Program Solicitation

Perrseus

Multi X Office

DARPA-PS-26-127

July 15, 2026

OVERVIEW INFORMATION:

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Multi X Office (MXO)
- **Funding Opportunity Title:** Perrseus
- **Solicitation Type:** Initial solicitation
- **Funding Opportunity Number:** DARPA-PS-26-127
- **Assistance Listing Number:** Not applicable
- **Dates/Time:** All Times are Eastern Time Zone (ET)
  - Posting Date: July 15, 2026
  - Proposers Day: July 17, 2026
  - Abstract Due Date: August 3, 2026, at 1:00 p.m.
  - Intent to Propose Due Date: September 1, 2026, at 4:00 p.m.
  - Question and Answer Deadline: September 16, 2026, at 4:00 p.m.
  - Proposal Due Date: September 23, 2026, at 1:00 p.m.
  - Anticipated In-Person Oral Presentation Dates: September 30, 2026, to October 8, 2026
  - Estimated Period of Performance start: January 15, 2027
- **Anticipated Individual Awards:** Multiple awards are anticipated
- **Types of Instruments That May Be Awarded:** Other Transaction for Prototype Agreements under 10 U.S.C. 4022
- **NAICS Code:** 541715
- **Cybersecurity Maturity Model Certification (CMMC) Required Level:** Level 2 (Self-Assessment)
- **Agency Contact:** The PS Coordinator for this effort may be reached at:

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Program Solicitation
DARPA-PS-26-127

Perrseus
Defense Advanced Research Projects Agency (DARPA)
Multi X Office (MXO)

Section I: Funding Opportunity Description

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative proposals that enable compact cold-atom devices and environmentally-decoupled ultra-high Q microelectromechanical (MEMS) and photonics devices through microscale ultra-high-vacuum systems (μUHV).

The Perrseus program will develop architectures and processes for μUHV ($<10^{-10}$ mbar) packages and demonstrate this architecture through the integration of pressure sensors (10^{-3} mbar to $<10^{-10}$ mbar) consisting of cold-atom neutral/ion quantum sensors, MEMS, and photonic sensors. While there has been progress in the development of compact ultra-high vacuum systems, these are typically hand-built, one-off demonstrations incompatible with volume manufacturing or low Size, Weight, and Power (SWaP) devices. Perrseus will reinvent the underlying manufacturing processes to overcome these challenges by considering competing requirements and potential interplay between the housing materials, bonding process, electrical/optical interconnects, atomic sources, active/passive pumps, and measurement techniques. Critical to housing development will be ensuring compatibility across atomic, MEMS, and photonic tooling and materials.

A. Background

The ability to produce compact, scalable, advanced quantum sensors is ultimately limited by the ability to manufacture high performance vacuum cells. Indeed, the vacuum cell is the defining performance feature for atomic devices. Issues with the micro-vacuum cell lead to long term drift in clocks, couple environmental noise to light through optical windows, and limit the available operating temperatures of these sensors. Simultaneously, high performance MEMS and photonic devices have developed beyond available microscale vacuum packaging of $\sim 10^{-3}$ mbar. Therefore, the development of manufacturable μUHV packages[1] that are orders of magnitude superior to the state of the art (SoA) will enable not only the proliferation of advanced quantum sensors but also high-performance MEMS and photonic systems.

In ultracold atom quantum sensors, the vacuum level limits the lifetime of the trapped neutral atoms and ions and, therefore, the ultimate performance due to collisions with background atoms and molecules. Ultracold atoms need at least a pressure of 10^{-8} mbar to trap and cool with nontrivial lifetimes and a pressure of $<10^{-10}$ mbar for high performance quantum sensing protocols.[2] Similarly, high-performance MEMS sensors require HV-UHV to remove viscous damping mechanisms and maximize the obtainable quality factor (Q). The vacuum level also dramatically improves the thermal isolation of resonant structures and reduces inherent temperature dependencies. Over the last few decades, the performance of these sensors

[1] Rushton, J. A., Matthew Aldous, and Matthew D. Himsworth. "Contributed review: The feasibility of a fully miniaturized magneto-optical trap for portable ultracold quantum technology." *Review of Scientific Instruments* 85.12 (2014).

[2] Barker, Daniel S., et al. "Precise quantum measurement of vacuum with cold atoms." *Review of Scientific Instruments* 93.12 (2022).

has improved dramatically. For example, optomechanical, levitated, nanomechanical, and photonic devices have demonstrated Q factors >10^8, but realizing this Q factor requires ultra-high vacuum packaging.[3,4]

The achievable vacuum level and lifetime of a system are dependent on the inherent leak rates (due to permeable materials, leaks through bonding interfaces, leaks through interconnects, and virtual leaks through outgassing from the surface), the pump rates (active and passive pumps), and the capacity/lifetime of the pumps.

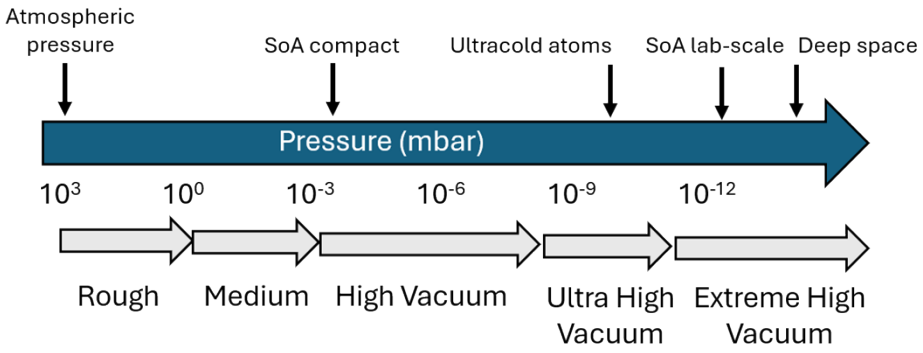

Figure 1. Overview of relevant pressure scale.

In lab-scale vacuum systems today, there are many standard tools and processes that enable extreme high vacuum (XHV) performance. Large stainless steel vacuum chambers with copper gasket sealing techniques and integrated interconnects are common approaches for controlling packaged devices. Standardized cleaning protocols and long bakeouts at high temperatures reduce outgassing rates to further reduce effective leaks. A series of pumps from passive getters to active pumps (roughing, turbo, ion, cryo-pump, etc.) enable XHV performance maintained over years.

However, these methods for vacuum systems do not scale down to microscale systems, and modified techniques and processes need to be developed. Today, compact, wafer scale vacuum enclosures (<5 mL) can only reach rough vacuum of ~10^{-3} mbar, orders of magnitude worse than the base pressure of the sealing tools typically used (~ 10^{-6} mbar)[5].

In addition, interconnects, either electrical or optical, are required to communicate with packaged devices. The recent introduction of optical interconnects for microscale vacuum packages at wafer scale for MEMS[6] and chip-scale for atomic device[7] has created new opportunities for advanced microscale vacuum packaging. However, all demonstrated electrical and photonic interconnects are potential sources of leaks. This can be due to the properties and fabrication/deposition methods of the materials themselves (such as

[3] Dania, Lorenzo, et al. "Ultrahigh quality factor of a levitated nanomechanical oscillator." Physical Review Letters 132.13 (2024): 133602.

[4] Engelsen, Nils Johan, Alberto Beccari, and Tobias Jan Kippenberg. "Ultrahigh-quality-factor micro-and nanomechanical resonators using dissipation dilution." Nature Nanotechnology 19.6 (2024): 725-737.

[5] M. Hasegawa *et al.*, "Effects of getters on hermetically sealed micromachined cesium–neon cells for atomic clocks," *J. Micromech. Microeng.*, vol. 23, no. 5, p. 055022, Apr. 2013, doi: 10.1088/0960-1317/23/5/055022.

[6] G. Jo *et al.*, "Wafer-level hermetically sealed silicon photonic MEMS," *Photon. Res., PRJ*, vol. 10, no. 2, pp. A14–A21, Feb. 2022, doi: 10.1364/PRJ.441215.

[7] R. Shrestha *et al.*, "Enabling atom-clad waveguide operation in a microfabricated alkali vapor-photonic integrated circuit," Dec. 22, 2025, *arXiv*: arXiv:2512.19852. doi: 10.48550/arXiv.2512.19852.

the photonic wire cladding or waveguide material, sputtering, or electrodeposited/plated metal). The leak rates of fabricated device interconnects have not been measured.

