2026 HURREVAC Training Webinar Series

Day 4 – Evacuation Timing Features

June 18, 2026

FEMA

NATIONAL HURRICANE PROGRAM

HURREVAC

HURRICANE DECISION SUPPORT TOOL

THIS WEEK'S AGENDA

MON. JUNE 15: Intro to HURREVAC

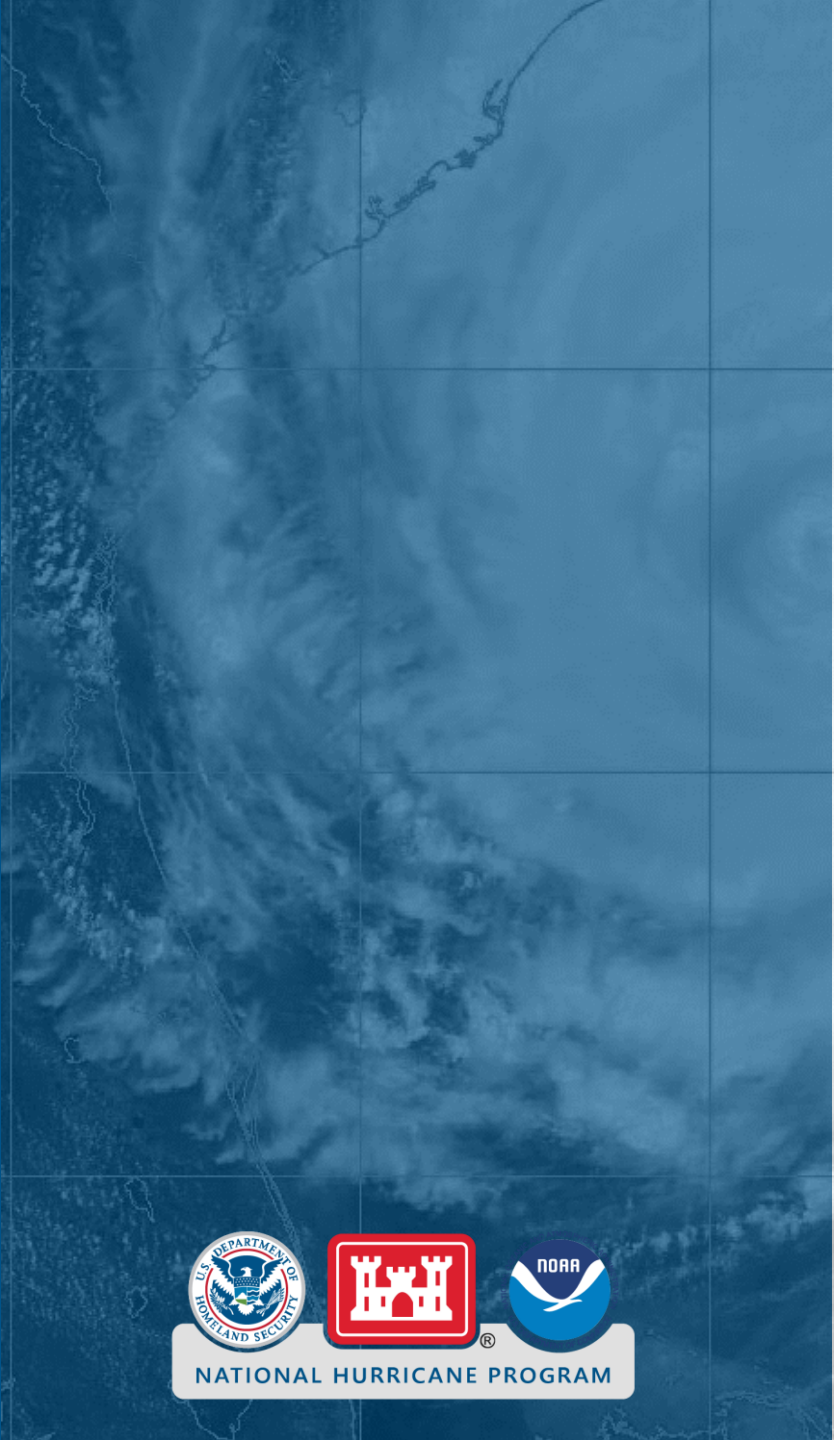
TUES. JUNE 16: Wind Forecast Features

WED. JUNE 17: Storm Surge and Flooding Hazards

THURS. JUNE 18: Evacuation Timing Features

Recordings from all previous sessions available on YouTube

Today's Presenters



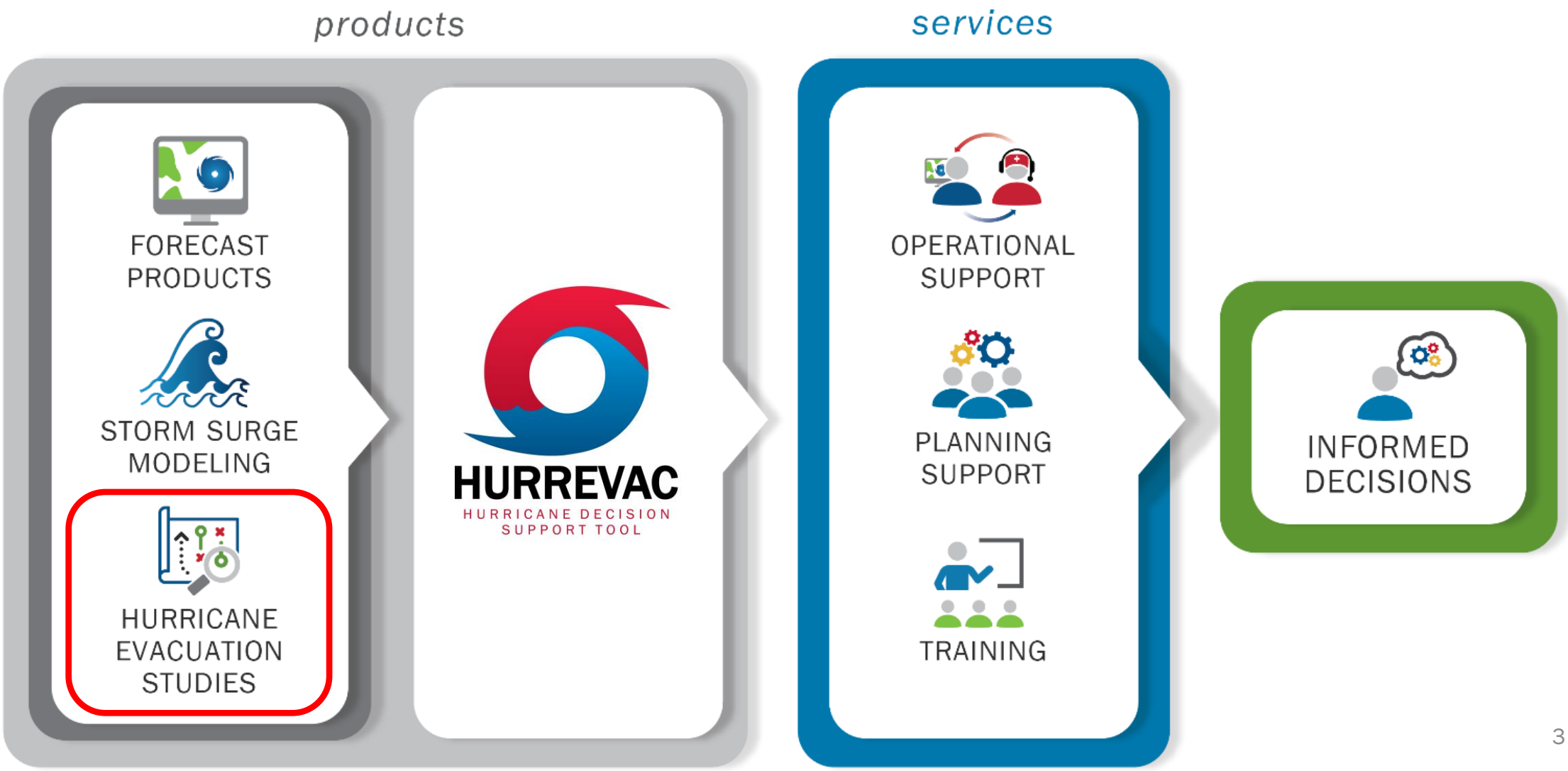
Frannie Bui, PE, PMP
National Hurricane Program Manager
U.S. Army Corps of Engineers, Baltimore District

