GSA LIMITED SOURCE JUSTIFICATION GUIDANCE

TO: 126/Contracting Officer, Office of Procurement
FROM: 442/ Ty V. Marien, Aeronautics Systems Analysis Branch (E403)

SUBJECT: GSA Limited Source Justification for Purchase Request 4200482085

1. Recommendation

I recommend that NASA Langley Research Center negotiate with Saab Sensis Seagull Technology Center (Saab Sensis) for Enhancements to the Probabilistic National Airspace System (NAS) Platform Air Traffic Simulation Software for an estimated value of $170,000.00.

2. Nature of the Action

The nature of the action being approved is a limited source justification for the purchase of the services described in Item 3 below via the GSA Schedule GS-35F-0199P with Saab Sensis.

3. Description of the Supplies or Services

The proposed effort is to upgrade and enhance the functionality of the Probabilistic NAS Platform (PNP) simulation software tool previously developed at private expense by Saab Sensis.

Currently, the PNP simulation software tool has very basic modeling capabilities regarding the airport terminal area. The PNP Terminal Area Modeling software requires a series of enhancements to support planned studies. The following enhancements are required under this action:

a. Incorporate new wake spacing standards into the PNP terminal area modeling. The Federal Aviation Administration (FAA) has recently approved a re-categorization (RECAT) of wake turbulence separation minima from the current standard to a new standard. The PNP simulation software tool needs to be enhanced to utilize the miles-in-trail separation standards and to use the aircraft categorizations associated with the new RECAT standard.
b. Create a framework to allow the airport configuration (i.e., runway usage, available arrival and departure routes) to be changed dynamically during the simulation. The development of an Application Program Interface (API) is needed to allow a client software program to exchange information with PNP and request an airport configuration change when needed.
c. Enhance the terminal area model to support the modeling of winds in the airport terminal area.
d. Enhance the terminal area model and reporting to support flight fuel burn calculations in the terminal area

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4. Statutory Authority

Pursuant to FAR 8.404-6, this acquisition is conducted under the authority of the Multiple Award Schedule Program. Authority for the Limited Source Justification is FAR 8.405-6(b)(1), Only one source is capable of responding due to the unique or specialized nature of the work. Saab Sensis is the only responsible source; no other supplier or service will satisfy the Agency's requirements under the authority of 10 U.S.C. 2304 (c)(1).

5. Contractor's Unique Qualifications

The proposed action is in support of the research requirements of the NASA Airspace Program - Systems and Portfolio Analysis (SPA). SPA performs airspace simulations to assess the system-wide benefits of multiple concepts and analyzes design issues associated with integrating NASA NextGen concepts into a cohesive NAS.

Currently, SPA has a need to investigate and identify choke points in the current and future NAS. Choke points refer to any areas in the en route, terminal, oceanic, airport, and surface operations that constrain demand in current and projected future operations. SPA has created a milestone task called "Identification and Analysis of NAS Resource Constraints and Mitigation Strategies" to address this research.

One of the simulation tools to be used for this planned research is the Probabilistic NAS Platform (PNP). The PNP simulation software tool was developed by Saab Sensis as a fast-time simulation of the NAS. PNP has a unique combination of modeling capabilities, which make it well suited to performing these simulation studies. PNP supports modeling of the airport terminal area with individual runways and realistic approach and departure routes. This terminal area model also performs runway balancing and wake vortex final approach spacing. However, enhancements are needed to PNP's terminal area modeling capabilities to support the research needs of the SPA milestone.

Saab Sensis is the designer/developer of the original PNP simulation software that was developed at private expense by Saab. As the original developer of the software and owner of the proprietary source code, upgrades to the functionality of the PNP simulation software tool can only be made by Saab Sensis.

NASA has previously worked with Saab Sensis to add additional capabilities to PNP in support of systems studies performed for SPA. During this work, Saab Sensis supplied NASA with a version of PNP free of charge. This work was performed under NASA contract / task order NNL08AA17B, Task Order NNL10AC94T "Upgrades to the Probabilistic NAS Platform Air Traffic Simulation". The PNP simulation software was modified to provide aircraft separation assurance, traffic flow management, weather avoidance, required time of arrival (RTA) assignment and monitoring, and airport terminal area modeling. The work was completed under a firm fixed price contract. Task Order NNL10AC94T was awarded to Saab Sensis non-competitively.

