

Fire Prevention and Safety Grant Program: Research and Development Tips for Proposal Development

This document provides tips on how to develop a proposal under the Fire Prevention and Safety (FP&S) Grant Program, Research and Development (R&D) Activity. It includes information from the FP&S Grant Program Notice of Funding Opportunity (NOFO) as well as tips for developing an application. Applicants should always refer to the NOFO for full details and associated application requirements.

Table of Contents

Unique Qualities of the R&D Activity Application	3
1. Fire departments are not eligible to apply directly	3
2. The process has two panel reviews.....	3
3. Cost share is required	3
4. Firefighters are essential to achieving the project aims	3
5. Fire department and fire service organization involvement is essential	4
6. Dissemination/implementation of project outcomes is expected	4
7. Project must relate to fire service research priorities	4
Key Dates	5
1. Application period start and end dates:	5
2. Anticipated award date	5
3. Period of performance.....	5
R&D Activity Project Category Types.....	5
1. Clinical Studies.....	5



2.	Technology and Product Development.....	6
3.	Database System Development	6
4.	Preliminary Studies.....	7
5.	Early Career Investigator	7
6.	Ineligible projects and items.....	7
Human Subjects		8
1.	Guidelines	8
2.	Timing to complete IRB and DHS CAPO review.....	10
Fire Service Panel Review Process and Narrative.....		11
1.	Overview	11
2.	Fire Service Panel Narrative Evaluation Criteria.....	12
3.	Fire Service Panel Narrative Statement Format.....	13
Science Panel Review Process and Narrative.....		14
1.	Overview	14
2.	Science Panel Narrative Evaluation Criteria	15
3.	Science Panel Narrative Statement Format.....	16
Appendix.....		17
1.	Overview	17
2.	Biosketch Format.....	18
3.	Appendix Format.....	19

Unique Qualities of the R&D Activity Application

1. Fire departments are not eligible to apply directly

Eligible entities under the R&D Activity include national, state, local, federally recognized tribal, and non-profit organizations, such as academic (e.g., universities), research foundations, public safety institutes, public health, occupational health, and injury prevention institutions. Fire departments are not eligible to apply directly under the R&D activity. R&D Activity applicants are strongly encouraged to seek partnerships with the fire service that will support project efforts from design through dissemination and implementation.

2. The process has two panel reviews

The review of R&D Activity proposals differs from most other grant programs because it has a two-tier review process. Applicants' proposals are reviewed by a Fire Service Panel and a Science Panel. The applicant prepares a Narrative specific to each of the panel reviews. Both panels have access to all the applicant's submitted materials, including the Fire Service Panel Narrative, Science Panel Narrative, Appendix, business information, and budget. The Fire Service Panel reviews every submitted proposal to determine its relevance to the fire service using a defined set of criteria. The proposals are ranked from high to low, and the highest scoring proposals are then reviewed by the Science Panel using a different set of defined criteria. The proposals with the highest Science Panel scores are the only candidates for awards from available funds.

Applicants should carefully prepare each of the two panel Narratives to assure the project ideas are explained specific to the panel reviewers' potential expertise and knowledge and the scoring criteria. Remember, if a proposal does not get a high score from the Fire Service Panel it will not advance for a Science Panel review and will not be a candidate for funding.

3. Cost share is required

The R&D Activity has a mandatory cost share requirement of non-federal funds in an amount equal to and not less than 5% of the grant award. The award amount does not consider overmatch and no consideration is given for an overmatch. The match source must be included in the budget development process and identified at the onset of funding.

This match can be in the form of cash or in-kind support. In-kind support includes complementary activities such as staff time, facilities, services, materials, equipment which are available and not funded/purchased from other federal funds. Third party in-kind contributions (such as subcontractor time, equipment, or time donated by research participants, fire departments, or consultants) may count toward satisfying match requirements, provided the applicant accounts for the costs in compliance with federal regulations.

4. Firefighters are essential to achieving the project aims

Projects should articulate the need for firefighters and/or their type of work/activity to be the subject of the project. If the project can achieve the proposed aims using any other population/activity that is not specific to the fire service, then use of this funding mechanism is likely not going to be successful in the panel review process. Studying firefighter gear, personal protective equipment (PPE), technical fire skills, use of equipment for job duties, etc. could

all be acceptable. R&D Activity funding is limited, and the fire service wants to fund projects seeking to improve firefighter safety, health, or well-being through research and development that reduces firefighter fatalities and injuries.