Karen Townsend
President, Sea Island Software

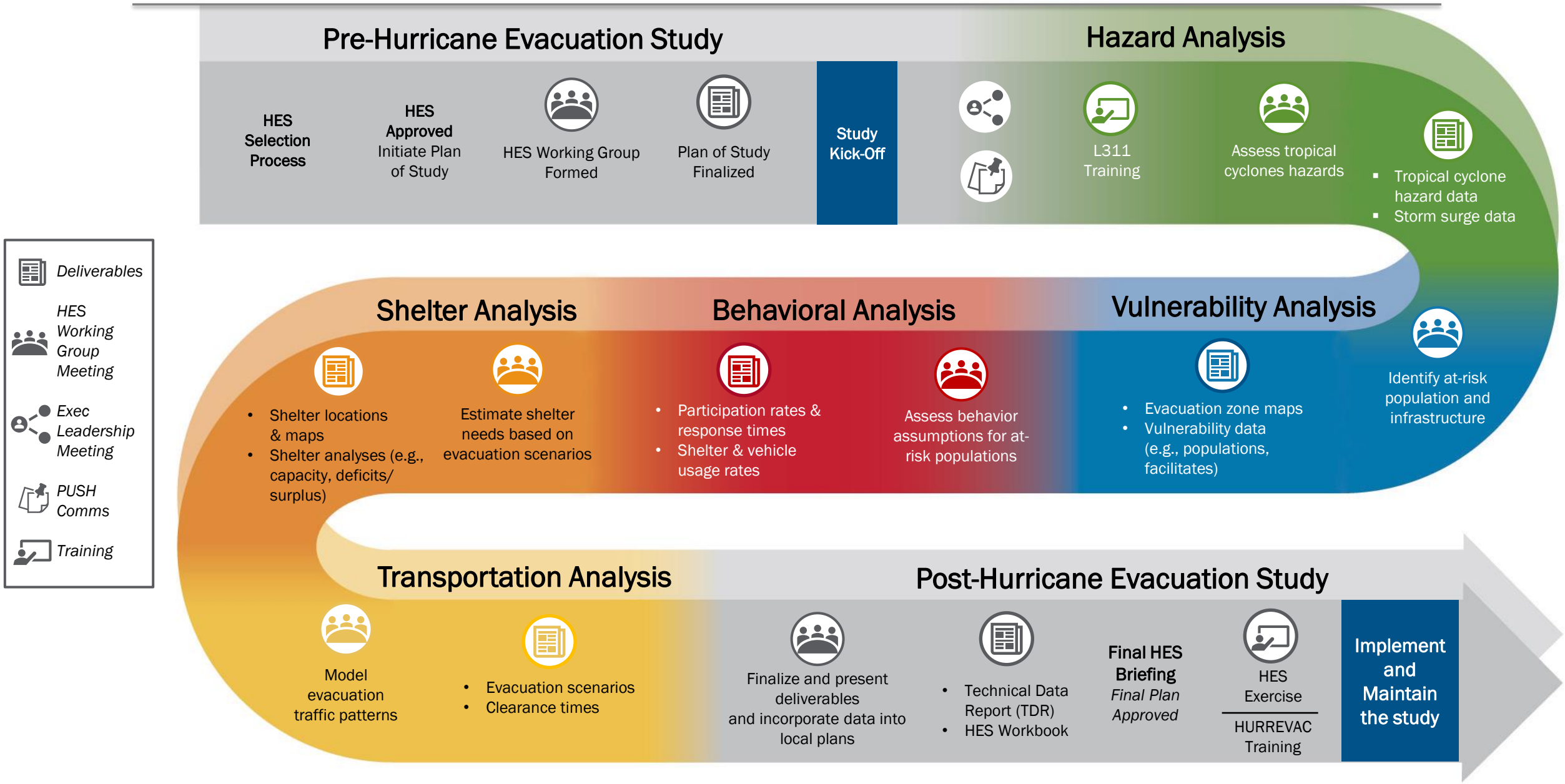
OVERVIEW

HES & HURREVAC EVACUATION TIMING FEATURES

National Hurricane Program



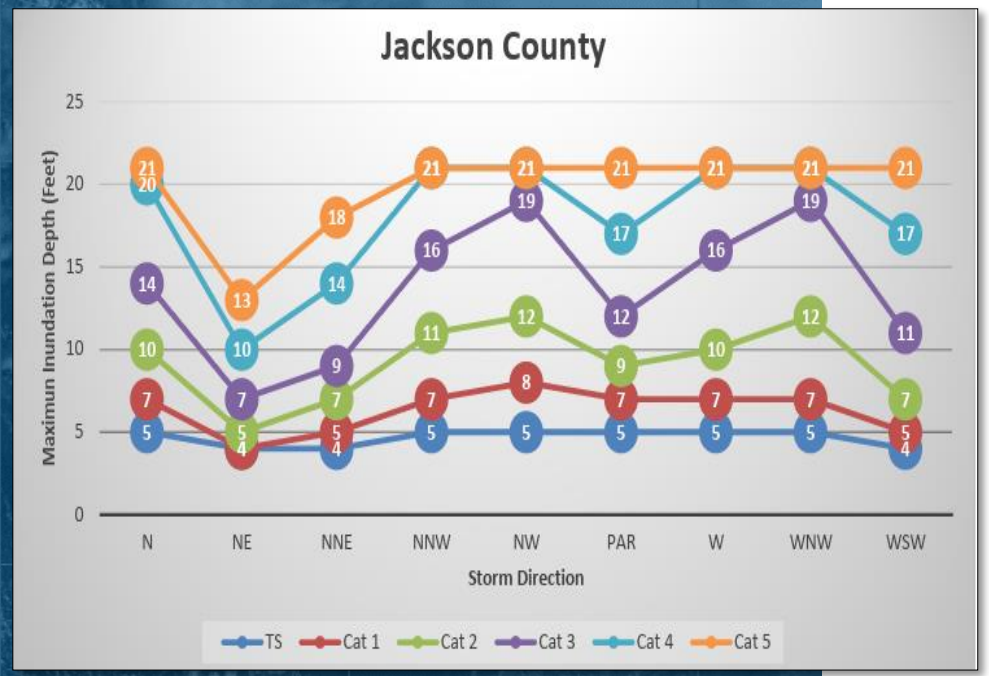
Hurricane Evacuation Study Process



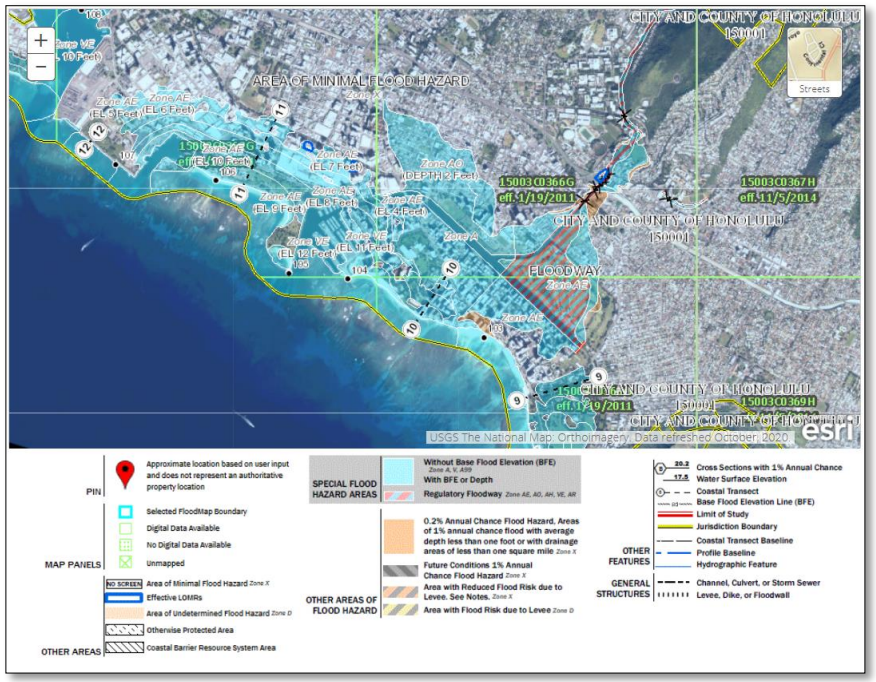
