



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT



Title: BLM's Unmanned Aircraft Systems (UAS) Resource Management Operations

Authority: Federal Land Policy and Management Act of 1976 (FLPMA), as amended, 43 U.S.C Section 1737(b), P.L. 94-579

Opportunity No. L14PS00966

CFDA No. 15.231 Fish, Wildlife and Plant Conservation Resource Management, 15.237 Rangeland Resource Management

ISSUE DATE: 11 August 2014

CLOSE DATE: 3 September 2014, 5:00 pm MST

SECTION I. FUNDING OPPORTUNITY DESCRIPTION

A. Description of Funding Opportunity

The U.S. Department of Interior's (DOI) Bureau of Land Management (BLM) is soliciting proposals from Cooperative Ecosystem Studies Unit (CESU) partners to research the potential application and technical evaluation of commercial small Unmanned Aircraft Systems (sUAS) technology, and their associated imaging sensors, in support of BLM's large spectrum of natural and cultural resource management and monitoring missions (e.g., wildlife, vegetation, natural hazards, invasive species, and archeological/paleontology sites). Despite having the smallest budget of the federal land management agencies, the BLM is responsible for more than 260 million acres across the western U.S. To accomplish the complex and challenging work of realizing BLM's mission under a multi-use mandate, the Bureau relies upon a combination of highly skilled labor and a suite of specialized tools, processes, and technology. One of the primary components of the Bureau's toolbox is remote sensing. BLM employs remote sensing technologies that range from satellites that capture data at regional/continental scales down to digital single lens reflex (SLR) cameras that are capable of imaging some of the smallest features on the landscape. For the most part, technologies that meet BLM's remotely sensed data requirements are readily available, with the noted exception of low cost, very high spatial resolution imagery (i.e., centimeter to sub-centimeter). The DOI and BLM have identified unmanned aircraft systems (UAS), and specifically sUAS, as the most viable platform to fill this critical data gap. BLM cites three primary advantages to this technology: (1) safety, (2) low operational costs, and (3) flexibility of operations.

In cooperation with the U.S. Geological Survey's (USGS) National Unmanned Aircraft Services Project Office (NUPO), BLM is leading DOI's research and technical evaluation of the operational potential of sUAS. Although each agency within DOI has a unique mission, BLM is exploring this funding opportunity to investigate the science, engineering, and operational requirements for integrating sUAS into its overall business activities. Specific objectives the BLM (and DOI in general) intend to address with this CESU agreement include:

- Focus on sUAS, which are best aligned with DOI's decentralized mission execution strategy and more supportable by the Department's funding, personnel, and infrastructure levels;
- Conduct operational tests and evaluations of various commercial sUAS technologies to support the development of BLM's long-range UAS requirements and strategy (operational test requirements are identified in Section I, Part D, Number 3);
- Research, engineer, and test a commercially-available sUAS with the capability to acquire very high spatial resolution stereo imagery using the distance between camera stations as the sole means to scale photogrammetric models; and,
- Develop software applications for processing very high resolution stereo imagery to derive a wide variety of natural resource information/management products (e.g., 3D models, "field-like" vegetation indicators, and volumetric data estimates).

Evaluating the operational value of sUAS technology for performing DOI missions requires the determination of what data specifications can be met, if it can operate safely with minimal disruption to the area/phenomenon being observed, and is it more cost effective than traditional field sampling and remote sensing methods. Based on the nature of this new technology, the BLM and NUPO determined that the optimal way to address these questions was by performing actual proof of concepts missions. However, sUAS come in a variety of shapes, sizes, and configurations that support a wide variety of sensor packages. So while access to an increasing variety of smaller and lighter commercial sUAS and sensors significantly increases the usefulness of the technology, it has also created a marketplace flooded with options.

The BLM is offering a cooperative-agreement opportunity to universities having the capability to conduct research and technical evaluation of commercial sUAS technology, including the performance of actual proof of concepts operations. Through this CESU agreement, the Federal government and state university partners will cooperate to

better understand the capabilities of commercial sUAS, support sensor/payload research, develop natural/cultural resource science applications based on information derived from sUAS sensors, and investigate associated image processing techniques. The cooperation of the BLM and its CESU partner brings a combination of expertise and resources to address this objective that is greater than that possessed by either partner on its own.

B. Background Information on BLM's Natural and Cultural Resource Management Activities:

BLM is exploring sUAS because they afford a host of solutions for the quick and relatively inexpensive collection of very high resolution stereo imagery (and other imaging options) to meet local and plot-level data requirements. Unfortunately, limitations with our existing UAS fleet, coupled with an inability to explore alternatives, have significantly slowed the pace of our investigations. Nonetheless, recent projects have demonstrated the potential of UAS technology to provide detailed remotely sensed data in support of a wide variety of applications including BLM's Assessment, Inventory, and Monitoring (AIM) Strategy core indicator(s) extraction, invasive species and management action treatment monitoring, and Land Health Standards Assessments. BLM believes sUAS will provide flexibility to augment field collection with high-resolution image data, in order for to generate statistically valid datasets to be used in its monitoring activities. Data collections would no longer be limited by site accessibility or safety issues, or in quantity because of cost and time. Sampling intensities can be greatly increased due to the flexibility of the systems. The promise of increased capacity to support field data collection is a principle factor for the justification of the BLM AIM Program's significant contribution of funding in direct support of the development of our sUAS capabilities. The following four sections provide AIM-related background content that proposers can use as reference information for their submissions.

AIM Background (Refer to Attachment 2 for details about the AIM Strategy)

The BLM AIM Strategy was initiated, in part, to evaluate and make recommendations to improve the efficiency and effectiveness of monitoring activities. A primary goal of the AIM Strategy is to provide the BLM and its partners with the information needed to understand resource location and abundance, condition, and trend, and to provide a basis for effective adaptive management. The Strategy supports an integrated approach that includes three components:

1. A standard set of field measurement indicators and associated methods for terrestrial vegetation and soils that reflect the status of key attributes of ecosystem sustainability;
2. A statistically valid sampling framework that allows datasets collected in different areas and for different objectives to be aggregated at different scales to address regional and national information needs; and,
3. Integration of remote sensing and ground-based technologies to maximize BLM's capacity to cost-effectively address management questions at multiple scales.

Collectively, these components help ensure that data collected to support local decision-making are defensible and can be easily integrated to address multiple questions at multiple scales. They are designed to increase the ability to detect changes in three key attributes of ecosystem sustainability on which virtually all land uses depend: (1) soil and site stability, (2) hydrologic function, and (3) biotic integrity. Soil and site stability refers to the capacity of a site to limit redistribution and loss of soil resources (e.g., nutrients and organic matter) by wind and water. Hydrologic function is the capacity of a site to capture, store, and safely release water from rainfall, run-off, and snowmelt. Biotic integrity is defined as the capacity of a site within an ecosystem to support natural processes within a normal, or expected, range of variability. Collectively, ecosystem status can be determined by comparing measured indicators of the three attributes to what is expected based on site potential.

AIM Strategy Core Indicators and Methods (Refer to Attachment 3 for detailed description of the AIM Core Indicators and Methods)

The foundation of sampling as supported by the AIM Strategy is a suite of consistent indicators of the aforementioned three attributes of ecosystem sustainability (i.e., what to measure) and specific, repeatable, easy-to-implement methods for measuring those indicators (i.e., how to measure). These indicators and methods represent a minimum set of information for new and, to the extent possible, existing monitoring projects. Core indicator datasets from different areas collected using the core methods can be combined at scales larger than an individual monitoring program. To meet local information needs additional indicators can

be calculated from the core methods and, where necessary, supplemented by additional methods.

The AIM strategy recommends that six core indicators be quantified wherever BLM implements quantitative vegetation or soil monitoring in grassland, savanna, woodland, forest, and riparian ecosystems. *Bare Ground* is one of the most sensitive indicators of rangeland condition. *Vegetation Composition*, measured in almost all monitoring protocols, is sensitive (when combined with bare ground) to changes in the status of terrestrial ecosystems. Composition is also necessary for determining Fire Regime Condition Class (FRCC). *Non-Native Invasive Species* have the potential to alter ecological processes and displace native plant communities. *Plant Species of Management Concern* contribute notably to biotic integrity and biodiversity. *Vegetation Height* is necessary to characterize vegetation structure – an important determinant of wildlife habitat and potential for wind erosion. *Proportion of a Site with Large Inter-Canopy Gaps* is strongly related to wind and water erosion rates and can be used in conjunction with composition and height information to describe wildlife habitat.

