

2025

Gold Ribbon Report

Utilizing Data in Emergency Response





Leaders in Critical Thinking

Mission

To develop and enhance effective, professional leaders of the volunteer and combination fire service by providing tools, resources and representation to lead their organizations effectively.

Vision

Excellence Today. Influence Tomorrow.

Core Values

1. Commitment – Dedicated to the cause while staying true to the membership, organization, and profession.
2. Accountability – Take ownership and hold others to the same standard.
3. Professionalism – Being ethical, respectful, competent, skilled, and humble.
4. Integrity – Doing the right thing when no one is watching.
5. Teamwork – Working together toward a common goal.
6. Innovative – Looking for the new, now.

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Dear Colleagues,

I am pleased to present to you the Gold Ribbon Report: Utilizing Data in Emergency Response, a comprehensive roadmap designed to help guide your transition to the National Emergency Response Information System (NERIS) and help to understand the important role that data plays in today's world. This pivotal document stands as a testament of our collective commitment to advancing emergency response capabilities through the strategic use of data.

It is both timely and well-deserved to recognize former United States Fire Administrator Lori Moore-Merrill and the dedicated team at the United States Fire Administration (USFA) for their outstanding leadership in developing the next generation of national emergency reporting through NERIS. This transformative, interoperable platform marks a major step forward in fire and EMS data and analytics. Throughout its development, the USFA has remained steadfast in its commitment to supporting and empowering the local fire and EMS community.

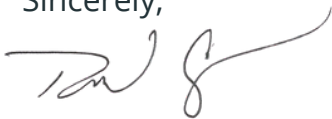
Written with care and expertise by a dedicated team of practitioners, the Gold Ribbon Report serves as an invaluable resource, offering insights and practical steps for gathering data to enhance our emergency response operations and set us up for future management successes. It is our hope that you find this document informative as well as instrumental in your efforts to adapt to and succeed in the evolving landscape of emergency response.

As we continue to face new and complex challenges, the integration of data-driven approaches into our response and management strategies will be crucial. The Gold Ribbon Report provides the foundational knowledge and actionable recommendations needed to successfully navigate this transition.

We believe that, through collaboration and the application of the principles outlined in this report, we can achieve a more effective and efficient emergency response system.

Thank you for your dedication and commitment to safeguarding our communities.

Sincerely,



Chief Rich Cowger
VCOS Board Chairman



Dear Colleagues,

I am highly appreciative of the Volunteer & Combination Officers Section (VCOS) and in particular to the authors of Gold Ribbon Report: Utilizing Data in Emergency Response for producing this Gold Ribbon Report that provides valuable information on the use of data for the fire service and a guide to the soon to be released National Emergency Response Information System (NERIS). As of this writing, Version 1 of NERIS is currently released, with over 165 fire departments onboarded at the end of 2024.

The use of data and analytics in both policy and operational decision making has become increasingly more sophisticated and necessary since America Burning: The Report of the National Commission on Fire Prevention and Control was published over 50 years ago.

We, as fire service leaders, must be proficient to tell our story in a way that is supported by our statistics and to optimize our decision making with skilled data driven analysis in an era where the risks we face present more dangers than ever before. The application NERIS and other forms of data is essential for how the fire service continuously evolves in preparing for, preventing, mitigating, and responding to all hazards. The capture of emergency service data through NERIS and its use by the fire service is especially beneficial as we enter the era of Artificial Intelligence that will provide heightened actionable intelligence.

Although this Gold Ribbon Report published by VCOS provides value to its members on the subject of data and data analytics, that value extends to all our international fire and EMS leaders and their agencies. I encourage all fire service leaders to share this Gold Ribbon Report with your members and have a copy readily accessible within your department facilities.