HAZARDS ANALYSIS

Process and Outcomes

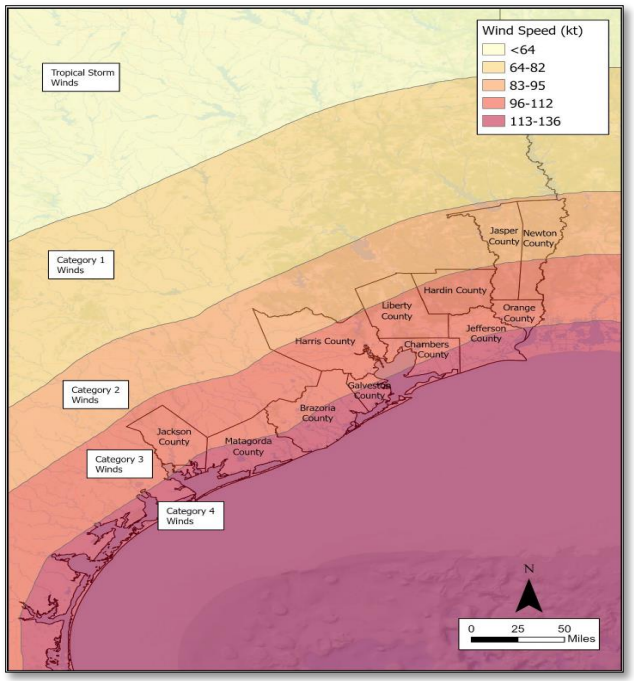
- **Refined understanding of hurricane risks through:**
  - Grouping and mapping MOMs and MEOWs
  - Overlaying storm surge and FEMA maps
  - Mapping maximum envelopes of wind



