



NERIS Executive Briefing: DOT Pipeline and Hazardous Materials Safety Administration

August 2024



**Science and
Technology**



**U.S. Fire
Administration**



Agenda

- 1 NERIS Overview & Update
- 2 HazMat Incident Reporting & Analysis
- 3 NERIS Timeline



We support and strengthen the fire and emergency medical services (EMS) ... to prepare for, prevent, mitigate and respond to ALL hazards...

- ★ **Fire and EMS training**
- ★ **Research**
- ★ **National Fire Data Center**
- ★ **Community risk reduction**

CRR = Process to identify and prioritize local risks, integrated/strategic investment of resources to reduce risk occurrence and impact.



The mission



Federal Fire Prevention and Control Act of 1974

Public Law No. 93-498

- Defined the primary missions of the agency
- Established the **National Fire Academy (NFA)** (training and development)
- Management and delivery of **public education, data collection, and research and technology**
- Oversight and support responsibilities for the **National Emergency Training Center (NETC)**



1973- 2023₄

Our Legacy System NFIRS: A Brief History

NFIRS Begins

America Burning released in 1973 lead to the establishments of USFA in 1974 with the Federal Fire Prevention and Control Act in 1974. NFIRS launches in 1975.

1975

1985

NFIRS 4.0

First public release of NFIRS collected data.

NFIRS 5.0

NFIRS becomes an “all-hazard” data collection system with the addition of EMS data, wildfire data, and juvenile firesetter module.

1999

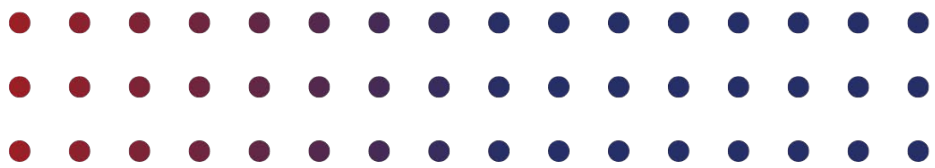
2025

Decommissioning

Driven by security concerns, at the start of calendar year 2026, the NFIRS database will only accept incidents that occurred during calendar year 2025.

25 Year Gap

How Have We Historically Evaluated Departments



Population Protected



Location (FEMA Region, State)



Budget



Stations/Companies/Staffing Characteristics



Services Provided (Fire, Fire/EMS, ARFF, etc.)



Call Volume, Response Times





If you know a thing
only qualitatively, you
know it no more than
vaguely.

If you know it
quantitatively...you are
beginning to know it
deeply.

– Carl Sagan



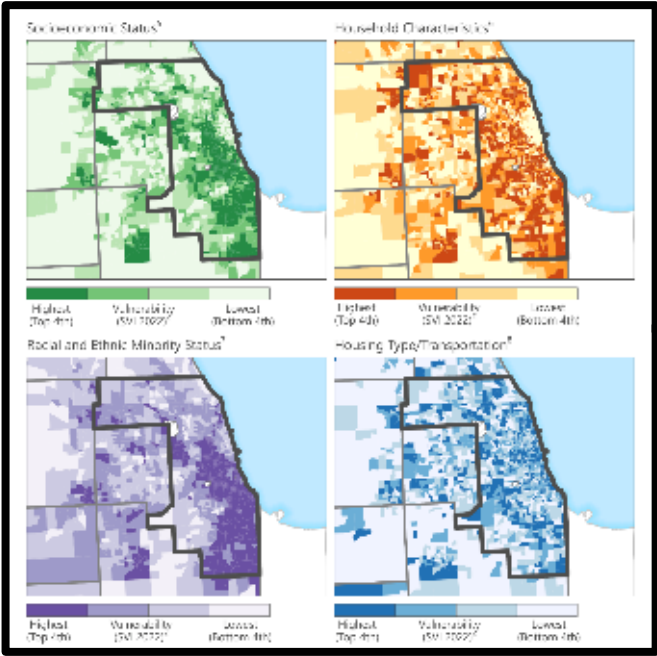
The goal of NERIS is to empower the local fire and emergency services community by equipping them with near real-time information and analytic tools that support data informed decision-making for enhanced preparedness and response to incidents involving all hazards.

NERIS Guiding Objectives

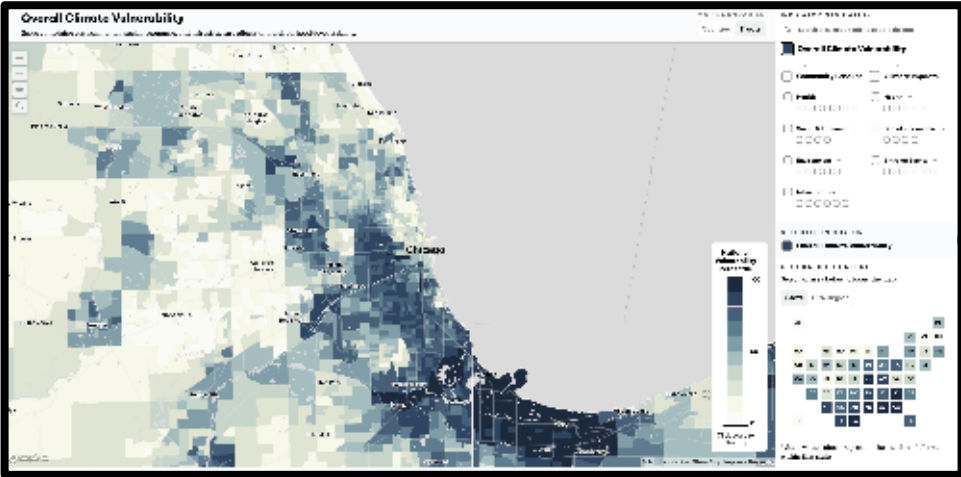
- Premier source for nationwide, all-hazards incident information.
- Improve quality, coverage, and timeliness of local, all-hazards incident data.
- Responsive Design: Accessible on mobile devices, tablets, laptops, and desktop computers.
- Reduce data entry burdens via integration and analysis of data.
 - Computer-aided dispatch systems (CAD)
 - Geographic information systems (GIS)
 - Records Management Systems (RMS)