A method is a specific technique or protocol for measuring an indicator. There may be many suitable methods for measuring an indicator. Methods may differ from each other in terms of the type of information recorded (e.g., cover, density, abundance), precision, repeatability, potential for bias, or cost. Some methods are capable of measuring many indicators. When combining measurements of an indicator made at different times or from different areas, it is necessary that the information be of the same type. However, the measurements can have differing precision. Often, small differences in the way a method is implemented (i.e., data are collected) can limit the ability to combine data for comparative analysis.

The first four core indicators are measured using the line-point intercept (LPI) method for foliar cover augmented by a plot-level plant species inventory. The fifth core indicator, vegetation height is measured by recording height of the highest living vegetation within a 15-cm radius of a subset of the LPI points per transect. Inter-canopy gaps are measured using the canopy-gap intercept method.

AIM NPR-A Project

The National Petroleum Reserve in Alaska is a 22.8 million acre area on Alaska's North Slope. In 1923, mindful of the land's conceivable petroleum value, President Harding set aside this area as an emergency oil supply for the U.S. Navy. In 1976, in accordance with the Naval Petroleum Reserves Production Act, the administration of the reserve was transferred to the Department of the Interior, more specifically the BLM, and was renamed to what is now known as the National Petroleum Reserve-Alaska (NPR-A). In 2012, BLM began to implement the AIM Strategy in the NPR-A.

The overarching AIM objectives for the NPR-A target the establishment of (1) a long-term monitoring program to quantitatively describe a pre-development ecological status and trend baseline and (2) a monitoring network to ascertain the effectiveness of future management actions leading to appropriate adaptive management. AIM monitoring for the NPR-A will: (a) complement ongoing NPR-A monitoring processes; (b) collect monitoring data that can be used many times for many purposes; and, (c) provide quantitative data essential for informed, defensible land management decision making. Ultimately, the NPR-A monitoring will furnish land managers with the requisite information to develop improved strategies for the protection and proper development of natural resources across a vast and diverse landscape.

During the first year of the project, field data was collected between July 31st and August 7th, 2012, along a 30-mile wide north/south trending transect in the eastern NPR-A. The field campaign deployed two field crews in a helicopter to perform a combination of (1) traditional field sampling and (2) "remote visits" by capturing stereo aerial photography (the bulk of the sample plots). The traditional field sampling included the collection of the six AIM core indicators (i.e., bare ground, vegetation composition, non-native invasive species, plant species of management concern, vegetation height, and proportion of a site with large inter-canopy gaps), as well as additional descriptive spatial information about the land cover (e.g., fractional component, location data, and pattern) at each sample plot. The pilot phase of the project will: (1) evaluate AIM-monitoring core and supplemental indicators and collection methods in tundra ecosystems; (2) evaluate photogrammetry methods for core indicator plot-level data collection using UAS technology; (3) determine effectiveness and efficiencies gained from integrating field vs. remote visits; (4) determine variance within each sampling strata;

and, (5) estimate future costs for broad-scale deployment across the entire NPR-A. To date, the field component of the pilot project has made great strides; however, the integration of field techniques with UAS technology and imagery remains largely unaddressed. A full monitoring plan cannot be implemented until the UAS evaluation component of the pilot project is successfully completed. This funding opportunity is designed, in part, to assist BLM in finalizing the full monitoring plan by providing the needed operational testing on a UAS in the vast and remote landscape of the NPR-A.

AIM Grass/Shrub Mapping

Over the past several years, the USGS and BLM have collaborated to develop more accurate fractional vegetation remote sensing products in semiarid environments that can be used to regularly monitor changes in shrub, grass, and bare ground cover estimates. This collaboration, which has expanded to the Multi-Resolution Land Characteristic Consortium (MRLC), has advanced to an operational production stage in which the fractional remote sensing products are being produced across the western U.S. The resultant datasets will assist the BLM with various management and monitoring requirements, including the direct support of mid-scale Greater Sage-Grouse monitoring activities.

More specifically, four raster based data products will be created as a part of the AIM Grass/Shrub Mapping project. Data products include percent cover estimates (also referred to as continuous fields and fractional cover) of (1) bare ground, (2) shrubs, (3) sagebrush, and (4) grass/forbs. The data development methodology incorporates field and remotely sensed data at three different spatial scales; field plot level data are used for the training and validation of mapping products, 2-meter multispectral satellite imagery is used to sample areas across the western U.S., and a comprehensive coverage, moderate resolution (i.e., 30-meter) product is created from Landsat 8 imagery for all of the grass and shrub landscapes across the entire mapping zone. By implementing and testing sUAS technology, the BLM aims to answer the following questions:

1. Can imagery captured from a sUAS replicate the Daubenmire method for estimating vegetation cover variables?
2. Can sUAS technology provide an effective and efficient means for expanding sampling intensity?
3. Can stereo imagery acquired from a sUAS platform be used to calculate vegetation height with a high degree of precision and accuracy?
4. Can imagery captured from a sUAS be used to calculate secondary indicators, such as sagebrush shape, which represents an important metric for BLM's Greater Sage-Grouse Initiative?

Note: Attachment 4 provides a USGS technical report (Homer et al., 2008) that describes the mapping protocol the AIM Grass/Shrub Mapping effort is modeled after.

C. sUAS Technical Requirements

BLM personnel at the National Operations Center (NOC) in Denver, CO have spent several years researching modern close range photogrammetry (CRP) and 3D modeling techniques to process stereo imagery captured from sUAS platform(s). One outcome of this research is our ability to use the distance between cameras (referred to as **camera station scaling**) as a means to generate scale for the 3D models. Our research has focused on the use of two cameras a fixed distance apart to provide that scaling, but other alternatives, such as Inertial Measurement Units (IMU), can be employed to precisely measure distance. BLM's desire to utilize a two camera system as compared to survey grade GPS, is based upon the unreliability of GPS signals to consistently capture centimeter level precision everywhere. Given controlled environments, the use of a two camera system ensures very high precision measurements (< 0.04% error rates) regardless of the GPS signal. GPS is still required to navigate to imaging areas and to locate the model in the real world. Camera station scaling is not intended to be used to capture stereo imagery, only to provide the scaling to control the model. Successful use of a two camera system for determining image scale is dependent upon the simultaneous triggering of both cameras such that the distance between the cameras remains fixed and constant.

Given the unique responsibilities of BLM's natural and cultural resource management programs, our need at times for very high precision data collection and mapping, the remote nature of our lands, and the ultimate goal of using sUAS as an operational supplement to our field data collection, BLM has very specific technical

requirements for a sUAS. The primary intent of this funding opportunity is to leverage and modify a commercially available electric VTOL-based UAS that provides for camera station scaling independent of GPS. The system shall be capable of stereo image capture, auto triggering, GPS metadata tagging, 24 megapixel or greater resolution imagery (Raw file format), and inter-changeable payload solutions (i.e., ability to incorporate different camera and sensor systems). Ideally the system will utilize an open source ground station. Additional options that would be highly beneficial to BLM operations include a battery life of at least 45 minutes, Real Time Kinematic (RTK) compatible GPS, and terrain following. Although BLM is not stating that a two camera system is required, an appropriate solution for precise distance calculations between camera stations must be included with any submitted proposal in order to be considered for funding.

As stated previously, it is the BLM's intention to further integrate sUAS into our operational monitoring activities in the near future. To this end, it is important to note that any commercial sUAS solution that is proposed for this cooperative agreement should include a minimal amount of custom fabrication and/or proprietary components such that the BLM can replicate additional sUAS platforms (or repair the sUAS in the event it is damaged) without significant assistance/dependence on the recipient of this award. Similarly, proposers should be conscientious of BLM's desire for a flexible and portable solution for the simultaneous triggering of the dual camera payload (i.e., if CESU partner is proposing a two camera system for the camera station scaling). BLM acknowledges that we are unaware of any commercially available camera triggering solution that is ideal for simultaneously triggering two cameras, with the noted exception of professional-grade digital SLR's. Consequently, BLM has great interest in learning more about the potential to leverage any commercially available dual camera triggering solution(s) that may exist for which we are unaware, or a custom engineered/fabricated solution that would be relatively simple and affordable to implement. Payload flexibility is, and will remain in the future, a key factor in the successful adoption of sUAS into BLM's operational monitoring activities. The optimal solution to our payload requirements would permit for the interchange of a wide variety of commercial off-the-shelf point-and-shoot and mirrorless (more likely to meet our required imaging specifications) cameras from traditional retail manufacturers (e.g., Nikon, Canon, Sony, etc.).

