



Mobile GIS to Support Disaster Response

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**CDM
Smith.**

WATER + ENVIRONMENT + TRANSPORTATION + ENERGY + FACILITIES

Hurricanes Harvey and Irma



Hurricane Harvey

- US Landfall – August 25, 2017
- Maximum Wind (US) – 130 mph
- Over 15,000 Texas homes destroyed with damage to 270,000

Hurricane Irma

- US Landfall – September 10, 2017
- Maximum Wind (US) – 130 mph
- Hundreds of homes destroyed thousands more damaged

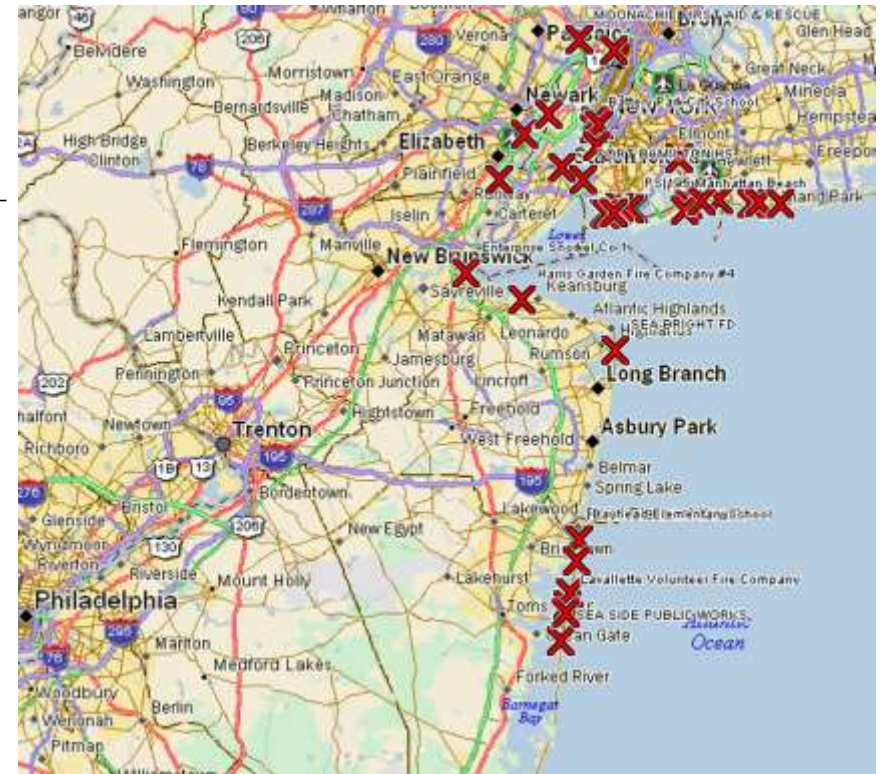
Mitigation Assessment Team (MAT)

The objectives of the MAT are to:

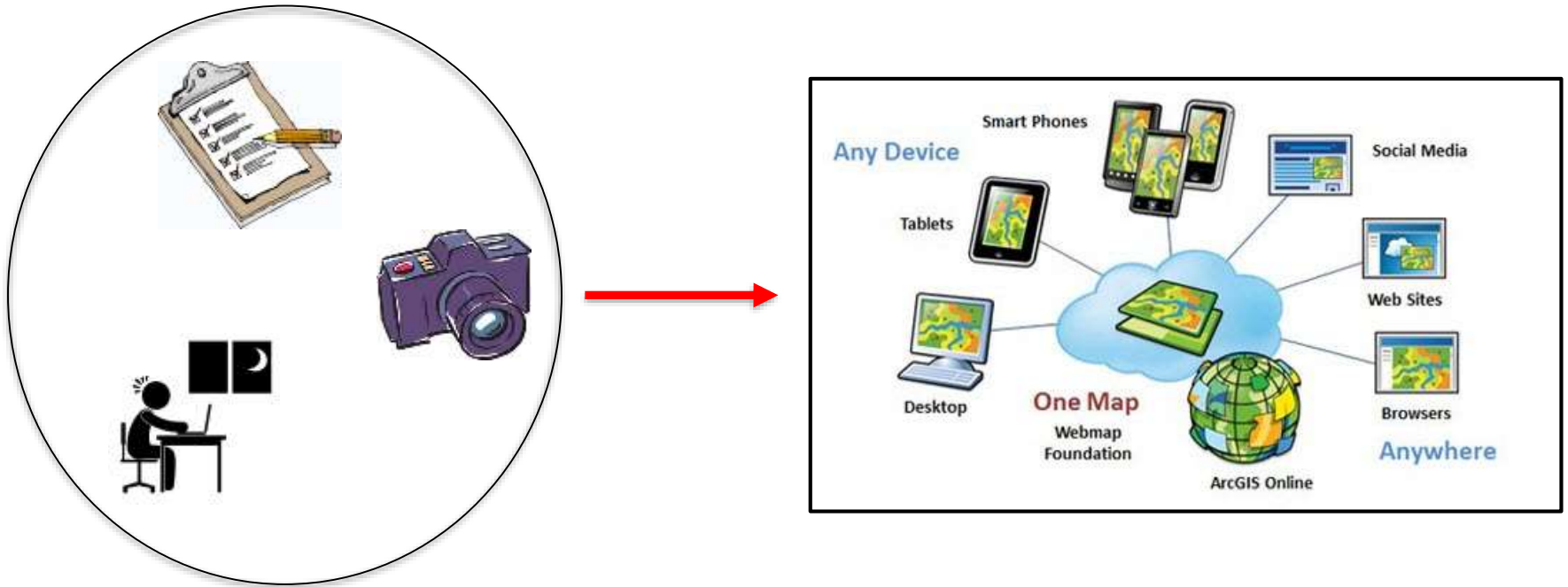
- Inspect buildings and related infrastructure
- Conduct forensic engineering analyses to determine causes of structural failure and success, and
- Recommend actions that state and local governments, the construction industry, and building code organizations can take to reduce future damages and protect lives and property in hazard areas.