5. Fire department and fire service organization involvement is essential

Applicants should include some fire service organizations as partners in their projects at any or all the relevant stages of work. Partnerships should be formed with national fire-related organizations, as well as local and regional fire departments appropriate for the project. It is important to have at least some of the national or regional fire service organizations support the work. The reviewers look very closely at who is supporting the research idea and what the organizational support role includes. It is essential to have unique, current, signed support/participation letters from every group mentioned in the proposal specific to what their organization will do to help accomplish the goals. The use of general template letters, without personalization to the project, is typically not helpful to the reviewers. Remember, the Fire Service Panel are members of one of the nine major fire service organizations, and they likely know the people who will be writing the letters for the applications. The support letters are very important to your application score.

In your proposal, describe the contractors/partners who commit time or service to the project to accomplish the study aims. The specific roles and contributions of the partners should be described in individual signed letters of commitment. The use of general template letters is not as helpful as personalized letters of commitment. Typically, the commitment letters include the time and amount of funds the partner agrees to contribute to the project. A partner can commit to help the project for no cost. The commitment letters contribute to a higher application score.

6. Dissemination/implementation of project outcomes is expected

R&D Activity project outcomes are expected to impact firefighter safety, health, or well-being. Basic science research requiring years of development and iterative projects are not typically funded. The fire service has identified research areas of focus and priority topics to address that could impact the fire service immediately or in the near future.

7. Project must relate to fire service research priorities

Applicants are strongly encouraged to relate their project aims to the important topics the fire service has identified.

- In January 2022, the National Fallen Firefighters' Foundation (NFFF) released the 2021 National Fire Service Research Agenda. A copy of the research agenda is available on the NFFF Website. [National Fire Service Research Agenda Report Released - NFFF \(everyonegoeshome.com\)](#)
- In October of 2023, the U.S. Fire Administrator, in partnership with the NFFF, hosted the U.S. Fire Administrator's Summit on Fire Prevention and Control and identified seven critical issues facing the fire service that need immediate attention. Projects that address the National Fire Service Research Agenda and/or the critical issues identified at the U.S. Fire Administrator's Summit with respect to firefighter health and safety are strongly encouraged. [U.S. Fire Administration hosts 2023 Summit on Fire Prevention and Control \(fema.gov\)](#)

The following priority areas are also listed in the NOFO:

- **Mental Health and Well-being** - to address firefighters' concerns with post-traumatic stress, depression, suicide, and related issues, and because resiliency intervention studies have demonstrated effectiveness with firefighters and other first responders.
- **Occupational Health** - firefighters routinely work in an environment where they are exposed to chemical and physical hazards. Proposals are encouraged to understand contributions of biological, genetic, physiological, behavioral, psychological, and sociological factors to firefighter health, and to develop and test interventions, procedures and products for efficacy and effectiveness.
- **Wildland and Wildland Urban Interface (WUI)** - proposals are encouraged to improve wildland firefighter safety, health, and well-being through applicable technology and product development and behavioral, clinical, and social research. Projects about vehicle crashes, acute exposures, respiratory protection, PPE requirements, communications, physical fitness, and wildland fire incident modeling are some examples.

Key Dates

1. Application period start and end dates:

As outlined in the NOFO.

2. Anticipated award date

Awards will begin the beginning of summer and be completed no later than September 30.

3. Period of performance

The period of performance starts on the date of award and will be 12, 24, 36, or 48 months after award date.

R&D Activity Project Category Types

1. Clinical Studies

The R&D Activity Clinical Studies category includes projects that address behavioral, social science, and cultural research as well as physiological and medical research activities. Such studies must address the relevant aspects of reducing fatal and non-fatal injuries among firefighters and, where possible, have rigorous design that permits attribution of results to the intervention. In addition to being relevant and rigorous, each study should target the appropriate level of investigation based on the state of the science. At the most basic level, the study might be foundational, investigating the underlying risk and protective factors associated with certain injury outcomes. These may include the following:

- Individual level characteristics;
- Departmental/organizational policies;

- Firefighter behavioral practices and norms; and
- Environmental factors.

