IAFC
International Association of Fire Chiefs



FDAWG: Innovation and R&D in Fire Data Analysis

December 4, 2023

Welcome

Chief Butler, IAFC President

:10 / 9:00am – 9:10am

Fire Data Analysis Working Group

Dedicated to advancing the practice and adoption of fire and all-hazards data analysis.

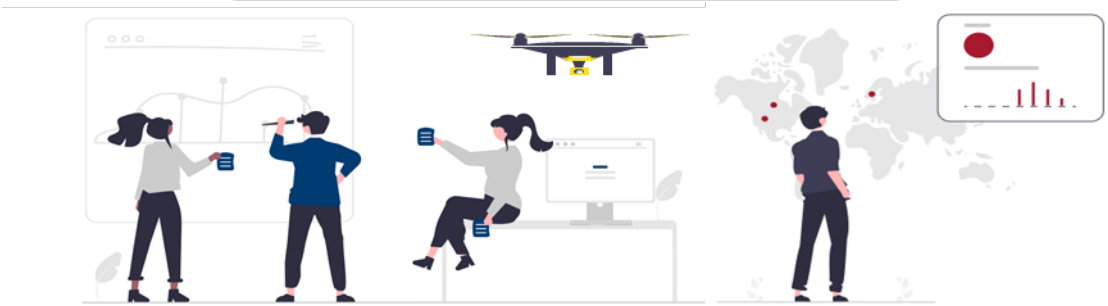
Aug 2022
- Inaugural Mtg
- Over 200 people
- Defined this group

2023 Analysis-Driven Decision-Making Workshop Series

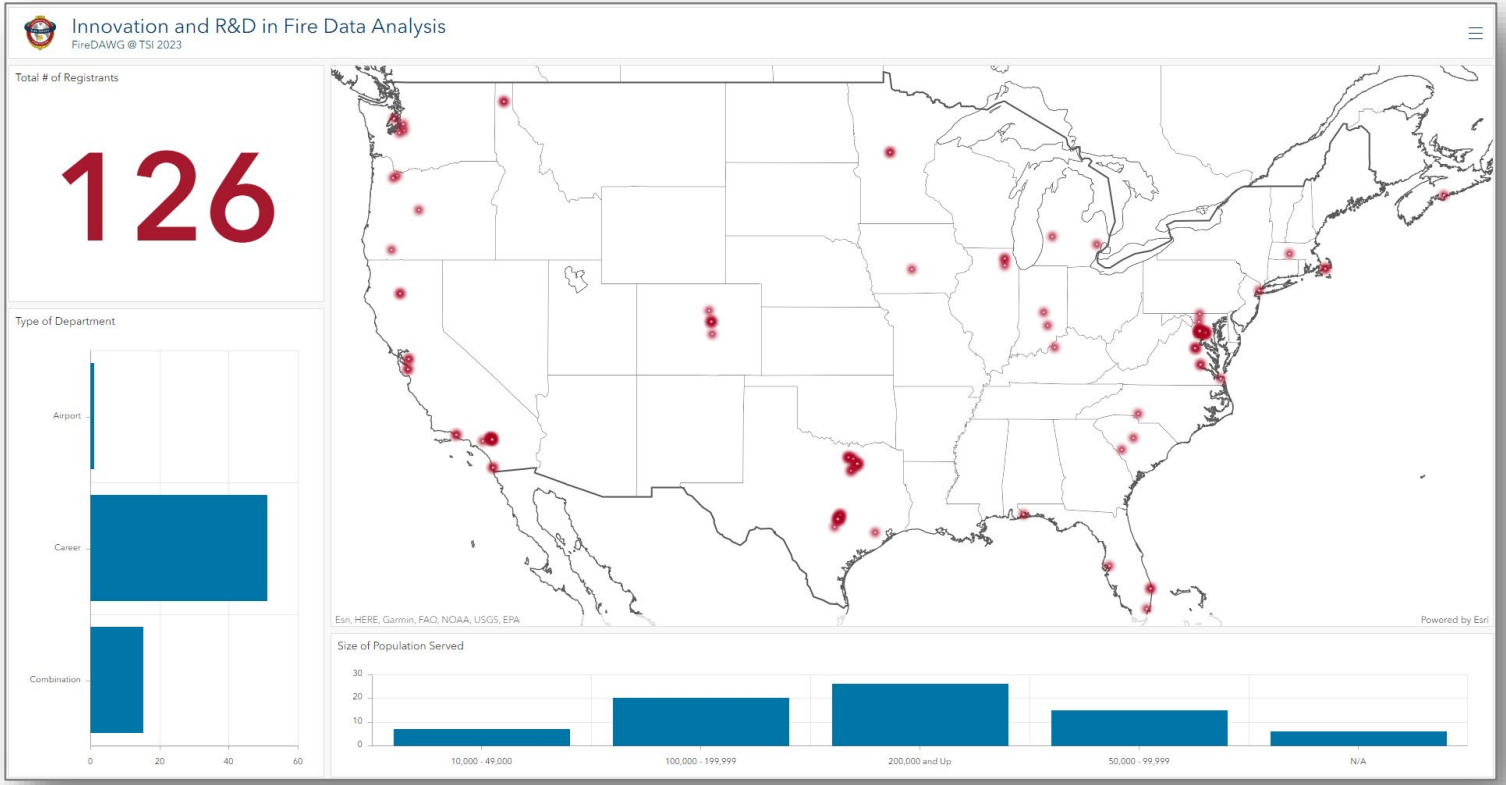
Aug 2023 — Part 1: **Defining Success in Fire Data Analytic Products**

Dec 2023 — Part 2: **Innovation and R&D in Fire Data Analysis**

2024+ — Continued success



Who is Here?


Innovation and R&D in Fire Data Analysis
FireDAWG @ TSI 2023
Total # of Registrants
126
Type of Department
Airport
Career
Combination
0
20
40
60
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA
Powered by Esri
Size of Population Served
30
20
10
0
10,000 - 49,000
100,000 - 199,999
200,000 and Up
50,000 - 99,999
N/A

Thank You!

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Agenda

https://fire-data-analysis-iafc.hub.arcgis.com/pages/mtg-2023-dec-4

9:00 am - 9:10 am	Welcome	Jeff Dulin, IAFC Mike Cox, Esri
9:10 am - 9:50 am	NERIS: A New Era of Emergency Response Data	U.S. Fire Administration
9:50 am - 10:10 am	Community Sharing of Proven Practice: Data Interoperability	Chief Carpenter, Frisco Fire Department (TX) Susan Olson, City of Frisco (TX)
10:10 am - 10:30 am	Who Let the DAWGs Out? GIS for Fire Service Data Analysis	Mike Cox, Esri
10:30 am - 10:50 am	Break	
10:50 am - 11:00 am	Fire Data Analysis Lightning Talk	Bill Gardner, ESO
11:00 am - 11:20 am	Playing in the Sandbox: SARCOP Training Best Practices	Jared Doke, NAPSG Foundation
11:20 am - 11:30	Fire Data Analysis Lightning Talk	First Due
11:20 am - 12:10 pm	Data-Driven Fire Service: Raising the Bar for Professional Qualifications	Preet Bassi, Center for Public Safety Excellence Chief Scott Roseberry, Garland Fire Department (TX) Chief Dan Munsey, San Bernardino County Fire Protection District (CA) Chelsea Rubadou, NFPA Mike Cox, Esri (Moderator)
12:10 pm - 1:10 pm	Lunch	
1:10 pm - 1:20 pm	Fire Data Analysis Lightning Talk	Robert Edson, Intterra
1:20 pm - 1:40 pm	From Data to Decision: Telling the Story of Fire Data Analysis	Chief Craig Rollins, Castle Rock Fire and Rescue (CO)
1:40 pm - 2:10 pm	Data Interoperability Challenge	Breakout Groups & Facilited Discussions
2:10 pm - 2:35 pm	Best Practices Library Workshop	Breakout Groups & Facilited Discussions
2:35 pm - 2:55 pm	Break	
2:55 pm - 3:20 pm	Fire Data Analysis Training Needs Assessment	Breakout Groups & Facilited Discussions
3:20 pm - 3:50 pm	Industry Leaders Respond: What We Heard and How We're Taking Action	Vendor Panel
3:50 pm - 4:00 pm	Closing	Jeff Dulin, IAFC Mike Cox, Esri



NERIS: A New Era of Emergency Response Data

USFA & FSRI

:40 / 9:10am – 9:50am



NERIS

EMPOWERING EFFECTIVE EMERGENCY RESPONSE

A New Era of Emergency Response Data & Analytics

December 4, 2023







AGENDA



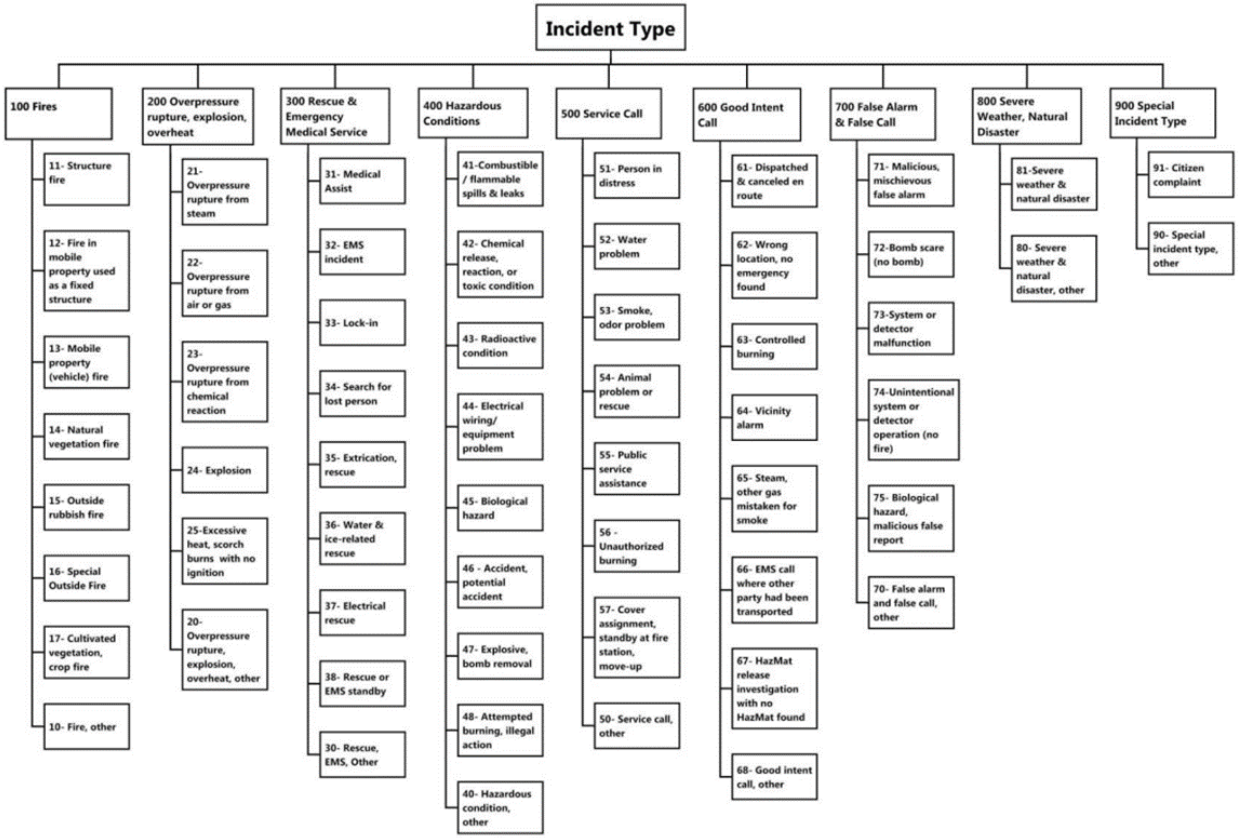
- Why NERIS & Overview
- NERIS Technical Approach
- NERIS Data Framework & Future Capabilities
- 12 and 36-month NERIS Milestone Forecast
- Closing Remarks and Wrap-Up

The Problem – Do you agree?

“A lack of understanding of fire’s threat helps to account for the low priority given to fire protection.”

A quote from American Burning 1973, page 2.

NFIRS Incident Type Bingo



- Carbon Monoxide
- Aircraft engine fire
- Fires out prior to arrival of the FD
- Trash fires
- Motorcycle accidents
- Smoke detector installations

How Do We Fix Our Data?

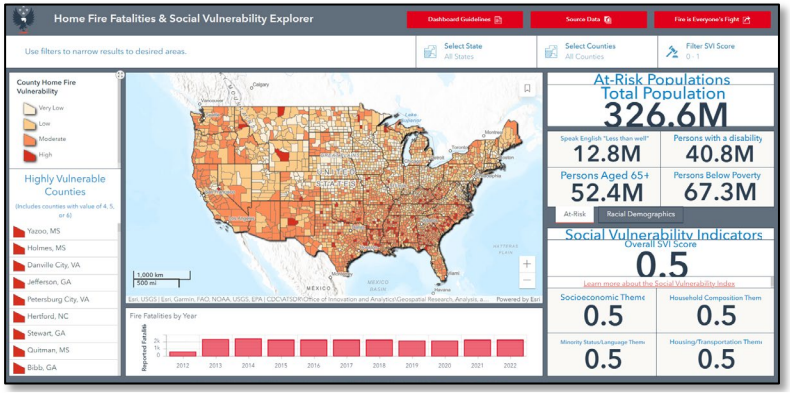


"There are two things that firefighters hate: change and the way things are."



The goal of NERIS is to empower the local fire and emergency services community by equipping them with near real-time information and analytic tools that support data informed decision-making for enhanced preparedness and response to incidents involving all hazards.

Guiding Objectives



- Premier source for nationwide, all-hazards incident information.
- Replace the 20+ year legacy NFIRS.
- Improve quality, coverage, and timeliness of local, all-hazards incident data.

- Provide near real-time information and greater insights into vulnerabilities and capability gaps.
- Capture data on community risk reduction programs at local level and visualizes trends.



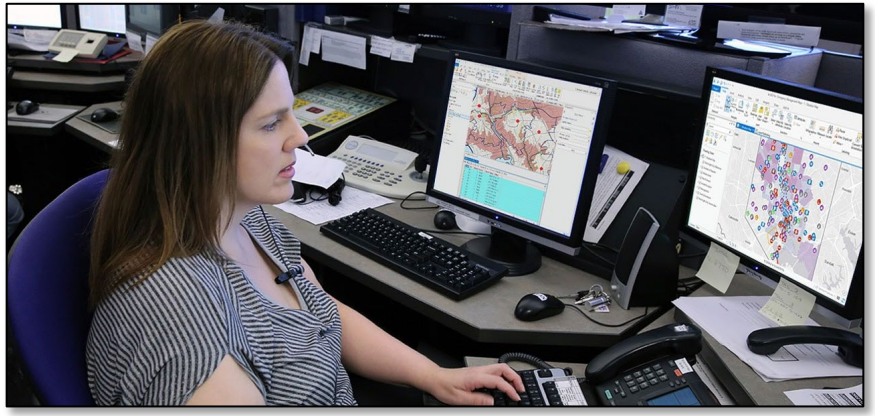
Approach & Core Functionality



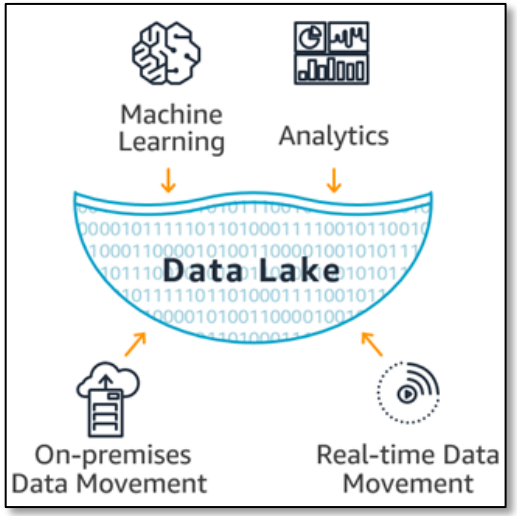
- **Secure, cloud-hosted, mobile-first design**
- **Interoperability & data exchange**
- **Integration-first approach**

Reduce data entry burdens and increase accuracy through *integration and analysis of data*:

- Computer-aided dispatch systems (CAD)
- Geographic information systems (GIS)
- Records Management Systems (RMS)



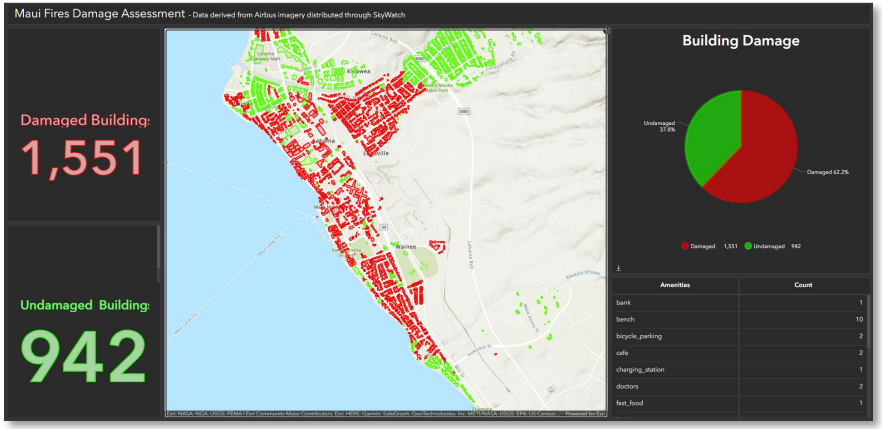
Powering Innovative Analytics



- Data management and integration environment for the Nation's fire-based incident data.
- Consume data from best available, authoritative sources.
- Provide data out in multiple, interoperable formats.