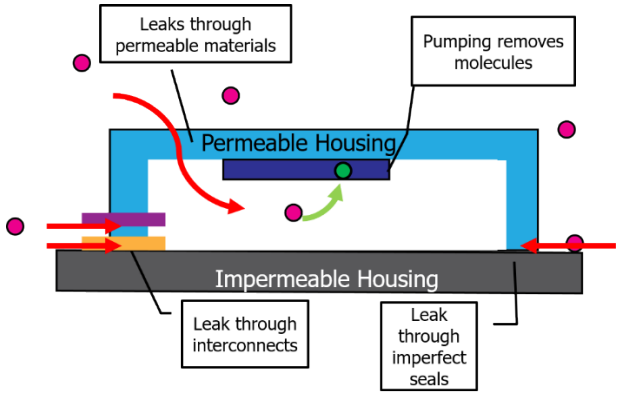

Figure 2. Depiction of challenges faced in microscale, manufacturable vacuum development today.

Of particular concern for housing and interconnects is the ubiquitous use of SiO_2. Although this enables optical access, SiO_2 is permeable, which eventually leads to equilibration of the vacuum system pressure to that of He/Ar in the atmosphere. Impermeable materials or quasi-impermeable coatings (such as Al_2O_3) have been shown to improve performance but a robust manufacturable method, with interconnects, has not been developed.

Finally, pumps (either active and/or passive) with sufficient pumping ***capacity/lifetime*** for long-duration sensing at µUHV have not been demonstrated. Conventional chemical pumps have not been shown to pump all gases (e.g., CH_4). Not only this, but these pumps are known to produce CH_4[8] with carbon contamination, a significant concern if any residual photoresist or other material enters the process. Microscale ion pumps for quantum sensors, while demonstrated, have not shown the ability to pump noble gases, have not been miniaturized or manufactured at scale, are known to degrade with time, and have not been integrated into vacuum cells. Thus, the applicability to MEMS, photonics and quantum sensors is unclear.

To meet the needs of the Perrseus program, proposers will need to break through these limitations.

B. Program Description

Perrseus will develop µUHV packages that simultaneously meet the needs of the MEMS, photonics, and quantum sensing communities. To achieve the required improvement from 10^{-3} mbar to $< 10^{-10}$ mbar in a 5 mL package, performers will have to fundamentally rethink the vacuum packaging architecture, the manufacturing process, the vacuum system components, and prototype new process workflows that simplify fabrication and maintain compatibility across MEMS, photonics, and quantum sensing.

Compatibility is defined as being able to operate MEMS, photonics, and quantum sensors in the final µUHV package. Therefore, performers will need to incorporate photonic and electrical interconnects into their vacuum package to support a variety of high-performance sensors. It is anticipated that these interconnects will be used to drive and read out integrated pressure sensors. This sensing modality can be used to characterize process improvements and demonstrate the capacity of the system to act as a high-performance

[8] B. Erjavec and J. Setina, "Investigations of a method for determining pumping speed and sorption capacity of nonevaporable getters based on in situ calibrated throughput," *Journal of Vacuum Science & Technology A*, vol. 29, no. 5, p. 051602, Aug. 2011, doi: 10.1116/1.3626535.

pressure sensor. It is anticipated that no single sensor will be sufficient to measure pressure across the range of 10^{-3} mbar to $<10^{-10}$ mbar. Therefore, performers will need to develop a suite of pressure sensors.

Successful μUHV approaches are expected to require a spectrum of interrelated solutions. Performers should rigorously explore the design space in their proposals, accounting for sealing pressure, getter capacity, pump operating pressures, pump lifetimes, low-leak architecture, sensor integration, and pressure sensor range.

Methods to make the vacuum system could include:

- Methods to reduce He permeation
- Methods to create local pressure for seals across normally incompatible materials
- Architectures that are insensitive to leaks through cascaded vacuums
- Utilization of electrical and photonic interconnects that do not introduce boundaries and minimize leaks
- Make-and-break seals to change the sealing conditions when different elements are brought together
- MEMS scale pinch off
- Development of required tooling for UHV bonding

Methods to maintain the vacuum system could include:

- High-capacity getters based on atomic sources
- High-capacity getters where the structure is the getter
- Reliable ion pumps: especially magnetless

Methods to measure the vacuum system could include:

- Cold atom pressure sensors
- High Q MEMS devices
- Micro-vacuum electronics
- High Q photonic devices

The above are only examples of possible solutions and neither inclusive nor prescriptive of all methods to achieve the Perrseus program goals. It is anticipated that successful proposers will need to bring together team members with expertise in MEMS, photonics, atomic physics, fabrication, processed development, and commercialization to meet the goals of the program.

Proposals should detail how the proposed innovations will quantitatively impact each source of gas leakage and gas pumping, paying particular attention to noble gas permeation and removal. If custom tools are prototyped as part of this program, proposers should attempt to identify what tools are needed in the process, the timeline to build these tools, and clearly identify how these tools simplify their process. Any tools developed are expected to be supplemental and overcome gaps in commercial tooling—not replace commercial solutions with incremental upgrades.

C. Program Structure

Perrseus is structured as a 42-month program divided into two technical phases, preceded by a security preparation phase (if applicable):

- **Phase 0: Security Preparation** (Up to 3 months, Pre-Award, At-Risk, if applicable)
- **Phase 1: Process Development** (24 months, Base Period)
- **Phase 2: µUHV Demonstration** (18 months, Option Period)

Phase 0: Security Preparation (Pre-Award Performance Period)

As outlined in Section IV, paragraph C, this program requires the handling of CUI, and performers must achieve CMMC Level 2 (Self-Assessment) as a condition of performing technical tasks. See Section IV, Paragraph C for additional details on the CMMC requirements for this program.

Phase 0 is a preparatory phase focused on cybersecurity and administrative readiness prior to technical work, which serves as an "Alternate Compliance Pathway" for proposers who, at the time of proposal submission, do not possess the required CMMC Level. Such proposers should plan to complete all Phase 0 deliverables within the 3-month window following notification of contract negotiation.

Note: Proposers demonstrating that required CMMC Level 2 security controls are already implemented at the time of proposal may, at the Government's discretion, bypass Phase 0 and proceed directly to Phase 1. Phase 1 work cannot begin until contract signature.

Phase 0 will occur prior to the commencement of Phase 1 technical work and provides a 3-month security set-up period for proposers utilizing the "Alternative Compliance Pathway" to address long-lead cybersecurity requirements.

To ensure that the Perrseus core program work is undertaken without delay, DARPA is providing Phase 0 as an opportunity for applicable proposers to work under a pre-contract cost agreement prior to award. This would be considered an at-risk period, and costs incurred during this period will only be reimbursed if the performer successfully completes Phase 0 and if award of a resultant OT for Prototypes is executed. If the performer fails to achieve this within the 3-month Phase 0 period, the Government may elect to terminate the agreement and not proceed to Phase 1.

Phase 1: Process Development (24 months)

Phase 1 will focus on demonstrating key elements for the process development of a µUHV system. In this phase the performers must demonstrate a methodology for measuring the pressure over the entire operational range. This is to ensure that a design/test feedback loop can be established and challenges with achieving the desired vacuum, leak rates, pump rates, or capacity are adequately addressed.

In addition, the outline for a process traveler must be started. The process traveler should be a verifiable record of how the entire process was performed, and a Government Independent Verification and Validation (IV&V) team should be able to repeat the process if they had access to the required tools. This preliminary traveler is expected to be updated as the manufacturing process is optimized and additional components to the vacuum system integrated. It is expected the performers will utilize their entire team to validate and de-risk the underlying elements of the system architecture while ensuring each element is compatible with another. It is not sufficient to analyze, characterize, and develop each key component (housing, bond, pump, interconnects, gauges, etc.) "in a vacuum" without considering the impacts on the other components. Successful proposers will identify key interplays and tensions between all the underlying components which will be demonstrated throughout Phase 1.

Given the long lead time typical of the expected tools needed, proposers should plan accordingly to de-risk key tool-based risks early. Performers are expected to identify and begin procurement, modification ("hot-rodding"), or establish access to any essential tools needed to carry out the developed process. It is expected that unconventional materials and atomic sources for quantum sensors will be needed for µUHV systems with cold-atom capabilities for pressure sensing at $<10^{-10}$ mbar. An essential part of the de-risking is identifying tools and processes that are compatible with all the materials needed for fabrication of the expected high-performance sensors.

