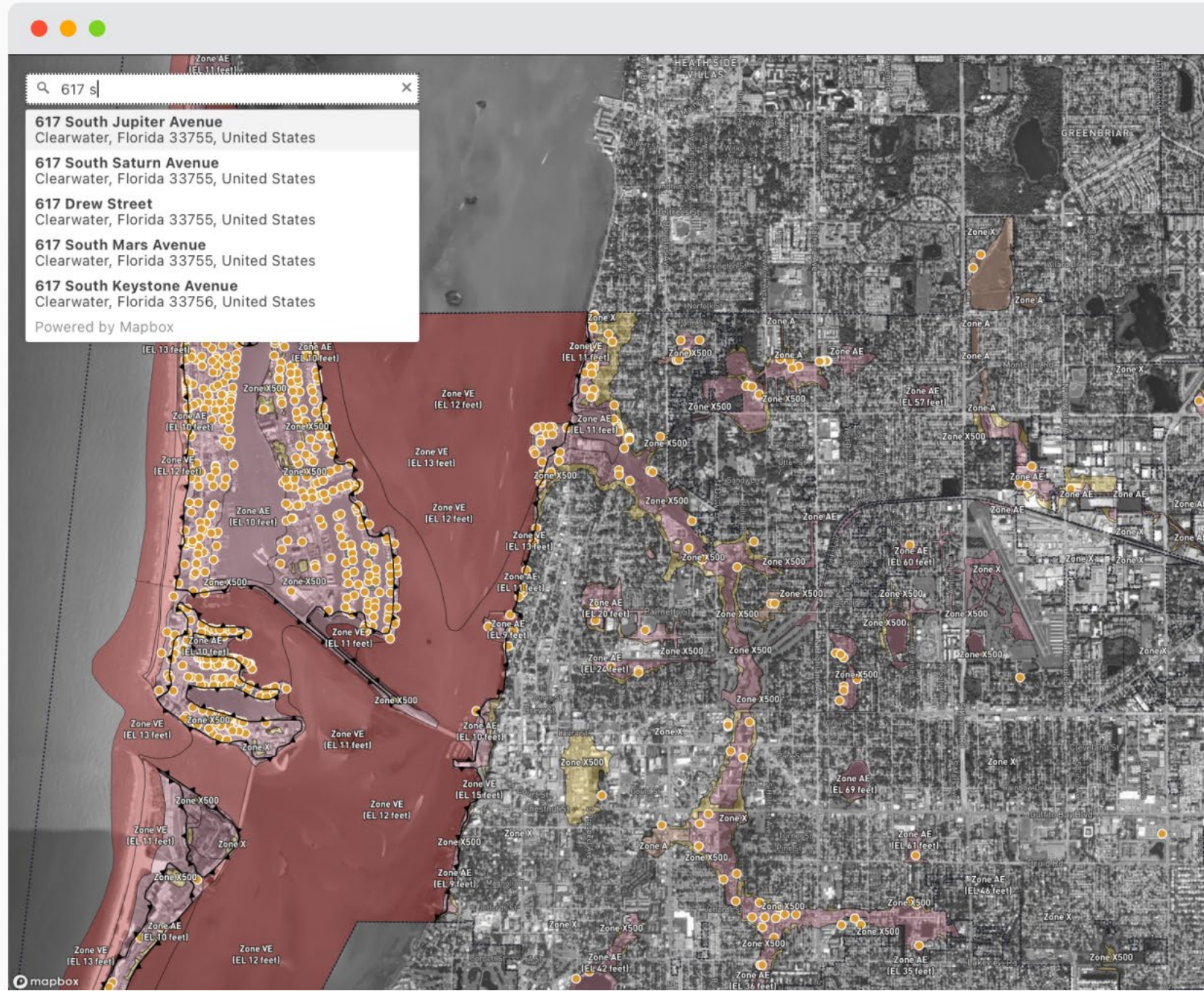
# Clearwater uses Forerunner to ensure that everyone has access to key info.

