



JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

(1) Agency and Contracting Activity

National Aeronautics and Space Administration

NASA Shared Services Center (NSSC)
Bldg. 1111, C Road
Stennis Space Center, MS 39529

(2) Nature and/or Description of the Action Being Approved

It is recommended that the NASA Shared Service Center (NSSC) award a sole source firm fixed priced IDIQ contract to The MathWorks, Inc (MathWorks) for a NASA Agency-wide contract to purchase new software licenses, continued software maintenance, and training of MathWorks products and services used for control system analysis, design and testing.

MathWorks, is the only known source that can meet Agency requirements. The contract shall include an IDIQ component to the firm-fixed price contract with MathWorks, to procure additional Agency-wide software licenses and training for various MathWorks products (e.g., MATLAB and Simulink). These products are Computer-aided design (CAD) software tools and MathWorks is the only source that can meet Agency requirements.

(3) A Description of the Supplies or Services (Including the Estimated Value)

MathWorks products such as MATLAB software contain a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis, and numeric computation. MATLAB consists primarily of the core product, MATLAB, a numerical processing engine, and Simulink, a graphical model-based programming environment. The MATLAB software provides unique capabilities in a wide range of applications, including signal and image processing, communications, control design, test and measurement, financial modeling and analysis, and computational biology. Additional MATLAB software components (toolboxes) are available separately and provide specialized functions. Examples include the Controls Toolbox, which provides specialized functions for the design and analysis of feedback control systems that are key to NASA Langley's development of guidance and control software for both aeronautic and space applications, and the Signal Processing Toolbox, which provides specialized functions for time series data analysis and is often used in data reduction analysis from wind tunnel and flight experiments. These toolboxes, taken together with the core products, form an analysis and algorithm development environment that is essential to the timely execution of a number of active projects in aeronautics, space exploration, and atmospheric sciences.

The MATLAB Software Maintenance Service includes access to new product features, direct technical support, online license management, periodic release updates and enhancements (including all toolboxes), and critical fixes to the software as problems are discovered. The maintenance service also provides technical support to end-users through telephone/email and per-user web based tracking of service requests. Various NASA Centers have acquired "perpetual" licenses for MATLAB software. This means that at its current version and capability level, this software may be run without additional costs. However, past experience has shown that running the software without maintenance or with partial maintenance is not cost effective. Improvements in the product's capabilities are continually being made, and the loosely coupled "toolbox" nature of the MATLAB software allows these advances to be incorporated quickly. Running older versions of MATLAB also prevents realization of the benefits of advances in the underlying hardware (e.g. dual-core CPUs) and causes compatibility problems with other users which also impacts NASA's operational effectiveness. In most instances after running with lapsed maintenance, an upgrade to the current version of the software is eventually required. The cost of this is typically more expensive than having maintained a service agreement, and does not provide the benefit of access to technical support and interim releases.

In the new agreement, MathWorks shall provide maintenance, new licenses and updates for all MathWorks software in use at the NASA Centers. Furthermore the Contractor shall provide maintenance for any purchases of MathWorks software tools in use at NASA Centers. The NASA Centers and associated Facilities are covered by this agreement include Armstrong Flight Research Center (AFRC – including Dryden Aircraft Operations Facility), Ames Research Center (ARC), Glenn Research Center (GRC – including Plumbrook Facility), Goddard Space Flight Center (GSFC - including Wallops Flight Facility – WFF, White Sands Complex – WSC, Independent Verification and Validation Facility – IV&V, and Goddard Institute for Space Studies - GISS), Headquarters Main Campus (HQ), Johnson Space Center (JSC – including White Sands Test Facility – WSTF, El Paso Forward Operating Location, and the White Sands Space Harbor), Kennedy Space Center (KSC – including Vandenberg Air Force Base – VAFB, and Transoceanic Abort Landing Sites – TAL), Langley Research Center (LaRC), Marshall Space Flight Center Main Campus (MSFC – including Michoud Assembly Facility – MAF and the National Space Science & Technology Center – NSSTC), NASA Shared Services Center (NSSC), and Stennis Space Center (SSC).

The increased product offerings have a total estimated contract value of \$30,000,000.00 for the procurement with a contract term of a one year base and four one year options. See the Independent Government Cost Estimate (attached).

(4) Identification of the Statutory Authority Permitting Other Than Full and Open Competition

The statutory authority that permits other than full and open competition is 10 U.S.C. 2304(c)(1), implemented by the FAR 6.302-1 "Only One Responsible Source And No Other Supplies Or Services Will Satisfy Agency Requirements".

(5) A demonstration that the proposed contractor's unique qualifications or the nature of the acquisition requires use of the authority cited.

This is an annual software maintenance renewal for new and existing CAD software tools being used in NASA labs. NASA's Enterprise License Management Team (ELMT) searched for available software tools vendors that can provide and annual maintenance renewal. ELMT could identify only MathWorks

for the required software tools. After extensive research it was determined that no other vendor was available who could provide the required software tools.