Phase 2: µUHV Demonstration (18 months)

Phase 2 will focus on the demonstration of a µUHV system at manufacturing scale and demonstrations of the µUHV system lifetime. At the end of the phase, a final process traveler must be delivered to the Government. This traveler must include all the steps and tests required to manufacture the vacuum system that achieves the final program metrics. The performer must deliver 10 µUHV packages to demonstrate the repeatability of the developed process and to ensure proper statistical power of the vacuum measurements to validate the process.

During Phase 2 of the program, engagement with potential commercial transition partners is expected to validate the path toward manufacturing at scale and implementation of the identified process. This may include development of commercialization plans, licensing, or exploration of paths toward demonstration of high-volume manufacturing.

Independent Verification and Validation:

To ensure objective assessment and reliable program execution, DARPA will utilize an IV&V team. The IV&V team, comprising of subject matter experts, will assess program deliverables throughout the program and advise DARPA on the overall program progress. They will also assist with validating pressure measurements and ensuring the pressure sensors are properly calibrated. The IV&V team will collaborate with DARPA and performers to validate that key milestones are achieved, determine appropriate testing methods, measure key metrics, and engage with stakeholders at meetings. Performers will provide appropriate deliverables per the program schedule to the IV&V team and DARPA throughout Phase 1 and Phase 2.

Technical Program Metrics:

A summary of the program metrics is presented in Table 1.

Table 1. Program Metrics

Metric	Unit	Phase 1 (24 months)	Phase 2 (18 months)
Vacuum	mbar	$<1x10^{-7}$	$<1x10^{-10}$
Lifetime	years	n/a	>3
Pressure Measurement	n/a	Demonstrated pressure sensor(s) integrated in external UHV system covering entire range of operation	Demonstrated pressure sensor(s) integrated in Perrseus µUHV system covering entire range of operation

Constraints and Additional Requirements:

- Volume: All metrics must be realized in a total package volume constrained to be <5 mL. The volume is defined as the enclosing box that contains the physics package, integrated pumps, getters, and any other components (e.g., pinch-off tubes, optical detectors) required to reach, measure, and maintain the indicated pressure and lifetime.
- Interconnects: Low-leak through package photonic and electrical interconnects must be demonstrated with ≥2 single-mode photonic and ≥2 ohmic electrical interconnects with <3 dB loss as the exclusive control and readout interface for the package.
- Manufacturability: The final vacuum system must be produced using a manufacturable process. "Manufacturable" is defined as compatible with large-scale processes (e.g., wafer-scale, additive manufacturing) that minimize manual human intervention during fabrication. Proposals must justify why their proposed approach is manufacturable.
- Environmental and Statistical Validation: Performers are required to validate that the vacuum metric is met over an operating temperature range of -40°C to 85°C. This performance must also be demonstrable across 10 of the delivered devices to prove repeatability.

To validate meeting the lifetime metric, performers will need to collaborate with the Government IV&V partner to measure characteristics of their vacuum system (Figure 3). This will enable extrapolation of the expected lifetime barring catastrophic, low-probability incidents.

Example Testing Methodology:

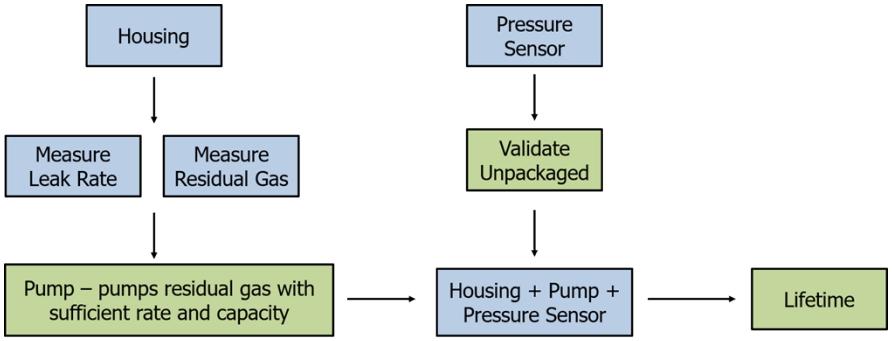

Figure 3. Example flow chart of measurement parameters and testing considerations. Blue items are examples of performer tasks. Green items are examples of potential IV&V tasks.

Example Measure Leak Rate: Place the Persseus µUHV in a larger vacuum chamber, introduce controlled gases in the vacuum chamber, and characterize the pressure change in the Persseus µUHV with time using integrated pressure sensors.

Example Measure Residual Gas: Place the Persseus µUHV in a larger vacuum chamber with a residual gas analyzer (RGA), poke a hole in the Persseus µUHV, and measure the composition of gas that comes out of system. Repeat this for several different packages to understand the composition of residual gases.

Example Pump Capacity: Create a model of the underlying physics of the passive and active pump and its interaction with different gas species. Apply a mixture of the measured gas composition to the passive or active Persseus pumps and measure pressure over time. Compare measured pump performance with model and prior experimental measurements to infer the lifetime.

Performers will report all measured and proposed vacuum parameters in the following units:

Parameter	Unit
Vacuum Level	mbar
Lifetime	year
Leak Rate	mbar L/s
Pump Rate	mbar L/(s cm^2)
Pump Capacity	mbar L/mg

D. Schedule, Milestones, and Deliverables

A summary of the program schedule is presented in Figure 4. For planning and budgetary purposes, proposers should assume the program start date provided in the Overview section.

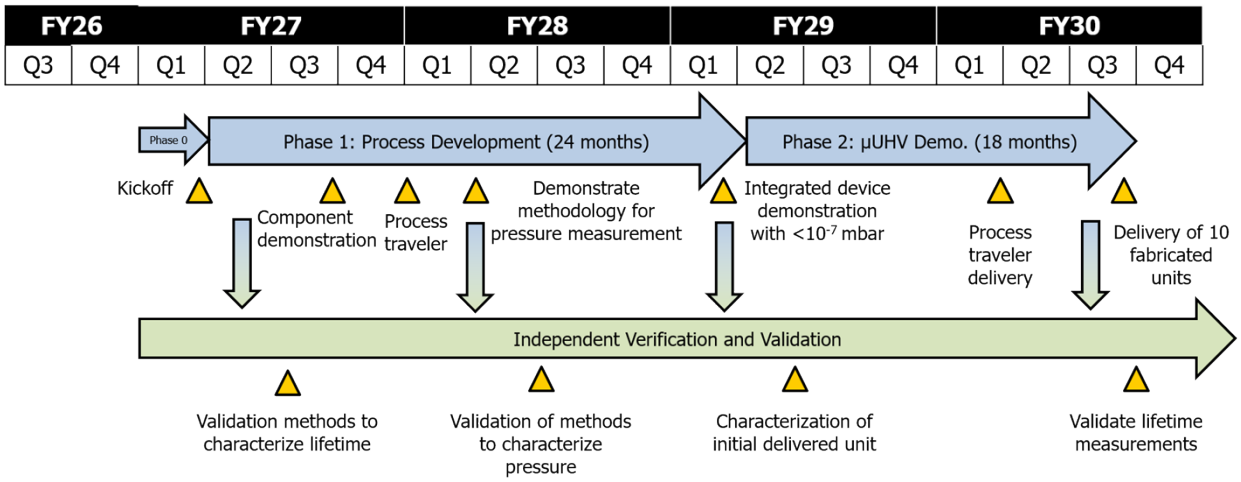

Figure 4. Program schedule with key milestones.

All proposals must include the following meetings and travel in the proposed schedule and costs:

- To foster collaboration between teams and disseminate program developments, a two-day Principal Investigator (PI) meeting will be held approximately every six months, with locations split between the East and West Coasts of the United States. For budgeting purposes, plan for 7 two-day meetings over the course of 42 months: 4 meetings in the Washington, D.C., area and 3 meetings in the San Francisco, CA, area.
- Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as problem identification and mitigation. Proposers should also anticipate at least one site visit per phase by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones.
- Performers should budget for at least two trips (3 days each) to Government IV&V labs on the East Coast for µUHV system calibration and testing.

Deliverables for the Perrseus program are structured into the following categories: Phase 0 and recurring deliverables (Phases 1 and 2).

Phase 0: Security Set-up (3 months)

For performers participating in Phase 0, the specific milestones and deliverables are detailed in Table 2. These are one-time events required to be completed prior to the start of Phase 1.

