

UAS TRAFFIC MANAGEMENT REQUEST FOR INFORMATION

February 12, 2021



SUBMIT RESPONSES TO:

Northeast UAS Airspace Integration Research Alliance (NUAIR)

David Whitaker

NUAIR Chief of Development

dwhitaker@nuair.org

(315) 373-4556

DEADLINE FOR SUBMISSIONS: March 15, 2021

Introduction

The Northeast UAS Airspace Innovation Research (NUAIR) is a not-for profit organization committed to the development and testing of UAS technology to enable the safe application of UAS for the benefit of the public working with government agencies, municipalities, emergency responders, and private corporations. NUAIR was founded in 2011 with the responsibility of managing and operating the NY UAS Test Site (NYUASTS), one of seven FAA authorized UAS test sites.

NUAIR and the NYUASTS have developed an extensive capability portfolio including a 50-mile operations corridor between Rome, NY and Syracuse complete with surveillance, communications, and tracking capabilities. These technologies support advanced UAS flight operations under multiple COAs and waivers permitting more complex UAS operations than those permitted by Part 107 flight rules.

NUAIR and the NYUASTS have conducted over 3200 flights in the last six years including several large operations for the FAA, NASA, New York State, Johns Hopkins University Applied Physics Laboratory, and multiple commercial entities resulting in the safe development and integration of UAS operations in the National Airspace System (NAS).

Existing Capabilities

The current NUAIR capabilities delivered through a combination of systems owned by NUAIR and its partners includes:

- Low and medium level non-cooperative surveillance over approximately 400 square miles in upstate New York
- Cooperative surveillance over a similar footprint including multiple ADS-B receivers and ATRBS receivers and interrogators
- Fixed and mobile operations facilities including secure networks, displays, operations consoles, ground to air radios, and wireless networks
- Multiple UAS platforms covering a range of types and sizes used to test and demonstrate capabilities
- Multiple software-based platforms for monitoring, collecting, recording, analyzing, and displaying important airspace information in real time and/or replay modes

Future Vision

NUAIR is in the process of updating the long-range plan for the New York UTM Corridor capabilities and systems as it progresses towards commercialization of UAS applications in New York State. One area of near-term interest is the market availability of UAS traffic management (UTM) elements, consistent with NASA's UTM architecture and the FAA UTM ConOps, to support flight operations within New York's UAS Corridor and ultimately beyond.

This request for information (RFI) is an effort to understand the capabilities and limitations of existing UTM related products and the planned roadmap for their development. The goal is to inform a procurement strategy to develop a commercially viable UTM capability, including persistent flight management capabilities in the coming years consistent with long-range customer needs and NUAIR's investment budget.

Scope and Areas of Interest

NUAIR is interested in suppliers current and planned capabilities to provide a wide range of services as defined in the NASA UTM Architecture and FAA UTM ConOps. The functions of interest are listed in the full RFI document below. It is not expected that all services described will be available at the current time or that any one supplier will be required to provide all services described. The list of functions provides a long-term potential suite of services that NUAIR is interested in providing to users flying within the confines of the 50-mile corridor and beyond.