Pursuant to NASA FAR Supplement 1804.570, a Sole Source "Notice of Intent" synopsis was published for the work performed under Task Order NNL10AC94T. On June 25, 2010 solicitation number NNL10343297Q -Upgrades to the Probabilistic National Airspace Platform Air Traffic Simulation Software - was published to the NASA Acquisition Internet Service (NAIS) Business Opportunities site and FedBizOpps. Interested organizations were to submit their capabilities and qualifications to perform the effort in writing no later than 4:30 p.m. local time on July 12, 2010. One company, Prediction Probe, Inc., expressed written interest in the acquisition. After a thorough review of the information submitted in response to the synopsis posting, NASA determined that Saab Sensis remains the only source capable of meeting the needs for enhancement to the PNP software based on the following:

- To accomplish the development tasks requires knowledge of, interface with, and modification of the PNP Air Traffic Simulation Software, of which the core software is proprietary to Saab Sensis Corporation.
- NASA does not have the right to disclose the proprietary PNP software to another organization for development or modification.
- The information provided by Prediction Probe, Inc. (PPI) indicates that they would integrate their tool set with/into PNP and that they would work with "NASA's Contractors as a subcontractor." NASA would not have privity in a prime-subcontractor agreement. Saab Sensis owns the PNP code; therefore PPI would have to contact Saab Sensis directly to address a potential subcontract relationship.
- PPI's submission did not demonstrate the existing capability to replace the core PNP functionality.

The work performed under Task Order NNL10AC94T included a subtask to create a basic PNP terminal area modeling capability. Previously, PNP had no terminal area model and all airports were treated as a simple node. Runways, approach and departure routes, runway assignment logic, and wake spacing logic were all added as part of this work. This simple terminal area model has been useful for SPA systems studies; however, there is a need to improve this simple model so that SPA can perform planned studies.

NASA owns the source code for these PNP software modifications. However, the PNP core source code remains proprietary to Saab Sensis. Any changes to the PNP core functionality and interfaces can only be made by Saab Sensis. The proposed action effort to upgrade and enhance the functionality of the PNP simulation software tool is a severable “stand alone” product as the functionality will be encapsulated in a client component that communicates with the proprietary PNP server component.

The proposed enhancements to PNP are critical to conducting the type of systems studies needed to support SPA. PNP has unique capabilities, especially in the area of RTA modeling, that are not available in other fast-time simulation platforms used by SPA. The proposed terminal area modeling upgrades will integrate with the other unique upgrades recently made to PNP. Therefore, it would not be practical to attempt to use the airport terminal area modeling features in another simulation platform unless that platform already supported those capabilities, such as RTA assignment and monitoring.

Other air traffic simulation codes are available and were considered for suitability to meet the requirements contained in the Statement of Work (SOW). The main source for the market research/survey is "Catalog of Models for Assessing the Next-Generation Air Transportation System" Report NS802T2. This catalog was created by Logistics Management Inc. for NASA and it lists the capabilities of the available major air traffic simulation codes. If NASA required only the proposed airport terminal model capabilities, one of these other simulation codes would likely be sufficient. However, NASA requires the unique combination of modeling capabilities present in PNP, in addition to the airport terminal area modeling. Specifically, there are no other fast-time simulation codes that have the combination of RTA assignment and monitoring capability, aircraft separation assurance, traffic flow management and weather avoidance. These capabilities will be used in conjunction with the upgraded terminal modeling to support SPA system studies.

PNP is a unique product of Saab Sensis and would require many years of development either by NASA or other contractors to create a similar software code. In addition to the proprietary reasons stated above, it would be not be practical or feasible to award this action to another contractor who would be unfamiliar with the PNP software code base. There is not a reasonable expectation that other potential offeror’s could satisfy the requirement as development of a software program with similar capabilities would require many years of development either by NASA or other contractors to create a similar code at substantial duplication of cost. PNP has unique capabilities, outlined in this document, that have been tailored for NASA systems studies. The PNP software code is a specialist application that is not available on the market except from Saab Sensis. The relatively small amount of the award would not allow another contractor to understand the software code base and make the necessary changes required by the action. Therefore, it would be in the Government’s best interest to award this action to Saab Sensis only.

6. Determination of Best Value

Pursuant to FAR 8.404(d), this acquisition represents the best value (as defined in FAR 2.101) and results in the lowest overall cost alternative (considering price, special features, administrative costs and legacy equipment issues) to meet the Government’s needs.

7. Description of Market Survey

See paragraph 5 for a complete discussion of the market research conducted for this action.

8. Any Other Facts Supporting the Use of Other than Full and Open Competition – Not Applicable

9. Subsequent Competitive Acquisitions

There are no current plans for future changes to PNP for NAS. However, future efforts would very likely be sole source because of the proprietary nature of the software and source code.

Certifications

Technical Certification
I certify that to the best of my knowledge and belief, the date furnished above is complete and accurate.

_____ _____
Name Date
Technical Requester

Contracting Officer Certification

I hereby certify that the above justification is accurate and complete, to the best of my knowledge and belief, and the anticipated cost to the Government will be fair and reasonable.

_____ _____
Name Date
Contracting Officer