

Katie Thielmeyer
DRONERESPONDERS

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Drones in Public Safety



Over 40 Public Safety Use Cases



Structural FireFighting – Visual Optics



Thermal Imaging Structure Fire





Optical View vs. Thermal Image View

See through Smoke and Effective Application of Water on the Fire

Major Traffic Accidents



Mass Casualty



Multiple Vehicle Fires



HAZMAT Operations CBRNE





East Palestine, OH

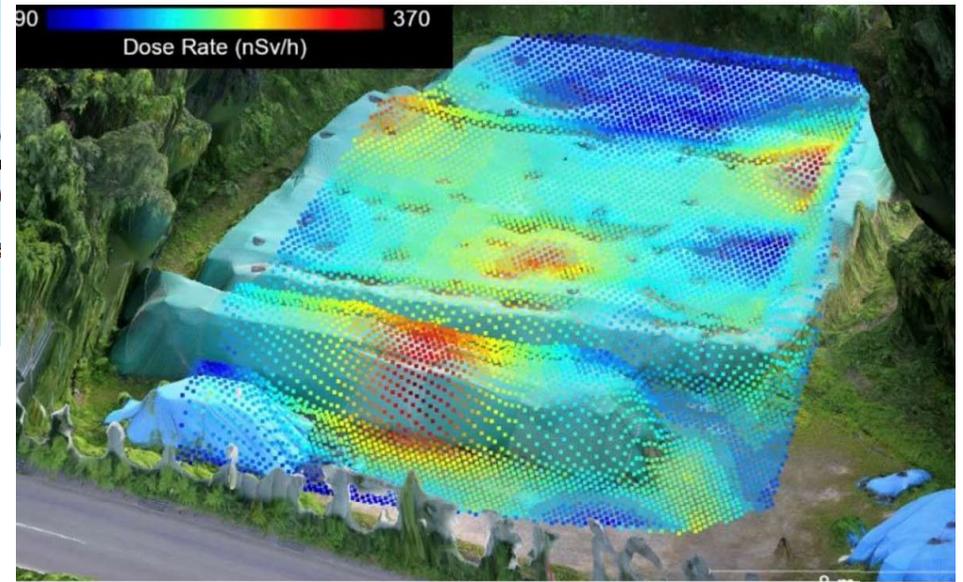
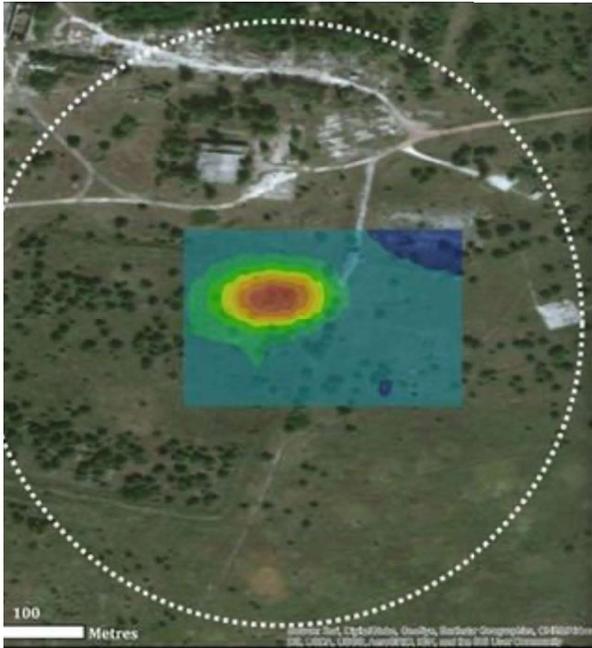


Philadelphia, PA



Lynchburg, VA

Train Derailment, Crash, Fire & Spill



aster: New radiation hotspots found in Chernobyl's ...