Table 2. Phase 0 Milestones and Deliverables

Milestone	Date	Milestone Definition
Phase 0: CMMC Level 2 (Self-Assessment) Compliance	End of month 3	Applies only to performers utilizing the Alternative Compliance Pathway in Phase 0 Exit Criteria: o Performer must achieve and post a valid CMMC Level 2 (Self-Assessment) status and current annual affirmation in the Supplier Performance Risk System (SPRS). Successful completion of this milestone is required to proceed to Phase 1. Failure to meet this milestone may result in immediate termination of the agreement. Deliverables: o Evidence of SPRS posting o Approved Operational Security (OPSEC) Plan.

Note that the draft OPSEC Plan submission with the proposal are baseline drafts only. Final approval occurs during Phase 0 after coordination with DARPA. Phase 0 activities are required before starting Phase 1 technical work; thus proposers should allocate sufficient time and resources in their proposal to complete all Phase 0 deliverables within the 3-month window.

Recurring Deliverables (Phases 1 & 2)

Throughout the technical execution of the program (Phases 1 and 2), performers will be expected to provide, at minimum, the following recurring deliverables:

- Monthly teleconferences with the Government team, including presentations utilizing a Government-provided template
    - As part of the monthly updates, performers will submit the most recent version of the process traveler (beginning no later than Month 9)
- Monthly technical reports
- Technical presentations utilizing a Government-provided template in support of:
    - Kick-off meeting
    - Semi-annual technical reports regarding progress on tasks as defined in the Task Description Document (TDD)
    - Semi-annual in-person meetings to report on technical progress
    - Technical reports as defined in the milestone table
- A phase-completion (or final) report summarizing the research done. This report will include:
    - Description of the technical developments and achievements toward the metrics
    - Tables and explanations of how experiment results meet or exceed program metrics

A summary of the program milestones and deliverables for Phases 1 and 2 are presented in Table 3 and Table 4. The dates are guidelines (excluding phase transition boundaries) for when the milestones should be completed. Milestones do not have to be completed in the order specified in the milestone table. However, in the absence of sufficient progress and deliverable outcomes, the Government may decide not to fund subsequent milestones.

Table 3. Phase 1 Milestones and Deliverables

Milestone	Date	Milestone Definition
Initial Technical Approach Development Plan and Program Execution Plan	Month 1	Exit Criteria: o Refined technical approach from proposal submission o Refined analysis of program schedule and risks o Refined CUI plan Deliverables: o Presentations and accompanying materials describing the refined technical approach o Detailed program execution plan o Government-approved CUI management plan
Long lead time items ordered and necessary fabrication tools identified	Month 3	Exit Criteria: o Identification of essential long lead time items and demonstration of ordering o Identification of necessary fabrication tools and demonstration of access to tools or path toward procurement Deliverables: o Documentation of long lead-time item procurement o Documentation of fabrication tool access or procurement
Delivery of vacuum parameter (leak rate, pump rate, residual gas composition, capacity) measurement methodology	Month 6	Exit Criteria: o Experimental demonstration of test setup for relevant vacuum parameters consistent with Figure 2 and the associated Testing Methodology section o Baseline fabricated vacuum cell and gas needing to be pumped. Destructively test and measure residual gas composition using internal or external vendor. o Characterization of performance of enabling components and implications on vacuum parameters: Ex: early ex-situ leak rate measurements, gettering capacity. o Demonstrate inter-compatibility of essential components Deliverables: o Technical report calculation, simulations, and any relevant experimental measurements supporting the methodology
Delivery of initial process traveler and initial commercialization or manufacturing plan	Month 9	Exit Criteria: o Demonstration of sufficient level of detail in the process traveler where Government team could replicate the underlying process, informed by early experimental demonstration, theoretical modeling, and process development o Acceptance of commercialization or manufacturing plan by the Government Deliverables: o Submission and acceptance by Government of document describing initial process traveler and demonstrating methodology for tracking all required elements of the fabrication process o Detailed commercialization or manufacturing plan

De-risked and demonstrated underlying methodology for pressure sensors integrated into µUHV device	Month 12	Exit Criteria: o Prototype pressure sensor(s) are required to demonstrate concept of operation consistent with planned µUHV integration o These initial experiments may be performed in a larger external UHV chamber, but must be consistent with the final vacuum size and component requirements Deliverables: o Submission of technical report detailing physics calculations, simulations, and experimental demonstrations validating pressure measurement concepts o Submission of pressure sensors in operational format to government IV&V team for test and evaluation. o Submission of vacuum packages with integrated pumps to IV&V team for test and evaluation.
Demonstration of pressure sensing methodology and atomic sources integrated into µUHV device	Month 16	Exit Criteria: o Demonstration of operational pressure sensor within µUHV device. After this milestone, pressure sensor(s) must be integrated into all prototypes to ensure progress can be tracked. o Performers must demonstrate manufacturing processes compatible with atomic source integration for quantum sensors. Deliverables: o Technical report detailing pressure sensing within µUHV device(s)
Delivery of vacuum parameter (leak rate, pump rate, residual gas composition, capacity) data	Month 19	Exit Criteria: o Utilize integrated pressure sensors to characterize described vacuum parameters o Demonstrate that measured vacuum parameters are consistent with end of Phase 1 metrics and path towards Phase 2 metrics Deliverables: o Delivery of technical report validating vacuum data o Testing with IV&V
Demonstration of prototype µUHV device with pressure measurement of $<10^{-7}$ mbar in 5 mL package	Month 22	Exit Criteria: o Utilize integrated pressure sensors to demonstrate achieving Phase 1 metrics o Validation of achieved vacuum level through in-person visit from Government team Deliverables: o Technical report describing methodology to validate achievement of Phase 1 vacuum metrics
Delivery of prototype µUHV device to IV&V team for pressure validation and vacuum parameter measurements	Month 23	Exit Criteria: o µUHV device must be operatable by IV&V team through the integrated interconnects to support validation of vacuum parameters and beginning of lifetime measurements o The prototype must be tested utilizing the functional optical and electronic interconnects

		Deliverables: o Receipt of functioning device by Government team and verified operation
End of Phase 1 Final Report and Updated Process Traveler	Month 24	Exit Criteria: o Demonstrate achievement of all Phase 1 metrics, lessons learned in Phase 1, path towards Phase 2 metrics, key risks towards Phase 2 metrics, and detailed schedule for Phase 2 o Detailed traveler describing full process for achieving Phase 1 metrics Deliverables: o Technical report on Phase 1 results and plan for Phase 2 o Updated process traveler

Table 4. Phase 2 Milestones and Deliverables

Milestone	Date	Milestone Definition
Phase 2 Kickoff	Month 25	Exit Criteria: o Presentation of lessons learned from Phase 1, key risks in Phase 2, and schedule for Phase 2 o Documentation of key changes in Phase 2 based on lessons learned in Phase 1 Deliverables: o Presentations and accompanying materials describing the refined technical approach towards Phase 2 goals
Final Design Review	Month 30	Exit Criteria: o In-person meeting with Government team to go over the final manufacturing design and plan for the µUHV device Deliverables: o Presentations and accompanying materials describing the final manufacturing process to achieve the Phase 2 goals
Final process traveler delivery	Month 36	Exit Criteria: o Incorporation of feedback from final design review and lessons learned from testing into the process traveler o Government team should be able to understand how to replicate entire process based on delivered documents Deliverables: o Delivery of final process traveler to Government team
Delivery of commercialization and manufacturing plan	Month 38	Exit Criteria: o Development and initiation of commercialization plan for demonstration of path toward high volume manufacturing capabilities

		Deliverables: o Review and acceptance of commercialization plan by Government commercialization subject matter expert (SME)
Demonstration of integrated µUHV device with pressure <10^{-10} mbar	Month 40	Exit Criteria: o Utilize integrated pressure sensors to demonstrate achieving Phase 2 vacuum metrics o Validation of achieved vacuum level through in-person visit from Government team Deliverables: o Technical report describing methodology to validate achievement of Phase 2 vacuum metrics
Delivery of 10 functional µUHV prototypes to IV&V team	Month 42	Exit Criteria: o µUHV device must be operatable by IV&V team through the integrated interconnects to support validation of vacuum parameters and lifetime measurements Deliverables: o Receipt of 10 functioning prototypes by Government team
Demonstration of operation consistent with >3-year lifetime	Month 42	Exit Criteria: o Utilize integrated pressure sensors to demonstrate achieving Phase 2 lifetime metrics Deliverables: o Technical report describing methodology to validate achievement of Phase 2 lifetime metrics
Delivery of Final Report and any modifications to process traveler	Month 42	Exit Criteria: o Demonstrate achievement of all Phase 2 metrics and lessons learned o Detailed traveler describing full process for achieving Phase 2 metrics Deliverables: o Technical report on Phase 2 and Program Results o Updated process traveler

E. Intellectual Property, Technology Transition, and Commercialization Requirements

1. Purpose and Objectives

The Government is investing in the Perrseus program to develop high-performance sensor manufacturing capabilities that will transition beyond R&D into meaningful Government utilization, operational application, and commercialization. The Government does not intend for capabilities or technical data developed under this program to become unavailable or limited to demonstration-only purposes.

