

JUSTIFICATION AND APPROVAL FOR OTHER THAN FULL AND OPEN COMPETITION

(41 U.S.C. 3304(a)(1))

FY-26-0080

Pursuant to the requirements of the Competition in Contracting Act (CICA) as implemented by the Federal Acquisition Regulation (FAR) 6.103 (FAR Class Deviation 25-11¹), and in accordance with the requirements of RFO 6.104, the justification for the use of the statutory authority under RFO 6.103 is justified by the following facts and rationale required under RFO 6.104-1 as follows:

1. Agency and Contracting Activity.

The Department of Homeland Security (DHS), Science and Technology Directorate (S&T) Office of Procurement Operations proposes to enter into a contract on a basis other than full and open competition.

2. Nature and/or Description of the Action being Approved.

(a) Nature of action.

DHS intends to procure on a sole source basis continued development, test and evaluation of a pulsed-source Low Energy Portal (LEP) prototype scanning system that is capable of performing the normal LEP functions of screening passenger vehicles while mitigating Radiation Portal Monitors (RPMs) interference at the San Ysidro Port of Entry (POE).

(b) Name and address of the contractor. Astrophysics, Inc. 21841 Ferrero Pkwy, City of Industry, CA 91789.

(c) Contract type. Firm Fixed Price milestones

Note: Task Order 70RSAT24FR0000109 was awarded under Customs and Border Protection (CBP) IDIQ 70B03C21D00000035 on September 27, 2024, with a period of performance through January 30, 2026. This task order procured development of the prototype solution that now requires ruggedization and field testing.

(d) Type of funding. 3-year Research and Development (R&D) funds

¹ In this document, citations to RFO Parts 6, 10, 15, 25 are citations specifically to FAR Class Deviation 25-11 for FAR Part 6, FAR Class Deviation 25-06 for FAR Part 10, FAR Class Deviation 26-08 R1 for FAR Part 15, and FAR Class Deviation 25-09 R1 for FAR Part 25, which were issued as part of the Revolutionary FAR Overhaul (RFO), implemented in response to Executive Order 14275, *Restoring Common Sense to Federal Procurement*, signed April 15, 2025.

(e) Year of funding. Fiscal Year 2025

(f) Solicitation number. TBD

(g) Background information about the requirement.

Astrophysics, under task order 70RSAT24FR0000109, previously developed a non-recurring engineering solution that enables LEP and RPM hardware to operate with reduced nuisance alarms and interference. CBP requires scanning systems for inbound passenger vehicles at border POEs. LEP systems provide this capability and are installed at multiple POEs across the southern border. Current LEP systems interfere with RPMs due to a continuous emission of x-rays and the size constraints of the majority of POEs. Interference delays the inspection process, requires additional resources, and can lead to missed screenings. In order to mitigate this x-ray interference issue, CBP identified pulsed radiation source to support RPM blanking, which temporarily disables radiation detection during certain events to prevent false alarms, as the best technical option. The prototype solution developed under 70RSAT24FR0000109 used Astrophysics' existing LEP system, which integrated a linear accelerator (Linac) into the LEP system and allowed the system to emit a pulsed x-ray scan.

3. Description of Supplies/Services.

S&T and CBP require ruggedization of the LEP/RPM prototype, installation at the San Ysidro POE, and field-testing culminating in a Site Acceptance Test (SAT). The results of this effort will be utilized by S&T and CBP to apply to future LEP builds. The live testing of the synchronized solution to LEP/RPM cross use interference by using a modified Linac, aims to improve operational efficiency and support border security priorities. Successful testing will demonstrate the system's ability to integrate with minimal disruption to port operations, increasing the percentage of vehicles screened and supporting workforce optimization, and eliminating nuisance radiation alarms caused by the operation of LEPs.

4. Identification of Statutory Authority Permitting Other Than Full and Open Competition.

The statutory authority permitting other than full and open competition is 41 U.S.C. 3304(a)(1) implemented by the RFO Subpart 6.103-1 entitled "Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements."

5. Demonstration that the proposed contractor's unique qualifications or the nature of the acquisition requires use of the authority cited.

(a) Rationale for using the authority cited in section 4 of the J&A.

DHS's need is highly specialized because CBP's operational environment at POEs imposes strict technical, safety, and integration requirements on any solution intended to mitigate interference between LEPs and RPMs. CBP requires a system that not only eliminates nuisance alarms but also integrates seamlessly with existing infrastructure, operates reliably in challenging outdoor conditions, and maintains the integrity of critical security screening processes.

