

BEACON FOR ASSURED LANDING LOCATION

FREQUENTLY ASKED QUESTIONS

How does the solution (beacon) need to interface with the drone?

The beacon will act as a signaling device to allow the drone to determine where to land. We prefer solutions that minimize SWaP-C (size, weight, power, and cost) or use hardware, sensors, or radios that are commonly present on UAS to the extent possible. If hardware or software is required on the UAS for your solution, you should describe how the hardware or software will integrate with common UAS controllers and software to allow the drone to determine the location of the beacon.

Who is responsible for programming the drone to interpret the solution (beacon) signal?

The solution should include any hardware and software programming on the drone that allows the drone to interpret the beacon's signal and determine the landing location relative to the drone's position. The proposer is not responsible for programming landing patterns, obstacle avoidance, or other aspects of the drone's flight beyond determining the location of the beacon.

At what distance should the solution (beacon) be detectable by the drone?

This project does not have a minimum distance requirement for the signal to be detectable by the drone, but farther is better. Proposers should show us what is possible to help inform future requirements. Assume that the drone can use its internal navigation to fly within some distance (determined by the beacon's capabilities) of the landing location and then use the beacon for precise positioning and landing. Greater distance capability of the beacon will allow the drone to operate in a more positioning-denied environment.

Should the solution (beacon) be lightweight and able to be carried by a Soldier?

Yes! The smaller the beacon the better as long as it can maintain the necessary signal strength.

Does the solution (beacon) have to act as a beacon for multiple drones simultaneously?

Ideally, one beacon will be used to summon one drone at a time. However, stakeholders would like to drop more than one beacon at a time with variations in their signals to allow drones to differentiate among beacons and travel to the correct beacon.

What size drones are relevant to the project?

Classes I, II, III, IV, and V. The endstate goal of this project is to utilize these beacons across the broad spectrum of military drones. Awardee will demonstrate using their own drone(s).

Does the solution need to function day and night and all-weather conditions?

Yes. Companies should assume that the environment in which these beacons will be used is contested. That means GPS denied, buildings, vegetation, inclement weather, and low to zero visibility due to terrain conditions (i.e., dust, etc.). The solution should adhere to standard environment requirements in regards to operating temperatures, moisture, etc.

Should the BALL signals be invisible to regular cameras/night vision devices?

Solutions will be evaluated in part on their ability to minimize detection by an adversary while maximizing the range and reliability of detection by the intended drone.

What drone frequency spectrum should the beacon work for? Can you give an RF frequency range the drones are expected to work in?

For this project, there is not a predetermined RF signal. AAL will leave that determination to industry for their proposal. There is also no requirement for the solution to use radio frequency, but it is one valid approach.

Is this solicitation looking for only RF interaction between beacon and UAS, would a line of sight solution be viable?

AAL is not directing a single solution. Proposers should consider the trade-offs among solutions such as RF, IR, visual, or others and determine the best solution for their proposal.

With regards to low probability of detection, is there an expectation for a certain level or type of encryption?

Not at this time.

What is the typical size of the landing platform? What level of accuracy is expected?

Landing platform size can vary. Solutions should pinpoint landing sites, static or in-motion, with one meter or better precision. Possible landing platforms include crewed or autonomous ground vehicles and watercraft.

Should the beacon be attritable or designed to be reused?

The solution should ideally be able to be used more than once but cost effective enough to be replaced if lost or damaged.

Is there any interest in the ability for the beacon to be dropped by a platform or conduct self-delivery/movement?

Not for the scope of this solicitation.

QUESTIONS ABOUT SUBMISSION & PROCESS

Mid-point and final demo UAS requirements?

Companies should provide a UAS and, if necessary, all hardware and software needed to demonstrate their solution, but the UAS is not a deliverable to the government at the end of the period of performance. Proposers should describe how their solution would be adapted to other UAS in the future. The mid and final demonstration will be worked through the topic program manager to secure landing platform(s) (land and/or water) and identify the number of test flights to be conducted.

