



Driving Innovation Through Strategic Partnerships

Round 5 Opportunity Announcement

Issued January 6, 2021 (AMENDMENT 002)

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Ohio Federal Research Network (OFRN) Opportunity Announcement

1 OPPORTUNITY DESCRIPTION

1.1 General Overview Information

State Program:	Ohio Federal Research Network (OFRN)
Funding Opportunity Title:	Round 5 - Sustaining Ohio's Aeronautical Readiness and Innovation in the Next Generation (SOARING)
Announcement Type:	Opportunity Announcement
Funding Opportunity Number:	Parallax -21-008

1.2 Key Dates

Event	Key Date
Opportunity Announcement Pre- Release	Oct. 29, 2020
Opportunity Announcement Informational Session and Q&A with Federal SMEs (2 virtual sessions)	Nov. 10, 2020 (10:00am– 12:00pm ET)* Nov. 18, 2020 (1:00pm-3:00pm ET)*
Regional Workshops (2 virtual sessions)	Dec. 10 & 15, 2020*
Opportunity Announcement Formal Release	Jan. 6, 2021
Bidders Conference and Proposal Training	Jan. 20, 2021* <i>Mandatory</i>
Proposal Questions Accepted Through	Feb. 11, 2021
Due date for Volume 1 (Technical) and 1A (Supplemental)	Mar. 4, 2021, by 5:00pm ET
Notification of Selection for Final Pitch Day	March 19, 2021
Pitch Deck and Pitch Presentation Training	Week of March 22, 2021 <i>Mandatory</i>
Due date for Volume 2 (Business and Cost Proposal), and 2A (Slide Deck)	April 15, 2021
Pitch Day	April 20-21, 2021
Proposal Review	May 4, 2021
Awards Announced	May 7, 2021
Projects Start	May 24, 2021
Student Intern Orientation	May 31, 2021

**information for sessions will be posted to <https://ohiofrn.org>
Bidders Conference and Proposal Training on Jan. 20, 2021 is mandatory. At least one member of the proposal team needs to register/attend.*

1.3 Description of the Funding Opportunity

The OFRN Round 5 Opportunity Announcement is focused on expanding Ohio's research and development capabilities across the state's academic institutions and business in support of Ohio-based federal partner needs, which ultimately promotes Ohio's economic growth. OFRN Round 5 Areas of Interest (AOIs) include topics in Unmanned Aerial Systems (UAS), Artificial Intelligence, Human Factors, Data Analytics, Space Commercialization, Quantum Communications and Advanced Power Systems. This announcement seeks to leverage Ohio's unique research capabilities and its federal partner's expertise to accelerate technology development and innovation by increasing collaboration across government, academic, and industry organizations.

1.4 Funding Availability

The Round 5 Opportunity Announcement is **subject to funding availability** based upon a pending review and final determination of the Program Objectives from the Ohio Department of Higher Education (ODHE). OFRN will not reimburse interested parties for any costs incurred in the review and/or response to this document.

Total amount to be awarded:	Up to \$15 million
Anticipated individual awards:	\$750k to \$2M each
Cost share:	Cost share is optional, but favored
Project Period:	18 Months
Award Type:	Contract

1.5 Program Contacts

Title	Name	Email
Executive Program Director	Robert Tanner	bob.tanner@parallaxresearch.org
Contracting Questions	Amy Schear	amy.schear@parallaxresearch.org
Administrative Questions		OFRN-Question@parallaxresearch.org

1.6 OFRN Background

The Ohio Federal Research Network (OFRN) first received funding from the Ohio General Assembly in the fiscal year 2016-2017 biennial operating budget that was signed into law by the Governor on July 1, 2015 as a strategic priority initiative identified by the Ohio Federal and Military Jobs Commission (OFMJC).

The goal of OFRN is to enhance the Ohio Industrial base while also increasing research funding, talent, and capabilities development in Ohio to support future Federal, State, and Industry requirements. The OFRN established a novel approach to technology based economic development with a focus on aggregating, integrating, and leveraging federal, academic and private sector capabilities and resources in Ohio to develop proactive and innovative solutions to address emerging federal and state requirements and emerging market opportunities. OFRN research projects are intended to advance priority research thrust areas of the Air Force Research Lab (AFRL), National Air and Space Intelligence Center (NASIC), Naval Medical Research Unit – Dayton (NAMRU-D), and National Aeronautics and Space Administration Glenn Research Center (NASA-GRC). OFRN also engages with the State of Ohio's Adjutant General (TAG) and the Ohio Department of Transportation (DOT) regarding their respective organizational mission needs.

The Ohio Department of Higher Education (ODHE) coordinates all education in Ohio, allocates funds to higher education institutions, initiates and oversees the implementation of workforce development and adult education programs. It is the mission of the ODHE to promote Ohio's university system and the economic competitiveness of the State of Ohio and their support of the OFRN has enabled the development of the Round 5 Project Announcement. Together, the ODHE and OFRN are providing students and faculty with new and extraordinary educational opportunities through research and innovation that support Ohio's federal missions and that create economic impact for Ohio.

1.6.1 Funding

Funding for the Round 5 Opportunity Announcement is being provided through the Ohio Department of Higher Education (ODHE). A key part of these funds will further enable faculty and student to continue to teach and to learn as part of this continuing investment in Ohio's innovation economy.

1.7 Program Description

1.7.1 Introduction

The Round 5 Opportunity Announcement focuses on research and technologies that will further enable and accelerate Ohio’s national leadership role in both the defense and commercial sectors relating to aerospace, aviation, bioscience, human factors, artificial intelligence, advanced power systems and communications, among other disciplines and industries driving our local, state and national economies.

OFRN has used input from Federal and State stakeholders as well as industry guidance to develop research focus areas that reflect defense mission priorities and shape commercial opportunities that will create job growth in Ohio.

Also included in this funding Round is the creation of Student Experience and Engagement Initiative (SEE). This initiative is intended to provide experiential learning for students enrolled within any STEM related 2-year or 4-year program in any Ohio college or university.

The OFRN Round 5 organizational structure is shown in Figure 1. The OFRN plans to use this team to prioritize, select, and review investments and monitor project progress for the Round 5 SOARING Initiative.

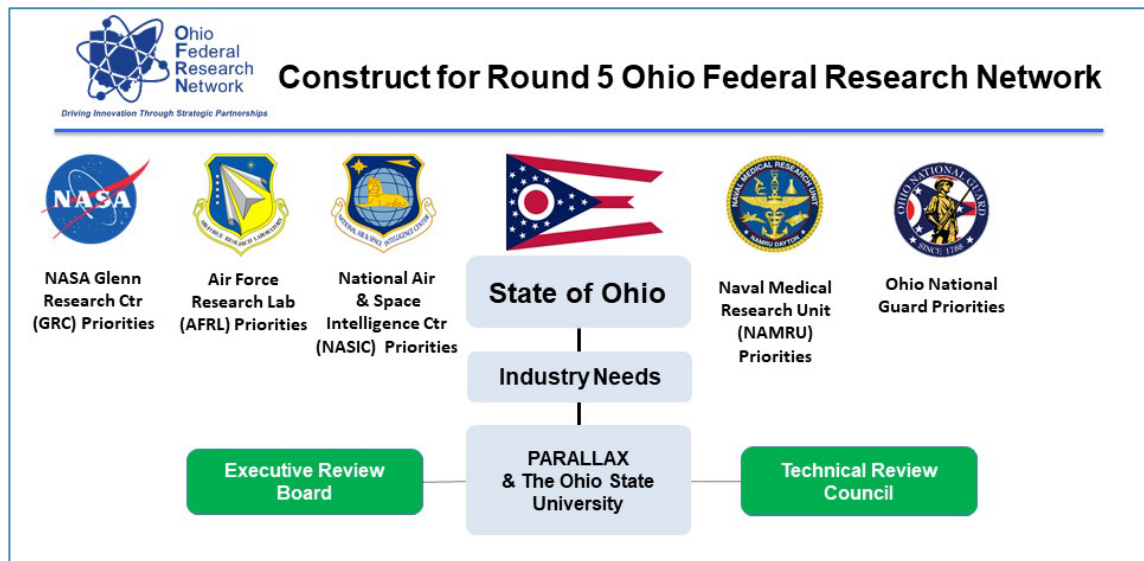


Figure 1: OFRN Round 5 Organizational Structure and Review Teams.

As part of the Round 5 Project development process, OFRN undertook a continuous improvement process, taking the lessons learned from past cycles to improve outcomes of future rounds. A key focus area was increased engagement with Federal Partners to maximize project objectives and ensure that project teams are expanding their knowledge and understanding of Federal Program processes and opportunities.

OFRN Federal Partners convened a working group to examine past engagement practices between proposal participants and the Federal Partners. Considerable time was devoted to determining how the information exchange process during proposal development could be made more effective and efficient, in order to improve project definition and ultimate research outcome. It was determined that there should be more access to Federal Partner Subject Matter Experts (SMEs), in order to answer questions during work scope development and

throughout the lifecycle of the project. While all involved would prefer to have more time to develop, write, evaluate, award and execute these projects, there exists several time constraints that force a more compressed program schedule, including academic and State budget calendars and of course the mission critical objectives that are the focus of this research.

The federal partners also spent considerable time developing and refining the Areas of Interest (AOI's). The focus was on fewer, higher priority research needs and topics that had cross-organizational interest/application. This enables maximum impact of OFRN investment by the Federal Partners. Commitments were made to ensure that each AOI would have organizational SME's available to support project development and evaluation throughout the Round 5 Program. Scheduled sessions for technical questions and answers will be developed and communicated as part of the Proposal process. Contact information and details regarding these activities will be communicated in advance of the formal release of the Round 5 Solicitation.

The following information is provided as an overview of each of the organizational missions of the OFRN federal partners.

NASA Glenn Research Center (NASA GRC)

NASA Glenn's mission is to drive research, technology, and systems to advance aviation, enable exploration of the universe, and improve life on Earth. They do that through the following core competencies: Air-Breathing Propulsion; In-Space Propulsion and Cryogenic Fluids Management; Communications Technology and Development; Power, Energy Storage and Conversion; Materials for Extreme Environments; and Physical Sciences and Biomedical Technologies in Space.

Air Force Research Laboratory (AFRL)

The Air Force Research Laboratory (AFRL) is a scientific research organization operated by the [United States Air Force Materiel Command](#) dedicated to leading the discovery, development, and integration of aerospace warfighting technologies, planning and executing the Air Force science and technology program, and providing warfighting capabilities to United States air, space, and cyberspace forces.

National Air and Space Intelligence Center (NASIC)

The National Air and Space Intelligence Center (NASIC) is the United States Air Force unit for analyzing military intelligence on foreign air and space forces, weapons, and systems. NASIC assessments of aerospace performance characteristics, capabilities, and vulnerabilities are used to shape national security and defense policies and supports weapons treaty negotiations and verification.

Naval Medical Research Unit – Dayton (NAMRU-D)

The Naval Medical Research Unit Dayton is a major DoD medical research command, as well as the home of the Naval Aerospace Medical Research Laboratory and the Environmental Health Effects Laboratory. As a subordinate command to Naval Medical Research Center, NAMRU-D conducts aerospace medical and environmental health effects research to enhance warfighter health, safety, performance, and readiness. NAMRU-D's research addresses identified Fleet needs, and results in products and solutions ranging from basic knowledge, to fielded technologies.

The Ohio National Guard

The Ohio National Guard serves the citizens of Ohio and the nation by fulfilling the state and federal military role of providing public safety when directed by the Governor or supporting the national military strategy when requested by the President. In either scenario, its focus is "Always Ready, Always There." Its unique mission encompasses protecting the homeland by

responding to natural disasters or cyber-attacks here and by consistently answering the call of duty to defend the nation at home and abroad. Ohio National Guard - <https://ong.ohio.gov/>.

1.7.2 Federal Customer Requirements

OFRN Round 5 seeks to fund projects that align with needs identified by its Federal, State, and commercial stakeholders. Broadly, these relate to performance, safety, and FAA flight certification across diverse classes, target applications, and technology domains.

Examples of high-level research priorities and requirements of each Federal partner are listed in Table 1:

Table 1: Federal Partner High-Level Priorities

Partner	Interest
AFRL, NASA	Vertical Take-Off & Landing (VTOL)
AFRL, NASIC	Situational Awareness & Proliferated Surveillance Systems
AFRL, NAMRU-D	Patient care in austere and contested environments
AFRL, NAMRU-D	Personal Exposure Devices
AFRL, NAMRU-D	Acceleration effects
AFRL	Enabling Human-Machine Teaming Using Brain-Machine Interfaces
AFRL, NASA	Advanced Power Systems Applicable to Aviation Propulsion, Micro-Grids, and Lunar Surface Operations
NASA	Quantum Communications
NASIC	Applications of commercial satellites to humanitarian, disaster, and defense topics
NASIC	Large Data Set Triage
NASIC	Journal Article Warning and Correlation

Additionally, projects are encouraged to also satisfy research needs of State of Ohio stakeholders as well as industry. Examples of high-level requirements from these groups are listed in Table 2:

Table 2: Non-Federal Interest Areas

Partner	Interest
Air National Guard	<ul style="list-style-type: none"> • Detect and Avoid systems • Persistent full-spectrum communication repeater • Mobile ad hoc networks • UAS deployable launch and recovery kit • Command and Control liaison kit • Joint Incident Site Communication Capability and Block III Incident site data service extension
DOT	<ul style="list-style-type: none"> • Ground-based Detect and Avoid • UAS operations over moving traffic and risk mitigation • UTM/UAM <ul style="list-style-type: none"> • System health monitoring and operational support • Integration into existing transportation management centers

	<ul style="list-style-type: none"> • VTOL/eVTOL noise mitigation and supply chain logistics • Vertiport/Vertipad <ul style="list-style-type: none"> • Geographic locations and Infrastructure requirements • Autonomous communication
Industry and Other Areas	<ul style="list-style-type: none"> • Field swappable UAS variants/plugin and play UAS payloads • Automated support for human analysis of flight data • Onboard Safety Technologies • Rapid prototyping, system integration, and certification

OFRN projects must address a research priority of one of the OFRN's Federal Partners. Projects that also address research priorities of non-Federal partners are desirable.

1.7.3 Areas of Interest

Applicants are encouraged to address specific AOIs. Teams may also propose any topic or combination of topics, listed or unlisted, that are directly relevant to federal and industrial needs. Live tests and demonstration are strongly encouraged where possible.

Not all topic areas are expected to be funded. OFRN is seeking to create a broad portfolio of projects to address multiple needs.

Areas of Interest (AOIs) are listed in no particular order.

1.7.3.1 AOI #1: Vertical Take-Off & Landing (VTOL)

There has been an explosion of interest in the 'flying car' concept to the Air Force due to the lack of need for runway. The ability to land wherever, whenever greatly eases the logistic burden of resupply and minimizes trends in terms of operational footprints. Building off the extensive commercial drone market, a number of key technologies are needed to enable such concepts at an order of magnitude larger in scale in order to address the areas and challenges for military / civil VTOL systems. These include for large VTOL capabilities:

- a) Battery Energy Storage
 - Battery/recharging designs, which facilitate safe, rapidly recharge systems without overheating or degrade longevity and reliability, to provide high-rate recharge (5-10 min) for multiple cycles (50-100 per day), and to support the demands of the appropriate lift/weight ratios (*Note: This is not about developing a new battery chemistries but enabling battery consistency in government / commercial sectors (e.g. Lithium/Ion/Polymer types)*).
 - Power supply – recharging stations which should be able to run safely and effectively off commercially available circuits/wattage/ampereage in a residential or office building
- b) Propulsion sources to provide the appropriate lift/weight ratio and decrease ambient noise
- c) Sensing hardware/software and platform designs to enable both manned and unmanned flight operations addressing
 - Reliable, Controllable Flight in Three-Dimensional Flow Fields
 - i. Design objectives accounting for wind turbulences (e.g., up, down, cross drafts) in congested urban settings, and maintaining reliable flight control
 - ii. Air data sensors to detect and avoid "clear day" wind shears (e.g., updrafts, downdrafts, crosswinds)
 - iii. MS&A of air currents will lead to enhancements to stability controls of aircraft to ensure safety, security, and reliability in these settings. This is essential for Air Worthiness certification
 - Human Factors / Human-Machine Interfaces

- i. On-board passenger interaction with “virtual pilot” for situational awareness of impending maneuvers and phases of flight. Dealing with onboard passenger emergencies (e.g., sickness, etc.) and ability to reroute to emergency care; activation of 911 system at destination or alternate land sites, etc.
 - ii. External interface with passengers while on ground – awareness and communication with passengers and non-passengers in proximity to the vehicle, and maintenance personnel
- Modeling and Simulation of air traffic management system for airspace deconfliction, route planning and approval, protocols for degraded visibility, weather / darkness

1.7.3.2 AOI #2: Situational Awareness and Proliferated Surveillance Systems

Building upon technological advances in sensors and sensor suites, DoD is looking for unique affordable solutions for surveillance on the ground, in the air, and in space. Proposals may include but are not limited to, a complete surveillance system for ground, air, and/or space; affordable sensor suites, data visualization tools to display complex data simply and quickly; and the ability to analyze images. Technical approaches should focus on the “find, fix, and track” part of the kill chain. Electro-optical (EO) and radio frequency (RF) sensing strategies such as:

- Advanced EO and IR sensing systems that balance cost and performance are needed for new expendable and attritable air systems, and replenish space
- Technologies that address flexible high resolution, long range EO/IR imaging along with multi-mode LIDAR (3D shape, vibration sensing, and synthetic aperture imaging) for stand-off and penetrating ISR.
- Technologies for a compact hyperspectral imaging (HIS) system and staring infrared search and track for attritable platforms for use in highly contested environments.
- Technology that addresses the need for low cost, size, weight, and power (C-SWaP) RF sensors for attritable and expendable platforms. This would include such things as additive manufacturing techniques to reduce cost over traditional fabrication techniques, as well as the use of commercial off-the-shelf components, including transmit/receive modules, RF system-on-chip, FPGAs, and software-defined radio (SDR) technology to build low-cost RF sensors.
- RF sensing concepts that take advantage of the diversity (spatial, temporal, power, frequency and polarization) made possible via wideband, dual-polarized and software-defined RF systems to enhance sensor capability to find, fix and track targets of interest and improve situational awareness. Techniques that use multiple, proliferated RF systems to improve performance via geometric diversity are also of interest.

Solutions/concepts addressing these technical needs are preferred, but others will also be considered.

1.7.3.3 AOI #3: Patient care in austere and contested environments

Technologies to enhance patient recovery, transport, and care to include autonomous recovery of injured service members in contested environments, UAV-based casualty evacuation (CASEVAC). Operations and enabling technologies may include autonomous/remotely commanded robotic casualty recovery and stabilization in contested environments, casualty monitoring, integrated smart medical equipment, autonomous and/or remote care en route, secure data streaming to receiving facility, medical sensor fusion and diagnostics, robotics, artificial intelligence, and other technologies.

1.7.3.4 AOI #4: Personal Exposure Devices

Development of personal exposure monitoring devices, such as personal dosimeters, to measure and report exposure to biological and toxic industrial chemicals and compounds. Devices should report exposure levels in real-time.

1.7.3.5 AOI #5 Acceleration Effects

Military operations including ground, sea, air, and space-based missions expose service members to various unusual or extreme accelerative forces, presenting threats to health, safety, readiness, and mission performance. There is broad interest and need for better understanding and mitigation of such accelerative threats as whole-body vibration, impact acceleration (i.e., crash), high-g acceleration, and dynamic acceleration. Mitigations for fatigue, neck and back pain and injury, impact injury, g-loss of consciousness, spatial disorientation, and motion sickness are of particular interest.

1.7.3.6 AOI #6: Improving Human-Machine Teaming Performance Using Brain-Machine Interface (BMI) Technologies

Intelligent autonomous systems can provide valuable tactical information to the warfighter. However, this has also led an overabundance of information the warfighter/operator has to sift through to identify potential threats and make effective decisions. We seek proposals that can design, develop, and validate a multi-modal brain-machine interface (BMI)-enabled technology platform that operates for active and/or reactive control for enabling decision making in information dense environments, and facilitating human-machine cooperative intelligence. Proposers may consider 'hybrid' BMI architectures that facilitate the integration with other physiological and behavioral (e.g., eye tracking) technologies to inform the BMI if necessary, to achieve the multi-modal interface.