Graphic Source (left): https://aws.amazon.com/big-data/datalakes-and-analytics/what-is-a-data-lake/

- Provide basic, self-service analytic products for fire departments.
- Integrate and provide access to the most models and analysis.



Choose How You Report

BASIC

Department does not have CAD or RMS, or not connected to NERIS.

Reports through NERIS data capture apps.

INTERMEDIATE

Department has CAD, but no RMS.

Reports some information through NERIS data capture apps.

ADVANCED

Department has CAD and RMS, or RMS integrated with CAD.

Local data is pushed to NERIS from CAD & RMS via API.

NERIS Environment

BASIC – Department does not have CAD or RMS, or not connected to NERIS. Reports through NERIS data capture apps.

INTERMEDIATE – Department has CAD, but no RMS. Reports some information through NERIS data capture apps.

CAD

CAD

RMS

ADVANCED – Department has CAD and RMS, or integrated RMS w/ CAD. Local data is pushed to NERIS from CAD & RMS via API.

FD #1 NERIS Node

FD #2 NERIS Node

FD #3 NERIS Node

NERIS Data Capture Apps Fusion & Analytics Engine



- Data management and integration environment.
- Data capture apps for data collection.
- Self-service analytic products for FDs and state-level views.
- Advanced models and analysis methods for use nationwide.

NERIS Secure Cloud Boundary

Example live data feeds as APIs provided ***out*** of NERIS.

- API Data Feeds to FSLTT Agencies
- National Firefighter Registry for Cancer
- Academic & Research Institutions
- State Fire Marshal Offices
- Connections w/ National Systems

Example bi-directional live API feeds.

- National Weather Service Live Data Feed
- Early Wildfire Detection Sensor Live Data Feed

Example live data feeds as APIs pushed ***into*** NERIS.

Foundational Data Framework & Schemas

NERIS' data policy and governance framework

- Local departments retain ownership over their data
- Appropriate data sharing by default within the NERIS platform
- Basic data sharing agreements for secure, non-public APIs served out of NERIS to trusted entities

NERIS' semantic layer

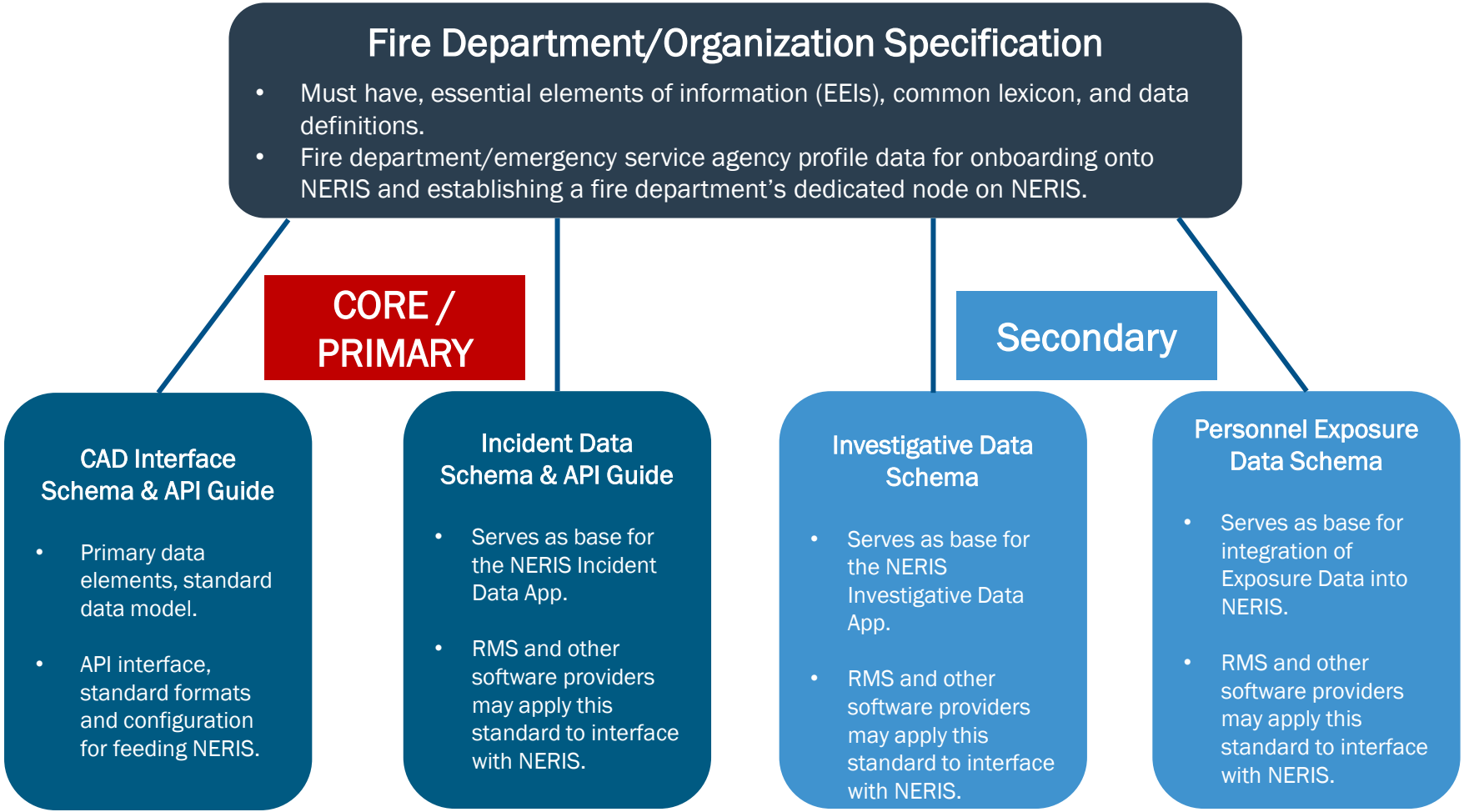
- Common data definitions and descriptions (data dictionary)
- Data relationships mapping – ontology
- Standardized metadata

NERIS data model - alignment with applicable standards

- National Information Exchange Model (NIEM)
- ANSI-approved NENA Standard for NG911 Data Model
- ANSI-approved NENA Standard for Emergency Incident Data Object

Cross-walks with National systems for data management and data exchange (examples below)

- NHTSA's National EMS Information System (NEMSIS)
- US Forest Service (USFS) IRWIN and InFORM
- DOI Interagency Data Management Environment
- Fire Department Registry and FEMA GO
- ATF's Bomb Arson Tracking System (BATS)


Fire Department/Organization Specification
• Must have, essential elements of information (EEIs), common lexicon, and data definitions.
• Fire department/emergency service agency profile data for onboarding onto NERIS and establishing a fire department's dedicated node on NERIS.
CORE / PRIMARY
Secondary
CAD Interface Schema & API Guide
• Primary data elements, standard data model.
• API interface, standard formats and configuration for feeding NERIS.
Incident Data Schema & API Guide
• Serves as base for the NERIS Incident Data App.
• RMS and other software providers may apply this standard to interface with NERIS.
Investigative Data Schema
• Serves as base for the NERIS Investigative Data App.
• RMS and other software providers may apply this standard to interface with NERIS.
Personnel Exposure Data Schema
• Serves as base for integration of Exposure Data into NERIS.
• RMS and other software providers may apply this standard to interface with NERIS.

NERIS Data Schemas

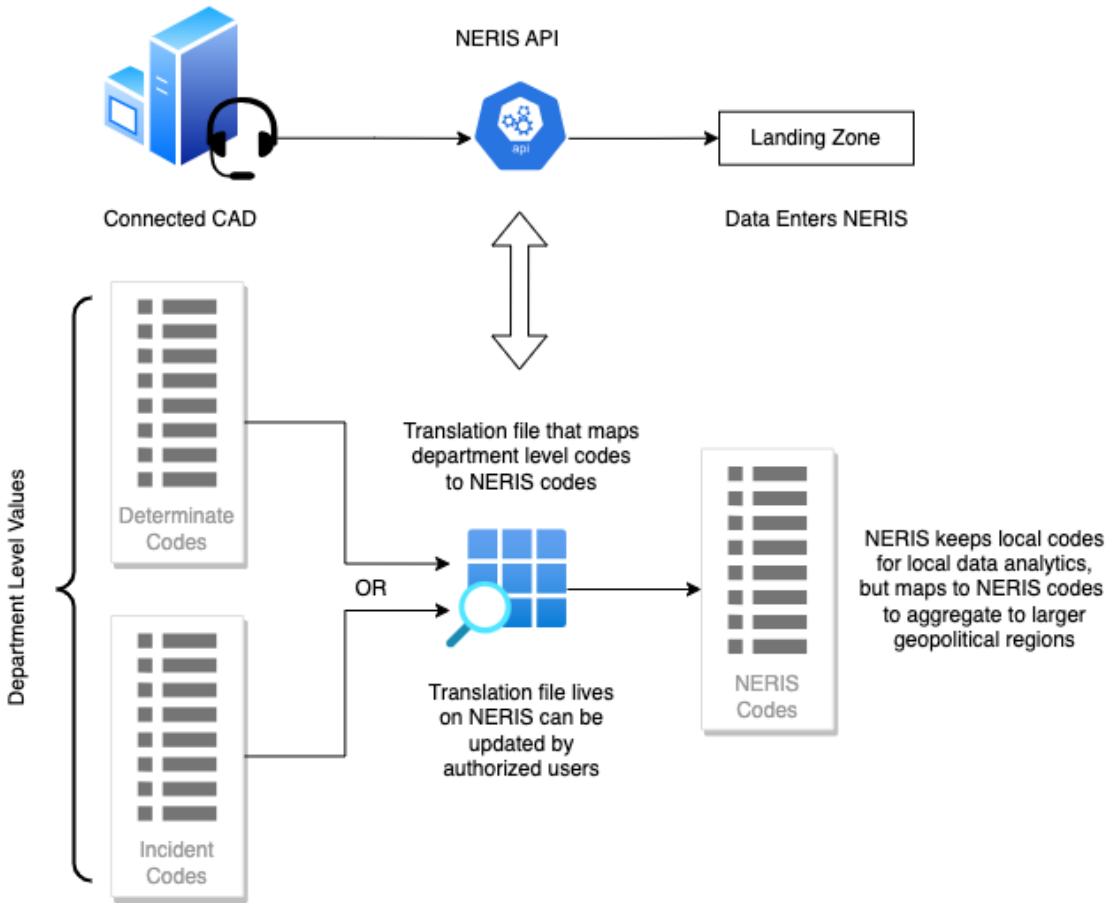
- Constructed as workbooks in MS Excel
  - Fire Department Specification, CAD Interface Schema, Incident Schema
- Include variable names, definitions, examples, comments (references to other pages in workbook or other NERIS data schema).
- Schemas have also been cross walked against other relevant data standards/schema (NIEM, InFORM, IRWIN, NEMSIS, NFPA, FEMA)

	NERIS REQ	NERIS Definition	Example	C
2	fd_neris_id	This 7 digit integer is a unique identifer for each fire department. The trailing two numbers indentify the start, the leading 5 are the department.	7756744	
3	fd_name	The name of the FireDepartment	Disctrict of Columbia Fire & EMS	
4	fd_address	The physical location of the department headquarters	2000 14TH STREET NW 20009	
5	fd_mailing_address	The mailing address for the fire department, if different from the headquarters		
6	fd_latlong	The coordinates of the fire department headquarters	38.927036, -77.032742	
7	fd_email	The email address of the fire department	info.fems@dc.gov	
8	fd_website	The website of the fire department	https://fems.dc.gov/	
9	fd_type	The staffing qualification of the department	Career, Volunteer, Combination	
10	fd_total_staffing	The number of total staff within the department	333	
11	fd_organization	The category which describes the organization of the department	Local, Tribal Government, Private, DOD, etc.	
12	fd_gis	The polygon/geographic footprint of the department's coverage area		
13	fd_battalion	The polygon/geographic footprint of the district-based supervisio of the department.		Fo fo
14	fd_population_protected	The number of people protected within the department's coverage area	392,000	

FEMA U.S. Fire Administration

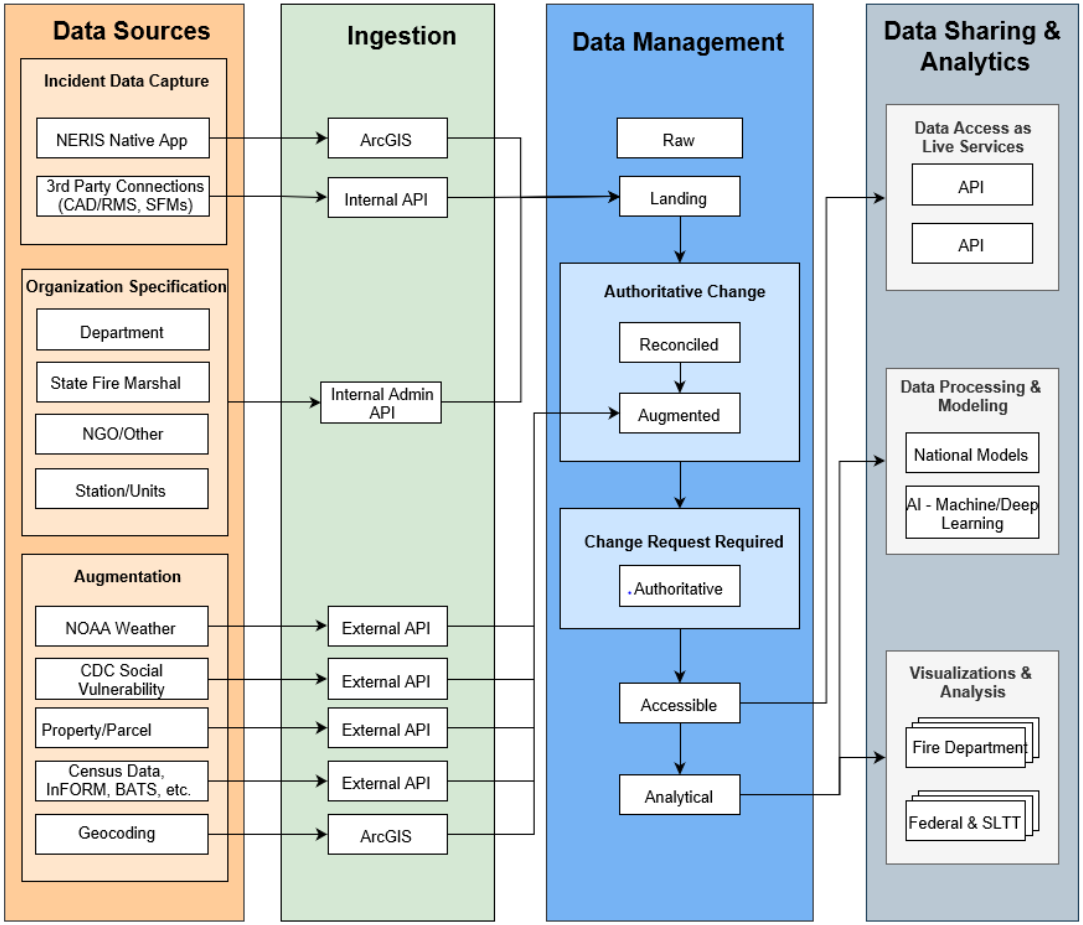
NERIS Incident Data Workflow

- Conceptual illustration for how the data schemas will work with data coming in from CAD and RMS.
- Subject to change.