Modern Fire Department Fingerprint



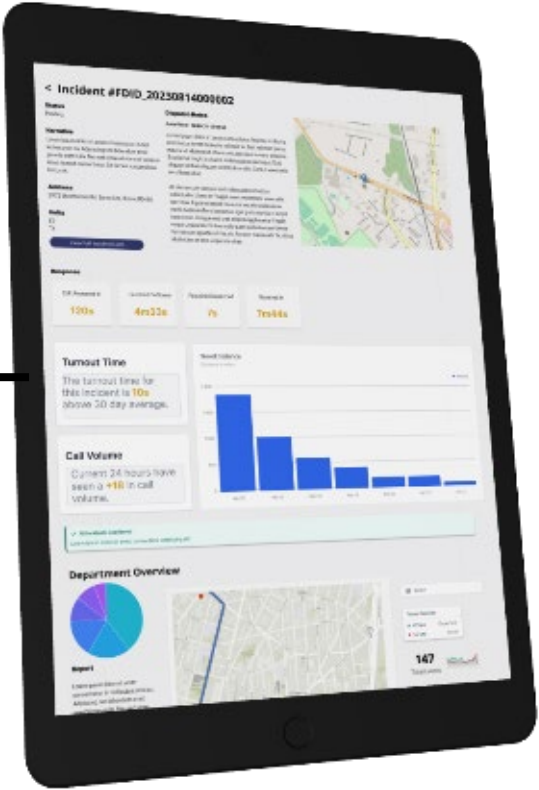
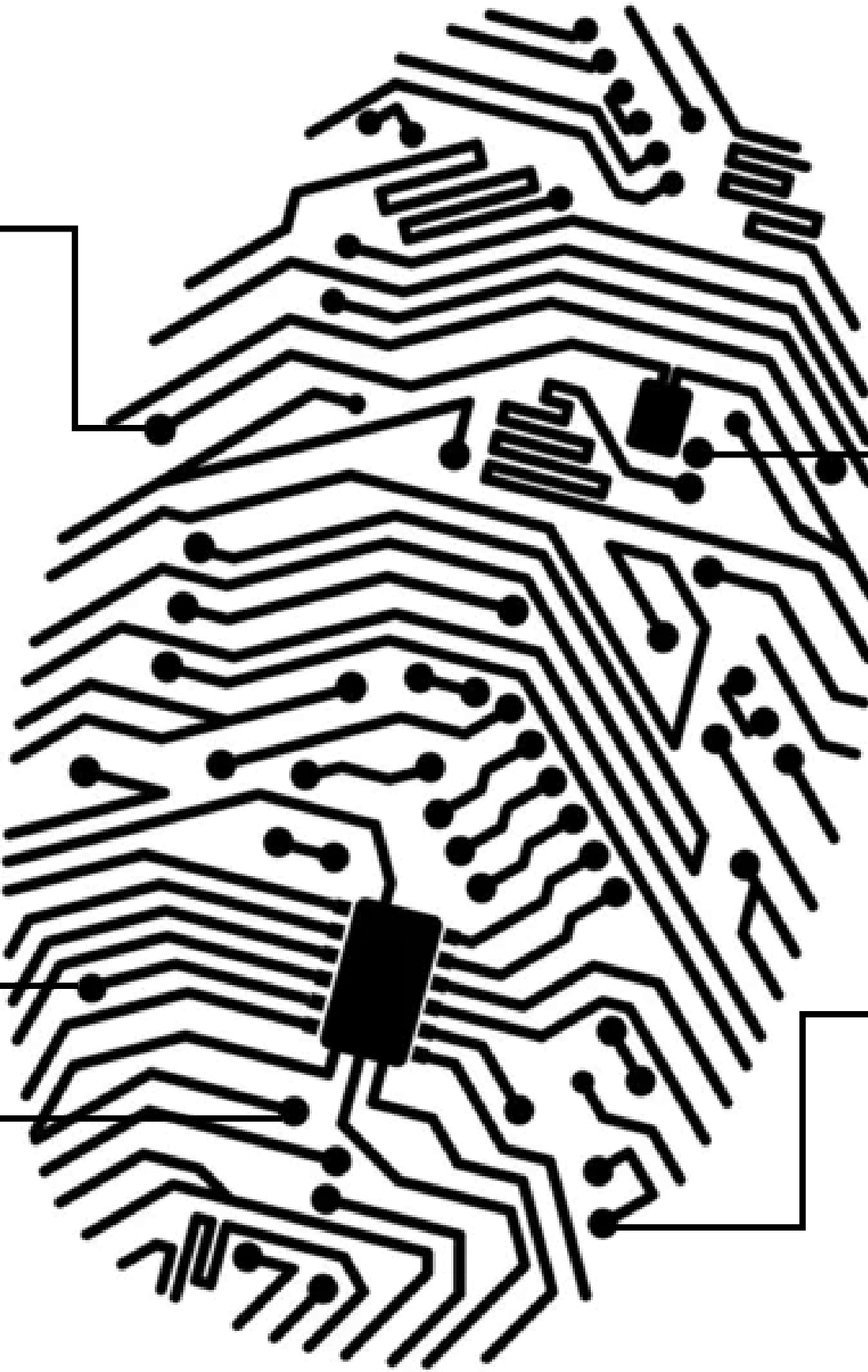
Social Vulnerability