1.7.3.7 AOI #7: Advanced Power Systems Applicable to Aviation Propulsion, Micro-Grids, and Lunar Surface Operations

There is an increasing demand for electrical power to be available independent of the current Electrical Power Grid(s) found on Earth. This includes critical aviation, space, and terrestrial applications where crew well-being, productivity, critical infrastructure (data servers, etc.), and security are involved. These applications require high efficiency power management and distribution systems delivering highly reliable power (>0.999999) and includes diverse power source and energy storage integration strategy to meet the needs of the consumer. These future systems require development of key technologies and capabilities:

- a) System control – Solutions that can integrate regulators and interface converters and result in a collaborative system instead of a competitive system. For example, being able to integrate and equally consume power from different types of power sources without having the two regulators fight each other and having to switch between the sources.
- b) System Protection – Methods enabling robust specification and assurance of safety critical functions, despite mission and fault transients, within and beyond the electrical power system. Develop system protection approaches using regulators to reduce fault energy and provide fast detection, isolation, and reconfiguration of electrical network elements.
- c) System Stability - A solution to reduce the influence and destabilizing effects of nonlinearities such as constant power, change to constant current, fold back, pulsed loads, and system bifurcation modes.
- d) Thermal - An integrated power and thermal management system which can be used to provide enhanced monitoring, diagnostic, and prognostic

understanding of power system states and avoid thermal constraints by restricting power to avoid exceeding thermal limits. The intended solution would provide superior power management capability including predictive thermal operational issues and provide time to change power management directions.

- e) Energy Storage – Understanding usage of distributed energy storage (batteries, capacitors, inductors, supercapacitors, flywheels, etc.) and hybrid energy storage and control methods to enable advanced power system control approaches. This can include power architectures that enable advanced methods of control and integration of energy storage.

1.7.3.8 AOI #8: Quantum Communications

NASA seeks highly secure communications technologies for mission and safety critical aviation and spacecraft applications. Quantum communications use entangled photons for transmissions, enabling highly secure communication systems. NASA is interested in the development and demonstration of quantum communications technologies such as high-efficiency photon entangled sources, quantum repeaters, high-efficiency quantum detectors, and quantum cryptography. Advances in these technologies will enable quantum communication networks with unlimited security.

1.7.3.9 AOI #9: Applications of commercial satellites to humanitarian, disaster, and defense topics

With recent growth in commercial satellite availability the DoD is interested in tools and data management processes using these commercially available sensors. How might these resources be rapidly tasked and exploited in a time sensitive crisis to support humanitarian, disaster relief, and defensive efforts.

1.7.3.10 AOI #10: Large Data Set Triage

With the advent of large file storage systems, the DoD is interested in tools and techniques aimed at the timely triage of large computer file collections (i.e. potentially terabytes of data). The need to determine the most useful files (e.g. relevancy) to be examined by analysts is critical for managing resources to allow for timely translation and analysis of the data.

1.7.3.11 AOI #11: Journal Article Warning and Correlation

In trying to determine the most disruptive and critical emerging technologies the DoD is interested in tools that can read, and correlate people, places, and technologies that will allow us to set alerts for breaking or new technologies (i.e. a sudden 50% increase in a specific area could be one example of an alert), and capable of reading and processing in multiple languages (i.e., structured data, multiple databases).

1.7.3.12 AOI #12: Other Topics

Proposers may suggest any relevant topic(s) not listed but that have clear application and utility for SOARING focus areas. Proposers will be expected to provide the same level state of the art context, metrics, description of an emergency demonstration, federal alignment, and long-term benefits.

1.7.4 Areas Specifically not of Interest

The following types of projects are considered misaligned with the aims of the Round 5 initiative and will not be competitive if submitted.

- Basic research work without a clear application or flight/flight-related demo
- Programs focused on proprietary air platforms, software, or technology

- Loosely associated teams or multiple, disparate projects submitted as a single submission
- Projects that do not include a student focused learning program

1.8 End of Project Demonstrations

Technology tests and demonstrations are strongly encouraged. These tests and demonstrations are used to verify performance and completion of a project, and also to showcase the technology to stakeholders and potential customers. Demo delivery requirements for non-flight AOIs can be found in Appendix 8.

Costs directly associated with the utilization of a test site (i.e., costs originating from the site, not the material, labor, or other costs associated with a project team) may be paid for by OFRN subject to funding availability and may use non-project funds.

OFRN has one location for test demonstrations available, as noted in the following section. Project teams can propose other test locations and environments that best showcase their project capabilities.

1.8.1 Demonstration Grounds

Flight demonstrations should be based on using the Ohio/Indiana UAS Center (UASC, see <http://www.dot.state.oh.us/divisions/uas/Pages/default.aspx>) in Springfield, OH (Figure 2). The UASC facility has the only ground-based Sense and Avoid test facility in Class E and Class G airspace currently available in the U.S.

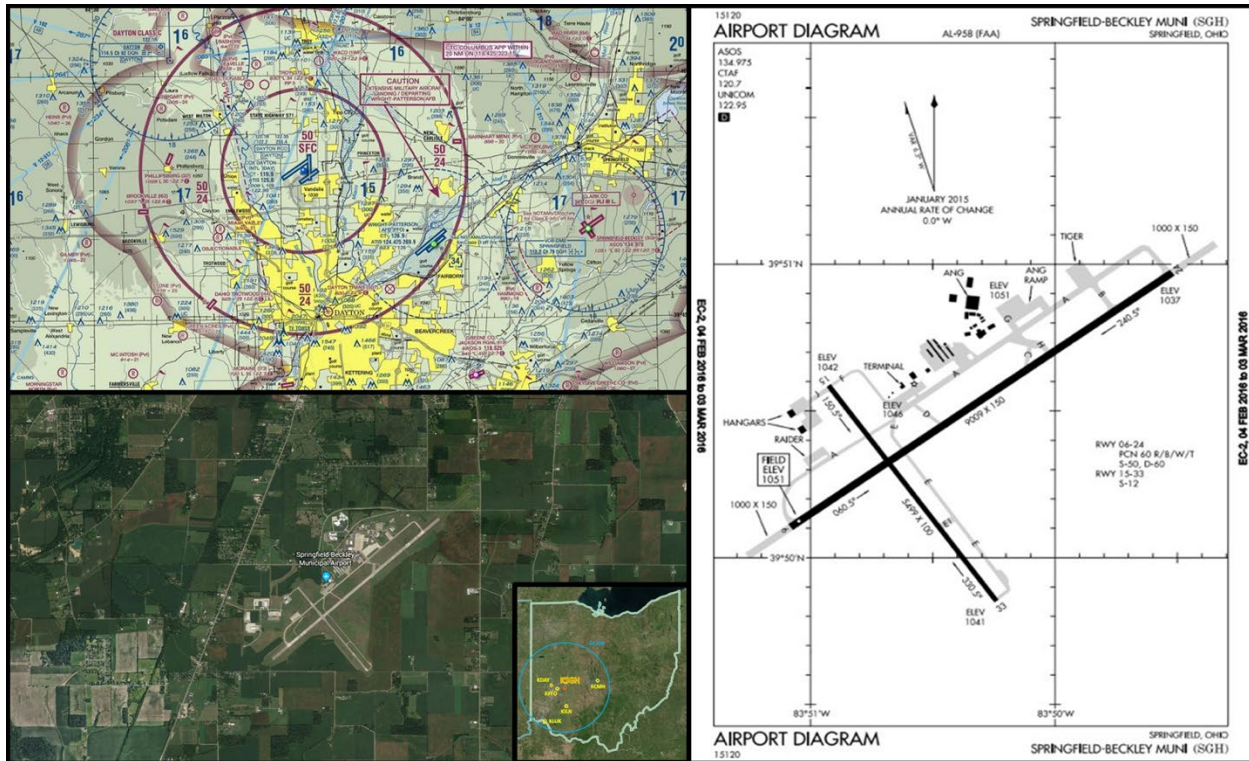


Figure 2: KSGH Springfield-Beckley Municipal Airport - Springfield, OH

Figure 2 shows the airspace available for the demonstration scenarios. There are two operational volume airspaces defined, one for Visual Line of Sight (VLOS) operations and another for Beyond Visual Line of Sight (BVLOS) operations. The VLOS airspace is surface to 3,500 feet AGL and an area of approximately 7 NM². The BVLOS airspace is 1,000 feet AGL to 8,000 feet MSL covering an area of over 200 NM². Additional details of the UASC flight

requirements including air worthiness, pilot qualification, and additional facility and airspace details will be provided after proposal selection. Site questions that impact proposal submissions may be addressed through Q&A.

Applicants must describe their proposed demonstration in the Supplemental Volume (Volume 1A) Respondents are invited to be creative with their flight demonstration plan and focus on using the emergency response to showcase their technology's utility in civilian use.

2 AWARD INFORMATION

2.1 Estimated Funding and Availability of Funds

It is anticipated that total funding for Round 5 projects is \$10-15 Million will be available under this announcement, contingent on and subject to receiving appropriated funds from the State of Ohio.

2.2 Number of Awards

The exact number and size of awards will depend on the number of meritorious proposals and the availability of funds.

2.3 Anticipated Award Date and Notice to Proceed

As discussed on the cover page of this announcement, awards are anticipated to be made in May 2021. Note that this anticipated date does not obligate OFRN to make any awards.

After award notification, the Parallax Contracts Manager will then provide a Notice to Proceed (NTP) authorization to allow for the commencement of work with a limitation of funds level to commence work immediately. The Applicant may not begin work until after the NTP is formally provided.

2.4 Period of Performance

Period of performance for the awards made as a result of this announcement will be for a period no less or more than 18 months.

2.5 Contractual Arrangement

All Subcontract(s) issued under this announcement will be made as cost reimbursable contract(s). Appendix 5A and 5B of this announcement provide terms and conditions for the proposed contract(s). Note that two versions of terms and conditions are provided, one for industry, either for-profit or not-for-profit organizations, and another for State Universities or State Colleges. These terms and conditions will become contractual upon OFRN's acceptance of the Applicant's proposal. Please see Section 3.4.1.5 of this Opportunity Announcement regarding taking exception to these terms and conditions.

2.6 Eligibility Information

A Prime Applicant is the entity that submits a proposal and will be legally and financially responsible for the administration of any resulting award of OFRN funds. Proposed projects can be led by either an industry in Ohio (either for-profit or not-for-profit) or an Ohio college or university. Regardless of the leading organization, project teams must include:

- at least two Ohio colleges or universities;
- at least one commercial/ industry organization in Ohio (either for-profit or not-for-profit);
- at least one partner from an Ohio-based federal lab (Please do not solicit letters of support from Federal Centers); and
- Proposals must include a Student Experiential Engagement (SEE) program in accordance with Appendix 1.

- Proposals that include participation from the Air Force Institute of Technology (AFIT) are eligible for submission to this Opportunity Announcement. Applicants are expected to demonstrate how funding for AFIT research will directly support job creation across the State of Ohio. One example might be including non-government researchers (“outside the fence”) in the AFIT graduate education system. Growing talent outside the Wright Patterson AFB and NASA-GRC is critical for Ohio to better compete going forward.

Prime Applicants that become contract awardees must maintain eligibility while the contract is open. A contract awardee that loses eligibility forfeits its award and may be required to repay OFRN the full amount of the monies it has received, plus interest.

Note: Where possible, OFRN staff will help facilitate the formation of teams through an online matchmaking tool to assist individuals or organizations interested in participation with teams. The online matchmaking form is available via the OFRN website at <https://ohiofrn.org> on the current solicitation/Round 5 information page <https://www.ohiofrn.org/ofrn-current-solicitation>.

2.6.1 Cost Share Requirements and Guidelines

Cost share can directly demonstrate the level of commercial and academic support for a project; meaningful cost share will be viewed favorably in the evaluation of proposals. Factors in assessing cost share can include:

- Magnitude
- Any conditions associated with the cost share
- Type of cost share

2.6.2 Limitation on Submissions

There are no limits on the number of proposal submissions that an Applicant can submit.

2.7 Public Information

Prime Applicants are reminded that all information submitted in response to this Opportunity Announcement is considered public information unless a statutory exception exists that exempts it from public release (See Ohio Public Records Act in Section 149.43 of the Ohio Revised Code).

Exempted information (i.e., trade secrets, etc.) shall bear the marking "Proprietary Information". To the extent possible, proposals shall contain this marking in the header and footer of each page where proprietary information is included.

Applicants are strongly discouraged from including any proprietary information in their proposal(s). If it is included, the proposal should contain an attachment that lists all instances of proprietary information.

3 OPPORTUNITY ANNOUNCEMENT

3.1 General Instructions

3.1.1 Submission Guidelines:

For Round 5, OFRN is instituting a simplified submission process. The required Technical Volume content is similar to that required in Air Force SBIR/STTR Open Topics, Pitch Days and Direct to Phase II's and is intended to be applicable to those opportunities as well. Initial submission requires an 8-page Technical Volume, 2-page Supplemental Technical Volume. A Business/Cost Volume along with a 15-slide Pitch Deck will be required after a formal down select process is conducted. More detailed information is included in the Technical Volume and higher-level information is included in the slide deck. In the sole determination of OFRN, Proposals that exceed these page limitations may be disqualified from further review.

Applicants selected to move forward in the process based upon a review of the Technical Volume, will be required to submit a 15-slide Pitch Deck and physically present the slide deck during an in person (or virtual) presentation. Pitch presentations will be made to the Technical Review Council which will base proposal scoring holistically on the Technical Volume, Pitch Deck and Pitch Presentation. Awards will be decided after the Pitch Presentations which will take place on April 20-21, 2021 at a location to be announced.

NOTE: OFRN projects are intended to be TRL 3 and higher, or applied research rather than basic research. Technical feasibility is understood to have been already established. Applicants are required to provide information demonstrating that the scientific and technical merit and feasibility has been established. Proposals will not be evaluated that fail to demonstrate that technical merit and feasibility has been established or the Applicant has failed to demonstrate that work submitted in the feasibility documentation was substantially performed by the Applicant and/or the principal investigator (PI), or that the project utilizes COTS components in an innovative configuration or application.

Applicants shall submit the Business and Cost Proposal and the Technical Proposal to the OFRN general inbox: OFRN-Submission@parallaxresearch.org with a carbon copy (CC) to Becky Mescher at becky.mescher@parallaxresearch.org.

Deadlines:

- Volume 1 (Technical) and 1A (Supplemental) submit no later than 5:00pm Eastern Time on March 4, 2021.
- Volume 2 (Business and Cost Proposal) and 2A (Slide Deck) submit no later than 2:00 pm on April 15, 2021.

Proposals received after the due date and time may be rejected. It is the responsibility of the Applicant to ensure submission of a complete proposal based on all requirements of this Opportunity Announcement. If possible, Applicants are encouraged to submit their proposals early.

3.1.2 General Formatting Requirements:

The Proposal must be written in English and adhere to the following format. Proposals in noncompliance may be rejected without review:

- Proposals are to be submitted on 8.5 x 11-inch page size with type no smaller than 10-point, single spaced.
- Margins must not be less than one (1) inch on all sides,
- Fonts used must be one of the following: Arial, Helvetica, or Times New Roman, and used uniformly throughout.
- All pages must be numbered consecutively using the format "Page [#] of [total number of pages]" (e.g., Page 2 of 6).
- The proposal title and Prime Applicant organization name must appear in the footer of each page.
- The Technical Volume must include the area(s) of interest (AOI) in the header of each page
- Proposals should not include color figures that cannot be understood when photocopied in black and white.
- The first page of the proposal must be the Application Information Cover Page using the template. This Application Information Page will NOT COUNT toward the page limit for the Technical Volume
- Do not include a cover or cover letter other than the Application Information Page.
- Slide Deck must be no more than 15 slides in length.
- Proposals must be submitted in PDF format.

3.1.3 Amendments:

Should there be any changes to this Opportunity Announcement, a formal Amendment will be issued. All Amendments to the Opportunity Announcement will be published on the OFRN website.

3.1.4 Parallax Points of Contact:

Contractual:
Amy Schear, Parallax Contracts Administrator
937-705-1096
Amy.schear@parallaxresearch.org

3.1.5 Questions:

All questions are to be submitted to the OFRN general inbox: OFRN-Question@parallaxresearch.org by no later than 4:00pm Eastern Time, fourteen (14) days prior to the formal proposal submission date.

3.2 Volume 1: Technical Volume (8 Pages)

Unless otherwise noted, the proposal must address all the elements listed in this section in the order requested.

3.2.1 Cover Page

The Applicant shall provide a cover page introducing OFRN to the proposal submission.

The Applicant shall complete the following information, which shall not exceed one page in length. This cover page does not contribute towards the Technical Volume’s page limits:

Prime Applicant Organization Name:	
Dun and Bradstreet Number:	
Taxpayer Identification Number:	
Lead PI Name:	Lead PI Name, Email Address, Phone
Contractual Point of Contact:	Name, Email Address, Phone
Project Name:	
1. Summary description of project being proposed	
2. Description of Federal research requirement (s)	
3. Government POC	Name, Title, Department, Agency -- Phone, Email Address
4. University Team Members	Institution, Lead Contact Name, Email Address, DUNS Number -- Institution, Lead Contact Name, Email Address, DUNS Number
5. Industry Team Members	Company, Lead Contact Name, Email Address -- Company, Lead Contact Name, Email Address
6. Cost share listed by source (Industry, University, Other)	Source, \$N,NNN,NNN
7. Potential Follow-On Funding	List by organization and timing -- Funder, \$N,NNN,NNN, Year: NNNN -- Funder, \$N,NNN,NNN, Year: NNNN
8. Funding requested by calendar year	2021: \$NNN,NNN; 2022: \$NNN,NNN; Total Requested: \$NNN,NNN
9. New jobs created by the end of 2025	NNN
10. Background IP contributed	(State what it is and who owns it)
11. Anticipated Project IP Created	(Describe what may be generated, and how it will be protected/shared)

12. Statement indicating that your firm is not debarred, suspended or proposed for debarment as the result of performance under any federal contract, grant, or cooperative agreement

13. Prior, current, or Pending Support of Similar Proposals or Awards: (see Technical Volume instructions)

3.2.2 Executive Summary

Executive summaries are limited to 1 page that precisely describes the innovation, proposed project objectives, and commercial goals. Executive summaries may include figures. This section must minimize the use of jargon and technical language and be written so that a non-expert can understand the specific innovation and impact of proposed project around that innovation.

3.2.3 Table of Contents

A table of contents should be located immediately after the Executive Summary.

3.2.4 Glossary

Include a glossary of acronyms and abbreviations used in the proposal.

3.2.5 Milestone Identification

Include a program schedule with all key milestones identified. If options are proposed, the schedule should provide notional option start date and period of performance.

3.2.6 Identification and Significance of the Problem or Opportunity

Briefly reference the specific technical problem/opportunity that will be pursued, and the Federal Partner contact and identified needs under this effort.

3.2.7 Technical Objectives

Detail the specific objectives of the proposed work and describe the technical approach and methods to be used in meeting these objectives. The proposal should also include an assessment of the potential commercial application (government or non-government) for each objective.

3.2.8 Federal Partner Applications

Briefly describe the existing/potential Federal Partner requirement and the Federal Government potential of the project results. Identify the government agency/organization most likely to benefit from the project. State if any government agency has expressed interest in, or commitment to a Federally funded follow-on effort. This section should involve not more than one to two (1-2) paragraphs. This section should not be duplicative of information contained in the Identification and Significance of the Problem or Opportunity section. Include agency point of contact names and telephone numbers.

3.2.9 Relationship with Future Research or Research and Development (R/R&D) Efforts:

- State the anticipated results of the proposed approach, specifically addressing plans for further development, if any.
- Discuss the significance of this effort in providing a basis for further development effort, if planned.