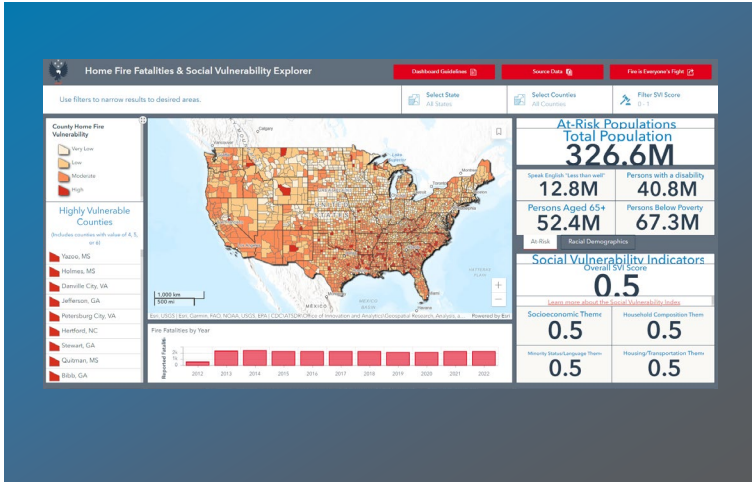


FEMA | U.S. Fire Administration

NERIS Data Management Environment



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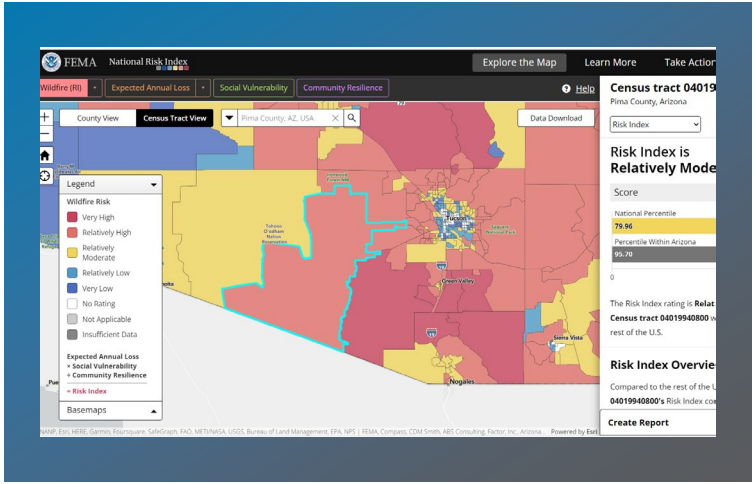


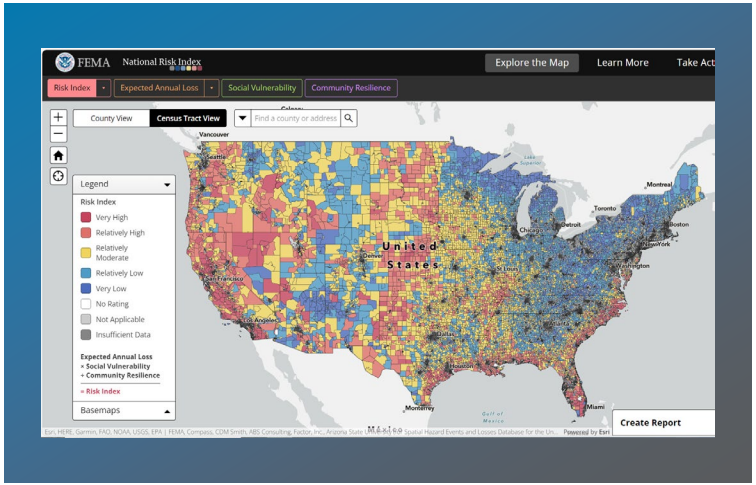


Eye into Future NERIS Analytics

- Automated and **self-service analysis** of local incident data integrated with authoritative, 3rd party data.
- Identifying priority gaps in **existing and emerging ML and DL models** against core analytic requirements of the fire service.
- Focus on ML/DL models for more accurate and comprehensive **shared understanding of fire risk across all fire environments** at the most local level, on a nationwide scale.

FEMA | U.S. Fire Administration





Future: National Fire Risk Index

- **Today** – FEMA provides a National Risk Index - includes a model for Wildfire Risk at the census track level, nationwide.
- **Currently** - USFA is working with Headwaters Economics to evaluate existing fire risk models for informing the development of a national fire risk index and assessment methodology.
  - Inclusive of wildfire, wildland urban interface (WUI), and structure fire spatial risk indices and models.
  - Focus on the degree to which the built environment is addressed by the various models.
- **Future** – Development of a National Fire Risk Index that leverages the best models across all fire environments.

Future Use for Science & Investments

- Applying NERIS data as the basis for a **shared understanding of the Nation's fire problem**.
- Access to the fire research/science community to **inform research gaps and needs**.
- Research & science community **able to contribute to NERIS** via advanced analytical models and enhanced data products.
- Analyzing incident trends and risk, against historical investments in fire protection and prevention via grants and other funding.
- Inform data-driven decision making in **prioritizing future investments.**

FEMA | U.S. Fire Administration

12-Month Outlook

	Status | Timeline
 USFA and DHS S&T **establish partnership** for the core data standard and NERIS development with the Fire Safety Research Institute (FSRI).	100% Complete
 **Community and stakeholder engagement**, feedback opportunities, and listening sessions.	Ongoing
 Develop and release v1 of **NERIS core data standard schemas** and guide.	90% Winter 23/24
 Complete **NERIS Initial Operating Capability**/prototype (IOC) and **onboarding select fire departments** as testers & early adopters.	In Progress Winter 23/24
 **Launch NERIS v1** and outreach campaign to facilitate onboarding fire departments.	Late Fall 2024

Development Timeline and Milestones

CY 2023

- USFA and DHS S&T establish partnership with FSRI for NERIS development.
- Complete development of the core NERIS data framework and schemas.
- Complete R&D on the open solutions architecture and NERIS initial operating capability.

CY 2024

- Complete development and launch of a full NERIS v1.0.
- Develop and implement nationwide launch campaign on NERIS and support transitioning local fire departments.
- Complete migration of historical NFIRS data into a cloud-based library archive tool.

CY 2025

- Complete NERIS development iterations to include integration with priority sensors, data and systems, and analytics for fire and emergency service leaders.
- Provide technical assistance, user support, and education to facilitate onboarding fire and emergency service agencies.
- Fully transition all users onto NERIS and decommission NFIRS.

Questions & Information

- **NERIS Basics & FAQs -** https://www.usfa.fema.gov/nfirs/neris/
- **Stay tuned** on NERIS development - https://fsri.org/programs/neris
- **Register for Dec. 14 National Webinar** - https://fsri.org/events/modernizing-us-fire-data-system-understanding-proposed-neris-data-framework
- **NERIS Overview** Video - https://fsri.org/program-update/demand-access-modernizing-us-fire-data-system-introduction-national-emergency
- **Need More Information**, contact the NERIS Information Desk – NERIS@UL.org

Scan to Register for Webinar

Visualizing Real-Time Data for Emergency Response

Chief Carpenter, Frisco FD (TX)
Susan Olson, City of Frisco (TX)

:20 / 9:50am – 10:10am

SAFER

Situational Awareness For Emergency Response

IAFC

FireDAWG

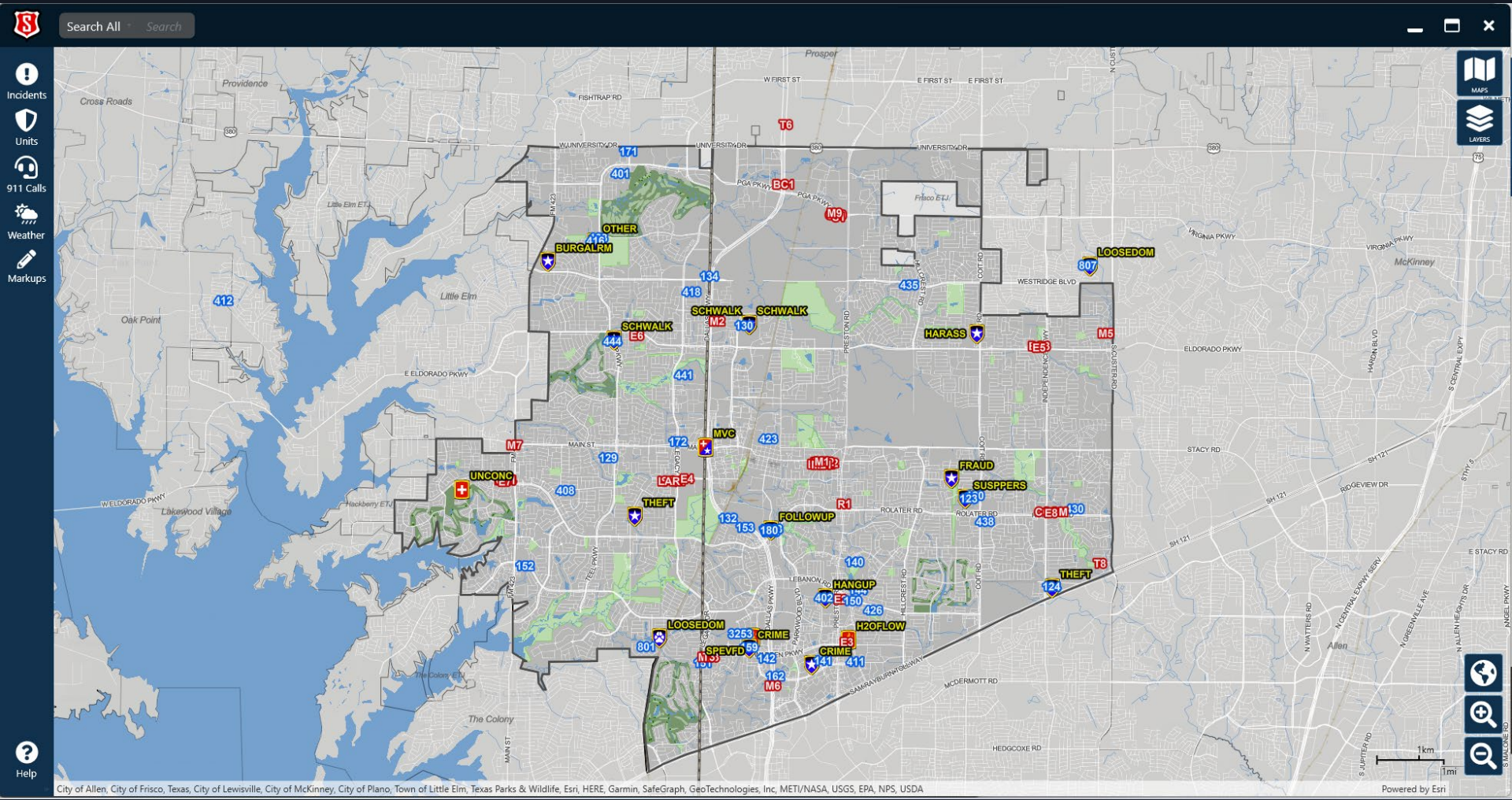
December 2023

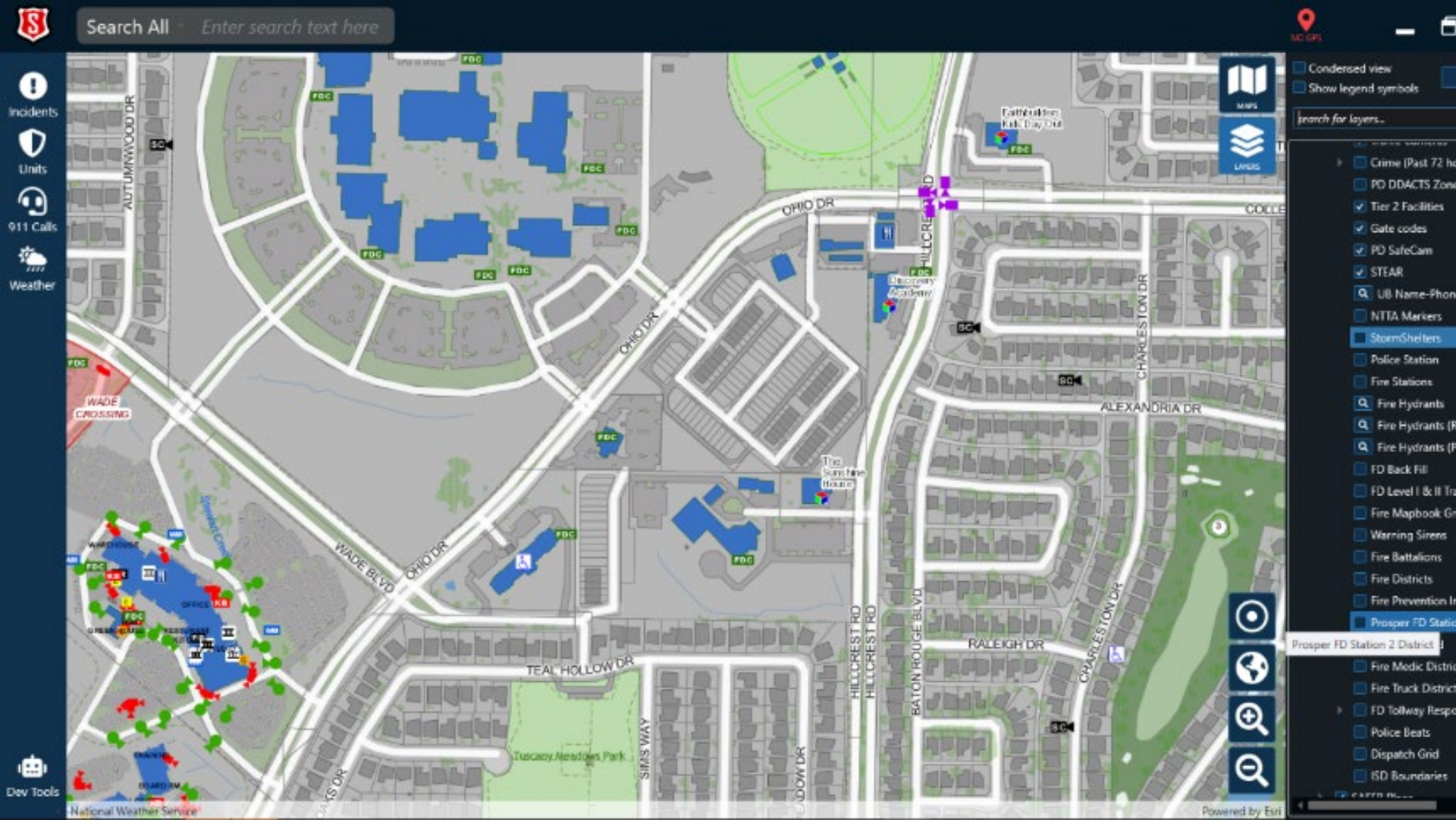
FRISCO



W. Clay Carpenter – Assistant Chief - Fire
Susan Olson - Assistant Director - IT


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INJURED?