How many companies will be awarded for this solicitation?

One company will be awarded for this Direct to Phase II SBIR project.

Will you accept bids from collaborators (multiple companies)?

Yes, but more than 50 percent of the project must be completed by the main awardee, while the remaining percentage can be completed by subcontractors.

Are there any restrictions on using overseas partners for solution development?

No, but the small business (awardee) must be primarily U.S. owned. This is defined as having at least 51% of its ownership by U.S. citizens and/or permanent resident aliens. For both Phase I and Phase II, the R/R&D work must be performed in the United States. However, based on a rare and unique circumstance, agencies may approve a particular portion of the R/R&D work to be performed or obtained in a country outside of the United States, for example, if a supply or material or other item or project requirement is not available in the United States. The Funding Agreement officer must approve each such specific condition in writing.

Is this solicitation interested in developing new tech or evaluating existing tech?

Both new technologies and existing ones will be considered for this solicitation. Companies should explain how that tech is modified to accomplish this solution.

What would be Phase I equivalent work for teams to qualify for Direct to Phase II? Would something established via simulation be sufficient?

Equivalent Phase I work should establish feasibility of the proposed Direct to Phase II effort. Feasibility may be established by simulation, design, analysis, related prior work, or other methods that support feasibility of the proposed approach.

Are small startups (<10 employees) meeting the SBIR requirements encouraged to apply?

Yes, any company that meets SBIR requirements is welcome to apply.

What is the waiver process if VCs have majority ownership of our company?

No waiver requirements but you must check verification of eligibility. See below details.

Majority Ownership in Part by Multiple Venture Capital, Hedge Fund, and Private Equity Firms


Under the Department of the Army's SBIR Program, proposing SBCs that are owned in majority part by multiple venture capital operating companies (VCOs), hedge funds (HF), or private equity funds (PEF) are eligible to submit applications or receive awards. Reference may be made to the DOD SBIR 25.4 Program BAA, including revisions/amendments, as well as 13 CFR 121.702, regarding eligibility standards, to include ownership and control requirements, applicable to the SBIR program.

All applicants that are majority-owned by multiple VCOC, HF or PEF, and are submitting a proposal to an Army Topic, shall complete the certification at Verification of Eligibility of Small Business Joint Ventures, prior to submitting an application/proposal and must include the certification with their submission.

Venture capital operating companies, hedge funds and private equity firms are allowed to hold minority shares of SBIR/STTR awardee so long as they do not have control of the awardee company and so long as their affiliation with the awardee, if any, does not put the awardee firm over the size limit. The exception to this is if the VC is itself more than 50% directly owned and controlled by one or more individuals who are citizens or permanent resident aliens of the United States. In such a case, that VC is allowed to have majority ownership and control of the awardee. In that case, the VC and the awardee, and all other affiliates, must have a total of 500 employees or less. For SBIR awards only, some agencies may make a portion of their awards to companies that are majority-owned by venture capital operating companies, hedge funds, or private equity firms. This is allowed only if no one venture capital operating company, hedge fund, or private equity firm holds more than 50% for the stock.

WEBINAR
**BALL: BEACON FOR ASSURED
LANDING LOCATION**

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AGENDA

The Army is on a mission to update its forces and equipment with improved capabilities. So we're inviting the country's greatest innovators to take some of our biggest modernization challenges and propose new ways to solve them.

1 AAL INTRODUCTION

2 TOPIC DETAILS

3 SPARTN OVERVIEW & TIMELINE

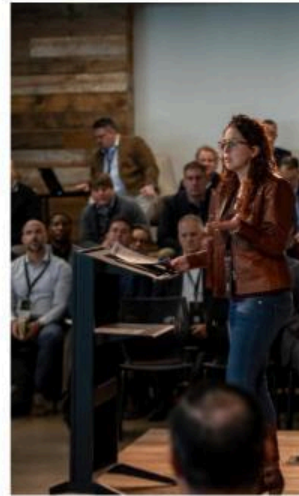
4 WHAT'S NEXT?