3.2.10 Key Personnel:

In the Technical Volume, identify all key personnel involved in the project. Include information directly related to education, experience, and citizenship. A technical resume for the principal investigator, including publications, if any, must also be included. Concise technical resumes for subcontractors and consultants, if any, are also useful. You must identify all non-U.S. citizens expected to be involved in the project as direct employees, subcontractors, or consultants. For these individuals, in addition to technical resumes, please provide countries

of origin, type of visas or work permits under which they are performing, and explanation of their anticipated level of involvement in the project. Full length resumes should be abbreviated and submitted as an appendix.

3.2.11 Facilities/Equipment

Describe instrumentation and physical facilities necessary and available to carry out the proposed effort. Justify equipment to be purchased (detail in cost proposal). State whether proposed performance locations meet environmental laws and regulations of Federal, state, and local Governments for, but not limited to, airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid and bulk waste disposal practices, and handling and storage of toxic and hazardous materials.

3.2.12 Subcontractors

Private companies, consultants, or universities, all considered herein as Subcontractors, may be involved in the project. All should be described in detail and also included in the cost proposal. **In accordance with OFRN eligibility requirements, proposals must include a minimum of two Ohio public or private universities or colleges and one Ohio industry partner each with significant contribution to the proposed effort.** Signed copies of all subcontractor letters of intent must be attached to the proposal. These letters should briefly state the contribution or expertise being provided. Identify any subcontract foreign citizens per (3.2.10) above.

3.2.13 Prior, Current, or Pending Support of Similar Proposals or Awards

WARNING: While it is permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work for consideration under numerous Federal (or State) program Announcements, it is unlawful to enter into contracts or grants requiring essentially equivalent effort. Any potential for this situation must be disclosed before award. If a proposal submitted in response to this Announcement is substantially the same as another proposal previously, currently, or in process of being funded by another Federal or State agency the company must so indicate on the Cover Page and provide the following:

- a) The name and address of the Federal or State agency(ies) to which proposals were or will be submitted, or from which an awarded is expected or has been received;
- b) The date of proposal submission or date of award;
- c) The title of the proposal;
- d) Name and title of the principal investigator for each proposal submitted or award received; and
- e) Title, number, and date of Announcement(s) under which the proposal was or will be submitted, or under which an award is expected or has been received.
- f) If award was received, provide the contract number.
- g) Specify the applicable topics for each SBIR proposal submitted or award received.

NOTE: If this section does not apply, state in the proposal, "No prior, current, or pending support for proposed work."

3.2.14 Appendices

Items in the appendices do not count towards the page limit. Items that can be contained in the appendices are as follows:

3.2.14.1 Student Experiential Engagement (SEE)

Student Experiential Engagement (SEE) program information should be a maximum of 2 pages and placed as the first item in the Appendices. Consult Appendix 1 for additional information about SEE.

3.2.14.2 Resumes

Full length resumes referenced in sections 3.2.10 and 3.2.12 should be abbreviated and submitted as an appendix.

3.3 Volume 1A: Supplemental Volume (2 pages)

The bulk of the Technical Volume requirements are meant to mimic the requirements of an SBIR Direct to Phase II Pitch Day proposals. A 2-page Supplemental Volume is also necessary to address OFRN-specific concerns including:

- projected economic impacts,
- technology demonstration plan, and
- a budget narrative and table.

3.3.1 Economic Impact Metrics

This section of Volume 1A must address the projected economic impact metrics that are anticipated as a result of the project. The Prime Applicant should specifically address the following primary metrics:

- New job creation
- Federal Follow-on funding
- Creation of Spin-out companies

Job creation should be realistic and supportable. Federal follow-on funding and any other identified opportunities must include pertinent details--agency, BAA, etc. (see New Opportunities table below). The Prime Applicant should document how these projections were developed and key assumptions used in the analysis. For example, if the projections are based on capturing a particular share of the market, the Proposal should indicate the magnitude of the addressable market and the basis for the estimated market share. The Prime Applicant should report only direct impacts, not secondary or tertiary impacts derived from economic models.

Proposals may also include a description of any relevant secondary metrics, including:

- possible Industry-sponsored research
- talent recruitment;
- enhanced national and/or international recognition which leads to further interest and potential sources of funding and collaboration.

The following tables must be completed and included in this section of Volume 1A (add rows as needed to the New Opportunities table):

	At Project End	By 2025
New Jobs to be Created		
Total Federal Follow-on Funding		

New Opportunities/ Investments	Amount	Type (BAA, Sponsor, etc.)	Timing of Opportunity

3.3.2 Demonstration Plan

Applicants must describe their proposed technology demonstration. The following information is found elsewhere in this Opportunity Announcement, but included here for easy reference:

Respondents are invited to be creative with their demonstration plan and focus on showcasing their technology’s utility in either a military or civilian use. Where appropriate flights tests are encouraged and will be scheduled and coordinated through further communications among the team and OFRN administrative/testing personnel. If flight demonstrations are not practical, bench testing or modeling will be acceptable.

3.3.3 High Level Budget and Cost Share

Using the tables that follow, provide a high-level budget for the project. Provide a brief narrative that explains how the funds will be deployed over the life of the project. Add additional columns or copies of the cost share table as needed.

	OFRN Awarded Funds	Cost Share Funds
Personnel/Fringe		
Supplies		
Purchased Services		
Travel		
Other Direct Costs		
Subcontracts		
Indirect		
Total		

	Cost Share Provider #1	Cost Share Provider #2	Cost Share Provider #3	Cost Share Provider #4
Personnel/Fringe				
Supplies				
Purchased Services				
Travel				
Other Direct Costs				
Indirect				
Total				

3.4 Volume 2: Business and Cost Proposal

3.4.1 Business Proposal

The Applicant shall complete the following information pertaining to the Business and Cost Volume STRICTLY LISTED IN THIS ORDER, utilizing the Template provided in Appendix 6. Volume 2 of the proposal must be submitted by April 15, 2021. Note that earlier submission of Volume 2 is allowed.

3.4.1.1 Cover Page

The Applicant shall include a duplicate cover page from the Technical Volume for the Business and Cost Proposal. This Cover Page is considered the first formal page of the Business and Cost Proposal and shall not exceed one page in length.

3.4.1.2 Vendor Profile

The Applicant shall complete the Vendor Profile Form (Appendix 2) and provide as a part of its proposal submission.

3.4.1.3 Negotiators and Authorized Signature

The Applicant shall provide the name, title, telephone number of the person(s) authorized to negotiate on its behalf. The Applicant shall also provide the name and title of the person authorized to sign the awarded contract.

3.4.1.4 Organizational Conflict of Interest (OCI) Certification

The Applicant shall provide a statement identifying any known or potential Conflicts of Interest related to this work and provide an OCI Mitigation Plan outlining actions to be taken to avoid, neutralize, or mitigate known or potential conflicts of interest prior to award of subcontract pursuant to this opportunity. If no known or potential conflicts of interest exist, state so on official organization letterhead. Note: successful Applicant(s) shall have an ongoing duty to report any OCI that arises or is discovered to the Parallax Contracts Administrator.

3.4.1.5 Exceptions

Exceptions to the terms and conditions of the Opportunity Announcement, including Appendix 5 A and B, Contract Terms and Conditions, are **NOT** sought and OFRN/Parallax is under no obligation to enter into negotiations related to such exceptions. However, if the Applicant chooses to take exceptions, such exceptions shall be clearly listed as an Appendix to the Business and Cost Proposal Volume.

3.4.1.6 Data Rights Assertion

Applicants are advised to submit a listing of asserted restrictions on data rights in the following table:

Technical Data to be Furnished with Restrictions*	Basis for Assertion**	Asserted Rights Category***	Naming of Person Asserting Restrictions****
(LIST)	(LIST)	(LIST)	(LIST)

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process.

**Generally, the development of an item, component, or process at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiated licenses).

****Corporation, individual, or other person, as appropriate.

3.4.1.7 Proposal Validity Period

The proposal shall designate a validity period. This period shall not be less than 120 days from the date of submission.

3.4.1.8 Proposer-Prepared Statement of Work (SOW)

The SOW shall be a separate and distinct part of the proposal package, using a page break to divide it from the business proposal. The proposed SOW must contain a summary description of the technical methodology and task description in broad enough detail to provide contractual flexibility. The SOW should show subcontractor detail. Subcontract copies and supporting documents do not count against the page limit and should be submitted as an appendix. The following is the recommended format for the SOW; begin this section on a new page. **DO NOT include proprietary information in the SOW.**

<p>1.0 – Objective: This section is intended to provide a brief overview of the specialty area. It should explain why it is being pursued and the expected outcome</p> <p>2.0 – Scope: This section should provide a concise description of the work to be accomplished, including the technology area to be investigated, goals, and major milestones. However, the key elements of this section are task development and deliverables, i.e., the anticipated end result and/or product of the effort. This section must also be consistent with the information in 4.0 (below).</p> <p>3.0 – Background: The proposer shall identify appropriate specifications, standards, and other documents applicable to the effort. This section includes any information, explanation, or constraints to understanding the requirements. It may include relationships to previous, current, and/or future operations. It may also include techniques previously found to be ineffective.</p> <p>4.0 – Task/Technical Requirements: The detailed description of the individual tasks to accomplish the work to be performed is considered to be legally binding on the proposer. Therefore, it must be developed in an orderly progression with sufficient detail to establish overall program requirements and goals. The work effort must be segregated into major tasks and identified in separately numbered paragraphs.</p>
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Each numbered major task should delineate by subtask the work to be performed. The SOW MUST contain every task to be accomplished; they must be definite, realistic, and clearly stated. Use “shall” whenever the SOW expresses a binding provision. Use “should” or “may” to express a declaration or purpose. Use “will” when no contractor requirement is involved, i.e., “... power will be supplied by the Government.”

3.4.1.9 Expenses Related to Proposal Submission

This Opportunity Announcement does not commit Parallax to pay any costs incurred in the submission of any proposal or acquiring or contracting for any services relating thereto.

3.4.2 Cost Proposal

The Prime Applicant is responsible for developing a cost proposal that provides appropriate understanding of the proposed use of funding, cost share contributions (optional but favored),

and indirect charges being applied. The cost proposal should contain the following information and **MAY NOT EXCEED \$2,000,000** in total cost:

3.4.2.1 Cost Worksheet

The Applicant shall complete the Excel Cost Worksheet (Appendix 4) for the basis of its cost proposal. The Applicant shall complete each worksheet tab by cost element, to include optional Cost Share, further defined below where applicable. Costs must be separated out for each period, and the Applicant shall add lines where needed. When completing these worksheets, please ensure all formulas remain intact.

3.4.2.2 Cost Narrative

The Applicant shall describe the basis of estimate in narrative form for each of the proposed cost elements.

Direct Labor – For Direct Labor, the Applicant shall provide a narrative rationale for the labor categories selected and hours proposed for the project period (18 months). The Applicant shall also provide labor category descriptions (e.g. job duties, years of required experience, education level etc.) for all positions. Finally, the Applicant shall provide resumes for all named Key Personnel. Resumes should be abbreviated to spare reviewers' time in reviewing numerous pages of published references and lifelong accomplishments and be submitted as an appendix.

Supplies, Materials, Equipment, Tuition Costs (Designated as “Other Direct Costs” in the Cost Worksheet) – The Applicant shall provide narrative rationale for the proposed items, and each item's role in relation to project completion. The Applicant shall support the proposed cost with quotations, detailed engineering estimates, or other past historical pricing information to support such proposed amounts. If proposing IT equipment, the Applicant shall state why such equipment cannot be provided through currently present resources. For tuition costs, **ONLY APPLICABLE TO UNIVERSITIES**, the Applicant shall provide a copy of the University policy supporting reimbursement of such cost.

Travel – The Applicant shall provide a narrative description/justification for each proposed travel trip, which states the purpose, location, number of travelers, duration. Travel costs shall be priced by individual cost element (e.g. airline, car rental, lodging, and per diem) in accordance with the State of Ohio Office of Budget and Management (OBM) Travel Rule. This Travel Rule can be located at: <https://obm.ohio.gov/wps/portal/gov/obm/areas-of-interest/agency-overview/obm-travel-rule>. Travel to international conferences, including applicable registration, is not authorized and shall not be proposed. Travel to conferences specifically related to work performed under this requirement is not prohibited if such costs are allocable, allowable under the State of Ohio OBM Travel Rule, and reasonable.

Indirect Costs – The Applicant shall provide detailed information regarding its proposed indirect cost buildup and application to direct cost pools. Indirect costs are those that support general business operations but are not attributable to one cost objective. Indirect Costs are specific to accounting systems, but commonly Indirect Costs include, General and Administrative (G&A) or Facility and Administrative (F&A), Overhead, Fringe Benefits, etc.

The Applicant shall support its proposed indirect costs by providing its approved provisional indirect rate letter, a forward pricing rate agreement by a cognizant audit agency, or any other evidence that its indirect rates have been reviewed by a third-party accounting or financial firm.

If the Subcontractor does not have approved provisional indirect rates, a forward pricing rate agreement, or its rates have not been reviewed by a third-party accounting or financial firm, the Applicant shall use a de minimis indirect rate of 10% against its direct costs.

Furthermore, the Applicant shall provide support that its accounting system has been approved by a cognizant audit agency or a third-party accounting or financial firm. If the Applicant has not had its accounting system reviewed and approved, the Applicant shall complete the Accounting System Survey indicating that its accounting system can support proper segregation of costs required for cost reimbursement type contracts/subcontracts.

Lastly, the Applicant shall confirm that no portion of the OFRN funding is used to provide bonuses, incentive compensation, or rewards.

Subcontracts – If proposing lower tier Collaborators/Subcontractors, the Applicant shall require they also provide the same cost detail and narrative information as described above applicable to the Applicant. These costs are to be provided at least to a summary level in the Applicant’s prime Excel Worksheet. The Applicant shall provide a narrative supporting the basis of the lower tier Collaborator/Subcontractor costs. If proprietary Subcontractor cost proposals are not included as a part of the prime Applicant’s Cost Proposal, the Subcontractor shall provide an unsanitized copy of its Cost Proposal directly to OFRN-Submission@parallaxresearch.org. Email messages must include “Subcontractor Cost Proposal” in the subject line and identify the prime Applicant organization in the body of the message.

3.4.2.3 Cost Sharing

Proposed Cost Share shall be provided in narrative form, along with completion of the appropriate tab in the Cost Worksheet. Cost Share is an evaluation criterion for OFRN projects for two reasons. First, it shows that the Prime Applicant and its partners are fully committed to the success of the proposed projects. Second, it increases the level of resources that are available to support the execution of a project. For example, if the Prime Applicant is granted \$500,000 in funding by the OFRN and the Prime Applicant has been able to arrange for \$500,000 in committed cost share, then the total effective budget to perform the work is \$1 million. Accordingly, each proposal must clearly describe how the identified cost share will be used to support execution of the project.

If awarded a contract, Prime Applicant will adhere to the following Cost Share requirements governing its identification and use for project expenditures. Ideally OFRN leadership would expect Industry cost share to pay for its expenses related to the project research.

3.4.2.3.1 Types of Cost Share

For additional guidance, see the Cost Share Appendix 3.

3.4.2.4 Definitions

The following definitions are provided to the Applicant to support development of the Cost Proposal. The examples provided are for illustrative purposes only.

Direct Labor: Is labor involved in the production of the project. It is also labor categories directly employed by the Applicant on the Project(s). Direct labor is built based on labor hours, rates, and cost by appropriate labor category. Does not include subcontractor labor. Direct labor is not fully burdened with indirect expenses (e.g. Fringe Benefits, Overhead, General and Administrative Costs, or MTDC).

Other Direct Costs (ODC): Incidental services for which there is not a labor category specified. For the purposes of the Applicant’s proposal submission, ODCs include Equipment, Materials, and Supplies. These are individually defined as:

Equipment: is tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or \$5,000. Equipment

does not lose its identity or become a component part of another article when put into use.

Materials: is personal property that may be consumed or expended during the performance of a contract, component parts of a higher assembly, or items that lose their individual identity through incorporation into an end item. Material does not include equipment, special tooling, special test equipment or real property. Material includes supplies.

Indirect Costs: Costs incurred by the awardee in support of general business operations such as F&A, G&A and overhead but which are not attributable to one cost objective. Indirect Costs + Direct Costs = Total Project Costs. (a) If the Indirect Cost Rate is calculated on a Total Direct Cost (TDC) basis, then all budget items are included in the Indirect Cost calculation. If the Indirect Cost Rate is determined on a Modified Total Direct Cost (MTDC) basis, then some costs are excluded when the Indirect Costs are calculated. So long as documentation is provided, an Applicant may charge its federally approved Indirect Cost Rate.

Modified Total Direct Cost (MTDC): All direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel, and up to the first \$25,000 of each subcontract (regardless of the period of performance of the subcontract under the award). MTDC excludes equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subcontract in excess of \$25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

Travel: Self-explanatory. Travel costs shall be priced in accordance with the State of Ohio Office of Budget and Management (OBM) Travel Rule <https://obm.ohio.gov/wps/portal/gov/obm/areas-of-interest/agency-overview/obm-travel-rule>. Travel to international conferences, including applicable registration, is not authorized and shall not be proposed. Travel to conferences specifically related to work performed under this requirement is not prohibited if such costs are allocable, allowable under the State of Ohio OBM Travel Rule, and reasonable.

Tuition: Costs associated with training and education provided for employee development. Includes associated fees but does not include textbooks, materials, salary or other costs that are ancillary to the tuition/education cost. **These costs are ONLY APPLICABLE TO UNIVERSITIES.**

3.5 Volume 2A: Pitch Deck

A slide deck, maximum 15 pages in length, must also be submitted with the other Volumes. A suitable template will be available on OFRN's website.

Slide decks must include a quad chart describing the project (the format of the quad chart found in the template and Appendix 7 must be utilized), and should generally be designed to answer the questions of DARPA's Heilmeier Catechism:

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- How is it done today, and what are the limits of current practice?
- What is new in your approach and why do you think it will be successful?
- Who cares? If you are successful, what difference will it make?
- What are the risks?
- How much will it cost?
- How long will it take?

- What are the mid-term and final “exams” to check for success?

4 EVALUATION CRITERIA (OFRN)

4.1 Award evaluation criteria

Only the most meritorious proposals are sought for funding. Proposals will be evaluated by the OFRN’s Technical Review Council based on responsiveness to all the requirements of this Opportunity Announcement. Implicit in those requirements and evaluation criteria is the quality of the statement of work and budget. Parallax is under no obligation to award any Subcontracts.

4.1.1 Go/No Go Criterion: Federal Alignment

The proposal demonstrates how applications/user driven requirements are derived from and aligned with the emerging mission and research focus areas of AFRL, NASIC, NAMRU-D, and NASA-GRC, and federal related requirements of the Ohio National Guard.

The project has an identifiable Government Sponsor at AFRL, NASIC, NAMRU-D, and/or NASA- GRC.

There is a demonstrated relationship with the Government Sponsor and Project Lead Organization, either as the result of documented development meetings or previous relevant working engagements.

4.2 Additional Factors

The following elements will be specifically considered in the review of the proposals.