Chief Josh Waldo
IAFC President and Board Chair



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Foreward

The Fire Service is entering a time when technology and data start to influence nearly all aspects of emergency preparedness, mitigation, and response. With the launch of the National Emergency Response Information System (NERIS), every fire department, no matter how large or small, will be empowered by data. NERIS is allowing us to usher in a new era of data-informed decision-making across the local fire service. The National Fire Incident Reporting System (NFIRS) is to be retired, and the Fire Service will enter a new era regarding its data. Reporting through NERIS will be a requirement for Federal grant eligibility, so every Fire Department should prepare and be ready to work with the NERIS system. The NERIS platform will be at no cost to submit data and will offer essential reporting and data visualization tools that most fire departments will want to use.

In preparing this Gold Ribbon Report, we gathered a diverse group of authors with experience in as many types of departments as possible, from rural to suburban, from mostly paid to fully volunteer, and everything in between. In the end, the best practices we recommend are broad, so it is up to you to decide which parts are realistic and applicable to your specific department.

This Gold Ribbon Report is designed to provide the reader with an essential road map for NERIS implementation. Thus, personnel with no prior knowledge of data analytics can start on the right path to successful data collection and NERIS implementation. This report will discuss why data is important and the key information and steps departments should take to begin incorporating their data into their decision-making process.



The Power of DATA

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As you steer your department through challenges and triumphs, embrace data as your trusted advisor. It is not just statistics; it is the foundation of your success.

By embracing data collection, analysis, and action, we can adapt to any situation, making informed decisions that will save lives.

**IT IS NOT JUST
STATISTICS;
IT IS THE FOUNDATION
OF YOUR SUCCESS.**



Section One

Introduction

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The use of data analysis is important in many aspects of modern-day emergency response, yet many leaders do not leverage the potential data affords our organizations. Making data-informed decisions should be a mainstay for all of us. Data will not magically solve all our decision-making problems, but it will remove much of the guesswork from those decisions and make them more transparent.

Collecting data can be intimidating because it exists in many forms and locations. Still, as the leader of your organization, it is critical that you compile, verify, analyze, and communicate the data findings in a way that is captivating and compelling. Good data allows departments to establish benchmarks and set goals that keep them moving forward. Good data allows departments to assess progress and adjust the course as needed. Good data will enable you to tell a story demonstrating your value to those inside and outside your department.

To quote W. Edwards Deming, the famous economist best known for his management theories, "Without data, you're just another person with an opinion."

"WITHOUT DATA, YOU'RE JUST ANOTHER PERSON WITH AN OPINION."

-W. Edwards Deming

Firefighters respond to structure fires wearing turnout gear and SCBA, emergency vehicles roll up to accidents with stabilization and extrication equipment, and paramedics respond with kits loaded with lifesaving gear. In short, first responders require specific tools to do their jobs. Even when responders gather knowledge, skills, and certifications, we refer to it figuratively as adding tools to their toolkit. Data also needs to be viewed as a tool—one that is critical to our mission.

Data is essential in charting your department's course and justifying its resources, yet often, it is something many leaders neither fully understand nor embrace. Typically, the most common data we utilize is found internally, extracted from whatever record management system (RMS) we use. Smaller departments may not even use RMS, meaning basic information must be manually gathered for leadership to apply for grants and in preparing a variety of reports. With so many other issues screaming for leadership's attention daily, it is easy to understand how data collection and analysis gets pushed to the back burner.

Using data, you can show where you are having success and where you need improvement. Data can show the gap between desired expectations and reality. In short, data analysis should provide a realistic and transparent picture of the current capabilities of your department that you can utilize for the benefit of all.

A benefit of the NERIS system is that it will provide what data analysts often call a single source of truth for incident data. It can be challenging when data points exist in multiple locations, causing users to interpret which data point most closely represents reality. For example, a fire call for a vehicle fire may be dispatched as such, but on arrival, crews find the vehicle fire is secondary to a vehicle crash. So, the dispatch data point may say “vehicle fire,” while the crew entering the report classifies the call as a vehicle accident. Which data point best represents what happened? The NERIS system will be able to incorporate the dispatch data and call report information in the same place, helping to clarify what happened in an incident. The system even can capture multiple issues that may occur at once, such as an auto accident involving hazardous materials.