Accordingly, intellectual property (IP) license rights, transition planning, and commercialization strategies are material requirements of this solicitation. The Government's objectives are to:

- Ensure sufficient Government license rights to use, integrate, modify, sustain, transition, and further develop program results.
- Preserve appropriate commercialization incentives for performers.

- Prevent IP restrictions from unreasonably limiting the Government's ability to utilize the results of Government-funded efforts.

2. Baseline IP License Rights Expectation

The Government establishes a firm baseline expectation for IP rights. While performers customarily retain title to IP they develop, the Government's focus is on securing the license rights necessary to enable future domestic manufacturing.

Table 5: Baseline Rights Expectation

IP Category	Definition	Baseline Government Rights Expectation
Foreground IP (FIP)	IP first conceived, created, developed, or reduced to practice under this effort.	Government Purpose Rights (GPR) and a specially negotiated license enabling the Government to transition the technology to an alternative domestic source.
Background IP (BIP)	Pre-existing IP incorporated into the solution or required to manufacture/operate the technology.	Government Purpose Rights (GPR) and a specially negotiated license enabling the Government to transition the technology to an alternative domestic source.

At a minimum, the Government must receive a nonexclusive, irrevocable, worldwide, royalty-free license sufficient to allow the Government to:

- Use, reproduce, integrate, perform, display, and modify the technology.
- Conduct research, development, test, evaluation, verification, validation, and operational activities.
- Maintain, repair, upgrade, and sustain the capability.
- Authorize other entities (e.g., FFRDCs, UARCs, support contractors) to exercise these rights solely for Government purposes.

3. No Blocking Rights

The Government will not accept restrictions associated with BIP, proprietary limitations, or other IP interests in a manner that unreasonably prevents, delays, or materially impairs the Government's ability to:

- Utilize program results or integrate technologies developed by multiple performers.
- Transition capabilities to operational users.
- Maintain or sustain resulting capabilities.

A performer shall not incorporate BIP into a deliverable in a manner that prevents achievement of program objectives unless specifically identified and accepted by the Government prior to award.

4. Criteria for Alternative IP Approach (Specially Negotiated License Rights)

The Government recognizes that domestic foundry sustainability requires commercial volume that exceeds defense requirements, and that securing proprietary commercial IP rights may be necessary for performers to execute a High-Volume Manufacturing (HVM) transition. HVM in the context of this effort is defined as manufacturing volumes much greater than current state of art for the given sensor classes (for example, a minimum of 1000 units per year for cold atom, high performance MEMS, and high-performance photonics devices).

Therefore, the Government establishes a framework for an alternative IP approach. The Government reserves the right to accept Specially Negotiated License Rights (SNLR) (e.g., accepting limited/restricted rights to BIP, or granting GPR to FIP) if and only if the proposer's proposal meets all of the following criteria:

a. **Significant Cost-Share Contribution**:

- Target: A 35% cost-share contribution to the development of the technology.
- Waiver/Reduction: The Government may accept a lower cost-share (e.g., 20%) for non-profit research institutions, universities, small businesses, or traditional contractors demonstrating exceptional technical merit with significant non-traditional defense contractor participation.

b. **HVM Commercialization Pathway**: The proposer must outline a credible and aggressive plan to establish a domestic or allied HVM capability. This plan must be integrated into the program's technical execution and will be measured against specific, negotiated commercialization milestones within the resultant agreement. The proposed pathway must be one of two types:

- *Captive Fab:* Demonstrating substantial planned Capital Expenditures (CapEx) expenditures and financing to build/upgrade an organic HVM line.
- *Fabless:* Executing a binding commercial license or manufacturing service agreement with a domestic/allied merchant foundry possessing the CapEx to run the design at HVM scale.

5. Required Proposal Artifacts

Proposers must submit the following artifacts with their proposal. Failure to disclose material restrictions or transition barriers may result in a higher risk assessment under the proposal evaluation.

a. Intellectual Property Management Plan:

- Identification of all anticipated FIP and BIP.
- Proposed Government license rights and any restrictions affecting Government use.
- Approach for IP collaboration and integration among team members.
- *Note: Proposers must explicitly identify any proposed deviations from the Government's Baseline IP Expectation (section E.2. above).*

b. B. Commercialization and Transition Strategy:

- Anticipated Government, commercial, and dual-use applications.
- Manufacturing, production, or deployment strategy (specifically addressing the Captive Fab or Fabless requirements outlined in section 4 above).
- Planned private investments beyond Government funding.
- Specific commercialization and transition milestones.

6. Evaluation & Enforcement (Reversionary Rights):

The Government will evaluate the adequacy of the proposed Government IP rights against the likelihood of successful commercial transition. Proposals that fail to meet the baseline expectations and fail to provide

a compelling commercialization strategy under the SNLR framework will be considered as unacceptable program risk.

To balance the risk of granting alternative IP allocations prior to successful commercialization, any SNLR agreed to in accordance with section E.4. above shall be subject to Reversionary Rights. Should the performer fail to demonstrate the agreed-upon HVM capability milestones, the Government's data rights will automatically revert to the baseline IP rights expectation in Table 5 (GPR + license FIP / GPR + license BIP) to ensure the Government is not blocked from utilizing the technology.

F. Acquisition Strategy

The acquisition strategy for Perrseus is structured to reduce program risk due to the multi-disciplinary teaming expected to meet to program goals. To facilitate this objective, the acquisition process will be as follows:

- **Proposers Day**: DARPA will record and make available a copy of the Proposer's Day event within one week of the in-person event held on July 17th, 2026. This will introduce the potential proposer community to Perrseus's vision and goals, collect questions, and facilitate potential teaming.
- **Questions and Answers**: DARPA will post a consolidated Q&A document on a regular basis. To access the posting go to https://www.darpa.mil/research/programs/perrseus. Submit your questions by email to Perrseus@darpa.mil. Questions submitted after the Q&A deadline will not be answered.
- **Abstract Submissions**: Abstracts will be evaluated by the Government to provide initial feedback on the innovative technical solutions and overall programmatic structure. Submission of an abstract is optional but strongly recommended as a "safe harbor" review opportunity. Proposers are highly encouraged to use the abstract to provide a preliminary overview of their intended approach to the Intellectual Property Management Plan and Commercialization and Transition Strategy (as defined in Section I.E.5 "Required Proposal Artifacts") to receive early, non-binding feedback on alignment with program objectives. Furthermore, proposers are highly encouraged to explicitly list all intended Government Entities, National Laboratories, FFRDCs, or UARCs on their team. DARPA will use this review to identify and notify proposers if a proposed teammate is a prohibited IV&V partner. This comprehensive feedback provides proposers a valuable opportunity to adjust their IP strategy, restructure their teams, and mitigate program risk prior to the binding full proposal deadline.
- **Abstract Response Letters**: DARPA will respond to all abstracts with feedback from the Government team.
- **Notification of Intent to Propose**: Proposers are required to provide notification of their intent to propose no later than the date and time stated in the Overview section to assist the Government in planning and scheduling oral presentations and related evaluation activities. Notifications must be submitted by email from the prime proposer with the subject line "Perrseus Intent to Propose" to Perrseus@darpa.mil and should include the following:
    - Statement of intent to propose.
    - Abstract control number (if applicable).
    - Prime organization and their Principal Investigators (PI) and Co-Principal Investigators (Co-PIs).
    - A complete list of all proposed subcontractor organizations, including their respective PIs and Co-PIs. This list must specifically highlight any Government Entities, National Laboratories, FFRDCs, or UARCs.