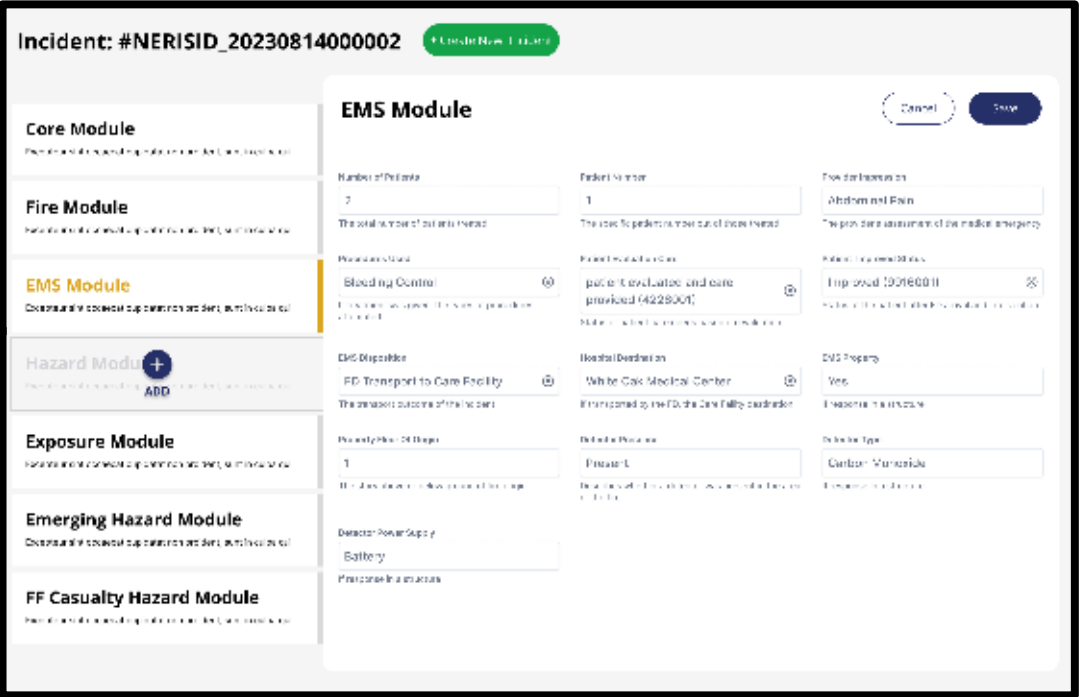
Climate Vulnerability



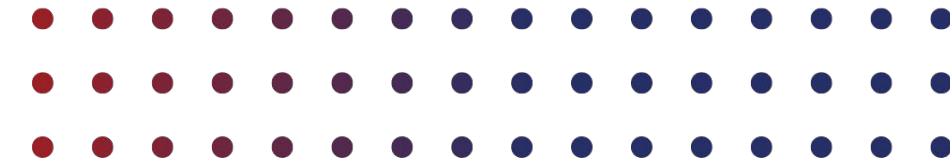
Physical Structures Protected



Department Profile



Incident Response Data



The Focus of NERIS:



- Social Vulnerability
- Structures in First Due
- Code Adoption
- Evolving Climate Hazards

RISK



- Response Time
- Effective Crew Size & Response Force
- Inform Training Needs

PERFORMANCE

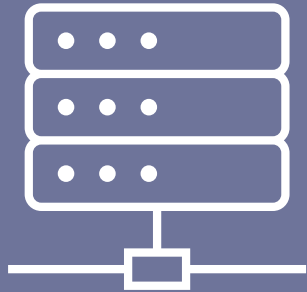


- Resource Allocation
- Monitor Staffing Levels
- Station & Unit Capacity
- Geographic areas of concern

DEPLOYMENT



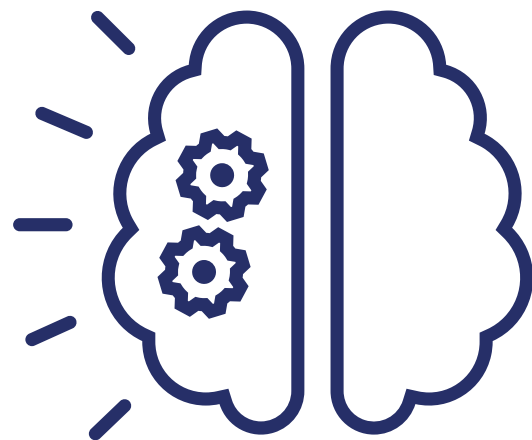
COLLECT



CAD
and/or
RMS

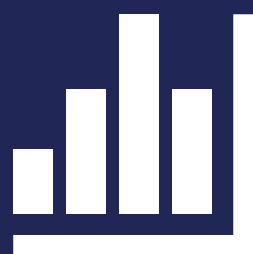
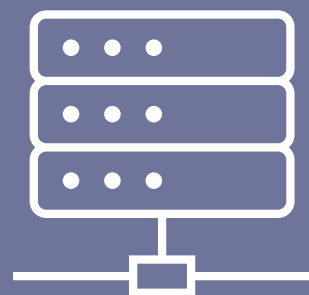


