UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
Fire and Aviation Directorate
National Interagency Fire Center
Lead Agency for the Joint Fire Science Program

Joint Fire Science Program

The Joint Fire Science Program provides funding for scientific studies associated with managing wildland fuels, fires, and fire-impacted ecosystems to respond to emerging needs of policymakers, fire managers, and practitioners.

Department of the Interior and Related Agencies Appropriation Act for FY 1998 and subsequent years (P.L. 105-83; H.R. Report 105-163)

PROJECT ANNOUNCEMENT No. FA-FON0017-0001
Primary Announcement (6 Task Statements)

CFDA No. 15.232
ISSUE DATE: September 15, 2016

JFSP Funding Opportunity Notice (FON) 2017-1

CLOSING DATE & TIME

Thursday November 17, 2016 5:00 p.m. MST

Changes for 2017:
Several changes have been made for 2017. Please read the FON carefully. In particular, please pay attention to the following:

- Changes to templates. See **Section IV. Application and Submission Information** for further information and individual templates.
- Changes to review guidelines and criteria. See section **V. Application and Review Process** for further information.
- Note: Closing day this year is on **Thursday** November 17 versus on a Friday as in previous years.

Contact Information:

John Hall	Ed Brunson	Becky Jenison
Program Director	Deputy Program Director	Program Analyst
Phone: 208-387-5945	Phone: 208-387-5975	Phone: 208-387-5958
Email: j2hall@blm.gov	Email: ebrunson@blm.gov	Email: bjenison@blm.gov

TABLE OF CONTENTS

SECTION I. FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority: Department of the Interior and Related Agencies Appropriation Act for FY 1998 and subsequent years (P.L.105-83; H.R. Report 105-163).

B. Project Background Information: The Joint Fire Science Program (JFSP) is a partnership of six federal wildland management and research agencies with a need to address problems associated with managing wildland fuels, fires, and fire-impacted ecosystems. The partnering agencies include the U.S. Department of Agriculture, Forest Service and five bureaus in the U.S. Department of the Interior: Bureau of Indian Affairs, Bureau of Land Management, National Park Service, Fish and Wildlife Service, and the Geological Survey. The Department of Interior also is represented by the Office of Wildland Fire.

For further background on the JFSP, those considering submitting proposals are encouraged to visit our website at www.firescience.gov

C. Program/Project Objective: The U.S. Congress directed the Department of the Interior and the USDA Forest Service to develop a Joint Fire Science Program and Plan to prioritize and provide sound scientific studies to support land management agencies. Current priorities are identified as task statements in the Funding Opportunity Notice (FON).

D. Statement of Joint Objectives/Project Management Plan: The JFSP will establish an oversight relationship with the Principal Investigator (PI) on each funded project. Projects will be required, at a minimum, to provide a written progress report annually.

E. Period of Project: The JFSP generally anticipates that individual projects can be accomplished within three years or less.

SECTION II. AWARD INFORMATION

A. Expected Number of Awards: Approximately 15 to 20

B. Estimated Total Program Funding: Approximately $5,500,000

C. Award Ceiling: None

D. Assistance Instrument: To be determined at a later date by the JFSP

SECTION III. ELIGIBILITY INFORMATION

A. Eligible Applicants: The JFSP encourages proposals from all interested parties. All selected awardees must provide a valid Dun & Bradstreet number (D&B) http://fedgov.dnb.com/webform and have a current registration with the federal System for Award Management (SAM) www.SAM.gov.

B. Funding Cooperator: JFSP will enter into only one agreement per project with the PI institution or the funding cooperator institution. The PI institution or funding cooperator institution will be responsible for entering into sub-agreements with collaborating institutions. Budgets must be reviewed and approved by your Budget contact and your Agreements contact prior to proposal submission. JFSP will not provide additional funds to cover budget errors discovered after the proposal submission deadline.

Funds will be awarded through a federal agency, a university, or a non-governmental organization (NGO). Proposals that included budgeted funds to be spent by a federal agency and that do not have a federal PI must list a funding cooperator from the federal agency requesting funds. Proposals with a university or NGO PI that do not include funding for federal agencies do not need a funding cooperator and funds will route through the PI's institution.

All proposals with a PI from other organizations, e.g., states or private business, or that have any international funding also must identify a funding cooperator from the United States to receive and process the funds. If the funding cooperator is from the Forest Service, the cooperator must be from a Forest Service research station. Please work with your station funding cooperator to ensure you meet the station requirements for submission. The Agreements contact and Budget contact must be from the funding cooperator's institution.

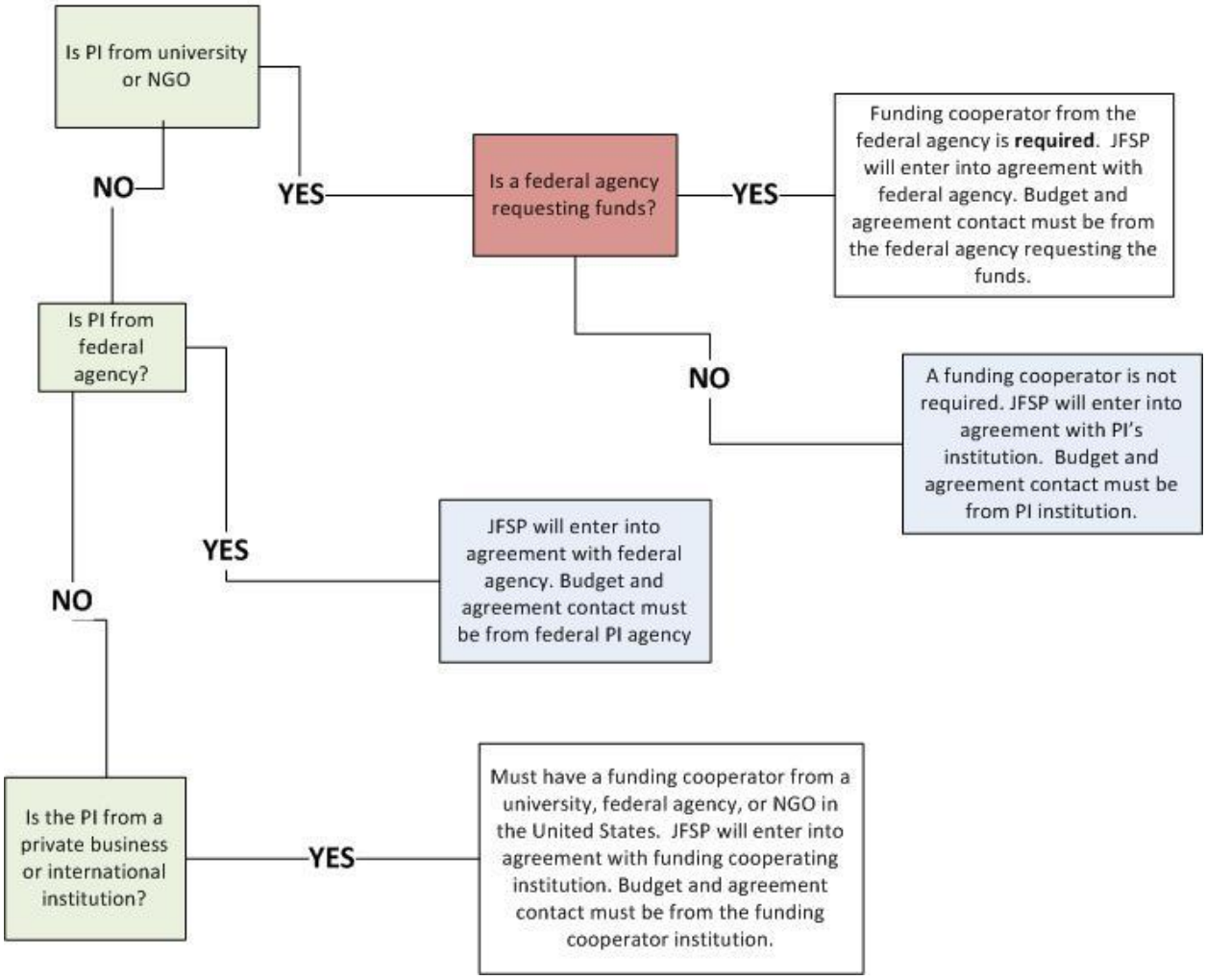
Proposals where the PI or funding cooperator is an employee of a university or NGO will be funded directly by an award document (e.g., a cooperative agreement) between JFSP and the PI's institution. The institution will be required to respond to a second non-competitive posting on grants.gov to initiate funding.