- Additional regulatory mapping made enforcement more complicated.
- Needed to get everyone on the same page.
- Implementing new changes required retooling of their systems.



## Lessons Learned

- Higher standards that incorporate more complex mapping require **thoughtful implementation**.
- Consolidating data into one place allowed the community to **communicate faster with residents**.
- Opportunity to add additional informational mapping to the system for **future use cases**.

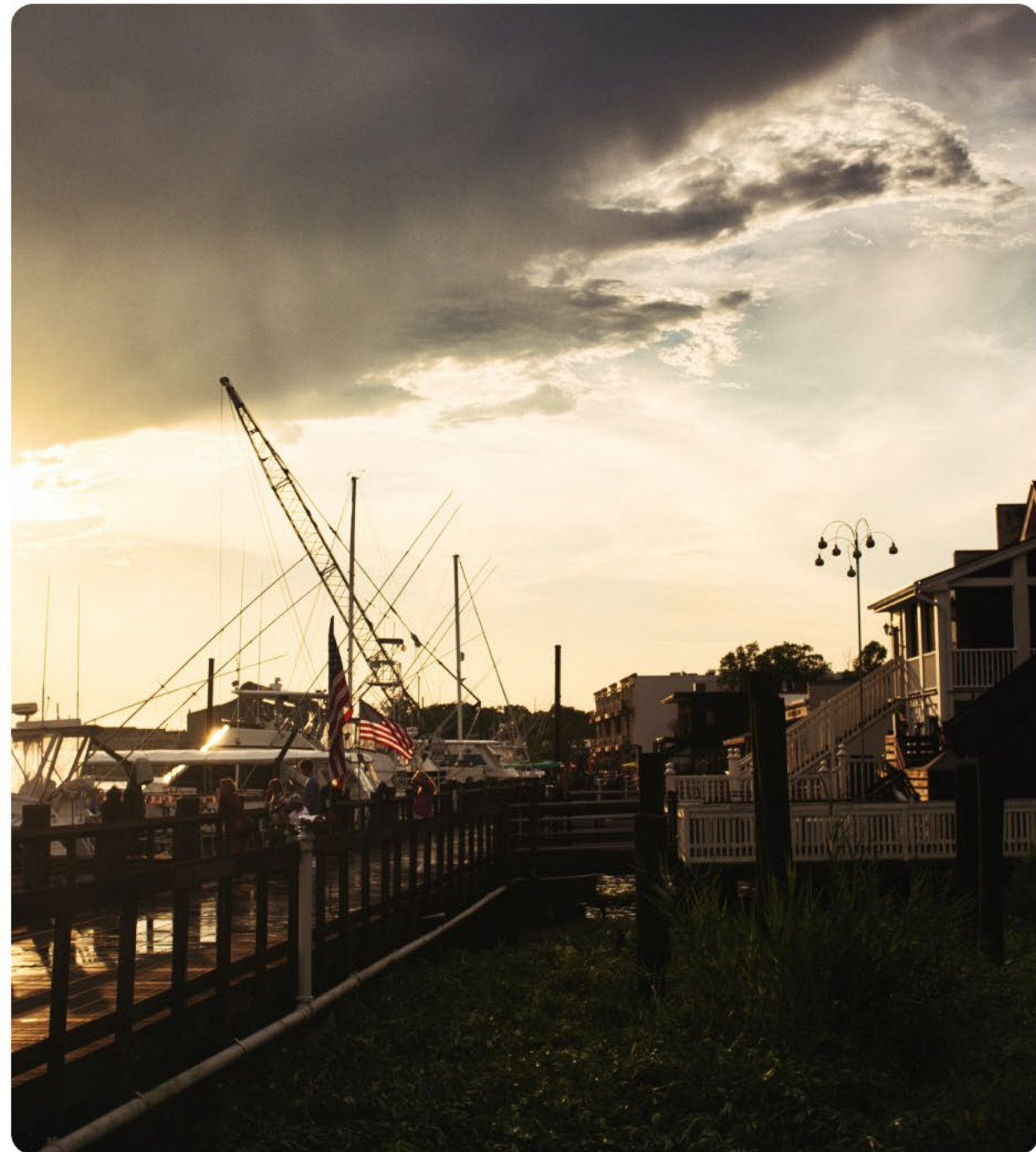


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- 1 Introduction
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- 3 **Case Study: Georgetown County, SC**

