Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
Pasadena, California 91109-8099

February 21, 2024

ATTENTION: **PROSPECTIVE SUBCONTRACTOR**

SUBJECT: **WILDLAND FIRE PRE-FORMULATON CONCEPT STUDY REQUEST FOR INFORMATION (RFI)**

REFERENCE:

- Exhibit I- List of Desired Capabilities

Introduction

The purpose of this RFI is to address the congressional directive to initiate concept studies, in collaboration with commercial space-based remote sensing providers for wildland fire early warning system. Wildland fires pose a significant threat to communities and resources across the United States. In recent years, the frequency and severity of wildland fires have increased, causing billions of dollars in damage and loss of life. Early detection and warning of wildland fires is critical to minimizing these impacts.

The California Institute of Technology's Jet Propulsion Laboratory (JPL), operating under a prime contract with the National Aeronautics and Space Administration (NASA), is seeking information from commercial space-based remote sensing providers to develop and demonstrate low-cost and scalable infrared sensing and other technologies that passively monitor areas of the United States that are susceptible to wildland fires. These technologies should support reduction of wildland fire risk and provide early warning and information on active fires to first responders.

NAICS Code

541360 - Geophysical Surveying and Mapping Services

Request for Information - Disclaimer

The goal of this RFI is to determine industry capability, interest, and availability as well as to obtain a Rough Order of Magnitude (ROM) estimate for the costs to accomplish this support.

Prospective bidders are advised that any information provided shall be deemed furnished with unlimited rights to JPL, with JPL assuming no liability for the disclosure, use, or reproduction of such data.

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- It is also emphasized that the requested information is for preliminary, fact-finding purposes only and does not constitute a commitment, implied or otherwise, that JPL will solicit you for such procurement in the future. Neither JPL nor the Government will be responsible for any costs incurred by you or your company in furnishing this information.

Responses to this RFI shall include:

Please see Exhibit I- List of Desired Capabilities to complete the following:

A presentation package outlining the proposed concept designs, their cost, risk, schedule, and performance against the wildland fire monitoring objectives. Including:

- Concept Description:
    - A description of the proposed technology and architecture concept in detail, including its technical feasibility and potential benefits that maps to the desired capability provided in *blue and italics in* "List of Desired Capabilities" document. The other desired capabilities listed in the document will be developed post selection.
    - An explanation on how the architecture will passively monitor wildland fire-susceptible areas and detect potential fires.
    - Illustration of how the technology will support wildland fire risk reduction and provide early warning to first responders.

- Preliminary Architecture Design:
    - Describe the proposed system architecture, including space assets and ground data processing components.
    - Explain how the architecture facilitates data collection, analysis, and dissemination of warnings to first responders.
    - Discuss the scalability of the architecture to accommodate future needs and technological advancements.
- Technical Feasibility Assessment:
    - Conduct a preliminary assessment of the technical feasibility of the proposed architectures, considering factors like sensor capabilities, data transmission, and operational requirements.
    - Identify potential technical challenges and propose solutions for addressing them.
    - Provide roadmap for designing and developing a prototype system that utilizes the proposed technologies.

- Cost-Effectiveness Analysis:

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- Estimate a ROM cost of developing and deploying the proposed instrument and/or architectures along with near-real time release of L1 data and products to first responders, scientists, and general public, consistent with NASA's open data policies (NASA SMD SPD-41a).
- Demonstrate the potential for cost-effectiveness and discuss how the architectures can be implemented in a financially sustainable manner.

- Integration with Existing Systems:
  - Describe the potential for integrating the proposed architectures with existing wildland fire monitoring and response systems.

Identify potential challenges and opportunities for interoperability.

JPL intends to award three (3) to six (6) fixed-price study subcontracts with an overall total ceiling price of $1.1M based on the how adequately and thoroughly each response can demonstrate:

- Technical Feasibility: Feasibility of the proposed concept studies.
- Impact on Wildland Fire Management: Potential effectiveness in reducing wildland fire risk and/or providing early warning.
- Cost-Effectiveness: Affordability and scalability of the proposed concepts.
- Team Qualifications: Expertise and experience of the proposing team in developing and deploying space-based remote sensing technologies.
- Integration Potential: Ability of the proposed concepts to integrate with existing systems.

Schedule

- Request for Information Deadline: March 14, 2024
- Selection for Subcontract Award: ~April 8, 2024
- Concept Study Report Expected Due Date: 6 Months After Subcontract Execution

Objectives

Upon selection for subcontract award, the Industry Partners will complete concept studies with the objective to:

- Develop low-cost and scalable spaceborne infrared sensing and other technologies that passively monitor areas of the United States that are susceptible to wildland fires.

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- Develop architecture(s) to support reduction of wildland fire risk through improved fire detection and monitoring.
- Develop concept of operations for providing early warning to first responders to facilitate rapid and effective response to wildland fires.
- Identify technologies that can potentially contribute to reducing wildland fire risk through early detection and improved situational awareness.

Projected Deliverable After Subcontract Execution:

- Concept Study Report: A comprehensive report detailing the proposed concept studies, including system functionalities, technical specifications, feasibility assessment, cost estimates, and implementation plan.
- Presentation: A concise presentation summarizing the key aspects of the proposal and demonstrating the potential impact of the proposed concepts on wildland fire monitoring and response.
- Data Management Plan: A detailed plan outlining the approach for data collection, storage, processing, and dissemination.

Response Deadline

Please respond with your expression of interest in accordance with the above information to the undersigned no later than **March 7th, 2024.**

It is requested that responses to the subject RFI be submitted by **March 14, 2024, 5:00pm PST.** Please notify the undersigned if unable to meet this request.

If you have any questions, please e-mail Beatriz.A.Acevedo@jpl.nasa.gov or call 818-354-5573.

Thank you,
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Flight Project & Program Subcontracts