To address this need, DHS S&T and CBP conducted an open request for solutions and engaged multiple vendors through industry workshops, site visits, and technical evaluations. Despite this broad outreach, only Astrophysics was able to design, build, and successfully test a pulsed-source LEP system that met all of CBP's stringent requirements. The Astrophysics solution demonstrated precise synchronization with RPMs, robust environmental protections, and reliable performance under real-world conditions. The system underwent rigorous evaluation and received formal approval from CBP, confirming its ability to meet both operational and technical standards. Other vendors were unable to deliver a compliant solution, further underscoring the highly specialized and unique nature of this requirement and justifying the use of the cited authority for other than full and open competition.

Additionally, awarding this requirement to any contractor other than Astrophysics would result in substantial duplication of cost to the Government that is not expected to be recovered through competition. The development of the prototype system required significant investment, and any new contractor would be forced to redevelop the system from the ground up, incurring similar or greater costs. Furthermore, such an award would cause unacceptable delays in fulfilling CBP's operational needs, as a new contractor would require extensive time to design, build, integrate, and test a new solution. The LEP technology qualifies as highly specialized equipment, and in accordance with 41 USC 3304(b)(2), these factors further support the use of other than full and open competition for this follow-on contract.

- (b) Details covering what events lead to the situation requiring use of other than full and open competition procedures including whether any portion of the work can be segregated to allow for competition.

The need for other than full and open competition arose from a multi-year collaborative effort between DHS S&T and CBP to resolve a critical operational gap. Throughout this process, multiple vendors were engaged and various technical approaches were evaluated. However, only Astrophysics was able to deliver a compliant prototype, which was successfully tested and validated by CBP. The follow-on work requires ruggedization, integration, and field testing of this specific prototype, which is based on proprietary hardware and software.

Astrophysics' LEP prototype is subject to multiple, specific IP restrictions that preclude other vendors from performing ruggedization or field testing. These restrictions are as follows:

1. **Limited and Restricted Rights to Technical Data and Software:**
The Government's rights to the technical data and computer software incorporated in the LEP prototype are expressly limited and restricted. As asserted by Astrophysics in 70RSAT24FR0000109, the following components are furnished with only limited and restricted rights, as they were developed entirely at private expense:

- HXP-LaneScan sub-system design, including hardware, firmware, software, GUI, and workstation configuration.
- HXC-LaneScan system mechanical, electrical, firmware, software, GUI, and workstation designs.
- HXC-LaneScan algorithms, software, and hardware for image reconstruction.
- X-ray data acquisition system, including software, hardware, and firmware (jointly with NKK)

2. Proprietary and Patented Technology:

The prototype includes proprietary methodologies and patented technology, such as:

- A custom-designed, lower-energy Linac capable of synchronized pulsing with RPMs, which is not available in commercial off-the-shelf systems.
- Unique software and firmware for pulse synchronization, daisy-chain firing sequences, and material discrimination algorithms.
- Modified detector arrays and generator housings specifically engineered to meet CBP's operational and safety requirements.

These elements are proprietary and may be subject to patent protection.

Due to these IP restrictions, another contractor would not have access to the technical data, software, or proprietary design information necessary to modify, ruggedize, or field test the prototype. The Government does not possess sufficient rights to share or license the underlying hardware or software to a third party.

The combination of limited and restricted data rights, proprietary software and hardware, and potential patent coverage means only Astrophysics is legally and technically able to perform the required ruggedization and field testing.

(c) Summarize alternatives considered and why they will not work.

Alternatives considered included shielding solutions and RPM modifications proposed by other vendors. Shielding was determined to be impractical due to physical constraints at ports of entry, while RPM modifications required additional research and algorithm development that CBP found operationally unviable. Only Astrophysics demonstrated the capability to deliver the preferred pulsed-source solution, which was successfully tested and approved by CBP, making other alternatives unsuitable for meeting the government's requirements.

(d) Impact to the mission that would result if the J&A is not approved and, consequently, the product or service not provided.

If J&A is not approved and the service not provided, CBP will not be able to meet congressional callouts related to the development of a deconfliction solution to LEP/RPM interference. CBP will not be able to develop an informed acquisition strategy, and CBP officers will continue to deal with false/nuisance radiation alarms, reducing the overall speed of commerce at our POEs.