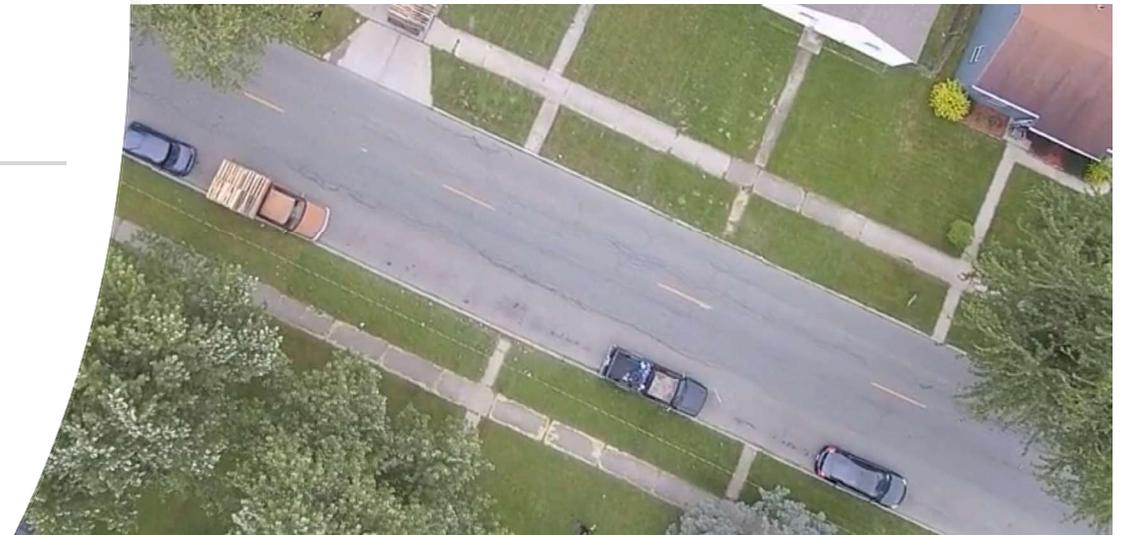
Il 3D aerial photogrammetry superimposed with a radiological map obtained using a single l
o consecutive flights. (Image: IAEA and Fukushima Prefecture)