Where evidence exists to progress to more applied research, the study should emphasize intervention development and testing for effectiveness, including in the field setting. For instance, if certain tests in clinical care settings are known to identify those at risk for cardiovascular events, then the study may focus on modification, if necessary, and implementation of such tests in fire service settings. To ensure study rigor, the study's design would use a randomized control trial, with comparison to usual care. Inclusion of a cost-effectiveness analysis is strongly encouraged.

Where the effectiveness of an intervention has been established in the field setting, the final level of study aims to facilitate adoption of the research results in the fire service by conducting dissemination and implementation research. Such a study may investigate the impact of strategies for widespread implementation with fidelity. Credible evidence of effectiveness is defined as positive results from systematic and rigorous study, and the absence of negative results or side effects.

2. Technology and Product Development

The Technology and Product Development category includes projects that result in outcomes that can enhance safety of firefighter activities. Firefighter safety can be improved through greater understanding of fire phenomena inside and outside structures, and the development of products to enhance firefighter situational awareness and effectiveness. Projects can develop new technology or adapt existing products and technology to new uses.

Projects shall address the safety of firefighters for all types of responses including residential, commercial, industrial, and wildland fires. Technology and product development projects can address fire and firefighting hazards by making use of technology transfer opportunities in which existing technologies can be adapted to enhance firefighter safety.

As the intention of the R&D Activity is to deliver outcomes that are likely to be implemented nationally by the fire service, inclusion of a cost-effectiveness analysis is encouraged.

Technology and product development projects need to assess the ultimate practicality of deployment and use of the results by the fire service. When selecting local fire department and national fire service organization partners, consideration should be given to the capabilities of the partners to assist in the evaluation of the project outcomes.

3. Database System Development

Database systems are used for the systematic collection of information that aims to determine the predictors and correlation for incidents pertaining to fatal and non-fatal injuries. Focus of the data collection may include but is not limited to:

- Firefighter demographic and health factors (e.g., age, blood pressure);
- Firefighter employment factors (e.g., shift, volunteer, training);
- Firefighter safety behaviors (e.g., seat belt use, hydration);

- Firefighting equipment;
- PPE;
- Departmental/organizational safety policies and practices;
- Cultural or social norms regarding injury prevention practices;
- Community-based resources (e.g., hospitals, communication systems); and,
- Environmental factors such as local building structures and types of building materials.

Applications may, for instance, focus on the design and feasibility of a new database system, expand variables and/or data collection methods, seek to build upon an existing database system, or move from a local level database system to a broader state or regional system.

Applicants proposing to interface with government databases must explain how the systems will interface or data exchange will occur. The Narrative must also explain how this effort will not duplicate existing databases or previously funded efforts.

4. Preliminary Studies

Project ideas may require information, evidence, experimentation, and study to justify a larger and complete project that can impact firefighter safety, health, or well-being. Preliminary studies of one-year duration may be proposed to obtain enough evidence to justify a future larger study.

Preliminary studies, while narrower in scope, must have the same high levels of scientific rigor and relevance to the fire service as studies in other R&D Activity categories. The successful completion of a preliminary study does not result in special priority for the larger follow-on proposal submitted in a subsequent application period. The level of funding requested should be proportionate to the limited goal and purpose of the preliminary effort.

5. Early Career Investigator

This project category is intended to promote the development of Principle Investigators (PIs) engaged in research to improve firefighter safety, health, and well-being. This category is reserved for projects led by a PI who received a terminal academic degree (a doctoral level, professional level, or equivalent advanced level research degree) or ended post-graduate training (such as a post-doctoral fellowship or residency, whichever date is later) within ten years of the opening date of the application period and who has not been a PI on a previous FP&S Grant Program award. Projects that are affiliated with larger ongoing fire service research efforts are encouraged. The applicant's institution must be the sponsoring institution, as individuals are not eligible to receive an award under this program. All proposed projects must also have at least one fire service partner. As noted in the NOFO, these projects are limited to a maximum \$600,000 federal share. Projects in this category can be clinical, technology and product development, or database system development.

6. Ineligible projects and items

The following is a list of ineligible projects and items under the R&D Activity:

- Projects that focus primarily on curriculum development and delivery of education or training materials.
- A descriptive study about the fire service or any study without reduced firefighter injury or enhanced firefighter safety aims.
- Projects that emphasize funding for service delivery.
- Projects with local emphasis and little or no indication of application to the broader fire service.
- Applications that include violations of intellectual property.
- International travel to attend conferences or disseminate results.
- Projects to purchase stock in any entity.

