

PART 1 - SECTION C

STATEMENT OF WORK - RESEARCH & MISSION ANALYSIS (R&MA)

C.1 GENERAL

C.1.1 Objective

The objective of this contract is to provide a broad range of Research, Service Analysis, and Strategic Planning support services, and other aviation related support services, that will enable the Federal Aviation Administration (FAA) to accomplish its National Airspace System (NAS), Non-NAS, and other aviation related mission objectives. Section C.2 (Scope) further defines the scope of the contract.

C.1.2 Background

(a) With the expected growth in air traffic operations and our aging infrastructure, the FAA, in collaboration with its aviation partners, other federal agencies/departments, foreign entities, and users of the NAS and the larger national air transportation system, has begun the task of transforming the NAS to meet the future demands expected between now and 2020 and beyond. This effort is called the Next Generation Air Transportation System (NextGen). NextGen goals are laid out in the Next Generation Air Transportation System Integrated Plan (December 2004) and include: enhancing the passenger experience from curb-to-curb; increasing capacity and efficiency through modernized and near real-time air traffic management capabilities/techniques/procedures; reducing operational ownership costs and environmental impacts; reducing the impact of weather on air travel through a system-wide capability for enhanced weather observations and forecasts; modifying or enhancing existing aircraft certification requirements and regulations; securing and defending the air transportation system against emerging threats; and ensuring our leadership position in managing the safest and most efficient air transportation system in the world.

(b) In order to accomplish NextGen, as well as other non-NextGen aviation related activities, a portfolio of contract support services vehicles were awarded in 2010 under the title of Systems Engineering 2020 (SE-2020). The scope of the support services of SE-2020 is in direct support of U.S. aeronautics development and the transformation of the national air transportation system. The FAA intends, but is not required, to manage this contract as part of the SE-2020 portfolio of contract vehicles.

(c) The transformation to this vision will not be made by the FAA alone. It requires other member Federal agencies, as well as partnerships in the public sector (e.g., airport authorities, state/local governments, etc.), private sector entities (e.g., airlines, manufacturers, etc.), and academic institutions to create a world-class consortium focused on identifying

solutions for implementing NextGen. The FAA is committed to transforming the aviation system in conjunction with NextGen partner Federal agencies and public/private entities. The multi-agency public/private initiative includes the Departments of Transportation, Defense, Commerce, and Homeland Security, as well as the FAA, the National Aeronautics and Space Administration (NASA), the White House Office of Science and Technology Policy (OSTP), public sector, and private entities. The NextGen vision is an integrated evolutionary plan to take the FAA beyond ground-based radar technology and voice direction into the second century of aviation using modern technology; updated procedures and new equipment; satellite-based operations; updated communications and automation; and improved weather and traffic management capabilities.

(d) To realize this vision, the FAA must make coordinated improvements on multiple fronts. The NextGen Implementation Plan will be the mechanism by which the FAA holds itself accountable to its customers and the aviation community for progress toward the NextGen vision. See <http://www.faa.gov/NextGen/implementation/>.

(e) The NAS Enterprise Architecture (EA) aggregates and describes the research and systems needed to achieve the goals of the FAA for the NAS, and serves as the basis to evaluate and document needed upgrades. The NAS EA provides a description of the specific NAS systems and subsystems undergoing research and development, production, or those planned for future development. The NAS Architecture recognizes that maintenance and upgrade efforts of the numerous NAS systems and facilities is a continuing integrated process rather than a singular effort culminating in a final end-state system design. The FAA's NAS Architecture can be found at <https://nasea.faa.gov/>.

C.2 SCOPE

C.2.1 General

(a) The Scope of this contract covers all support services the FAA may require in connection with:

- (i) All activities covered by Section 2.2 (Research for Service Analysis) of the FAA's Acquisition Management System (AMS) Lifecycle Management Policy.
- (ii) All activities covered by Section 2.3 (Service Analysis and Strategic Planning) of the AMS Lifecycle Management Policy. The Concept and Requirements Definition (CRDR) Decision is the demarcation point.
- (iii) All aviation related activities that fall outside the AMS Lifecycle Management Policy. This includes, but is not limited to research, analysis, and assessment supporting the development of standards, policies, published rules, and procedures.

(b) Since the NAS encompasses far more than the FAA’s infrastructure, this contract allows for studies of systems that may never be owned by the FAA.

(c) The FAA AMS Lifecycle Management Policy can be found at: <http://fast.faa.gov/>.

(d) The FAA intends for this contract to remain current and continue to provide a full range of support services within the contract scope throughout the contract’s period of performance. Accordingly, the FAA may make updates to the contract at any time, as appropriate, to ensure the contract continues to provide a full range of services within the contract scope. This includes, but is not limited to:

(i) Updates to references to AMS Lifecycle Management Policy. The Scope of this contract references terms described in the AMS Lifecycle Management Policy. The FAA may revise the AMS Lifecycle Management Policy from time to time. If such a revision occurs, the FAA may update the contract’s references to the AMS Lifecycle Management Policy, as appropriate. If such updates are needed, the FAA will implement them in a manner that will not materially modify the substantive scope of the contract.