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Incidents
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911 Calls
Weather
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Help
MAPS
LAYERS
Providence
Cross Roads
Prosper
Little Elm
Oak Point
Lakewood Village
The Colony
Frisco ETJ
McKinney
Allen
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ROLATER RD
LEBANON RD
DALLAS PKWY
PARKWOOD BLVD
PRESTON RD
HILLCREST RD
COIT RD
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N GREENVILLE AVE
N ALLEN HEIGHTS DR
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S JUPITER RD
S MALONE RD
OTHER
BURGALRM
SCHWALK
MVC
UNCONC
THEFT
FOLLOWUP
FRAUD
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LOOSEDOM
HANGUP
H2OFLOW
CRIME
SPEVFD
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Fire Medic Distric
Fire Truck District
FD Tollway Respo
Police Beats
Dispatch Grid
ISD Boundaries
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WADE BLVD
TEAL HOLLOW DR
ALEXANDRIA DR
RALEIGH DR
HILLCREST RD
BATON ROUGE BLVD
CHARLESTON DR
AUTUMNWOOD DR
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SERVERY
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OFFICE
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GPS OK

Incidents
Units
911 Calls
Traffic
Weather
Dev Tools

MVC
Motor Vehicle Crash
ELDORADO PKWY @ LEGACY DR

CFS# 20104842
Created Wed 9:24 AM

131 151 E6 M6

Call Notes

Nov 18 2020 9:28AM
Dispatch Code: 29A02 (No injuries reported (unconfirmed or = 5 persons involved))
Response: CAD
2. Chemicals or other hazards are not involved. 1. The incident involves multiple vehicles. 3. There is no one pinned. 4. No one was thrown from the vehicle. 5. Everyone appears to be completely awake (alert). 6. No obvious injuries were reported (unconfirmed).
7. There is no bleeding now.

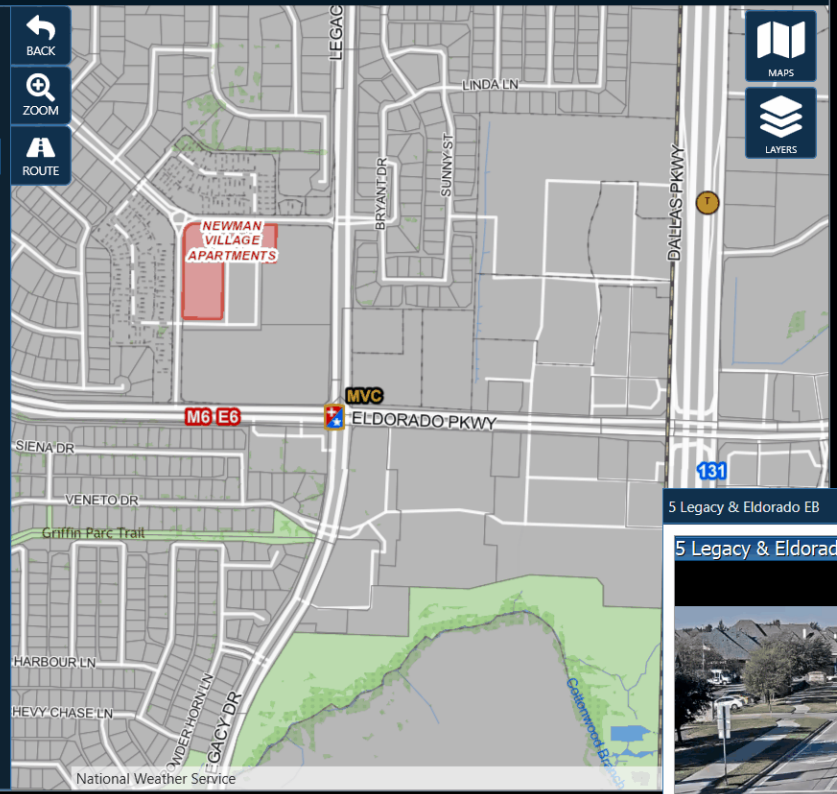
Nov 18 2020 9:27AM
70-year-old, Male, Conscious, Breathing.
CCText: Traffic Collision / Transportation Incident
Problem: traffic crash, airbag deployment

Nov 18 2020 9:27AM
eldery male driver seems confused as well

Nov 18 2020 9:26AM
air bag deployment

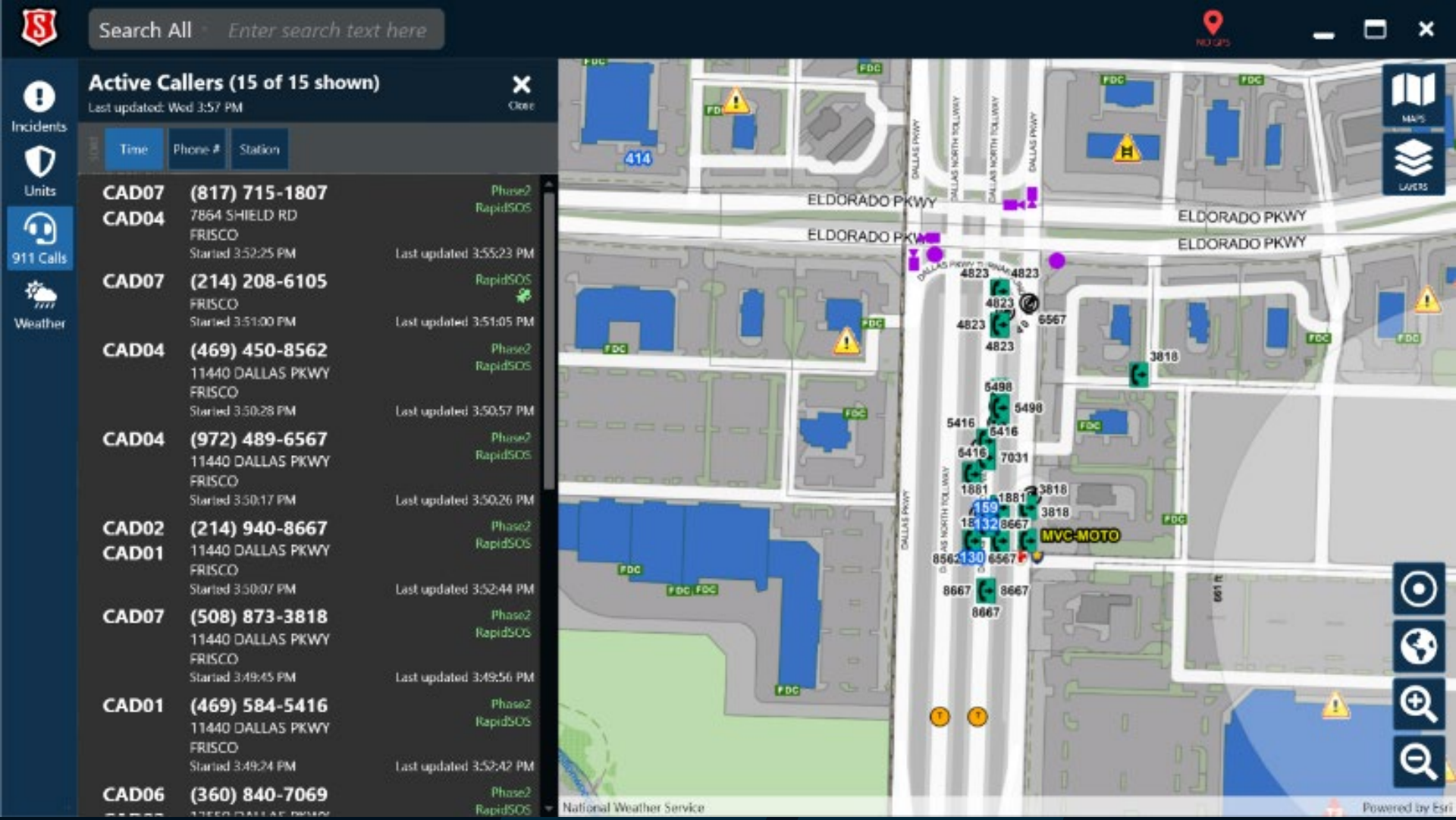
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MAPS
LAYERS



5 Legacy & Eldorado EB




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Incidents
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911 Calls
Weather
Active Callers (15 of 15 shown)
Last updated: Wed 3:57 PM
Close
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Station
CAD07 (817) 715-1807 Phase2
CAD04 7864 SHIELD RD RapidSOS
FRISCO
Started 3:52:25 PM Last updated 3:55:23 PM
CAD07 (214) 208-6105 RapidSOS
FRISCO
Started 3:51:00 PM Last updated 3:51:05 PM
CAD04 (469) 450-8562 Phase2
11440 DALLAS PKWY RapidSOS
FRISCO
Started 3:50:28 PM Last updated 3:50:57 PM
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11440 DALLAS PKWY RapidSOS
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CAD02 (214) 940-8667 Phase2
CAD01 11440 DALLAS PKWY RapidSOS
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CAD07 (508) 873-3818 Phase2
11440 DALLAS PKWY RapidSOS
FRISCO
Started 3:49:45 PM Last updated 3:49:56 PM
CAD01 (469) 584-5416 Phase2
11440 DALLAS PKWY RapidSOS
FRISCO
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CAD06 (360) 840-7069 Phase2
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- City Facility Cameras



Motorola GPS & AVL

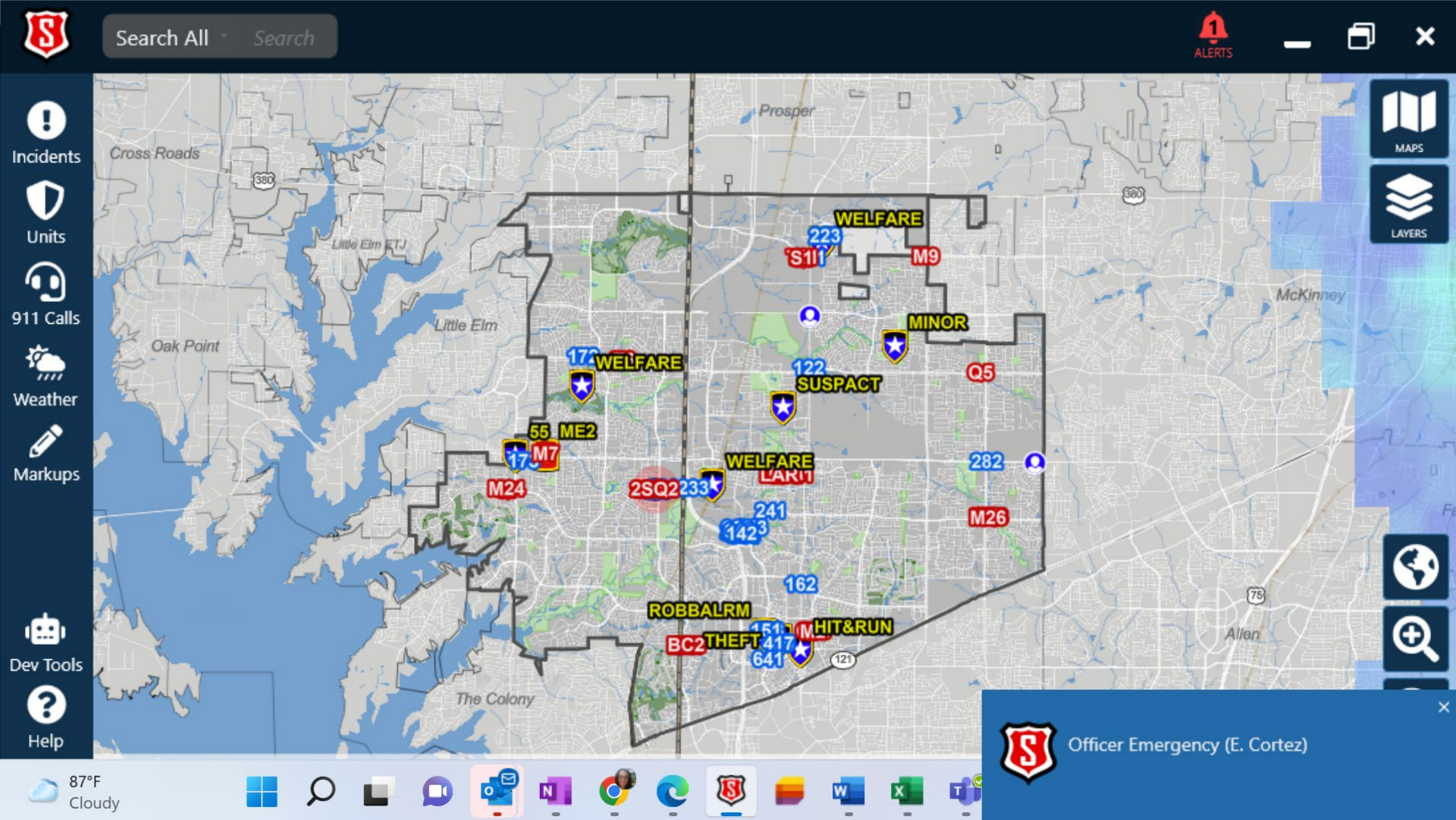
Police & Fire

Officer & Unit

Locations



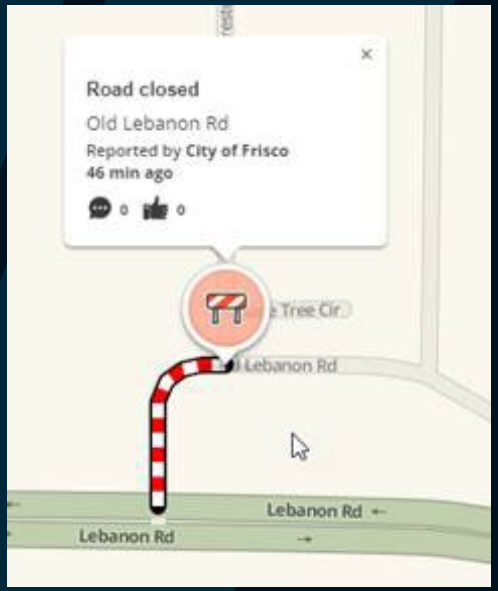



Search All
Search
ALERTS
Incidents
Units
911 Calls
Weather
Markups
Dev Tools
Help
MAPS
LAYERS
Prosper
Cross Roads
Little Elm ETJ
Little Elm
Oak Point
McKinney
Allen
The Colony
WELFARE
223
S111
M9
MINOR
122
SUSPACT
Q5
WELFARE
55
ME2
M7
M24
2SQ2
233
241
142
282
M26
162
ROBBALRM
HIT&RUN
BC2
THEFT
417
641
Officer Emergency (E. Cortez)
87°F
Cloudy

Waze Bi-Directional Integration

- To Waze:
  - Frisco road closures from SAFER
  - Traffic incidents
  - Frisco lane closures from Cityworks Work Management

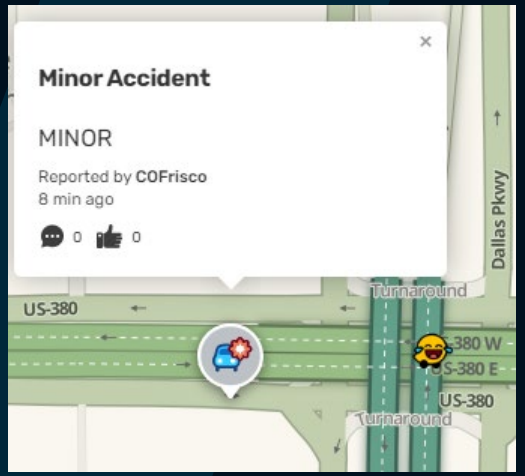




Waze Bi-Directional Integration

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  - Traffic incidents
  - Frisco lane closures from Cityworks Work Management