OR
NERIS
Collection
App



COLLECT

ANALYZE



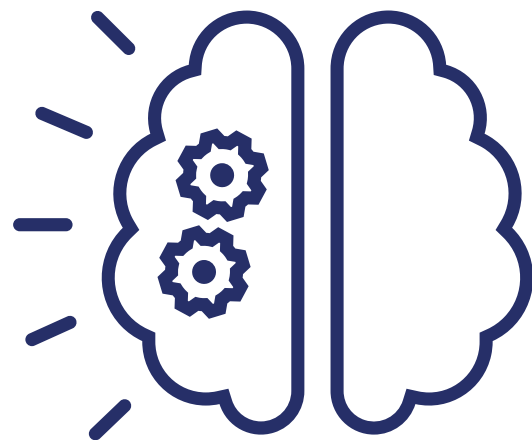
CAD
and/or
RMS

OR

NERIS
Collection
App

Data
Enrichment

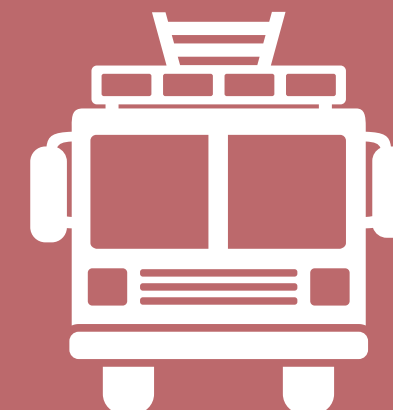
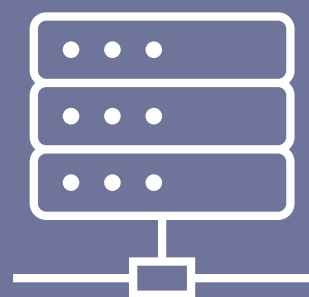
Data
Analytics



COLLECT

ANALYZE

SHARE



CAD
and/or
RMS

OR

NERIS
Collection
App

Data
Enrichment

Data
Analytics

State
Fire
Marshal

USFA
& Other
Federal
Agencies

Local Fire
Department



Analytics

The value return on the data collected.
Provides intelligence to help improve
prevention efforts and emergency
response.



API

The API is the data hub for the system
allowing the movement of data both
internally (within NERIS) and externally
(to/from entities).



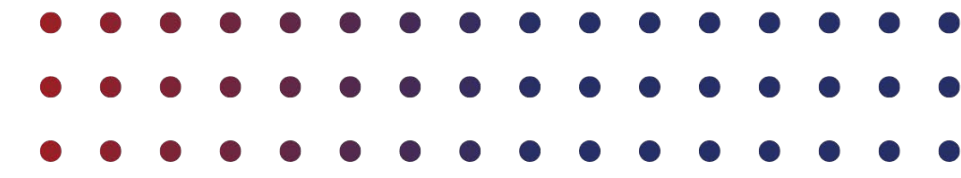
Data Schemas

The elements we collect. Designed to
describe the work done by the fire
service to help the people in the
communities they protect.

System Architecture

The foundation of the system – built on an elastic
framework for reliability and scalability.

What Improvements Will NERIS Offer?



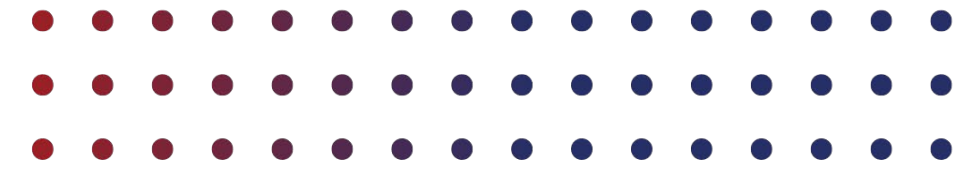
Enhanced Flexibility with Multi-Hazard Incident Reporting

Comprehensive Reporting: Move from a single-category system to a model supporting up to three incident types. This reflects the complexity often faced by fire services in real-world scenarios.

- **For Firefighters:** Simplify reporting by selecting incident types that accurately depict the scene, eliminating the guesswork of single-category constraints.
- **For Chiefs/Data Analysts:** Reduce reliance on interpreting free-text narratives, streamlining data analysis.

NFIRS historically limited incident type selection to only one incident type, whereas NERIS allows multiple types per incident.

What Improvements will NERIS Offer?



Enhanced Reporting for Actions, Tactics, and Incident Outcomes

- **Actions and Tactics:** Modernized to capture comprehensive operational data including suppression techniques, ventilation efforts, and on-scene contamination reduction tactics.
- **Metrics on Rescues, Casualties, and Maydays:** Detailed tracking of key metrics reflecting the vital efforts of firefighters during emergency responses.

Non-Firefighter Casualties and Rescues (1) ▼

1

Describe whether the person was rescued, evacuated, or if there was no rescue.

Select one.