MOM and MEOW Groupings



FEMA Flood Mapping

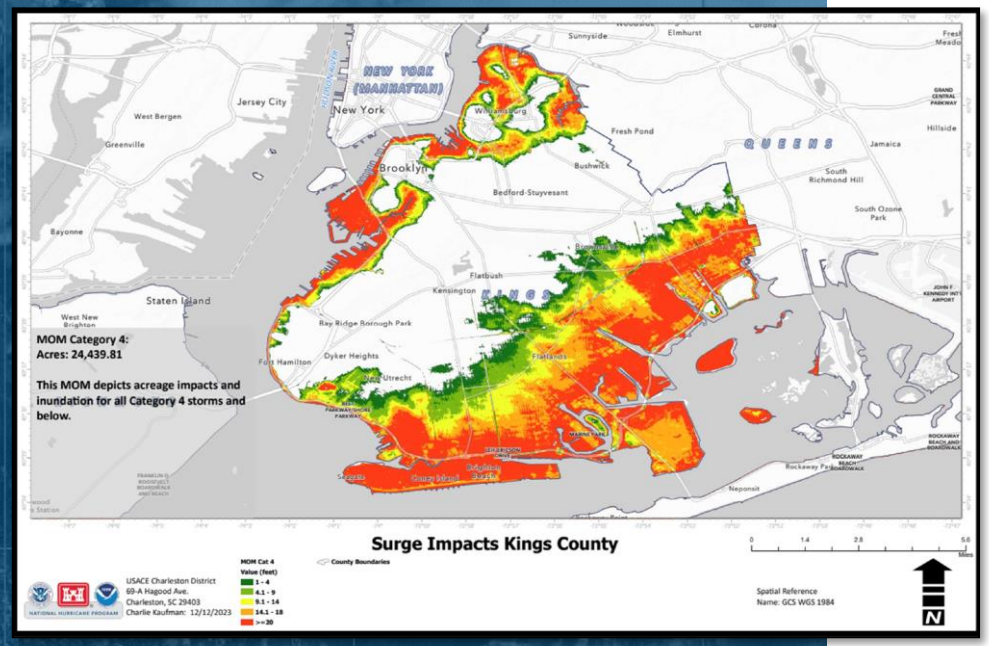


Maximum Envelopes of Wind

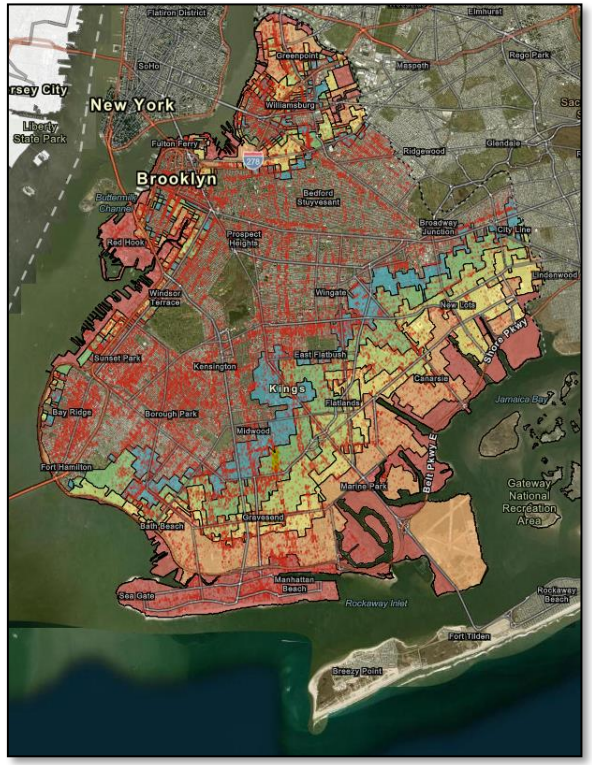
VULNERABILITY ANALYSIS

Process and Outcomes

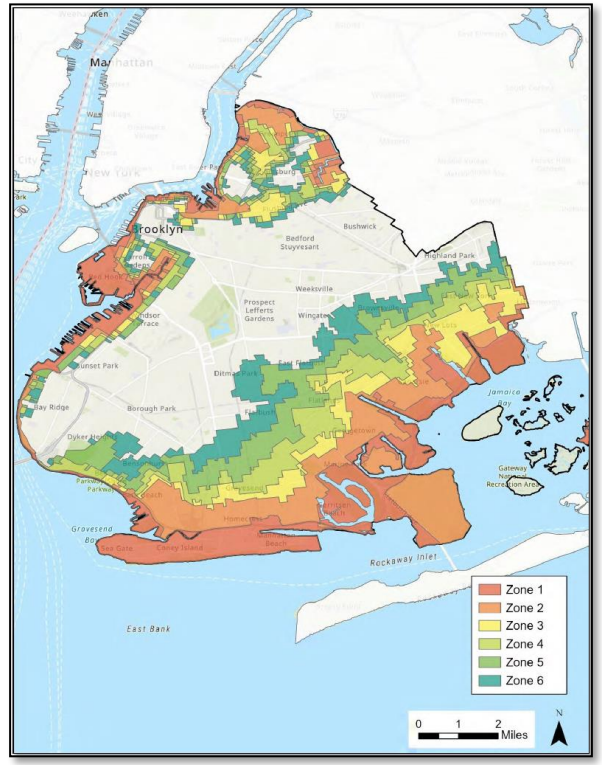
- **Identify vulnerable population and critical infrastructure**
- **Develop (or refine) Evacuation Zones** by combining hazard maps, vulnerability data, transportation network, and state & local input.