Human Subjects

1. Guidelines

DHS/FEMA has a responsibility to ensure that mechanisms and procedures are in place to protect the safety of human subjects in DHS/FEMA-supported research. DHS requirements are set forth in 6 C.F.R. Part 46. A grant recipient must agree to meet all DHS requirements for projects using human subjects (and ensure any subrecipients or subcontractors meet those requirements) prior to implementing any work with human subjects. The definition of “research” and “human subjects” is in Appendix B of the NOFO.

If a project involves human subjects, the project must undergo review by an Institutional Review Board (IRB). The IRB must provide an approval or exemption determination. The PI cannot make the determination of risk or need for an IRB review. In addition, the DHS Compliance Assurance Program Office (CAPO) must review and concur with the IRB approval or exemption determination. Both IRB approval/exemption and DHS CAPO concurrence must precede any project activities involving human subjects.

Examples of projects that typically need IRB and DHS CAPO oversight may include (but are not limited to) individuals that:

- Participate in laboratory or field testing of devices or tactics using methods, equipment, or devices outside of standard or proven methods;
- Participate in intervention trials; or
- Participate in qualitative interviews or focus groups during which they provide personal information, opinions, or feedback identifiable to the individual.

Examples of projects possibly not needing IRB and DHS CAPO oversight may include (but are not limited to) individuals that:

- Answer questions on factual aspects (specifications) of things, products, or policies, rather than answering questions about people;
- Provide data about department statistics (such as number of employees, call volume, or types of fire calls);
- Answer questions about general business-related information;
- Carry passive sampling equipment; or
- Do not provide personal identifiers.

If an applicant is unsure of the need for IRB and DHS CAPO oversight, the applicant must:

- Obtain an opinion from an IRB and/or submit the project for IRB review; or
- Obtain an opinion from DHS CAPO by contacting the FP&S Program Office. The FP&S Program Office will serve as a liaison to DHS CAPO.

Before enrolling participants or commencing projects involving human subjects, an applicant must:

- Obtain a review of the project by an internal or third-party IRB or obtain an initial review by the DHS CAPO.
- If the IRB determines an exempt or non-exempt status, provide a copy of the following to the FP&S Program Office for review by DHS CAPO:
 - Investigators full name(s);
 - Grant number;
 - Department of Health and Human Services (HHS) Office of Human Research Protections (OHRP) Federal-Wide Assurance (FWA) Number;
 - IRB registry number for the IRB of Record (IRB0000XXXX);
 - IRB Panel Number (if reviewed by the full board);
 - IRB approval or exemption memo (ensure the level of risk and review category is included);
 - IRB approved protocol;
 - Complete application submitted to the IRB;
 - Any applicable IRB-approved surveys/questionnaires and recruitment materials (supporting documentation should be stamped by the IRB with the approval date and version number);
 - IRB-approved informed consent forms or an IRB-approved waiver of informed consent with DHS listed as the sponsor (or a provide a justification for the exclusion of this information); and

- If applicable, the IRB approved modification letter if this is a modification of an existing approved protocol.

Note: If this is a multi-site study and the additional sites are receiving DHS funding, DHS CAPO will need this same information from the other sites as well.

The FP&S Program Office will provide the above-mentioned documentation to DHS CAPO. DHS CAPO will conduct a regulatory compliance assessment and forward comments or concerns to the FP&S Program Office and the applicant. The applicant must address in writing all regulatory concerns to the satisfaction of DHS CAPO, which may require the submission of revisions to the IRB. The DHS CAPO will then issue a letter of certification or concurrence with the IRB's determination of exempt or non-exempt status. Only then may work with human subjects begin, such as participant enrollment. However, development of tools (e.g., survey instruments), protocols, and data gathering approaches may proceed prior to DHS CAPO certification. Grant recipients must prepare and submit documents to the IRB and DHS CAPO as soon as possible to avoid delays with project implementation.

The grant recipient must also submit annual reports to DHS CAPO to include evidence of subsequent IRB reviews, amendments, or any changes of protocol.

- If there is a continuing review, applicants should submit the following:
 - IRB approval letters,
 - Continuing review applications, and
 - Modified documents, recruitment documents, informed consents, or changes of protocol.
- If there is an amendment or modification, applicants should submit the following:
 - IRB approval letters,
 - Amendment or modification applications, and
 - Modified study documents.
- If there is a study closure, applicants should submit the following:
 - IRB acknowledgement of closure, and
 - Closure report or final summary of study submitted to IRB.