D. Research/Engineering Objectives

The overarching objective of this CESU agreement is to provide the Bureau with a detailed technical evaluation of commercially available sUAS platforms, sensor payloads, and the associated resultant very high resolution scaled stereo imagery which will have the capability to support various natural resource management activities that are dependent on such geospatial information. Meeting this objective will require the proposer to have the ability to competently operate commercial sUAS, perform sensor testing and evaluation, and to generate imagery/data products through various image processing avenues. The CESU partner will also be responsible for meeting all of the requirements needed to gain any requisite Federal Aviation Administration (FAA) permission(s) to safely operate sUAS in the National Air Space (NAS). BLM will not request FAA permissions for the recipient to operate sUAS in the NAS. In addition, all sUAS flight operations will be under the exclusive control on the CESU partner.

As further detailed in sections to follow, this announcement is anticipated to result in one to two cooperative agreements, each for a one year period of performance. We have identified specific research objectives below for FY 15 (and potentially the end of FY14, if time permits), which we desire a technical and price proposal to be submitted against. The ceiling is anticipated at \$100,000.00 per award. There are additional general tasks identified for Fiscal Years 16-19. We anticipate the need to request proposals on these tasks into FY15/FY16; these tasks will be awarded as a new agreement, funding and need permitting. Please only propose against tasks 1-6 identified under "End of Fiscal Year 14, Fiscal Year 15".

End of Fiscal Year 14, Fiscal Year 15:

1. Preliminary evaluation, research, and engineering into modifying a commercially-available (and preferably currently owned) sUAS for supporting the research and land management missions described/outlined above. This should include all available configuration options including sensor packages, data outputs, and associated data analysis specified in the preceding sUAS Technical Requirements Section.

2. Testing and validation of the engineered solution to the camera station scaling requirements shall be documented and reported back to the BLM before field-based data collection commences.
3. Operational testing shall be conducted at a minimum of three BLM selected field sites that will include: one site of cultural significance, one site where volumetric calculations will be needed (e.g., mineral pit), and one site with vegetation plots associated with the AIM Grass/Shrub mapping project described previously. BLM will select appropriate sites during the early portion of fiscal year 15 (FY15). Sites will be located on BLM managed lands in the western portion of the conterminous U.S. BLM will facilitate site access through the appropriate State or Local Field Office. Operations will be conducted over a one week period allowing for two days of travel and three days of field operations. The purpose of the operational testing is to validate the sUAS equipment and acquired imagery prior to deploying to the NPR-A for field operations (refer to research objective 5).
4. Collaboratively work with BLM to further develop close range photogrammetry and structure from motion data processing tools to extract 3D point cloud, digital terrain models, orthoimagery, and other relevant data products from the very high resolution stereo imagery.
5. In coordination with BLM, participate in the 2015 NPR-A field season by conducting flight operations using the developed sUAS platform. The 2015 field season will be conducted over a 10-day period between middle July and middle August.
6. Collaboratively work with BLM scientists and field personnel to develop automated and semi-automated tools to extract AIM and Grass/Shrub core indicator data from imagery products generated from the field campaigns associated with items 3 and 5 of this list. The software should be MS Windows compatible and preferably open-source.

Fiscal Years 16-19:

1. Perform additional natural/cultural resource missions, establishing feasibility and cost baselines. A new task for the Recipient of the funding shall be issued that describes the new work to be performed. Report all results including sensor evaluations, geospatial products, data processing procedures, and cost/benefit information.
2. Test additional camera or sensor systems (e.g., multispectral and thermal instruments) on the sUAS. An important consideration in the selection of the sUAS platform is the requirement for inter-changeable payloads.
3. Research and develop unique data processing tools to automate point cloud processing for feature and indicator extraction.
4. Identify and document any recommendations to existing procedures for safely and properly operating sUAS in the NAS.
5. Publish one report each year with new findings generated under this agreement.

BLM Supplied Support:

For all field based activities, BLM shall provide logistics and data collection support to ensure safe and successful project outcomes. This support shall include, but will not be limited to the following:

- Communication and coordination with BLM's local field offices (FO) to guarantee that the required permissions to fly the sUAS inside the FO boundaries are in place, public notices/announcement are shared, and access is available to field crews.
- All geospatial datasets needed for planning purposes including plot/sample locations, study area boundaries, federal ownership status, transportation networks, historical natural resource information, existing imagery, etc.
- Assistance with flight planning.
- Survey-grade GPS base station with RTK rover capability.
- Precision scale bars for any calibration sites that may be required.
- Photo identifiable targets.

- Ground-based field data collection to be used as training and validation sources for image-derived data capture and analysis.

Traveling within the NPR-A presents a unique set of challenges due to its remoteness and lack of roads. As such, BLM shall provide additional support for this project. In addition to the support listed above, BLM will sponsor the following activities for the NPR-A field campaign:

- Housing and food for field personnel.
- Helicopter for transporting field personnel to plot locations.
- Transportation to base location (i.e., this does not include transportation to Anchorage, AK from your home institution).
- Power at base location for equipment charging and computer work.

SECTION II. AWARD INFORMATION

- A. Expected Number of Awards: One to two awards are anticipated as a result of this opportunity; it is the discretion of the BLM to determine if only one award is in our best interest.
- B. Period of Performance: One year per award.
- C. Estimated Total Program Funding: The total amount of funding currently available for one to two agreements is \$200,000.00. The ceiling for each award is \$100,000.00.
- D. Assistance Instrument: Cooperative Agreement -- There will be substantive programmatic involvement through the BLM Program Officers collaborating with the Recipient's Project Officer to manage all stages of project development, implementation, and evaluation. Recipients and BLM will share responsibility for project management, control, and direction although BLM will have the right to intervene by modifying the project management plan, if project is not staying on schedule, technical issues arise, etc. BLM will also have substantive programmatic involvement through providing direction and guidance for project design and providing access to existing data and inventories. This assistance opportunity is being issued under a Cooperative Ecosystem Studies Unit (CESU) Program.

SECTION III. ELIGIBILITY INFORMATION

- A. Eligible Applicants: CESU Partnering Activities
- B. Cost Sharing or Matching: N/A – BLM encourages CESU partners to show the difference between the approved negotiated overhead rate by your cognizant agency and the 17.5% CESU negotiated rate as your match.

SECTION IV. APPLICATION AND SUBMISSION INFORMATION

- A. Address to Request Application Package: This announcement contains all information and electronic addresses necessary to submit an application through Grants.gov. Applications should be submitted electronically through Grant.gov. All questions should be directed to Chelsea Huff at cahuff@blm.gov.
- B. Content and Form of Application: The application package shall consist of all the required Standard Forms shown below, a technical narrative and a budget narrative.

Please ensure the following are addressed:

1. Recipient's Name and DUNS number
2. Name of Principal Investigator (individual who will oversee the cooperative agreement) including address, phone number, fax number, and email address.
3. Technical contact (staff member(S) who will administer the cooperative agreement).
4. A list of laboratories, field equipment, and facilities available for project work.
5. Description of the experience/qualifications of the staff who will conduct the stated work objectives of the project.

Required Standard Forms:

SF Forms to Submit	SF Form Information
Application	Form SF-424, Application for Federal Assistance
Budget Information	Form SF-424A, Budget Information - Non-Construction Programs
Assurances	Form SF-424B, Assurances - Non-Construction Programs

Proposal Content – Please include the following:

1. **Introduction and Statement of Problem:** Give a brief introduction to the research problem. Provide a brief summary of findings or outcomes of any prior work that has been completed or is ongoing in this area.
2. **Objectives:** Clearly define goals of project. State how the proposal addresses BLM goals and its relevance and impact. Explain why the work is important.
3. **Methods:** This section should include a detailed discussion of the work plan and technical approach for meeting the research objectives outlined above. This section should also include any project/research assumptions and limitations to the proposed work plan. Specific attention should be given to the proposer's plan to provide a solution to the camera-station scaling requirement.
4. **Planned Products and Dissemination of Research Results:** List of product(s) (e.g., technical reports, analysis results, digital data, etc.) that will be delivered at the end of the performance period. BLM highly values data availability, cost/benefit analyses, and the transparent sharing of research data and results to potential users who can benefit from the findings and outcome of projects funded by this CESU agreement. Applicants are strongly encouraged to disseminate research results to the scientific community via appropriate professional organizations; local, State, regional and Federal agencies; and the general public. BLM encourages the Recipient to publish their research results associated with this CUSE agreement in peer-reviewed scientific and technical journals, however, these results must be shared with BLM prior to final publication.
5. **References Cited:** List all references cited in your proposal for the CESU agreement as well as those from any prior research in this field that is relevant to the research detailed in this solicitation. Please be sure to provide sufficient detail in your references such that we can readily identify peer-reviewed scientific journal articles, conference proceedings, chapters in books, abstracts, maps, digital data, etc.