(ii) Updates to Tasking Requirements and Core Capabilities. The Tasking Requirements listed in Section C.3, C.4 and the Core Capabilities listed in Attachment A are not intended to be an exclusive list of the services that can be ordered within the scope of the contract. The FAA may add or revise Tasking Requirements and Core Capabilities to cover additional services within the scope of the contract.

Updates to references to AMS Lifecycle Management Policy, updates to the Tasking Requirements and Core Capabilities are within the specific scope of the contract and will not constitute a “change” for purposes of the Change Clause.

(e) The Contractor must, in response to Task Orders issued under this contract, provide the full range of support services required by the contract. When the FAA orders work under this contract, it will do so by issuing individually-funded Task Orders (TOs) that identify, define, and issue specific one or more requirements within the Tasking Requirements listed in Section C.3 and C.4.

(f) The Contractor may be issued Task Orders that are related to the development of future NextGen concepts, non-NextGen concepts, as well as other areas that are aviation related.

(g) The Contractor must support the application of scientific and analytical disciplines to conduct applied research directed toward data collection/reduction, analysis, and concept exploration and development required to satisfy existing and emerging demand for NAS services. Applied research is defined as the systematic study to gain the knowledge or understanding necessary to determine the means by which a recognized and specific need may be met.

C.2.2 Task Order Management

(a) Task Order management is a mandatory element for all Task Orders placed under this contract. Task Order management must provide the appropriate program management and project control necessary to manage the Task Order; ensure that the cost, schedule and quality requirements for each Task Order are continually tracked and the status communicated to the FAA; and ensure that each Task Order is successfully completed.

(b) The Contractor must furnish and make available all personnel, supplies, equipment, materials, data, facilities, and services necessary to perform the work under this contract.

(c) The Contractor must provide quality technical, engineering, analytical, planning, and management support to achieve the requirements of this SOW.

(d) As determined by the FAA, the Contractor may be required to interface with system integration contractors, equipment manufacturers, airport personnel, various FAA and U.S. Government and Military organizations, and international organizations.

C.2.3 Applicable Documents

Applicable FAA/DOT orders, process guidelines, and military standards may be specified and identified as references within the individual Task Orders. FAA orders and notices can be found at: https://employees.faa.gov/tools_resources/orders_notices/.

C.2.4 Government Furnished Property

All Government Furnished Property (GFP), to include information, material, and equipment, may be specified within the individual Task Orders. All GFP is the property of the Government and must not be transferred to any individual or agency, public or private, without the express written approval of the Contracting Officer, except as required for the specific performance of the Task Orders. The FAA will specify GFP in individual Task Orders.

C.2.5 Security Requirements

Security requirements, applicable to the work to be performed under each Task Order, may be identified within the individual Task Orders. Additional security clearances may be needed for specific Task Orders. Candidates identified for performance under those Task Orders must hold or be eligible to obtain the requisite security clearance.

C.2.6 Data Deliverables

Specific data deliverable requirements may be included in the individual Task Orders issued under this contract, either as an item in a Contract Data Requirements List (CDRL) or specified in the Task Order.

C.2.7 Quality Management Support and Compliance

(a) Certain Task Orders may include activities that require Contractors to support the FAA in complying with various Quality systems or models. Examples of Quality systems or models include but are not limited to:

- Various International Organization for Standardization (ISO) standards such as:
 - o ISO-9001, and
 - o ISO-14001 (which is affiliated with Environmental Management Systems (EMS));
- Safety Risk Management / Safety Management System; and
- Capability Maturity Model Integration (CMMI).

(b) Some Task Orders may require the Contractor to assist the FAA in meeting their compliance or to support the FAA in becoming compliant with Quality systems or models.

(c) Other Task Orders may require the Contractor to be compliant with Quality systems or models. If there is a requirement included in a Task Order that a Contractor must be compliant, it is the responsibility of the Prime Contractor (utilizing subcontractors as appropriate) to ensure Quality Management support or compliance requirements are met.

C.2.8 Protection of Human Participants

The Contractor must ensure the safety and well-being of all human subjects taking part in FAA-sponsored activities or FAA-conducted scientific research under any Task Order for which the Contractor is providing support, and must adhere strictly to the provisions of the Federal Policy for the Protection of Human Subjects (49 CFR Part 11).

C.2.9 R&MA Core Capabilities

(a) Task Orders issued under this contract will require the Contractor to perform technical services, possess specialized experience or expertise with particular capabilities, and apply specific techniques or analyses. These capabilities and techniques are referred to as R&MA Core Capabilities and are identified in Attachment A of this SOW.