Data Collection

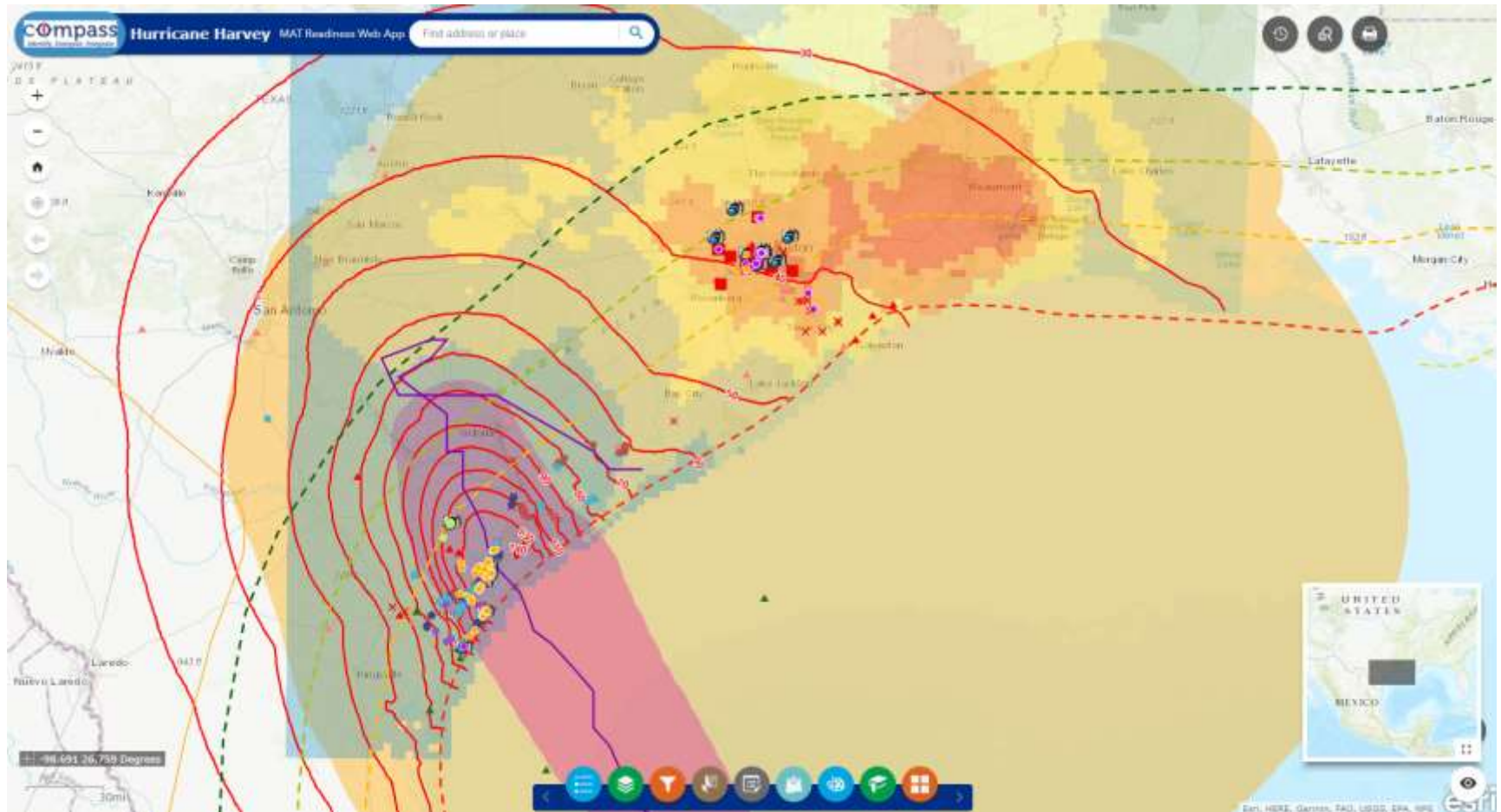
Building Information (if applicable)			
Dimensions	Width: <input style="width: 100%;" type="text"/> # Stories/floors: <input style="width: 100%;" type="text"/> # Stories above grade: <input style="width: 100%;" type="text"/> Age of struc: <input style="width: 100%;" type="text"/>	Length: <input style="width: 100%;" type="text"/> # Stories below grade: <input style="width: 100%;" type="text"/> <input type="radio"/> Estimated <input type="radio"/> Known (select one)	Footprint: <input style="width: 100%;" type="text"/> sf Total sf: <input style="width: 100%;" type="text"/> <input type="checkbox"/> Historic
	Wind Exposure (select one) <input type="radio"/> B <input type="radio"/> C <input type="radio"/> Light <input type="radio"/> Mod <input type="radio"/> Heavy <input type="radio"/> None	Tree Cover (select one)	
Primary Occupancy (select all that apply)			
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Governmental (select one) Fed <input type="radio"/> State <input type="radio"/> Local <input type="radio"/>	<input type="checkbox"/> Residential (select one) 1 & 2 family dwelling <input type="radio"/> Low-rise multi-family <input type="radio"/> Manufactured home <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>	<input type="checkbox"/> Commercial/Industrial (select one) Offices <input type="radio"/> Assembly <input type="radio"/> Educational <input type="radio"/> Worship <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>
<input type="checkbox"/> Critical/Essential Facility (select one) Police <input type="radio"/> Fire <input type="radio"/> Hospital <input type="radio"/> Shelter <input type="radio"/> EOC <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>			
Foundation type and materials (select all that apply)			
<input type="checkbox"/> Open <input type="checkbox"/> Closed <input type="checkbox"/> Slab (select one) Monolithic <input type="radio"/> Stem Wall <input type="radio"/>			
<input type="checkbox"/> Deep Piles (select one) Wood <input type="radio"/> Concrete <input type="radio"/> Steel <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>	<input type="checkbox"/> Shallow posts/piers (select one) Masonry <input type="radio"/> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> (select one) RM <input type="radio"/> URM <input type="radio"/> DS (dry stacked) <input type="radio"/> </div> Concrete <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>	<input type="checkbox"/> Continuous Foundation Wall (select one) Brick <input type="radio"/> RM <input type="radio"/> URM <input type="radio"/> Wood <input type="radio"/> Other <input type="radio"/> Desc: <input style="width: 100%;" type="text"/>	Break-away walls (select one) Yes <input type="radio"/> No <input type="radio"/>
Flood Vents (select one) Yes <input type="radio"/> No <input type="radio"/>			