Not only does this serve as a single-source-of-truth for the agency, but local data is also collected with regional, state, and national data to help leaders identify issues and trends in real time, something not possible with the legacy NFIRS system.

Best Practices in Data Collection

At a minimum, all fire departments from rural to urban, should collect a minimum amount of data on operations such as:

- ✓ Response types
- ✓ Response times
- ✓ Staffing levels
- ✓ Apparatus response
- ✓ Incident Benchmarks
- ✓ Personnel training
- ✓ Personnel certification
- ✓ Equipment maintenance
- ✓ Community risk analysis

Dispatch of Emergency Services

As you start preparing your department to collect data, you will find this document organized into key functional areas: the data for the calls your agency responds to, the people who do the responding, the units that they ride on, and the community in which they serve. Each of these areas plays a crucial role in illustrating your agency's work, the benefits it provides the community, and expressing your need for future resources to continue your Fire Departments essential role in the community.

One of the first areas you should consider is how your agency receives emergency calls, what data is collected on them, and whether you can access that data.

i 911 centers are sometimes called a "PSAP," which stands for Public Safety Answering Point.

If your agency has not done so, you'll want to establish a relationship with your 911 center leadership.

You may want to understand how the 911 center currently operates and where and how they store your emergency call data. Consider scheduling a meeting to discuss the following topics:

- Existing fire data systems, including NFIRS data collection
- Introducing the new NERIS data schema
- Emphasizing that data reporting is essential to effective emergency service delivery
- Explaining that while reporting to NERIS is voluntary, federal grants such as the Assistance to Firefighter Grants (AFG) will require reporting to NERIS

You will want to discuss the timing of the sunset of the NFIRS platform and when it would be appropriate for your agency to migrate to the new standard. The 911 center needs to understand that the new data system will be in place by 2026. Fire departments are encouraged to review the [NERIS User Guide](#) to support onboarding their departments onto NERIS today and into the future.

OVERSIGHT OF THE 911 CENTER

Several models are common for oversight of the 911 center:

- Free-standing 911 center that is managed internally
- 911 centers managed by the Fire Department
- 911 centers managed by law enforcement

No matter the configuration or management structure of your 911 center, it will be vital that the Fire Department engage them to make them aware of the NERIS data requirements and associated timelines.

It is optimal for your data collection to be based on CAD (Computer-Aided Dispatch) data, as it will have reliable data points such as call time, call processing data, response times, etc.

Even if you do not have a formal CAD system or access to your data through your dispatch center, all is not lost! NERIS is designed to accommodate multiple methods of importing data, from manual integration with CAD to hand-entered data by your department members. You can take advantage of these tools at no charge to your department. You only need a smartphone and a cellular or internet connection to transmit your data.

You'll be able to enter the key data points from your emergency call directly into NERIS, which will collect that data and start to develop visualizations of your basic data trends that you and your department leaders can access through your NERIS homepage.

CONSIDER YOUR DISPATCHING METHOD

How you dispatch emergency calls is an important consideration. Some rural/volunteer agencies may dispatch by station, meaning the station is always available for call, whether personnel are in quarters or not. A call is typically transmitted to the station, and members are given a predefined amount of time to answer the call. After that time has expired, the station may be renotified, and the next closest station may be sent using a similar methodology.

The challenge with station-level dispatch is it lacks the ability to define coverage levels, as the entire station is listed as available for a call, regardless of staffing. Coverage data is a key metric for measuring when alternative staffing measures should be considered. Without coverage data, the department can only qualify good performance as "nothing bad happened."

An alternative to station-level dispatch is specific unit dispatching. Units are only in service in the CAD when they are staffed, by whatever definition the department chooses to establish. In-service status requires the minimum number of personnel to be in the station or within a predefined response time to the station for a call. This method allows the department leadership to identify times when no or limited staffing is available. Such data can be analyzed to inform future planning and budgeting efforts.