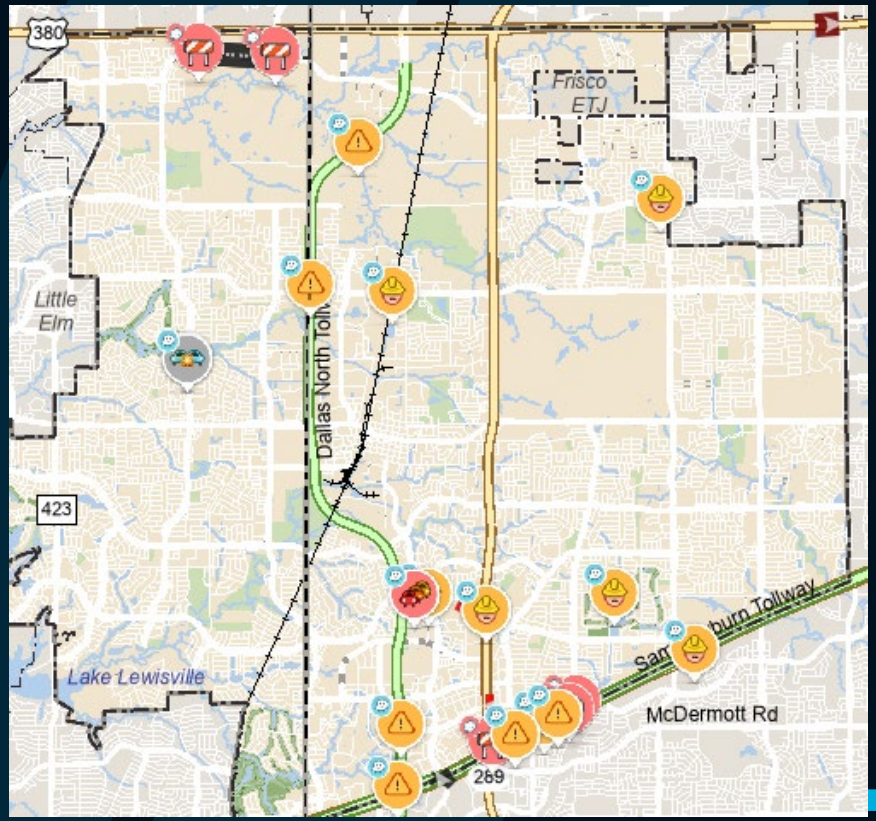






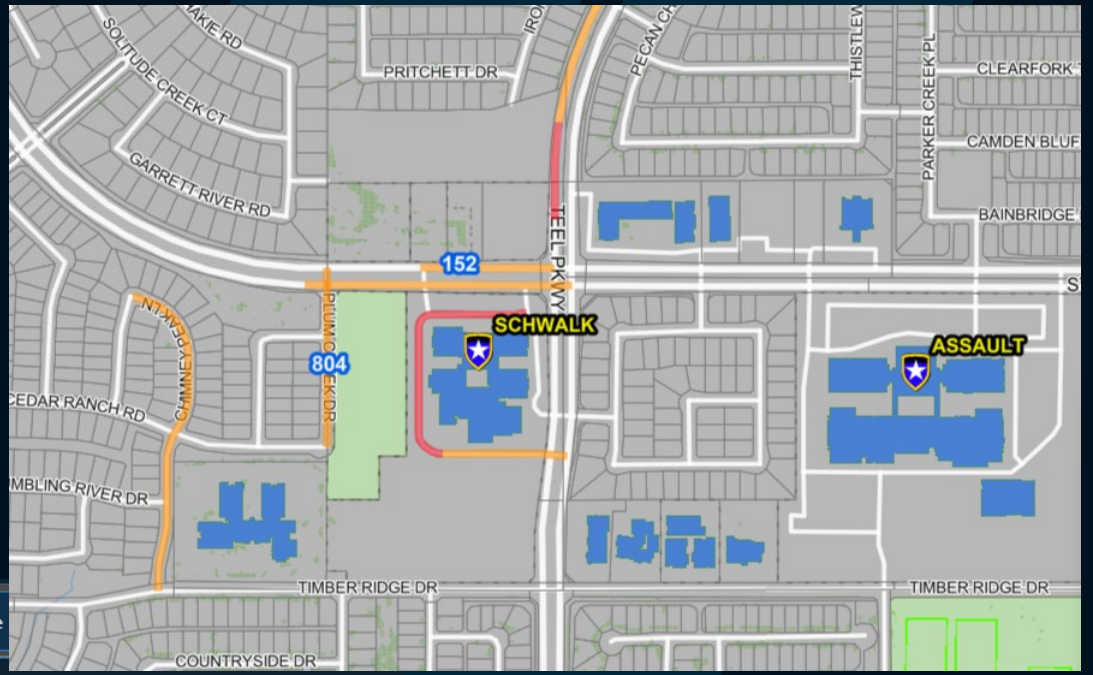
Waze Bi-Directional Integration

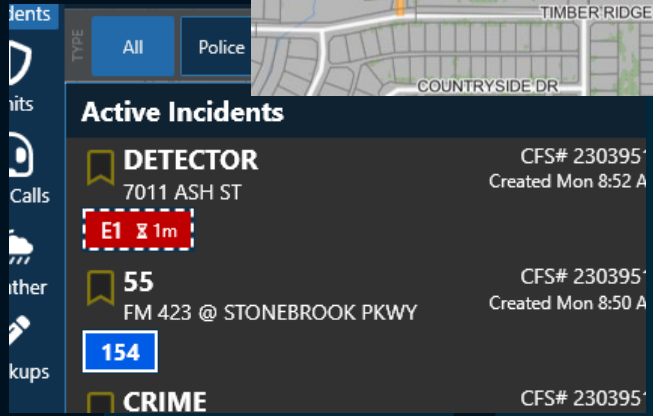
- To Waze:
  - Frisco road closures from SAFER
  - Traffic incidents
  - Frisco lane closures from Cityworks Work Management
- From Waze
  - Traffic congestion
  - Traffic incidents
  - Road Hazards



HERE.com

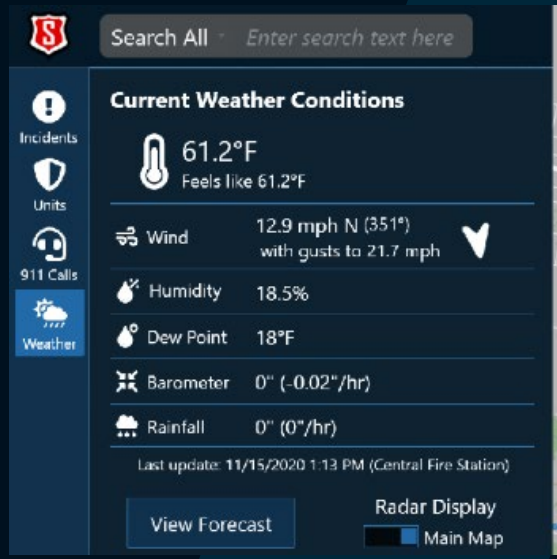
Real-time Traffic

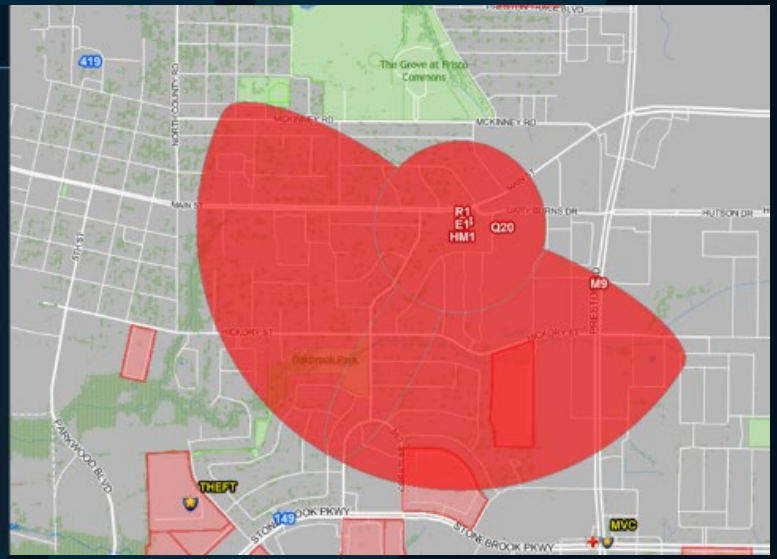




PEAC Hazmat Plume

Weather Observations & Radar





Search All Search

Incidents
Units
911 Calls
Weather
Markups

ODOR
Odor Investigation
FM 423 @ ELDORADO PKWY

CFS# 21045963
Created Fri 9:10 AM

110 112 130 132 133 134
139 143 152 162 173 591
BC2 BC7 C1 C4 CCOM1 E1 E6
HM1 LEC622 LEE621 M6 R1 S1
T6 660 E4

BACK
ZOOM

Call Notes

May 7 2021 12:23PM
FISD EM or Director of Security will be enroute to EOC shortly

May 7 2021 12:17PM
jonathan - wants supervisor to call because ofc refused to let rp enter the subdivision - 469-786-7319 unable to enter his subdivision **** rp taking alternate route but still wants supervisor to call to lodge ofc complaint due to inconvenience of being forced into traffic loop

May 7 2021 12:09PM
Unit 110 @8601 GARY BURNS DR , FRISCO, TX 75034 {FRISCO FIRE STATION 1}

May 7 2021 12:06PM
C5 - HOPE FELLOWSHIP WEST IS THE EVAC SHELTER

May 7 2021 12:04PM
C4 - EVAC CHANNEL IS FRISCO CH 7

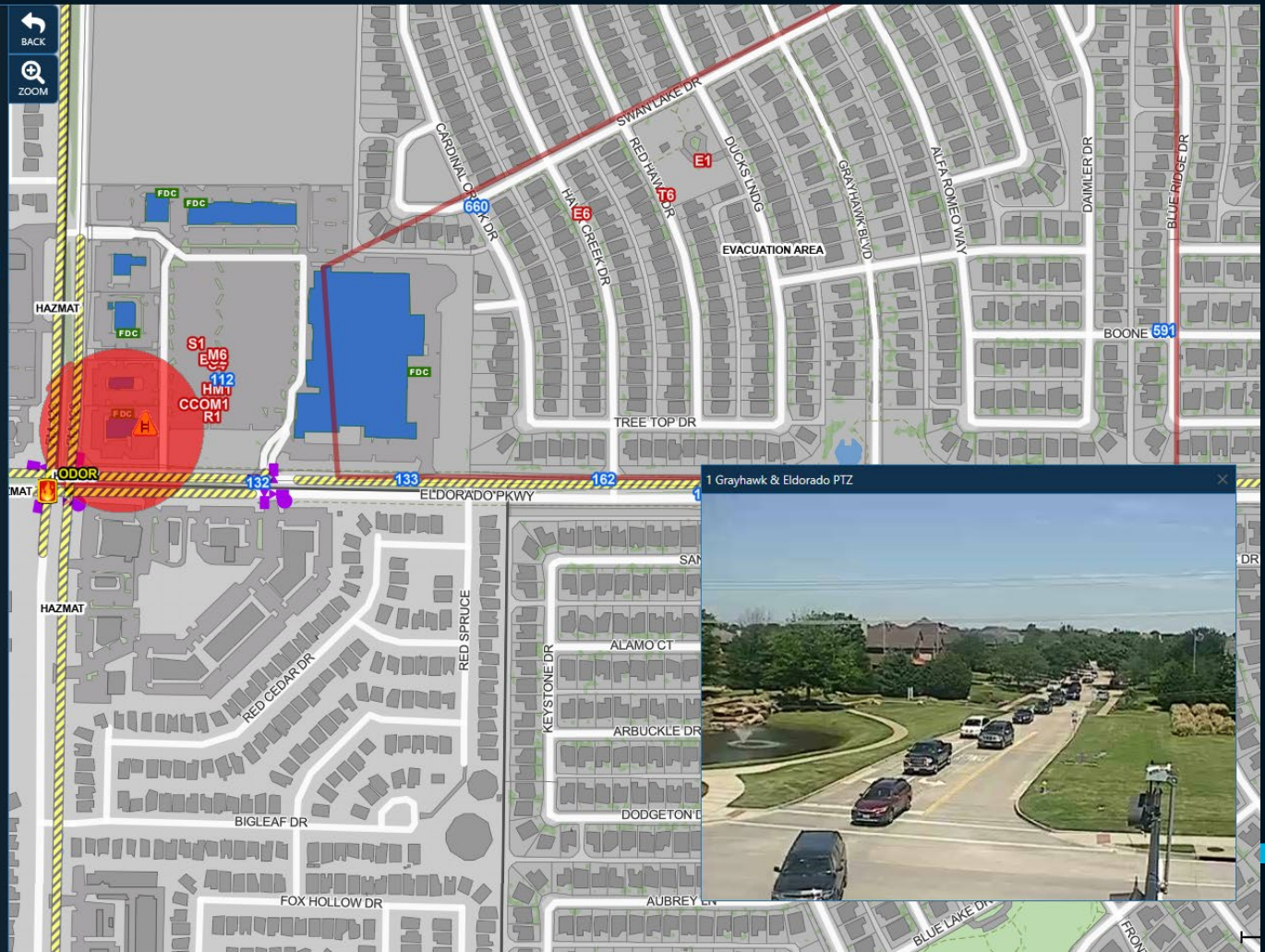
May 7 2021 12:02PM
Unit C1 @WALMART WITH FD COMMAND

May 7 2021 12:02PM
Unit C1 @HAZMAT BRANCH

May 7 2021 11:57AM
SWAN LAKE SOUTH TO ELDORADO, FROM BLUE RIDGE WEST WILL BE EVACUATED

May 7 2021 11:52AM

Refresh Pause



Integrations




Search All
Search
Incidents
Units
911 Calls
Weather
Markups
Help
MAPS
LAYERS
PGA PKWY
SNAPDRAGON RD
CREEK PLUM RD
CHAMPIONSHIP DR
LEGACY DR
SANDHILL WAY
HERITAGE WAY
ROCKHILL PKWY
TEEL PKWY
PGA Frisco
Short Course
PGA Frisco
Gil Hanse's Course
PGA Frisco
Beau Welling's
Course
MADELEINE AVE
LANDRUM RD
WYETH AVE
FALLWOOD ST
WENTWOOD DR
FIELDS PKWY
BURKESVILLE LN
WELWOOD RD
CRANBROOK DR
200m
800ft
NOAA/NWS
Powered by Esri

Benefits

Common Operating Picture

Incident Management

GeoVisualization

Intuitive UI

Partnerships



Partnerships

City of Frisco
- Fire
- Police
- Traffic Engineering
- IT

Frisco ISD

Questions?



For more info visit:

www.friscotexas.gov/SAFER

W. Clay Carpenter
wcarpenter@friscofire.com

Susan Olson
solson@friscotexas.gov

FRISCO



Mike Cox, Esri Director of Fire, Rescue, EMS

mike_cox@esri.com

Who Let the DAWGs Out? GIS for Fire Service Data Analysis

Mike Cox, Esri

:20 / 10:10am – 10:30am

10:30 am – 10:50 am

NETWORKING BREAK

On-Scene Decontamination Practices Research

Bill Gardner, CFE, CFO, EMT-P
Senior Director, ESO

:10 / 10:50am – 11:00am

Brief

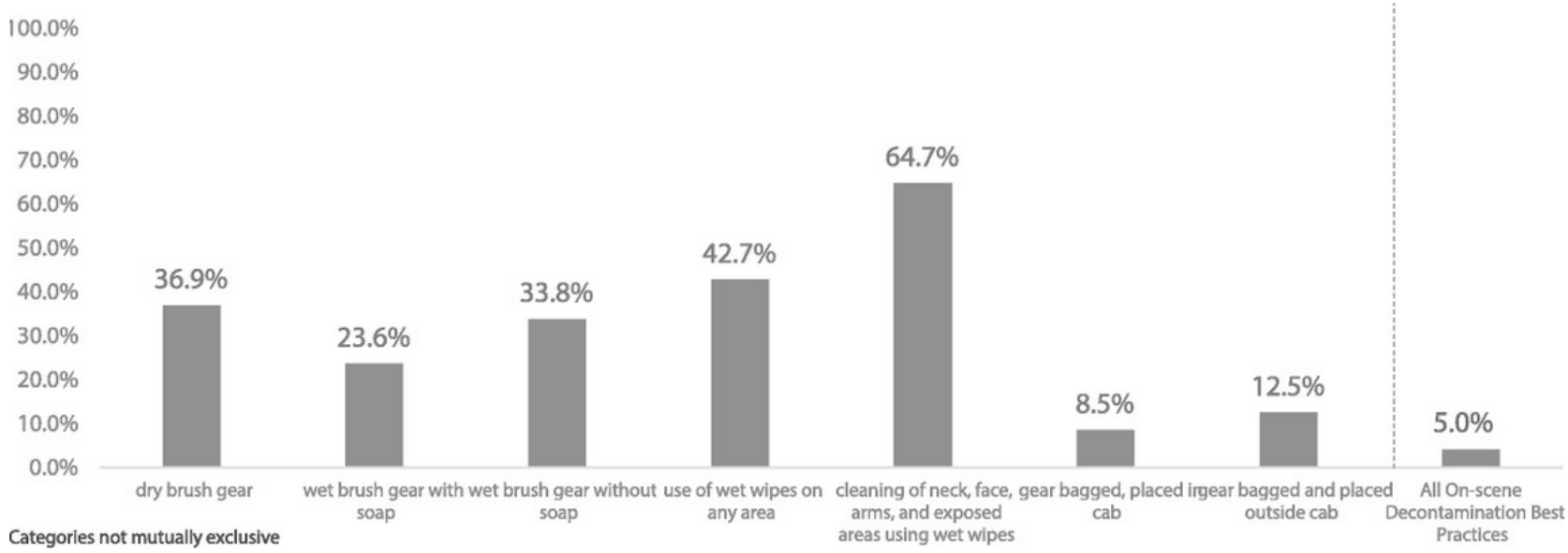
This is the first study to describe real world on-scene exposure decontamination practices by fire personnel using data entered into a fire incident management system, with records from over 2,500 firefighters throughout the United States. Our results suggest that too few fire personnel are performing decontamination on-scene following documented exposure.