- Business and Cost Proposal: An award will not be made to a firm whose costs are not supported, and not determined to be reasonable and realistic. An unreasonable, unrealistic, inconsistent or incomplete cost proposal may be deemed to be evidence of the Applicant’s poor understanding of the requirements.
- Technical approach: proposals must provide a clear description of the project’s technical objective, expected outcomes, and how those outcomes benefit Federal research centers and industry members. Specific factors that will be considered include, but are not limited to:
 - If the research objective advances knowledge and extends the state-of-the-art
 - Quality and reasonableness of the proposed technical approach with quantitative metrics connected
 - Deliverables, major milestones, and costs along with potential risks and mitigation strategy
 - The viability of a project team’s plan to integrate their enabling technologies into existing platforms
 - Appropriateness and feasibility of the proposed demonstration of the technology
- Cost Share (State expectation is typically 1 to 1 cost share), is optional, however if provided it should include:
 - Magnitude of the cost share
 - Any conditions associated with the cost share
 - Type and nature of cost share
- Alignment of the Proposal with Round 5 SOARING’s purpose, goals, objectives, eligibility and funding requirements
- Quality and reasonableness of the commercialization strategy

- Experience, qualifications, and commitment of the project team
- Project's plan to capitalize on Ohio assets – personnel, small businesses, test capabilities, university assets
- Project's plan for federal follow on funding and/or industry sponsored research or commercial market opportunities
- Degree to which a proposal leverages or links with Ohio's aerospace supply chain
- Project's presentation during Pitch Day
- Reasonableness of the proposed project schedule, budget, and SOW

5 APPENDICES

APPENDIX 1: STUDENT EXPERIENTIAL ENGAGEMENT (SEE) PROGRAM

APPENDIX 2: VENDOR PROFILE

APPENDIX 3: COST SHARE GUIDANCE

APPENDIX 4: EXCEL COST WORKSHEET

APPENDIX 5A: SUBCONTRACT TERMS AND CONDITIONS – INDUSTRY (EITHER FOR-PROFIT OR NOT-FOR-PROFIT ORGANIZATIONS)

APPENDIX 5B: SUBCONTRACT TERMS AND CONDITIONS – STATE UNIVERSITIES OR STATE COLLEGES

APPENDIX 6: BUSINESS & COST PROPOSAL TEMPLATE

APPENDIX 7: QUAD CHART TEMPLATE

APPENDIX 8: DEMO DELIVERABLE REQUIREMENTS FOR SELECT AOI

5.1 APPENDIX 1: STUDENT EXPERIENTIAL ENGAGEMENT (SEE) PROGRAM

Background

Today, rapid technology advancements in all industries, across both public and private business sectors, is impacting workforce development strategies and mandating that education and experiential learning programs begin sooner and involve more collaboration among government, industry and academia. To address this important need, the Ohio Federal Research Network will use its experience in developing and building multi-disciplinary research teams to provide hands on learning for eligible student interns who participate in the SOARING Round 5 Project Release. The *SEE* program will enable Project Teams whose projects are selected for final award to recruit and hire student interns to work and learn throughout the duration of their Round 5 project. Students will be afforded an opportunity to actively participate in moving technology from research, through business application and defense mission requirements, to commercialization and market entry.

By focusing on industry and military research and development needs and continuing our systematic and proven methods of engagement between companies, universities and our Federal Partners, OFRN can strengthen and grow Ohio's workforce. This research to reality type of experiential learning with business and military involvement along with matched educational requirements, will provide students with unique and industry leading career credentials.

Program Guidelines

The *SEE* program is intended to be a framework for Project Teams to build from and adapt to specific project needs. Student interns should be afforded the opportunity to engage with a wide span of participants within a Project Team but will be hired by a single organization (host organization), who will be the employer for the student intern. The host organization may be any one of the project team's university, business, or federal partner participants. The student can be employed by any of the team members at any time throughout the duration of the project. Specific organization rules and procedures will govern the employment term up to a maximum of 18 months, which is the period of performance for the Round 5 project awards. The host organization is encouraged to work with an Ohio university through the university's internship/co-op office. Particular attention should be given to understanding the University guidelines for student payment and course credit.

The internship will be a paid position; however, salary and terms of employment will be determined by the host organization/ employer. Team participants may also contribute internship funding subject to organizational, local, state and federal laws and are encouraged to seek funding and program assistance from other State and Federal resources. Again, how the Project Team will structure, manage and invest in their internship depends on the business and research needs of each team. However, these internships must include the following elements:

- Student's core curriculum should be STEM focused with student recruitment limited to Ohio Universities and Community Colleges.
- Create a purpose statement defining the nature of the internship work and how it will benefit the proposed project outcome.
- Describe the Innovation opportunities the Student will be exposed to and how their participation will enhance their learning and benefit their individual career path.
- Describe the Project Team's mechanisms for interacting with Students and providing an inclusive environment.
- Develop a timeline, budget and oversight structure for the program along with a mechanism for the Student to provide their own assessment of the experience. Project Teams are encouraged to investigate and utilize existing academic and State programs currently in operation.

Student Eligibility

To be eligible for the Program, a student must be attending an institution of higher education in the State of Ohio and enrolled in degrees from Associate to the Doctoral level in all disciplines, with a focus on STEM learning. Working with minority service organizations/institutions (i.e., HBCU, etc.) is encouraged. Essential is the desire and motivation to experience and contribute to innovative research that will lead Ohio into a new era of commercial and defense technology development.

Program Resources

Many universities and colleges in Ohio have internship programs. You can contact them directly for information. In addition to Ohio universities and colleges, the following is a resource that can provide assistance. <https://www.ohiohighered.org/students/find-a-career/internships-and-co-ops>

5.2 APPENDIX 2: VENDOR PROFILE

Download documents from OFRN Round 5 website

<https://www.ohiofrn.org/ofrn-current-solicitation>

PARALLAX VENDOR PROFILE FORM

PARALLAX ADVANCED RESEARCH CORPORATION			
VENDOR CERTIFICATION FORM			
<p><i>In accordance with Internal Revenue Service and State of Ohio regulations, Parallax is required to obtain the following information for all businesses and individuals to whom we make payments to. Please fill out all information that applies to you or your business. print, sign and return the completed form to the person you are working with at Parallax. This form is also used to obtain business information and vendor self-certification under the authority of the Small Business Act and should be completed by an authorized agent.</i></p>			
Name As Shown on Tax Form		Doing Business As	
DUNS Number		Cage Code	
Street Address City, State		Federal Employer ID SSN (1099 Vendors)	
Remit to Name and Address (If Different than above)		Primary NAICS Code	
Zip + 4 Digit Code		# of Employees	
Contracts POC		Website	
Contracts Phone			
Contracts Email			

BUSINESS SIZE REPRESENTATION			
(select all that apply to NAICS identified above)			
<input type="checkbox"/> Large Business	<input type="checkbox"/> Woman Owned Small Business (WOSSB)*	<input type="checkbox"/> Veteran Owned Small Business (VOSB)	<input type="checkbox"/> Other _____
<input type="checkbox"/> Small Business	<input type="checkbox"/> Historically Black College/Minority Institution (HBCU)	<input type="checkbox"/> Service-Disabled Veteran Owned Small Business (SDVOSB)	<input type="checkbox"/> ANC (Alaskan Native Corporation and Indian Tribes that are no Small Businesses)
<input type="checkbox"/> Small Disadvantaged Business (SDB)	<input type="checkbox"/> Historically Underutilized Small Business Zone (HUBZone)	<input type="checkbox"/> Alaskan Native Corporation (ANC) and Indian Tribes not certified by SBA	

*Requires certification with the Small Business Administration (SBA).

**Under 15 U.S.C. 645(d), any person who misrepresents a firm's status in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 9 or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall – (i) be punished by imposition of fine, imprisonment, or both; (ii) be subject to administrative remedies, including suspension and debarment; and (iii) be ineligible for participation on programs conducted under the authority of the Act.

BUSINESS STATUS			
<input type="checkbox"/> C-Corp in the State of _____	<input type="checkbox"/> S-Corp in the State of _____	<input type="checkbox"/> Partnership, LLC, LLP	
<input type="checkbox"/> Joint Venture	<input type="checkbox"/> Foreign Owned	<input type="checkbox"/> Local, State, or Federal Government	<input type="checkbox"/> Non-Profit
			<input type="checkbox"/> Individual

BUSINESS SYSTEM DETERMINATIONS				
System	Gov't Reviewed System	Date Determined Acceptable	Cognizant Gov't Audit/Approving Agency	Address and Phone
Accounting				
Estimating				
Property				
Purchasing				

The Vendor has completed representations and certifications via the System for Award Management (SAM) website (<https://www.sam.gov>), and the Vendor certifies that the representations and certifications posted on SAM (and any subsequent changes) are current, accurate, and complete and applicable to any subsequent potential award. The Vendor agrees it is responsible for the accuracy and completeness of the data within SAM and for any liability resulting in Parallax's reliance on inaccurate or incomplete data.

The Vendor has not completed representations and certifications via SAM.gov, or does not certify that those representations and certifications are current, accurate, and complete. The Vendor will complete the Parallax Representations and Certifications form.

Last Updated 11/4/2020 FORM: CON-001
Page 1 of 3

Parallax Vendor Profile Form

CERTIFICATIONS	
1. The number shown on this form is my correct taxpayer identification number, and	
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and	
3. I am a U.S. citizen or other U.S. person (defined below). Certification Instructions: You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest or dividends, you are not required to sign the certification, but you must provide your correct TIN.	
4. In accordance with FAR 52.219-8, "Utilization of Small Business Concerns" the Vendor's size standard is current, accurate, and complete as of date of submission.	
Name	
Title	
Signature	
Date	

Last Updated 11/4/2020

FORM: CON-001
Page 2 of 3

CAPABILITY STATEMENT
(Optional)

VENDOR CAPABILITIES

CERTIFICATIONS

PAST PERFORMANCE RATINGS

OTHER INFORMATION

Last Updated 11/4/2020FORM: CON-001
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5.3 APPENDIX 3 COST SHARE GUIDELINES

Cost Share is an evaluation criterion for OFRN projects because it demonstrates that the Prime Applicant and its partners are fully committed to the success of the proposed projects and increases the total resources available to support the execution of a project. For example, if the Prime Applicant is awarded \$1M in funding by the OFRN and the Prime Applicant has been able to arrange for \$1.5M in committed cost share, then the total effective budget to perform the work is \$2.5M. Accordingly, each proposal must clearly describe how the identified cost share will be used to support execution of the project.

If awarded a contract, Prime Applicant and the entire project team will adhere to the following Cost Share requirements governing its identification and use for project expenditures. Ideally OFRN leadership would expect Industry cost share to pay for its expenses related to the project research.

The cost share can be split among the project team as deemed appropriate. There is no minimum level of cost share from each team member, rather, the project is evaluated based on the total cost share provided by the project team as a whole.

Generally, OFRN follows OMB 2 CFR 200.306 and generally accepted accounting principles (GAAP) for recognizing and accounting of Cost Share.

Types of Cost Share

Cash Cost Share is defined as reasonable monetary expenses of allowable costs:

- 1) incurred by the contractor as an integral part of the activities described in the proposal, as amended, during the term of the project(s);
- 2) charged to accounts of the contractor other than accounts funded from State of Ohio General Revenue Funds (GRF); and
- 3) Documented within the financial books of the Contractor. This would include monetary resources contributed directly to the Contractor or to a parent organization by a third party for support of the Contractor and used in furtherance of the project(s).

In-Kind Cost Share is defined as the value of contributions, goods, or services: (1) donated to the project during the term of the project; (2) received by the Contractor in the period to which the cost share applies and used in furtherance of the project(s); and (3) cannot be traced through the financial books of the Contractor. The following are types of services and donations that count as In-Kind Cost Share:

- 1) Volunteer services are unpaid contributions provided to a Contractor by individuals or entities and will be valued at rates consistent with those ordinarily paid for similar services in the Contractor's organization. If the Contractor does not have employees performing similar work, the rates will be consistent with those ordinarily paid by other employers for similar work in the same labor market. A reasonable amount for fringe benefits may be included in the valuation.
- 2) Donated services occur when an employer other than the Contractor furnishes the services of an employee in the employee's normal line of work free of charge for Project activities. The services will be valued at the employee's regular rate of pay including fringe benefits up to 30 percent of salaries.
- 3) Donated supplies or materials are supplies or materials donated to the Project by a third party. The contribution will be valued at the market value of the supplies or materials at the time of donation.
- 4) Donated use of equipment or space occurs when a third party donates the use of equipment or space in furtherance of the Project. The contribution will be valued at the fair rental rate of the equipment or space.
- 5) Donated equipment, buildings, and/or land are real and personal property donated by a third party in furtherance of the Project, where title passes to the Contractor. The contribution will be valued using the fair market value of the property at the time of donation.

Committed Cost Share must clearly explain how its use supports the execution of the project and must be documented in a letter from an authorized representative of the provider stipulating the nature and valuation of the cost share.

Contingent Cost Share can be either Cash or In-Kind Cost Share that is dependent upon another event, such as the receipt of a contract, to be realized. While these circumstances are outside of a proposer's control, Contingent Cost Share may be included in a proposal, but it must be shown separately from the Committed Cost Share. The documentation of this type of cost share must still show how it supports the execution of the project; must have a supporting letter of commitment; and must also explain what effect the loss of the Contingent Cost Share will have on the project's timeline and deliverables in the event that it is not realized.

If there are other types of support that a Contractor deems to be Cost Share, then this must be reviewed and approved by the OFRN-Parallax in writing to be able to be included in the Project(s) as Cost Share.

Other State and Federal Contracts as Cost Share

Funding from other State and Federal awards may be included as Cost Share provided, they meet specific criteria, namely, that the funding has a direct and specific relation to the proposed project and is required in order for the project to be successful. If you intend to utilize this sort of cost share, please contact the OFRN team with details of your Cost Share request before final submission of a proposal. Failure to do so may result in Cost Share being deemed ineligible.

Documenting Cost Share

The documentation of both Cash and In-Kind Cost Share must include the company or institution name and address, the nature and value of the Cost Share, and the method of valuation. For example, documentation for Cost Share based on the value of a membership must also include the term of membership. The Contractor is to retain letters of commitment or a membership form or agreement signed by an authorized official of the contributing member and by the Contractor. Further, the Contractor must also maintain documentation sufficient to verify all reported Cost Share, including the nature and value of the contributions and how these were calculated.

Reporting Cost Share

- The method and frequency of reporting Cash and/or In-Kind Cost Share will be specified in the Agreement.
- An itemized listing of eligible Cost Share attributed to the Project(s) during the Project's Period is to be included in the Cost Proposal

Additional Cost Share Examples

The below examples are for informational purposes. Please contact the OFRN staff with any questions specific to your cost share examples and calculations.

Purchase of Equipment

A high-performance infrared camera is required to successfully complete the project. The camera costs \$10,000 and will be purchased during execution of the project. The cost share is \$10,000.

Use of Equipment

A UAS will be used or purchased for the execution of the Project as well as other projects. The asset costs \$100,000 plus 10% annual maintenance and has a useful life of 10,000 hours. The project plan includes 2,000 hours of flight time over 12 months. The cost share for use of this asset is $\$100,000/10,000 \text{ hours} * 2,000 \text{ hours} + \$100,000 * 10\% \text{ maintenance} = \$30,000 \text{ Cost Share}$.

Modification / Integration of Equipment

The Project requires a \$10,000 modification to a flight platform. This is allowable Cost Share if the expenditures would not have otherwise occurred, take place during the execution of this Project, and are directly required for successful execution of the Project.

Discounted use of a Facility

A test facility has a normal rate of \$1,000 per hour but is offering a 20% discount from the normal rate for execution of this Project. \$200 per hour can be used as Cost Share

Donated Services

An organization other than the Project Team donates the services of an employee earning \$25 per hour for 100 hours. The cost share is $\$25 * 1.3 \text{ fringe benefits} * 1,000 = \$3,250$ in cost share

Internal Research and Development (IRAD)

A member of the Project Team is conducting IRAD during the execution of the Project that is directly related to the success of the Project. This includes 3 team members working 50% of their time for 1 year, with each team member earning \$100,000 per year. The cost share is $\$100,000 * 1.3 \text{ fringe benefits} * 50\% \text{-time allocation} * 3 \text{ team members} = \$195,000$ in Cost Share.

Miscellaneous Items

Other examples of cost share include:

- Cost of retrofit and operation of an existing aircraft for the duration of the project
- Integration of an existing product or existing technology that is specific and integral to the project needs
- Personnel and research expenditures specific for this project that would not have otherwise occurred
- Already purchased, onsite characterization equipment specifically needed during technology creation

Cost Share Worksheet

A Cost Share worksheet can be found in Appendix 4: Excel Cost Worksheet which can be downloaded at <https://www.ohiofrn.org/ofrn-current-solicitation>

5.4 APPENDIX 4: EXCEL COST WORKSHEET

Download document from OFRN Round 5 website

<https://www.ohiofrn.org/ofrn-current-solicitation>

5.5 APPENDIX 5A: Subcontract Terms and Conditions – Industry (Either For-Profit or Not-for-Profit Organizations)

Section A. Subcontract / Purchase Form

[Purchase Order]

Section B: Contract Type and Prices/Costs

B.1 Subcontract Type:

This is a Cost Reimbursement (NO FEE) Subcontract.

Subcontractor shall perform Work under this Subcontract as directed by Parallax. The Subcontract shall specify the estimated price ceiling, the period of performance, a description of the Work to be performed, and any other related and relevant stipulations. “Work” includes all required labor, articles, materials, supplies, goods and services constituting the subject matter of this Subcontract.

B.2 Subcontract Cost:

The total ceiling cost of this contract to be paid by Parallax to Subcontractor for the Program is \$TBD. Costs will be reimbursed in accordance with the cost principles of 2 CFR 200 as applicable. In the event any payments to the Subcontractor are subsequently disallowed in accordance with these principles, the Subcontractor shall repay Parallax on demand the amount of any such disallowed items or, at its discretion, Parallax may deduct such amount from subsequent payments.

[TBD Subcontract Cost Table Breakdown]

B.3 Funding and Compensation

Incremental funding in the amount of \$TBD is provided with this Subcontract. Parallax’s obligation to make payments to the Subcontractor is limited only to the funds obligated by the Purchase Order or Purchase Order modification(s).

Incremental funding is subject to the availability of funds and continued satisfactory progress on the Subcontract as determined by Parallax. Funding is predicated on the Subcontractor providing a cost sharing contribution of \$TBD. Reference the Applicant’s final cost/budget is included in Section J Attachment 1.

B.4 Order of Precedence:

In the event of an inconsistency between any of the provisions of this Subcontract, the inconsistency shall be resolved by giving precedence to the provisions of the Subcontract in the following order:

1. The Subcontract
2. Terms and Conditions
3. Statement of Work
4. Types, amounts, process

Section C: Statement of Work –OFRN Review and Update

C.1 Effort to be Performed

The Subcontractor shall provide the necessary services to perform the Work stated herein in the Statement of Work. “Work” shall include all required labor, articles, materials, products, supplies, goods and services constituting the subject matter of this Subcontract.

C.2 Air Force Research Laboratory Support to OFRN

OFRN projects gain access to AFRL Certificate of Waiver or Authorizations (COA) via the Cooperative Research and Development Agreement (CRADA) between the AFRL and the Parallax, incorporated into this Subcontract via Section J Attachment 2. OFRN projects must satisfy requirements of AFRL Flight Test Review and Approval process, which specifically consists of:

- Technical Review (Adequacy to meet objectives)
- Airworthiness (Technical Risk of Achieving Flight)
- Safety Review (Adequacy of hazard migrations)
- Operator qualifications (Meet Air Force and FAA requirements)

Note that this process is tailored to project complexity and consists of documentation and review boards.

[Remainder of Section C TBD, Based on Applicant's Final Proposal and Award]

Section D: Packaging and Marking

D.1 Packaging and Marking:

Unless otherwise specified herein, the Products required under this order shall be packed in accordance with the best available commercial practices and in compliance with transportation regulations.

D.2 Certification and Warranty

Subcontractor certifies that it is and shall remain free from any obligation or restriction which would interfere, be inconsistent with or present a conflict of interest concerning the Work to be furnished by Subcontractor under this Agreement. Subcontractor further certifies that it will perform the services under this Agreement with the degree of high professional skill, practices and judgment which is normally exercised by recognized professional firms with respect to services of a similar nature.

Section E: Inspection and Acceptance:

E.1 Inspection and acceptance

Inspection and acceptance of all items or services contemplated under this Subcontract shall be accomplished by the Parallax Contracts Manager or Parallax Technical Lead. Parallax has the right to accept items or services to the extent practicable at all places and times during the term of this Subcontract. If any supplies or services do not conform with Subcontract requirements, Parallax may require the Subcontractor supply the item or perform the services again in conformity with the subcontract requirements. If the Subcontractor fails to promptly perform the services again or take action necessary to ensure future performance in conformity with contract requirements, Parallax may reduce the amount of the Subcontract in an amount equal to the cost of replacing the items or services to meet the inspection and acceptance requirements or terminate the Subcontract for default.

Section F: Deliveries and Performance

F.1 Deliveries and Acceptance

Unless otherwise specified, deliveries required in performance of this Subcontract shall be made to the Parallax Points of Contact identified below. Email submissions are desired as long as Subcontractor ensures the submission is received by Parallax.