# Georgetown County includes 6,000 properties in the Special Flood Hazard Area (SFHA)

- Floodplain management team of two
- High rate of development in coastal areas
- The floodplain management team coordinates with a variety of departments including:
  - Public Works
  - Stormwater
  - Planning and Development
  - Emergency Management Division
- 2023 priorities included: resident communication, CRS program, and workflow efficiencies



GEORGETOWN COUNTY, SC

## Georgetown County has been working towards several floodplain management goals.

- Incorporating resilience into its new comprehensive plan
- Improving SI/SD tracking across the County
- Adopting Forerunner to support resident communication and outreach



PRE-STORM

# Georgetown County uses Forerunner to ensure residents understand their flood risk.

“Forerunner helps to streamline the county’s flood risk management efforts and provides potentially life- and property-saving information and resources for our residents. The amount of phone calls has gone down tremendously since launching the website.”

**Steven Elliott**  
Georgetown County Building Official

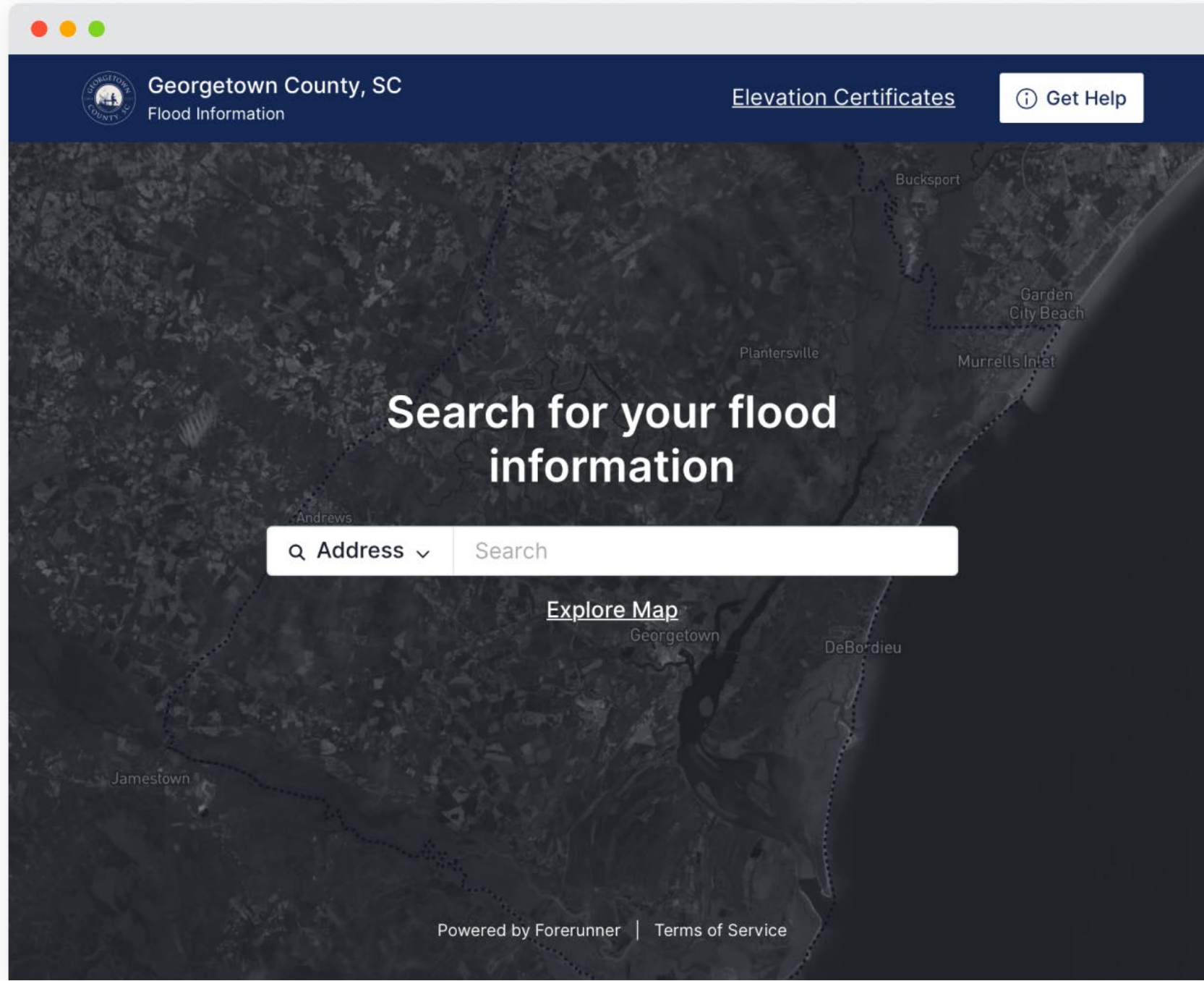


A screenshot of a web browser displaying the "Georgetown County, SC Flood Information" website. The page features a dark blue header with the county logo, navigation links for "Elevation Certificates" and "Get Help", and a breadcrumb trail "Go to Georgetown County, SC's homepage". The main content area shows a satellite map with a blue outline highlighting a specific parcel. The map includes labels for "Meeting St" and "Smith St", a "Zone AE" flood risk indicator, and a "Mapbox" logo. A blue button labeled "Effective FIRM" is visible in the bottom right of the map area. Below the map, the address "78 Clinton Street" is displayed, along with the location "Baytown, NJ 77521" and "Parcel ID 00-3103-213-00-03". A "View on Google Streetview" button is also present, accompanied by a small streetview image showing a residential street with houses and trees.