Hazard Maps



State + Local Input

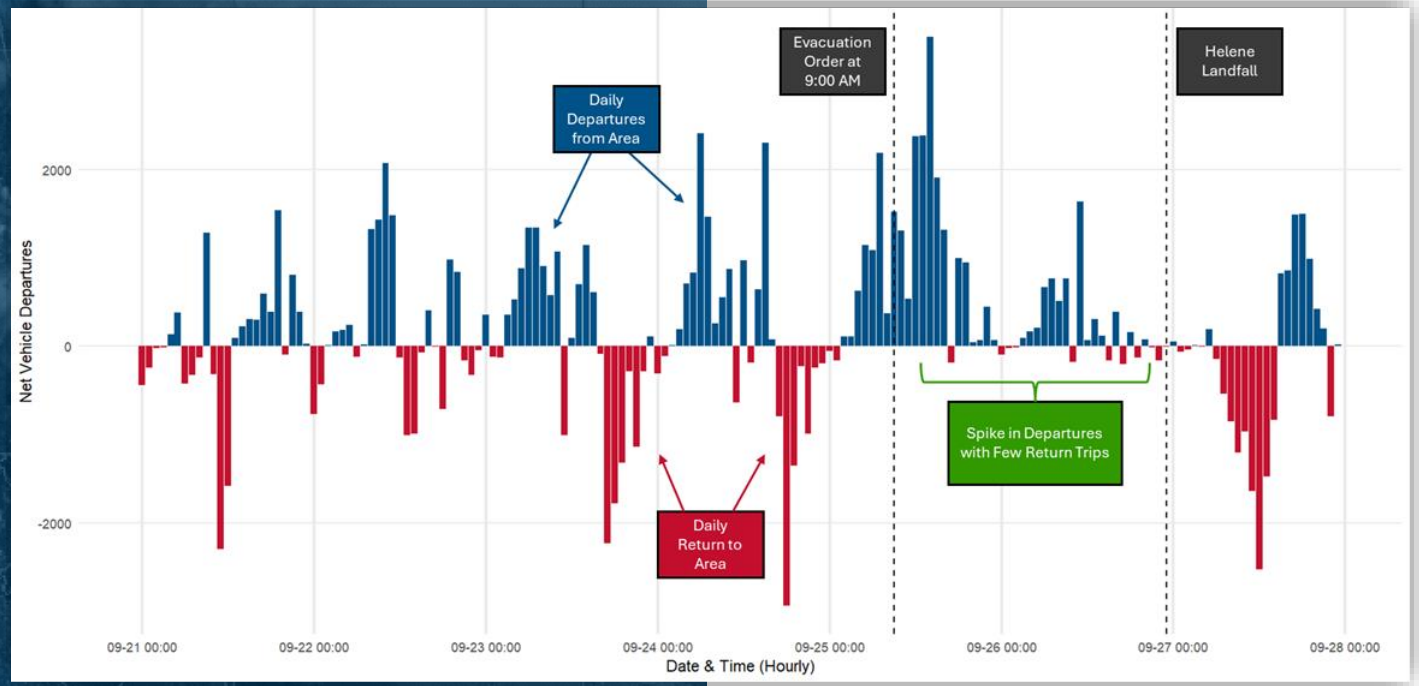


Evacuation Zones

BEHAVIORAL ANALYSIS

Process and Outcomes

- **Conduct surveys and leverage data to develop an understanding of how populations respond to threats**
  - Evacuation participation rates
  - Response time
  - Destination weights
  - Public shelter usage rates
  - Vehicle usage



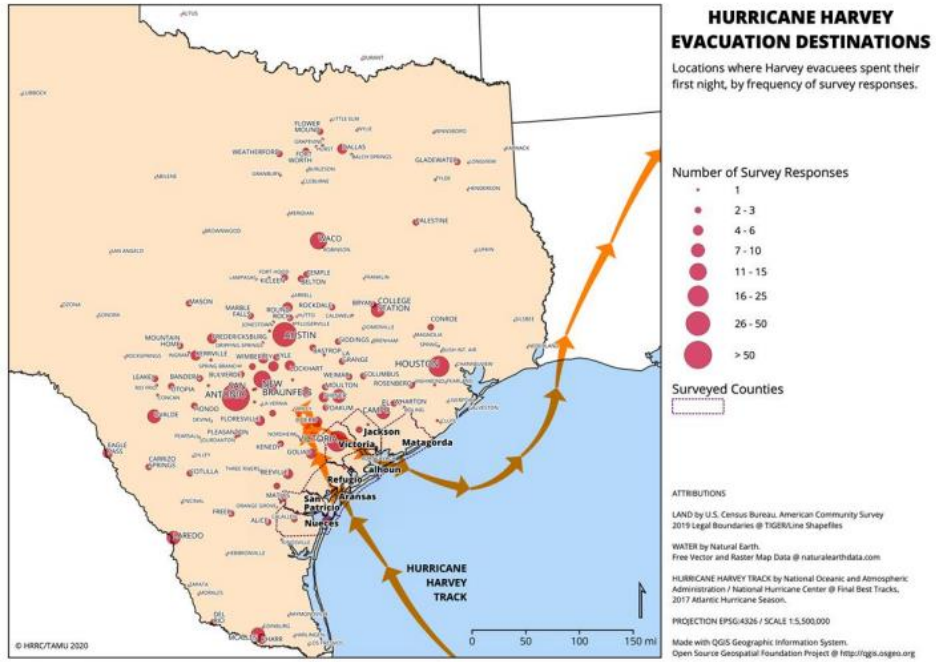


Figure 6. Hurricane Harvey evacuation destinations. Source: Bierling et al. (2020).

SHELTER ANALYSIS

Process and Outcomes

Conduct a detailed geospatial analysis and use shelter rates (from the behavioral analysis) to:

- Identify shelter locations
- Identify shelter vulnerability
- Perform a shelter demand vs. capacity analysis