Drone Radiation Detection & Mapping

Law Enforcement
Tactical Ops
Overwatch



use drone to help catch roof-climbing burglar suspect

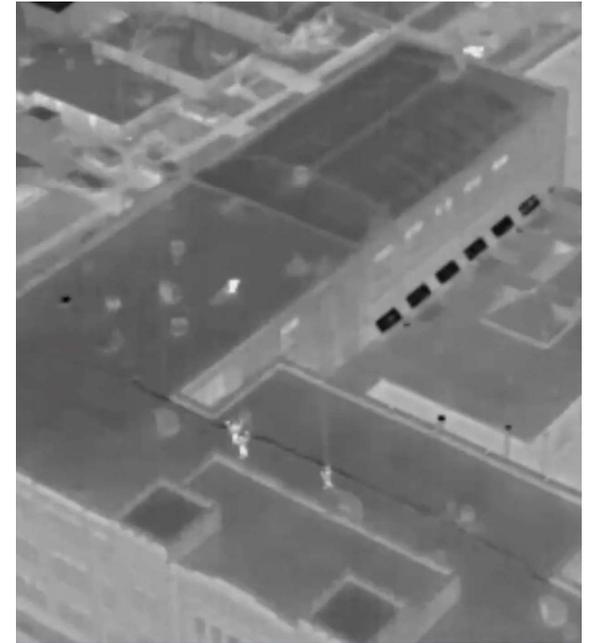




Avoids Ambush

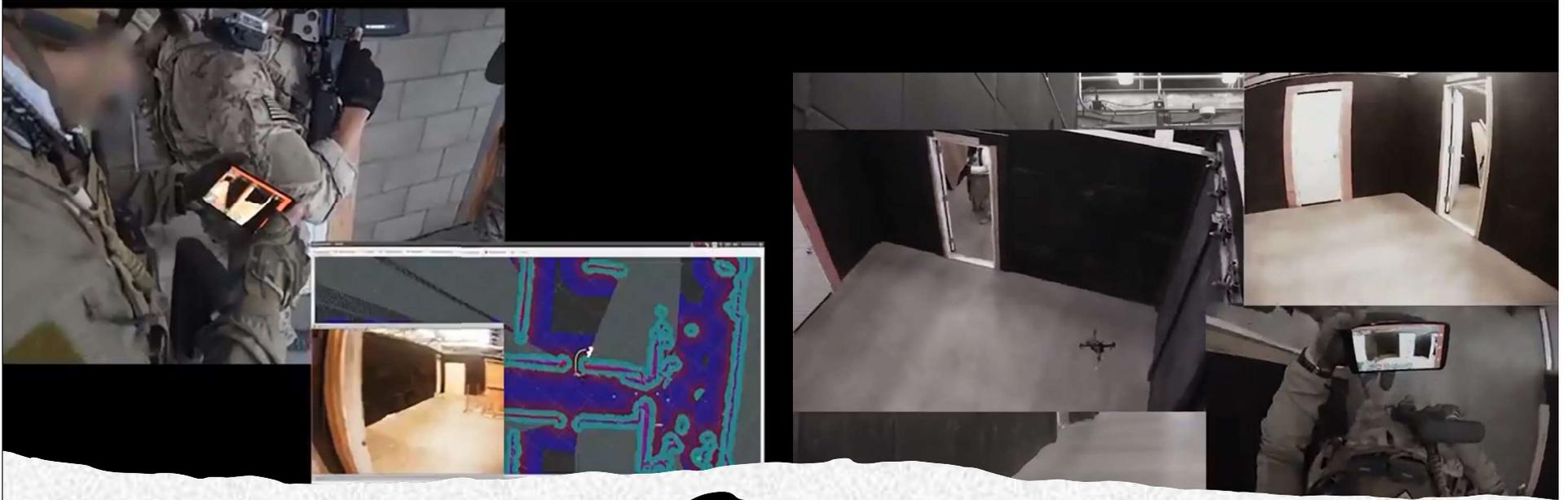


Suspect Reaching for AR15



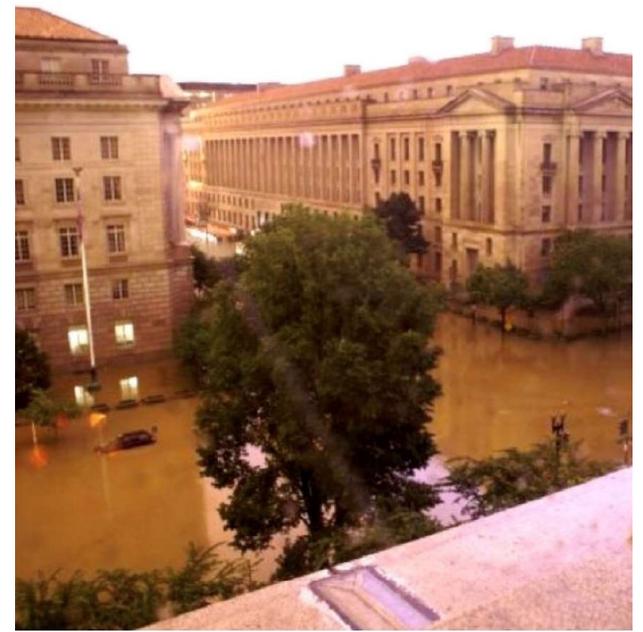
Detect Thieves Hiding on Roof