Apparatus & Unit Typing

For several reasons, equipment and apparatus typing will be crucial for the National Emergency Response Information System (NERIS). If you already use a Record Management System (RMS), you have your equipment and apparatus typed. You will be able to use the existing nomenclature for listing apparatus and equipment.

If you're not currently using a Records Management System (RMS), now is the time to prepare for the National Emergency Response Information System (NERIS). To learn more about NERIS, visit the [National Emergency Response Information System \(NERIS\) website](#).

Why should you care about equipment and apparatus typing?

Here are just a few reasons:

- **Standardization:** Typing ensures that all equipment and apparatus are categorized uniformly, which helps in creating a common language for resource management across different jurisdictions.
- **Resource Allocation:** Accurate typing allows for better planning and allocation of resources during emergencies. It ensures that the right type of equipment and apparatus are dispatched to the right locations.
- **Efficiency in Mutual Aid:** When resources are needed from neighboring jurisdictions, standardized typing helps in quickly identifying and mobilizing the required equipment and apparatus.
- **Data Analysis and Reporting:** Consistent typing improves the quality of data collected, making it easier to analyze and report on the effectiveness of different types of equipment and apparatus in various emergency scenarios.
- **Training and Preparedness:** Knowing the specific types of equipment and apparatus available helps in designing targeted training programs and preparedness plans.
- **Funding and Grants:** Detailed and accurate typing can support applications for funding and grants by demonstrating the specific needs and capabilities of different fire departments.
- **Assist National Organizations:** Having accurate nationwide data will be beneficial for the organizations that represent the fire service, such as the United State Fire Administration, The National Volunteer Fire Council, The International Association of Fire Chiefs, The International Association of Fire Fighters, The National Fire Protection Association and, The Congressional Fire Service Institute when they are advocating for program to improve the fire service on a national level.

For more information about National NIMS Resource Typing, including access to the Resource Typing Library Tool, visit <https://preptoolkit.fema.gov/web/national-resource-hub>. The Resource Typing Library Tool (RTLTL) is a publicly available online catalog of all NIMS resource typing definitions, job titles/position qualification sheets, and position task book templates that have been released by FEMA. RTLTL provides public access to these guidance resources in a web-based tool that is easy to search and discover.

Ground Fire Suppression: • Engine (Urban/Suburban or FEMA typing) • Truck or aerial • Quint • Tanker (Tender) and pumper combination • Brush Truck • Aircraft rescue and firefighting (ARFF) • Ground fire suppression, other	Heavy Ground Equipment • Dozer or plow • Tractor • Tanker or Tender • Heavy Ground Equipment Other
Medical and Rescue Unit: • Rescue unit • Urban search and rescue unit • High-angle rescue unit • BLS Unit • ALS Unit • Medical and rescue unit other	Marine Equipment • Fire boat with pump • Boat, no pump • Support apparatus other Aircraft: • Aircraft fixed wing tanker • Helitanker • Helicopter • sUAS, (small unmanned aircraft), drone • Aircraft other
Other • Mobile Command Post • Chief officer car • Haz Mat Unit • Type 1 hand crew • Type 2 hand crew • Privately owned vehicle • Other apparatus or resources • None • Undetermined	

Community Data

A key part of integrating with NERIS and starting to benefit from your incident data is understanding your community's geographic layout. This includes the locations of your stations, response zone boundaries, and incidents. Street networks can also be utilized to calculate travel times, etc.

Such information is typically available via a geographic information system (GIS). GIS technology allows you to visualize, analyze, and interpret data to understand spatial relationships, patterns, and trends. It integrates various data types, including maps, satellite imagery, and demographic information, to provide a comprehensive view of a specific area or issue.