Upon receipt of a fully executed award document, the institution receiving funds from JFSP will be responsible for all sub-award transactions to cooperators or contractors related to the project. The end date and indirect costs for all sub-awards must match the end date and indirect costs in the original funding award document. The PI's institution should take into account any potential delays anticipated in executing sub-agreements when proposing project timelines. **(See funding cooperator flowchart below)**

C. Cost Sharing or Matching: This program has no matching requirements; however, contributed costs are encouraged.

D. Scientific Integrity: Scientific integrity is vital to Department of the Interior (DOI) activities under which scientific research, data, summaries, syntheses, interpretations, presentations, and/or publications are developed and used. Failure to uphold the highest degree of scientific integrity will result not only in potentially flawed scientific results, interpretations, and applications but will damage DOI's reputation and ability to uphold the public's trust. All work performed must comply with the DOI Scientific Integrity Policy posted to http://www.doi.gov, or its equivalent, as provided by the PI's organization or State law.

Funding Cooperator Flowchart



SECTION IV. APPLICATION AND SUBMISSION INFORMATION

A. Proposal Submission and Agency Contact

All proposals must be submitted by 5:00 p.m. MST November 17, 2016, using the electronic submission process provided on the JFSP website (www.firescience.gov). Proposals should not be submitted through Grants.gov. No exceptions are allowed to this closing date and time.

All proposals must meet all requirements in this FON (see especially Section IV. E below). Proposals that do not meet all requirements in this section will not be considered for funding.

Direct questions to:

Administrative questions:
Becky Jenison, Program Analyst
Phone: 208-387-5958
Email: bjenison@blm.gov

Task statement questions:

John Hall, Program Director
Phone: 208-387-5945
Email: j2hall@blm.gov

Ed Brunson, Deputy Program Director
Phone: 208-387-5975
Email: ebrunson@blm.gov

B. Steps to Create and Complete a JFSP Proposal

Multiple steps are necessary to create a JFSP proposal, some of which are dependent on prior steps. Proposals must be submitted electronically via the JFSP website (www.firescience.gov). For full list of requirements see section F.

Step 1 – PI establishes profile, updates password

Step 2 – PI initiates proposal (select task, receive proposal #, enter proposal title)

Step 3 – Enter contacts (all contacts establish profiles, update passwords; PI assigns roles). Once the PI enters a contact they will have access to sign into the database and access the proposal

Step 4 – Proposal development (templates, requirements)

Step 5 – Complete budget (template, narrative)

Step 6 – Attach all documents (proposal body, science delivery, literature cited, budget, budget narrative, data management plan, CVs, list of acronyms (optional), support letters (optional)

Step 7 – PI enters final details (project location, budget summary, start/end dates, abstract, project category)

Step 8 – Budget Contact and Agreements Contact certify review of budget and budget narrative

Step 9 – PI submits proposal (you must convert to Final Draft status first before hitting the Submit Proposal Button)

Notes

- Many steps can be in progress concurrently
- All information, including attachments, can be saved as Draft and edited later

C. Task Statement(s)

1. Landscape fuel treatment strategies and wildfire management

Objective

The objective of this task statement is to inform planning and implementation of landscape[1] fuel treatment[2] strategies that allow for safe and effective management of wildfire to meet protection and resource management objectives. Projects funded under this task statement are intended to support the vision of the 2014 *National Cohesive Wildfire Management Strategy*, in particular progressing towards resilient landscapes.

Background

Managers have long recognized the need to be strategic about placement of fuel treatments on a landscape, given that it is neither appropriate nor feasible to treat all areas that could be subject to wildfire. Notwithstanding the constraints (e.g., cost, access) on many fuel treatments, managers also recognize that wildfire is a critical tool in meeting many resource management objectives. Yet, this tool comes with inherent risks, especially in proximity to highly valued resources, as well as human communities, that may be negatively impacted by fire. Many current planning processes are focusing on landscape fuel treatment strategies[3] that are designed to enable firefighters to safely and effectively protect highly valued resources from wildfire, while also providing expanded opportunities for firefighters to manage wildfire to meet resource management objectives.

Modeling studies have shown that strategically treating a relatively small portion of a landscape can lead to significant reductions in wildfire extent and severity; however, this work remains largely theoretical and untested under actual wildfire scenarios. Moreover, few studies have evaluated how landscape fuel treatment strategies may enable firefighters to manage wildfire to meet management goals and objectives. Use of fuel treatments by incident command teams (e.g., for anchor points, containment lines) is likely critical for safe and effective wildfire response. For example, a fuel treatment may be effective in protecting a valued resource from wildfire only if it is readily accessible and safe for fire suppression operations. In addition, fuel treatments placed in critical locations may serve as effective containment lines and thus expand opportunities for the use of wildfire to meet specific resource management objectives. Studies that evaluate effectiveness of landscape fuel treatment strategies strictly in terms of potential fire behavior metrics fail to address the important interaction between wildfire managers and fuel treatments. Managers are increasingly reliant on both pre-planned fuel treatments and wildfire management to meet resource management objectives, yet most studies have evaluated the effectiveness of these strategies only in isolation.