Budget Sheets- Please include the following:

This information will provide more details than what is required under the SF 424A form:

1. **Salaries and Wages:** List names, positions, and rate of compensation. Include their total time, job titles, and project roles.
2. **Fringe Benefits/Labor Overhead:** Indicate the rates/amounts in conformance with normal accounting procedures. Explain what costs are covered in this category and the basis of the rate computations.
3. **Field Expenses:** Briefly itemize the estimated travel costs (i.e., number of people, number of travel days, lodging and transportation costs, and other related travel expenditures).
4. **Supplies:** Enter the cost for all tangible property. Include the cost of office, laboratory, computing, and field supplies separately. Provide detail on any specific item, which represents a significant portion of the proposed amount.
5. **Equipment:** Show the cost of all special-purpose equipment necessary for achieving the objectives of the project. "Special-purpose equipment" means scientific equipment having a useful life of more than 1 year and having an acquisition cost of \$5,000 or more per item. Each item should be itemized and include a full justification and a dealer or manufacturer quote, if available. General-purpose equipment must be purchased from the applicant's operating funds. Title to non-expendable personal property shall be vested solely with the Recipient. Under no circumstances shall property title be vested in a sub-tier recipient.
6. **Services or Consultants:** Identify the tasks or problems for which such services would be used. List the contemplated sub-recipients by name (including consultants), the estimated amount of time required, and the quoted rate per day or hour.
7. **Travel:** State the purpose of the trip and itemize the estimated travel costs to show the (a) number of required trips, (b) travel destinations, (c) number(s) of people traveling, (d) per diem rates, (e) cost of transportation, and

- (f) any additional miscellaneous expenses for each trip. Calculations of other special transportation costs (e.g., charges for use of applicant-owned vehicles or vehicle rental costs) should also be included.
8. Publication Costs: Show the estimated cost of publishing the results of the research, including the final report. Include costs of drafting or graphics, reproduction, page or illustration charges, and a minimum number of reprints.
 9. Other Direct Costs: Itemize the different types of costs not included elsewhere (e.g., shipping, computing, equipment-use charges, or other services).
 10. Total Direct Charges. Totals for items a - i.
 11. Indirect Charges (Overhead): Indirect cost/general and administrative (G&A) cost. Show the proposed rate, cost base, and proposed amount for indirect costs based on the cost principles applicable to the Applicant's organization. If the Applicant has separate rates for recovery of labor overhead and G&A costs, each charge should be shown.
 12. Amount Proposed: Total for items k and j.
 13. Recipient's Rate Agreement: Provide a copy of recipient's rate agreement.

Note: Indirect Charges. Most States, Universities and larger nonprofits have a negotiated indirect cost rate agreement with the Federal Government. This agreement provides the rates approved for use on cooperative agreements, grants, contracts and other agreements with the Federal Government. A copy of the current rate agreement must be submitted with any proposed project. Smaller organizations may not have an agreement with the Federal Government. In these cases the indirect cost rate must be accompanied by a determination from an independent auditing firm. This determination will include the indirect cost rate, the calculations of the indirect cost rate, including the base and indirect costs pools and the associated dollar figures for both. Proposals that fail to document their indirect costs will have those costs disallowed.

C. Submission Dates and Times:

1. The electronic submission to www.Grants.gov is due by the date and time listed on the cover sheet of this announcement. A proposal received after the closing date and time will not be considered for award. If it is determined that a proposal will not be considered due to lateness, the applicant will be so notified immediately.
2. All proposals will be required to be submitted electronically through Grants.gov. All of the required attached forms can be prepared online. Any form that is not available online may be submitted as attachments at the end of the proposal. If you have not registered in grants.gov, go to visit the website www.grants.gov and get started in the registration process. Application preparation time may take several weeks to get certified. Once at the website, choose "Get Started" and work through the first 5 steps. If you have any questions or problems with the registration process, please contact the grants.gov help desk at 1-800-518-4726. In addition, Grants.gov has an "Applicant Users Guide" available at: <http://www.grants.gov/documents/19/18243/GrantsGovApplicantUserGuide.pdf/0ed6bbba-3b87-4600-8449-4bb1603b4e70> that will answer most if not all your questions.

D. Submission Instructions and Information: Applications/proposals may be submitted by the following methods only:

1. On-Line Submittal. The Bureau of Land Management (BLM) is participating in the Grants.gov Initiative that provides the grant community with a single site to find and apply for grant funding opportunities. BLM requires applicants to submit their applications/proposals electronically through: <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>.
2. YOU MUST REGISTER WITH GRANTS.GOV PRIOR TO SUBMITTING AN APPLICATION THROUGH THE GRANTS.GOV WEBSITE. THE REGISTRATION PROCESS MAY TAKE FROM 7 TO 21 DAYS.
3. Electronic Signature. Applications submitted through Grants.gov constitute submission as electronically signed applications. The registration and e-authentication process establishes the Authorized Organization Representative (AOR). When you submit the application through Grants.gov, the name of your authorized organization representative on file will be inserted into the signature line of the application. Applicants must register the individual who is able to make legally binding commitments for the applicant organization as the Authorized Organization Representative.

4. Late Submissions, Modifications, and Withdrawals of Application and/or Proposal. Any application/proposal received after the exact time specified for receipt will not be considered in the original selection process unless the application is received before award is made and it is determined by BLM that the late receipt was due to mishandling by the Government. Any modification of an application or quotation is subject to the same conditions stated above.
 5. Electronic Application Submission and Receipt Procedures. This provision provides information on the application submission and receipt instructions for applications submitted through Grants.gov Apply. Please read the following instructions carefully and completely.
 6. Timely Receipt Requirements and Proof of Timely Submission.
 - a. Electronic Submission. An electronic time stamp is generated within the system when the application is successfully received by Grants.gov. The applicant will receive an acknowledgement of receipt and a tracking number from Grants.gov with the successful transmission of their application. Applicants should print this receipt and save it.
 - b. BLM suggests that applicants submit their applications during the operating hours of the Grants.gov Support Desk, so that if there are questions concerning transmission, operators will be available to walk you through the process. Submitting your application during the Support Desk hours will also ensure that you have sufficient time for the application to complete its transmission prior to the application deadline. Applicants using dial-up connections should be aware that transmission will take some time before Grants.gov receives it.
 - c. Grants.gov will provide either an error or a successfully received transmission message. The Grants.gov Support desk reports that some applicants abort the transmission because they think that nothing is occurring during the transmission process. Please be patient and give the system time to process the application. Uploading and transmitting many files, particularly electronic forms with associated XML schemas, will take some time to be processed.
 7. Customer Support. The Grants.gov website provides customer support via (800) 518-GRANTS (this is a toll-free number) or through email at support@grants.gov. The customer support center is open from 7:00 a.m. to 9:00 p.m. Eastern time, Monday through Friday, except Federal holidays, to address Grants.gov technology issues. For technical assistance on program related questions, contact the number listed in Section VII, Agency Contacts.
- E. Funding Restrictions.** A cooperative agreement issued by the BLM National Operations Center, signed by the BLM GMO, obligates BLM funds. Notification of a successful proposal does not constitute authority to incur costs. Costs incurred prior to receipt of a signed cooperative agreement may not be reimbursed. Once the cooperative agreement for a successful proposal has been signed by the BLM GMO, the recipient may incur costs as specified in their proposed and approved budget submittal. **Funding for the first year does not guarantee funding in subsequent years.** A new application must be submitted for subsequent years.

SECTION V. Application Review Information

- A. The successful applicant(s) must have the ability to operate sUAS in the NAS, as well as have access to appropriate commercially available sUAS platforms and sensors. They must demonstrate that they possess all of the scientific and technical expertise required to conduct advanced geospatial research in the areas of sUAS sensors and advanced remote sensing techniques development that are relevant to the natural resource missions of the BLM.
- B. **Review and Selection Process**

Applications will be evaluated based on the completeness of documentation, meeting the stated basic eligibility requirements, and other category requirements. Specific evaluation factors are identified in the proposal narrative. Budget information is evaluated for reasonableness and appropriateness to applicant project goals. Submitted proposals will be reviewed by BLM technical personnel. Each proposal will be evaluated and scored. The resultant evaluations/scores will be submitted to the GMO for final award.