All data shall be delivered in accordance with the delivery schedule identified in the SOW.

All reports and correspondence submitted under this Subcontract shall include the subcontract number and be forwarded prepaid.

Section G: Contract Administration Data

G.1 Points of Contact

Contractual:	Technical:
Amy Schear Contracts Administrator 937-705-1096 amy.schear@parallaxresearch.org	Robert Tanner OFRN Executive Director 614-981-9706 bob.tanner@parallaxresearch.org

G.2 Invoices

- (a) **Overview:** Subcontractor will prepare and submit invoices to Parallax, on a monthly basis for the month prior in accordance with information outlined herein. Each invoice shall be numbered sequentially, clearly showing Parallax's Subcontract Number, billing period of costs incurred, cumulative costs to date and funded amount. Invoices shall be compatible with information reported on the Status Reports. Invoices must show amounts being billed for the current month and cumulatively and shall include the following certification which must be signed by an authorized certifying official:

"I, the undersigned, hereby certify to the best of my knowledge and belief, that this invoice represents a true and accurate statement of all costs incurred for the billed and cumulative periods reflected herein and that the labor hours stated herein constitute the actual direct productive person hours incurred in performance of this order, and that the indirect rates used to calculate this invoice have been approved or submitted to an auditing agency and/or firm."

- (b) Invoices shall contain a breakout of the following items, as applicable:
- 1. Direct Labor:** Direct Labor costs must include the labor category (e.g., program manager, senior engineer, technician, etc.), the hourly rate, the labor cost per category, and the extended amount.
 - 2. Other Direct Costs:** Other Direct Costs include Equipment, Materials, and Supplies. Receipts or other appropriate supporting documentation shall be made available for Parallax's inspection and acceptance for all incurred ODCs as a part of invoice submission. The Subcontractor shall obtain approval from the Parallax Contracts Administrator prior to incurring any Other Direct Costs (ODCs) exceeding \$2,000. ODCs, if authorized, are to be billed at actual cost plus applicable burdens.
 - 3. Travel:** Reimbursement for all authorized travel costs in performance of this Subcontract will be supported by travel receipts. Travel requires prior approval by the Parallax Contracts Administrator or Technical Lead at least one (1) week prior to the travel date. Subcontractor's request for travel authorization shall include an estimate of travel costs, number of travelers, number of days, destination, and purpose of trip. Travel to international conferences, including registration, is NOT an authorized expense under this agreement. Travel to conferences specifically related to work performed under this requirement is not prohibited if such costs are allocable, allowable under the State of Ohio OBM Travel Rule, and reasonable.
 - 4. Indirect Costs:** If the Subcontractor claims indirect costs on its invoice, such indirect costs shall be supported by its approved provisional indirect rates or a forward pricing rate agreement by a cognizant audit agency. When the cognizant Administrative Contracting Officer (ACO) or auditor approves a change in the provisional indirect rates or forward pricing rate agreement, include a copy of the approval with the invoice submission.

If the Subcontractor does not have approved provisional indirect rates or a forward pricing rate agreement, such indirect costs for reimbursement are limited to 10% of direct costs.

5. Subcontracts: All claimed subcontractor costs must be supported by submitting the same detail as outlined herein.

- (c) **Invoice Template:** The Subcontractor shall use the Invoice Template provided as Section J Attachment J-5 when preparing and submitting invoices.
- (d) **No Activity:** Invoices shall contain all elements described in this section. If no activity occurred during the previous month, a negative or "no activity" may be requested for budgeting purposes.
- (e) Invoices must be **emailed** to:

FINANCE@PARALLAXRESEARCH.ORG

- (f) **Defective or Improper Invoice:** Failure to provide the invoice in the context described above, with the appropriate supporting documentation will result in Parallax determining the invoice to be defective or improper. Improper invoices will be rejected, and the payment terms will restart upon submission of a revised proper invoice.

G.3 Payment Terms

Parallax will process payment to Subcontractor for each properly completed invoice at the end of each month. Payment terms shall be Net thirty days (30) days after receipt of a proper invoice. Supporting documentation shall be provided by Subcontractor upon request by Parallax. At any time before final payment under this Subcontract Agreement, Parallax may request audit of the invoices and supporting documentation.

G.4 Closeout Documentation

Upon completion of the Subcontract, Subcontractor will complete the closeout documentation (Section J Attachment 3) and return to Parallax within 30 days of the contract end date and provide the final invoice marked as "FINAL INVOICE".

G.5 Relationship of the Parties

The parties to this Subcontract are independent contractors and are not agents of each other, joint ventures, or partners. Neither party is authorized or empowered to act on behalf of the other with regard to any contract, warranty, or representation as to any matter. With the exception of Parallax's ability to remove, transfer, or replace any Subcontractor employee or employees at the request of the Agency or if Parallax finds doing so to be in its best interest, each party will maintain sole and exclusive control over its own personnel and operations.

Section H: Special Contract Requirements

H.1 Confidentiality

(a) The parties shall not, at any time, directly or indirectly disclose to any third party or make any commercial or other use of any proprietary or confidential information, knowledge, data, process, device, machine, or composition of matter belonging to the other party, or any of its customers or sponsors, without prior written consent to such disclosure or use. Obligations of confidentiality under this Subcontract shall be in accordance with the Non-Disclosure Agreement (NDA) (See Section J Attachment 4) signed by the parties and, as established therein, shall survive termination of this Subcontract.

(b) The parties further agree that confidential or proprietary information owned by either party (the "Information") shall remain the property of that party and, except to the extent required by the Terms and Conditions included as Attachment 4 applicable to the Program and this Subcontract. No transfer of the

ownership of or license in the Information will be deemed to have taken place simply by virtue of the Information being used in the parties' work on the Project.

(c) Subcontractor agrees to maintain as confidential, the terms of this Subcontract and all of its communications with Parallax related to the Project and this Subcontract.

H.2 Compliance with Law

Subcontractor agrees to comply with all applicable federal, state and local laws in the conduct of the work hereunder. This includes but is not limited to the laws and regulations surrounding the administration of federal grants, including EDGAR regulations found at Title 34 Code of Federal Regulations, Parts 74-86 and 97-99, as applicable. Subcontractor acknowledges that its employees are not employees of Parallax with regard to the application of the Fair Labor Standards Act minimum wages and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code and for state revenue and tax laws, state workers' compensation laws and state unemployment insurance laws. Subcontractor accepts full responsibility for payment of all taxes including without limitation, unemployment compensation insurance premiums, all income tax deductions, social security deductions, and all other taxes or payroll deductions required for all employees engaged by Subcontractor in the performance of the work authorized by this Subcontract.

H.3 Indemnification

Each party agrees to indemnify and hold harmless the other party, its directors, officers, employees, agents, and invitees, and the Agency from and against all liability, demands, claims, losses, costs, damages, and expenses, including but not limited to attorney's fees, by reason or on account of property damage, death, and personal injury of whatsoever nature or kind arising out of, as a result of, or in connection with the party's performance of this Subcontract that is occasioned by the willful or reckless misconduct, negligent actions, or omissions of the party, its employees, partners, agents, representatives, or its subcontractors or suppliers at any tier.

H.4 Termination, Default and Convenience

(a) **For Cause or Default.** Parallax may, by written notice of default, terminate this Subcontract in whole or in part, if Subcontractor fails to perform the authorized services within the time specified in this Subcontract or any extensions thereto. Parallax's right to terminate for default pursuant to items listed below, may be exercised if Subcontractor does not cure such failure within ten (10) calendar days (or more if authorized in writing by Parallax) after receipt of written notice from Parallax specifying the failure:

(1) Failure to make progress, so as to endanger performance of this Subcontract.

(2) Failure to perform any other of its obligations under this Subcontract.

(3) Failure to conduct its operations in the normal course of business (including inability to meet its obligations as they mature); or becomes insolvent or makes a general assignment for the benefit of creditors; or if any proceedings are commenced by or against the Subcontractor under any bankruptcy, reorganization, arrangement, insolvency, readjustment of debt, dissolution, or liquidation law or statute; or if a trustee, receiver, liquidator, or conservator for Subcontractor is applied for or appointed.

(4) Failure to notify Parallax if it has a known conflict of interest.

(5) Failure to meet its cost sharing requirements.

(b) Any such termination will be without liability to Parallax except for those services or deliverables that have been completed and accepted by Parallax, payment for which can be set off against damages incurred by Parallax due to Subcontractor's actions or inactions that form the basis of the cause for termination, including but not limited to, excess costs of re-procurement.

(c) **For Convenience.** Parallax may terminate this Subcontract in whole or in part if it determines that a termination is in its best interests or if the State of Ohio exercises its termination-for-convenience

rights under the Contract. Parallax may terminate this Subcontract by issuing Subcontractor written notice of the termination, specifying the extent of the termination and the effective date. In the event of termination, Parallax shall be liable only for payment of costs incurred for services rendered and accepted before the effective date of the termination.

H.5 Stop Work

(a) Parallax may, at any time, by written order, require the Subcontractor to stop all, or any part, of the work called for by this subcontract for a period of 90 days after the order is delivered, or for a further period as agreed to mutually by the parties. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Subcontractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Subcontractor, or within any extension of that period to which the parties shall have agreed, the Parallax shall either:

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience clause of this Subcontract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Subcontractor shall resume work.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience by Parallax, reasonable costs resulting from the stop-work order may be considered in arriving at the termination settlement.

H.6 Notices

Unless the parties agree otherwise, any notice given by either party hereunder to the other will only be effective if it is in writing, signed by an authorized representative, and delivered by hand or sent by certified mail, return receipt requested, with postage prepaid, addressed as follows:

To Parallax:

Parallax Advanced Research Corp.
4035 Colonel Glenn Hwy.
Beavercreek, OH 45431
Attn: Amy Schear
Ph: (937) 705-1096
Email: amy.schear@parallaxresearch.org

To Subcontractor:

[TBD]

Attn:
Ph:
Email:

Any notice between the parties communicated orally must be confirmed in writing, signed by an authorized representative and delivered as set forth above. Either party may change its address or representative by notice given to the other party in the manner set forth above.

H.7 Modifications

With exception to unilateral incremental funding obligations, no change, revision or modification to this Agreement will be valid unless reduced to writing and bilaterally executed by authorized officers of each party.

H.8 Governing Law and Venue

The construction, validity, performance and effect of this Subcontract with regard to all purposes related to the Contract and the Agency shall be governed by Federal Procurement Law. For all other purposes,

including but not limited to the construction, validity, performance, and effect of this Subcontract, it shall be governed by the applicable laws of the State of Ohio. Each party hereto consents to the exclusive jurisdiction and venue of the courts of Greene County, Ohio.

H.9 Dispute Resolution

(a) The parties agree to timely notify each other of any claim, dispute, or cause of action arising from or related to this Subcontract, and to negotiate in good faith to resolve any such dispute whenever possible. If any dispute arises under this Subcontract, the parties will hold a meeting attended by at least one Corporate Executive from each party. The meeting will be held within fourteen (14) days of either party requesting such a meeting. Such meeting shall be held telephonically if travel is impracticable for either party. The meeting will be an attempt to negotiate a good faith resolution to the claim or dispute. The Executives will have the power to negotiate on behalf of the parties and will be authorized to settle the dispute. Any statements or representations made in such a meeting will be for purposes of settlement only and will not be admissible as evidence in court. Any written settlement agreement executed by the parties shall be admissible in court.

(b) After the initial meeting, the Corporate Executives may agree to a further meeting or meetings. If the matter has not been resolved within fourteen (14) days of the meeting deemed final by at least one Executive, the parties agree to submit the matter to mediation in Dayton, Ohio. The parties will choose a mutually agreeable mediator and will share the costs of the mediation equally.

(c) If the parties are unable to resolve their dispute through negotiation or mediation, then either may institute an action against the other in a court of competent jurisdiction in Dayton, Ohio. Such action must be commenced with sixty (60) days after the completion of the mediation or any claim is irrevocably waived. Parallax and Subcontractor each waive any rights that either party may have to trial before a jury on any dispute arising from or related to this Subcontract.

(d) Nothing in this Article shall preclude either party from filing an action in court at any time for injunctive relief to prevent injury involving the use or disclosure of the other party's intellectual property rights for which monetary damages would be inadequate.

(e) Pending any decision, appeal or judgment referred to in this provision or the resolution or settlement of any Dispute, Subcontractor shall proceed diligently with the performance of the Subcontract and any task orders issued hereunder as directed by Parallax in writing.

H.10 Limitation of Liability

To the maximum extent permitted by applicable law, in no event shall Parallax or Subcontractor be liable to the other for any special, incidental, consequential, or any other type of indirect damages arising out of or related to this Subcontract, or the breach of any terms thereof, under any theory of law or equity, even if that party has been advised of the possibility of such damages. This limitation precludes the recovery of loss of use, lost income, lost or anticipated business profits, business interruption, loss of business information, loss of goodwill, or lost revenue or business. In the event of a breach of this Subcontract, it is agreed that the remedy for Subcontractor shall be limited to recovery of its costs incurred in connection with its performance efforts under the Subcontract.

H.11 Maintenance of Records/Audit

(a) Subcontractor shall maintain complete and accurate records in accordance with generally accepted accounting principles to substantiate Subcontractor's charges under this Subcontract. Such records may include, but not be limited to, job cards, phone bills, travel receipts and job summaries. Subcontractor shall retain such records for four (4) years from final payment of this Subcontract.

(b) At any time prior to the final payment, Parallax may request a Government audit or to appoint an independent, mutually agreed to third party to audit information pertaining to Subcontractor's invoicing, including individual daily timecards, invoices for materials or other direct costs, expense reports, and

other supporting documents. Previous payments shall be subject to reduction to the extent Subcontractor cannot substantiate costs that were billed and not properly payable under the terms of this Subcontract.

H.12 Assignment/Subcontracting

Neither party shall assign its rights, duties, or interest in this Subcontract without the written consent of the other.

Subcontractor agrees not to subcontract work without prior written consent from Parallax Contracts Manager, except for the purchase of standard commercial supplies and services required to complete the SOW, or with project team members included in the submitted proposal, which are listed as follows:

[TBD]

H.13 Insurance

Subcontractor shall procure and maintain the following minimum insurance for the performance of this Subcontract:

- Automobile Liability including Bodily Injury and Property Damage
\$1,000,000 Single Limits
- General Liability including Products and Completed Operations
\$2,000,000 Per Occurrence; \$2,000,000 Aggregate
- Worker's Compensation – Statutory limits per state
Including Employer's Liability - \$1,000,000/\$1,000,000/\$1,000,000
- Error & Omissions Liability including contractual liability
\$2,000,000 Per Occurrence – Maximum Deductible of \$25,000
- Aircraft liability – \$1,000,000 if Project proposes to fly Unmanned Aerial Vehicles (Aircraft liability is not covered by general liability).

Subcontractor must provide Parallax with a certificate of insurance prior to starting work. Parallax is to be listed as an additional insured on a primary and non-contributory basis. Parallax reserves the right to request a copy of any of the above policies to verify that they meet these criteria. Subcontractor shall provide Parallax thirty (30) days advance written notice prior to the effective date of any cancellation or change in the term or coverage of any of Subcontractor's required insurance, provided however that such notice shall not relieve Subcontractor of its obligations to procure and maintain the required insurance. "Subcontractor" as used in this clause shall include Subcontractor's subcontractors at any tier.

H.14 Export Controlled Data

a. Definition. "Export-controlled items," as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), and items controlled under the export control laws implemented by the Department of Energy and Nuclear Regulatory Commission. The term includes:

i. "Defense items," defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

ii. "Items," defined in the EAR as "commodities", "software", and "technology," terms that are also defined in the EAR, 15 CFR 772.1.

b. The Subcontractor shall comply with all applicable laws and regulations regarding export-controlled items, including, but not limited to, the requirement for certain manufacturers and exporters to register with the Department of State in accordance with the ITAR. The Subcontractor shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR, including, when necessary, obtaining commodity jurisdiction rulings to determine the proper export control

classification of items. This contract is funded by the State of Ohio and not by the Department of Defense. The Subcontractor agrees to notify Parallax in writing if any goods, services, or information under this contract is or becomes subject to export control laws or regulations.

c. U.S. export control laws restrict not only physical exports of commodities, but also transfer of controlled technical data to foreign persons, whether in the United States or abroad. Under U.S. export control laws, a “U.S. Person” is defined as any U.S. citizen or any person who is a lawful Permanent Resident and a “Foreign Person” is any individual who is not a lawful Permanent Resident or U.S. Citizen. A temporary work or student visa does not provide an individual with U.S. Person status for export control purposes. As a general rule, all funded participants in the OFRN Program must be U.S. Persons unless the partner organizations—AFRL, NASIC, NAMRU-D or NASA-GRC—permit Foreign Persons to participate pursuant to their Export Control policies and procedures. It is the obligation of the Subcontractor to ensure compliance with the applicable partner organization’s export control policies and regulations. If the Subcontractor intends to involve a Foreign Person in any capacity—regardless of whether located in the U.S. or abroad—the Subcontractor shall give notice to Parallax and seek specific authorization from the relevant partner organization prior to transfer of any technical data to the Foreign Person.

d. The Subcontractor represents that neither it nor any parent, subsidiary or affiliate is included on any of the restricted party lists maintained by the U.S. Government, including the Specially Designated Nationals List administered by the U.S. Treasury Department’s Office of Foreign Asset Control (“OFAC”), Denied Parties List, Unverified List or Entity List maintained by the U.S. Commerce Department’s Bureau of Industry and Security (“BIS”), or the List of Statutorily Debarred Parties maintained by the U.S. State Department’s Directorate of Defense Trade Controls (collectively “Restricted Party Lists”). Subcontractor shall immediately notify Parallax if it or any parent, subsidiary or affiliate becomes listed on any Restricted Party List or if Subcontractor’s export privileges are otherwise denied, suspended or revoked in whole or part by any U.S. government entity or agency. Subcontractor shall also immediately notify Parallax upon learning that any lower tier subcontractor with which it engages has become listed on the Restricted Parties List.

e. The Subcontractor’s responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause. Nothing in this contract adds, changes, supersedes, or waives any of the requirements of applicable Federal laws and regulations, including but not limited to—

1. The Export Control Reform Act of 2018 (50 U.S.C. 4801, et seq.);
2. The Arms Export Control Act (22 U.S.C.2715, et seq);
3. The International Emergency Economic Powers Act (50 U.S.C. 1701, et seq.);
4. The Atomic Energy Act of 1954 (42 U.S.C. 2011, et. seq.)
5. The Export Administration Regulations (15 CFR Parts 730-774);
6. The International Traffic in Arms Regulations (22 CFR Parts 120-130);
7. The Export and Import of Nuclear Equipment and Materials Regulations (10 CFR Part 110); and
8. The Foreign Asset Control Regulations (31 CFR Part 500).

e. The Subcontractor shall include the substance of this clause, including this paragraph (e), in all subcontracts.

For NASA-GRC sponsored research, funded participants must comply with the NASA-GRC export control and foreign national collaboration summarized below.

NASA-GRC Rules on Transferring Export Controlled information:

1. The sharing of technical data under the International Traffic in Arms Regulations (ITAR) or the sharing of technology under the Export Administration Regulations (EAR) with foreign entities is an export.
2. NASA-GRC will transfer export-controlled information to a foreign entity provided NASA-GRC has a legal obligation to do so (Ex: international agreement, contract, MOU, etc.).

3. Approval by the cognizant NASA-GRC Center Export Administrator (CEA) is required prior to exporting technical data or technology to a foreign entity.
4. If there is a Space Act Agreement, a corresponding export license, or license exemption or exception in-place allowing for the sharing of export-controlled technical data/technology, the CEA will verify that the export request meets the exact parameters in those documents.
5. Upon the CEA's approval, the technical data or technology can be exported per the terms and duration of the authorization.