Table of UTM Functions

Function	Description
Remote ID	Services related to the identification of UAS in the NAS.
FAA Messaging	Services that provide on-demand, periodic, or event-driven message exchange capabilities with FAA systems to satisfy applicable regulatory/policy requirements.
USS Network Discovery	Services enabling authorized UTM stakeholders to discover relevant active USS providers and operations within a specified geographical area. The network operates in accordance with applicable standards. Each USS's access to the network will be qualified against the performance requirements necessary to be connected with the FAA portion of the network.
Operator Registration	A service which provides the ability for vehicle owners to register data related to their UAS and a query function to allow appropriate stakeholders to request registration data.
Airspace Authorization	A service which provides Airspace Authorization from the Airspace Authority/Air Navigation Service Provider to a UAS Operator.
Constraint Management	A service which supports provision of operational constraint information related to public safety activities, as well as applicable constraint information from the Airspace Authority/ANSP and other non-FAA authorized sources, to UAS Operators.
Operator Messaging	A service that provides on-demand, periodic, or event-driven message exchange capabilities in support of UAS Operator activities. Examples of exchanged information include position reports, intent information, and status information.
Strategic De-Confliction	A service that arranges, negotiates, and prioritizes intended Operation Volumes/trajectories of UAS operations with the objective of minimizing the likelihood of airborne conflicts between operations.
Operational Intent sharing	A service that provides operational intent information to all other users potentially impact by operations. Includes pre-flight negotiation and communication and in-flight intent sharing including changes to intent.
Conformance Monitoring	A service that provides real-time alerting of non-conformance with intended Operation Volume/trajectory to an Operator or another airspace user.
Conflict Advisory and Alert	A service that provides real-time monitoring and alerting through suggestive or directive information of UA proximity for other airspace users.

Dynamic Reroute	A service that provides real-time modifications to intended Operation Volumes/trajectories to minimize the likelihood of airborne conflicts and maximize the likelihood of conforming to airspace restrictions and maintaining mission objectives. This service arranges, negotiates, and prioritizes inflight Operation Volumes/trajectories of UAS operations while the UAS is aloft.
Operation Planning	A service that supports flight planning - accounts for various operational impacts, including other known operations, aircraft performance, weather forecasts, ground constraints, airspace constraints.
Flight Dispatch	A service that supports flight planning of operations requiring certification/special authorization (e.g., flight dispatch under Part 135).
Weather	A service that provides forecast and/or real-time weather information to support operational decisions of individual Operators and/or services.
Mapping	A service that provides airspace constraint (e.g., airspace restrictions, special use airspace, NOTAMs, UVRs) and ground constraint (e.g., public gatherings, sensitive areas, obstacles) data necessary to meet the safety and mission needs of UAS operations and support in-flight and planning-related services.
Communication/C2	A service that provides infrastructure and quality of service assurance for radio frequency (RF) Command and Control (C2) capabilities to UAS Operators.
Surveillance	A set of strategic and tactical services that support air risk assessment for safety case development, flight planning with airspace heat maps based on common traffic patterns, and flight operations by providing real-time tracking information of air traffic for a given geographic area. Surveillance services consist of three primary means of collecting information regarding airborne hazards: terrestrial surveillance, airborne surveillance, and satellite surveillance.
Navigation	A set of strategic and tactical services that provide historical quality of service performance for airspace surveying during the safety development phase, coverage maps during the flight planning phase, and real-time integrity, availability, quality of service, and security monitoring during the operation phase.
UAS System Monitoring (Prognostics)	A service that monitors the health and status of UAS system components (e.g., battery and motors) in real time, and uses the input data to formulate predictions about the components' viability at future time horizons.

Requested Information

The following information is requested in your response to this RFI. Where capability information is requested, please make it clear if this capability is either 1) a mature capability which is fully developed, tested, and fielded in at least two separate customer locations at the present time or 2) a planned future capability. Please describe the status of any future capabilities and the planned delivery date to the first customer.

Company Information

Please provide the following information about your firm:

- Company Name
- Type of company (e.g., not for profit, public, private, etc.)
- Point of contact, title, and contact information for further communication regarding this RFI
- Date of incorporation or launch
- Current number of employees
- Dunn and Bradstreet number
- Company address and website URL
- A brief description of your company, its products and services offerings, and the markets it serves

Product Description and Capabilities

Please provide the following information about your product / service capabilities while clearly describing which are current and which are planned:

- Overall description of your product / service suite and how it relates to the Table of UTM Functions
 - Identify your key capabilities of your organization
 - Please provide an overview of customers and applications previously/currently provided
 - Please provide a high-level description of how you would propose to implement your platform with NUAIR
 - Provide a description of how you would propose to provide services to users other than NUAIR
 - Please provide your involvement with relevant standards committees and your plans to adopt future standards into your products and services
- Flight planning and flight management including the following
 - Ability to check airspace descriptions
 - Sources of data used for airspace descriptions
 - Sources of airspace and geospatial data supported
 - Ability to access regulatory data including LAANC information
 - Are you and approved LAANC provider?
 - Ability to support advisories and NOTAMs
 - Describe your fleet management capability of UAS assets including ownership of these capabilities (organic or 3rd party supplied). List all OEMs (make/model) that have been integrated and describe any demonstrated performance.
 - Describe your process for staying current with OEMs product updates and releases including any limitations on the number or type of devices that can be added to the fleet
 - Approach to strategic deconfliction including any demonstrated results of metrics
 - Describe what pertinent information is provided to the pilot during flight operations and how this information is provided

- Flight Monitoring including the following
 - Describe the flight monitoring process including what considerations are used during flight and what is conveyed to the pilot and what data is stored for post flight analysis
 - Describe how the product supports remote ID with the current capabilities and future roadmap including network and broadcast sources
 - Describe the SDSP capabilities currently provided including the sources of data implemented, interfaces implemented, how the output of the SDSP is provided to other USS, and the formats this information is provided in
 - Describe the current and planned capability to ingest data from SDSPs including a description of each of the data sources and interfaces.
 - Describe what alerts are provided during flight and how they are presented to the pilot or other participants including examples or the user interface

Security and Access Management

Security features including the following

- Describe how your platform is hosted and the security protocols used to assure data and user integrity
- Describe your platforms capability to onboard users and how secure access is authenticated / maintained
- Describe what user access levels are provided including the available levels, capabilities of each, and how additional levels can be defined or added
- Describe your security protocol for any interfaces or web services
- Describe the security and authentication solution including identification of any third-party software utilized and how the third-party software is managed
- Describe your level of compliance with security requirements including NIST and ISO 27000 frameworks
- Describe the types of data stored on local and remote / cloud devices and the security protections for these data
- Describe your systems ITAR / BIS classification and any limitations of use dictated by regulatory controls

Budgetary Pricing

Please provide budgetary pricing model for the product and services mentioned in your response including each of the major options available or planned. Please clearly identify both one-time/development costs and periodic user fees.

Comments on Acquisition Strategy

NUAIR is looking to structure the procurement to streamline the procurement process and take advantage of any beneficial business practices offered by suppliers.

- Please provide any suggestions for the structure of the program which would result in pricing or functionality benefits to NUAIR. Invite comments on RFP structure, requirements, evaluation criteria, timing, etc.
- Please identify other functionality or capabilities not identified in this RFI would potentially be beneficial to NUAIR, the Test Site, and/or the ability to attract operational users to the region.

- Please identify any functionality or capabilities identified that may be of marginal benefit or be prohibitively expensive.

Submission Instructions

Interested parties are requested to respond to this notice with an information package. The information packages are due no later than March 15, 2021 5:00 PM (Eastern Time) and shall be submitted via email only to dwhitaker@nuair.org. All responses shall be submitted in MS Word and are limited to 10 pages, not including the cover page. Any proprietary information must be clearly marked. Please do not include any information subject to export restrictions including information restricted by the ITAR. Any responses containing export restricted information will not be evaluated.

Organizations planning on responding are requested to respond with their intentions and a POC including email and phone number prior to February 19, 2021. Any changes to the RFI will be sent via email to those expressing intentions to submit.

Any questions related to this RFI must be submitted in writing and addressed to the NUAIR POC identified above no later than February 24, 2021. Responses to all questions received will be sent via email only to the organization submitting the question prior to March 5, 2021.

This is a request for information only. It is not a procurement commitment to procure services or a request for proposals. NUAIR will not pay for any information solicited. If a solicitation is released, responders to the RFI will be notified via email. NUAIR reserves the right to share information received in response to this RFI with its support services contractors and to use information submitted in responses to this RFI in the formulation of future solicitation(s) related to initiatives described herein. Any contractors involved in the procurement process will be ineligible to submit a proposal or receive an award.