Proposal will be evaluated based on the following criteria:

1. Research Topic (40 Points):
 - a. How well does the proposed research address the Research/Engineering Objectives as defined in the announcement?
 - b. The benefits support the mission of the recipient, as well as a public benefit, and can be tied to a BLM Performance Measure.
 - c. The project proposal work plan is designed to produce the proposed outcomes and outputs. The outcomes are clearly stated and tied to intermediate outcomes as stated in the announcement.
2. Experience of Researcher (30 Points):
 - a. What is the experience level of the applicant(s) as it pertains to conducting proof of concept missions utilizing commercially available sUAS and sensors? The qualifications and experience appear to be adequate to achieve project goals and objectives.
 - b. Does the applicant(s) have the ability to safely operate sUAS in the NAS?
 - c. Does the applicant(s) have the skills needed to research new image processing techniques?
3. Work Plan (30 Points):
 - a. How clear and appropriate are the proposed methods to address the stated objectives?
 - b. How appropriate are the scientific objectives and methods for the proposed time frame?
4. Budget
 - a. The budget line items are appropriate, reasonable, allowable, well justified and commensurate with the level of effort needed to accomplish the project objectives.
 - b. The budget breakdown or narrative provides adequate justification for each budget category used. If equipment is requested by the applicant is it fully justified and necessary for the performance and completion of the project?

SECTION VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices:

If the applicant's proposal is selected for award, work cannot begin before the awardee receives a fully executed copy of the agreement approved by the appropriate BLM counterparts.

Award recipients are responsible for managing the day-to-day operations of the grant/cooperative agreements and sub-award supported activities to assure compliance with applicable Federal requirements, and that performance goals are being achieved. Recipient monitoring must cover each program, function, or activity.

B. Administrative and National Policy Requirements:

1. Office of Management and Budget (OMB) Circulars

By accepting Federal assistance, your organization agrees to abide by the applicable OMB Circulars in the expenditure of Federal funds and performance under this program. <http://www.whitehouse.gov/omb/circulars/>

2 CFR Part 220 (OMB Circular A-21) - Cost Principles for Educational Institutions

2 CFR Part 225 (OMB Circular A-87) - Cost Principles for State, Local and Indian Tribal Governments

2 CFR Part 230 (OMB Circular A-122) - Cost Principles for Non-Profit Organizations

2 CFR Part 215 (OMB Circular A-110) - Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations

OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

2. Standard Award Terms and Conditions

This agreement incorporates the Standard Award Terms and Conditions found at the following Department of the Interior website as if they were given here:

http://www.doi.gov/pam/programs/financial_assistance/TermsandConditions.cfm.

Acceptance of a Federal Financial Assistance award from the Department of the Interior (DOI) carries with it the responsibility to be aware of and comply with the terms and conditions of award. Acceptance is defined as the start of work, drawing down funds, or accepting the award via electronic means. Awards are based on the application submitted to, and as approved by DOI and are subject to the terms and conditions incorporated either directly or by reference in the following:

- Program legislation/regulation.
- Special terms and conditions.
- Code of Federal Regulations/Regulatory Requirements, as applicable (Contact your program officer with any questions regarding the applicability of the following):

[2 CFR Part 25 Central Contractor Registration and Data Universal Numbering System](#)

[2 CFR Part 25 --Universal Identifier and Central Contractor Registration](#)

[2 CFR Part 170--Reporting Subaward & Executive Compensation Information](#)

[2 CFR Part 170 Reporting Subawards and Executive Compensation](#)

[2 CFR Part 1400 -- NonProcurement Debarment and Suspension](#)

[2 CFR Part 1400 Governmentwide Debarment and Suspension \(Nonprocurement\)](#)

[2 CFR Part 175--Award Term for Trafficking in Persons](#)

[2 CFR Part 175 Trafficking Victims Protection Act of 2000](#)

[43 CFR 12\(A\) Administrative and Audit Requirements and Cost Principles for Assistance Programs](#)

[43 CFR 12\(E\) Buy American Requirements for Assistance Programs](#)

[43 CFR 12\(C\) Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local](#)

[43 CFR 12\(F\) Uniform Administrative Requirements for Grants and Cooperative Agreements with Institutions of Higher Education, Hospitals, other Non-Profit and Commercial Organizations](#)

[43 CFR 43 Governmentwide Requirements for a Drug-Free Workplace](#)

[43 CFR 18 New Restrictions on Lobbying](#)

3. Compliance with Buy American Act:

- a. Notice: Pursuant to sec. 307 of the Omnibus Consolidated Appropriations Act of 1997, Public Law 104-208, 110 Stat. 3009, please be advised of the following: In the case of any equipment or product that may be authorized to be purchased with financial assistance provided using funds made available

in this act, it is the sense of the Congress that entities receiving the assistance should, in expending the assistance, purchase only American-made equipment and products.

- b. Recipient agrees to follow the requirements in 43 CFR Part 12, Subpart E, Buy American Requirements for Assistance Programs.

4. Opposition to Any Legislation - In accordance with the Department of the Interior, Environment, and Related Agencies Act, 2006, Title IV, Section 402, No part of any appropriation contained in this Act shall be available for any activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete other than to communicate to Members of Congress as described in 18 U.S.C. 1913.

5. Endorsements - Recipient shall not publicize or otherwise circulate, promotional material (such as advertisements, sales brochures, press releases, speeches, still and motion pictures, articles, manuscripts or other publications) which states or implies governmental, Departmental, bureau, or government employee endorsement of a product, service, or position which the recipient represents. No release of information relating to this award may state or imply that the Government approves of the recipient's work products, or considers the recipient's work product to be superior to other products or services.

All information submitted for publication or other public releases of information regarding this project shall carry the following disclaimer:

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.

Recipient must obtain prior Government approval for any public information releases concerning this award which refer to the Department of the Interior or any bureau or employee (by name or title). The specific text, layout photographs, etc. of the proposed release must be submitted with the request for approval.

A recipient further agrees to include this provision in a sub award to and sub recipient, except for a sub award to a State government, a local government, or to a federally recognized Indian tribal government.

6. Retention and Access Requirements for Records - All recipient financial and programmatic records, supporting documents, statistical records, and other grants-related records shall be maintained and available for access in accordance with 43 CFR Subpart C, Section 12.82 for State, local and Indian tribal governments or 2 CFR, Subpart C, Section 215.53 for institutions of higher education, hospitals, other non-profit and all other organizations.

IG's Office Access to Records - Recipients shall provide additional access for the Inspector General's office to examine recipient's records and to interview officers/employees of recipient..

7. Increasing Seat Belt Use - Recipients of grants/cooperative agreements and/or sub-awards are encouraged to adopt and enforce on-the-job seat belt use policies and programs for their employees when operating company-owned, rented, or personally owned vehicles. These measures include, but are not limited to, conducting education, awareness, and other appropriate programs for their employees about the importance of wearing seat belts and the consequences of not wearing them.

8. Prohibition on Text Messaging and Using Electronic Equipment Supplied by the Government while Driving. This executive order introduces a Federal Government-wide prohibition on the use of text messaging while driving on official business or while using Government-supplied equipment, driving company-owned or rented vehicles or GOV, or while driving POV when on official Government business or when performing any work for or on behalf of the Government.

9. Special Terms and Conditions.

a. Order of Precedence. Any inconsistency in the agreement shall be resolved by giving precedence in the following order: (a) Any national policy requirements and administrative management standards; (b) 43 CFR Part 12; (c) requirements of the applicable OMB Circulars and Treasury regulations; (d) special terms and conditions; and (e) all agreement sections, documents, exhibits, and attachments; (f) and the recipient's project proposal.

b. Modifications.

- (1). The agreement may be modified by written agreement signed by both the recipient's Authorized Representative and the GMO. Administrative changes (i.e. GMO name change, etc.) which do not change the project management plan, NTE amount, etc. or otherwise affect the recipient may be signed unilaterally by the GMO. Additionally, a unilateral amendment may be utilized if it should become necessary to suspend or terminate the agreement in accordance with 43 CFR, Subpart C, Section 12.83 for State, local and Indian tribal governments or 2 CFR, Part 215.61 for institutions of higher education, hospitals, other non-profit and all other organizations.
- (2). All other changes shall be made by means of a bilateral amendment to the agreement. No oral statement made by any person, or written statement by any person other than the GMO, shall be allowed in any manner or degree to amend or otherwise effect the terms of the agreement.
- (3). All requests for amendment of the agreement shall be made in writing, provide a full description of the reason for the request, and be sent to the attention of the GMO. Any request for project extension shall be made at least 30 days prior to the expiration date of the agreement or the expiration date of any extension period that may have been previously granted. Any determination to extend the period of performance or to provide follow-on funding for continuation of a project is solely at the discretion of the BLM.

c. Budget and Program Plan Revision. The budget plan is the financial expression of the project or program as approved during the award process. Recipients are required to report deviations from budget and program plans and request prior approval for budget and program plan revisions. Recipients are not required to request prior approval for deviations among approved direct cost categories when the cumulative amount of the transfer is less than 10 percent of that cost category. However, the recipient must report any deviation to the GMO and Program Officer (PO).

d. Audit Requirements.