NASA-GRC General Rules on Transferring Publicly Available Information

- NASA-GRC can work with a foreign national employed by the external partner on a contract, grant, or space act agreement without restriction provided that the technical data/information that is exchanged is deemed to be publicly available or fundamental research and provided that the foreign national is not from a designated country.
- NASA-GRC refrains from working with foreign nationals from designated countries even if the technical data or technology is publicly available or deemed to be fundamental research.
- A foreign national who is a Lawful Permanent Resident is deemed to be a U.S. Person and NASA-GRC can work with that individual relative to technical data and technologies that are export controlled. The LPR can have access to export controlled technical data and technologies on a need to know basis.

H.15 Non-Solicitation

Except as may be otherwise agreed in writing, during the term of this Subcontract, neither party shall offer employment to or employ any person employed then or within the preceding 12 months by the other if such person was involved directly in the activities and work covered by this Subcontract. This provision shall not preclude employees of either party from independently pursuing employment opportunities with the other party, whether on their own initiative, or in response to general solicitations, including but not limited to job postings published in newspaper, trade publications, or websites.

H.16 Reserved

H.17 Survivability

If this Subcontract expires, is completed or is terminated, Subcontractor shall not be relieved of those obligations contained in the following clauses:

Certification and Warranty	Confidentiality
Termination of Contract Notices	Limitation of Liability
Maintenance of Records	Export Control

H.18 Severability

If any of the clauses or provisions of this Subcontract are found or deemed by a court of competent jurisdiction to be invalid or unenforceable, they shall be considered severable from the remainder of this Subcontract and shall not cause the remainder to be invalid or unenforceable; however, such provision shall be deemed to be restated to reflect as nearly as possible the original intentions of the parties in accordance with applicable law.

H.19 Non-Waiver of Rights

None of the provisions of this Subcontract shall be considered waived by either party unless such waiver is given in writing to the other party. The failure of any party to insist upon strict performance of any of the Subcontract terms and conditions, or failure to delay or exercise any rights provided herein or by law, shall not be deemed a waiver of any rights of any party.

H.20 Public Release of Information

- (a) Neither party shall publicly release information about this Subcontract without the prior written approval of the other party before the date of release. Requests for approval shall be sent to the addresses found in Section G, thirty (30) days prior to the intended release date.
- (b) The Subcontractor further agrees that any release of information relating to this Subcontract shall include a statement to the effect that the project or effort depicted was or is sponsored by OFRN.
- (c) For the purpose of this clause, "information" includes but is not limited to material presented in news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, presentations, meetings, conferences, symposia, etc.
- (d) The Subcontractor agrees to include this provision in any lower-tier subcontracts it awards as a result of this Subcontract.

H.21 Contract Direction

- (a) Only the Parallax Contracts Manager has authority to make changes in or amendments to this Subcontract. Changes and amendments must be in writing.
- (b) The Parallax Contracts Manager is responsible for all matters relating to the terms and conditions under this Subcontract. No other Parallax employee is authorized to make any changes related to this Subcontract. Any change to this Subcontract, shall only be binding upon the parties when such change is specifically authorized in writing and duly executed by the authorized representatives of Parallax and Subcontractor and in accordance with Section H.7 (Modifications). All correspondence and communications between Parallax and Subcontractor related to this Subcontract shall be directed to the Parallax Contracts Manager.
- (c) Except as otherwise provided herein, all notices to be furnished by Subcontractor shall be sent to the Parallax Contracts Manager.

H.22 Entire Subcontract

This Subcontract constitutes the entire subcontract between the parties concerning the subject matter and supersedes any prior understanding or written or oral subcontract relative to this matter.

H.23 Headings

Titles and headings of the provisions to this Subcontract are for the convenience of reference, do not form a part of this Subcontract, and shall not affect its interpretation.

H.24 Covenants

Subcontractor shall not compete directly or indirectly as a teammate, or otherwise participate in proposal activities or capture activities for contract renewals to Parallax's Prime Contract, options for contract renewals to Parallax's Prime Contract, or natural follow on business to Parallax's Prime Contract during the term of this Subcontract, without the prior written approval of Parallax. Subcontractor agrees that this restriction is reasonable. Nothing in this Subcontract shall preclude Subcontractor from offering or selling its standard commercial products or services to any third party.

H.25 Property

Title to any budgeted and approved equipment purchased by the Subcontractor shall vest with the Subcontractor subject to any subsequent disposition instructions provided to Parallax by the State of Ohio. Unbudgeted equipment and anything more than \$2,000 requires prior written approval by the Parallax Contracts Manager.

H.26 Standard of Work

In performing services under this agreement, the Subcontractor is an independent contractor, and nothing herein is to be construed as establishing an employer-employee relationship. The Subcontractor agrees that all work will be performed in accordance with the highest professional standards. The Subcontractor shall also comply with all federal and state laws and prime sponsor requirements governing conduct of research.

H.27 Use of Name

Neither party shall use the other party's name, trademarks, or other logos in any publicity, advertising, or news release without the prior written approval of an authorized representative of that party. The parties agree that each party may use factual information regarding the existence and purpose of the relationship that is the subject of this Subcontract for legitimate business purposes, to satisfy any reporting and funding obligations, or as required by applicable law or regulation without written permission from the other party. In any such statement, the relationship of the parties shall be accurately and appropriately described.

H.28 Budget Modifications

The Applicant's Budget Proposal (See Section J Attachment J-1) for this Subcontract is the Subcontractors Cost Proposal reviewed and approved during the award process. The Applicant Budget Proposal includes the sum of all the costs associated with completing this Subcontract. The Applicant shall report deviations from the budget and request prior approval for budget revisions which include, but aren't limited to the following: change the scope of the project, change a key person, transfer budgeted cost elements, new lower tier subcontracts, or change in cost share amounts.

The Applicant shall describe the basis of budget revision in narrative form for each of the proposed cost elements (e.g. Direct Labor, Other Direct Costs (Materials, Equipment, Supplies), Travel, and Indirect Costs. Substantive supporting documentation shall be provided for each of the cost elements to support the proposed revision. Finally, The Subcontractor shall complete the Excel Cost Work Sheet (See Section J Attachment J-), ensuring all formulas remain intact. Requests for budget revisions shall be made at least 30 calendar days prior to the need for implementation. Failure to provide this information may result in the budget revision being rejected by the Parallax Contracts Administrator.

Section I. Flowdown Terms and Conditions

The following clauses are provided as flowdown requirements from Parallax's prime contract. These flowdown requirements are hereby incorporated with full force and effect.

Representations and Certifications

I.1 Lobbying

By signing this Subcontract, the Subcontractor Authorized Official certifies, to the best of his/her knowledge and belief, that no Federal appropriated funds have been paid or will be paid, by or on behalf of the Subcontractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement in accordance with 2 CFR 200.450. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or intending to influence an officer or employee of any agency a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the

Subcontractor shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," to the PTE. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

I.2 Debarment

By signing this Subcontract, the Subcontractor Authorized Official certifies, to the best of his/her knowledge and belief that neither the Subcontractor nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, in accordance with 2 CFR 200.213 and 2 CFR 180.

I.3 Clean Air Act

By signature to this agreement, SUBRECIPIENT certifies that is in compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act of 1970 and the Federal Water Pollution Control Act as amended. Violations shall be reported to the Federal sponsoring agency and the regional office of the U.S. Environmental Protection Agency.

I.4 Drug and Alcohol-Free Workplace

By signature to this agreement, Subcontractor certifies that it will comply with the Drug Free Work Place Act of 1988 and its implementing regulations as amended.

I.5 Certification Regarding misconduct in Science

By signature to this agreement, SUB RECIPIENT certifies that it has established administrative policies as required by the Final Rule (42 CFR Part 93, Subpart A). and that it will comply with those policies and the requirements of the Final Rule regarding Procedures for Dealing with and Reporting Possible Misconduct in Science.

I.6 Conflict of Interest

No employees of Subcontractor or member of the governing body of any locality or other public official or employee of any such locality in which, or relating to which, the work under this Subcontract is being carried out, and who exercises any functions or responsibilities in connection with the review or approval of this Subcontract or carrying out of any such work, shall, prior to the completion of said work, voluntarily acquire any personal interest, direct or indirect, which is incompatible or in conflict with the discharge and fulfillment of his or her functions and responsibilities with respect to the carrying out of said work.

Any such person who acquires an incompatible or conflicting personal interest, on or after the effective date of this Subcontract, or who involuntarily acquires any such incompatible or conflicting personal interest, shall immediately disclose his or her interest to Parallax in writing. Thereafter, he or she shall not participate in any action affecting the work under this Subcontract, unless Parallax determines in its sole discretion that, in the light of the personal interest disclosed, his or her participation in any such action would not be contrary to the public interest.

Subcontractor, by signature of this document, certifies: (1) it has reviewed and understands the Ohio ethics and conflict of interest laws, and (2) will take no action inconsistent with those laws.

In addition, Subcontractor certifies by signature to this Subcontract that it has a federally compliant conflict of interest policy.

I.7 Research Compliance

The Subcontractor certifies by signature to this Agreement that the research project will comply with all Research Compliance and obtain all necessary approvals for Human Subjects, Vertebrate Animals, Recombinant DNA and any other areas that require protocol review.

I.8 Findings for Recovery

Subcontractor warrants that they are not subject to an “unresolved” finding for recovery under Ohio Revised Code 9.24. If this warranty is found to be false, this Subcontract is void *ab initio* and Subcontractor shall immediately repay to Parallax any funds paid under this Subcontract.

I.9 Audit and Access to Records

Subcontractor certifies that by signing this Subcontract that it complies with the Uniform Guidance, will provide notice of the completion of required audits and any adverse findings which impact this Subcontract as required by parts 200.501-200.521, and will provide access to records as required by parts 200.336, 200.337, and 200.201 as applicable.

Terms and Conditions

I.10 Whistleblower Rights Pilot Program for Enhancement of Contractor Employee Whistleblower Protections (Sep 2013)

- (i) This Subcontract and employees working on/under this Subcontract will be subject to the whistleblower rights and remedies in the Pilot Program of Contractor Employee Whistleblower Protections established at 41 U.S.C. 4712 by Section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L 112-239) and FAR 3.908
- (ii) Parallax, Subcontractor and/or its lower-tier subcontractor is required to inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. 4712.

I.11 Equal Opportunity

This Agreement is subject to the conditions of Executive Order No. 11246 entitled, "Equal Employment Opportunity," dated September 24, 1965, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60). Any Certificate of Non-Segregated Facilities is deemed given hereunder by the signature to this Agreement.

I.12 Data Rights

Any Subcontract awarded hereby incorporates the data rights requirements from the Air Force Research Lab (“AFRL”) – Parallax Ohio Federal Research Network Flight Testing Demonstrations Cooperative Research and Development Agreement (CRADA), Attachment 2. Subcontractor grants those data rights requirements to AFRL as required by the CRADA. The Subcontractor grants to Parallax the right to use data created in the performance of the Subcontract solely for the purpose of and only to the extent required to meet Parallax’s obligations to AFRL and the State of Ohio.

I.13 Nondiscrimination of Employment

Subcontractor agrees that Subcontractor, any lower-tier subcontractors, and any person acting on behalf of Subcontractor or lower-tier subcontractor, shall not discriminate, by reason of race, color, religion, sex, age, national origin, or disability against any citizen of this state in the employment of any person qualified and available to perform the work under this Subcontract.

Subcontractor further agrees that Subcontractor, any lower-tier subcontractors, and any person acting on behalf of Subcontractor or a lower-tier subcontractor shall not, in any manner, discriminate against, intimidate, or retaliate against any employee hired for the performance of work under this Subcontract on account of race, color, religion, sex, age, national origin, or disability.

Section J: Subcontract List of Attachments

1. Applicant Budget Proposal
2. Cooperative Research and Development Agreement (CRADA) / AFRL – Parallax
3. Closeout Documents
4. Non-Disclosure Agreement
5. Invoice Template

Section J. Attachment 1: Applicant Budget Proposal

[TBD]

Section J. Attachment 2: Cooperative Research and Development Agreement (CRADA) / AFRL – Parallax

download document from OFRN Round 5 website

<https://www.ohiofrn.org/sites/ofrn/files/2020-11/AFRL-WSARC-OFRN-CRADA-FINAL.pdf>

Section J. Attachment 3: Closeout Documents

Within thirty-calendar days after the end of the period of performance for the services to be procured herein, as described in the attached Statement of Work and the satisfactory performance of which shall be solely determined by Parallax, Parallax will issue to the Subcontractor a Subcontract Closeout Package. The Package will include, as applicable, Subcontractor Release of Claims; Subcontractor's Assignment of Refunds, Rebates, Credits, and Other Amounts; Subcontract Patents Report; and any other documentation or request for information considered necessary by Parallax to closeout this Subcontract Agreement.

Subcontractor agrees to submit all information and documentation, including a FINAL invoice bearing the statement, "*This FINAL invoice was prepared using final audited rates*" as required by the Subcontract Closeout Package within thirty-calendar days of the date of the Package. The parties further agree if the information and documentation submitted by the Subcontractor is found by Parallax to be acceptable with or without negotiations (the necessity for which shall be solely determined by Parallax), Subcontractor's closeout submission shall be the final agreement between the parties with respect thereto.

In the event the Subcontractor fails to submit the required closeout information and documentation in a timely manner, such failure shall constitute Subcontractor's express agreement that the amounts paid to date by Parallax pursuant to this Agreement, as determined by Parallax's records, constitute the full, complete and final extent of Parallax's financial obligation to the Subcontractor, that the Subcontractor does forever fully and finally remise, release, and discharge Parallax, its officers, agents and employees, of and from any and all liabilities, obligations, claims, and demands whatsoever arising under or relating to this Subcontract Agreement, and that the Subcontractor expressly authorizes Parallax to rely on the foregoing representations and release in connection with Parallax's closeout of or other actions taken with respect to Parallax's contract with the Government

Depending upon the nature of work involvement with topics such as patents, data rights, classified efforts, government property, and dollar value of work, the subcontractor may be requested to participate in completing a Subcontract Closeout Checklist to address requirements for Closeout of contract files. This request will be prepared by Parallax as close as practical to the Subcontract End Date.

The final invoice for work under this subcontract agreement shall be marked final and shall be received by Parallax no later than thirty (30) days following the technical end date of the contract.

The following are samples of the closeout documents.

Parallax Advanced Research Corporation

SUBCONTRACT CLOSEOUT CHECKLIST

Subcontractor Name: _____

Subcontract Number: _____

- Final Delivery

All deliveries have have not been completed.

- Property

Property was was not acquired.

Property was returned to the government; was transferred to another contract.

(Attach acknowledgment transfer letter or any other type of UID documents.)

- Patents/Inventions

An invention or discovery was was not conceived.

All known inventions or discoveries have have not been disclosed.

- Invoices

The final invoice(s) has has not been submitted. (Reference invoice number.)

Contractor

Signature

Title

Date

Parallax Advanced Research Corporation

SUBCONTRACTOR'S RELEASE

Pursuit to the term of Subcontract number [REDACTED] and in consideration of the sum [REDACTED] dollars and [REDACTED] cents (Dollar value numeric \$ [REDACTED], [REDACTED]. [REDACTED]) which has been or is to be paid under the said Subcontract to [REDACTED] (hereinafter called the Subcontractor), or to its assignees, if any, the Subcontractor, upon payment of the said sum by Parallax Advanced Research Corporation (hereinafter called Parallax) does remise, release and discharge Parallax, its officers, agents, and employees, of and from all liabilities, obligations, claims and demands whatsoever under or arising from the said Subcontract, except:

1. Specified claims in stated amounts or in estimated amounts where the amounts are not susceptible or exact statement by the subcontractor, as follows:
2. Claims, together with reasonable expenses incidental thereto, based upon the liabilities of the Subcontractor to third parties arising out of the performance of the said Subcontract, which are not known to the Subcontractor on the date of the execution of this release and of which the Subcontractor gives notice in writing to the Parallax Contracts Administrator within the period specified in the said Subcontract.
3. Claims for reimbursement of costs (other than expenses of the Subcontractor by reason of its indemnification of Parallax against patent liability), including reasonable expenses incidental thereto, incurred by the Subcontractor under the provisions of the said Subcontract relating to patents.

The Subcontractor agrees, in connection with patent matters and with claims which are not released as set forth above, that it will comply with all of the provisions of the said Subcontract, including with limitation those provisions relating to notification to the Parallax Contracts Administrator and relating to the defense or persecution of litigation.

IN WITNESS WHEREOF, this assignment has been executed this [REDACTED] day of [REDACTED], 20XX.

Contractor

Signature:

Title:

Section J. Attachment 4: Non-Disclosure Agreement

**PARALLAX ADVANCED RESEARCH CORPORATION
NON-DISCLOSURE AGREEMENT**

This AGREEMENT, made effective DATE, is entered into by and between PARALLAX ADVANCED RESEARCH CORPORATION (“Parallax”), an Ohio corporation having a place of business at 4035 Colonel Glenn Highway, Suite 200, Beavercreek, OH 45431, and PARTY (include legal name and address) (each referred to herein as “Party” or collectively “Parties”).

It is understood under the terms of this Agreement that Parallax shall be: a disclosing Party; a receiving Party; or both and PARTY shall be: a disclosing Party; a receiving Party; or both.

WHEREAS, the disclosing Party represents that it has developed and possesses, or may in the future develop and possess, certain non-public technical, business, marketing, financial or other material information; and

WHEREAS, such information is of value to the disclosing Party and such value would be adversely affected if such information became available to the public or known to its competitors; and

WHEREAS, Parallax and PARTY are interested in holding mutual discussions related to _____ (the “Purpose”) and other business opportunities that may be of interest to the Parties, and in connection therewith the Parties may exchange Confidential Information as that term is hereinafter defined; and

WHEREAS, in the course of discussions and in connection with any current or future contractual or business relationship between the Parties, Parallax and PARTY may have access to non-public information owned by the other Party; and

NOW, THEREFORE, in consideration of these premises, and the mutual promises and covenants contained herein, the parties hereto agree as follows:

1. Confidential Information. “Confidential Information” as used herein, shall include any and all information relating to any products or services, including without limitation, samples, plans, formulae, methods, know-how, software and hardware techniques, and all record bearing media containing or disclosing such information and techniques, material, specifications, sketches, data, drawings, diagrams, descriptions, specifications, certifications, schematics, designs, processes, test results, compilations, technologies, intellectual property, trade secrets, know-how, vendor lists, financial or marketing data, business operations, plans, analyses or projections, and any other documents, ideas, concepts or knowledge, whether oral, written or stored in electronic or other media, tangible or intangible, or obtained or obtainable by examination, testing, visual inspection or analysis of any equipment, processes or facilities, that a Party to this Agreement receives (the “Receiving Party”) from the other Party (the “Disclosing Party”) during the course of this Agreement.
2. Non-Confidential Information. “Confidential Information” shall not include any such knowledge which:
 - a) Is or later becomes generally known to or available to the public without breach of this Agreement by the Receiving Party or the breach of any obligation of confidentiality by any person; or
 - b) That is or becomes available to the Receiving Party from a third party having a legal right to disclose such information and who is not subject to a confidentiality obligation to the Disclosing Party with respect thereto; or
 - c) The Receiving Party can show was in its possession or known to it as demonstrated by tangible evidence prior to receipt from the Disclosing Party; or
 - d) Is disclosed in accordance with the written approval of the Disclosing Party; or
 - e) Is independently developed by employees of the Receiving Party without the use of Disclosing Party’s Confidential Information, as demonstrated by tangible evidence.