Oklahoma City PD Drone Incidents



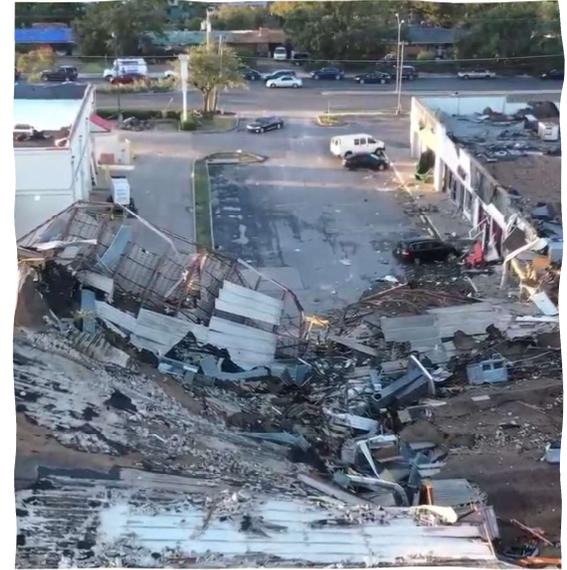
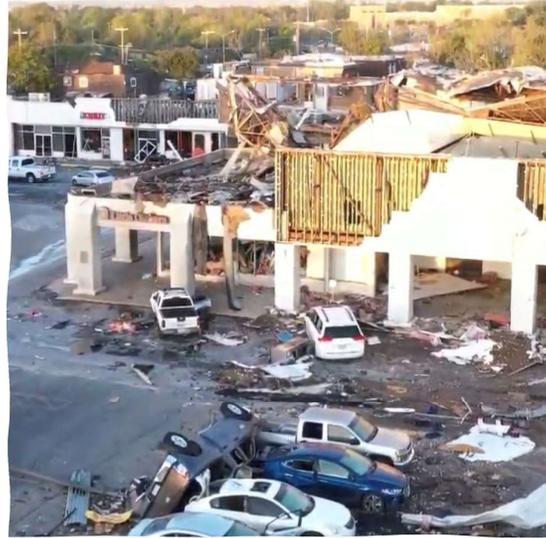
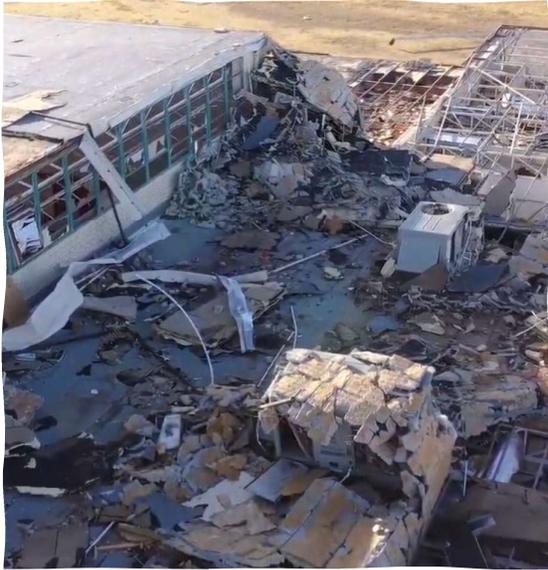
Law Enforcement Indoor Flights Room Clearing

NH 90687 The Washington Navy Yard during the 1936 Potomac River flood



Quickly Assess

How Bad is Bad?