PRE-STORM

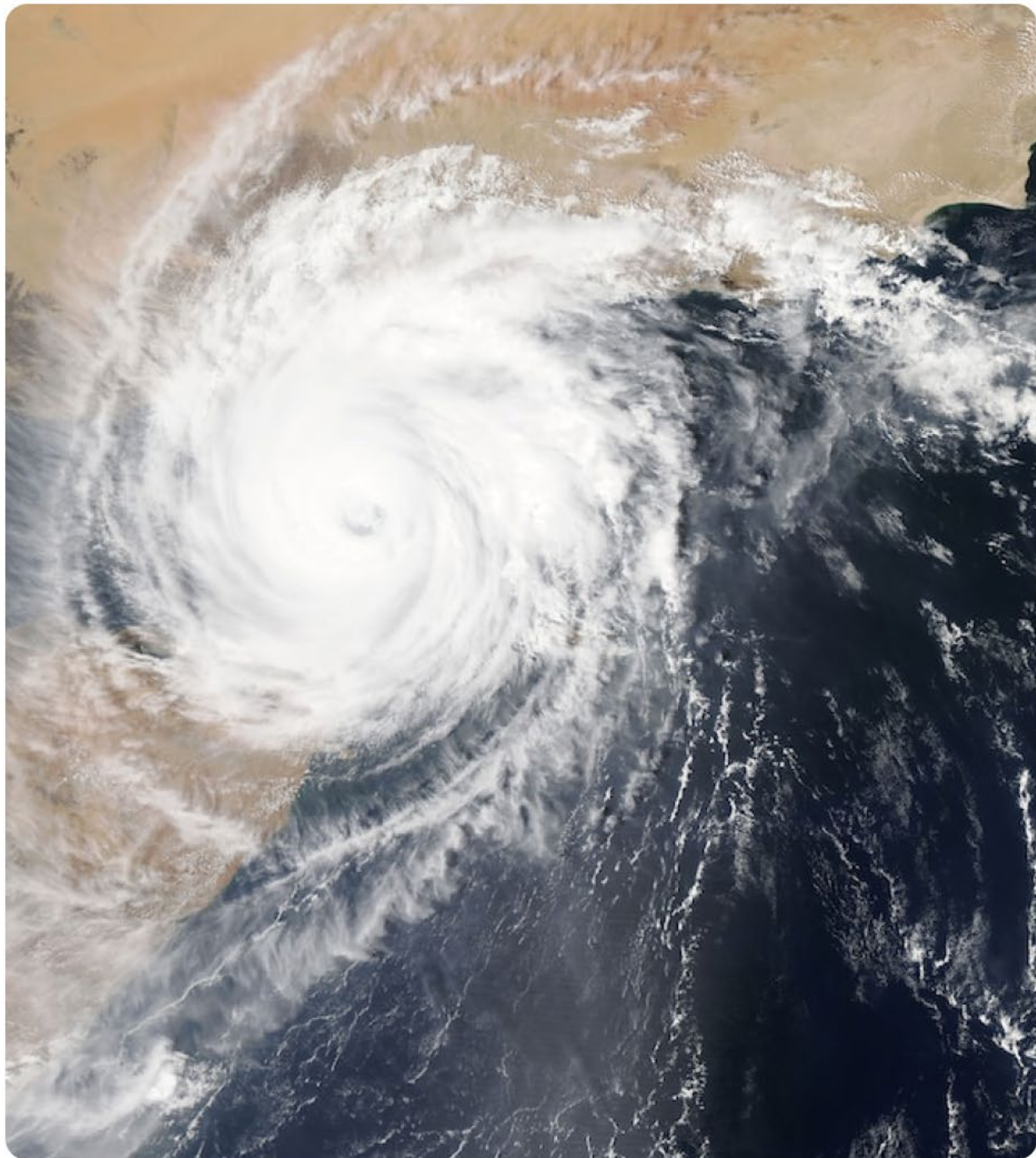
# The public website empowers Georgetown County residents.

- **Helps residents make better decisions** by sharing property-level flood risk data and important documents
- **Minimizes the amount of public requests** and streamlines requests with the 'Get Help' feature. Previously ~50% of day spent responding to the public.
- **Consolidates all of their information**, so that residents don't have to use multiple datasets to get a full picture of their flood risk



STORM

# Hurricane Idalia hit South Carolina at the end of August 2023.



DISASTER RECOVERY

# Georgetown County planned to use Forerunner to help in post-storm recovery.

The Preliminary Damage Assessment feature is designed to help collect critical data and information on damage quickly after disasters, allowing communities to respond to residents faster and save on crucial response time.



A screenshot of the Forerunner web application interface. The interface is displayed in a browser window with three colored window control buttons (red, yellow, green) at the top left. The main content area is divided into a top header, a central overview section, and a bottom warnings section. The top header includes a search bar with a magnifying glass icon, a dropdown menu for "Address", and a search button. Below the search bar, the "Parcel ID: 1503\_47.1.03" is displayed, followed by the address "12 Jefferson St, Baytown, NJ 77521". There are two buttons: "Share property" and "Edit property". The central overview section has a tabbed interface with "Overview", "Activity", "Records", and "Files". The "Overview" tab is active and shows a photograph of a two-story house on stilts, partially obscured by sand. The bottom warnings section is titled "Warnings" and has an "Edit" button. It lists three warnings: "Property destroyed by damage", "Property is over the SI/SD threshold", and "Flood insurance requirement". To the right of the main content area is a large satellite map showing a residential neighborhood with several red circular markers indicating damaged properties. The map includes street names like "Washington Ave" and "Jefferson St".