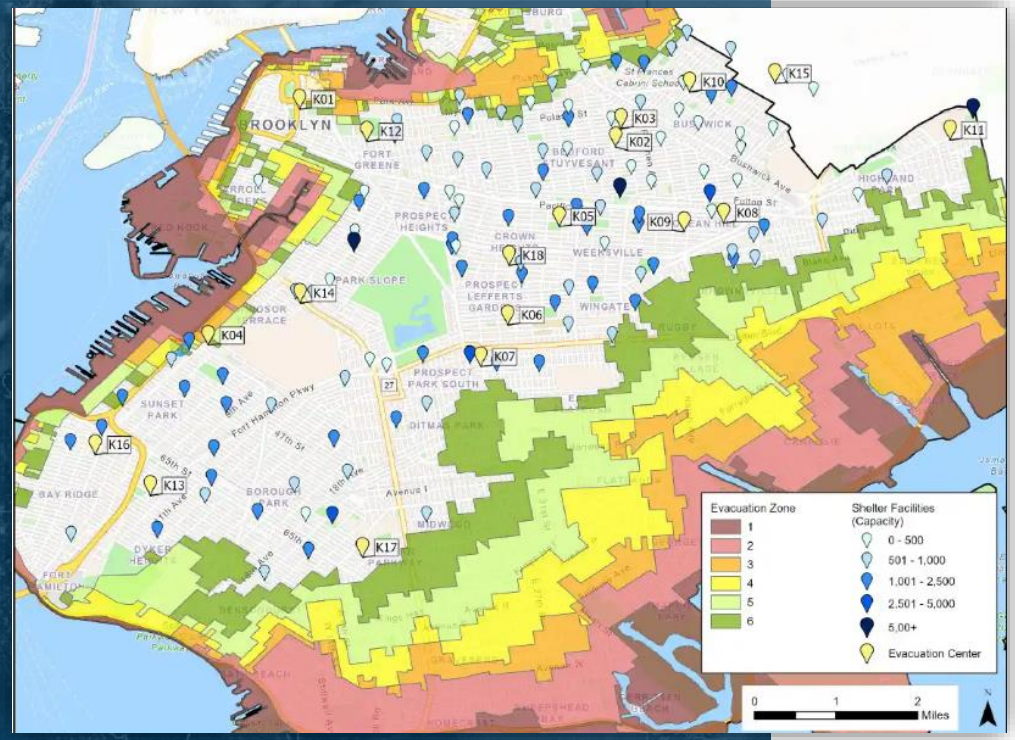


Table 3.11: Kings County (Brooklyn) Shelter Demand/Capacity

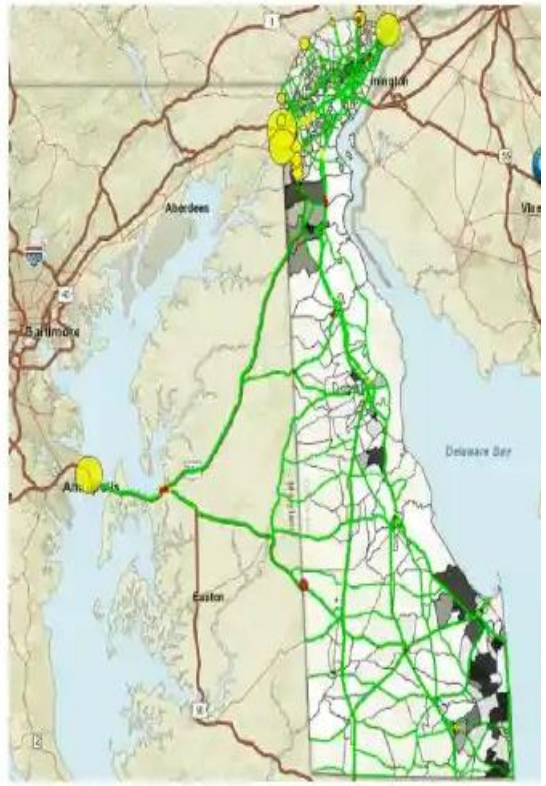
Metric	Zone 1 MEOWs			Zone 2 MEOWs			Zone 3 & 4 MEOWs			Zone 5 & 6 MEOWs		
	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH	LOW	MED	HIGH
Shelter Demand	963	12,801	53,355	1,410	15,269	60,398	2,224	22,097	79,478	3,176	29,834	117,405
EC Capacity	22,407	22,407	22,407	22,407	22,407	22,407	22,407	22,407	22,407	22,407	22,407	22,407
Shelter Capacity	126,853	126,853	126,853	126,853	126,853	126,853	126,853	126,853	126,853	126,853	126,853	126,853
Total Capacity	149,260	149,260	149,260	149,260	149,260	149,260	149,260	149,260	149,260	149,260	149,260	149,260
Total Surplus/Deficit	148,298	136,459	95,905	147,850	133,991	88,863	147,036	127,163	69,783	146,084	119,426	31,855

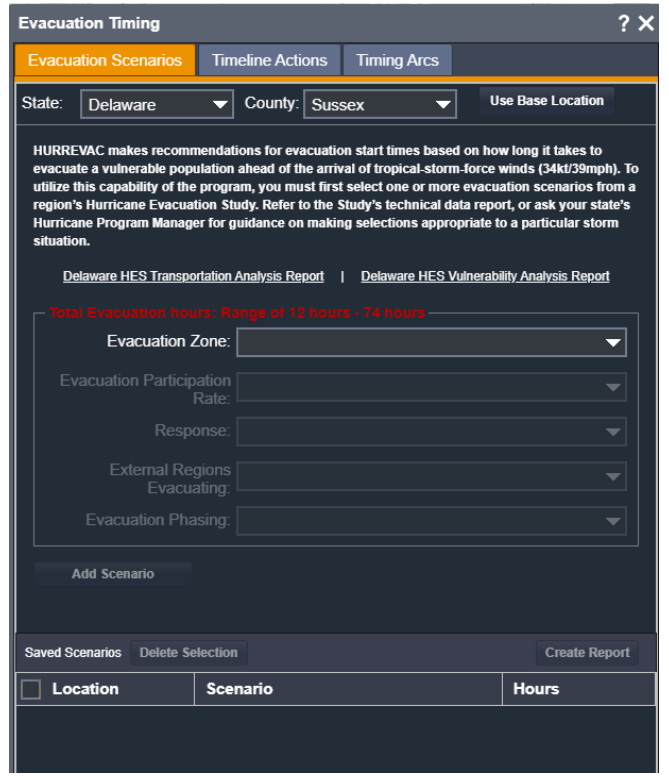
TRANSPORTATION ANALYSIS

Process and Outcomes

- **Develop Evacuation Scenarios** through close coordination with local & state emergency managers
- **Transportation modeling to calculate Clearance Times** using the Real Time Evacuation Planning Model (RtePM)
- **HURREVAC Integration**

Scenario	Participation Rate			Evacuation Zone				One Day Response Curve			Virginia & Maryland		Phased Approach	
	Low	Med	High	A	B	C	D	Slow	Med*	Fast	With	W/O**	With	W/O**
ES-32														
ES-33														
ES-34														
ES-35														
ES-36														
ES-37														
ES-38														
ES-39														
ES-40														
ES-41														



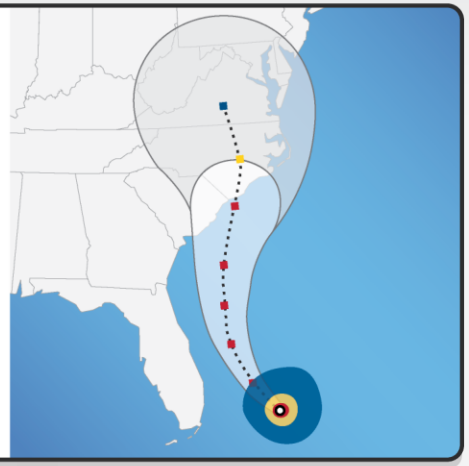


Evacuation Timing Features in HURREVAC

Calculating Evacuation Start Time

HAZARDS

Storm Forecast



Arrival Time of Tropical-Storm-Force Winds

PLANNING SCENARIOS

HES Data
(Hurricane Evacuation Study)
Pre-Determined Evacuation Zones and Scenarios

Clearance Time Scenario

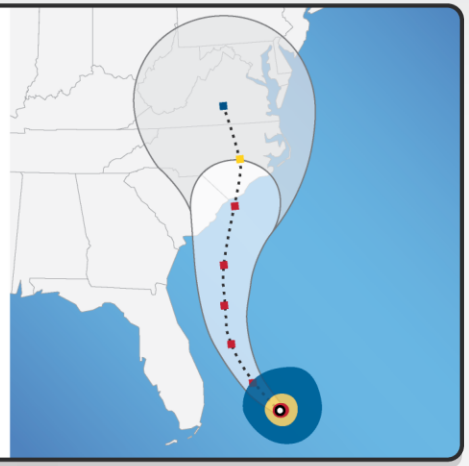
EVACUATION

Evacuation Start Time

Calculating Evacuation Start Time

HAZARDS

Storm Forecast



Arrival Time of Tropical-Storm-Force Winds

8pm Saturday

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PLANNING SCENARIOS

HES Data
(Hurricane Evacuation Study)
Pre-Determined Evacuation Zones and Scenarios