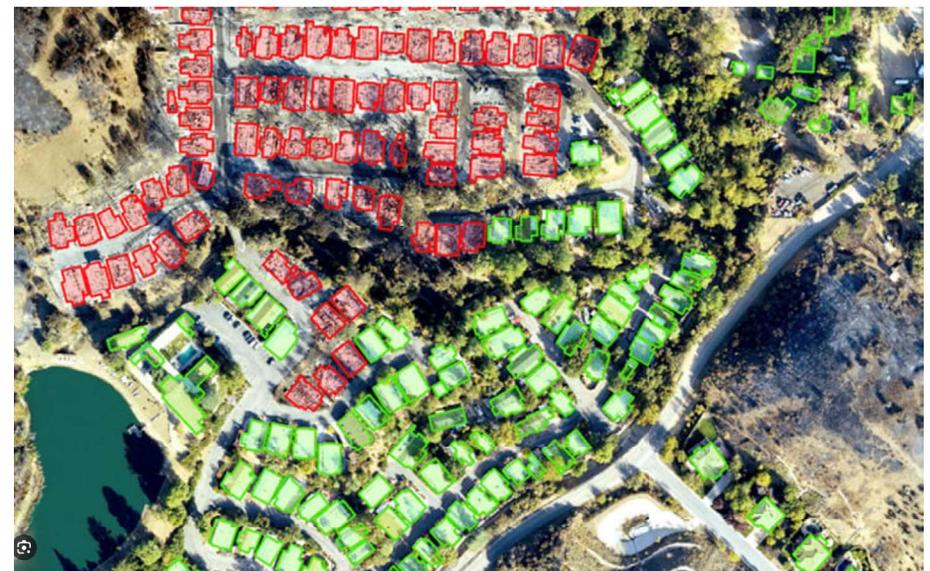


Tornado – Dallas TX
Search & Rescue, Damage Assessment

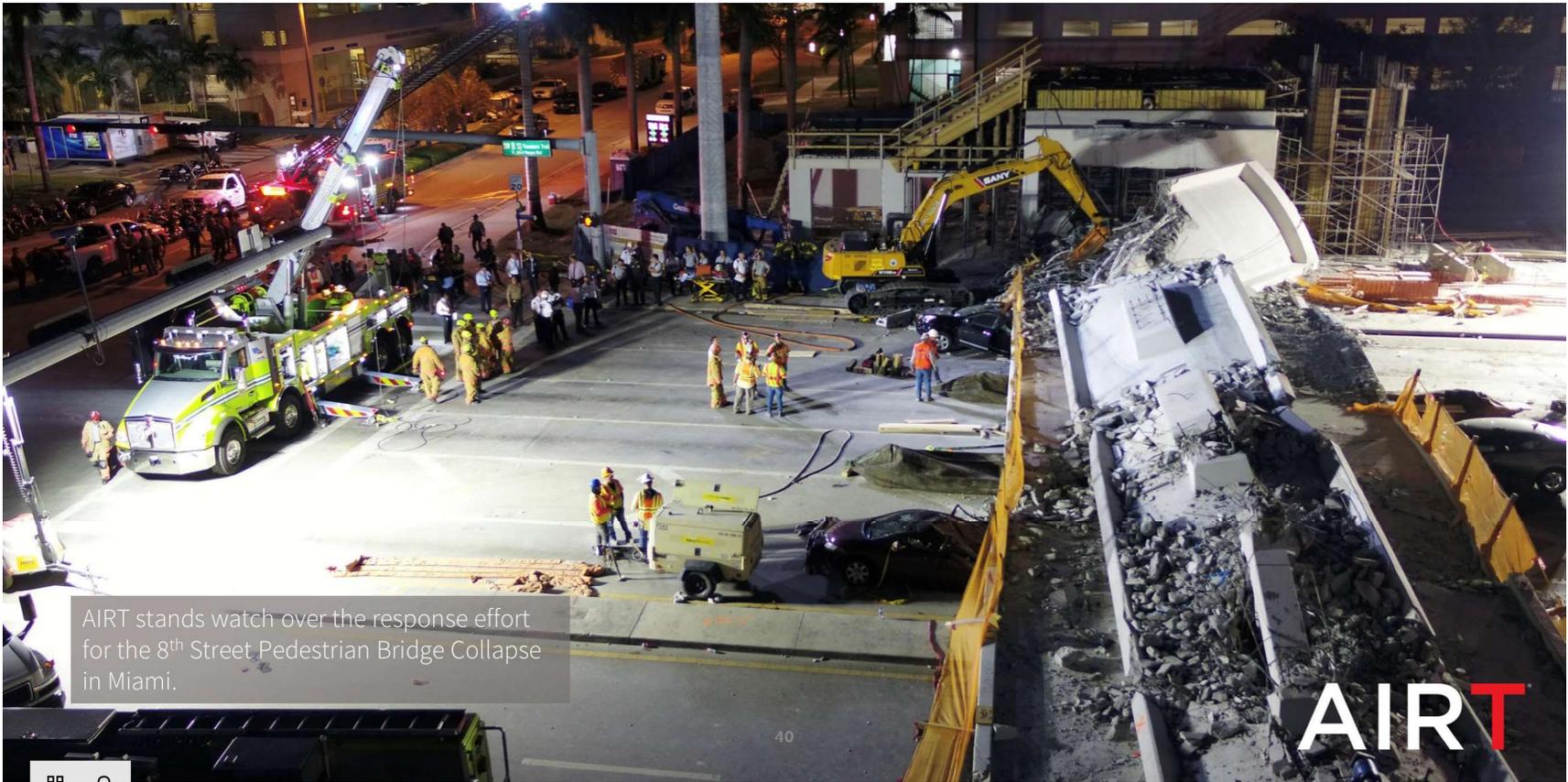
Drone Imagery & Damage Assessment Combined with GIS