2. Timing to complete IRB and DHS CAPO review

The IRB process will require time for review and risk determination. This process varies greatly by the complexity of the study and the IRB review panel. Recipients should plan to begin this process as soon as possible after grant award. All the materials reviewed by the recipient's IRB and any subcontractor IRBs must be submitted to DHS CAPO. DHS CAPO will not begin their review process until all the materials listed above are received.

The review process with DHS CAPO may take weeks or even a few months from the time of submission. If DHS CAPO suggests revisions, it will take additional time for the recipient's IRB to re-review and approve changes prior to resubmission to DHS CAPO for a second review. Applicants are strongly encouraged to factor this into their project timeline. For complex studies with distinct phases of activity it may be helpful to submit portions of the research to the IRB for approval followed by DHS CAPO to allow the initial study activity to begin while materials needed for subsequent phases are developed.

Fire Service Panel Review Process and Narrative

1. Overview

The first step in the application review process is the Fire Service Panel Review, also called the 'relevance review'. Every eligible R&D Activity project submitted is reviewed and scored by a panel of fire service experts to assess the need and priority for the project results and the likelihood the results would be implemented by the United States fire service. The reviewer panel for each project includes three members from those nominated by the nine major fire service organizations:

- International Association of Fire Chiefs
- International Association of Fire Fighters
- National Volunteer Fire Council
- National Fire Protection Association
- National Association of State Fire Marshals
- International Association of Arson Investigators
- International Society of Fire Service Instructors
- North American Fire Training Directors
- Congressional Fire Service Institute

The reviewers are experienced fire service professionals and typically have leadership positions, prior participation in research projects, and multiple years of reviewer experience. Many reviewers have advanced degrees. Projects are assigned to reviewers by the FP&S Program Office. Reviewers are provided electronic access to applications (using FEMA GO) to assess the merits of each project based on the Fire Service Evaluation Criteria. The elements listed in the Fire Service Evaluation Criteria below are used to score each project. Reviewers independently score each project and participate in a discussion of the merits and/or shortcomings of the application with the other peer reviewers, documenting their assessment in FEMA GO. The Fire Service Panel has access to the entire application, including the Science Panel Narrative and the Appendix. A consensus in reviewer scores is not required. The panel score is the average of the three reviewer scores.

Applicants are strongly encouraged to develop the Narrative carefully and must organize it following the Fire Service Panel Narrative Evaluation criteria below. Make it easy for the reviewer to find the responses to each criterion using language and terminology appropriate for the fire service audience. Applicants can refer to parts of the Science Panel Narrative and the Appendix if there are essential figures, visuals, or timelines they want the Fire Service Panel to see. References are not typically included in the Fire Service Panel Narrative. Applicants are encouraged to get firefighter input from some of their partners on relevant portions of the Narrative statement prior to submission. Applicants should consider having firefighter partners evaluate the strengths and weaknesses of a proposal using the evaluation criteria in the NOFO provided below. Their feedback may help clarify any uncertainties and increase the likelihood of success. Remember, applicants must score well on the Fire Service Panel Review to advance to the Science Panel Review.

2. Fire Service Panel Narrative Evaluation Criteria

Purpose (25%):

- Applicants should clearly identify the specific benefits of the proposed research project to improve firefighter safety, health, or well-being. The discussion should include:
 - The specific risk to firefighter safety, health, or well-being that the project will address;
 - The expected benefits of the project, including how the project will prevent, reduce, or mitigate the specific risk;
 - The gaps in knowledge that will be addressed; and
 - The general project methods planned to produce the intended results.
- If applying under Early Career Investigator, applicants should identify how this project will support the professional development of the Principal Investigator (PI).
- If applying under Preliminary Studies, applicants should consider the project being proposed as well as the potential results of a closely related future full-scale study.

Potential Impact (15%):

- Applicants should discuss the potential impact of the research outcome/product on firefighter safety by quantifying the possible reduction in the number of fatal or non-fatal injuries or on projected well-being by significantly improving the overall health of firefighters. The discussion should include:
 - An estimate of the number of firefighters potentially exposed to the risk being addressed by the project; and,
 - The potential degree (numbers, percentages, etc.) of risk mitigation from the project results.