Research Needs

Research proposals are sought that evaluate the effectiveness of landscape fuel treatment strategies with a focus on the interaction between landscape fuel treatment strategies and subsequent wildfire management actions as they relate to the ability to implement safe, effective, and efficient wildfire management decisions. Specific research needs include:

1. Identify the characteristics of landscape fuel treatment strategies (e.g., distribution/saturation of treatments, type, age, location) that allow for effective and safe use by firefighters to manage wildfire for resource management objectives and asset protection.
2. Evaluate how the effectiveness of landscape fuel treatment strategies is constrained by different social (e.g., proximity to human communities, degree to which managers

consider resource management objectives), ecological (e.g., vegetation type, fire regime), or other factors.

3. Develop metrics that are scientifically defensible and measureable for evaluating the effectiveness of landscape fuel treatment strategies in terms of allowing for safe and effective use by firefighters to manage wildfire for resource management objectives and asset protection.

For proposals to be considered responsive to this task statement, proposals must address the first two research needs above. It is expected that these research needs will be addressed through retrospective analyses, modeling, or other feasible approach. Proposals that address the third research need as well are desirable but not required. Research needs under this task statement do not include an evaluation of the direct effect of landscape fuel treatments on resources.

[1] For purposes of this task statement, a landscape is defined as an area in the 1000s to 100,000s acres commensurate with the spatial scale at which fire planning processes are conducted.

[2] For purposes of this task statement, a fuel treatment can include any or all of the following: mechanical treatment (e.g., thinning, mastication), biological treatment (e.g., grazing, seeding), chemical treatment (e.g., herbicide), and prescribed fire.

[3] For purposes of this task statement, a landscape fuel treatment strategy is a series of fuel treatments (including, but not limited to, fuel breaks) across a landscape designed to limit wildfire extent or severity.

2. Effects of changing wildfire management strategies

Objective

The objective of this task statement is to assess the degree to which wildfire management strategies have changed since the issuance of the 2009 *Guidance for Implementation of the Federal Fire Policy* and the effectiveness of such changes.

Background

The 2009 wildfire policy guidance allows for multiple wildfire management strategies on a single fire, which has increased the decision space and strategic options for agency administrators and incident commanders. As a result of this policy guidance, anecdotal evidence is mounting that fire managers have altered strategies and tactics for managing wildfires for the purposes of increasing firefighter and public safety, reducing fire suppression costs, and using fire to achieve land and resource management objectives[1]. For example, rather than using fire crews to construct a direct fire line, an incident commander may decide to conduct burnout operations using existing constructed (e.g., roads, fuel treatments) or natural (e.g., streams) fuel breaks. Such tactics should theoretically be safer for firefighters to implement and be less expensive, especially if use of aircraft and construction of new fire lines can be minimized.

These changing wildfire response strategies may increase the overall footprint of a wildfire and duration of burning, which could have significant implications for meeting the agencies' resource management objectives. Little is known, however, about the effect of changing wildfire response strategies on highly valued resources (e.g., human communities, air quality, wildlife habitat). A few studies have evaluated wildfires managed to achieve land and resource management objectives and found that they (1) tend to have fire severity patterns that are within the natural range of variability and (2) can limit the extent and severity of subsequent wildfires. Even fewer studies have examined the ecological effects of wildfire management activities (e.g., box and burn strategies) and the conditions under which such operations produce desirable ecological and social effects. As a result, significant data gaps remain about the range of

conditions (e.g., fuels, weather) under which wildfires can be used effectively to meet specific land and resource management objectives.

Research Needs

The Joint Fire Science Program (JFSP) is interested in proposals that using retrospective analyses, perhaps combined with modeling exercises, evaluate changing wildfire management strategies and the effectiveness of these strategies in meeting resource management objectives. Research needs include:

1. Quantify the extent to which wildfire response strategies and tactics have changed since issuance of the 2009 wildfire policy guidance and identify any barriers that have hampered these changes.
2. Describe the degree to which changing wildfire response strategies and tactics have had a beneficial or adverse impact on highly valued resources (e.g., human communities, air quality, wildlife habitat) or changed the risk of future wildfire to such resources.
3. Identify how the range of burning conditions (e.g., weather, fuels) affects the effectiveness of wildfire and wildfire management activities to meet specific objectives for managing fuels and vegetation.

Proposers must address all three research needs above. The JFSP is particularly interested in studies that examine how responses to these questions differ by region, agency, vegetation type, or other significant factor. The JFSP expects that information on changing wildfire strategies can be inferred from an analysis of incident reports, interviews with incident commanders, or both.

[1] Prior to the 2009 issuance of *Guidance for Implementation of the Federal Fire Policy*, the term manage for "resource benefit" was commonly used. As a result of the 2009 policy the focus is now on using "planned and unplanned ignitions to achieve land and resource management goals."

3. Post-fire recovery

Objective

The objective of this task statement is to advance our fundamental and applied understanding of post-fire recovery and associated management responses in ecosystems for which altered fire regimes may shape post-fire recovery trajectory(ies); in particular, for those ecosystems that span the range of the greater sage-grouse (Centrocercus urophasianus).

Background

In fire-dependent ecosystems fire is a natural disturbance that sets in motion successional processes. Within a historic range of spatial and temporal variability—that is sometimes determined by the management practices of indigenous peoples—fire affects the structure, composition, and function of ecosystems, as well as the resultant habitat of resident species. As a result, recovery from fire has both spatial and temporal attributes that affect ecosystem properties and services. Altered fire regimes that have resulted from habitat fragmentation, fire suppression, spread of invasive species, and other means can alter the fire-induced successional or recovery trajectory not only of fire-dependent ecosystems but also of ecosystems that historically had infrequent exposure to fire. In these latter ecosystems in particular, altered fire regimes may transition the ecosystem (sometimes irreversibly) to a new ecological state with different successional trajectories.

Under the preceding conditions of change, natural recovery is not always feasible. As a result, managers need defensible science and tools to assist in post-fire recovery to ensure that desired management objectives can be met, especially when a state transition has occurred and the

historical successional pathway has been altered. The Joint Fire Science Program (JFSP) is interested in proposals that can address the research needs identified below either in an applied science context or to address fundamental gaps in our knowledge that present barriers to the long-term success of post-fire recovery actions.

Recovery actions and their ultimate ability to lead to desired conditions in the long-term are affected by pre-fire (e.g., vegetation) and immediate post-fire conditions (e.g., burn severity), initial attempts to immediately stabilize conditions post-fire (e.g., to establish a ground cover to mitigate the potential for soil erosion), and by the sequencing of additional steps (or phasing) of recovery actions over time. Each step needs to meet short-term management objectives, whose success can be easily measured and assessed, without negatively affecting the capability to meet long-term objectives.