3. Legal Duty to Disclose. The Receiving Party may disclose Confidential Information to the extent required by law, regulation, national securities exchange or association rule, or court order; provided that the Receiving Party shall: (1) notify the Disclosing Party immediately upon receipt of any pleading, discovery request, interrogatory, motion, investigative demand, subpoena, or other authorized written demand calling for the disclosure of the Disclosing Party's Confidential Information; and (b) and, at the Disclosing Party's request, provide reasonable assistance in opposing such action within the time allotted by the governing rules.
4. Safeguarding Information. The Parties agree, with respect to any Confidential Information as to which it is a Receiving Party:
 - 4.1 To protect and keep such Confidential Information from disclosure with the same degree of precautions and safeguards it uses to protect and keep its own trade secrets and confidential and proprietary information of like import, but in any case with no less than reasonable care;
 - 4.2 Not to disclose or reveal such Confidential Information to any person other than representatives or advisors employed by it who have a need to know such Confidential Information and a contractual duty to maintain information that they receive in the course and scope of their employment in confidence;
 - 4.3 Not to use, or permit any person employed by it to use, such Confidential Information for any purpose other than as specified in this Agreement, the Parties recognizing that any other use of the Confidential Information is strictly forbidden;
 - 4.4 Without limitation to the foregoing, the Parties shall not attempt to analyze, decompile, disassemble, decode, redesign, determine the content or structure of or otherwise reverse engineer any Confidential Information, which restriction shall survive termination of this Agreement;
 - 4.5 To make the conditions of this Agreement known to any person to whom it has the right to disclose and discloses such Confidential Information and obtain from such person a commitment to be bound hereby; and
 - 4.6 The Receiving Party shall notify the Disclosing Party in writing immediately upon discovery of any unauthorized use or disclosure of Confidential Information and shall reasonably cooperate with the Disclosing Party to regain possession of the Confidential Information and prevent any further unauthorized use or disclosure.
5. Marking of Derivative Confidential Information. The Receiving Party shall mark all notes, translations, summaries, and other documents it may prepare that incorporate all or any portion of the Confidential Information of the Disclosing Party with a restrictive legend clearly identifying such documents as containing Confidential Information of the Disclosing Party.
6. Reproduction. Confidential Information shall not be copied or reproduced without the express written permission of the Disclosing Party, except for such copies as may reasonably be required for internal use commensurate with the purpose contemplated by this Agreement. Nevertheless, markings consistent with the markings contained on the Confidential Information shall be affixed to all copies, including partial copies. Dissemination for internal use shall be restricted to authorized employees having established need-to-know. All copies authorized for internal use shall clearly display the Disclosing Party's confidential legend.
7. Designation & Protection. In order for Confidential Information disclosed by one Party to the other to be protected in accordance with this Agreement, it shall (a) be clearly and conspicuously marked with an appropriate legend on each page indicating the confidential nature of the information, which may consist of a company confidential and/or proprietary legend, a limited or restricted rights notice specified by the FAR or an agency FAR supplement, or any other marking calculated to provide the possessing party with reasonable notice of its confidential or proprietary nature; and (b) delivered to the designated authorized representative identified herein.

If first disclosed in an oral or other intangible manner, such orally disclosed information shall be protected by the Receiving Party in a manner and to the same degree as if disclosed in writing under the terms of this Agreement provided that the Disclosing Party: (a) contemporaneously identifies such

disclosure as being in confidence; (b) reduces such disclosure to written form; (c) marks such writing as confidential or proprietary; and (d) delivers such marked document to the Receiving Party within thirty (30) days after the date of first disclosure.

8. Inadvertent Disclosure. The Receiving Party shall not be considered to be in breach of this Agreement or be held liable in damages for inadvertent disclosure of Confidential Information received hereunder as long as it has (i) used at least the same degree of care in safeguarding the information as it uses for its own Confidential Information of like import, provided such degree of care is reasonably calculated to prevent inadvertent disclosure or unauthorized use, and (ii) limited access to the Confidential Information to those of its employees who have a need to know; and provided that the Receiving Party shall, upon discovery of any inadvertent disclosure or unauthorized use of Confidential Information by its organization: (i) diligently attempts to correct the effects thereof; (ii) promptly uses reasonable efforts to prevent any further inadvertent disclosure or unauthorized use; and (iii) promptly notifies the Disclosing Party.
9. Export Control Compliance. The Receiving Party represents and warrants that no technical data furnished to it by the Disclosing Party shall be disclosed or exported in violation of the International Traffic in Arms Regulation and the Export Administration Regulations. The Receiving Party further represents and warrants that technical data furnished to it by the Disclosing Party shall only be exported in compliance with the International Traffic in Arms Regulation and the Export Administration Regulations, including the requirement for obtaining an export license, if applicable. Notwithstanding any other provision of this Agreement, the Receiving Party shall indemnify and hold harmless the Disclosing Party from all claims, demands, damages, costs, fines, penalties, attorney's fees, and all other expenses arising from the Receiving Party's failure to comply with this clause or U.S. Government export laws and regulations.

Technical data disclosed hereunder may be subject to U.S. export control laws and regulations. Accordingly, the Receiving Party shall not transfer technical data received under this Agreement to any foreign person, country, foreign subsidiary or parent corporation, without specific written authorization from the Disclosing Party and pursuant to an appropriate U.S. Government agency license. Further, the Receiving Party does assure the Disclosing Party it will not disclose technical data received hereunder to any employee, consultant or subcontractor employee not holding United States citizenship or granted admission or permanent residence in the United States under the Immigration and Nationality Act, as amended (8 USC 1101 et seq.).

10. Equitable Remedies for Unauthorized Disclosure. The Parties to this Agreement acknowledge that any breach of the obligations contained herein, including without limitation the actual or threatened use or disclosure of Confidential Information, would give rise to irreparable injury, such that neither monetary damages nor any other remedy available at law would give adequate protection against, or appropriate compensation for, such injury. The Parties, therefore, agree that in addition to monetary damages for breach, either Party may seek an injunction or other equitable remedy and that no bond or other security shall be required to obtain such remedies. However, in no event shall either Party be liable hereunder or otherwise for incidental, special, consequential, indirect, punitive, or multiple damages, interest, or attorney's fees.
11. License and Title. The Confidential Information shall be and remain at all times the sole and exclusive property of the Disclosing Party. Nothing in this Agreement shall be construed to create or grant any license or other rights in, to, or under the Confidential Information in favor of the Receiving Party by, through or under any copyright, invention, patent, trade secret or other intellectual property right owned or controlled by the Disclosing Party.
12. Term and Period of Nondisclosure. Unless terminated earlier by thirty (30) days written notice by either Party to the other, this Agreement will remain in effect for the duration of the Subcontract (the "Term"). The nondisclosure and non-use obligations of the receiving Party set forth in this Agreement shall survive for a period of three (3) years after expiration of the Term or earlier termination of this Agreement by either Party as set forth above.

13. Destruction or Return of Records. Upon the written request of the Disclosing Party or upon the completion of the Term of this Agreement, whichever is sooner, the Receiving Party shall (i) cease use of Confidential Information received from the Disclosing Party, (ii) destroy all such Confidential Information, including all copies thereof, and (iii) furnish the Disclosing Party with written certification of destruction. Alternatively, upon written request of the Disclosing Party, the Receiving Party shall return all Confidential Information, including any and all copies thereof, to the Disclosing Party. The Receiving Party shall also return or destroy all other documents containing any portion of the Disclosing Party's Confidential Information, as well as all notes, summaries, translations, abstracts, and synopses thereof. Within reasonable efforts, the Receiving Party shall also erase or destroy any such confidential data stored by the Receiving Party in a computer memory, or data storage apparatus, or system. The return or destruction of Confidential Information pursuant to this paragraph shall not act to relieve the Receiving Party of its obligations regarding disclosure or use set forth herein.
14. Disclosure to U.S. Government. Confidential Information may be disclosed to the U.S. Government by the Receiving Party only if: (i) the specified Purpose requires the disclosure; (ii) the Disclosing Party consents to the disclosure; and (iii) the Receiving Party identifies the Confidential Information at the time of disclosure to the Government as the property of the Disclosing Party and marks such Confidential Information strictly in accordance with the applicable requirements of the FAR or any pertinent agency FAR supplement.
15. Classified Information. To the extent that the obligations of the parties hereunder require or involve access to classified information, such information shall be handled, used, protected and otherwise treated by the Receiving Party in accordance with the National Industrial Security Program Operating Manual (NISPOM) and/or the security laws of any nation or group of nations, as applicable.
16. Warranty. Each Party warrants that it has the right to disclose its Confidential Information for the purposes of this Agreement. This Agreement does not grant any warranty, guarantee, or make any representation, either expressed or implied, as to any matter, including without limitation, the patentability of the Confidential Information or any part thereof, the content, condition, adequacy, sufficiency, accuracy, or freedom from defect of any kind, or to the non-infringement of any intellectual property right owned or controlled by any third party, and all warranties and conditions, expressed or implied, statutory or otherwise, are hereby disclaimed. Nor shall either Party incur any responsibility or obligation whatsoever by reason of such Confidential Information, except as provided in this Agreement.
17. Business Arrangement and Costs. Each of the Parties hereto acknowledges that this Agreement shall not be construed as a commitment by either Party to enter into any transaction involving the Confidential Information. Each Party shall bear all its respective costs and expenses incurred in connection with this Agreement. This Agreement is solely for the purpose of protecting Confidential Information, and shall not constitute, create, give effect to, or otherwise imply a joint venture enterprise, pooling arrangement, partnership or other similar contractual or business arrangement of any kind. Each Party shall act as an independent contractor and not as an agent of the other Party for any purpose whatsoever, and neither shall have any authority to bind the other, except as specifically set forth herein.
18. Designated Representatives. All Confidential Information shall be furnished only to the following individual employee(s) designated by each Party who is (are) responsible for further disseminating the Confidential Information to other employees of that Party who have a need to know:

<u>Parallax Advanced Research Corporation</u> Address: 4035 Colonel Glenn Hwy Beavercreek, OH 45431 Name: Phone: 937-705- Email:	<u>Party</u> Address: Name: Phone: Email:
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All contractual notices furnished hereunder shall be forwarded to the designated contractual representative of the parties, who are listed below.

<u>Parallax Advanced Research Corporation</u> Address: 4035 Colonel Glenn Hwy Beavercreek, OH 45431 Name: Phone: 937-705- Email:	<u>Party</u> Address: Name: Phone: Email:
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Each Party may change its designation by written notice to the other. However, all properly marked Confidential Information exchanged hereunder shall be afforded the protection of this Agreement even if not furnished to the points of contact listed above.

19. **Independent Development and Marketing.** It is understood that the parties to this Agreement may have performed substantial, independent development relating to the subject matter in both products and technology. This Agreement shall not limit either Party's development or marketing of products or systems involving technology or ideas of the same or similar nature to that disclosed, nor does this Agreement prevent either Party from undertaking the same or similar efforts or discussions with third parties, provided that the obligations hereunder are respected and not violated.
20. **Amendment or Modification.** No amendment or modification of this Agreement shall be valid or binding on the Parties unless made in writing and signed on behalf of each of the Parties by their respective, duly authorized representatives.
21. **Jurisdiction.** This Agreement is entered into and shall be construed and enforced in accordance with the applicable laws of the State of Ohio, excluding conflict of law principles or any other provision that would direct the application of the laws of a different jurisdiction. The Parties consent to the exclusive jurisdiction of the courts for Dayton, Ohio to resolve any disputes under or enforcement of this Agreement, including without limitation application for injunctive relief. The Parties waive any claims that venue in such courts is inconvenient.
22. **Severability.** If any provision of this Agreement is found to be invalid or unenforceable in whole or in part, the Parties agree that the remaining provisions of this Agreement shall remain valid and enforceable to the maximum extent allowable by law. However, for any provisions that are deemed unenforceable, both Parties shall negotiate new enforceable provisions.
23. **Assignment.** This Agreement is not assignable or transferable without the prior written consent of the other Party which shall not be unreasonably withheld. However, this provision shall not apply to a legally recognized successor in interest to all or substantially all of the Party's assets.
24. **NonWaiver.** Failure by either Party to enforce any provision of this Agreement or applicable law shall not constitute a waiver of the requirements of such provisions or law, or a waiver of the right of a Party thereafter to enforce such provision or law.
25. **Entire Agreement and Modifications.** This Agreement constitutes the sole existing agreement between the Parties regarding the subject matter hereof, superseding all prior or contemporaneous communications, agreements and understandings between the Parties with respect to the exchange of Confidential Information in connection with the Purpose. This Agreement may not be modified in any manner except by written amendment executed by each Party. The requirement for mutual execution of an amendment shall not apply to a change of address or designation of a new point-of-contact to receive Confidential Information. Such changes shall be accomplished by letter from the changing Party to the other Party.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed on the dates set forth under their respective signatures.

Parallax Advanced Research Corporation	Party
Signature:	Signature:
Name:	Name:
Title:	Title:
Date:	Date:

Section J. Attachment 5. Invoice Template

[TBD]

5.6 APPENDIX 5B: Subcontract Terms and Conditions – State Universities or State Colleges

Section A. Subcontract / Purchase Form

[Purchase Order]

Section B: Contract Type and Prices/Costs

B.1 Subcontract Type:

This is a Cost Reimbursement (NO FEE) Subcontract.

Subcontractor shall perform Work under this Subcontract as directed by Parallax. The Subcontract shall specify the estimated price ceiling, the period of performance, a description of the Work to be performed, and any other related and relevant stipulations. "Work" includes all required labor, articles, materials, supplies, goods and services constituting the subject matter of this Subcontract.

B.2 Subcontract Cost:

The total ceiling cost of this contract to be paid by Parallax to Subcontractor for the Program is \$TBD. Costs will be reimbursed in accordance with the cost principles of 2 CFR 200 as applicable. In the event any payments to the Subcontractor are subsequently disallowed in accordance with these principles, the Subcontractor shall repay Parallax on demand the amount of any such disallowed items or, at its discretion, Parallax may deduct such amount from subsequent payments.

[TBD Subcontract Cost Table Breakdown]

B.3 Funding and Compensation

Incremental funding in the amount of \$TBD is provided with this Subcontract. Parallax's obligation to make payments to the Subcontractor is limited only to the funds obligated by the Purchase Order or Purchase Order modification(s).

Incremental funding is subject to the availability of funds and continued satisfactory progress on the Subcontract as determined by Parallax. Funding is predicated on the Subcontractor providing a cost sharing contribution of \$TBD. Reference the Applicant's final cost/budget is included in Section J Attachment 1.

B.4 Order of Precedence:

In the event of an inconsistency between any of the provisions of this Subcontract, the inconsistency shall be resolved by giving precedence to the provisions of the Subcontract in the following order:

1. The Subcontract
2. Terms and Conditions
3. Statement of Work
4. Types, amounts, process

Section C: Statement of Work –OFRN Review and Update

C.1 Effort to be Performed

The Subcontractor shall provide the necessary services to perform the Work stated herein in the Statement of Work. "Work" shall include all required labor, articles, materials, products, supplies, goods and services constituting the subject matter of this Subcontract.

C.2 Air Force Research Laboratory Support to OFRN

OFRN projects gain access to AFRL Certificate of Waiver or Authorizations (COA) via the Cooperative Research and Development Agreement (CRADA) between the AFRL and the Parallax, incorporated into this Subcontract via Section J Attachment 2. OFRN projects must satisfy requirements of AFRL Flight Test Review and Approval process, which specifically consists of:

- Technical Review (Adequacy to meet objectives)
- Airworthiness (Technical Risk of Achieving Flight)
- Safety Review (Adequacy of hazard migrations)
- Operator qualifications (Meet Air Force and FAA requirements)

Note that this process is tailored to project complexity and consists of documentation and review boards.

[Remainder of Section C TBD, Based on Applicant's Final Proposal and Award]

Section D: Packaging and Marking

D.1 Packaging and Marking:

Unless otherwise specified herein, the Products required under this order shall be packed in accordance with the best available commercial practices and in compliance with transportation regulations.

D.2 Certification

Subcontractor certifies that it is and shall remain free from any obligation or restriction which would interfere, be inconsistent with or present a conflict of interest concerning the Work to be furnished by Subcontractor under this Agreement. Subcontractor further certifies that it will perform the services under this Agreement with the degree of high professional skill, practices and judgment which is normally exercised by recognized educational institutions with respect to services of a similar nature.

Section E: Inspection and Acceptance:

E.1 Inspection and acceptance

Inspection and acceptance of all items or services contemplated under this Subcontract shall be accomplished by the Parallax Contracts Manager or Parallax Technical Lead. Parallax has the right to accept items or services to the extent practicable at all places and times during the term of this Subcontract. If any supplies or services do not conform with Subcontract requirements, Parallax may require the Subcontractor supply the item or perform the services again in conformity with the subcontract requirements. If the Subcontractor fails to promptly perform the services again or take action necessary to ensure future performance in conformity with contract requirements, Parallax may reduce the amount of the Subcontract in an amount equal to the cost of replacing the items or services to meet the inspection and acceptance requirements or terminate the Subcontract for default.

Section F: Deliveries and Performance

F.1 Deliveries and Acceptance

Unless otherwise specified, deliveries required in performance of this Subcontract shall be made to the Parallax Points of Contact identified below. Email submissions are desired as long as Subcontractor ensures the submission is received by Parallax.

All data shall be delivered in accordance with the delivery schedule identified in the SOW.

All reports and correspondence submitted under this Subcontract shall include the subcontract number and be forwarded prepaid.

Section G: Contract Administration Data

G.1 Points of Contact

Contractual:	Technical:
Amy Schear Contracts Administrator 937-705-1096 amy.schear@parallaxresearch.org	Robert Tanner OFRN Executive Director 614-981-9706 bob.tanner@parallaxresearch.org

G.2 Invoices

- (a) **Overview:** Subcontractor will prepare and submit invoices to Parallax, on a monthly basis for the month prior in accordance with information outlined herein. Each invoice shall be numbered sequentially, clearly showing Parallax's Subcontract Number, billing period of costs incurred, cumulative costs to date and funded amount. Invoices shall be compatible with information reported on the Status Reports. Invoices must show amounts being billed for the current month and cumulatively and shall include the following certification which must be signed by an authorized certifying official:

"I, the undersigned, hereby certify to the best of my knowledge and belief, that this invoice represents a true and accurate statement of all costs incurred for the billed and cumulative periods reflected herein and that the labor hours stated herein constitute the actual direct productive person hours incurred in performance of this order, and that the indirect rates used to calculate this invoice have been approved or submitted to an auditing agency and/or firm."

- (b) Invoices shall contain a breakout of the following items, as applicable:
- 1. Direct Labor:** Direct Labor costs must include the labor category (e.g., program manager, senior engineer, technician, etc.), the hourly rate, the labor cost per category, and the extended amount.
 - 2. Other Direct Costs:** Other Direct Costs include Equipment, Materials, Tuition, and Supplies. Receipts or other appropriate supporting documentation shall be made available for Parallax's inspection and acceptance for all incurred ODCs as a part of invoice submission. The Subcontractor shall obtain approval from the Parallax Contracts Administrator prior to incurring any Other Direct Costs (ODCs) exceeding \$2,000. ODCs, if authorized, are to be billed at actual cost plus applicable burdens.
 - 3. Travel:** Reimbursement for all authorized travel costs in performance of this Subcontract will be supported by travel receipts. Travel requires prior approval by the Parallax Contracts Administrator or Technical Lead at least one (1) week prior to the travel date. Subcontractor's request for travel authorization shall include an estimate of travel costs, number of travelers, number of days, destination, and purpose of trip. Travel to international conferences, including registration, is NOT an authorized expense under this agreement. Travel to conferences specifically related to work performed under this requirement is not prohibited if such costs are allocable, allowable under the State of Ohio OBM Travel Rule, and reasonable.
 - 4. Indirect Costs:** If the Subcontractor claims indirect costs on its invoice, such indirect costs shall be supported by its approved provisional indirect rates or a forward pricing rate agreement by a cognizant audit agency. When the cognizant Administrative Contracting Officer (ACO) or auditor approves a change in the provisional indirect rates or forward pricing rate agreement, include a copy of the approval with the invoice submission.

If the Subcontractor does not have approved provisional indirect rates or a forward pricing rate agreement, such indirect costs for reimbursement are limited to 10% of direct costs.

- 5. Subcontracts:** All claimed subcontractor costs must be supported by submitting the same detail as outlined herein.
- (c) **Invoice Template:** The Subcontractor shall use the Invoice Template provided as Section J Attachment J-5 when preparing and submitting invoices.
- (d) **No Activity:** Invoices shall contain all elements described in this section. If no activity occurred during the previous month, a negative or "no activity" may be requested for budgeting purposes.
- (e) Invoices must be **emailed** to:

FINANCE@PARALLAXRESEARCH.ORG

- (f) **Defective or Improper Invoice:** Failure to provide the invoice in the context described above, with the appropriate supporting documentation will result in Parallax determining the invoice to be defective or improper. Improper invoices will be rejected, and the payment terms will restart upon submission of a revised proper invoice.