- A statement indicating which Key Personnel (both prime and subcontractor PIs and Co-PIs) or other oral presentation attendees are U.S. Permanent Residents or foreign nationals and have submitted a DARPA eForm 60.
    - With respect to this solicitation, proposers must submit an eForm 60 for all U.S. Permanent Residents and foreign nationals who will be participating in the Oral Presentations no later than the due date for the Notification of Intent to Propose specified in the Overview section. Failure to submit the required documentation in a timely manner may result in the individual being denied access to the event without exception. It is the responsibility of the prime contractor to ensure that all personnel, including those from sub-awardees, who are U.S. Permanent Residents or foreign nationals comply with these requirements. The form must be submitted electronically via the following secure portal: https://dtsn.darpa.mil/eform60/.
- DARPA will review the subcontractor list provided in the Intent to Propose and immediately notify the prime if any proposed entity is on the prohibited IV&V partner list. This allows the proposer a final window to adjust their team before the full proposal deadline to ensure compliance with the mandatory OCI restrictions outlined in Section IV.

- **Proposals with In-Person Oral Presentation**: Proposal and Oral Presentation slides are due no later than the due date and time stated in the Overview section. There will be a 30-minute in-person oral presentation with 45-minute Q&A session from the Government scheduled for each conforming full proposal following receipt. All Oral Presentation participants of the prime proposer **must attend in person** where a virtual option may be available for subcontractors. The Oral Presentations will be held during the time window specified in the Overview section. As part of the Oral Presentation, proposers may submit a video demonstrating their capabilities (tools, labs, equipment, etc.) relevant to the Perrseus program. Videos may be no longer than 5 minutes and will be included as part of the total 30 minutes for Oral Presentations. For videos with large file sizes, please reach out to Perrseus@darpa.mil to receive a DoDSafe Link for submission of video. Any videos must be received by the proposal deadline stated in the Overview session.
- **Other Transaction (OT) Agreement Negotiation**: DARPA will review Proposals and Oral Presentations to determine which proposed solutions sufficiently meet the evaluation criteria stated in Section II. After the Oral Presentations, the Government will select proposers to enter negotiations for an OT for Prototype agreement under 10 U.S.C. § 4022.

Section II: Evaluation Criteria

Proposals will be evaluated using the following criteria listed in ***descending order of importance***: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; and Budget, Price, and Schedule.

- **Overall Scientific and Technical Merit**: The proposed technical approach is innovative, feasible, achievable, and complete. The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks, and planned mitigation efforts are clearly defined and feasible. The proposer's prior experience in similar efforts clearly demonstrates an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team (prime, subcontractors, consultants) has sufficient experience in manufacturing and fabrication space to meet the goals of the program. The proposed team has the expertise to manage the cost and schedule. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.
- **Potential Contribution and Relevance to the DARPA Mission**: The potential contributions of the proposed effort to bolster the national security technology base and support DARPA's mission to make pivotal early technology investments that create or prevent technological surprise. As part of this criterion, the Government will conduct a detailed assessment of the mandatory Intellectual Property Management Plan and Commercialization and Transition Strategy submitted by the offeror. Evaluation considerations will include:
    - The adequacy of the proposed Government rights to enable the use, integration, modification, and transition of the technology for Government purposes.
    - The proposer's strategy and willingness to support the program's collaborative, "cross-pollinated" model, including the ability to integrate technologies from other performers.
    - The credibility and feasibility of the proposed Commercialization and Transition Strategy, including the plan for achieving a sustainable, high-volume manufacturing capability.
    - The proposer's identification and management of any Background IP (BIP) restrictions and the associated risks to the Government.

  While the Government will evaluate all proposals for technical merit, proposals that are assessed to have unacceptable IP restrictions or high-risk transition strategies may be evaluated as providing insufficient value to the Government and may be removed from further consideration for award.
- **Budget, Price, and Schedule**: The proposed solution is realistic and affordable. The budget is realistic and accurately reflects the technical goals and objectives of the solicitation and reflects a sufficient understanding of the level of effort and staffing needed to successfully accomplish the proposed technical approach. Each price element provides commensurate technical, schedule, or execution value, and is it necessary, appropriately scaled, and neither materially overestimated nor underestimated. The proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload. The proposed schedule identifies and mitigates any potential schedule risk. For Phase 0, the Government will assess whether proposed costs, schedule, and approach are reasonable and sufficient to accomplish required security preparation activities within the proposed timeline.

Section III: Submission and Award Information

A. Abstracts

This solicitation contains an abstract phase. Abstracts are strongly encouraged but not required. Abstracts are due no later than the due date and time stated in the Overview section. Additional instructions for abstract submission are contained within **Attachments A and B**. Please visit Proposer Instructions and General Terms and Conditions and see Attachment M for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT).

B. Full Proposals

Full proposals are due no later than the due date and time stated in the Overview section. **Attachments C, D, E, F, G, H, and I** contain specific instructions and templates and constitute a full proposal submission. Please visit Proposer Instructions and General Terms and Conditions and see Attachment M for specific information regarding submission methods through the Broad Agency Announcement Tool (BAAT).

DARPA is interested in whether, and to what extent, proposers are using artificial intelligence (AI) tools to contribute to Volume 1 of proposals submitted in response to DARPA solicitations. Therefore, proposers must answer the following questions on the cover sheet of Volume 1 of this solicitation:

- Did you use AI tools to assist in preparing this proposal?
- If yes, what tools did you employ?

Any content in Volume 1 that utilized an AI tool to generate information, assist in technical understanding, or guide the technical work should have a citation and a corresponding reference in the Bibliography section of Volume 1. The citation should specify the tool, content, and purpose. For example, "[AI tool] was used to understand existing state of the art in manufacturing."

NOTE – THIS INFORMATION WILL NOT BE USED FOR EVALUATION PURPOSES. Proposals will be evaluated in accordance with the Evaluation Criteria outlined in the solicitation regardless of whether AI tools were employed.

C. PS Attachments:

- **(required for abstract submissions) Attachment A**: Abstract Summary Slide Template
- **(required for abstract submissions) Attachment B**: Abstract Instructions and Template
- **(required) Attachment C**: Proposal Summary Slide Template
- **(required) Attachment D**: Proposal Instructions and Volume I Template (Technical and Management)
- **(required) Attachment E**: Proposal Instructions and Volume II Template (Price)
- **(required) Attachment F**: Price Detail Spreadsheet
- **(required) Attachment G**: Other Transaction Certification Template
- **(required) Attachment H**: Task Description Document (TDD) Template
- **(required) Attachment I**: Schedule of Milestones and Payments
- **(informational) Attachment J**: Model Other Transaction for Prototype
- **(informational) Attachment K**: Proposer Checklist

- **(informational) Attachment L**: Perrseus Controlled Unclassified Information (CUI) Guide signed June 27, 2026
- **(informational) Attachment M**: DARPA BAAT Portal Submission Guide

D. Submission Correspondence

All technical, contractual, and administrative questions regarding this notice must be emailed to Perrseus@darpa.mil. Emails sent directly to the Program Manager or any other address may result in delayed or no response. All questions must be in English and must include the name, email address, and telephone number of a point of contact. DARPA will attempt to answer all questions in a timely manner and post a Q&A list on the DARPA/MXO Opportunities page at (http://www.darpa.mil/work-with-us/opportunities). The list will be updated on an ongoing basis until one week prior to the proposal due date.

E. Submission Guidance

Abstracts and proposals must be submitted through the Broad Agency Announcement Tool (BAAT) at https://baa.darpa.mil. Instructions for BAAT account creation are provided in Attachment M. Note that accounts are disabled after a period of 30 days of inactivity (i.e., not logging in). Email submissions will not be considered, except for requested supplementary information as requested. Proposers are encouraged to submit at least 48 hours prior to the due date. Late submissions will not be accepted.

F. Award Information

This Program Solicitation (PS) may result in the award of Other Transaction (OT) for Prototype agreements, which can include not only commercially available technologies fueled by commercial or strategic investment, but also concept demonstrations, pilots, and agile development activities that can incrementally improve commercial technologies, existing Government-owned capabilities, and/or concepts for broad defense and/or public application(s). Follow-on production contracts or transactions may also be awarded pursuant to 10 U.S.C. § 4022. The OT agreement will not require cost sharing unless the offeror is a traditional defense contractor who is not working with a nontraditional defense contractor participating in the program to a significant extent. The following websites are incorporated by reference and contain additional information regarding overall proposer instructions, general terms and conditions, and Other Transactions for Prototype.