GIS systems are invaluable to fire departments, offering a range of benefits:

1. Incident Mapping and Analysis:

- Visualization: GIS enables fire and EMS services to map incidents in real-time, providing a clear visual representation of where emergencies are occurring.
- Analysis: By analyzing incident data, you can identify patterns and trends, such as areas with high fire risk or frequent medical emergencies. This helps in resource allocation and strategic planning.

2. Resource Management:

- Resource Tracking: GIS can track the location and status of personnel, fire trucks, ambulances, and other resources. This ensures that the nearest available unit is dispatched to an emergency, reducing response times.
- Resource Allocation: By analyzing historical data, GIS helps in optimizing the placement of fire stations and EMS units to ensure maximum coverage and efficiency.

3. Community Risk Reduction:

- Risk Assessment: GIS can identify high-risk areas based on factors like building materials, population density, and historical incident data. This information is crucial for developing targeted risk reduction strategies.
- Public Education: Use GIS to create maps and visualizations that communicate risk areas to the public, helping to educate and prepare the community.

4. Emergency Response Planning:

- Pre-Incident Planning: GIS allows for the creation of detailed pre-incident plans, including building layouts, hydrant locations, and evacuation routes. This information is vital for effective emergency response.
- Scenario Simulation: GIS can simulate various emergency scenarios, helping to train personnel and improve preparedness.

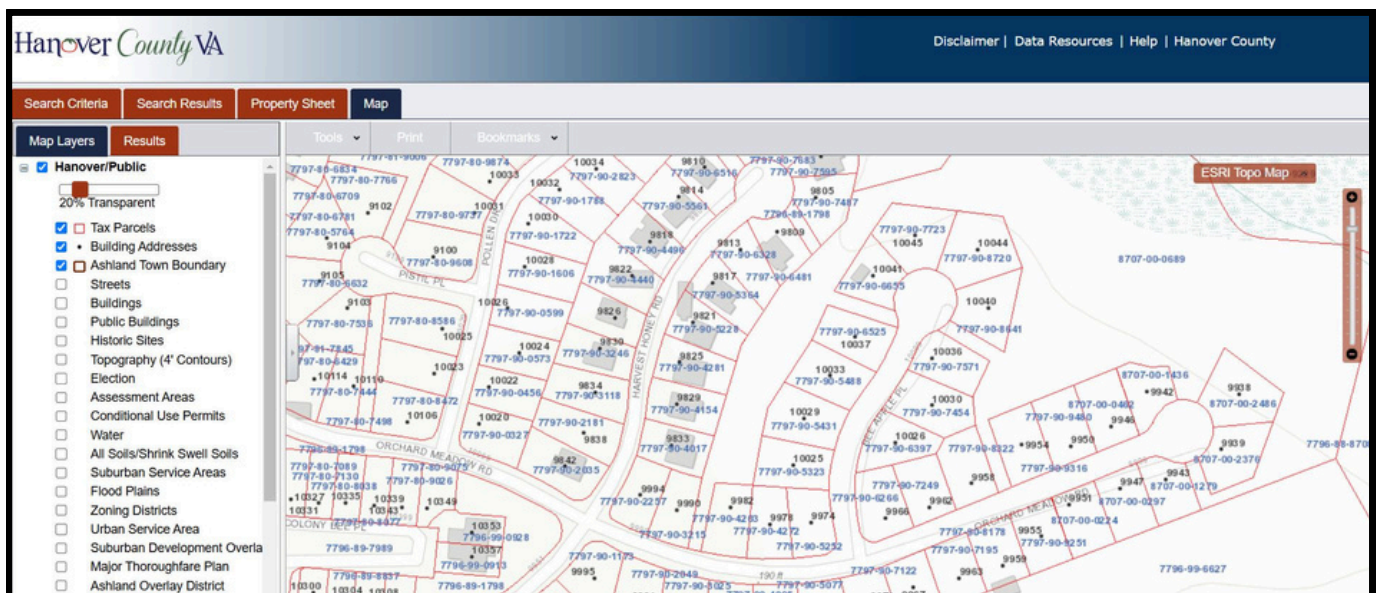
5. Data Integration and Sharing:

- Interoperability: GIS integrates data from multiple sources, including CAD systems, weather data, and social media feeds. This provides a comprehensive view of the situation.
- Collaboration: GIS facilitates data sharing between different agencies and departments, enhancing coordination and collaboration during emergencies.