- (1). Non-Federal entities that expend \$500,000 or more during a year in Federal awards shall have a single or program-specific audit conducted for that year in accordance with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507) and revised OMB Circular A-133, which is available at http://www.whitehouse.gov/omb/grants/grants_circulars.html.
- (2). Federal awards are defined as Federal financial assistance and Federal cost-reimbursement contracts that non-Federal entities receive directly from Federal awarding agencies or indirectly from pass-through entities. They do not include procurement contracts, under grants or contracts, used to buy goods or services from vendors. Non-Federal entities that expend less than \$500,000 for a fiscal year in Federal awards are exempt from Federal audit requirements for that year, except as noted in A-133, § 215(a), but records must be available for review or audit by appropriate officials of the Federal agency, pass-through entity, and General Accounting Office (GAO).
- (3). Audits shall be made by an independent auditor in accordance with generally accepted government auditing standards covering financial audits. Additional audit requirements applicable to this agreement are found at 43 CFR 12.66 or 43 CFR 12.926, as applicable. General guidance on the single audit process is included in a pamphlet entitled "Highlights of the Single Audit Process" which is available on the internet at <http://www.oig.dol.gov/public/reports/oa/documents/singleauditpamphlet.pdf>. Additional information on single audits is available from the Federal Audit Clearinghouse at <http://harvester.census.gov/sac/>.

e. Metric Conversion. All performance and final reports, other reports, or publications, produced under this agreement, shall employ the metric system of measurements to the maximum extent practicable. Both metric and inch-pound units (dual units) may be used if necessary during and transition period(s). However, the recipient may use non-metric measurements to the extent the recipient has supporting documentation that the use of metric measurements is impracticable or is likely to cause significant inefficiencies or loss of markets to the recipient, such as when foreign competitors are producing competing products in non-metric units.

f. Officials Not to Benefit. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share of this agreement, or to any benefit arising from it. However, this clause does not apply to this agreement to the extent that this agreement is made with a corporation's general benefit.

g. Deposit of Publications. In addition to any requirements listed in the Project Management Plan, two (2) copies of each applicable publication produced under this agreement shall be sent to the Natural Resources Library with a transmittal that identifies the sender and the publication, and states that the publication is intended for deposit in the Natural Resources Library. Publications shall be sent to the following address:

U.S. Department of the Interior
Natural Resources Library
Interior Service Center
Gifts and Exchanges Section
1849 C Street, N.W.
Washington, D.C. 20240

h. Reimbursable Costs and Limitations.

(1). The recipient shall not incur costs or obligate funds for any purpose pertaining to operation of the program or activities beyond the expiration date stated in the agreement. The only costs which are authorized for a period of up to 90 days following the award expiration date are those strictly associated with closeout activities for preparation of the final report.

(2). The BLM's financial participation is limited. The BLM will only fund up to its share of those amounts requested in the project proposal and as are subsequently approved and funded in the agreement. The recipient shall not be obligated to continue performance under the agreement or to incur costs in excess of the costs set forth in the proposal and subsequent agreement. However, if the recipient chooses to expend funds in excess of the approved project budget, the recipient will be responsible to fund the excess without funding participation by the Bureau.

i. Inspection. The BLM has the right to inspect and evaluate the work performed or being performed under this agreement, and the premises where the work is being performed, at all reasonable times and in a manner that will not unduly delay the work. If BLM performs inspection or evaluation on the premises of the recipient or a subrecipient, the recipient shall furnish and shall require sub-recipients to furnish all reasonable facilities and assistance for the safe and convenient performance of these duties.

j. Copyrights.

(1). For recipients subject to the administrative standards set forth in OMB Circular A-110, the following copyright provision, as implemented by 43 CFR 12.936(a), shall apply:

"The recipient may copyright any work that is subject to copyright and was developed, or for which ownership was purchased, under an award. The Federal awarding agency(ies) reserves a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the work for Federal purposes, and to authorize others to do so."

(2). For recipients subject to the administrative standards set forth in OMB Circular A-102 and the Grants Management Common Rule, the following copyright provision, as implemented by 43 CFR 12.74, shall apply:

“The Federal awarding agency reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government purposes:

- (a) The copyright in any work developed under a grant, subgrant, or contract under a grant or subgrant; and
- (b) Any rights of copyright to which a grantee, subgrantee or a contractor purchases ownership with grant support.”

- k. Rights to Data. For recipients subject to the administrative standards set forth in OMB Circular A-110, the following provision, as implemented by 43 CFR 12.936(c), shall apply:

"The Federal Government has the right to:

- (1). Obtain, reproduce, publish or otherwise use the data first produced under an award; and
- (2). Authorize others to receive, reproduce, publish, or otherwise use such data for Federal purposes.”

- l. Procurement Procedures. It is a national policy to place a fair share of purchases with minority business firms. The Department of the Interior is strongly committed to the objectives of this policy and encourages all recipients of its grants and cooperative agreements to take affirmative steps to ensure such fairness. Positive efforts shall be made by recipients to utilize small businesses, minority-owned firms, and women's business enterprises, whenever possible. Recipients of Federal awards shall take all of the following steps to further this goal:

- (1). Ensure that small businesses, minority-owned firms, and women's business enterprises are used to the fullest extent practicable.
- (2). Make information on forthcoming opportunities available and arrange time frames for purchases and contracts to encourage and facilitate participation by small businesses, minority-owned firms, and women's business enterprises.
- (3). Consider in the contract process whether firms competing for larger contracts intend to subcontract with small businesses, minority-owned firms, and women's business enterprises.
- (4). Encourage contracting with consortiums of small businesses, minority-owned firms and women's business enterprises when a contract is too large for one of these firms to handle individually.
- (5). Use the services and assistance, as appropriate, of such organizations as the Small Business Development Agency in the solicitation and utilization of small business, minority-owned firms and women's business enterprises.

- m. DUNS Number and System for Award Management (SAM). Prior to award the Recipient shall register and maintain their own information with Dun & Bradstreet and SAM.

- (1) Obtain a valid Data Universal Numbering System (DUNS) number from Dun & Bradstreet at <http://www.dnb.com/get-a-duns-number.html> or by calling them at 877-930-1987.
- (2) Register in System for Award Management (SAM) @ <http://www.sam.gov>

- n. Payments.

- (1) Financial Management Service's (FMS), Automated Standard Application for Payment (ASAP) System. If recipient is registered in ASAP payments will be made through that system.
- (2) Payments will be made by the United States Department of Treasury, FMS, ASAP system. ASAP is a recipient-initiated, on-line payment and information system for Financial Assistance Agreements that is recipient initiated. The recipient will request federal funds that are due directly from the Federal Reserve Bank on a reimbursable basis.
- (3) The ASAP Requestor ID, furnished by the Department of Treasury, will be used to access the account to request reimbursement payments. The BLM GMO will create an ASAP Account ID unique to this agreement. The first nine characters will be the agreement number. The remaining three characters will identify BLM funding line items. Drawdown of funds will be taken from

specific lines on this agreement. An amendment will be stamped to indicate the appropriate line number for the drawdown.

- o. Property Management and Disposition. Any BLM property used or other property acquired under this agreement, including intangible property such as copyrights and patents shall be governed by the provisions of 43 CFR, Subpart C, Section 12.71 through 12.73 for State, local and Indian tribal governments or 2 CFR 215.30 through 215.33 for institutions of higher education, hospitals, other non-profit and all other organizations. The BLM assumes no liability for any actions or activities conducted under this agreement except to the extent that recourse or remedies are provided by Congress under the Federal Tort Claims Act [28 U.S.C. 1346(b), 2401(b), 2671 - 2680, as amended by P.L. 89-506, 80 Stat. 306]".