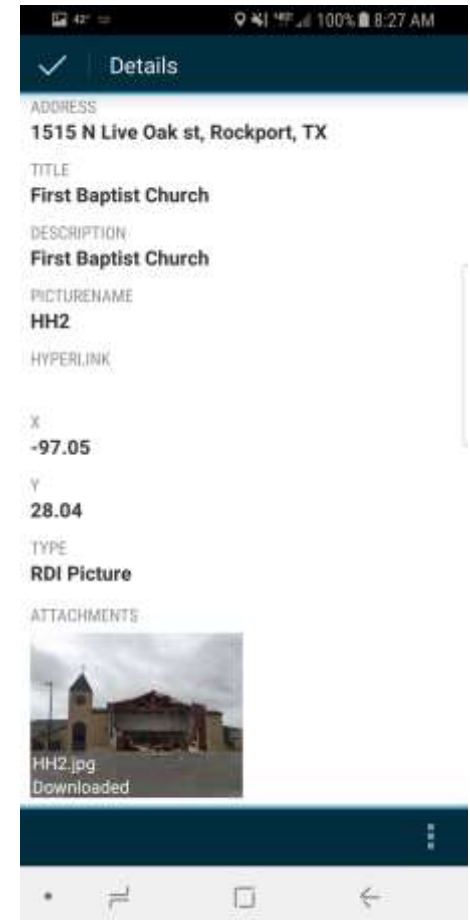
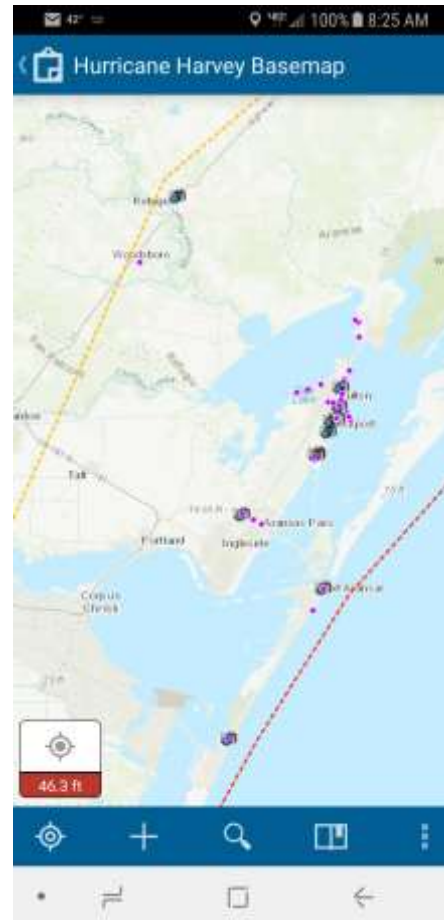
Integrating GIS