Implementation by Fire Service (25%):

- Applicants should discuss how the outcomes/products of this research, if successful, are likely to be widely/nationally adopted and accepted by the fire service as changes that enhance firefighter safety, health, or well-being. The discussion should include:
 - The methods and costs associated with implementation at the fire department level; and
 - Organizations, manufacturers, and/or others that will need to be involved to aid the process of adoption.
- Barriers (15%):
 - Applicants should identify and discuss potential fire service and other barriers to successfully completing the project on schedule, including contingencies and strategies to deal with barriers if they materialize. This may include barriers that could inhibit the proposed fire service participation in the project, barriers that could inhibit the adoption of successful results by the fire service when the project is completed, or project components most likely to cause delay in successful completion.
 - If applying under Early Career Investigator, applicants should discuss potential barriers specific to that project, such as if the PI does not receive the expected mentorship.

Partners (20%):

- Applicants should recognize that participation of the fire service as a partner in the research from development to dissemination is regarded as an essential part of all projects. Describe the fire service partners and contractors that will support the project to accomplish the objectives of the project. The specific roles and contributions of the partners to the project should be described. Partnerships should be formed with national fire-related organizations and local and regional fire departments appropriate for the project. Letters of support and letters of commitment to actively participate in the project should be included in the Appendix of the application. Generally, participants of a diverse population, including both career and volunteer firefighters, are expected to facilitate acceptance of results nationally. In cases where this is not practical, due to the nature of the project or other limitations, these circumstances should be clearly explained.

3. Fire Service Panel Narrative Statement Format

- The Narrative Statement must follow the order of the Fire Service Panel Evaluation Criteria listed in the NOFO.
- The Narrative Statement is limited to 5 pages per project. Any additional pages after the first 5 will not be reviewed.
- The Narrative Statement must be attached as a separate document in FEMA GO.
- The e-mail address and telephone number for the PI must be provided on the first page of the Narrative Statement.
- Font: Times New Roman or Arial

- Font Size: 11 point or larger
- Page Dimensions: must be 8.5” x 11” or smaller
- Margins: All margins (top, bottom, left, and right) must be at least 1”
- Header: The header on each page of the Narrative Statement must contain:
 - PI (surname)
 - Institution name (abbreviated)
 - Project Short Title
 - Page Number

Science Panel Review Process and Narrative

1. Overview

The projects with the highest scores from the Fire Service Panel Review are deemed to be in the “competitive range” and considered to be the most likely to be implemented to enable improvement in firefighter safety, health, or well-being. These projects are forwarded to the second level of project review, which is the Science Panel Review.

It is critical that the content of the Science Panel Narrative Statement and the Appendix fully address how the proposed project is responsive to the evaluation criteria. The Science Panel Review is a thorough and rigorous evaluation by experts with knowledge in the research areas relevant to the proposed projects. The reviewer panel for each project includes three experts selected by the FP&S Program Office. Reviewers are provided electronic access to applications (using FEMA GO) to assess the merits of each project based on the Narrative Statement and Appendix using the Science Panel Evaluation Criteria listed below. The elements listed in the Science Panel Evaluation Criteria below are used to score each project. Reviewers independently score each project and participate in a discussion of the merits and/or shortcomings of the application with the other peer reviewers, documenting their assessment in FEMA GO. The Science Panel has access to the entire application. A consensus in reviewer scores is not required. The panel score is the average of the three reviewer scores.

Applicants are strongly encouraged to develop the Narrative carefully and must organize it following the Science Panel Narrative Evaluation criteria below. Make it easy for the reviewer to find responses to each criterion using appropriate language and terminology supported by citations from science and the fire service to explain and justify the project. References are expected and must be part of the 20-page Science Panel Narrative Statement. Applicants are encouraged to get firefighter input from some of their partners on relevant portions of their Narrative statement prior to submission. Their feedback may help clarify any uncertainties and increase the likelihood of success.

2. Science Panel Narrative Evaluation Criteria

Project Goals, Objectives, and Specific Aims (All Applicants-15%)

- Applicants should address how the purpose, goals, objectives, and specific aims of the project will lead to results that will improve firefighter safety, health, or well-being. Describe the specific goals and objectives for each year of the project.