Recovery in the context of this task statement refers to ecosystem recovery and not only to particular individual components of an ecosystem. Holistic approaches are sought that address recovery of ecosystem soil and vegetative components as an integrated system. For example, recent research suggests that interactions between native and non-native plant species are strongly influenced by soil microbial communities and changes in nutrient cycling, the latter of which can be affected by fire. As a result, spatially and temporally explicit metrics of recovery need to reflect the degree to which desired ecosystem services have been restored through recovery actions.

Research Needs

For each ecosystem proposed for study, specific research needs include:

1. Relationships (i.e., interactions with and implications for) between (a) pre-fire (e.g., existing native and non-native invasive vegetation) and immediately post-fire conditions (e.g., burn severity, amount of downed woody materials), (b) standard, immediate post-fire stabilization approaches (e.g., herbicide applications, seeding, erosion control) that respond to those particular conditions, and (c) long-term (i.e., three years and beyond) recovery actions.
2. How the phasing of recovery actions in general (i.e., not just related to immediate stabilization actions) either facilitate or adversely affect long-term recovery in the context of meeting management objectives, including desired ecosystem services.
3. Role of soil ecological processes and community structure and composition in facilitating or preventing invasion by non-native species that alter fire behavior.
4. Relative effectiveness of different soil and vegetation treatments (e.g., for woody plant species this could be different seeding or seedling establishment approaches at different spatial scales) in facilitating recovery.
5. Spatially and temporally explicit, robust (i.e., scientifically defensible), and easily measured metrics of recovery that account for the phases of recovery as well as desired outcomes.

For proposals to be considered responsive to this task statement, proposals must address at least both research needs 1 and 2. In addition, proposers have the option to address one or more of research needs 3 through 5. The JFSP is particularly interested in proposals that address ecosystems that span the range of the greater sage-grouse. For each ecosystem proposed for study, proposals also must include a conceptual model of ecosystem function in the context of fire that is used to (1) convey the state of our scientific understanding and management practice, (2) identify key remaining knowledge gaps, and (3) provide a basis for proposed hypotheses,

questions, and experimental design. As context for proposed work, proposals should describe the degree to which environmental and other factors (e.g., presence of invasive species that alter fire behavior) have changed from historic conditions that affect fire as an ecological process and how these changes affect post-fire recovery for the ecosystem(s) they propose to study.

4. Fire effects on herbaceous and shrub species

Objective

The objective of this task statement is to develop empirical and mechanistic data and information on the effects of fire on meristematic tissue and seeds of herbaceous plant and shrub species that may ultimately be used in the development or validation of fire effects models that predict herbaceous plant and shrub response to fire.

Background

Herbaceous species and shrubs perform many critical ecosystem services and knowledge of their response to fire is critical for informing prescribed fire or post-wildfire management strategies. Yet, compared to first-order fire effects on soils and trees, few resources are available for predicting herbaceous plant and shrub response to fire. Although a few understory species response models have been developed, they often are (1) not sufficiently validated, (2) not linked to fuel consumption or soil heating, or (3) applicable only across a narrow range of species, ecosystems, or conditions. Herbaceous plants and shrubs that are partially or completely top-killed by fire typically recover via protected mertistematic structures (e.g., buds or meristems below ground or near the surface). Plants and shrubs without such structures must recover via seedling recruitment. Development of new fire effects models that predict herbaceous plant and shrub responses, as well as validation of existing models, will require the collection of data on heat tolerance of plant tissues, specifically meristematic tissue at or below the soil surface, and seeds. Although some relevant data likely can be summarized from existing literature, a key data gap is the need for additional field and laboratory experiments that examine the response of herbaceous plants, shrubs, and their seeds to heating from fire.

Research Needs

The Joint Fire Science Program (JFSP) is interested in proposals that through laboratory and field experiments further our understanding of the direct effects of heat from fire on a variety of herbaceous and shrub species under different environmental conditions and across different geographic areas. Research needs include:

1. Quantify the effect of heat from fire on the ability of a variety of herbaceous and shrub species to resprout from meristematic tissue (e.g., buds, meristems) under different environmental conditions.
2. Quantify the effect of heat from fire on germination of seeds from a variety of herbaceous and shrub species under different environmental conditions.
3. Quantify additional germination requirements (e.g., bare mineral soil, soil moisture) of seeds from a variety of herbaceous plant and shrub species following fire.

For proposals to be considered responsive to this task statement, proposals must address either research need 1 or 2 listed above. So that resulting data are broadly applicable, JFSP is particularly interested in proposals that address the research needs associated with multiple species. It is JFSP's desire that developed datasets ultimately can be used in development or validation of fire effects prediction models. Proposals that include model development or validation are desirable, but not required.

5. Validating mesoscale, atmospheric boundary prediction models and tools

Objective

The operational fire weather community requires validation of numerical weather models and predictive tools as a means of raising situational awareness. The Joint Fire Science Program is interested in research proposals that address this need within a risk management context with the goal of enhancing firefighter safety.

Background

Detection and prediction of thunderstorm outflows, gust fronts, and downdraft winds are of critical importance because they potentially threaten firefighter safety due to resultant changes in fire behavior. Improved detection and prediction of these phenomena is of significant benefit to all fire management activities. Numerical weather models, some of which couple fire behavior algorithms, attempt to predict the development, movement, and magnitude of the mesoscale atmospheric boundaries that produce these winds. The capability to predict and detect mesoscale atmospheric boundaries is fundamentally important to forecasting resultant local-scale, short-term winds that can profoundly impact firefighter safety.

Research Needs

Research proposals are sought that address the validation requirements of existing numerical weather models and predictive tools with regard to predicting mesoscale atmospheric boundaries. Specific research needs include:

1. Demonstrate the ability to characterize the development, movement, and magnitude of mesoscale atmospheric boundaries through validation of existing numerical weather models and predictive tools using relevant observational data.
2. Demonstrate forecast skill of thunderstorm outflows, gust fronts, and downdraft winds near fires through validation of the above models and tools.
3. Demonstrate that validation of the above models and tools can be accomplished in complex terrain situations.
4. Communicate model and tool outputs (predictions) within a risk management context that is meaningful to the operational fire weather community and firefighters.

For proposals to be considered responsive to this task statement, proposals must address all four research needs. Proposals to develop new or enhance existing models are outside the scope of this topic; however, improvements in model structure that occur incidental to model validation are acceptable.

6. Factors that affect the co-management of wildland fire risk

Objective

The objective of this task statement is to advance our fundamental and applied understanding of the human dimensions that affect the co-management[1] of wildland fire risk. Risk in this context may involve uncertainties and differences in stakeholder[2] values that preclude a strictly probabilistic approach to risk management in its traditional sense.