5 Q&A

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AAL is AFC's innovation organization



We Energize

the civil innovation
base to solve Army
problems



We Experiment

with process and share
lessons learned and
best practices



We Accelerate

the Army's adoption
and integration of
technology

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Solution Development Partners



Units and Soldiers

Iterative feedback for companies, the Army.
Sourcing problems and ideas for solutions.



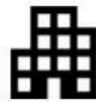
Senior Leaders

Priority problems



Industry

Making the Army a preferred partner for the civil
innovation base



Labs and Centers

Continued development and integration



PMS, PEOS

Solving current gaps and hard problems

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PROJECT STAKEHOLDERS

These are the teams within the Army who identified this problem, are seeking solutions, and will monitor awardees' progress.



U.S. Army Aviation
Center of Excellence



DEVCOM Command, Control,
Communications, Computers,
Cyber, Intelligence, Surveillance,
and Reconnaissance (C5ISR)
Center



PEO Aviation



Contested Logistics
Cross Functional Team



Defense Advanced
Research Projects Agency
(DARPA)

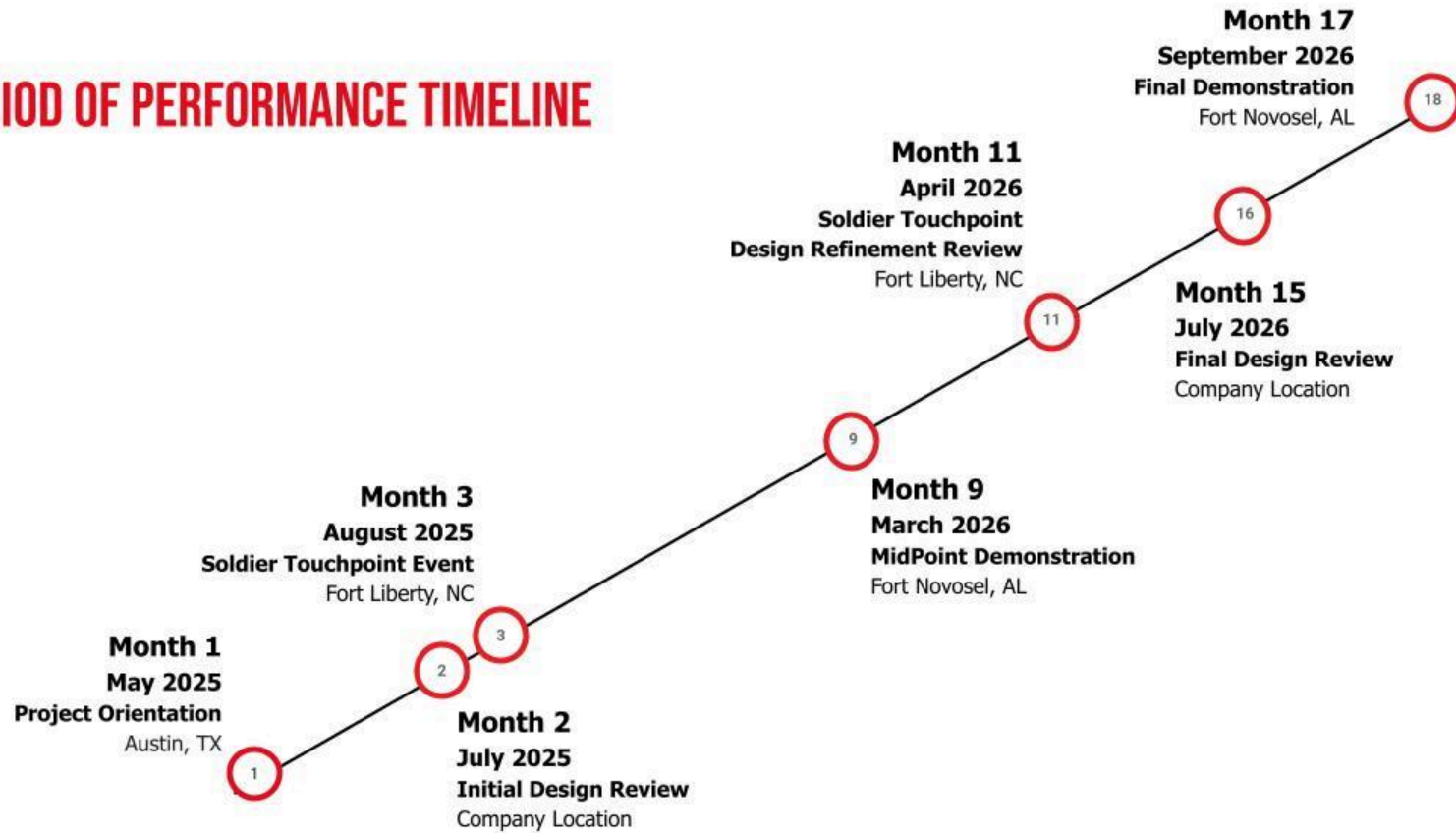


Combined Arms Support
Command (CASCOM)

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PERIOD OF PERFORMANCE TIMELINE



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ASSURED LANDING LOCATION SOLUTIONS

The Army seeks an innovative system to direct aerial vehicles to exact landing zones aboard a vehicle in motion or an identified location within urban or austere environments. The system would employ low-detection signals to direct drones to the designated landing areas without the need for a human in the loop. This technology should eliminate the likelihood of diversions and/or aborted landings.



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THE CHALLENGE

Current Army missions conducting drone-to-drone and drone-to-surface landings require a human to manually perform all operations, including environment analysis, flight decisions, and safe landing protocols. This process can be unreliable due to complications in contested environments such as faulty communication links between the drone and operator, adversarial signal blocking, or other hazardous engagements.