Literature Review (All Applicants-10%)

- Applicants should provide a literature review that is relevant to the project's goals, objectives, and specific aims. The citations should be placed in the narrative text and references listed at the end of the Narrative Statement (and not in the Appendix) of the application. The review should be of sufficient depth to make it clear that the proposed project is necessary, adds to an existing body of knowledge, is different from current and previous studies, and offers a unique contribution. Applicants may consider previously funded [R&D Activity projects](#). (Tip: attention should be given to recently funded projects that are underway to differentiate proposed research from ongoing research that may have the same goal).

Project Methods (Early Career Investigator Applicants-15%, All Other Applicants-20%)

- Applicants should provide a description of how the project will be carried out, including demonstration of the overall scientific and technical rigor and merit of the project. This includes the operations to accomplish the purpose, goals, and objectives, and the specific aims of the project. Plans to recruit and retain human subjects, where applicable, should be described. Where human subjects are involved, describe plans for submission to the IRB (for details regarding Human Subjects, see the NOFO and above).

Project Measurements (Early Career Investigator Applicants-15%, All Other Applicants-20%)

- Applicants should provide evidence of the technical rigor and merit of the project, such as data pertaining to validity, reliability, and sensitivity (where established) of the facilities, equipment, instruments, standards, and procedures that will be used to carry out the research. The applicant should discuss the data to be collected to evaluate the performance methods, technologies, and products proposed to enhance firefighter safety, health, or well-being. The applicant should demonstrate that the measurement methods and equipment selected for use are appropriate and sufficient to successfully deliver the proposed project objectives.

Project Analysis (Early Career Investigator Applicants-15%, All Other Applicants-20%)

- The applicant should indicate the planned approach for analysis of the data obtained from measurements, questionnaires, or computations. Specify within the plan what will be analyzed, the statistical methods that will be used, the sequence of steps, and interactions as appropriate. It should be clear that the PI and research team have the expertise to perform the planned analysis and defend the results in a peer review process. The adequacy of the number of participants, samples, or tests to address the research question should be discussed.

Dissemination and Implementation (All Applicants-15%)

- Applicants should indicate dissemination plans for scientific audiences (e.g., plans for submissions to specific peer review publications) and for firefighter audiences (e.g., via websites, magazines, and conferences). Also, assuming positive results and where applicable, indicate future steps that would support dissemination and implementation throughout the fire service. These are likely to be beyond the current study, so those features of the research activity that will facilitate future dissemination and implementation should be discussed. All applicants should specify how the results of the project, if successful, might be disseminated and implemented in the fire service to improve firefighter safety, health, or well-being. Additionally, an applicant should specify how the results of the project, if it does not achieve proposed goals, might be disseminated in the fire service to document lessons and inform future projects for improving firefighter safety, health, or well-being.

Mentoring (Early Career Investigator Applicants Only-15%)

- An important factor in the evaluation of Early Career Investigator projects is the participation of a mentor(s) in the project. A mentor for the PI should be an experienced researcher in areas appropriate to the research project and be able to provide support to the PI for ongoing development of knowledge and skills throughout the project. The mentor needs to have relationships with the fire service community sufficient to assist the PI in building relationships with fire departments and fire service organizations. The mentor has a role to support the applicant from defining the project and submitting the application for funding through the completion of a funded project. The applicant should identify the mentor(s) that has agreed to support the applicant and the proposed mentoring plan. In the plan, the applicant should discuss the role of the mentor(s) in the project and the expected benefits of the mentoring relationship to the applicant and the project. A biographical sketch and letter of commitment/support from the mentor(s) are required to be included in the Appendix document.

Additional Considerations

- The following considerations are not scored but may impact the evaluation of the application. This information may be used by the FP&S Program Office during technical review prior to making funding decisions.
 - **Cost vs. Benefit:** Cost vs. benefit in this evaluation element refers to the costs of the grant for the R&D Activity project vs. the benefits that are projected for firefighters who would have improved safety, health, or well-being. Applicants should demonstrate a high benefit for the cost incurred and effective utilization of federal funds for research activities.
 - **Financial Need:** In the Applicant Information section of the application, applicants must provide details on the need for federal financial assistance to carry out the proposed project(s). Included in the description might be other unsuccessful attempts to acquire financial assistance. Applicants should provide details about the organization's operating budget, including a high-level breakdown of the budget; the organization's inability to address financial needs without federal assistance; and other actions the organization has taken to meet their staffing needs (e.g., state assistance programs, other grant programs).