By leveraging GIS technology, fire and EMS services can improve their operational efficiency, enhance situational awareness, and ultimately save lives.

Do you have access to GIS already?

Most municipalities utilize a GIS system to manage various aspects of local government. Governments often use such a system to manage infrastructure, such as municipal water systems, land plots, etc. A quick tip is to search your local government's name online, along with GIS. This may take you to the GIS section of the local government if they have one.



[Image 4.1: Sample Local Government GIS Webpage]

This information will help you identify a local GIS contact who can assist in gathering your fire department's GIS data. You will need "map layers" for station locations, response zones (station first dues), and other relevant public safety information. Begin by reaching out to your local (municipal), county, or state GIS office. If you cannot find the GIS resources you need through local government channels, consider contacting the NERIS Help Desk. If these resources remain unavailable, you may also reach out to Esri Public Safety for additional assistance. (Public Safety Solutions & Technology | GIS Mapping Software ([esri.com](https://www.esri.com)))

Section Five

Getting Ready to Use NERIS



To get started, here are the key actions a fire department should take. Additional details and guidance related to each of these actions for the respective schemas are provided below.

1. Identify a NERIS Lead for Your Department:

- Your fire department's NERIS Lead will be responsible for compiling the information and data needed for your NERIS Profile, defining users for your department and their NERIS roles & permissions, coordinating onboarding, training, and administration in the transition from NFIRS to NERIS. Your NERIS Lead may need to coordinate with your department or jurisdiction's GIS office to request and obtain additional data and/or verify accuracy of existing data.

2. Determine Existing Information & Systems:

- Your department's NERIS Lead will need to identify and become familiar with your Records Management System (RMS) vendor if you have one and your Computer Aided Dispatch (CAD) vendor. This will involve coordinating and collaborating with your department or jurisdiction's Public Safety Answering Point (PSAP) or 911 Dispatch Center.

3. Be Ready to Verify and/or Update GIS Information:

- As part of developing your department's NERIS Profile, you will be asked to verify basic location data for your fire department or provide the most current and accurate data on fire department/district boundaries. Fire departments are encouraged to obtain the most current, authoritative version of their fire department / district boundaries in a standard interoperable format such as a GeoJSON, Esri RESTful Feature Service, or a File Geodatabase (FGDB).

