



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

UPDATED CLOSE DATE: 3 September 2014, 5:00 PM MST

Questions and Answers as of 2 September 2014:

1. **Q:** Is it possible to request an extension on this posting?
A: Yes, the revised date on the posting is 3 September 2014, 5:00pm MST. We recognize this is a short suspense date in requesting full proposals; unfortunately, this extension date is firm given our timelines at the end of the fiscal year. BLM will factor the short timelines into the evaluation of all proposals.
2. **Q:** Could you please clarify what "CESU partnering activities" means?
A: Please reference <http://www.cesu.psu.edu/> for information and eligibility on CESU partnering activities.
3. **Q:** Is this a one-time grant or something that will continue to be funded annually.
A: This particular posting is requesting proposals for a one-time award with an anticipated one year period of performance; however, it is possible that the term of the agreement could extend beyond one year. Please propose a period of performance commensurate with the proposed approach for this requirement considering the award will be a cooperative agreement with a ceiling of \$100,000.00.
4. **Q:** Are fellow federal agencies eligible to apply for this opportunity?
A: Federal agencies are not eligible to apply for this opportunity.
5. **Q:** It is mentioned on page 7 "Operational testing shall be conducted at a minimum of three BLM selected field sites". Where will these sites be?
A: The Cultural Site can be either Red Gulch Dinosaur Tracksite in Wyoming or the WW2-era Desert Training Center (DTC) between Needles and Palm Springs, CA. Red Gulch has been extensively documented using ground based photogrammetry and the DTC site will have one season of UAS imagery from a T-Hawk available. The volumetric sites will be near Canon City, CO, of which there are three sites from which proposers can select. The Grass/Shrub sites will be located in Southwestern Wyoming basing out of either Rock Springs or Green River.
6. **Q:** There appear to be two major sides to the research, that are inevitably linked to some degree, 1) testing of commercial platforms with specific technical requirements, and 2) researching camera station scaling as a GPS

independent means of scaling 3D models”. Is the BLM looking solely for proposals that address all of the tasks listed under “End of Fiscal Year 14, Fiscal Year 15”, or are open to consideration of proposals addressing less than all 6 tasks identified.

A: Proposals can address as many or as few of the six tasks as they like with the sole exception being that the BLM is looking for novel approaches to the camera station scaling question. Some form of operational testing needs to occur but if proposers would like to minimize the numbers this is an option.

7. **Q:** Please elaborate on the statement from Section II (C) on page 8 that says “The ceiling for each award is \$100,000.00, of which certain phases (tasks) could potentially be funded into the performance of the agreement, depending on availability and need.”

A: ***UPDATE*** Current available Government funding is \$200,000.00. We anticipate awarding one to two cooperative agreements, where each agreement would be capped at \$100,000.00.

8. **Q:** If large areas of currently FAA-authorized land exist, can this area be utilized for the validation flights?

A: Recipients can do as many test flights as they like to validate their camera station scaling solution within their authorized flight area. However, for the operational tests for the cultural, volumetric, and grass/shrub projects we do need them to go to the BLM areas because we have existing data or will have the data for these locations.

9. **Q:** There are three sites identified that are fair distances from each other; Palm Springs, CA, Canon City, CO, and Wyoming. With two days travel and three days onsite, how closely timed do the trips need to be to each other?

A: Proposers do not have to travel all these sites back-to-back-to-back. If they need rest time they can propose this without problem. We actually would prefer that the trips be spaced out over time. For instance, the California trip can happen in early spring, the Canon City trip can occur at just about any time, and the Wyoming trip could be during the summer. Please be aware that while it is ideal that each potential recipient propose on all the sites and locations outlined, it is not required.

10. **Q:** Is Alaska an acceptable site location for a test location?

A: Yes, Alaska would be a suitable alternate location for the operational testing sites with the exception of the Grass/Shrub site where BLM is interested in imaging within sagebrush communities.

11. **Q:** Will it be necessary to obtain four different Certificates of Authority (COA) given the various test site locations?