3. Science Panel Narrative Statement Format

- The Narrative Statement must follow the order of the Science Panel Evaluation Criteria listed in the NOFO.

- The Narrative Statement is limited to 20 pages per project. Any additional pages after the first 20 will not be reviewed.
- The Narrative Statement must be attached as a separate document in FEMA GO.
- The first page of the Narrative Statement must include an abstract of approximately 300 words that addresses purpose and aims, relevance, methods, and anticipated outcomes.
- All narrative text, including pertinent footnotes, and references must be in the Narrative Statement.
- Tables and figures may be included in either the Narrative Statement or the Appendix document.
- The e-mail address and telephone number for the PI must be provided on the first page of the Narrative Statement.
- Font: Times New Roman or Arial
- Font Size: 11 point or larger
- Page Dimensions: must be 8.5" x 11" or smaller
- Margins: All margins (top, bottom, left, and right) must be at least 1"
- Header: The header on each page of the Narrative Statement must contain:
 - PI (surname)
 - Institution name (abbreviated)
 - Project Short Title
 - Page Number

Appendix

1. Overview

- The Appendix may include items not required in the Science Narrative, such as:
 - Data collection instruments;
 - Additional tables and figures, illustrations, or specifications for product designs;
 - Letters of commitment and support (from fire service partners, mentors, consultants, stakeholders, board members, etc.), or role descriptions from partners;

- Reminder: Fire service partner involvement is strongly encouraged throughout the project, from application through dissemination of results. Partnerships with fire departments are part of the fire service and science evaluation. Letters of participation from partners should include a commitment to provide specific and active support in terms of fire service expertise (e.g., consultations, advisory board membership), encourage firefighter participation in the project, and/or use of facilities (e.g., control burn buildings, fitness equipment).
- Early Career Investigator projects require a letter of support from the mentor(s);
- If the project is a resubmission, applicants have the option to include an explanation of how the resubmission addresses reviewer concerns from a previous year. This is usually a written statement of 1-2 pages, but there are no fixed limits if the page limits for the entire Appendix document are not exceeded. Typically, this explanation is put at the beginning of the Appendix; and/or
- Biosketches (see further details below).
- The Appendix may NOT include:
 - References or footnotes for the Science Narrative, and
 - Additional text to complete or expand the Fire Service Panel or Science Panel Narratives.

2. Biosketch Format

A biographical sketch (biosketch) for the PI and lead scientists, as well as other key personnel listed in the budget, must be included in the Appendix, but are limited to a maximum of two pages per biosketch. Applicants are strongly encouraged to follow the biosketch sample included in the NOFO (and reproduced below).

- The applicant is limited to a maximum of two pages per biosketch.
- Font Size: 11 point or larger
- Font Type: Times New Roman or Arial
- Page Count: Two (maximum)
- Must be completed by PI and any Co-PI(s)
- Page layout format example (from the NOFO)

NAME (Last, First, Middle)	POSITION TITLE
Institution/Organization	
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)	

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s))	FIELD OF STUDY

- Each biosketch should also include (see NOFO also):
 - Positions. List all selected appointments or other professional positions held, beginning with the present position and include years, title, organization, city, state, and country.
 - Service. Include selected positions held on advisory committees or other working groups, including all Federal Government advisory committees or other public working groups, beginning with the most recent.
 - Honors. Include selected honors received in the past 10 years beginning with the most recent.
 - Peer-reviewed publications. Include selected peer-reviewed publications in the past ten years, beginning with the most recent.
 - Other publications. Include selected documents produced in the past ten years, beginning with the most recent.
 - Research Support. List funding sources and amounts for all ongoing and selected completed research projects (federal and non-federal support) for the past ten years.

3. Appendix Format

- Each project must be supported by one Appendix document.
- The Appendix is limited to 25 pages per project. Any additional pages after the first 25 will not be reviewed.
- Applicants may reduce the size of full-page support letters to allow no more than two images placed side by side on a landscape format page. The reduced size letters must have a font of sufficient resolution to be read easily.
- Attach the Appendix as a separate document in FEMA GO.
- Font: Times New Roman or Arial
- Font Size: 11 point or larger
- Page Dimensions: must be 8.5” x 11” or smaller
- Margins: All margins (top, bottom, left, and right) must be at least 1”

- Header: The header on each page of the Appendix must contain:
 - PI (surname)
 - Institution name (abbreviated)
 - Project Short Title
 - Page Number