Damage assessment using deep learning in ArcGIS

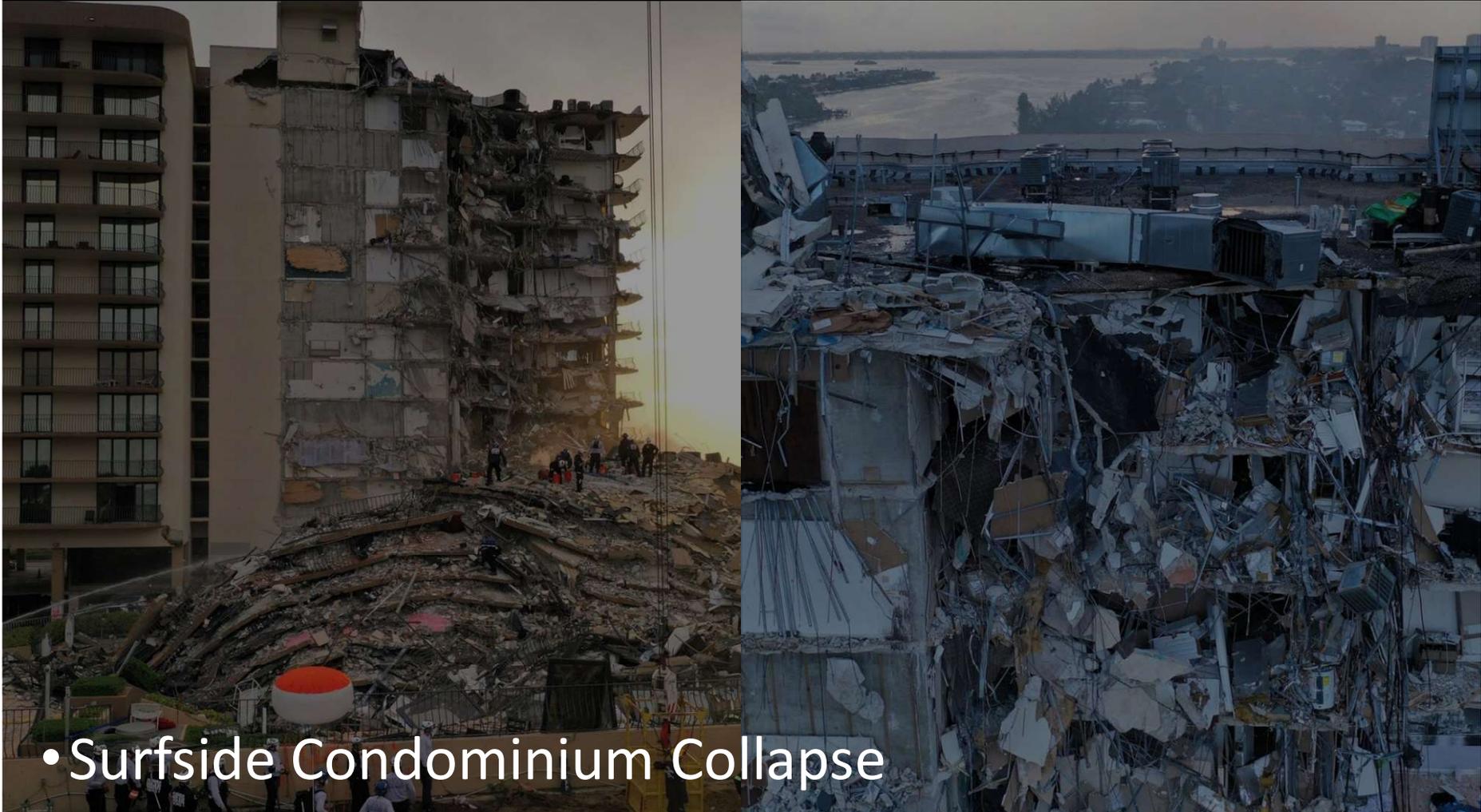


Damage assessment using deep learning in ArcGIS



AIRT stands watch over the response effort for the 8th Street Pedestrian Bridge Collapse in Miami.

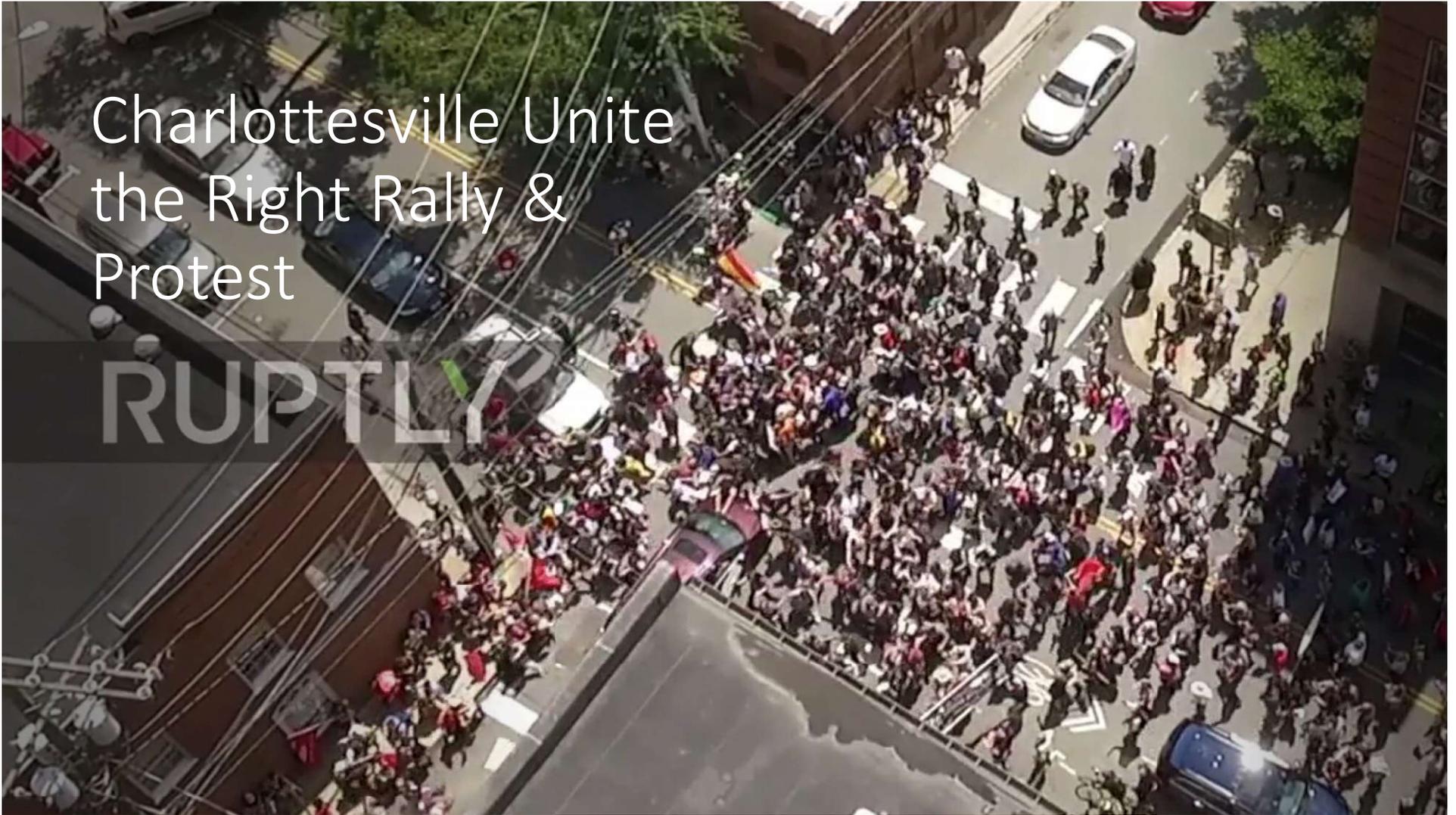
AIRT



• Surfside Condominium Collapse

Charlottesville Unite
the Right Rally &
Protest

RUPTLY



Traffic Crash Reconstruction – 1/3 Time, Reduces Secondary Accidents, Restores Commerce and Normal Traffic Flow