Rescued From Fire Conditions

Rescued From Fire Conditions

Rescued From Non-Fire Conditions

Self-Evacuation

Firefighter-Assisted Evacuation

was occupant rescued from.

At what elevation was the person found?

Select one.

-Please select-

What, if any, conditions impact the ability of the rescue?

Select all that apply.

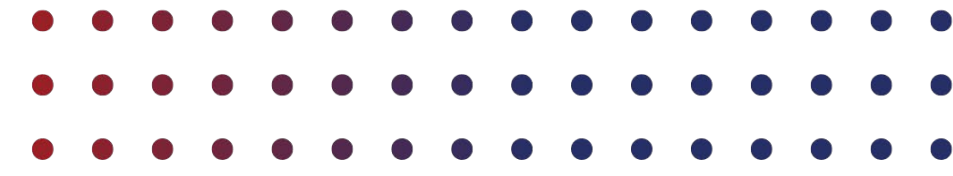
-Please select-

Was the location at which the person was found isolated from the flow of heat and smoke from the fire?

Select one.

-Please select-

What Improvements Will NERIS Offer?

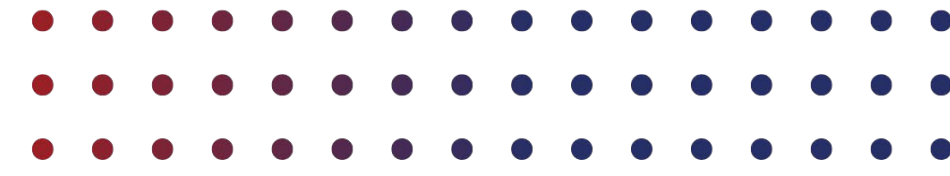


Enhanced Emerging Hazards and Structure Exposures:

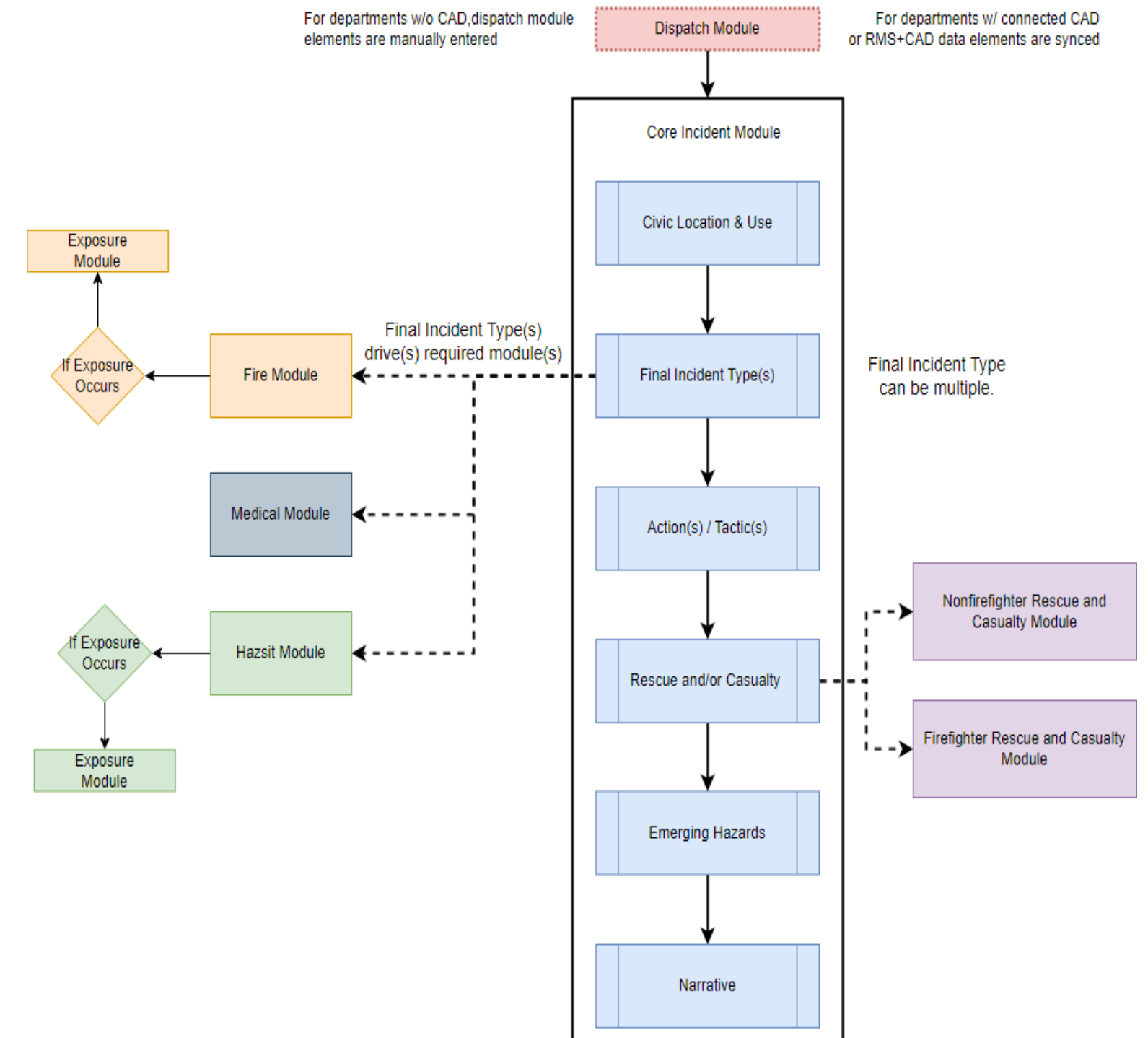
- **Emerging Hazards:** This module will enable the system to evolve to the dynamic environments we operate in, enabling data collection of evolving threats.
- **Structure Exposures:** Entered as a straightforward addition to the original incident report, streamlining entry even in complex scenarios like urban conflagrations and the wildland-urban interface. This will reduce report completion time and improve accuracy on complex fire incidents.