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THE OPPORTUNITY

Develop, demonstrate, and deliver solutions that increase the precision of automated drone landings onto unmanned platforms in highly congested or adverse environments (such as dense foliage, close buildings, or multiple aerial operations) with little or no input from a human operator.

WE ARE INTERESTED IN SOLUTIONS THAT:

- Pinpoint and navigate UAS to the safest landing sites, static, and in-motion, +/- 1 meter precision
- Support multiple landing locations
- Be capable of remote activation/deactivation
- Adapt effectively to changing, unpredictable, and contested conditions
- Function with little or no direct communication from a drone operator
- Feature learning algorithms that adapt to various environments and relative motion
- Open integration with current and future drone platforms

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SPARTN SBIR & TIMELINE



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BALL SPARTN SBIR PHASES EXPLAINED

Special Program Awards for Required Technology Needs (SPARTN) blends government and industry best practices to introduce a new whole-of-Army, collaborative approach to solution innovation. The result is a way to solve Army problems faster and to accelerate the process by which successful technology is purchased by the Army.

PHASE I

Phase I requirements include designing a proof-of-concept **solution that increases the precision of automated drone landings capable of landing onto either moving or non-moving unmanned platforms, or the ground and should be able to function in highly congested or adverse environments with little or no input from a human operator.** The solution will be evaluated based on a holistic view of factors including cost of development, its adaptability based on individual Soldiers' needs or scenarios, its ability to integrate designated Army open standards, or any additional factors proposed.

PHASE II

In Phase II performers refine the preliminary design developed from Phase I equivalent and create a Technology Readiness Level (TRL) 6 prototype/model/system. Phase II deliverables include the TRL 6 system and operational demonstration for performance evaluation. Additionally, the performer will deliver monthly progress reports detailing design and performance analysis. At the end of the period of performance, the performer will submit a final technical report.