Web/Cloud based mapping

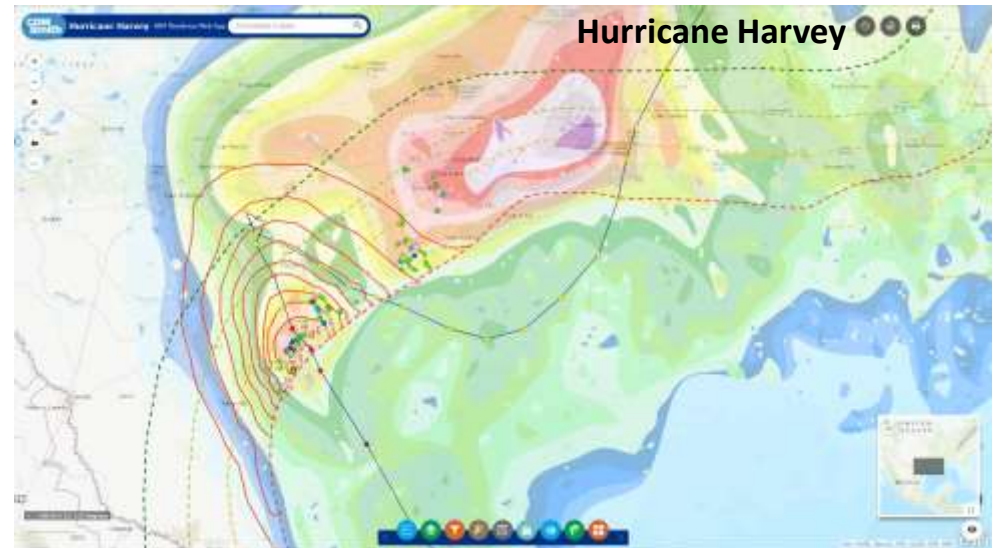


Mobile Interface



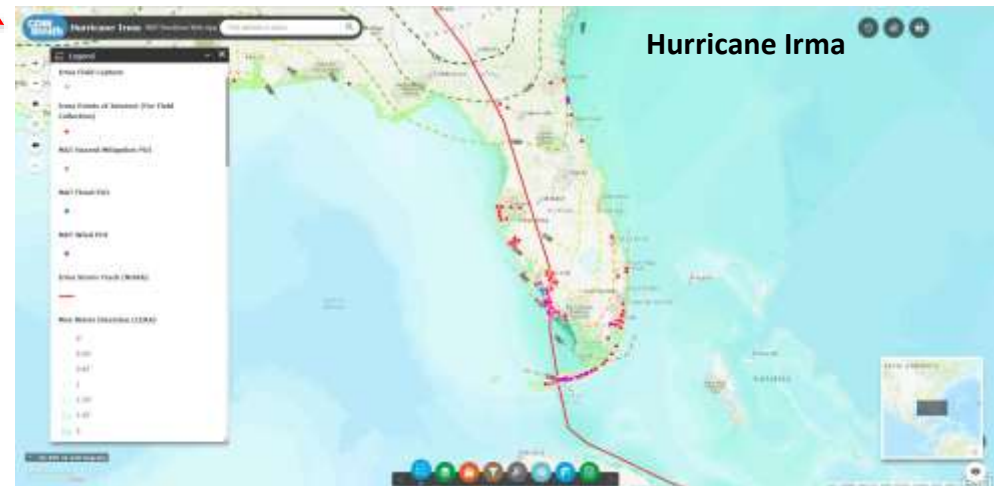
Objectives

- Web interface
- Consume FEMA Geoportal layers
- Live streaming layers
- Access to event imagery
- Add incoming event layers
- Access facility and structural data
- Add **new** points and attachments to existing datasets
- Export maps and data