- **Proposer Instructions and General Terms and Conditions**: Proposer Instructions and General Terms and Conditions
- **Other Transaction agreements**: Proposer Instructions: Other Transactions

DARPA has determined a reasonable fee range for the Perrseus program is 9.0% – 10.5%. This was determined based on consideration of factors such as the technology being developed, project complexity, contractor expertise required, data and IP rights required, and value of the prototype to the Government. Proposers are reminded that when cost share is required to meet the requirements of 10 U.S.C. 4022(d)(1), fee should not be included.

- Proposers should propose a fee that falls within the above range. Because that fee range already has been determined to be reasonable relative to Perrseus, proposals need not include any further fee justification. Elimination of fee as a negotiation item is expected to result in reduced award timelines for any proposal selected for award negotiation.

Section IV: Special Considerations

A. General Information

This solicitation, stated attachments, and websites incorporated by reference constitute the entire solicitation. **In the event of a discrepancy between the solicitation, attachments, or websites, the solicitation shall take precedence.**

B. Eligibility

All responsible sources capable of satisfying the Government's needs, including both U.S. and non-U.S. sources, may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities, Small Businesses, Small Disadvantaged Businesses and Minority Institutions are encouraged to submit proposals and join others in submitting proposals; however, no portion of this solicitation will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities. Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

DARPA encourages technical solutions from all responsible sources capable of satisfying the government's needs. To ensure fair competition across the ecosystem, DARPA prohibits contractors/performers from concurrently providing Systems Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS), or similar support services and being a technical performer, unless the DARPA Deputy Director grants a written waiver. DARPA extends this prohibition to University-Affiliated Research Centers (UARCs) and Federally Funded Research and Development Centers (FFRDCs) including National Labs, who as a result of their specialized expertise and areas of competencies, are able to accomplish integral tasks that cannot be met by government or contractor resources.

Complete information regarding eligibility can be found at Proposer Instructions and General Terms and Conditions.

1. FFRDCs, UARCs, and Government Entities to Include National Labs

Due to their specialized roles and longstanding regulatory relationships with the Government, FFRDCs, UARCs, and Government Entities to include National Laboratories present potential conflicts and advantages that could compromise fair and open competition. **FFRDCs, UARCs, and Government Entities are not eligible to submit proposals as prime proposers under this solicitation**. These entities may participate only as subcontractors to an eligible prime proposer, subject to the conditions set forth below.

If an FFRDC, UARC, or Government Entity believes they offer unique and innovative capabilities for this solicitation and are interested in this solicitation as a subcontractor to a prime proposer, they should contact the Agency Point of Contact (POC) listed in the Overview section prior to the abstract due date to discuss potential participation as part of the government team or eligibility as a subcontractor for a technical performer. There are three key criteria that will be utilized to determine the ability of these entities to participate in the program as subcontractors:

- Critical, specialized capabilities such as tool accessibility, critical components or fabrication, characterization, testing, or measurement techniques. They must clearly demonstrate that the proposed work is not otherwise available from the private sector.

- Demonstration of active plans to transition supporting or enabling technology from the FFRDC, UARC, or Government Entity to the prime contractor on the Perrseus program.
    - A letter of intent from the division director of the FFRDC, UARC, or Government Entity identifying the potential technologies and committing to transitioning the technology to the prime contractor is required at proposal submission. This may include an option for a non-exclusive license for any FFRDC, UARC, or Government Entity-developed technology or process steps required for successful Perrseus prototypes.
    - If the FFRDC, UARC, or Government Entity presents hurdles for technology transition, then they may be removed from the program at the Government's discretion.
- Share all data and measurements performed at the FFRDC, UARC, or Government Entity under DARPA funding in the Perrseus program with all Perrseus performers.

These entities typically may only receive funding through existing awards they hold with their sponsoring agencies. If these entities are proposed as sub-awardees, their costs must be clearly segregable in cost proposals. Proposals should be structured such that these entities are not essential for the core commercial business model of the prime.

DARPA may fund work proposed by these entities with the following specific caveats:

- **FFRDCs**: (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter, on official letterhead from their sponsoring organization, that (a) cites the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and (b) certifies the FFRDC's compliance with the associated FFRDC sponsor agreement's terms and conditions. DARPA, under this solicitation, will not award separate contracts to FFRDCs but will instead leverage their existing sponsor's agreements.
- **UARCs**: While UARCs typically have statutory authority to compete with industry, internal DARPA policy views them as trusted advisors who are only eligible to act as performers in fields where they do not serve in an advisory role. Even in those situations, DARPA still considers UARCs as having organizational conflicts of interest (OCI) when applying for a performer role. Proposals with UARCs as subawardees must include an OCI mitigation plan.
- **Government Entities**: Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government Entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations and compete with industry. This information is required for Government Entities proposing to be sub-awardees.
- **Authority and Eligibility**: At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C.§ 4892 may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

During the abstract evaluation phase, the Government may identify specific FFRDCs, UARCs, or Government Entities proposed as subcontractor teammates who possess unique capabilities, tools, or facilities critical to the broader program. To maximize the utility of these specialized capabilities, the Government reserves the right to fund these entities directly and designate them as Shared Government

Resources supporting all selected Perrseus performers. In such cases, the Government will instruct affected proposers to remove the designated entity from their performer team prior to full proposal submission, and the entity's capabilities will instead be provided to all performers as a Government-furnished service during program execution.

DARPA will not establish new contractual agreements for UARC, FFRDC, Government Entities, or National Laboratory participation. Accordingly, any proposal submitted directly by these entities in a prime contractor capacity **will** be deemed nonconforming and not evaluated. Proposals that include a UARC, FFRDC, Government Entities, or National Laboratory as a subcontractor may also be deemed non-conforming unless: (1) their role is clearly defined in the technical proposal with a point of contact, and (2) a rough order of magnitude cost is provided in the technical proposal only—cost proposals must exclude their funding, as DARPA will not fund them through the prime. It is important to note that **if funded, these organizations will be required to share their work and findings with other performers also supporting the same program**.

2. Organization Conflicts of Interest (OCI) – Strict Prohibitions on IV&V Teaming

The Government will utilize specialized Government Entities, FFRDCs, and National Laboratories to provide IV&V, testing, calibration, and evaluation support for the Perrseus program.

To ensure absolute objectivity and prevent unmitigable OCIs (including impaired objectivity or unequal access to information), any entity serving as an IV&V partner, tester, or advisor to the Government for the Perrseus program is strictly prohibited from participating as a prime contractor, subcontractor, partner, consultant, or team member on any proposal.

Internal firewalls, organizational separation, or OCI mitigation plans are not permitted and will not be accepted. Compliance with this restriction is a mandatory condition of award. Any proposal that includes a prohibited IV&V partner on its team will be deemed nonconforming and will be excluded from evaluation and award consideration without exception.

Safe Harbor Verification: FFRDCs, UARCs, and Government Entities interested in participating in the Perrseus program in any capacity should first contact the Agency Point of Contact (POC) listed in the Overview section prior to the Abstract due date to verify eligibility and confirm they are not on the Government's prohibited IV&V list. Proposers are strongly encouraged to list all planned Government, National Lab, FFRDC, or UARC team members in their abstract submissions to receive early, non-gating feedback regarding potential OCI conflicts before submitting a full proposal.

C. Cybersecurity Maturity Model Certification Requirements

As codified in 32 CFR Part 170, the Cybersecurity Maturity Model Certification (CMMC) Program is designed to ensure Department of War (DoW) performers are properly safeguarding Federal Contract Information (FCI) and Controlled Unclassified Information (CUI) that is processed, stored, or transmitted on performer information systems. The CMMC Program provides a consistent methodology to assess a defense contractor's implementation of required cybersecurity requirements. Proposers are encouraged to visit the DoW Chief Information Officer CMMC Resources & Documentation site for more information: https://dodcio.defense.gov/cmmc/Resources-Documentation/.

1. Required CMMC Level

The required CMMC level for this solicitation is CMMC Level 2 (Self-Assessment). Level 2 focuses on the protection of CUI and incorporates the 110 security requirements specified in NIST SP 800-171 Rev 2.

2. Eligibility for Award and Compliance Pathways

Proposers have two potential pathways to demonstrate compliance with the CMMC level required for this solicitation:

Pathway A: Compliance at Proposal Submission

At the time of proposal submission, the CAGE code associated with the proposal must have a valid, unexpired CMMC status (representing either Final or Conditional status) posted in the Supplier Performance Risk System (SPRS) indicating compliance at Level 2 (Self-Assessment). Additionally, the proposer must have a current annual CMMC affirmation, submitted by an authorized Affirming Official, posted in SPRS.