MathWorks is the leading developer of mathematical computing software. Engineers and scientists within the Agency rely on MathWorks products to accelerate the pace of discovery, innovation, and development. One of MathWorks products (e.g., MATHLAB) leverages the language of technical computing, and is a programming environment for algorithm development, data analysis, visualization, and numeric computation. MathWorks produces nearly 100 additional products for specialized tasks such as data analysis and image processing that interface with MATLAB. This functionality is highly leveraged by NASA scientist and engineers supporting various programs and projects throughout the Agency.

MathWorks is the developer and manufacturer of MATLAB. As copyright holder for MATLAB, MathWorks. is the only vendor with access to the MATLAB code capable of modifying, updating, and maintaining the software in accordance with industry standards. Another vendor could not modify the software without express permission from MathWorks. As such, MathWorks is the only authorized provider of the software maintenance. The estimated cost to replace the current MathWorks CAD software tools with a comparable solution (estimated: \$16.5M) is significantly higher than the estimated Agency MathWorks Renewal cost of \$2.7M which is based on the average annual maintenance spend over the past four years (e.g., FY10, FY11, FY12, and FY13).

(6) A Description of Efforts Made to Ensure That Offers are Solicited From as Many Potential Sources as is Practicable

This requirement will be posted on the NASA Acquisition Internet Service and will be synopsisized in accordance with FAR 5.201. Synopsis results will be included in the official contract file. Based on the authority cited in paragraph 4, it is concluded that our minimum needs are only reasonably available from the selected source.

(7) Determination by the Contracting Officer that the Anticipated Cost to the Government Will Be Fair and Reasonable

This procurement is for a commercial item, which the price can be determined fair and reasonable based on a comparison of the established market price. NASA also has historical contract information from previous awards with MathWorks for software maintenance, training and consulting services, there are no anticipated issues that would circumvent a fair and reasonableness price determination. The Contracting Officer will determine price reasonableness during the proposal evaluation process prior to contract award.

(8) Description of Market Research

A review of GSA Advantage was performed and the requisite software maintenance and support is not available through GSA. A review of the NASA SEWP contract was conducted as well and no other NASA SEWP vendor had the ability to provide NASA with a consolidated contract to provision maintenance, new licenses, training, and consulting support for all of NASA. A Google search was performed and no additional sources were found. In addition, Mathworks was contacted directly and they confirmed that they do not have any authorized resellers for MATLAB software maintenance.

(9) Any Other Facts Supporting the Use of Other than Full and Open Competition

In the event the Agency has to select an alternative source to replace MathWorks products functionality in use throughout the Agency, the change in the solution would adversely impact NASA's ability to meet various mission requirements. Some of the NASA Centers, Programs, and/or Projects that leverage the capabilities of MathWorks that would be adversely impacted include: the Engineering Directorate at the Johnson Space Center, the Scientific & Technical Information Program Office at the Langley Research Center, the Longitudinal Emergency Control System at the Armstrong Flight Research Center, the Sciences and Exploration Directorate at the Goddard Space Flight Center and NOAA's Geostationary Operational Environmental Satellites (GOES) program. The risk to those programs currently deployed is too great. Moreover, the cost to redesign and test those systems using a new CAD software solution would be unreasonable. Not to mention the various scientist and engineer throughout the NASA workforce would have to be retrained thus impacting their ability to meet mission milestones and support needs. Alternatives to MATLAB have been identified for specific operations, e.g. symbolic manipulations (Wolfram Research-Mathematica), data visualization (Tecplot Inc.-Tecplot-360), and real-time hardware interface (National Instruments-Lab View). All three of these software packages are used by several NASA Centers; however, none of these packages provide the comprehensive and integrated solution available through MathWorks products (e.g., MATLAB and its toolboxes).

Acquiring alternatives to MATLAB software would involve the purchase and installation of several products from different vendors to achieve the same basic capability. The integration of these tools would require data import/export utilities and result in a much less productive workflow. Training cost and investment would be substantial, and communication of research and analysis results both within and outside of NASA would be negatively impacted.

(10) A Listing of the Sources, If Any That Expressed, In Writing, an Interest in the Acquisition

There are other companies who develop thermal software, but there are no other companies who have authority to distribute, maintain, and support the source code which is proprietary to products that are sold by MathWorks. If any companies express interest in the procurement as a result of the synopsis discussed in paragraph 6, the Contracting Officer will address their interest and whether they can comply with the government's requirements in the official contract file.

(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 The Supplies Or Services Required.

The Agency will continue to examine the market in the future for alternative solutions before executing any subsequent contract action for the requirement herein. Due to the nature of the expressed requirement, there are no known actions which the Agency may take to give consideration to other manufacturers for the requirements described herein.

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.

[Redacted Signature]

[Redacted Name]
ELMT Strategist
NASA Shared Services Center

Contracting officer 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.

[Redacted Signature]

[Redacted Name]
Contracting Officer
NASA Shared Services Center

HEAD OF THE PROCURING ACTIVITY

[Redacted Signature]

[Redacted Name]
Procurement Officer
NASA Shared Services Center

COMPETITION ADVOCATE APPROVAL

[Redacted Signature]

[Redacted Name]
Executive Director
NASA Shared Services Center