Background

Experience and foresight have told us that certain environmental issues—be it ecosystem-based management, climate change, and fire—cannot be addressed in an isolated, inside the fence line approach. Fire in particular does not adhere to an administrative or ownership boundary. Fire also has both benefits and adverse consequences that may be viewed differently by various interested and affected parties. The potential for adverse consequences poses a risk that must be balanced against the potential benefits of a particular fire. In its classic form risk is a combination of probability and consequence, though under climate change probabilities may not easily be assigned to changes in fire risk and scenario-based approaches may be needed to bound risk.

To effectively co-manage fire risk, including in the context of an uncertain future, many social factors come in to play that will dictate success or failure. The Joint Fire Science Program is interested in fundamental and applied research that address the human dimensions of fire risk co-management. Co-management of a complex environmental issue such as fire can involve many different stakeholders. Each stakeholder will bring to the table their own sense of risk and what amount they can tolerate and the values important to them that are affected by fire, whether beneficially or adversely, and their relative importance. In addition, different stakeholders will have different resource capacities to respond to the risk of fire and likely will view response options and the accountability for their implementation by other stakeholders and themselves quite differently.

Various approaches have been used to develop solutions to complex environmental problems involving multiple stakeholders. Problems that involve significant uncertainty pose unique challenges. Robust decision-making processes/frameworks that can account for uncertainty and different stakeholder perceptions of uncertainty are needed. More recent developments include how to explicitly bring science into the decision process. Here, advances are being made in how to co-produce knowledge among stakeholders so that a shared understanding of the relevant science affecting the decision process can be gained.

Research Needs

Specific research needs include:

1. Assess the social factors that lead to successful or unsuccessful co-management of wildland fire risk across administrative and ownership boundaries and whether they differ by ecosystem, region, or culture.
2. Evaluate how stakeholder views (whether within or across organizations) on accountability for wildland fire, response option implementation affect potential outcomes, in which the perception of accountability can span the spectrum from a legally mandated jurisdictional role to a willingness to engage in cooperative approaches among stakeholders.

3. Determine the role of different models of co-production of knowledge in facilitating stakeholder "consensus" on the underlying science, values, and accountability for response option implementation that shape risk management decisions.
4. Characterize the uncertainties involved and identify the decision frameworks that can best address them.

For proposals to be considered responsive to this task statement, proposals must address two or more of the above research needs. Case study approaches are encouraged, but other approaches will be considered if appropriately justified.

_____

[1] Wildland fire frequently impacts landscapes that cross ownership and management boundaries. Co-management occurs between government entities with jurisdictional responsibility for fire incident management and response and other stakeholders who may not have jurisdictional responsibility, but do have management interests impacted by the fire incident. For the purpose of this task statement, co-management refers to the interactions and decisions of these management interests.

[2] For the purposes of this task statement, stakeholder includes government entities and private entities whose risk management decisions in regards to fire may impact a broader landscape beyond their own individual interests.

D. Budget and Funding Policy

1. Funding Cooperator

Proposal may require a funding cooperator. See Section III.B above.

2. Indirect Costs

The JFSP recognizes that agencies and organizations participating in the program need to recover reasonable indirect costs. Cost effectiveness of the individual projects, however, is a determining factor in the final selection process. JFSP has an approved indirect cost rate deviation that limits proposals to a maximum of twenty (20) percent of the direct costs for each institution. Proposals requesting funds for indirect rates higher than twenty (20) percent will not be considered. This memo can be found on the JFSP website at this link: http://www.firescience.gov/documents/BLM_Iindirect_cost_rate_exception_signed.pdf

The maximum indirect rate that a funding cooperating institution may charge for pass-through costs is ten (10) percent. Proposal funding through a federal funding cooperator must reflect either the prevailing indirect rate for the cooperating federal agency or the JFSP maximum limit of twenty (20) percent, whichever is less. Unrecovered indirect costs can be used as contributed funds in the budget.

Pass-through costs are charged only by the PI institution or funding cooperator institution for administrative costs associated with managing sub-agreements. Pass-through costs are limited to ten (10) percent of the sub-agreement direct charges.

(See indirect cost example below)

Indirect costs example

Scenario

- The PI is from a university or federal agency (lead institution)
- Co-PI is from a cooperating university or NGO (cooperating institution)
- The calculated expenses in the Budget for the lead institution are $200,000 (salary, fringe benefits, travel, equipment, etc.)
- The calculated expenses in the Budget for the cooperating institution are $40,000

Calculation of indirect costs

1. Cooperating institution

Maximum allowed indirect costs (20%)

$40,000 * 0.20 = $8,000

Total Budget for cooperating institution

$40,000 + $8,000 = $48,000

Note: If there are multiple cooperating institutions this calculation would be performed for each institution.

2. Lead institution

Maximum allowed indirect costs (20%) on own Budget

$200,000 * 0.20 = $40,000

Maximum allowed pass-through indirect costs (10%) on cooperating institution Budget

$48,000 * 0.10 = $4,800

Total Budget for lead institution

$200,000 + $40,000 + $4,800= $244,800

3. Total Budget = $244,800 + $48,000 = $292,800

Points of emphasis

- Lead institutions can include pass-through costs for each cooperating institution in their Budget
- Pass-through costs are calculated based on the total Budget for each cooperating institution, including the indirect costs calculated by the cooperating institution
- Cooperating institutions typically do not include pass-through costs in their Budgets
- Institutions should use their negotiated indirect cost rates with their cooperating institutions, but cannot exceed JFSP maximums

3. Small Business Innovation Research (SBIR) Costs

Certain proposals may be required to pay a percentage of the project's costs into the Small Business Innovation Research (SBIR) program. Proposals for which the funds are transferred to a Forest Service institution and subsequently a portion of the total budget is awarded to a non-federal entity through a sub-agreement or sub-contract may be required to pay the prevailing rate of the total funds awarded externally to the SBIR program. PI's

should check with their Agreements contact to determine if this applies to your proposal and to determine the current rate.

4. Equipment Policy

Investigators are encouraged to contribute equipment (see 2 CFR Part 200.313) to conduct studies funded by JFSP from existing equipment inventories. Contributed equipment should be included as "contributed costs" in JFSP budget spreadsheets and on the budget tab.

If necessary equipment is not available, JFSP will partially or fully fund equipment needed to conduct research funded by JFSP. In no case will JFSP pay more than $5,000 for a piece of equipment. If a new piece of equipment costing more than $5,000 is needed for the proposed project, proposal investigators are expected to contribute the remaining costs in excess of $5,000.

This criterion is to be applied for each and every piece of equipment.

5. Salary Policy

Salaries of permanent full-time employees are not paid by JFSP and must be provided by employing institutions. This includes university faculty on 12-month tenure-track appointments that have contracted salary.

JFSP will provide funding for part-time, temporary, term employees, post-doctoral employees, graduate, or undergraduate students. JFSP will pay salary for employees on a 9-month appointment, but only for the months they are not funded by their institution and only for the time focused on their JFSP project. JFSP will not pay salary for other personnel to fill in for employees working on a JFSP project.