C. REPORTING:

1. Federal Financial Reports:

- a. Reports of expenditures are required as documentation of the financial status of awards according to the official accounting records of the recipient's organization. The recipient shall submit a completed original and one copy of the quarterly, semi-annual or annual Federal Financial Report (FFR), Standard Form (SF) 425, to report the status of funds for this agreement. The forms and instructions may be downloaded at: http://www.whitehouse.gov/omb/grants_forms/.
- b. If reports are required quarterly, the reporting periods are: January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31, and will continue through the life of the agreement.
- c. If semi-annual reports are authorized, the reporting period is from the date of award through the sixth month following award, and will continue through the life of the agreement.
- d. If annual reports are authorized, the annual reporting period is from the date of award through the twelfth month following award, and will continue through the life of the agreement.
- e. The report(s) shall be sent to the GMO and are due 30 calendar days after the end of the reporting period. The recipient will report program outlays and program income on a cash basis. However, if the recipient organization's accounting records are normally kept on an accrual basis, the recipient may report outlays on that basis.
- f. In addition to the SF-425, the recipient shall include detailed information of costs, by budget categories that reflects the approved SF 424A, Budget Information. This may include a brief narrative describing the grant activities in direct support of funds draw down.
- g. An original and one copy of the final FFR is due to the GMO no later than 90 calendar days after the expiration or termination of this agreement.
- h. Recipients, who are placed on agency review, shall submit an original and one completed copy of the SF-425, Federal Financial Report, to report the status of funds for each payment requested before reimbursement payments are made. In addition include detailed information of costs, by budget categories that reflects the approved SF 424A, Budget Information. This does not relieve the recipient of the quarterly FFR requirement unless reimbursement is only requested on a quarterly basis.
- i. The GMO may review the report for patterns of cash expenditures, including accelerated or delayed drawdowns, and to assess whether performance or financial management problems exist. Before submitting FFRs to the GMO, grantees must ensure that the information submitted is accurate, complete, and consistent with the grantee's accounting system. The recipient's Authorized Certifying Official's signature on the FFR certifies that the information in the FFR is correct and complete and that all outlays and obligations are for the purposes set forth in agreement documents, and represents a claim to the Federal government. Filing a false claim may result in the imposition of civil or criminal penalties.

2. Performance/Progress Reports:

- a. The recipient shall submit an original and one copy of the quarterly, semi-annual, or annual performance report(s) to the GMO. The performance report must be prepared in accordance with 43 CFR, Subpart C, Section 12.80 for State, local and Indian tribal governments or 2 CFR, Part 215.51 for institutions of higher education, hospitals, other non-profit and all other organizations.
 - b. The performance report shall include a narrative summary both of completed activities and activities in progress, a calculation of percent of completed work based on work identified in the Recipient's submitted proposal, Project Management Plan, the reason for slippage if objectives or milestones are not met, a prediction of future activities and how they will be accomplished, and a discussion of issues and problems which may impact the ability to complete the work on time. Recommendations to overcome problems shall also be provided. In addition, the performance report should reflect the BLM Performance Measures as listed in Section III, Paragraph B.
 - c. If performance/progress reports are required quarterly, the reporting periods are January 1 through March 31; April 1 through June 30; July 1 through September 30; and October 1 through December 31. In lieu of the fourth quarter performance report, an annual program performance report may be submitted at the end of each year of the agreement. If reports are required semi-annually, the reporting period will be from date of award through the sixth month following award. Quarterly or semi-annual reports are due 30 days after the end of the reporting period.
 - d. If performance/progress reports are required annually, the reporting period is from the date of award through the twelfth month following award. Annual reports are due 90 days after the end of the reporting period. Copies of this report may be required to be included with any application for continuing support of the agreement.
3. **Non-compliance:** Failure to comply with the reporting requirements contained in this agreement may be considered a material non-compliance with the terms and conditions of the award. Non-compliance may result in withholding of future payments, suspension or termination of the agreement, recovery of funds paid under the agreement, and withholding of future awards.

D. DEFINITIONS:

1. **Agreement:** Cooperative or Grant Agreement. The term grant is defined as all Federal financial assistance that provides support or stimulation to accomplish a public purpose. Use of the term "grant" includes grants or cooperative agreements awarded by the Federal Government to eligible recipients.
2. **Award Recipient:** The Award Recipient is the recipient's individual who is authorized to act for the applicant and to assume the obligations imposed by the Federal laws, regulations, requirements, and conditions that apply to grant applications or grant awards.
3. **Bureau of Land Management (BLM).** May also be referred to as Bureau.
4. **Code of Federal Regulations (CFR).** General and permanent regulations issued by Executive departments and agencies of the Federal Government.
5. **Federal Financial Report (FFR).**
6. **Fiscal Year (FY):** The Federal fiscal year, this begins on October 1 of one year and extends through September 30 of the following year.
7. **Financial Assistance Administrator/Grants Management Officer (GMO):** The GMO is the only individual in BLM who is authorized to obligate funds, award, amend, terminate, and administer this agreement.
8. **Not-to-Exceed (NTE) Amount:** The maximum Federal funding amount available for reimbursement to the recipient.
9. **Office of Management and Budget (OMB):** All OMB Circulars and Standard Forms that apply to this agreement may be found on the OMB website at: www.whitehouse.gov/omb/grants/index.html.
10. **Program Officer (PO):** The PO is the BLM individual designated for the purpose of administering the technical aspect of an agreement. The PO will work closely with the Recipient's Project Officer (RPO) and is authorized to clarify technical requirements, review and approve work which is clearly within the scope of the work specified in an agreement. The PO will review FFRs, payments when the recipient is on agency review, and performance reports and recommend approval to the GMO. The PO is not authorized to issue changes or in any other way amend this agreement or obligate the

Government in any way. These actions can only be issued by the GMO with a written modification.

11. **Principal Investigator/Recipient's Program Manager (PI/RPM):** is the recipient's technical leader, designated by the recipient, to direct the project or activity being supported by the grant. The RPO is responsible and accountable to the recipient and BLM for the proper conduct of the project or activity.

E. TERM OF AGREEMENT: An agreement shall become effective on the date of signature of the BLM GMO and shall remain in effect until the expiration date indicated in the agreement, unless terminated in accordance with the provisions of 43 CFR, Subpart F, Section 12.961 and 2 CFR, Part 215.60 and 215.61.

F. FINANCIAL SUPPORT.

1. An agreement shall be funded each FY based on the availability of BLM funding. The recipient hereby releases the BLM from all liability due to failure of Congress to appropriate funds for the agreement.
2. Funds obligated but not expended in one FY can be carried forward and expended in the subsequent FY.
3. The estimated not-to-exceed (NTE) amount for which the BLM will be responsible under the terms of the agreement will be identified in any resultant agreement. The BLM shall not be obligated to pay for nor shall the recipient be obligated to perform any effort that will require the expenditure of Federal funds above the NTE amount.
4. Cost Sharing. Cost sharing for this agreement shall be in accordance with 43 CFR, Subpart C, Section 12.64 for State, local and Indian tribal governments or 2 CFR, Subpart C, Section 215.23 for institutions of higher education, hospitals, other non-profit and all other organizations.
5. Program Income. Program income generated for this agreement shall be in accordance with 43 CFR, Subpart C, Section 12.65 for State, local and Indian tribal governments or 2 CFR, Subpart C, Section 215.24 for institutions of higher education, hospitals, other non-profit and all other organizations

SECTION VII. AGENCY CONTACTS

Contractual Point of Contact:

Chelsea Huff

Contract Specialist

Bureau of Land Management

National Operations Center

Denver Federal Center, Bldg 50

Phone: 303-236-1166

Email: cahuff@blm.gov

Project Officer:

Matthew Bobo

Geospatial Section Chief (OC-534)

Bureau of Land Management

National Operations Center

Denver Federal Center, Bldg 50

Phone: 303-236-0721

Email: mbobo@blm.gov

SECTION VIII. ATTACHMENTS

1. BLM Detailed Budget Breakdown to be submitted with SF-424
2. BLM AIM Strategy Overview
3. Consistent Indicators and Methods and a Scalable Sample Design to Meet Assessment, Inventory, and Monitoring Information Needs Across Scales article, Gordon R. Toevs, Jason W. Karl, Jason J. Taylor, Carol S. Spurrier, Michael "Sherm" Karl, Matthew R. Bobo, Jeffrey E. Herrick
4. Multiscale Sagebrush Rangeland Habitat Modeling in Southwest Wyoming Open-File Report 2008-1027

-- END OF PROGRAM ANNOUNCEMENT --



BUREAU OF LAND MANAGEMENT

Detailed Budget Breakdown

(To be submitted in conjunction with the SF-424A Budget Information Form)



Agreement or Funding Opportunity No.: _____ Today's Date: _____

Recipient Name: _____

Project Title: _

Estimated Period of Performance (PoP): _____ to _____

Use this template to show details of the Cost Categories identified on your SF-424A Budget Information form.