Pathway B: Alternative Compliance Pathway (Phase 0)

For any proposer that does not, at the time of proposal submission, have a valid, unexpired CMMC Level 2 (Self-Assessment) status and current annual affirmation posted in SPRS, the proposer must propose participation in Phase 0 (Security Set-up) as their CMMC Compliance Plan. This plan must:

- Detail a realistic path to achieve final status at CMMC Level 2 (Self-Assessment) no later than the end of the 3-month Phase 0 period.
- Identify the specific information system(s) to be used, current gaps against NIST SP 800-171 Rev 2, and targeted dates for assessment/affirmation.
- Acknowledge that no CUI shall be processed, stored, or transmitted on the performer's systems until the required CMMC status and annual affirmation are officially active in SPRS.

Evaluation & Award Impact: The feasibility and schedule risk of the proposed Phase 0 CMMC Compliance Plan will be evaluated as part of the Budget, Price, and Schedule evaluation criterion. If selected for award, attaining CMMC Level 2 (Self-Assessment) compliance will be incorporated as a binding milestone at the end of Phase 0. Failure to meet this milestone may result in the immediate termination of the agreement prior to the commencement of Phase 1 technical work.

3. Subcontractor Flow-Down

Proposers must include in their proposals an attestation that all subcontractors who will process, store, or transmit FCI or CUI under a resultant award will meet the applicable CMMC level required by 32 CFR § 170.23, and indicate how proposers will verify subcontractors' status prior to subcontract award. For subcontractors handling CUI under this program, the minimum requirement is CMMC Level 2 (Self-Assessment).

D. Security Information

As of the time of publication of this solicitation, all proposal submissions are anticipated to be unclassified. This program is subject to Attachment L: Perrseus Controlled Unclassified Information (CUI) Guide signed June 27, 2026. All individuals accessing CUI agree to protect CUI in accordance with DoD Instruction 5200.48, Controlled Unclassified Information (CUI), and NIST Special Publication 800-171, Protecting Controlled Unclassified Information in Nonfederal Systems and Organizations.

Requirements for U.S. Permanent Resident and Foreign National Attendance

All proposers are hereby notified regarding additional security screening measures for any U.S. Permanent Residents (i.e., Green Card holders) and foreign nationals who will participate in this program, including

attendance at any DARPA-sponsored event (e.g., oral proposal presentations, kickoff meetings, program reviews, site visits, and demonstrations), regardless of the event's format (in person, offsite, or virtual).

It is the responsibility of the prime contractor to ensure that all personnel, including those from subawardees, who are U.S. Permanent Residents or foreign nationals comply with the requirements detailed below. All forms must be submitted electronically via the following secure portal: https://dtsn.darpa.mil/eform60/

1. Pre-Award (Proposal Phase) Requirements

With respect to this solicitation, proposers must submit a DARPA eForm 60 ("U.S. Permanent Resident and Foreign National Visit Request") for all U.S. Permanent Residents and foreign nationals who will be participating in the oral proposal presentation. This form must be submitted no later than the due date for the *Notification of Intent to Propose* specified in the Overview section. Failure to submit the required documentation in a timely manner may result in the individual being denied access to the event without exception.

2. Post-Award (Program Execution) Requirements

In addition to the program planning and management responsibilities, the Performer must adhere to the following personnel security requirements throughout the Period of Performance:

- **eForm 60 Submission**: All U.S. Permanent Residents and foreign nationals participating in the Program must submit a DARPA eForm 60 prior to performing any work.
- **Restrictions on Engagement**: While individuals may begin technical work upon submission of the eForm 60 (subject to CUI access restrictions), they are not authorized to participate in any meetings or engagements with DARPA personnel (in person or virtual) until the eForm 60 is officially approved.
- **Performer PI Responsibilities**: The Performer's Principal Investigator (PI) is responsible for maintaining complete records of all U.S. Permanent Residents and foreign nationals supporting the program. The PI must promptly notify the DARPA Program Manager and Program Security Representative in the event that:
    - A new foreign individual joins the Program.
    - An individual departs the Program.
    - An individual's residency or citizenship status changes.
    - Letter of Compelling Need: For any individual from a country designated as "Critical" or "High" on the Defense Intelligence Agency Counterintelligence Threat Matrix, the PI must prepare and submit a letter of compelling need that justifies the individual's required participation in the program to the Government for review.

E. Research Type and CUI Compliance

1. Research Classification Determination – Non-Fundamental Research

The Government has determined that all aspects of the proposed effort under the Perrseus program are classified as non-fundamental research, including the scope to be performed by the prime and all proposed subawardees.

The Government expects that program goals as described herein cannot be met by proposers intending to perform fundamental research, as the proposed efforts present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense.

Accordingly, the effort will be subject to restrictions on publication, dissemination, and release of information. All information developed under this effort, regardless of the performing organization or scope of work, is subject to DARPA review and prior approval before any public release. This requirement applies uniformly to all performers and subawardees, without exception. This classification is not intended to prevent or hinder publication, but rather to ensure appropriate review of information prior to public release in accordance with DARPA policies and procedures.

Note: Because the Government has made a blanket determination that no portion of this effort constitutes fundamental research, proposers shall not submit proposals, or portions thereof, requesting fundamental research status. Any such requests will be rejected.

2. Controlled Unclassified Information (CUI) Compliance – Prime Responsibility

The prime performer is solely responsible for ensuring full compliance with all applicable Controlled Unclassified Information (CUI) safeguarding, handling, and dissemination requirements across the entire effort, including all subcontracted work. This includes, but is not limited to:

- Implementing and maintaining a compliant system environment for the storage, processing, and transmission of CUI.
- Ensuring that all subawardees meet applicable CUI requirements prior to receiving or accessing any CUI.
- Flowing down all applicable requirements and enforcing compliance across the team.

Responsibility for CUI compliance may not be delegated or transferred to any subawardee. While subawardees are required to comply with applicable requirements, the prime retains full accountability for compliance across the entire effort.

F. Additional Information

- The APEX Accelerators program, formerly known as the Procurement Technical Assistance Program (PTAP), focuses on building a strong, sustainable, and resilient U.S. supply chains by assisting a wide range of businesses that pursue and perform under contracts with the DoD, other federal agencies, state and local governments and with Government prime contractors. See https://www.apexaccelerators.us/ for more information. APEX Accelerators helps businesses:
    - Complete registration with a wide range of databases necessary for them to participate in the Government marketplace (e.g., SAM)
    - Identify which agencies and offices may need their products or services and how connect with buying agencies and offices
    - Determine whether they are ready for Government opportunities and how to position themselves to succeed
    - Navigate solicitations and potential funding opportunities
    - Receive notifications of Government contract opportunities on a regular basis
    - Network with buying officers, prime contractors, and other businesses

    - Resolve performance issues and prepare for audit, only if the service is needed, after receiving an award

- Project Spectrum is a nonprofit effort funded by the DoD Office of Small Business Programs to help educate the Defense Industrial Base (DIB) on compliance. Project Spectrum is vendor-neutral and available to assist businesses with their cybersecurity and compliance needs. Their mission is to improve cybersecurity readiness, resilience, and compliance for small/medium-sized businesses and the federal manufacturing supply chain. Project Spectrum events and programs will enhance awareness of cybersecurity threats within the manufacturing, research, and development, as well as knowledge-based services sectors of the industrial base. Project Spectrum will leverage strategic partnerships within and outside of the DoD to accelerate the overall cybersecurity compliance of the DIB. www.Projectspectrum.io is a web portal that will provide resources such as individualized dashboards, a marketplace, and Pilot Program to help accelerate cybersecurity compliance.
- Subscribe to DARPA MXO's newsletter for timely updates on research opportunities, upcoming events, ways to work with us, and more.
    - MXO will be hosting its next event, MXO's Spark Tank, in Chicago, Illinois, on November 2–4, 2026. For details, visit https://www.darpa.mil/events/2026/spark-tank.
- DARPAConnect offers free resources to potential performers to help them navigate DARPA, including "Understanding DARPA Award Vehicles and Solicitations," "Making the Most of Proposers Days," and "Tips for DARPA Proposal Success." Join DARPAConnect at https://www.darpaconnect.us to leverage on-demand learning and networking resources.
- DARPA has streamlined our Program Solicitations and is interested in your feedback on this new format. Please send any comments to DARPAsolicitations@darpa.mil.