Stipends are acceptable costs, but **tuition and other university fees will not be funded**.

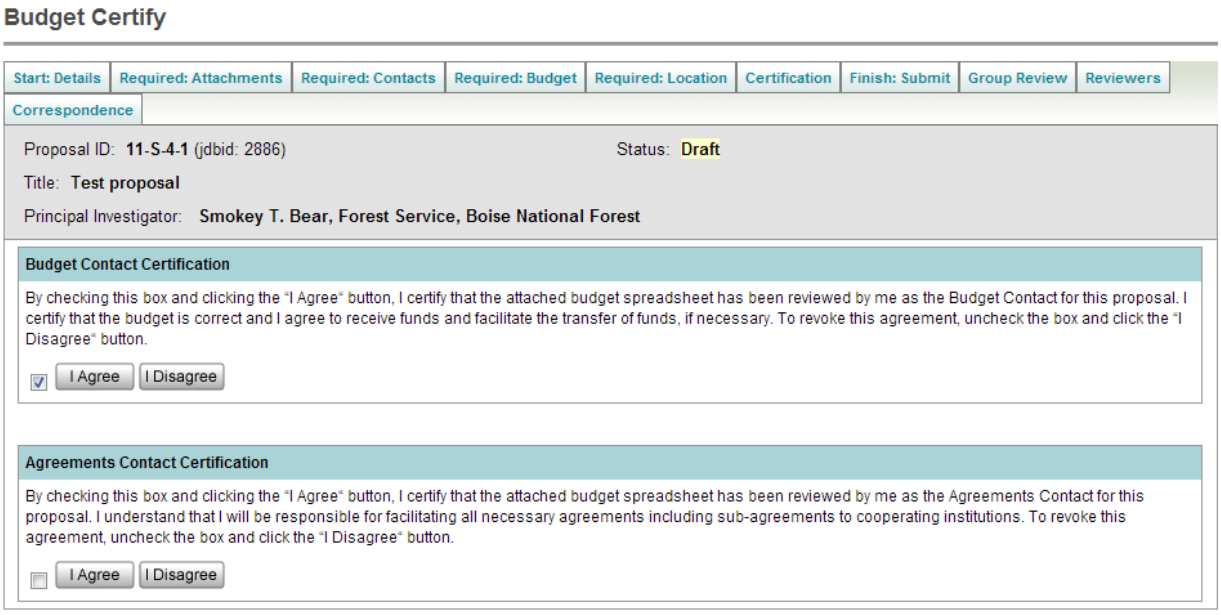
6. Budget

Budget spreadsheet and narrative must be reviewed by the Budget contact and Agreements contact to ensure all costs have been included and the budget is correct including indirect charges. JFSP will not provide additional funds to cover errors discovered after the proposal submission deadline.

Budget spreadsheet must use the provided template and have a separate worksheet for each institution requesting or contributing funds, including all sub-agreements and contracted costs over $10,000. Identify all work that will be accomplished, including a breakdown of all tasks to be completed, and provide a detailed budget estimate of time in accordance with 2 CFR Parts 200.317 through 200.326. Contracted indirect costs and fees are subject to the indirect rate exception and cannot exceed in total 20% of direct costs. https://www.firescience.gov/documents/BLM_Iindirect_cost_rate_exception_signed.pdf . Contracted costs under $10,000 must still be explained in detail in the budget narrative but do not require a separate worksheet in the budget template.

Budget narratives must have the level of detail provided in the example in the budget narrative template. Lump sum costs are not acceptable in any category, without a detail breakdown of how the costs were determined. Funded proposals will be closely scrutinized for allowable and reasonable costs before an award is issued. The JFSP also reserves the right to negotiate final budget numbers based on the final approved work scope.

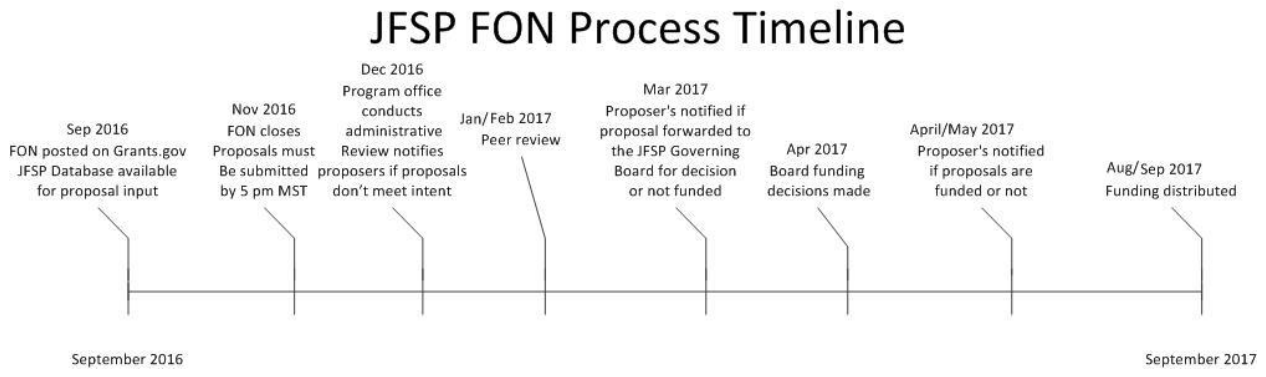
The Budget contact and Agreements contact must sign in to the JFSP system and certify the budget is correct and that they understand their role in receiving funds and facilitating agreements. Proposals cannot be submitted by the PI if both contacts have not completed this task in the database. (**See screen print below**)



Proposals will be funded via Inter-agency agreement, cooperative agreement, or agency budget transfer. The Budget contact and Agreements contact must ensure that budgets have the correct indirect rates applicable to their circumstances.

The JFSP does not fund projects that are, or should be, funded internally from existing accounts (such as routine agency monitoring) or operational portions (such as the installation of fuels treatments or development of fire management plans) of other projects.

Funding is usually distributed in late summer. Budgets should be planned with the proposal timeline below in mind.



E. Data Management Plan (DMP)

It is the intent of JFSP that all data collected, generated, or compiled through JFSP funds are of high quality and made freely available to others within a reasonable time period. The JFSP recognizes that preparation of data and metadata for publication is a time consuming process. Adequate funds to support this work should be included in proposal budgets.

A Data Management Plan must be attached as a separate document and is limited to two pages maximum. The DMP will be considered in the proposal review process. See the DMP template and instructions for further details.

Investigators must select a data repository well suited for long-term archival, publication, and data sharing of data collected, generated, or compiled through JFSP funding. The JFSP recommends use of the Forest Service R&D data archive (http://www.fs.usda.gov/rds/archive/). If you would like to discuss the archive's services, please contact archivist Dave Rugg (drugg@fs.fed.us) or associate archivist Laurie Porth (lporth@fs.fed.us).