Extend each budget item - Totals must correspond to their respective Cost Categories on your SF-424A.

Use each Section's Narrative box to explain the costs, use extra sheets if necessary.

A) PERSONNEL SALARIES & WAGES

A1) For Salaried Employees (for Hourly Wage Employees, see below)

Budgeted cost of salaries paid to recipient employees working directly on this agreement. Indicate Key Personnel with an asterisk (*) and list all Names and Titles, if known.

Name & Title/Position	Base Salary	Time Spent on this Project	Matching Funds (if applicable)	BLM Funds	Total Funding
<i>Example: James Smith, Executive Director*</i>	<i>\$60,000.00/Year</i>	<i>4 Months</i>	<i>\$0.00</i>	<i>\$20,000.00</i>	<i>\$20,000.00</i>
A1) SUBTOTAL - <u>Salaried</u> Employees			\$	\$	\$

Narrative:

A2) For Hourly Wage Employees

Budgeted cost of hourly wages paid to recipient employees working directly on this agreement. Indicate Key Personnel with an asterisk (*) and list all Names and Titles, if known.

Name & Title/Position	Base Wage	Time Spent on this Project	Matching Funds (if applicable)	BLM Funds	Total Funding

Example: <i>Melissa Doe, Secretary</i>	<i>\$15.00/Hour</i>	<i>100 Hours</i>	<i>\$1,000.00</i>	<i>\$500.00</i>	<i>\$1,500.00</i>
A2) SUBTOTAL - Hourly Wage Employees			\$	\$	\$
Total Personnel Costs: A1 + A2 (SF-424A Object Class Category 6a. Personnel)			\$	\$	\$
<u>Narrative:</u>					

B) EMPLOYEE FRINGE BENEFITS					
Budgeted cost of fringe benefits paid to recipient employees working on the agreement. Fringe Benefits may include such items as, FICA, Health Insurance, Workers' Compensation, Vacation, etc. List each employee or position and their respective rate.					
Name & Title/Position	Salary or Wage (Budgeted from Section A above)	Fringe Benefit Rate (%)	Matching Funds (if applicable)	BLM Funds	Total Funding
Example: <i>James Smith, Executive Director</i>	<i>\$20,000.00</i>	<i>30%</i>	<i>\$0.00</i>	<i>\$6,000.00</i>	<i>\$6,000.00</i>
Total Fringe Benefit Costs (SF-424A Object Class Category 6b. Fringe Benefits)			\$	\$	\$
<u>Narrative:</u>					

C) TRAVEL COSTS						
C1) Lodging & Per Diem Reimbursement						
Budgeted cost of lodging and per diem necessary to carry out agreement activities. Explain the details and purpose of the travel in the Narrative box below.						
Note: If your organization has no written travel policies, reimbursement for travel costs may not exceed Federal Government per diem rates. Current Federal rates may be found online at: http://www.gsa.gov/portal/category/21287 .						
Proposed Travel	No. of People	No. of Days	Cost Per Person Per Day	Matching Funds (if applicable)	BLM Funds	Total Funding

Narrative:

Total Travel Costs: C1+C2 (SF-424A Object Class Category 6c. Travel)

\$

\$

\$

D) EQUIPMENT COSTS

Budgeted cost of equipment (property with a useful life of more than one (1) year and costing \$5,000 or more per unit). Explain the details and the purpose of the equipment in the Narrative box below.

Item	Quantity	Cost per Unit	Matching Funds (if applicable)	BLM Funds	Total Funding
<i>Example: John Deere Compact Tractor</i>	<i>1</i>	<i>\$17,500.00</i>	<i>\$7,500.00</i>	<i>\$10,000.00</i>	<i>\$17,500.00</i>
Equipment Costs Total (SF-424A Object Class Category 6d. Equipment)			\$	\$	\$

Narrative:

E) SUPPLY COSTS

Budgeted cost of materials and supplies used directly on this project, such as ear plugs, safety glasses, work gloves, etc. Explain the details and purpose in the Narrative box below.

Item	Quantity	Cost per Unit	Matching Funds (if applicable)	BLM Funds	Total Funding
<i>Example: Work Gloves, Leather</i>	<i>6</i>	<i>\$10.00/Pair</i>	<i>\$60.00</i>	<i>\$0.00</i>	<i>\$60.00</i>
Supply Costs Total (SF-424A Object Class Category 6e. Supplies)			\$	\$	\$

Narrative:

F) CONTRACTED COSTS

Budgeted cost of contracted services and/or sub-recipient agreements. Provide names and explain the details and purpose of the costs in the Narrative box below.

Organization: Name/Type/Etc.	Cost	Matching Funds (if applicable)	BLM Funds	Total Funding
<i>Example: Ace Backhoe Service / Excavator</i>	\$2,500.00	\$0.00	\$2,500.00	\$2,500.00
Contractual Costs Total (SF-424A Object Class Category 6f. Contractual)		\$	\$	\$

Narrative:

G) CONSTRUCTION COSTS

The estimated cost of construction.

Contractor: Name/Type/Organization/Etc.	Cost	Matching Funds (if applicable)	BLM Funds	Total Funding
(NOT APPLICABLE)				
Contractual Costs Total (SF-424A Object Class Category 6g. Construction)		\$	\$	\$

Narrative:

H) OTHER COSTS

Budgeted costs that don't fit any other Object Class Category, such as duplicating and printing, postage and freight, leased equipment, etc. Explain the details and purpose in the Narrative box below.

Item	Cost	Matching Funds (if applicable)	BLM Funds	Total Funding

Example: Ace Equipment Rental (Post-Hole Digger, 4 Days)	\$25/Day	\$0.00	\$100.00	\$100.00
Other Costs Total (SF-424A Object Class Category 6h. Other)		\$	\$	\$
<u>Narrative:</u>				

I) TOTAL DIRECT COSTS The total of all direct budgeted costs applicable to this project.			
Direct Project Costs	Matching Funds (if applicable)	BLM Funds	Total Funding
Total Direct Costs (SF-424A Object Class Category 6i. Total, Sum of 6a.-6h.)	\$	\$	\$

J) INDIRECT COSTS Budgeted costs of an organization which can't be readily identified and charged to a particular project, such as building rent, utilities, miscellaneous office supplies, etc. Such costs are usually charged to the project as a percentage of some or all of the budgeted direct costs (items 6a.-6h. above). This percentage is called the Indirect Cost Rate. CHOOSE OPTION A OR B BELOW IF INDIRECT COSTS WILL BE CHARGED TO THIS PROJECT			
OPTION A - For Recipients with a Negotiated Indirect Cost Rate Agreement (NICRA) If your organization has a NICRA, submit a copy of it with your SF-424 Application for Federal Assistance packet.			
Federal Agency that issued NICRA:			
Approved Indirect Cost Rate (%):			
Base against which this rate will be applied: (Total Direct Costs, Total Labor Costs, etc.)			
Base amount for this Grant (\$):			
Rate to be used on this Grant (%):			
Option "A" Indirect Costs	Matching Funds (if applicable)	BLM Funds	Total Funding
Option "A" Indirect Costs (SF-424A Object Class Category 6j. Indirect Charges)	\$	\$	\$

OPTION B - For Recipients with no NICRA

Indirect Costs may not be charged to this project, unless:

- 1) An Indirect Cost Rate proposal is submitted to the Department of the Interior, Interior Business Center (DOI-IBC) [Indirect Cost Services Directorate \(ICSD\)](#) within 90 days after the effective date of the award. The Grants Management Officer may approve a provisional rate of up to 10% of total direct costs until the approved NICRA is established.

OR

- 2) Your organization is a small non-profit entity and the Grants Management Officer allows a non-negotiated rate of up to 10% of the total direct costs to be charged. In which case, your organization must provide documentation clearly showing what costs are included as indirect, what the rate will be applied to, and that it is reasonable.

Rate to be used on this Grant (%):			
Base against which this rate will be applied (\$): (Total Direct Costs, Total Labor			
Base amount for this Grant (\$):			
Option "B" Indirect Costs	Matching Funds (if applicable)	BLM Funds	Total Funding
Option "B" Indirect Costs (SF-424A Object Class Category 6j. Indirect Charges)	\$	\$	\$

K) TOTAL BUDGETED PROJECT COSTS

The total of Direct and Indirect Costs (Sum of 6i. & 6j.) budgeted for this project.

Total Project Costs	Matching Funds (if applicable)	BLM Funds	Total Funding
Total Costs (SF-424A Object Class Category 6k. TOTALS)	\$	\$	\$

Rev. Dec 2013