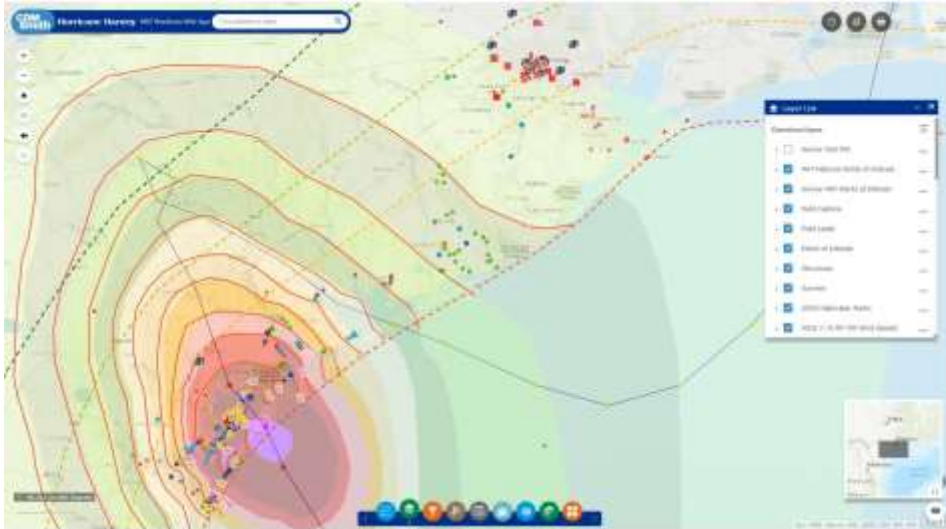


Data Mining & Clean Up

- Data requests by the dozens

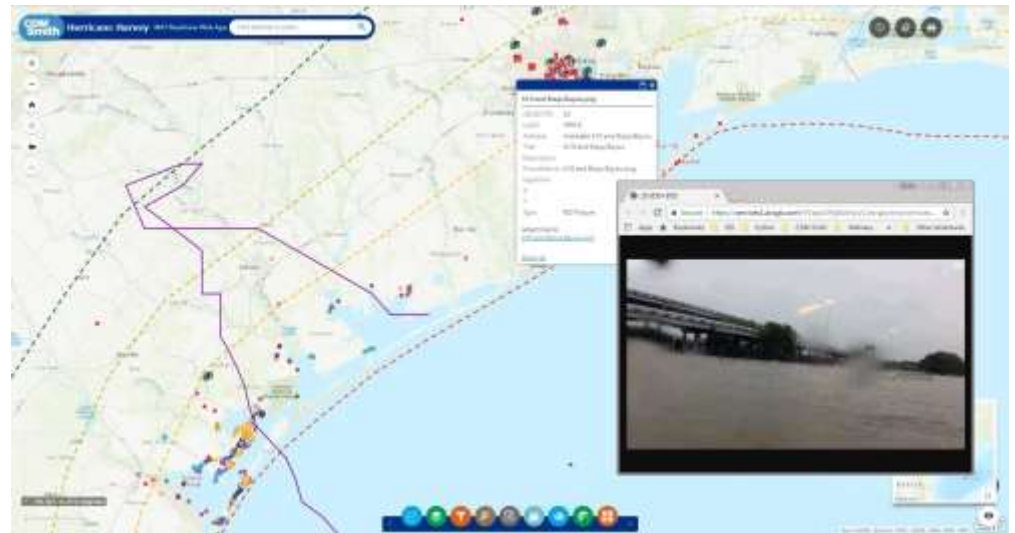


Utilization and Versatility

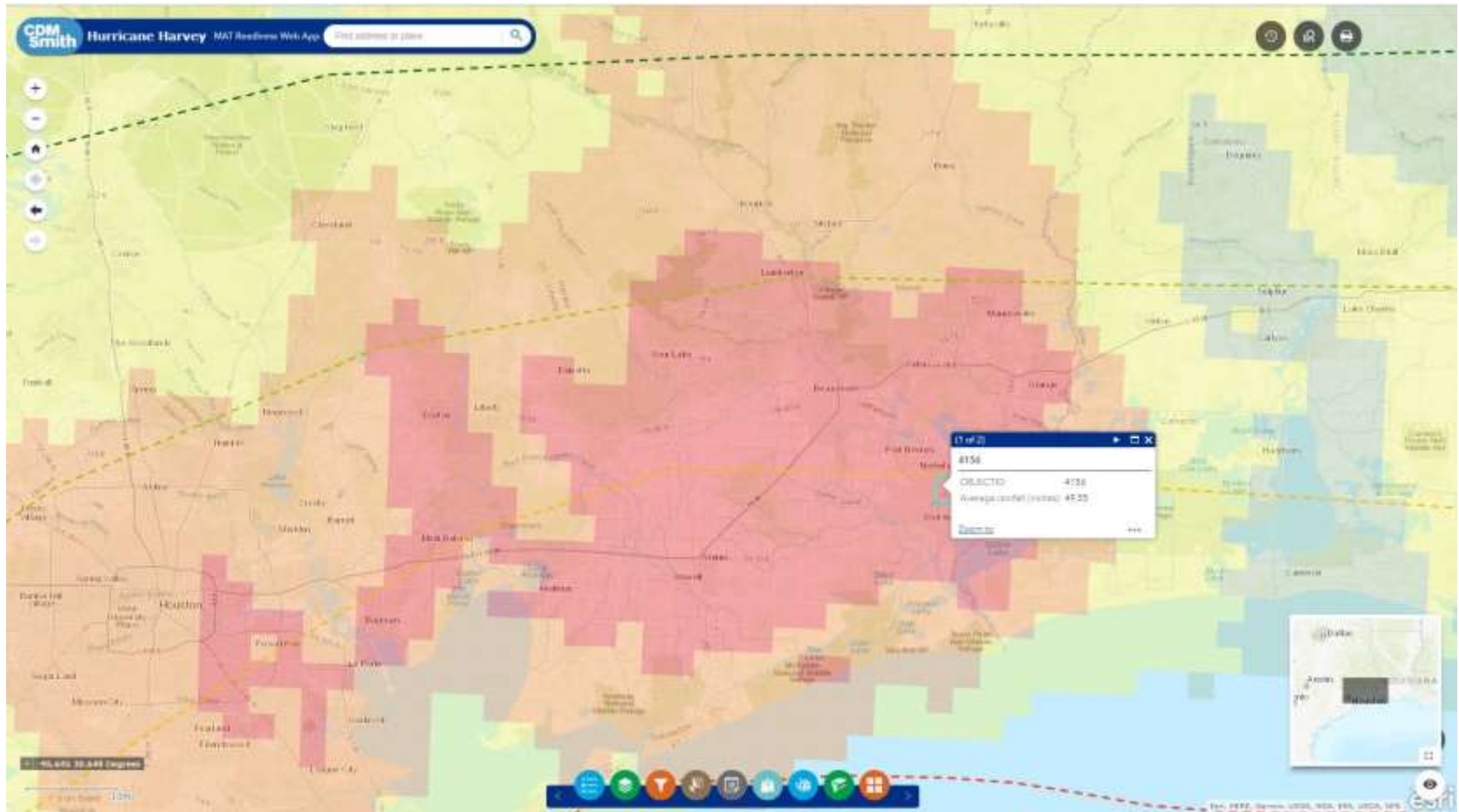


Toggle through layers