CATEGORY 3

Clearance Time Scenario

36 Hours

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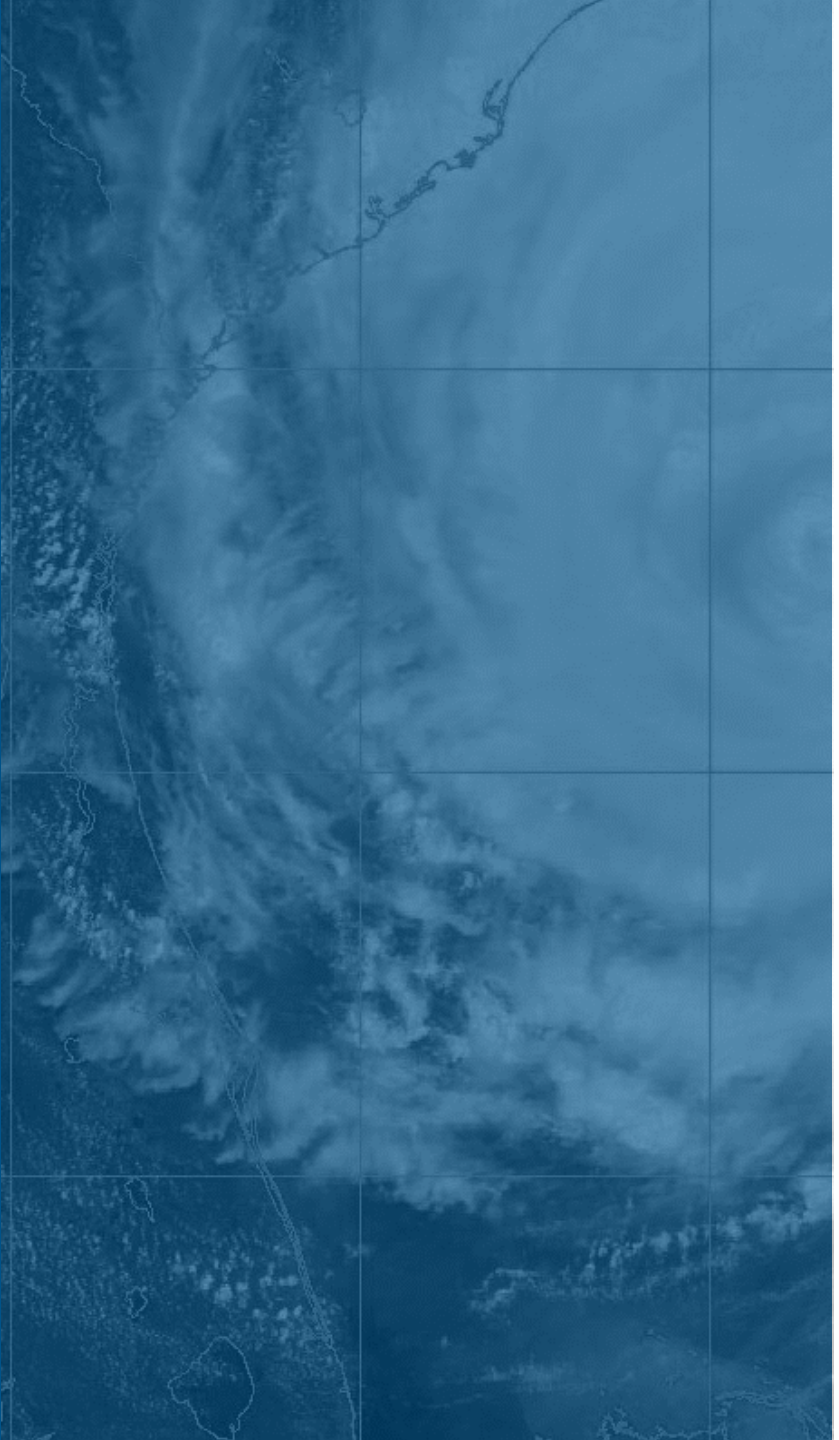
EVACUATION

Evacuation Start Time

8am Friday

HURREVAC Demo



Goals for Today

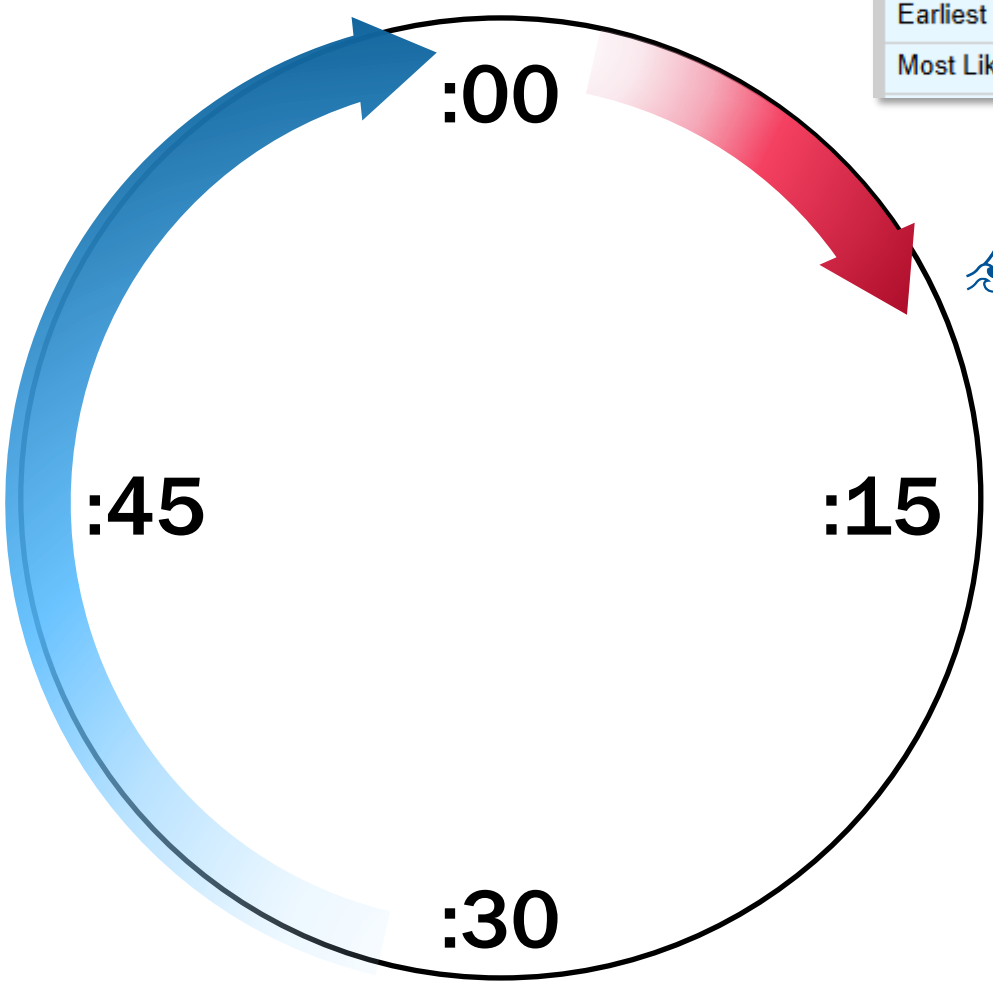
1. Access HES documents
2. Map evacuation zones and compare to storm surge layers
3. Combine clearance times with forecast data to calculate evacuation start time
4. Input custom timeline actions
5. Compare evacuation timing report with timing arcs method