A: Yes, four COAs will be required.

12. **Q:** What is the intent of the data that is to be developed? Will it be produced commercially? What will be the recipient’s right to the data?

A: The Government is interested in the ability to utilize a successful UAS design to satisfy the requirements identified in the funding opportunity. In accordance with 2 CFR 215, the Government will retain Government purpose rights (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) to all intellectual property produced as a result of the subject cooperative agreement(s).

13. **Q:** With reference to flight performance, is it critical that the performing UAS reach a 40 minute standard?

A: The BLM would like to work towards the 40 minute performance point, but won’t eliminate proposals for not having this marker. The BLM is open to alternate solutions.

14. **Q:** When shall initial testing begin?

A: The BLM is open to various testing start times, as proposed by the potential recipient. Ideally the desert project should be conducted before the heat of the summer, the NPR-A project will be timed with the field season which is approximately 10 days in middle to late August, the volumetric project can happen any time there is no snow, and the Grass/Shrub vegetation project should happen during the summer field season when ground data will be collected as well.

15. **Q:** What are the primary packages the BLM uses?

A: The BLM uses PhotoScan (Developed by AgiSoft) and AdamTech (Developed by 3DM). It would be ideal to propose around these packages, but not necessary to be determined a successful proposal submission. Software packages should be proposed that will facilitate the camera station scaling of projects.

16. Q: What is the BLM expectation for injection of control? What is the post-processing step with targets?

A: Photo identifiable control should be used primarily for validation, sensitivity purposes associated with all BLM project areas. Control can take various forms including survey-grade GPS photo targets, precise scale bars (which the BLM can provide), or known distance between two points on the ground. Specifically for the Grass/Shrub project and the NPR-A, multiple plots locations will be imaged and not all plots have to have control (as this is the point of the camera station scaling).

17. Q: Who will provide the control points?

A: For the NPR-A project and three projects in the lower 48 used for operational testing, the BLM will collect any needed control points. Any control needed to validate the system before the direct the BLM projects are performed should be collected by the potential recipient.

18. Q: Is it possible to utilize one camera rather than two?

A: Yes, as long the proposal includes a way to do the camera station scaling independent of GPS alone then one or two cameras can be proposed.

19. Q: In your R&D so far, have you developed standards of any kind for minimum acres imaged per mission and minimum/maximum GSD (ground sampling distance) sizes that would be ideal for the three mission types you have in mind?

A: We have found with our current UAS fleet (Raven-A and T-Hawk) that we can image approximately one section in a day. We have not set any acreage standards at this point. For most of our UAS missions to date, we have generally been targeting sub 3cm GSDs for many activities but this has mainly been due to lack of quality cameras. For species identification for grasses and forbs in typical rangeland communities in the west, we would like to target sub 5mm if possible. That all said, we are looking to this project to identify appropriate resolutions given the proposed systems.

20. A: Could you please clarify camera station scaling verses stereo capture and the relation to each other?

Q: Under a two camera design for scaling, the two cameras are not intended to capture stereo rather all the second camera really is needed for is to provide a precise scaling mechanism for the photogrammetric models that is independent of GPS. The UAS still has to be capable of capturing stereo imagery in subsequent triggering under a two camera design. In order for two camera scaling to work, the distance between the two cameras has to be very precisely measured and triggering needs to be simultaneous. BLM's concept for measuring the distance between cameras is through a photogrammetric process. There are possibilities for single camera station scaling using an IMU/GPS configuration or other scenarios that proposers can propose.

21. Q: Do we have to meet the 24 MP camera resolution?

A: It is BLM's preference to have digital cameras capable of capturing 24 MP resolution or greater, but of greater importance is the camera used needs to be suitable for photogrammetric processing. Digital cameras with rolling shutters for instance are not suitable to BLM's needs. The 24 mp number is derived from BLM's needs for vegetation monitoring in the mm/cm range.

Note: Please be aware that the evaluation team selected to review the proposals submitted in response to this announcement will include a subject expert from the United States Geological Survey partnering team.