View attributes and attachments associated with points



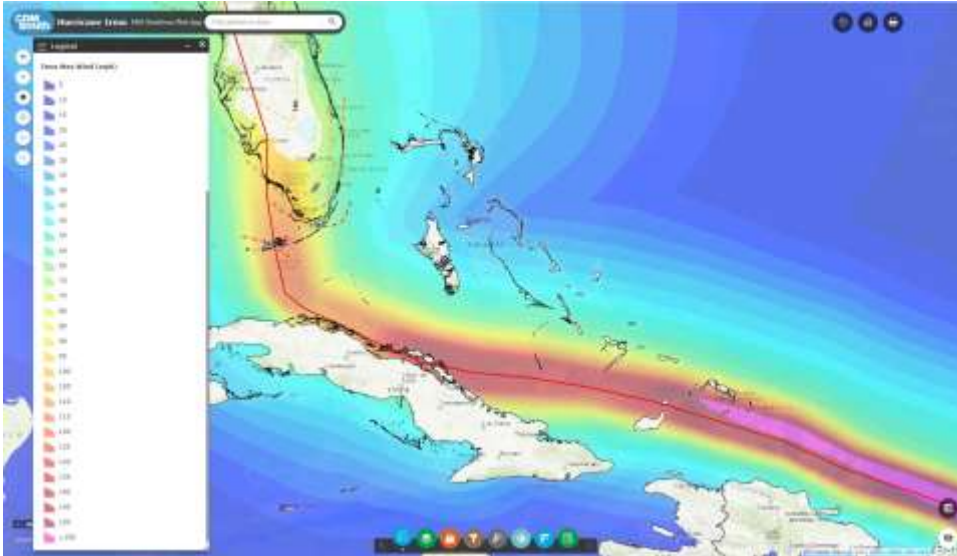
Hurricane Harvey - Precipitation



Harvey recorded precipitation in this area was 49.55 inches over a 7 day period

Hurricane Irma – Estimated Winds