The Forest Service R&D data archive will provide the central metadata catalog for all JFSP projects. Submission of metadata to be provided ultimately to the Forest Service R&D data archive will be required as part of final report submission, regardless of final data repository used. The JFSP will review the metadata to ensure that all required information is provided (including a pointer to the intended archival location of the data). Final reports will not be considered completed until these metadata have been reviewed and accepted. Failure to meet the preceding submittal requirements may affect eligibility to submit for consideration future JFSP proposals.

Submission of the associated data sets to the chosen repository should occur within six months of metadata submittal. For submittals to the Forest Service R&D data archive, Forest Service R&D will work with the PI to ensure final acceptability of the metadata and associated data sets. No matter the chosen repository, the PI is responsible for ensuring that final metadata are provided to Forest Service R&D. For all collected, generated, or compiled data PIs must ensure that they are evaluated for errors, as well as subjected to data proofing and validation procedures, prior to submittal. The PI is responsible for keeping the metadata in the official catalog current over time.

It is JFSP's policy that PIs can limit release of data sets for up to two years following submission of the final report for publication and quality assurance purposes. At the end of this period, all data sets should be made publicly available.

F. Additional Application Requirements

Proposals must meet all of the following requirements to be considered. Incomplete proposals will not be considered. No exceptions will be made to either the submission deadline or other submission requirements.

1. Proposal Submission

Proposals must be submitted electronically via the JFSP website (www.firescience.gov). Proposals should not be submitted in Grants.gov. Hard copy, email, or facsimile proposals will not be accepted. Proposals can be created in the database at any time and saved as a draft for submission any time prior to the closing date and time.

- A JFSP database login and password is required to submit a proposal (see section 2 below). Requests for access will be processed in approximately 24 hours, except over weekends.
- The Budget contact must sign into the system and certify the budget is correct before the proposal can be submitted. Note that the PI will not be able to complete this task for the Budget contact. The PI must assign this contact on the contact tab before the Budget contact can sign in to complete this process.

- The Agreements contact must sign into the system and certify the budget is correct before the proposal can be submitted. Note that the PI will not be able to complete this task for the Agreements contact. The PI must assign this contact on the contact tab before the Agreements contact can sign in to complete this process.
- Only the PI can submit the proposal.
- Proposals can be saved in the JFSP system and submitted prior to the closing date and time. Submitted proposals can be reverted back to Final Draft by the PI prior to the closing date. If you revert a proposal back to Final Draft you must resubmit the proposal before the closing date and time.
- The JFSP proposal submittal system will not allow proposals to be submitted after the closing date and time.

2. **Profiles**
   - **All** contacts must have a profile in the JFSP database that must be entered on the contacts tab by the PI.
   - Proposals cannot be submitted if all required contacts (see Contacts below) are not entered on the contacts tab by the PI.
   - It can take up to 24 hours to get a profile created. It is advisable to request profiles early in the process.
   - To request a profile or password reset go to the JFSP website and click on the sign in link in the upper right hand corner of the page. Use the appropriate link for requesting a password reset or requesting a new user registration.

3. **Contacts**
   Proposals may be required to have the following contacts (see Section VI. Definitions to understand the role of each contact) assigned to a proposal:
   - Principal Investigator (required, only one Principal Investigator can be assigned)
   - Funding Cooperator (may be required, see Section III.B. funding cooperator)
   - Budget Contact (required); in some cases this may be the same as the Agreements contact
   - Agreements Contact (required); in some cases this may be the same as the Budget Contact
   - Co-PIs and Collaborators (options)

   It is the PI's responsibility to ensure all correct contacts are entered into the proposal database. Please read Section VI. Definitions carefully to ensure you have the correct contact from the correct institution listed.

4. **Confirmation Page**
   When the PI submits the proposal he/she will receive a confirmation page. It is highly recommend that PIs save or print that page for their records. If this confirmation page is not received the proposal has not been submitted correctly. It is the responsibility of the PI to ensure the proposal has been submitted correctly by the closing date and time.

5. **Attachments**
   All required documents and templates must be attached before the proposal can be submitted. All attachments except the budget must be attached as an adobe pdf document; the budget template is in an Excel format. The PI should ensure that no loss of

information occurred upon conversion to a pdf document. Attachments over the page limits cannot be submitted. All information in a template must be included as part of that attachment and must be within the page limit. Extraneous materials (e.g., extra graphs and text) are not permitted and will not be reviewed.

Required attachments for all proposals must use templates provided to be considered:

- Proposal body
- Literature cited
- Budget spreadsheet (Excel spreadsheet; include a separate worksheet for each institution or contracted costs greater than $10,000)
- Budget narrative (explanation of specific budget assumptions and costs by institution)
- Science delivery
- Data Management Plan (see below)
- Curriculum Vitae for PIs and Co-PIs (two pages maximum for each person; include relevant publications)

Additional attachments:

- Letter(s) of support (optional, but recommended)
- List of acronyms (optional, but recommended)
- Specific to a task statement (check the applicable task statement for additional requirements)

6. **Data Management Plan**
   All proposals are required to submit a Data Management Plan (DMP) using the instructions, template, and example provided (See Section IV. D above).

7. **Budget**
   Budget summary numbers summarized by institution type requesting funds must be entered in the JFSP database on the Budget tab. The budget spreadsheet and budget narrative must be attached on the attachments tab using the spreadsheet template provided.

   Proposals cannot be submitted without completing these required fields and attachments. Do not edit spreadsheet formulas and formatting without first contacting Becky Jenison (bjenison@blm.gov).

8. **Task Statement Intent**
   Proposals that do not clearly and directly meet the intent of the task statement selected will not be forwarded to peer review or considered for funding. The PI for a proposal that does not meet the intent of the task statement will receive a rejection notice by early January. In addition, PIs should ensure they are submitting their proposal for the correct task statement in the JFSP database.

9. **Format**
   Proposals not following the required template(s) will not be considered. Proposals must use an 11 point font or larger. Additional guidance is included in the beginning of each template.

10. Page Limits

Attachments exceeding the page limits cannot be submitted. Page limits may differ by task statement and attachment. Check the page limit in the template and JFSP database for each specific task statement. Everything required as part of the template is included in the page limit.

11. Project Location

Project location fields must be completed on the location tab for a proposal to be successfully submitted. Instructions are listed on the project location tab.

12. Signatures

Handwritten signatures are not required. When Principal Investigators (PIs) submit proposals they will be prompted to enter their password. By typing in the password and submitting a proposal, PIs are certifying that all contacts on the proposal have reviewed the proposal and understand the requirements of their respective roles.

13. Indirect Costs

Proposals must follow JFSP indirect cost guidelines. (See Section III. B above)

14. Contributed Costs

See Section III. C above.