When are advisory products usually available in HURREVAC?

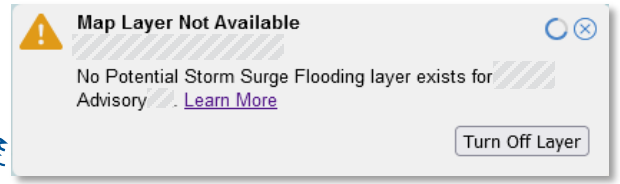
FIRST

- Track
- Text advisories
- Deterministic reports

- Times vary, especially when multiple storms are active
- Forecast layers not updated for intermediate advisories



TIME OF ARRIVAL	DATE
Earliest Reasonable	TBD
Most Likely	TBD



NEXT

- Probabilistic report data (%, TOA, TOD)
- Evac. timing report

LAST

About 60-90 min. after advisory hour

NATIONAL HURRICANE PROGRAM

Additional Resources: Self-Paced HURREVAC Training

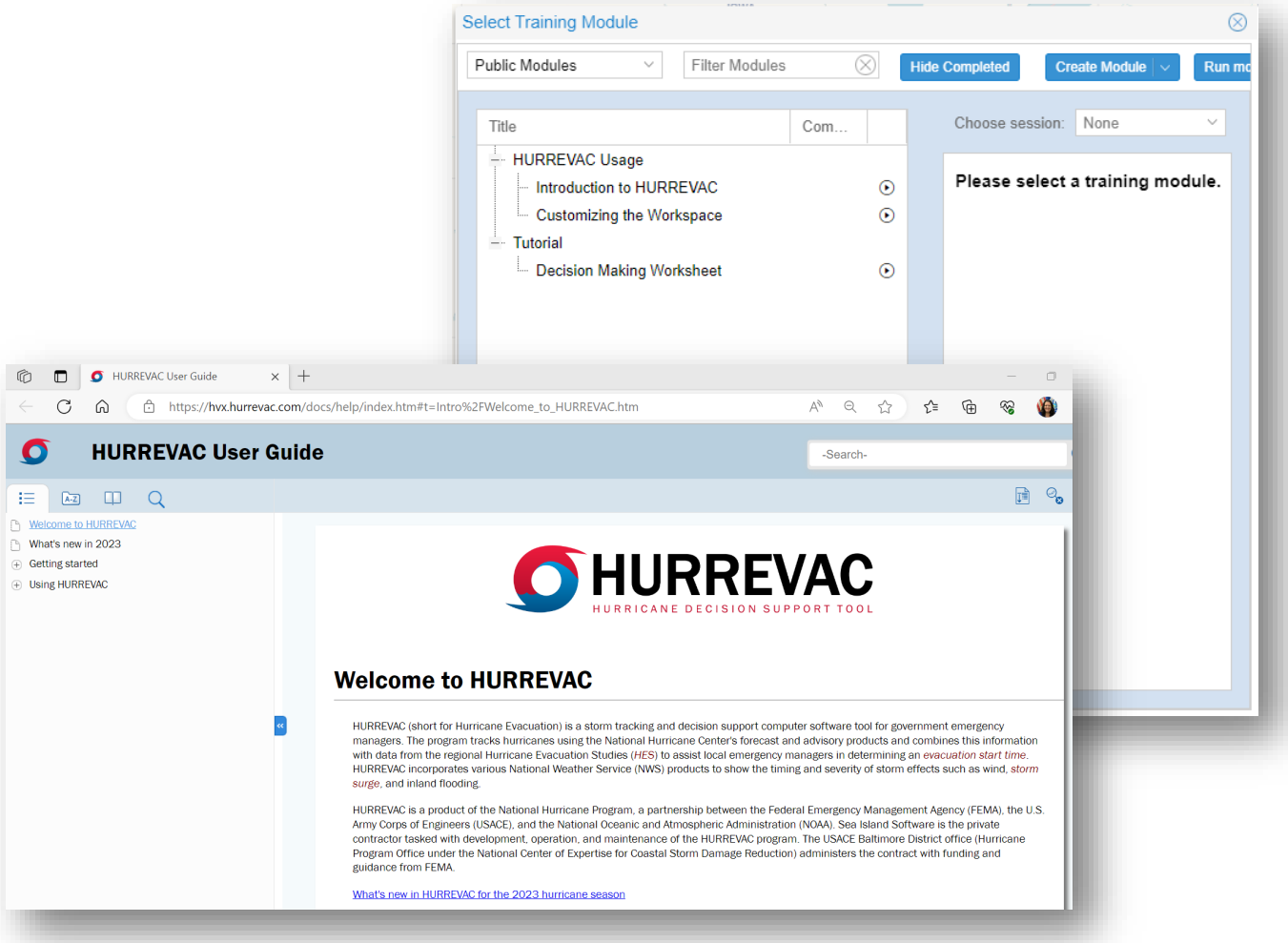
On hurrevac.com

- Webinar recordings & slides
- Announcements
- Printable reference guides

Inside the program

- User Guide
- Training Modules

[HURREVAC – YouTube](#) channel



Thank you!

HURREVAC Support Team

support@hurrevac.com

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