# Georgetown County planned to use Forerunner to help in post-storm recovery.

The Preliminary Damage Assessment feature is designed to help collect critical data and information on damage quickly after disasters, allowing communities to respond to residents faster and save on crucial response time.



✕ | Edit preliminary damage assessment

### Edit a preliminary damage assessment

Provide details on the property's damage

**Date of assessment\***

8/29/2022

**Is the structure accessible?\***

Yes

**Structure use\***

Residential

**Type of structure\***

Conventional

**Degree of damage\***

Major

**Is the structure flooded?\***

Yes

**Owner or renter?\***

Owner

**Is there insurance?\***

Unknown

Save

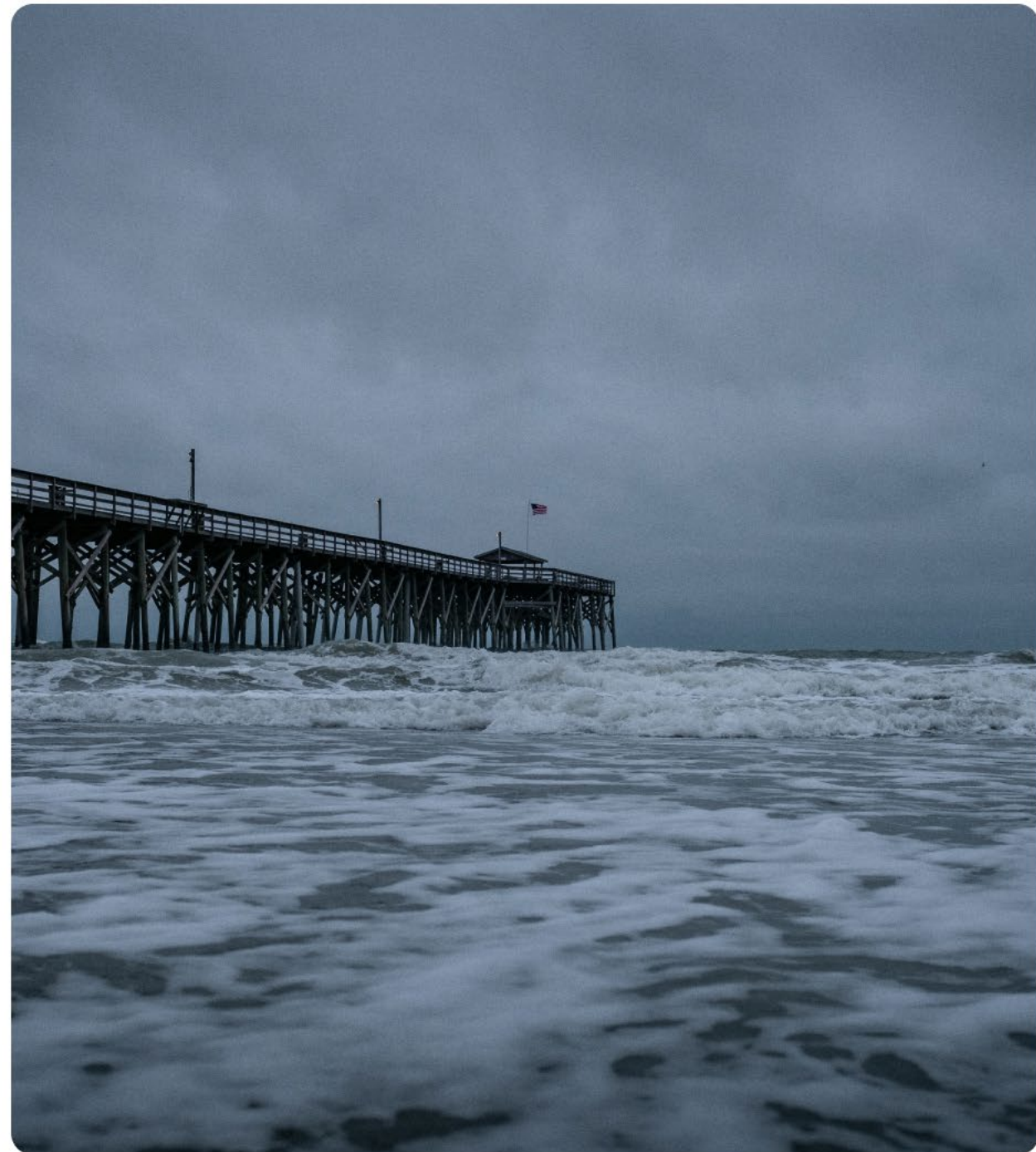
PROBLEM-SOLVING

## The County provided valuable feedback about their data collection needs to Forerunner

- One of the first large-scale users of Forerunner's PDA tool
- The team's partnership and feedback was crucial to making the feature better for everyone

### Highlighted improvements:

- **Faster data exports** without a middle-man to speed up time to service and reporting
- **Better mapping of assessments** for more visibility into progress and extents of damage
- Calibration of the PDA form for **maximum data collection flexibility**



## LEARNINGS

# Many of the County's suggestions have been implemented

- Processes and tools should **dynamically evolve** to meet needs
- The best software is that which is created in **partnership with users**
- **Testing is the best way to improve** software quickly
- Small changes in software functionality can have **big positive impacts** for usage when it matters most

“We have seen so much growth with the software between our initial contact and now.”

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**Steven Elliott**

Building Official in Georgetown County