- **If using “Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements” as your authority, also include the following:**
 - Details on the specific requirements.

CBP requires scanning systems for inbound passenger vehicles. LEP systems fulfill this capability and are installed at multiple POEs across the southern border. Current LEP systems interfere with RPMs due to a continuous emission of x-rays and the size constraints of the majority of POEs. Interference delays the inspection process, requires additional resources, and can lead to missed screenings.

- Information on why only one contractor is capable of fulfilling the requirements.

Astrophysics Inc. is the only contractor that has developed and successfully tested a pulsed-source LEP solution capable of mitigating interference with RPMs while meeting CBP’s specific operational requirements. The prototype solution developed by Astrophysics is now ready for field testing.

- Why other proposed contractors are unable to meet the requirements.

Other LEP manufacturers, such as Rapiscan and Leidos, were unable to address the capability gap because their proposed solutions relied on either shielding or modifying the RPM systems, rather than developing a pulsed-source LEP system. Shielding was not feasible due to space constraints at ports of entry, and RPM modifications required additional research and algorithm development that CBP determined would not reliably resolve the interference issue. In addition, even if another contractor were willing to attempt ruggedization or field testing of the existing prototype, they would be unable to do so due to the IP restrictions asserted by Astrophysics.

- Unique capabilities or qualifications of the contractor that form the basis for the justification.

The core components of the prototype system, including the Pulse Control Cabinet (PCC), Pulse Distribution Cabinet (PDC), and associated hardware, firmware, and software, were developed entirely at private expense and are proprietary to Astrophysics. The PCC and PDC provide significant benefits to the government by enabling precise synchronization between the LEP system and the RPMs, which is essential for eliminating interference and nuisance alarms during vehicle screening. These components ensure reliable and coordinated operation in the demanding port environment, directly supporting CBP’s operational requirements for screening accuracy and efficiency. By tailoring the PCC and PDC to CBP specifications, Astrophysics’ solution enhances system performance, minimizes downtime, and supports seamless integration with existing infrastructure—advantages not available from standard commercial offerings.

The underlying technical data, software, and algorithms that enable this functionality are protected by Astrophysics’ IP rights. This proprietary technology ensures reliable and coordinated operation in the demanding port environment, directly supporting CBP’s operational requirements for screening accuracy and efficiency. Because these critical subsystems and the enabling

software are owned and controlled by Astrophysics, only Astrophysics can provide the technical continuity, integration, and support required for this effort. These unique qualifications and proprietary rights distinguish Astrophysics' solution from other contractors.

- Information on why and description of the extent to which the Government will be harmed if the supply or service is not acquired from that vendor.

The Government would be greatly harmed if the ruggedization and field testing is not performed by Astrophysics. The prototype system was developed using Astrophysics' proprietary commercial system, with all core hardware, firmware, and software components created at private expense.

If the services are not awarded to Astrophysics, the Government would face both unacceptable delays and substantial duplication of costs. Any attempt to transition the effort to another vendor would require a complete redevelopment of the system, as other contractors would lack access to the proprietary technical data, software, and design information necessary to support or modify the prototype.

This would not only delay the project significantly, therefore hindering CBP operations at the testing site and impeding the agency's ability to meet mission requirements, but would also result in the Government incurring the full cost of developing a new solution from the ground up. In addition, the loss of technical continuity and immediate access to the original developer would further increase costs and risks, as only Astrophysics possesses the necessary expertise and proprietary knowledge to provide swift technical assistance and ensure successful field testing. For these reasons, acquiring the required supply or service from any source other than Astrophysics would be detrimental to the Government's interests.

6. Description of Efforts Made to Ensure that Offers are Solicited from as Many Potential Sources as is Practicable.

A synopsis will be posted to SAM.gov in June 2026. Any potential sources will be addressed accordingly.

7. Determination by the Contracting Officer that the Anticipated Cost to the Government will be Fair and Reasonable.

The Contracting Officer determines that the anticipated price will be fair and reasonable based on prior acquisition history from the prototype development effort. Certified cost and pricing data will be required.

8. Description of Market Research. Market research is required by RFO Part 10, and the results of the market research should be summarized here. Include the following information:

- (a) To address the x-ray interference issue between LEP systems and RPMs, S&T and CBP undertook a comprehensive market research process, with results being finalized in November of 2022. The initial step involved S&T and CBP personnel visiting potential

vendor facilities, including the Pacific Northwest National Laboratory (PNNL), to discuss the technical challenge and invite industry partners to a working group. These meetings were informational and established a collaborative environment for contractors to propose solutions. Following these engagements, the S&T Operations and Requirements Analysis (ORA) team conducted an industry survey report, reviewing existing documentation and solution approaches, with a focus on CBP's preferred pulsed-source solution.