(b) The Core Capabilities are capabilities that are needed to perform the Tasking Requirements. The Core Capabilities do not define the scope of this contract. With respect to the SE2025 portfolio of contracts, some Core Capabilities may be present on both R&MA and SE contracts. Those Core Capabilities are intended to be applied consistent with the scope of the particular contract.

C.3 TASKING REQUIREMENTS

C.3.1 Demand for National Airspace System (NAS) Services Support

(a) The following are the high level activities performed by the FAA for the aviation community that contribute to the flow of aircraft throughout the NAS. They can be found at <https://nasea.faa.gov/>. As tasked, the Contractor must support all activities associated with the demand for NAS services which include, but are not limited to the following:

- Air Traffic Control (ATC) – Advisory;
- ATC – Separation Assurance;
- Airspace Management;
- Emergency and Alerting;
- Infrastructure – Information Management;
- Aviation Navigation;
- Traffic Management (TM) – Strategic Flow; and
- TM – Synchronization.

(b) As tasked, the Contractor must support activities associated with the demand for NAS services which include, but are not limited to, identifying and quantifying (including data collection) projected demand for the aforementioned NAS services, based on diverse inputs in the form of external demand for airport and airspace service and capacity, long-range plans and projections, local site trends, performance and supportability trends of fielded equipment, and current/planned NAS capabilities.

C.3.2 Technology Opportunities Support

As tasked, the Contractor must support activities associated with new technological opportunities. This includes but is not limited to, identifying, quantifying, and keeping abreast of potential technological opportunities for supporting the NAS services. This includes being cognizant of existing Commercial-Off-The-Shelf (COTS) hardware/software systems, emerging technologies, and the potential for technology transfer of research outcomes to enable the FAA to continue to perform its mission in a safe, efficient, and cost effective manner.

C.3.3 Identified Projected Supply of Services

As tasked, the Contractor must support all activities associated with identified projected supply of services. This includes but is not limited to, identifying and quantifying the

existing and projected supply of services based on performance and supportability data, external and internal assessments of FAA-provided services, and assessments of current and planned NAS capabilities.

C.3.4 Mission Needs Analysis & Assessment Support

As tasked, the Contractor must support all activities associated with mission needs analysis and assessment. This includes but is not limited to, analyzing, quantifying, revalidating, and documenting requisite operational improvements by identifying and prioritizing capability shortfalls (the difference between demand and supply) of the existing NAS services.

C.3.5 Test Resources

As tasked, the Contractor must support all activities associated with: planning and performing tests and evaluations; developing and testing prototypes; providing test equipment; providing simulation and modeling software/tools; and providing test support resources. This includes but is not limited to generating test plans, test procedures, test analysis, and test reports, as well as providing Test and Evaluation (T&E) support for Verification and Validation (V&V) engineering at the conceptual engineering level.

C.3.6 Laboratory Facilities

As tasked, the Contractor must support FAA Research, Service Analyses and Strategic Planning activities, which include but is not limited to planning, designing, documenting, operating and maintaining laboratory facilities.

C.3.7 Reserved

C.3.8 Policy Studies

As tasked, the Contractor must support and perform policy studies, which includes but is not limited to analysis of policy and organizational issues inherent in the NextGen transformation, development of alternatives, analysis of trade-offs between competing goals, analysis of constraints, stakeholder analysis, and conflict identification and resolution.

C.4 NEXTGEN RESEARCH FOCUS AREAS

As tasked, the Contractor must conduct NextGen research, which includes but is not limited to, research in the areas described in (a) and (b) below.

(a) Some of the research focus areas will be geared towards the FAA's implementation of NextGen (i.e. The FAA NextGen Implementation Plan). In addition, this plan delineates seven solution sets that have cross-cutting implications and inter-dependencies from not only a cost and schedule perspective, but also from a technological and operational point of view

that embraces all users of the NAS. These initiatives can be found at <http://www.faa.gov/nextgen/implementation/>. The solution sets are defined as follows:

- Initiate Trajectory-Based Operations;
- Increase Arrivals/Departures at High Density Airports;
- Increase Flexibility in the Terminal Environment;
- Improve Collaborative Air Traffic Management;
- Reduce Weather Impact;
- Improve Safety, Security, and Environmental Performance; and
- Transformation of Facilities.

(b) Some research is anticipated to be conducted with partnering agencies as well as in collaboration with other countries (i.e., the Next Generation Air Transportation System Integrated Plan, December 2004). These more global research focus areas can be found at http://www.jpdo.gov/library/NGATS_v1_1204r.pdf, and are as follows:

- Develop Airport Infrastructure to Meet Future Demand;
- Establish an Effective Security System without Limiting Mobility or Civil Liberties;
- Establish an Agile Air Traffic System;
- Establish User-Specific Situational Awareness;
- Establish a Comprehensive Proactive Safety Management Approach;
- Develop Environmental Protection that Allows Sustained Aviation Growth;
- Develop a System-Wide Capability to Reduce Weather Impacts; and
- Harmonize Equipage and Operations Globally.