4. Gather and Compile Key Information:

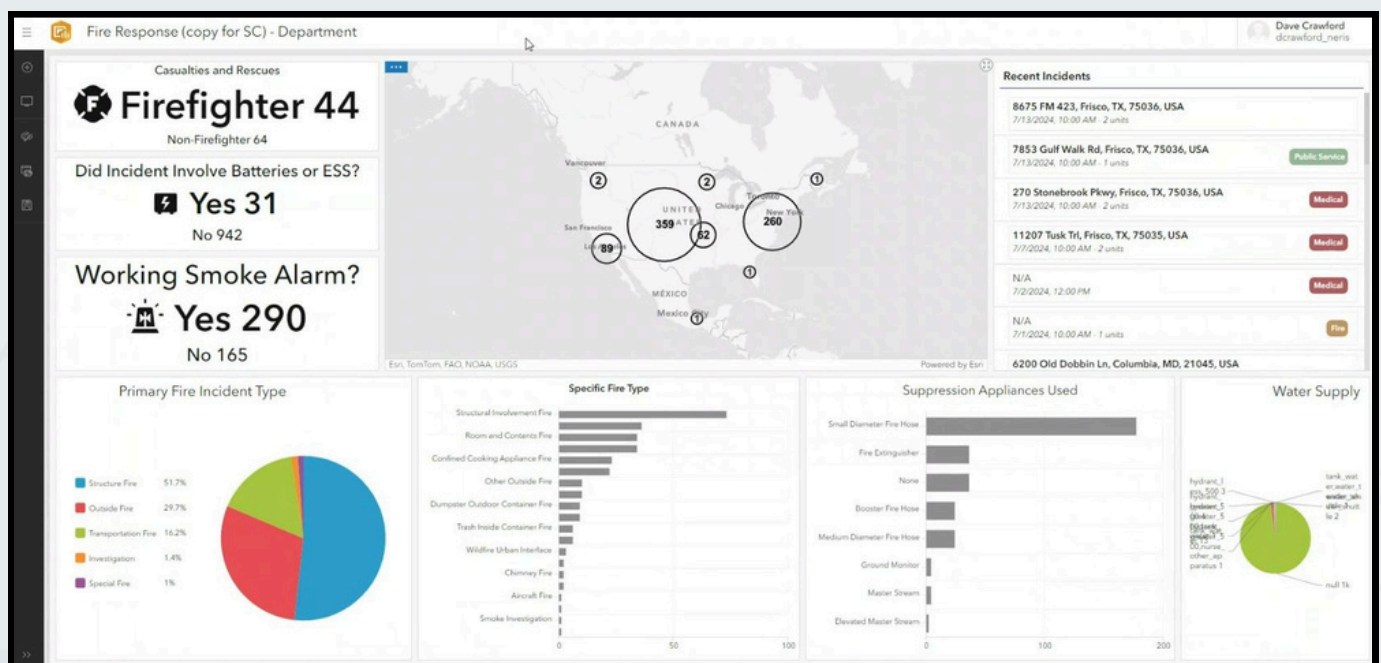
- Gather and compile information regarding your department's stations, their locations and units, and details on unit capabilities, minimum staffing, and cross-staffed unit designations. Additionally, be sure to identify all legacy Fire Department IDs (FDIDs) associated with your department, as well as those from mutual and automatic aid agencies that may respond within your jurisdiction.

What if I Already Have a Records Management System (RMS)?

If your department currently uses a Records Management System (RMS), contact your provider to discuss their integrations with the NERIS platform. Many RMS providers collaborated closely during NERIS's development, and many have built or are in the process of building integrations that can automatically transfer your department's data from their RMS to the NERIS system. It is important to ask about any associated costs for creating an Application Programming Interface (API) connection, as fees may apply depending on your provider.

What Do I Get for My Work?

Reporting through NERIS lets you see clear, useful dashboards of your incident data, providing accessibility to patterns and insights you might not have had before. These tools help you make data-informed decisions, plan better, and make a strong case for the resources your department and community need.



[Image 5.1: Sample Dashboard of a NERIS Dashboard]

NERIS data can help identify the need to enhance staffing or maintain current staffing models by articulating the department's performance in near real-time. Such information will be highly useful when considering hiring career firefighters, consolidations, or mergers of departments.

You can use NERIS data to identify additional funding for resources or defend against budget cuts. Departments will have access to key response metrics that help visualize the impact of changes in emergency services and compete more effectively in the budget process.

NERIS will link directly to the Assistance to Firefighters Grant (AFG) Portal, so it will automatically fill in a lot of the information you used to have to enter by hand, making grant applications quicker and easier.

Conclusion

This document marks the beginning of a new era in the fire service. As NFIRS is decommissioned and NERIS becomes the nation's fire service data repository, fire chiefs will have access to critical operational performance metrics to better serve their communities and enhance the safety of their firefighters.

Adopting NERIS means embracing a future where your department operates with greater efficiency, coordination, and effectiveness. It is an investment in the safety and well-being of your community, ensuring that you are always ready to respond to any emergency with the best possible resources and information at your disposal. We encourage you to take this step forward and integrate NERIS into your operations. Together, we can build a stronger, more resilient emergency response system for all.