Study Information

- **Objective** This study describes firefighters' on-scene decontamination procedure use post–working fire and frequency of adherence to best practice.

- **Methods** This retrospective analysis of working fires was conducted using records from the ESO Data Collaborative national research database from January 1, 2021, to December 31, 2021. Documentation of decontamination procedures was examined among records with smoke or combustion products exposure. Firefighter and incident characteristics were evaluated. Descriptive statistics and univariable odds ratios were calculated.

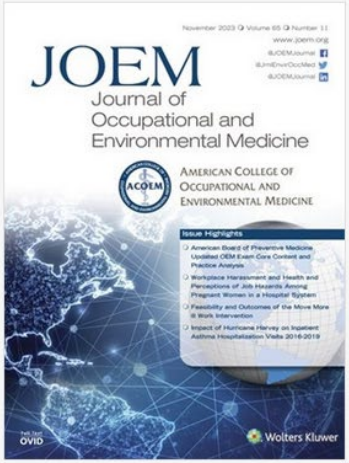
Points to Remember



Study Results

Among the 31,281 firefighters included in the study, 8.0% documented a fire-related exposure. Of those, 82% performed at least one on-scene decontamination procedure; 5% documented all decontamination procedures defined as best practices. The odds of documenting any decontamination procedure were significantly decreased among firefighters responding to incidents in rural areas compared with urban areas (odds ratio, 0.70).

Where to go find this?



November 2023 - Volume 65 - Issue 11

Table of Contents Outline

eTOC Alerts

Contributor Index

https://journals.lww.com/joem/fulltext/2023/11000/evaluating_firefighter_on_scene_decontamination.6.aspx

Thank You

eso.com

bill.gardner@eso.com

Proprietary and Confidential. Do Not Copy or Distribute.

Playing in the Sandbox: SARCOP Training Best Practices

Jared Doke, NAPSG Foundation

:20 / 11:00am – 11:20am



Playing in the Sandbox: SARCOP Training Best Practices

Jared Doke, NAPSG Foundation



National Urban Search and Rescue Response System Established in 1989

Michael Rieger/ FEMA News Photo


In the early years, focus was on building collapse


Mission expanded to include
Wide Area Search and Water Operations



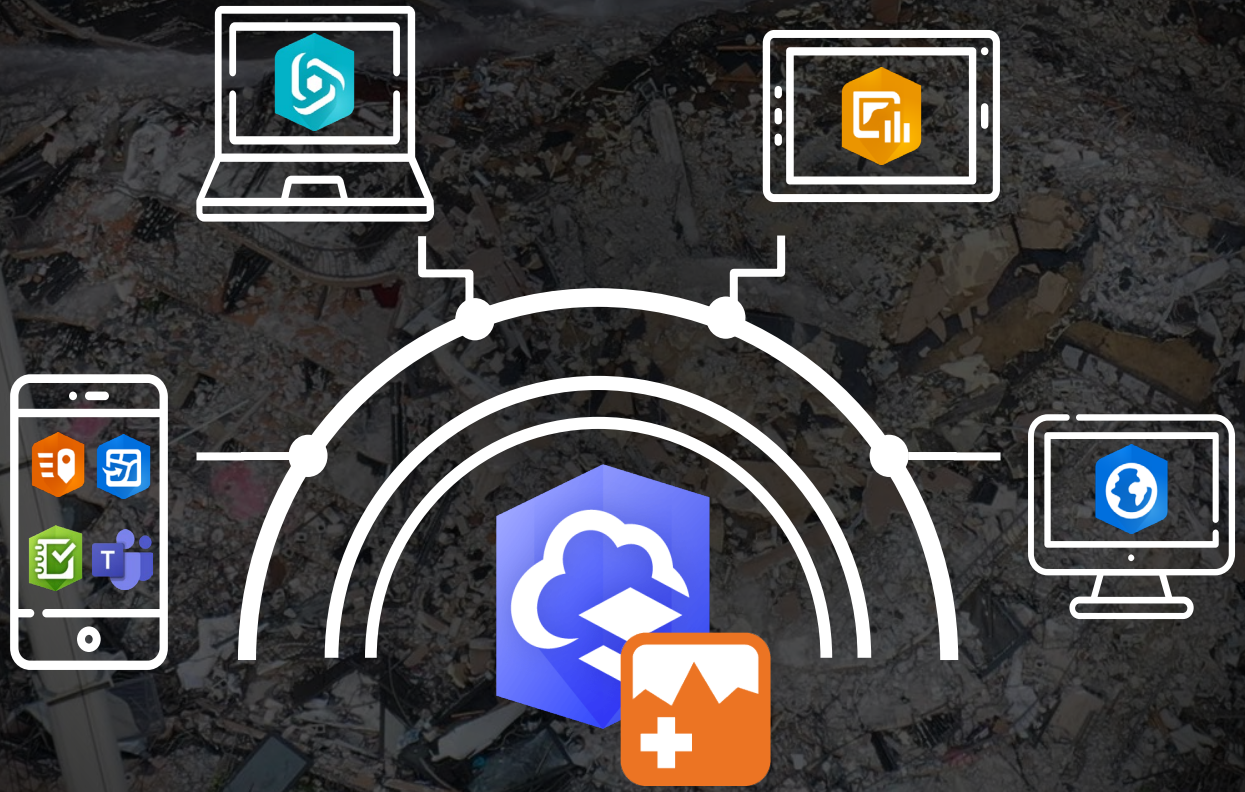
Search and Rescue is
an inherently spatial problem

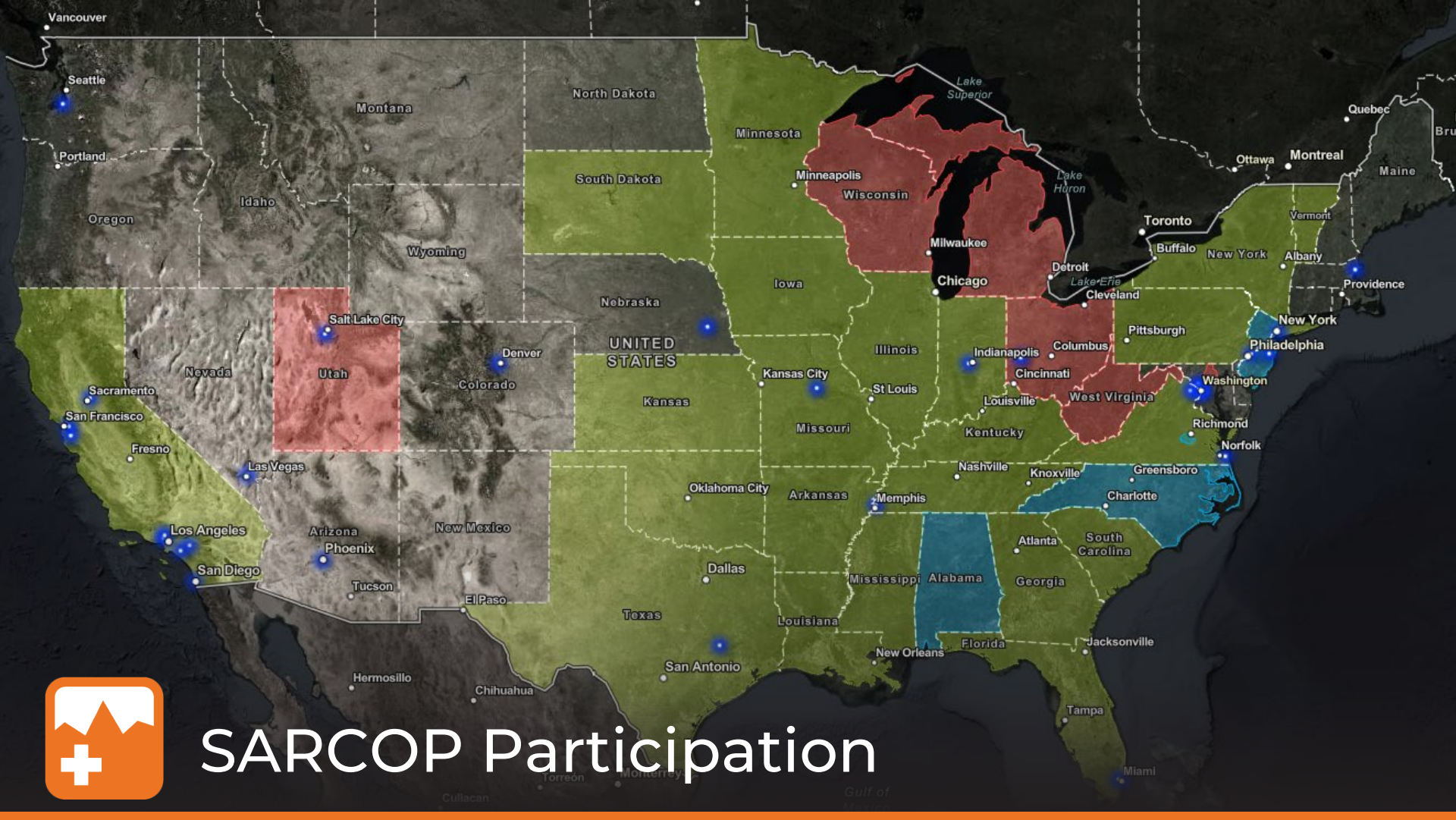

GPSMAP 64sx
GARMIN
IN
OUT
FIND
PAGE
MARK
MENU
QUIT
ENTER
2mi
2000
1000
Stream
Riverside Blvd
E Park Ave
STOP 011
GO 012
STOP 013
GO 017
STOP 018
GO 004
STOP 029
GO 001
STOP 040
007
2013 GPS Use and File Conversion Protocol (Iron Sights)