15. Support Letters

Support letters are encouraged, but not required. Support letters are useful if they show understanding of the proposed work and the letter author articulates how the work will benefit them. Support letters that appear to be ghost-written by the PI or are form letters are much less useful. If submitted, letters must be combined into one pdf document and attached on the attachments tab. Support letters sent by hard copy or email directly to JFSP will not be considered.

16. Past-Due Projects

No proposals will be considered if the work includes a PI or Co-PI who is a PI or Co-PI on a JFSP project that is past due as of the closing date of this announcement. See the JFSP website for the complete JFSP past-due and extension request policy.

SECTION V. APPLICATION REVIEW AND EVALUATION

Overview

Proposals will be reviewed in three stages:

1. JFSP Office – Administrative requirements and task statement intent (relevancy check)
2. Peer Review – Responsiveness, technical merit, science delivery, budget, and feasibility/personnel
3. JFSP Office and Governing Board Review – Programmatic prioritization and Board funding decisions

Note: The relevancy check includes assessing whether the proposal (1) responds to the intent of the task statement and (2) falls within JFSP's mission to support fundamental and applied research and science delivery. The relevancy check is a threshold review and if determined not to be relevant, no further evaluation of the proposal will occur.

Review Criteria
Note: Review criteria are not arithmetically scored or weighted. Applicants, however, should note that the technical merit criterion is given particular attention. Proposals that do not receive strong technical merit reviews are unlikely to be funded. In addition, for those task statements meant to have a strong aspect of science delivery, particular attention is paid to that component of the review.

Task statement responsiveness
- Does the proposal strongly or only weakly address the intent of the task statement?
- Are significant elements of the proposal extraneous to the intent of the task statement?
- Will the intended results be useful to a broad cross-section of the fire, fuels, and resource management or research community?

Technical merit
- Does the proposal address scientifically important questions and indicate how it will advance the state of the science?
- Does the proposal reflect the relevant literature that relates to the research issue and provides a basis for the proposed study design?
- Are objectives, questions and hypotheses clearly articulated? For hypotheses, are they stated in a testable manner?
- Is the study design adequate and associated with clear and defensible proposed analytical methods?
- Are the methods overall sufficiently rigorous to produce credible results?
- Is the proposal innovative or contain elements of risk that are justifiable in terms of potential benefits?
- Does the data management plan adequately capture the data management aspects of proposed work?

Deliverables and science application
- Are important and useful applications and deliverables described in the proposal?
- Is the scope and scale of planned applications and deliverables sufficient to have meaningful impact?
- Does a sufficient plan exist to exchange results with relevant audiences?
- When relevant, does the proposal provide evidence that investigators intend to collaborate with the JFSP Fire Exchange Network to develop and implement science delivery plans?

Budget
- Is the requested budget reasonable and realistic for the scope and scale of the proposed work?
- Does the budget narrative provide sufficient explanation and justification for the requested budget?

Feasibility/Personnel
- Does the project team have the skills and qualifications to execute the proposed work?
- Is the schedule reasonable?

- Have all likely barriers to project execution been identified and mitigated (e.g., National Environmental Policy Act or Endangered Species Act permit requirements?
- Have managers been involved when appropriate?
- When relevant, is project execution subject to the vagaries of weather or other environmental conditions? Have appropriate contingencies or mitigations been identified?

SECTION VI. DEFINITIONS

Agreements Contact: Person from institution receiving funds from JFSP that is responsible for facilitating the receipt of funds and the execution of any agreements necessary for a proposal if it is selected for funding. If a federal agency is requesting funds the Agreements contact must be from the federal cooperating agency.

Budget Contact: Budget contact must be from the institution receiving funds from JFSP. This person is responsible for ensuring the budget details are correct prior to proposal being submitted and agrees to receive funds and facilitate the transfer of funds, if necessary. If a federal agency is requesting funds the Budget contact must be from the federal cooperating agency.

Collaborator/Contributor: An individual that advises investigators, but is not involved at a level expected of a Co-Principal Investigator. For example, a collaborator may make recommendations on how best to involve fire and fuels managers in a project or consult regarding the statistical design of a study. Individuals that serve as an author or co-author of a manuscript for a scientific journal are normally a Co-Principal Investigator.

Co-Principal Investigator (Co-PI): The individual(s) identified in a proposal who will work with the research lead on the project and makes a substantial contribution to the project. Co-PIs are responsible for communicating and coordinating with the PI.

Funding Cooperator: The funding cooperator receives funds from JFSP and is responsible for distributing funds to other cooperators. A funding cooperator is only required if the PI is non-federal and a federal institution is requesting funding, if the work is being completed through a private business, or includes international funding. The funding cooperator is responsible for coordinating with the PI, the Agreements contact, and the Budget contact on administrative activities for this project and must concur with the proposed budget. The funding cooperator is one of the primary contacts for the project and should stay informed and involved in project activities. If a federal agency is requesting funds the funding cooperator must be from the federal cooperating agency.

Funding Opportunity Notice (FON): The official label for the Joint Fire Science Program method of requesting project proposals. The FON includes task statements for which proposals are sought, instructions for proposal submission, and related information.

Indirect Costs: Those costs used to pay for overhead/administrative costs attributable to a specific research project. Examples include the costs of operations and maintenance such as janitorial, phone, and clerical services. The Joint Fire Science Program recognizes two types of indirect costs: 1) "in-house" costs incurred by the agency, institution, or unit requesting

funds; and 2) pass-through costs that are charged only by the PI institution or funding cooperator institution for administrative costs associated with managing sub-agreements.

Joint Fire Science Program Governing Board: An appointed 12-person Board representing the JFSP partnering agencies. The Board provides strategic direction and oversight to JFSP, identifies important research questions, and, in coordination with the Program Office, selects proposals for funding.

Principal Investigator (PI): The individual identified in a proposal who is the research lead for the project. This individual is responsible for coordinating all research related activities and will be the primary science contact for the project. In addition, the PI is responsible for communicating and coordinating with Co-PIs and others on the research team. The PI is responsible to JFSP for completion of the project as determined by submission of all required deliverables.

Science Exchange, Delivery and Application: The exchange of information, materials, models and other research deliverables to end users, along with adequate information and training to apply the deliverables. Examples of active methods include workshops, training sessions, guided field tours, conferences, meetings, and symposia. Examples of passive methods include published papers and websites. A combination of active and passive methods is preferred. Collaboration with the JFSP Fire Exchange Network is recommended https://www.firescience.gov/JFSP_exchanges.cfm.

Student Investigator (relevant to the GRIN announcement only): A current student with an approved dissertation or thesis plan responsible for leading and delivering the research proposed in a GRIN proposal.

Task Statement: A specific area of interest identified in the FON, for which project applications are sought.