***ONLY DIRECT TO PHASE II PROPOSALS
WILL BE ACCEPTED FOR THIS PROJECT***

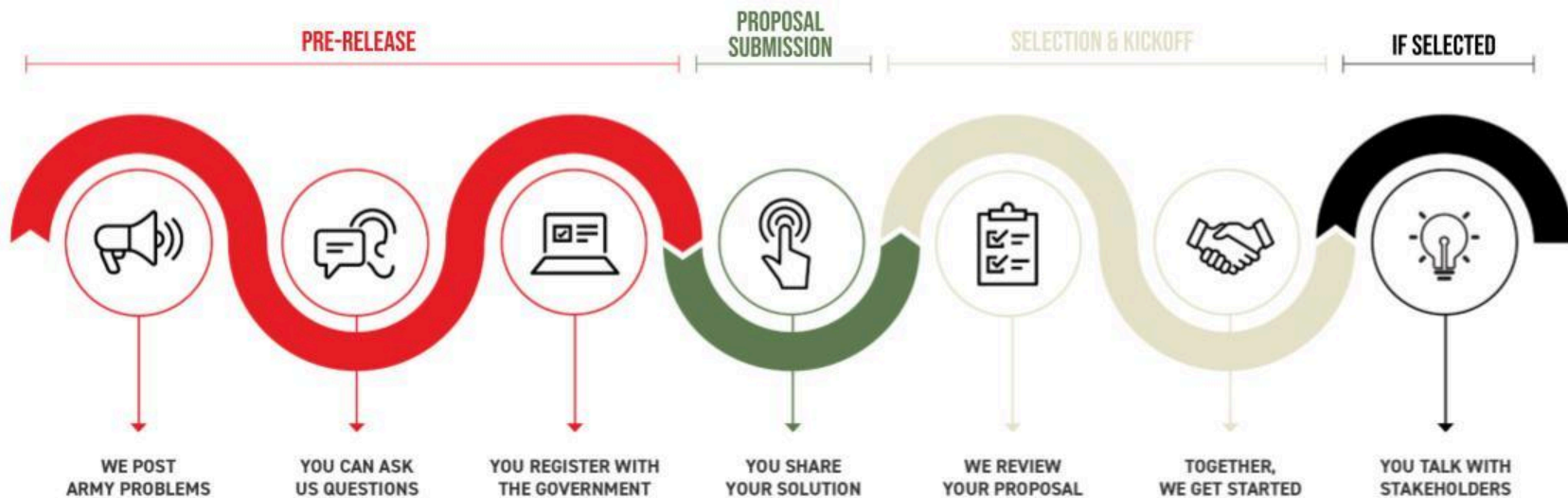
PHASE III

The objective of Phase III, where appropriate, is for businesses to pursue commercialization. Companies may develop and demonstrate a manufacturing-ready product design capable of integration with the existing or future systems. Low-rate production and laboratory or operational testing will occur as required. Deliverables include system-level integration, technical data package, installation documentation, and a system-level prototype for demonstration and government-sponsored testing.

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SOLICITATION TIMELINE



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AWARD DETAILS

FUNDING

Anticipate **one** award of up to **\$1,600,000** each for an **18-month** period of performance

SOLICITATION MILESTONES

Pre-Release Period:

December 4, 2024 – January 7, 2025

Proposal Submission Period:

January 8 – February 5, 2025

**Deadline for receipt of proposals
no later than 12:00PM ET**

PERIOD OF PERFORMANCE

Contract Start:

May 19, 2025

Contract End:

October 19, 2026

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WHAT'S NEXT?



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APPLICATION INFORMATION AND RESOURCES

- Take advantage of this “pre-solicitation” time to understand the topic and get ready to apply
- Find information and resources on the project page: aal.mil/ball

HOW TO APPLY

- Submit written questions via the DSIP Topic Q&A module through January 22 at 12:00PM ET
- Submit your application on the Defense SBIR/STTR Innovation Portal (DSIP) between January 8 and February 5 at 12:00PM ET

RESOURCES

- Learn more about SPARTN and access general resources at the AAL SPARTN page: aal.mil/spartn
- Learn more about the SBIR process with these valuable tutorials: sbir.gov/tutorials
- Complete your SAM Registration and receive a Unique Entity ID (UEI): sam.gov
- Check out the SBIR Phase I Guide: aal.mil/spartn

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THANK YOU!

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