## UPDATES

# The County has since used our new Substantial Damage Estimates (SDE) tool.

- Hurricane Helene did not directly impact Georgetown County but enough water came downstream from NC to require a dam release.
- Lessons Learned
  - Testing out tools in blue skies to train team and identify opportunities to improve (e.g. need for offline mode)
  - Back-ups are always important
- Next Steps
  - Adding location tracking
  - Assigning tasks
  - Creating more nuanced inspections

The screenshot shows a web application window titled "Substantial Damage Estimate Residential Inspection" for the address "45 2 Street, Harborville, NJ 12643". It displays an "Estimated damage summary" table and an "Estimated computed damages breakdown" table.

### Substantial Damage Estimate Residential Inspection

45 2 Street, Harborville, NJ 12643

#### Estimated damage summary

Estimated damage cost / Actual cash value with depreciation ⓘ	58.3
Estimated damage cost / Base cost ⓘ	44.2
Base cost ⓘ	\$611,411.00
Depreciation ⓘ	24.2
Actual cash value with depreciation ⓘ	\$463,449.00
Estimated damage cost ⓘ	\$270,231.00

#### Estimated computed damages breakdown

Element	Structure % ⓘ	Element Cost	Damage	Damage Value
Foundation	2.9	\$17,730.92	10%	\$1,773.09
Superstructure	17.7	\$108,219.75	25%	\$27,054.94
Roof covering	2.2	\$13,451.04	30%	\$4,035.31
Exterior finish	8.3	\$50,747.11	15%	\$7,612.07
Interior finish	12.8	\$78,260.61	20%	\$15,652.12
Doors & windows	14.5	\$88,654.60	20%	\$17,730.92
Cabinets & countertops	4.4	\$26,902.08	100%	\$26,902.08
Floor finish	13.2	\$80,706.25	100%	\$80,706.25
Appliances	3.5	\$21,399.39	100%	\$21,399.39
Plumbing	10.9	\$66,643.80	50%	\$33,321.90
Electrical	5.6	\$34,239.02	28%	\$9,586.92
HVAC	4	\$24,456.44	100%	\$24,456.44
<b>Totals</b>		<b>\$611,411.00</b>		<b>\$270,231.43</b>

**Thank you!**



Susanna Pho, CFM  
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