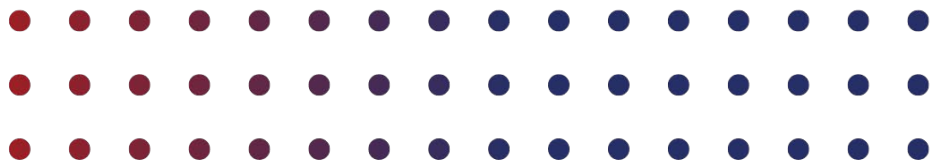
NERIS & Hazardous Materials



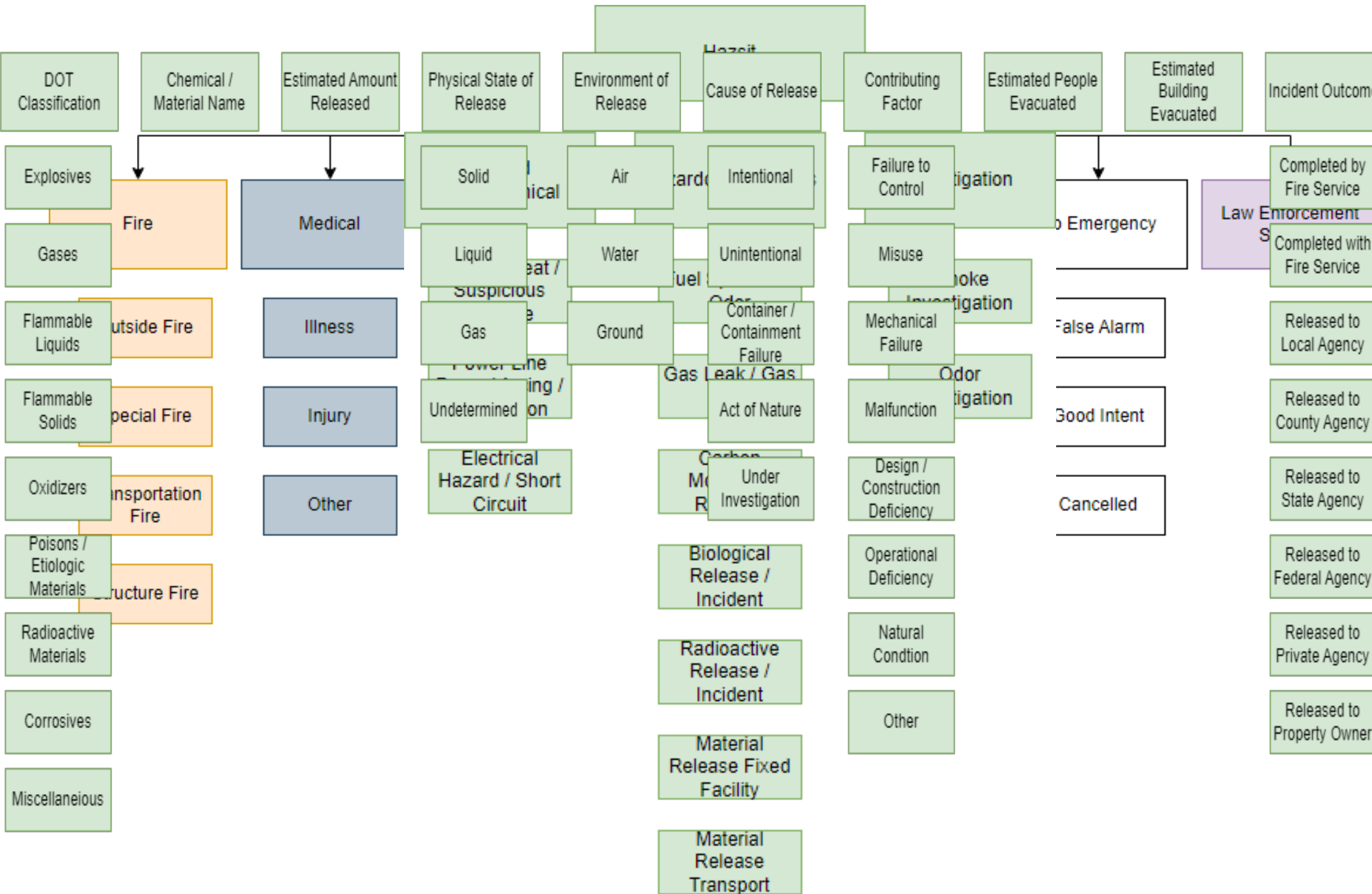
- All-hazard approach ensures Haz-Mat incidents are better captured and more information is gathered.
 - Multiple Incident Types
 - Hazardous Situation Module
 - Exposures, related to Haz-Mat Release
 - Actions and Tactics



