

**JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION (JOFOC)**  
**(In accordance with Federal Acquisition Regulation (FAR) 6.3 – Other than Full and Open Competition)**

**1. Recommendation & Supporting Facts:**

This document is a justification for other than full and open competition prepared by the NASA Langley Research Center (NASA LaRC), Aeronautics Research Directorate and Systems Analysis and Concepts Branch. It is recommended NASA LaRC negotiate with Sensis Corporation for upgrades to the Probabilistic NAS Platform (PNP) Air Traffic Simulation Software to support the research requirements of the Systems and Portfolio Analysis (SPA) research focus areas within the Systems Analysis, Integration, and Evaluation (SAIE) project of the NASA Airspace System Program.

This recommendation is based on NASA's requirement to find a solution to the problems with the Airspace Concepts Evaluation System (ACES), the primary airspace simulation used for SPA efforts. The ACES simulation is complex, requires significant time to set up and is computationally intensive.

Due to the limitations of ACES and the need to be able to do less computationally intensive, quicker simulations, SPA has a need for a faster-running, less complex airspace simulation that is easy to set-up and that can be used to rapidly evaluate concept parametric variations and analyze integration design issues. This simpler simulation will provide efficiencies in the use of researcher's time to initial assessments and could be used to provide initial analysis and inputs prior to studies using ACES – a more complex and powerful tool. The PNP simulation tool developed by Sensis Corporation will fulfill this need.

**2. Nature of the Action:**

This justification provides the rationale for contracting for other than full and open competition to procure upgrades to the PNP Air Traffic Simulation Software on a sole source basis from Sensis Corporation.

**3. Description of the Required Supplies or Service:**

The proposed requirement is to upgrade and enhance the functionality of the PNP simulation tool developed by Sensis Corporation. The proposed work consists of four main tasks:

- Create SA interface software and enhance the PNP core functionality to support the requirements of current and anticipated future NASA developed tactical and strategic SA algorithms.
- Collaborate with NASA researchers to interface the NASA developed "Stratway" strategic SA code with PNP.
- Enhance the Graphical User Interface and PNP Simulation Display to support the new functionality.
- Update and enhance the existing users/ developers' guide to PNP to include the new functions.

This effort is anticipated to be a 1 year base effort for PNP simulation software upgrade and enhancement. The total contract value is estimated to be \$REDACTED.

#### **4. Statutory Authority:**

Authority for this JOFOC is made under statutory authority of 10 U.S.C. 2304(c)(2) as implemented by Federal Acquisition Regulation (FAR) 6.302-1, "Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements".

Pursuant to FAR 6.302-1(a)(2)(iii), the PNP simulation software is available only from the original source, Sensis Corporation. Award of this contract requirement to any other source would result in the substantial duplication of cost to the Government, estimated at \$REDACTED dollars, that could not be recovered through competition.

#### **5. Proposed Contractor's Unique Qualifications:**

The PNP simulation tool developed by Sensis Corporation is a fast-time simulation of the National Airspace System (NAS) that was primarily developed to investigate the effects of weather on NAS capacity and analyze the use of probabilistic Traffic Flow Management (TFM) to mitigate the effects. Sensis Corporation is the designer/developer of the original PNP simulation software. As the original developer of the software, and owner of the proprietary code, upgrades to the functionality of the PNP simulation tool can only be made by Sensis Corporation.

PNP is a unique product of Sensis Corporation and would require many years of development either by NASA or other contractors to create a similar code. Therefore, in accordance with FAR 6.302- 1(a)(2)(iii)(A), this product and support services may be deemed to be available only from the original source in the case of follow-on contracts for the continued provision of highly specialized services when it is likely that award to any other source would result in substantial duplication of cost to the Government that is not expected to be recovered through competition.

NASA LaRC has used and evaluated a version of the PNP simulation tool, provided by Sensis Corporation and has found it to be less complex than ACES, easy to set-up and fast-running on a desktop PC. It is ideally suited to the needs of SPA for a secondary simulation platform that can be used to reduce the number of simulation runs required before performing final evaluations using ACES. It has also been used by NASA Ames Research Center to successfully perform an initial analysis of integration design issues associated with the NASA Dynamic Airspace Configuration and Traffic Flow Management concepts for NextGen. With the proposed enhancements, PNP is ideally suited to meet NASA's need in the form of a fast-running lower fidelity code that is required to meet the schedule in the initial phase of a study.

The PNP executable is provided free of charge by Sensis Corporation, for use by NASA. Since the core PNP source code is not provided, changes to the PNP core functionality and interfaces again can only be made by Sensis Corporation.

## **6. Efforts Made to Solicit Other Offers:**

Pursuant to NASA FAR Supplement 1804.570, a Sole Source "Notice of Intent" synopsis was published for this proposed effort. 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.

The synopsis was modified on July 2, 2010 to add a draft copy of the statement of work for the proposed effort; the due date for responses was not extended as a result of the modification. The results are addressed in paragraph 9 of this document.

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. The PNP software code is a specialist application that is not available on the market except from Sensis Corporation.

## **7. Determination of Fair & Reasonable Cost:**

The Contracting Officer, with the assistance from the NASA requiring organization, will conduct a thorough review of the proposal received to ensure that the anticipated cost to the Government is fair and reasonable.

## **8. Market Research:**

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. However, none of the codes evaluated from the catalog have the capabilities to meet the full requirements of the SOW.

## **9. Sources that Expressed Interest:**

One company, **REDACTED**, expressed written interest in the acquisition. After a thorough review of the information submitted in response to the synopsis posting, NASA determined that Sensis Corporation 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 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 **REDACTED** 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. Sensis Corporation owns the PNP code; therefore **REDACTED** would have to contact Sensis Corporation directly to address a potential subcontract relationship.
- **REDACTEDs** submission did not demonstrate the existing capability to replace the core PNP functionality.

**10. Agency Actions to Remove/Overcome Competition Barriers:**

Follow-on acquisitions are undetermined at this time.

**JOFOC SIGNATURE PAGE FOR PNP SOFTWARE UPGRADES**

**Technical Certification**

I certify that to the best of my knowledge and belief, the supporting data presented in this justification is accurate and complete.

Original signature contained in the order file

\_\_\_\_\_  
**Jeremy Smith**  
Aerospace Engineer

**Contracting Officer Certification**

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

Original signature contained in the order file

"Signed" Timothy P. Cannella  
\_\_\_\_\_  
Timothy P. Cannella  
Contracting Officer

Date \_\_\_\_\_