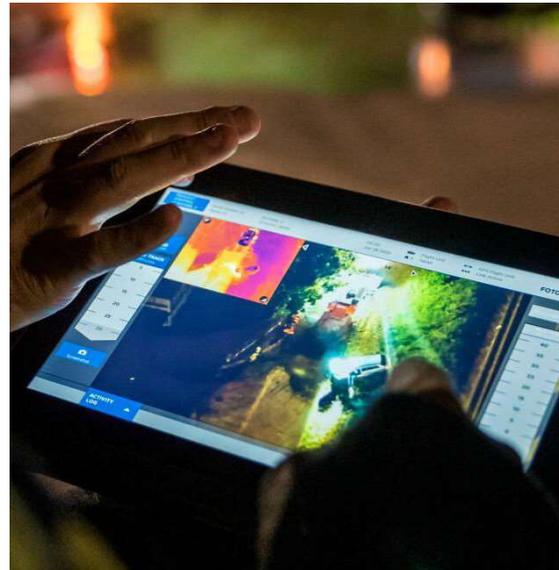
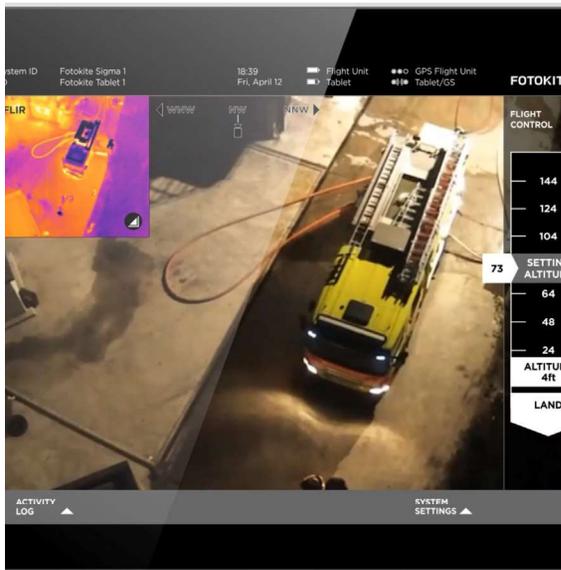
All Photo

View

ACTIVELY TETHERED DRONE

Public Safety Vehicle or Portable Tethered Drones – Continuous Power

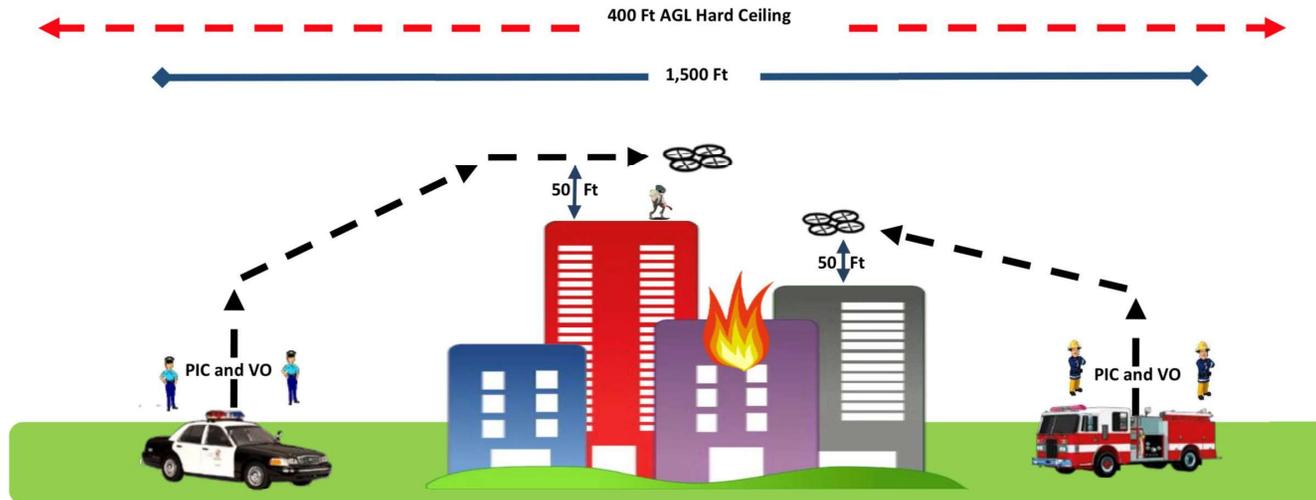
- Can maintain constant overwatch – no batteries as tether provides power
- Quick setup – one button launch, one button land
- Switchable visual optic and thermal view



Tactical Beyond Visual Line of Sight Waiver

*Requires a COA

Background: In a time of extreme emergencies to safeguard human life, first responders require the capability to operate their unmanned aircraft (UAS) beyond visual line of sight (BVLOS) to assess the operational environment such as a fire scene at a large structural fire, to conduct an aerial search on a large roof area for a burglary in progress, or to fly over a heavily forested area to look for a missing person (see diagram below for a visual perception). To support public UAS operators acting in an active first responder capacity, the FAA may approve “First Responder Tactical Beyond Visual Line of Sight” (TBVLOS) waivers to 14 CFR 91.113(b).