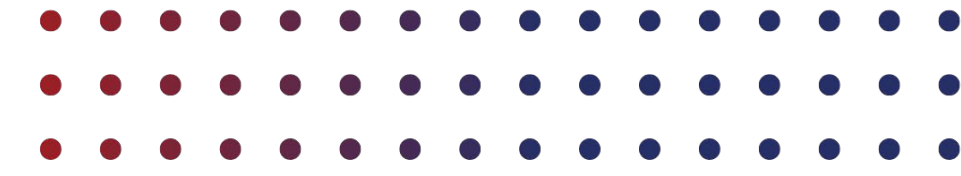
NERIS & Hazardous Materials



- Incident type categorization and naming helps with data accuracy and definition.
- Emerging Hazard Module

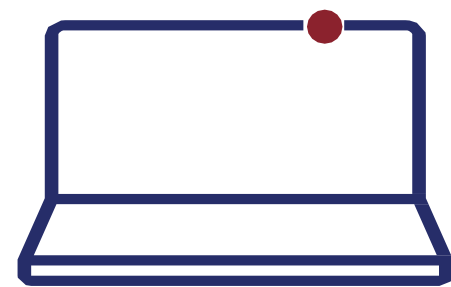


Emerging Hazards in NERIS

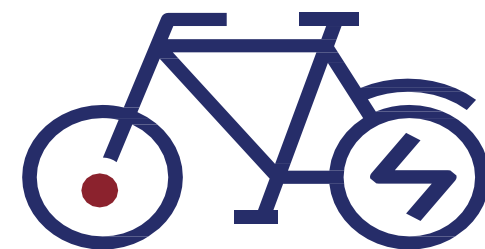


Reporting is critical to understanding the problem.

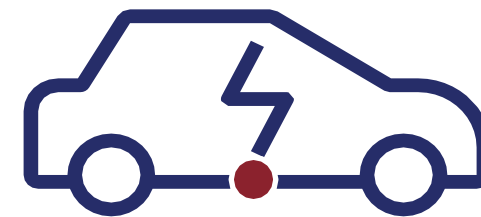
Four primary categories of electrified products that split to optional subcategories to provide additional insights into under-quantified problems. Module also includes follow up tactical questions around suppression and rekindle.



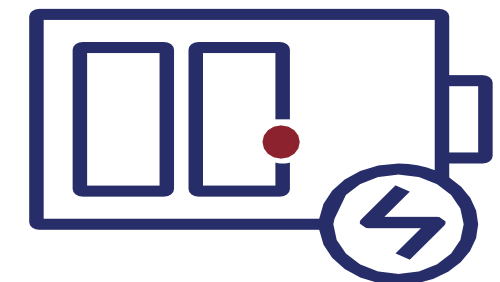
Consumer Products



E-Mobility

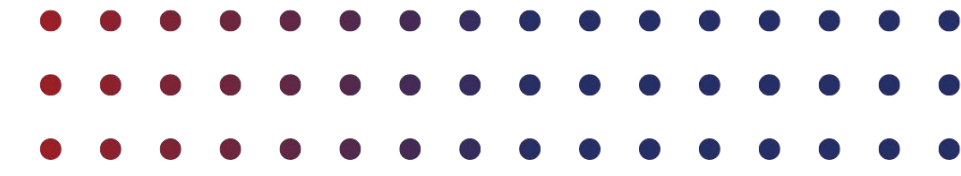


Electric Vehicles



Energy Storage

NERIS Data Integration - Core Beta API

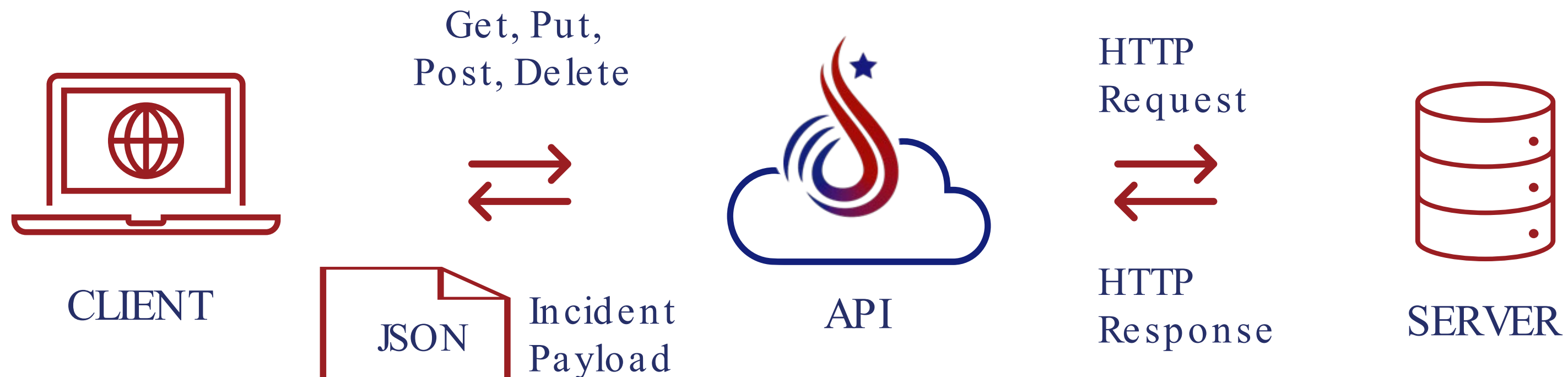


An **Application Programming Interface (API)** acts as the connection between software or systems that allows them to communicate with each other.