Subsequently, contractors were invited to a workshop to present their proposed solutions. Astrophysics Inc. was the only contractor to propose and demonstrate a pulsed-source LEP solution, and subsequently successfully built and tested a prototype that CBP personnel observed.

Following the industry engagement and initial conclusions, seeking to validate the selection of Astrophysics, S&T completed a Business Case Analysis report which concluded that the pulsed-source solution offered by Astrophysics best met CBP's needs, demonstrating a clear understanding of the POE environment, required technology, and integration with CBP resources.

- (b) Patents, copyrights, and IP are applicable to this acquisition because the LEP prototype and its critical sub-components to include hardware designs, firmware, software, algorithms, and data acquisition systems are proprietary to Astrophysics Inc.

As documented in section 5(b) above, Astrophysics owns proprietary technology covered by data rights assertions.

9. Any Other Facts Supporting the Use of Other Than Full and Open Competition.

- (a) Technical data packages, specifications, statements of work, or purchase descriptions are not suitable for full and open competition because they lack the detailed proprietary information and rights required for third-party vendors to replicate or modify the system. The documentation available is specific to Astrophysics' unique design and integration approach, and does not provide the necessary access to proprietary engineering details or software needed for other vendors to perform the required work. Without unrestricted technical data and licensing, other vendors would be unable to deliver, support, or upgrade the system, making these documents insufficient for enabling meaningful competition.
- (b) The August 2023 Business Case Analysis estimated the total life cycle of conducting RDT&E on a pulsed-source prototype development to be \$2.8 million dollars, based on 2021 dollars. Adjusted for inflation to 2026, this amount would be approximately \$3.5 million using the most current data. Importantly, this estimate reflects the cost to develop the prototype over a 14-month period of performance. If the effort were awarded to a new vendor, the Government would not only incur this cost again, but would also face significant delays to redevelop and validate a new prototype from the ground up. This does not include the additional costs and time required for necessary testing to validate a

functioning prototype. From both a cost and schedule perspective, awarding this effort to any vendor other than Astrophysics would result in unnecessary duplication of expense and unacceptable delays to the mission.

10. A Listing of the Sources, if Any That Expressed, in Writing, an Interest in the Acquisition.

Market research for this requirement included direct outreach to all known manufacturers of LEP systems, including Astrophysics, Leidos, and Rapiscan. As part of this process, a Functional Requirements Document was published, and potential sources were invited to participate in a working group, site visits, and briefings to present their technical approaches for mitigating interference between LEP and RPM systems. All three vendors participated in these activities and presented their proposed solutions.

However, only Astrophysics submitted a written response detailing a viable pulsed-source solution that addressed the Government's technical requirements for synchronizing LEP and RPM operations. Neither Leidos nor Rapiscan submitted written proposals or follow-up documentation indicating an interest or ability to perform the required work as specified. No additional sources responded to the sources sought notice or expressed interest in writing during the market research period.

This determination is based on the documented results of the market research, including industry engagement, the working group, and the absence of written expressions of interest or capability from any contractor other than Astrophysics. As a result, Astrophysics is the only source that has demonstrated, in writing, both interest and the technical capability to meet the Government's requirements for this acquisition.

11. A Statement of the Actions, if Any, the Agency May Take to Remove or Overcome Any Barriers to Competition Before Any Subsequent Acquisition for Supplies or Services Required.

The results of this effort will provide CBP with valuable data and feedback to inform the requirements necessary to successfully deploy a pulsed-source LEP capable of mitigating interference with RPMs while adhering to CBP operational requirements in terms of screening accuracy and throughput. This information will inform future CBP requirements, solicitations, and acquisitions, providing a framework to procure additional solutions from a broader set of contractors as required.

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12. Contracting Officer's Certification. I certify that the data supporting the recommended use of other than full and open competition is accurate and complete to the best of my knowledge and belief.

/s/ Contracting Officer

13. Technical/Requirements Personnel Certification. I certify this requirement meets the Government's minimum need and that the supporting data, which forms a basis for this justification, is complete and accurate.

/s/ Technical Representative

APPROVAL:

/s/ Procuring Activity Advocate for Competition