Irma recorded wind speeds >156 mph

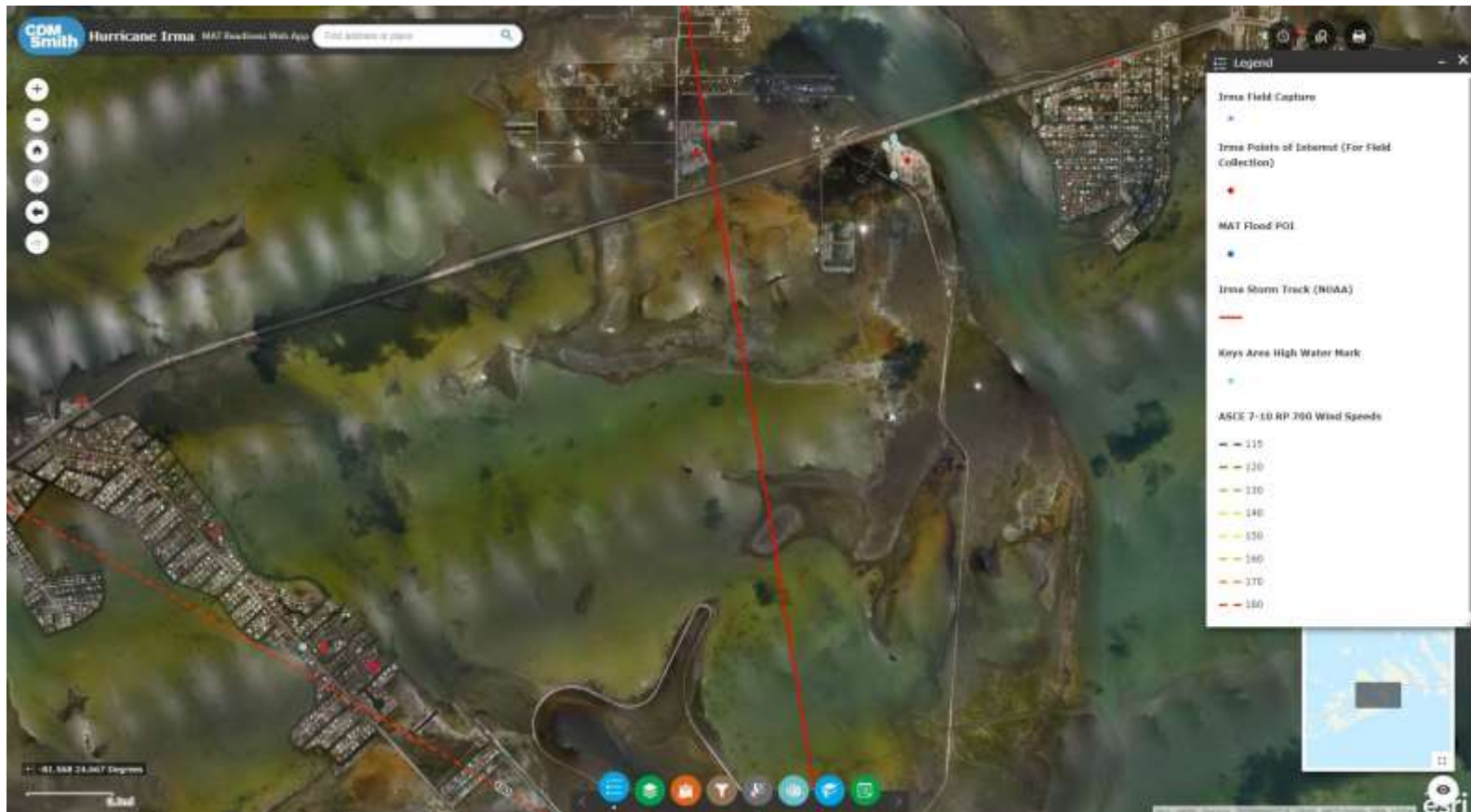


Florida 10 Foot DEM,
Irma Storm Track, ASCE
7-10 Wind Speeds

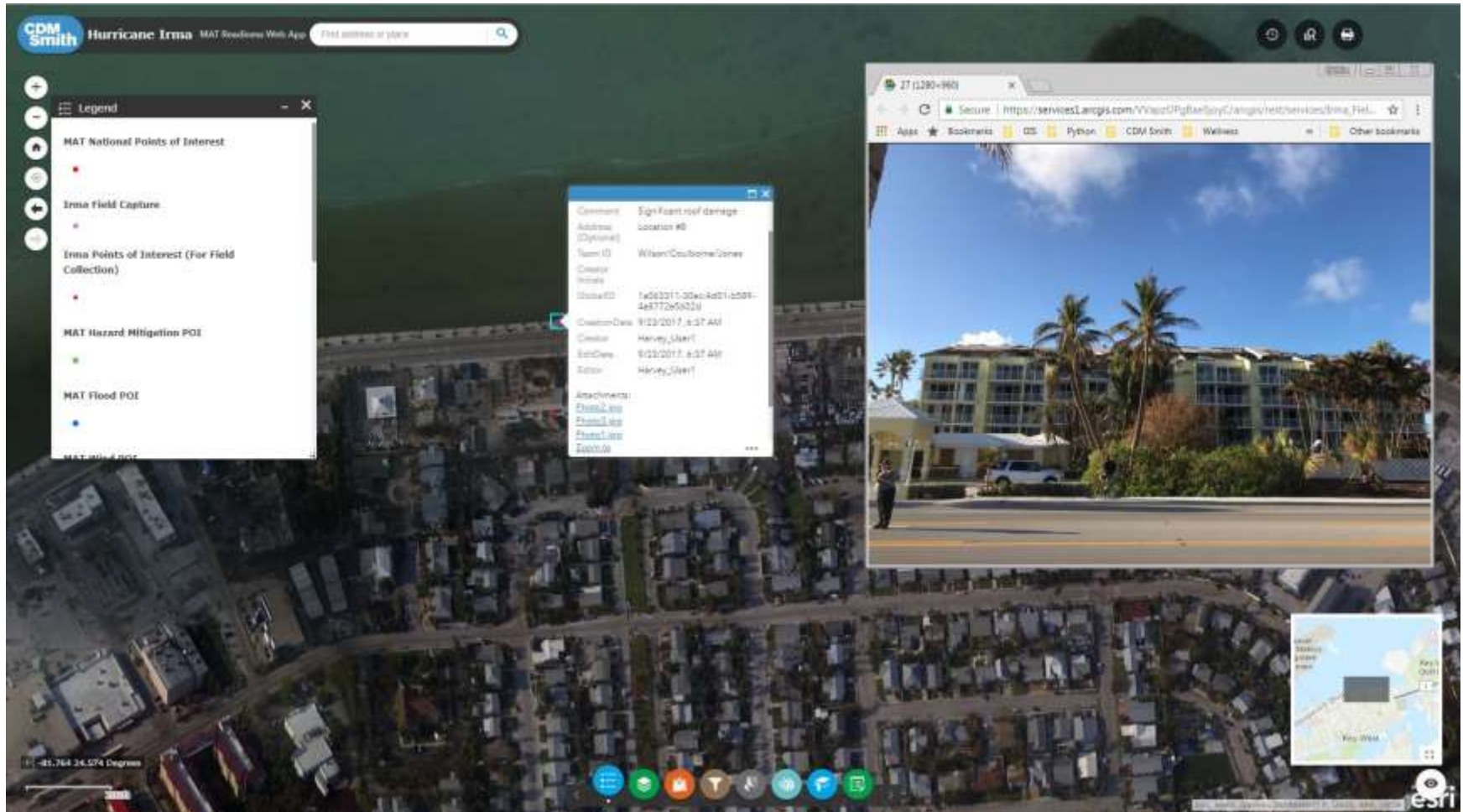


Hurricane Irma – Imagery

Cloud-sourced access to NOAA
immediate Post-event aerial imagery



Hurricane Irma - 360°



Ease of Use – Adding New Data



Immediate and remote generation of daily reports

Future Goals

- National MAT Readiness Web App
- All disaster events





Thank you
Questions?