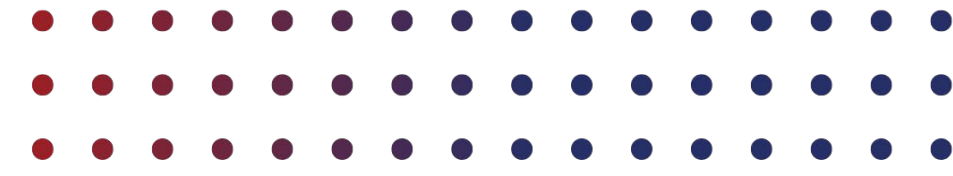


Why is this release so important?

- Allows connection between third-party RMS and CAD into NERIS.
- Will set the stage for future integrations *from* NERIS into other systems.
- Eliminates the need for emailing and uploading of files for incident reporting.



Core Entity Data Specification



NERIS Data Schemas

CAD Interface
/ Dispatch
Schema

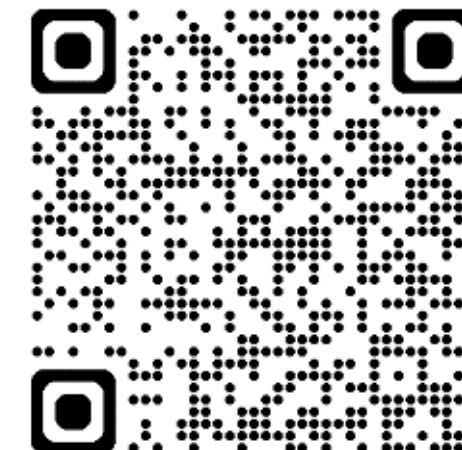
Community
Risk Reduction
Schema

Health and
Safety Data
Schema

Incident Data
Schema

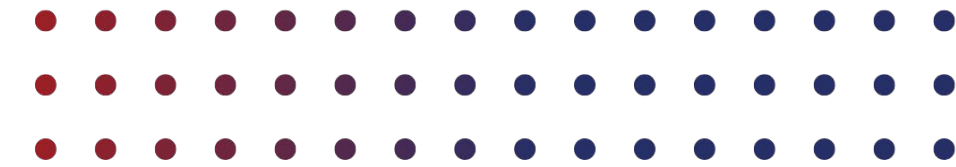
Incident
Analysis Data
Schema

Beta



NEW - Draft





May 2023

NERIS Kickoff

Partnership between DHS S&T, USFA, and FSRI announced to begin development of NERIS.



March 2024

NERIS Prototype

6 departments from across the county begin initial testing of NERIS prototype.



August 2024

Beta Launch

50 selected fire departments to onboard, test Beta, and initial testing of CAD and RMS API connections



Initial Schemas

Initial version of core data schemas released for 60 days of National Engagement (> 1600 comments).



Beta Core Schemas

Beta versions of schema released in 3 forms including a public Github repository for 3rd party developers.

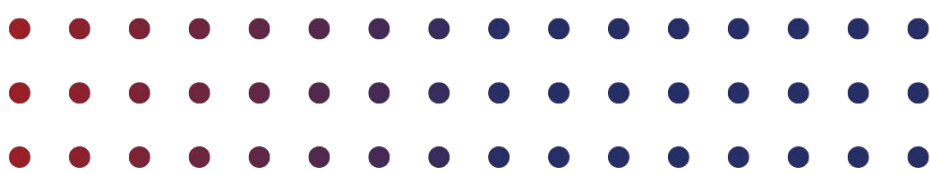


December 2023

May 2024



Next 18 Months



Aug 2024

Beta NERIS Launch

50 selected fire departments to onboard, test Beta, and initial testing of CAD and RMS API connections

November 2024

V1 Launch & Phase 1 Onboarding

100+ selected fire departments to onboard and prepare to transition to NERIS for incident reporting. API connections established with applicable CAD & RMS.

January 1, 2026

Full Transition to NERIS

All fire incident reporting is conducted using NERIS exclusively. Legacy NFIRS application is decommissioned.

October 2024

V1 Core and Secondary Data Schemas Released

Public release of the Version 1.0 data schemas, data dictionary, and technical API documentation.

Jan-Dec 2025

Phased Onboarding

Fire departments onboard in phases and start reporting incident data to NERIS. Increased number of API connections established.

3-Year Timeline



CY 2024

- Release beta NERIS Core Data Schemas and Data Dictionary.
- Complete prototype testing & evaluation with six fire departments.
- Launch beta version NERIS and onboard 50 departments.
- Complete development and launch v1.0 of NERIS.
- Launch phase 1 onboarding for fire departments nationwide.

CY 2025

- Continue NERIS development via multiple software releases.
- Complete Phase 2 and 3 onboarding for fire departments.
- Hybrid Reporting Year – Some departments will report through either NERIS or legacy NFIRS.
- Complete planning and for decommissioning legacy NFIRS.

CY 2026

- Effective Jan 1, 2026 – All incident reporting will occur through NERIS.
- Continue NERIS development with via multiple software releases.
- Continue onboarding fire departments onto NERIS.
- Complete decommissioning legacy NFIRS system.



More Links for Information:

FAQs: <https://www.usfa.fema.gov/nfirs/neris/about-neris>

Website: <https://fsri.org/programs/neris>

Contact us: NERIS@ul.org



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