2017 Hurricane Harvey, first use of Survey123 during a major US&R incident

Search and Rescue Common Operating Platform





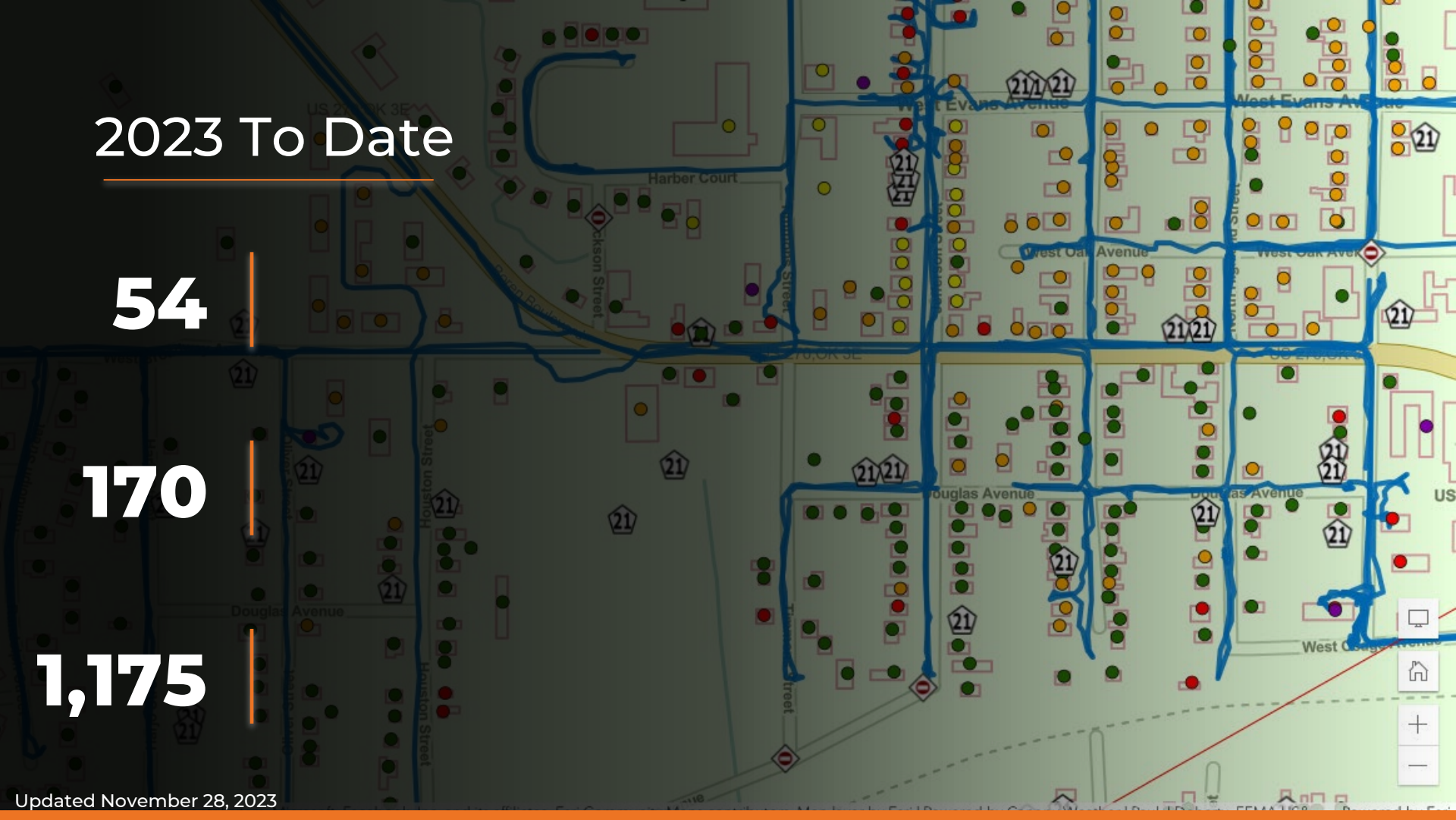
SARCOP Participation

2023 To Date

54

170

1,175



Updated November 28, 2023


2023 To Date
54
Deployments Supported
170
1,175
Updated November 28, 2023


2023 To Date
54
Deployments Supported
170
Registered Exercises
1,175
Updated November 28, 2023



2023 To Date

54 | Deployments Supported

170 | Registered Exercises

1,175 | NSARGC Community Members

Updated November 28, 2023



People

Process

Technology



Create a training cadre

People

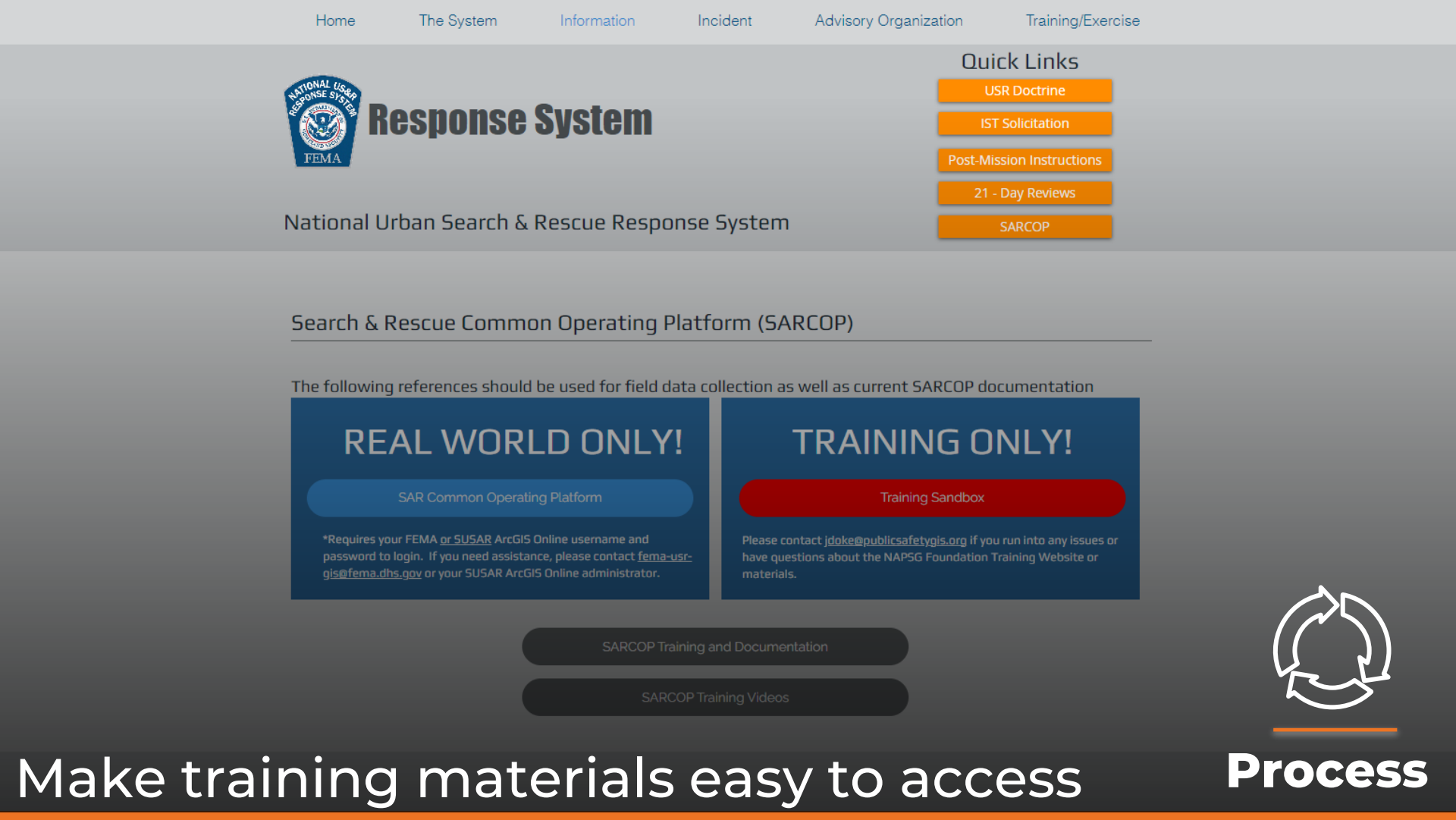


Know your audience

People


Build a community and empower them
People


National Interagency Fire Center
Beg, borrow, and steal
from others doing great work
Process



Make training materials easy to access

Process



Videos and Quick-guides are your friend

Process



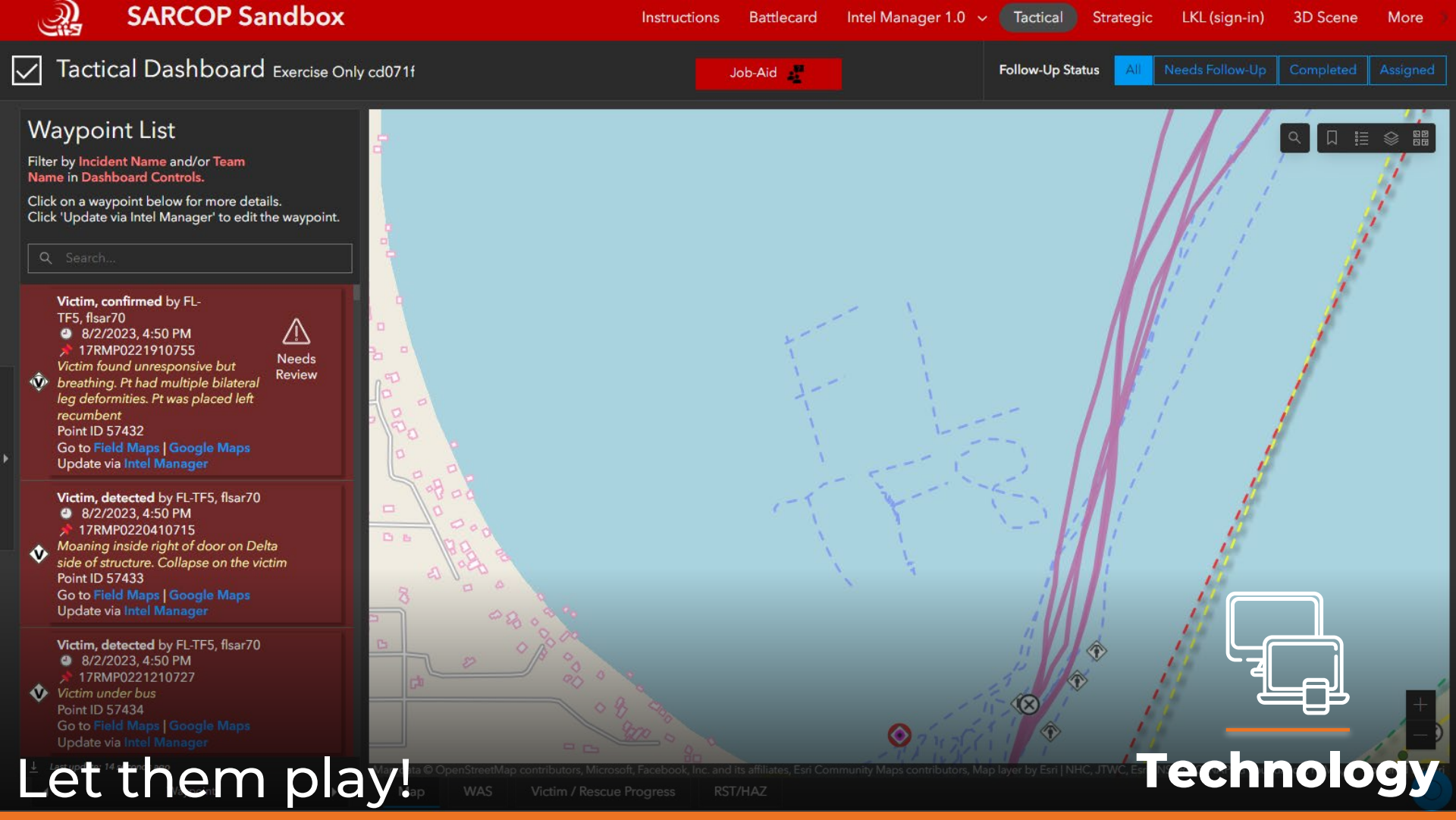
Focus training on what they do most

Process



Create accessible training materials

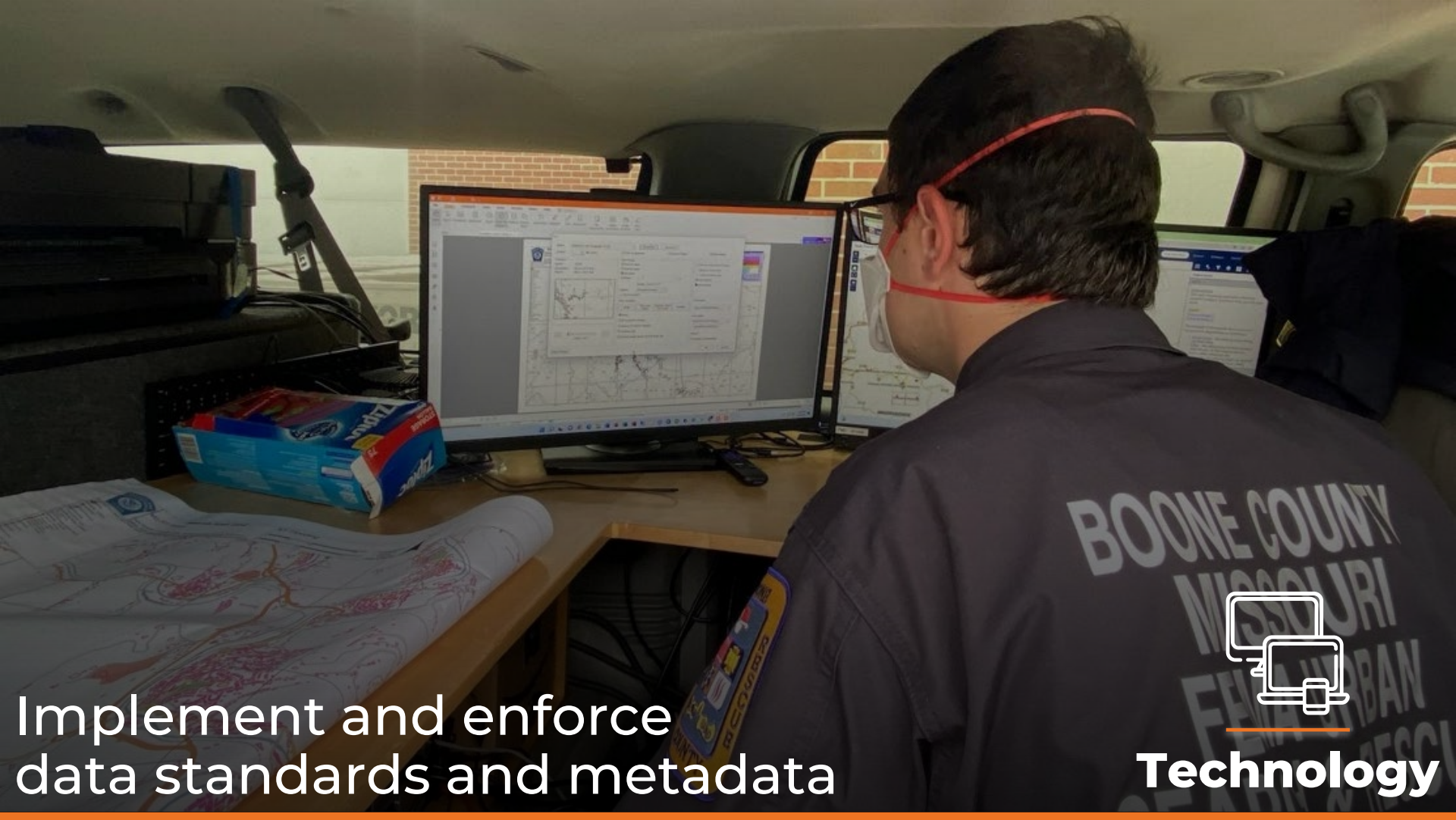
Process


SARCOP Sandbox
Instructions
Battlecard
Intel Manager 1.0
Tactical
Strategic
LKL (sign-in)
3D Scene
More
Tactical Dashboard
Exercise Only cd071f
Job-Aid
Follow-Up Status
All
Needs Follow-Up
Completed
Assigned
Waypoint List
Filter by Incident Name and/or Team Name in Dashboard Controls.
Click on a waypoint below for more details.
Click 'Update via Intel Manager' to edit the waypoint.
Search...
Victim, confirmed by FL-TF5, flsar70
8/2/2023, 4:50 PM
17RMP0221910755
Victim found unresponsive but breathing. Pt had multiple bilateral leg deformities. Pt was placed left recumbent
Point ID 57432
Go to Field Maps | Google Maps
Update via Intel Manager
Needs Review
Victim, detected by FL-TF5, flsar70
8/2/2023, 4:50 PM
17RMP0220410715
Moaning inside right of door on Delta side of structure. Collapse on the victim
Point ID 57433
Go to Field Maps | Google Maps
Update via Intel Manager
Victim, detected by FL-TF5, flsar70
8/2/2023, 4:50 PM
17RMP0221210727
Victim under bus
Point ID 57434
Go to Field Maps | Google Maps
Update via Intel Manager
WAS
Victim / Rescue Progress
RST/HAZ
Let them play!
Technology



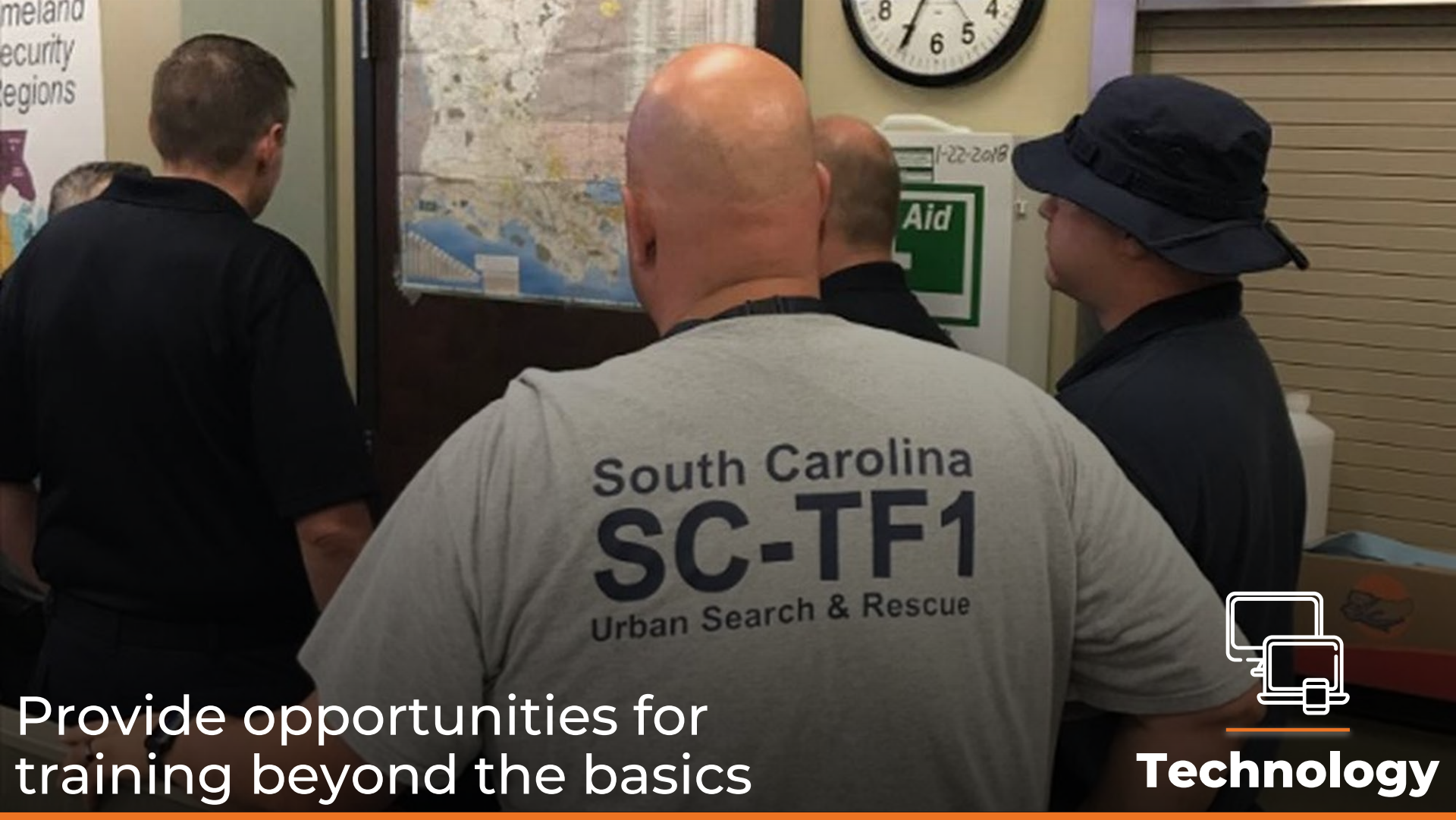
Product consistency

Technology



Implement and enforce data standards and metadata

Technology



Provide opportunities for training beyond the basics

Technology



Resources

- https://www.responsesystem.org/sarcop

Interest List

THANKS!

jdoke@publicsafetygis.org

napsgfoundation.org

@napsgfoundation





Data Reporting Best Practices For Fire Departments

Justin Dillard, First Due

:10 / 11:20am – 11:30am

About Me



Justin Dillard

Lead Solutions Consultant

justin@firstdue.com

+1 630-669-3530

Defining Success in Fire Analytic Products



Do we have quality information?