DRONE AS A FIRST RESPONDER (DFR)

*Requires a COA

Drone launches from rooftop at same time as 911 dispatch





CHULA VISTA POLICE DEPARTMENT - DRONE AS FIRST RESPONDER (DFR)

CHULA VISTA POLICE DEPARTMENT

* Selected as part of the IPP on October 2018

* First program in the nation using Drones as a First Responder (DFR). [See FAA site](#)

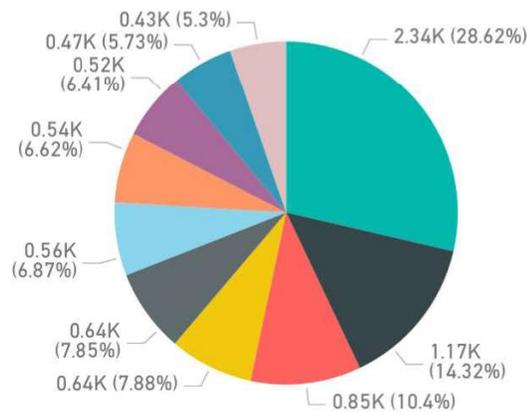
* Current status: DFR Pilot Program currently based from CVPD HQ with limited flight range of about 1 mile radius

* Common use of drones in Chula Vista: Drones as first responders, documenting crime and accident scenes, searching for missing or wanted persons, fires, and evaluating damage after a major incident or natural disasters

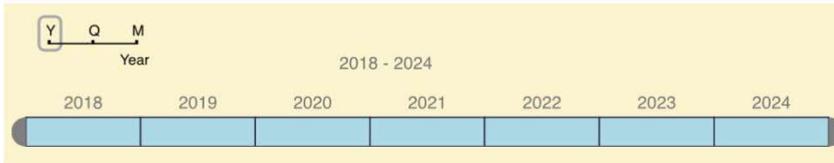
* Response times from dispatch to arrival.

TOP 10 CALLS RESPONDED WITH DFR ASSISTANCE

- Call Type
- DISTURBANCE - PERSON
 - 5150 EVAL
 - DOMESTIC VIOLENCE
 - PERSON DOWN
 - WELFARE CHECK
 - UNKNOWN PROBLEM
 - SUSPICIOUS PERSON
 - MIN INJ TC
 - ASSAULT
 - INFORMATION



PLEASE SELECT A TIME FRAME



EARLIEST RESPONSE

10/23/2018 8:29:57 ...

LATEST RESPONSE DATE/TIME 1/30/2024 1:27:58 PM

DFR ACTIVITY BY THE NUMBERS

TOTAL CALLS RESPONDED TO

18371

DFR ASSISTED ARRESTS

2508

DFR DEPLOYMENT AVOIDED
DISPATCHING A PATROL UNIT

4171

DFR FIRST ON SCENE COUNT

13.72K

AVG RESPONSE TIMES - FIRST ON SCENE
(IN SECONDS) *

94.16

AVG RESPONSE TIMES - ALL CALLS
(IN SECONDS) *

111.89

Public Safety UAS Programs 2023

- There over 5000 public safety UAS Programs
- 70% are law enforcement, 25% fire, 5% EM & SAR
 - Safer for Responders & Community
- Better Operational Effectiveness (Better Decisions)
 - Real Time Situational Awareness
 - A Major De-escalation Tool
- Flying with Part 107 & Certificate of Authorization (COA)*

What's Next?

-
- BVLOS Rules – 1st Qtr 2024
 - Autonomous Flight
 - 1 Remote Pilot To Many Aircraft
 - Drone Swarms
 - Fully BVLOS Autonomous DFR
 - NARCAN to Scene
 - Defibrillator to Scene
 - Artificial Intelligence
 - Analytics (search, damage assessment, predictive fire behavior, etc.)
 - Smart Cities & Integrated Systems
 - Larger Aircraft w/Longer Flights
 - Development of UTM





DRONERESPONDERS

Public Safety Alliance

DRONERESPONDERS.ORG

*Register on the website
(it's FREE)*

JOIN and access the largest online collection of Public Safety UAS documents (SOPs, Best Practices, Lessons Learned, Training Info and more)

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