Do our data-sets align with our goals?



What is the future of our information?

Are we stressing Good Data?



Do we have a data review processes in place?



Do we have an education plan?



How do we show improvements?

Do your datasets align with your goals?

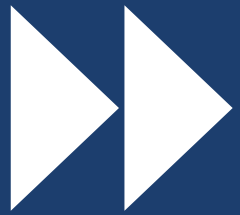


Do we have the flexibility in
our datasets?

What does data flexibility look like?



Unlimited Access to Internal and External Data



Streamlined additions of fields/modules into data architecture

What is the future of our information?



Do we command our data – or does our software vendor?



Do you have useful dashboards?

Can you easily run native reports?



How do we utilize 3rd party tools?

Questions



Justin Dillard

Lead Solutions Consultant

justin@firstdue.com

+1 630-669-3530

The 1022 Journey

Preet Bassi, Chief Executive Officer
Center for Public Safety Excellence

:10 / 11:30am – 11:40am

Building Support for the Standard

Mar 2018

CPSE and NFPA host Analyst Incubator

Aug 2018

CPSE submits new project request to NFPA

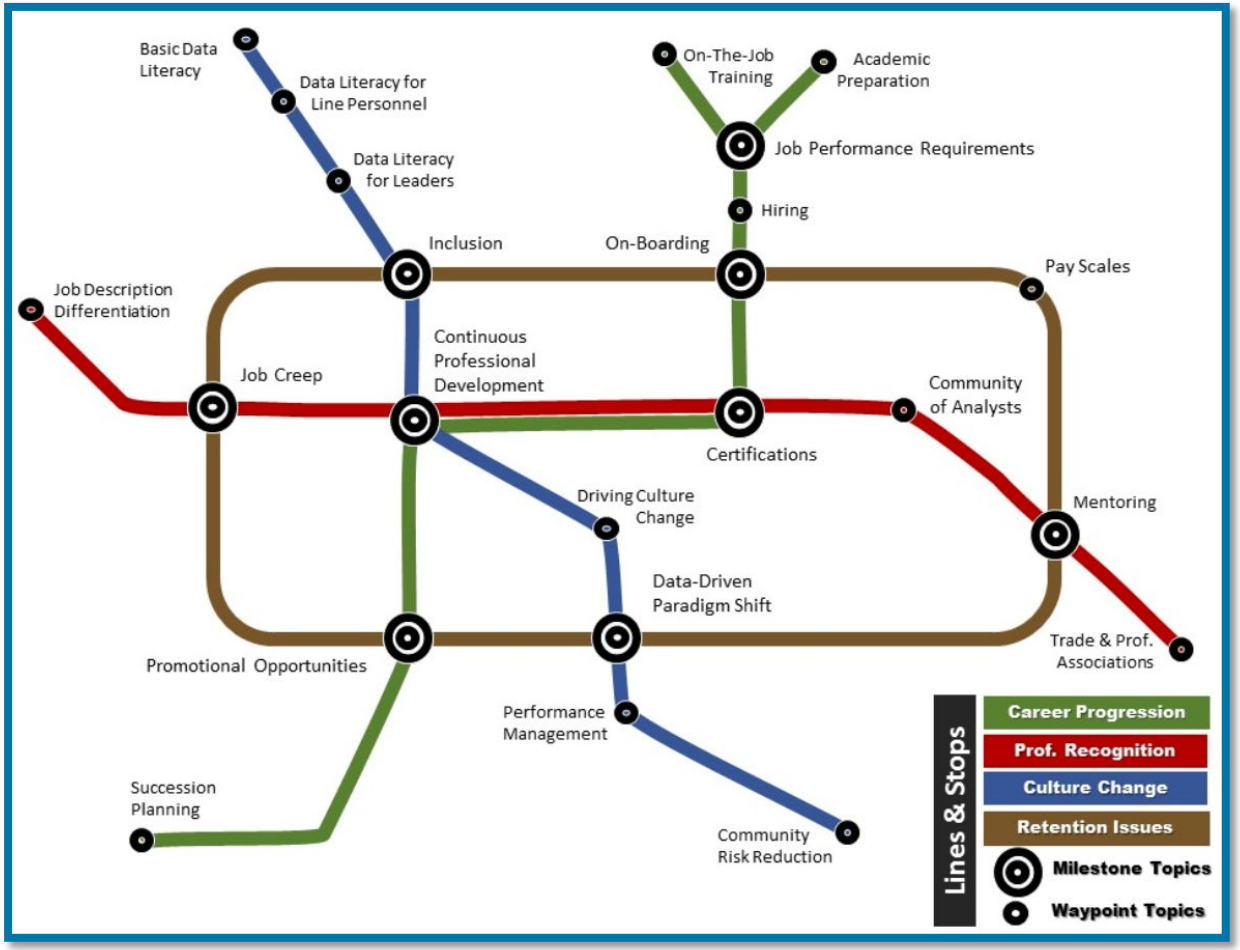
2018–2019

Stakeholders express support for new project request

Aug 2019

New project request is approved and technical committee is formed

www.cpse.org/projects/fire-analyst/



Developing the Standard

Dec 2019

TC kickoff mtg in Quincy, MA

Prelim draft released

Nov 2021

Jun 2022 – Mar 2023

First draft process

Second draft process

May 2023 – Feb 2024

Professional Qualification Standards

What's Addressed?



HUMAN RESOURCES



FINANCIAL MANAGEMENT



REPORT WRITING

What's Missing?



ANALYSIS

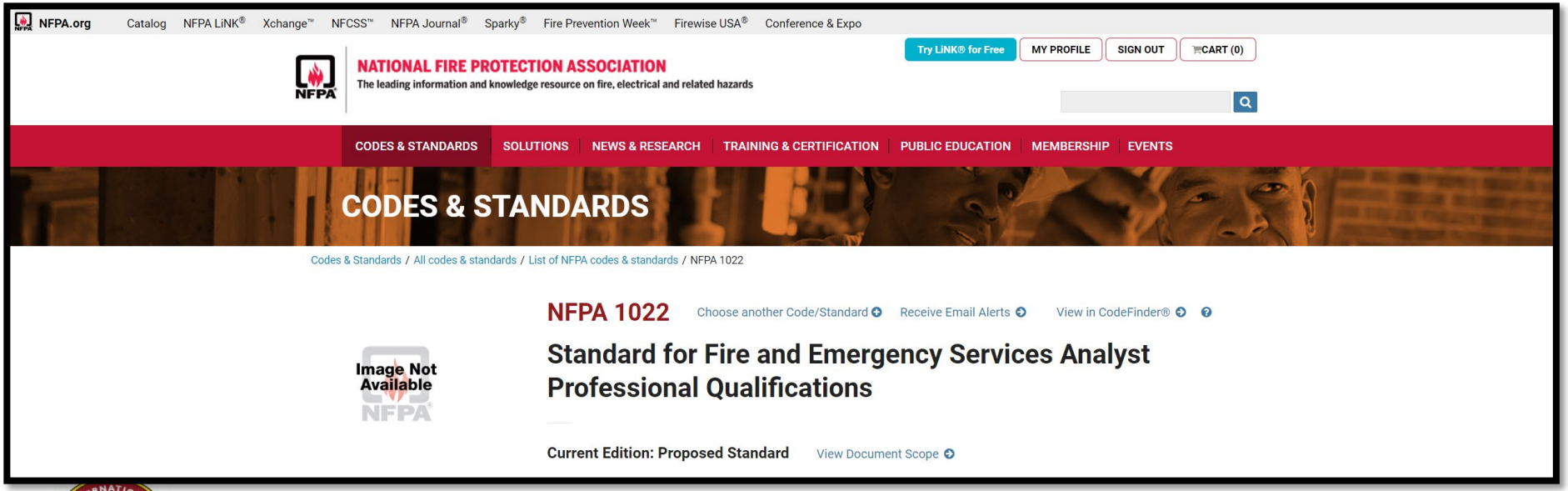


PROGRAM EVALUATION



POLICY DEVELOPMENT

WWW.NFPA.ORG/1022



WWW.NFPA.ORG/1022



- Standard outlines job performance requirements for:
  - Data Analysts
  - GIS Analysts
  - Business Analysts
  - Data and Analytics Managers
- Standard also includes:
  - Domain Knowledge Information

PROMULGATING THE STANDARD

Mid-2024

Standard approved and released (hopefully)

Late-2024

Begin development of manual and training with IFSTA/FPP

2025 onwards

Enhance fire analyst ecosystem


Training
Community
Fire Analyst Ecosystem
Certification
Credentialing

CONNECT WITH CPSE

www.cpse.org

info@cpse.org or pbassi@cpse.org

703-691-4620

@CtrPubSafExc

CenterforPublicSafetyExcellence

center-for-public-safety-excellence

Data-Driven Fire Service: Raising the Bar for Professional Qualifications

Panel Discussion

:30 / 11:30am – 12:10pm

12:10 pm – 1:10 pm

NETWORKING LUNCH

Fire Data Analysis Lightning Talk

Robert Edson, Intterra

:10 / 1:10pm – 1:20pm

From Data to Decision

Chief Craig Rollins, Castle Rock Fire and Rescue (CO)

:20 / 1:20pm – 1:40pm

Data to Decision

- Yesterday, Today, Tomorrow
- Challenges
- Expectations

Data to Decision

5

10

Yesterday, Today, Tomorrow

Yesterday

- Annual Calls for Service
- Averages
- Trend Charts
- Linear projections
- Heat maps

Today

- 90th percentile
- Unit Hour Utilization
- SPC Charts
- Box Plots
- What-If analysis
- Hot spot analysis
- Root cause analysis
- Probability
- Fire-Centric Data

Tomorrow

- Probability
- Linear Regression
- Multiple Linear Regression with interaction
- Poisson Distribution, Zero Inflated Poisson
- A /B Testing
- Space-Time Pattern mining
- Predictive modeling
- Contiguous data

Yesterday, Today, Tomorrow

Yesterday, Today

- The data person
- Other duty as assigned
- Temporary assignment
- Part-time from another department/division

Tomorrow

- Dedicated full-time Data Analyst
- Dedicated full-time GIS Analyst
- Dedicated full-time Business Analyst

Challenges

- Proving the negative
- Avoiding Biases
- Correlation ≠ Causation
- Maieutic (Socratic) questions

Challenges


LOOK! A QUARTER!!
WOW! I'M RICH BEYOND MY DREAMS! I CAN HAVE ANYTHING I WANT! ALL MY PRAYERS HAVE BEEN ANSWERED!
MAYBE THERE'S MORE.

Expectations



Expectations



Final Thoughts

- We are not paid to deliver good news, we're paid to deliver accurate and actionable information
- We need to be the interpreter between the data and the decision maker

Takeaways

- Understand the problem to solve and the question the is being asked
- Objectivity is paramount
- We need a better understanding of basic statistics, analysis tools, and methods
- Nobody joins the fire service to do data
- Data Analyst / Data Scientist job market expects a 35% increase by 2030-2032

Takeaways


COMMUNITY RISK
SUMMARY
2021 COMMUNITY RISK ASSESSMENT
2021 STANDARD COVER
THAN
STAFF RECOMMENDS T
2021 COMMUNITY RISK ASSES
OF COVE
"I MOVE TO APPROVE THE RE
INTRODUCED BY TITLE.
10 min
2021 MVC
Response Plan Changes
• 408 MVC incidents
• Non-ERF: 195
• ERF1: 33
• ERF2: 180
Impacts
• 2:00 increase in ERF response times
mmendations
ue to respond with a second suppression apparatus for the purpose ablishing a defined safety zone
ntinue to empower the first arriving unit to determine the risk based on ach incidents situation.
• Consider expanding the 2nd suppression company to non-MVC incidents on high-speed or high-volume roadways and intersections. This would require additional FMZ specific to those roadways

Questions

Craig Rollins

Castle Rock Fire and Rescue Department

crollins@crgov.com

m: 303-434-4632

o: 303-660-1066

Resources

- Fire Data Analysis Handbook 3rd ed:
  - FA-266/November 2021
- NFPA 1022: Standard for Fire and Emergency Services Analyst Professional Qualifications
- DataCamp : www.datacamp.com
- Coursera: www.coursera.org
- Matlab Online: www.mathworks.com

Data Interoperability Challenge

- **Facilitated Small Group Discussions**
- Time: 1:40pm – 2:10pm (30 min)
- Topic: Challenges & Solutions in Data Interoperability
- How to Play:
  - Fill out the Survey123 (2 min)
  - Discuss the questions and answers within your group (18 min)
  - Whole room facilitated discussion (10 min)



Data Interoperability Challenge

https://iafc.maps.arcgis.com/apps/dashboards/81c53a6fa8c54d7eb93493011ce013a1

Best Practices Library Workshop

- **Facilitated Small Group Discussions**
- Time: 2:10pm – 2:40pm (30 min)
- Topic: How do we collect & share best practices?
- How to Play:
  - Fill out the Survey123 (2 min)
  - Discuss the questions and answers within your group (18 min)
  - Whole room facilitated discussion (10 min)



Best Practices Library Workshop

https://iafc.maps.arcgis.com/apps/dashboards/b0c7e96579224eedb72a32ad2df27d32

2:40 pm – 2:55 pm

NETWORKING BREAK

Fire Data Analysis Training Needs Assessment

- **Facilitated Small Group Discussions**
- Time: 2:55pm – 3:25pm (30 min)
- Topic: Next Steps:
  - What trainings are currently available?
  - What is still missing and how do we fill the gap?
- How to Play:
  - Fill out the Survey123 (2 min)
  - Discuss the questions and answers within your group (18 min)
  - Whole room facilitated discussion (10 min)



Fire Data Analysis Training Needs Assessment

https://iafc.maps.arcgis.com/apps/dashboards/c5c220d9248647fca334dd5b6353ed92

Industry Leaders Respond:
What We Heard and How We're Taking Action

esri
THE SCIENCE OF WHERE®

DECCAN INTERNATIONAL
Operational Intelligence for Fire & EMS

INTTERRA

eso

BCS
Bradshaw Consulting Services
High Performance Solutions

IROL LLC

first due

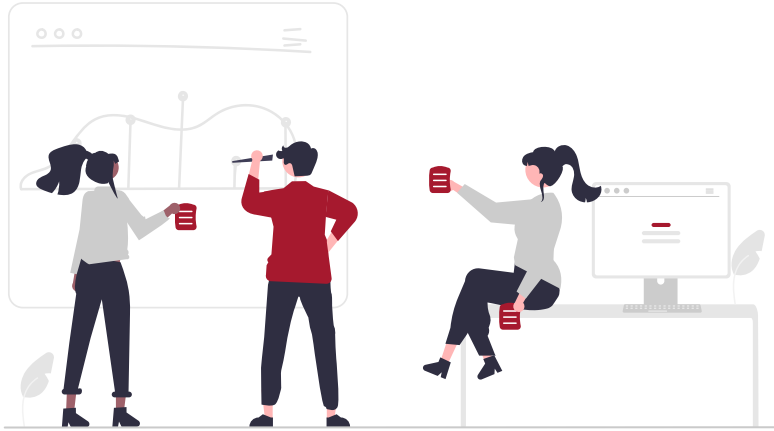


:30 / 3:25 PM – 3:55 PM

Next Steps



- Check Hub Site for updates:
  - https://fire-data-analysis-iafc.hub.arcgis.com/
  - Presentations will be uploaded
- Stay tuned for the 2024 program!





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BCS
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High Performance Solutions

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Happy Hour!

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