G.3 Payment Terms

Parallax will process payment to Subcontractor for each properly completed invoice at the end of each month. Payment terms shall be Net thirty days (30) days after receipt of a proper invoice. Supporting documentation shall be provided by Subcontractor upon request by Parallax. At any time before final payment under this Subcontract Agreement, Parallax may request audit of the invoices and supporting documentation.

G.4 Closeout Documentation

Upon completion of the Subcontract, Subcontractor will complete the closeout documentation (Section J Attachment 3) and return to Parallax within 30 days of the contract end date and provide the final invoice marked as "FINAL INVOICE".

G.5 Relationship of the Parties

The parties to this Subcontract are independent contractors and are not agents of each other, joint ventures, or partners. Neither party is authorized or empowered to act on behalf of the other with regard to any contract, or representation as to any matter. With the exception of Parallax's ability to remove, transfer, or replace any Subcontractor employee or employees at the request of the Agency or if Parallax finds doing so to be in its best interest, each party will maintain sole and exclusive control over its own personnel and operations.

Section H: Special Contract Requirements

H.1 Confidentiality

- (a) The parties shall not, at any time, directly or indirectly disclose to any third party or make any commercial or other use of any proprietary or confidential information, knowledge, data, process, device, machine, or composition of matter belonging to the other party, or any of its customers or sponsors, without prior written consent to such disclosure or use. Obligations of confidentiality under this Subcontract shall be in accordance with the Non-Disclosure Agreement (NDA) (See Section J Attachment 4) signed by the parties and, as established therein, shall survive termination of this Subcontract.
- (b) The parties further agree that confidential or proprietary information owned by either party (the "Information") shall remain the property of that party and, except to the extent required by the Terms and

Conditions included as Attachment 2 applicable to the Program and this Subcontract. No transfer of the ownership of or license in the Information will be deemed to have taken place simply by virtue of the Information being used in the parties' work on the Project.

(c) Subcontractor agrees to maintain as confidential, the terms of this Subcontract and all of its communications with Parallax related to the Project and this Subcontract.

(d) To the extent that disclosure is required by law, including a request under the Ohio Public Records Act, the Subcontractor shall promptly provide notification to Parallax in order to permit Parallax to take appropriate steps to safeguard such information as applicable.

H.2 Compliance with Law

Subcontractor agrees to comply with all applicable federal, state and local laws in the conduct of the work hereunder. This includes but is not limited to the laws and regulations surrounding the administration of federal grants, including EDGAR regulations found at Title 34 Code of Federal Regulations, Parts 74-86 and 97-99, as applicable. Subcontractor acknowledges that its employees are not employees of Parallax with regard to the application of the Fair Labor Standards Act minimum wages and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code and for state revenue and tax laws, state workers' compensation laws and state unemployment insurance laws. Subcontractor accepts full responsibility for payment of all taxes including without limitation, unemployment compensation insurance premiums, all income tax deductions, social security deductions, and all other taxes or payroll deductions required for all employees engaged by Subcontractor in the performance of the work authorized by this Subcontract.

H.3 Liability

Each party will be responsible for the acts and omissions of its employees and agents.

Liability of the Subcontractor under this Agreement shall be governed by Ohio Revised Code Chapters 2743 and 3345.40.

The Subcontractor maintains a comprehensive program of self-insurance and or commercially purchased insurance, covering property, casualty and liability exposures of Parallax and its employees, agents and volunteers, while acting on the Parallax's behalf and in furtherance of this Subcontract.

H.4 Termination, Default and Convenience

(a) **For Cause or Default.** Parallax may, by written notice of default, terminate this Subcontract in whole or in part, if Subcontractor fails to perform the authorized services within the time specified in this Subcontract or any extensions thereto. Parallax's right to terminate for default pursuant to items listed below, may be exercised if Subcontractor does not cure such failure within ten (10) calendar days (or more if authorized in writing by Parallax) after receipt of written notice from Parallax specifying the failure:

(1) Failure to make progress, so as to endanger performance of this Subcontract.

(2) Failure to perform any other of its obligations under this Subcontract.

(3) Failure to conduct its operations in the normal course of business (including inability to meet its obligations as they mature); or becomes insolvent or makes a general assignment for the benefit of creditors; or if any proceedings are commenced by or against the Subcontractor under any bankruptcy, reorganization, arrangement, insolvency, readjustment of debt, dissolution, or liquidation law or statute; or if a trustee, receiver, liquidator, or conservator for Subcontractor is applied for or appointed.

(4) Failure to notify Parallax if it has a known conflict of interest.

(5) Failure to meet its cost sharing requirements.

- (b) Any such termination will be without liability to Parallax except for those services or deliverables that have been completed and accepted by Parallax.
- (c) **For Convenience.** Parallax may terminate this Subcontract in whole or in part if it determines that a termination is in its best interests or if the State of Ohio exercises its termination-for-convenience rights under the Contract. Parallax may terminate this Subcontract by issuing Subcontractor written notice of the termination, specifying the extent of the termination and the effective date. In the event of termination, Parallax shall be liable only for payment of costs incurred for services rendered and accepted before the effective date of the termination.

H.5 Stop Work

(a) Parallax may, at any time, by written order, require the Subcontractor to stop all, or any part, of the work called for by this Subcontract for a period of 90 days after the order is delivered, or for a further period as agreed to mutually by the parties. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Subcontractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Subcontractor, or within any extension of that period to which the parties shall have agreed, the Parallax shall either:

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience clause of this Subcontract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Subcontractor shall resume work.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience by Parallax, reasonable costs resulting from the stop-work order may be considered in arriving at the termination settlement.

H.6 Notices

Unless the parties agree otherwise, any notice given by either party hereunder to the other will only be effective if it is in writing, signed by an authorized representative, and delivered by hand or sent by certified mail, return receipt requested, with postage prepaid, addressed as follows:

To Parallax:

Parallax Advanced Research Corp.
4035 Colonel Glenn Hwy.
Beavercreek, OH 45431
Attn: Amy Schear
Ph: (937) 705-1096
Email: amy.schear@parallaxresearch.org

To Subcontractor:

[TBD]

Attn:
Ph:
Email:

Any notice between the parties communicated orally must be confirmed in writing, signed by an authorized representative and delivered as set forth above. Either party may change its address or representative by notice given to the other party in the manner set forth above.

H.7 Modifications

With exception to unilateral incremental funding obligations, no change, revision or modification to this Agreement will be valid unless reduced to writing and bilaterally executed by authorized officers of each party.

H.8 Governing Law and Venue

The construction, validity, performance and effect of this Subcontract with regard to all purposes related to the Contract and the Agency shall be governed by Federal Procurement Law. For all other purposes, including but not limited to the construction, validity, performance, and effect of this Subcontract, it shall be governed by the applicable laws of the State of Ohio.

H.9 Dispute Resolution

The parties agree to negotiate in good faith to reach a resolution to any dispute that may arise during the performance of this Agreement, prior to seeking recourse in a court of competent jurisdiction.

H.10 Limitation of Liability

To the maximum extent permitted by applicable law, in no event shall Parallax or Subcontractor be liable to the other for any special, incidental, consequential, or any other type of indirect damages arising out of or related to this Subcontract, or the breach of any terms thereof, under any theory of law or equity, even if that party has been advised of the possibility of such damages. This limitation precludes the recovery of loss of use, lost income, lost or anticipated business profits, business interruption, loss of business information, loss of goodwill, or lost revenue or business. In the event of a breach of this Subcontract, it is agreed that the remedy for Subcontractor shall be limited to recovery of its costs incurred in connection with its performance efforts under the Subcontract.

H.11 Maintenance of Records/Audit

- (a) Subcontractor shall maintain complete and accurate records in accordance with generally accepted accounting principles to substantiate Subcontractor's charges under this Subcontract. Such records may include, but not be limited to, job cards, phone bills, travel receipts and job summaries. Subcontractor shall retain such records for four (4) years from final payment of this Subcontract.
- (b) At any time prior to the final payment, Parallax may request a Government audit or to appoint an independent, mutually agreed to third party to audit information pertaining to Subcontractor's invoicing, including individual daily timecards, invoices for materials or other direct costs, expense reports, and other supporting documents. Previous payments shall be subject to reduction to the extent Subcontractor cannot substantiate costs that were billed and not properly payable under the terms of this Subcontract.

H.12 Assignment/Subcontracting

Neither party shall assign its rights, duties, or interest in this Subcontract without the written consent of the other.

Subcontractor agrees not to subcontract work without prior written consent from Parallax Contracts Manager, except for the purchase of standard commercial supplies and services required to complete the SOW, or with project team members included in the submitted proposal, which are listed as follows:

[TBD]

H.13 Insurance

The Subcontractor, through its risk management and insurance program, now has and will maintain during the term of the contract a comprehensive program of self-insurance and commercially purchased insurance, covering property, casualty and liability exposures to the Subcontractor and its employees, agents and volunteers, while acting on the Subcontractor's behalf.

Subcontractor also participates in a self-insurance program among several state universities in Ohio for automobile liability and general liability insurance coverages. However, because the primary level of

coverage is through self-insurance, there is no “Certificate of Insurance” for this coverage, and additional insured parties cannot be named. Workers Compensation Insurance for Subcontractor employees is provided through the state fund. Subcontractor has been assigned a “Workers’ Compensation Risk Number”; a certificate for that coverage is available upon request.

Subcontractor shall provide Parallax thirty (30) days advance written notice prior to the effective date of any cancellation or change in the term or coverage of any of Subcontractor’s required insurance, provided however that such notice shall not relieve Subcontractor of its obligations to procure and maintain the required insurance. “Subcontractor” as used in this clause shall include Subcontractor’s subcontractors at any tier.

H.14 Export Controlled Data

a. Definition. “Export-controlled items,” as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), and items controlled under the export control laws implemented by the Department of Energy and Nuclear Regulatory Commission The term includes:

i. “Defense items,” defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

ii. “Items,” defined in the EAR as “commodities”, “software”, and “technology,” terms that are also defined in the EAR, 15 CFR 772.1.

b. The Subcontractor shall comply with all applicable laws and regulations regarding export-controlled items, including, but not limited to, the requirement for certain manufacturers and exporters to register with the Department of State in accordance with the ITAR. The Subcontractor shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR, including, when necessary, obtaining commodity jurisdiction rulings to determine the proper export control classification of items. This contract is funded by the State of Ohio and not by the Department of Defense. The Subcontractor agrees to notify Parallax in writing if any goods, services, or information under this contract is or becomes subject to export control laws or regulations.

c. U.S. export control laws restrict not only physical exports of commodities, but also transfer of controlled technical data to foreign persons, whether in the United States or abroad. Under U.S. export control laws, a “U.S. Person” is defined as any U.S. citizen or any person who is a lawful Permanent Resident and a “Foreign Person” is any individual who is not a lawful Permanent Resident or U.S. Citizen. A temporary work or student visa does not provide an individual with U.S. Person status for export control purposes. As a general rule, all funded participants in the OFRN Program must be U.S. Persons unless the partner organizations—AFRL, NASIC, NAMRU-D or NASA-GRC—permit Foreign Persons to participate pursuant to their Export Control policies and procedures. It is the obligation of the Subcontractor to ensure compliance with the applicable partner organization’s export control policies and regulations. If the Subcontractor intends to involve a Foreign Person in any capacity--regardless of whether located in the U.S. or abroad—the Subcontractor shall give notice to Parallax and seek specific authorization from the relevant partner organization prior to transfer of any technical data to the Foreign Person.

d. The Subcontractor represents that neither it nor any parent, subsidiary or affiliate is included on any of the restricted party lists maintained by the U.S. Government, including the Specially Designated Nationals List administered by the U.S. Treasury Department’s Office of Foreign Asset Control (“OFAC”), Denied Parties List, Unverified List or Entity List maintained by the U.S. Commerce Department’s Bureau of Industry and Security (“BIS”), or the List of Statutorily Debarred Parties maintained by the U.S. State Department’s Directorate of Defense Trade Controls (collectively “Restricted Party Lists”). Subcontractor shall immediately notify Parallax if it or any parent, subsidiary or affiliate becomes listed on any Restricted Party List or if Subcontractor’s export privileges are otherwise denied, suspended or revoked in whole or part by any U.S. government entity or agency. Subcontractor shall also immediately notify Parallax upon

learning that any lower tier subcontractor with which it engages has become listed on the Restricted Parties List.

e. The Subcontractor's responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause. Nothing in this contract adds, changes, supersedes, or waives any of the requirements of applicable Federal laws and regulations, including but not limited to—

1. The Export Control Reform Act of 2018 (50 U.S.C. 4801, et seq.);
2. The Arms Export Control Act (22 U.S.C. 2715, et seq);
3. The International Emergency Economic Powers Act (50 U.S.C. 1701, et seq.);
4. The Atomic Energy Act of 1954 (42 U.S.C. 2011, et. seq.)
5. The Export Administration Regulations (15 CFR Parts 730-774);
6. The International Traffic in Arms Regulations (22 CFR Parts 120-130);
7. The Export and Import of Nuclear Equipment and Materials Regulations (10 CFR Part 110); and
8. The Foreign Asset Control Regulations (31 CFR Part 500).

e. The Subcontractor shall include the substance of this clause, including this paragraph (e), in all subcontracts.

For NASA-GRC sponsored research, funded participants must comply with the NASA-GRC export control and foreign national collaboration summarized below.

NASA-GRC Rules on Transferring Export Controlled information:

1. The sharing of technical data under the International Traffic in Arms Regulations (ITAR) or the sharing of technology under the Export Administration Regulations (EAR) with foreign entities is an export.
2. NASA-GRC will transfer export-controlled information to a foreign entity provided NASA-GRC has a legal obligation to do so (Ex: international agreement, contract, MOU, etc.).
3. Approval by the cognizant NASA-GRC Center Export Administrator (CEA) is required prior to exporting technical data or technology to a foreign entity.
4. If there is a Space Act Agreement, a corresponding export license, or license exemption or exception in-place allowing for the sharing of export-controlled technical data/technology, the CEA will verify that the export request meets the exact parameters in those documents.
5. Upon the CEA's approval, the technical data or technology can be exported per the terms and duration of the authorization.

NASA-GRC General Rules on Transferring Publicly Available Information

- NASA-GRC can work with a foreign national employed by the external partner on a contract, grant, or space act agreement without restriction provided that the technical data/information that is exchanged is deemed to be publicly available or fundamental research and provided that the foreign national is not from a designated country.
- NASA-GRC refrains from working with foreign nationals from designated countries even if the technical data or technology is publicly available or deemed to be fundamental research.
- A foreign national who is a Lawful Permanent Resident is deemed to be a U.S. Person and NASA-GRC can work with that individual relative to technical data and technologies that are export controlled. The LPR can have access to export controlled technical data and technologies on a need to know basis.

H.15 Non-Solicitation

Except as may be otherwise agreed in writing, during the term of this Subcontract, neither party shall offer employment to or employ any person employed then or within the preceding 12 months by the other if such person was involved directly in the activities and work covered by this Subcontract. This provision shall not preclude employees of either party from independently pursuing employment opportunities with the other party, whether on their own initiative, or in response to general solicitations, including but not limited to job postings published in newspaper, trade publications, or websites.

H.16 Reserved

H.17 Survivability

If this Subcontract expires, is completed or is terminated, Subcontractor shall not be relieved of those obligations contained in the following clauses:

Certification	Confidentiality
Termination of Contract Notices	Limitation of Liability
Maintenance of Records	Export Control

H.18 Severability

If any of the clauses or provisions of this Subcontract are found or deemed by a court of competent jurisdiction to be invalid or unenforceable, they shall be considered severable from the remainder of this Subcontract and shall not cause the remainder to be invalid or unenforceable; however, such provision shall be deemed to be restated to reflect as nearly as possible the original intentions of the parties in accordance with applicable law.

H.19 Non-Waiver of Rights

None of the provisions of this Subcontract shall be considered waived by either party unless such waiver is given in writing to the other party. The failure of any party to insist upon strict performance of any of the Subcontract terms and conditions, or failure to delay or exercise any rights provided herein or by law, shall not be deemed a waiver of any rights of any party.

H.20 Public Release of Information

- (a) Neither party shall publicly release information about this Subcontract without the prior written approval of the other party before the date of release. Requests for approval shall be sent to the addresses found in Section G, thirty (30) days prior to the intended release date.
- (b) The Subcontractor further agrees that any release of information relating to this Subcontract shall include a statement to the effect that the project or effort depicted was or is sponsored by OFRN.
- (c) For the purpose of this clause, "information" includes but is not limited to material presented in news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, presentations, meetings, conferences, symposia, etc.
- (d) The Subcontractor agrees to include this provision in any lower-tier subcontracts it awards as a result of this Subcontract.

H.21 Contract Direction

- (a) Only the Parallax Contracts Manager has authority to make changes in or amendments to this Subcontract. Changes and amendments must be in writing.

- (b) The Parallax Contracts Manager is responsible for all matters relating to the terms and conditions under this Subcontract. No other Parallax employee is authorized to make any changes related to this Subcontract. Any change to this Subcontract, shall only be binding upon the parties when such change is specifically authorized in writing and duly executed by the authorized representatives of Parallax and Subcontractor and in accordance with Section H.7 (Modifications). All correspondence and communications between Parallax and Subcontractor related to this Subcontract shall be directed to the Parallax Contracts Manager.
- (c) Except as otherwise provided herein, all notices to be furnished by Subcontractor shall be sent to the Parallax Contracts Manager.

H.22 Entire Subcontract

This Subcontract constitutes the entire subcontract between the parties concerning the subject matter and supersedes any prior understanding or written or oral subcontract relative to this matter.

H.23 Headings

Titles and headings of the provisions to this Subcontract are for the convenience of reference, do not form a part of this Subcontract, and shall not affect its interpretation.

H.24 Covenants

Subcontractor shall not compete directly or indirectly as a teammate, or otherwise participate in proposal activities or capture activities for contract renewals to Parallax's Prime Contract, options for contract renewals to Parallax's Prime Contract, or natural follow on business to Parallax's Prime Contract during the term of this Subcontract, without the prior written approval of Parallax. Subcontractor agrees that this restriction is reasonable. Nothing in this Subcontract shall preclude Subcontractor from offering or selling its standard commercial products or services to any third party.

H.25 Property

Title to any budgeted and approved equipment purchased by the Subcontractor shall vest with the Subcontractor subject to any subsequent disposition instructions provided to Parallax by the State of Ohio. Unbudgeted equipment and anything more than \$2,000 require prior written approval by the Parallax Contracts Manager.

H.26 Standard of Work

In performing services under this agreement, the Subcontractor is an independent contractor, and nothing herein is to be construed as establishing an employer-employee relationship. The Subcontractor agrees that all work will be performed in accordance with the highest professional standards. The Subcontractor shall also comply with all federal and state laws and prime sponsor requirements governing conduct of research.

H.27 Use of Name

Neither party shall use the other party's name, trademarks, or other logos in any publicity, advertising, or news release without the prior written approval of an authorized representative of that party. The parties agree that each party may use factual information regarding the existence and purpose of the relationship that is the subject of this Subcontract for legitimate business purposes, to satisfy any reporting and funding obligations, or as required by applicable law or regulation without written permission from the other party. In any such statement, the relationship of the parties shall be accurately and appropriately described.

H.28 Budget Modifications

The Applicant's Budget Proposal (See Section J Attachment J-1) for this Subcontract is the Subcontractors Cost Proposal reviewed and approved during the award process. The Applicant Budget Proposal includes the sum of all the costs associated with completing this Subcontract. The Applicant shall report deviations from the budget and request prior approval for budget revisions which include, but aren't limited to the following: change the scope of the project, change a key person, transfer budgeted cost elements, new lower tier subcontracts, or change in cost share amounts.

The Applicant shall describe the basis of budget revision in narrative form for each of the proposed cost elements (e.g. Direct Labor, Other Direct Costs (Materials, Equipment, Supplies), Travel, and Indirect Costs. Substantive supporting documentation shall be provided for each of the cost elements to support the proposed revision. Finally, The Subcontractor shall complete the Excel Cost Work Sheet (See Section J Attachment J-_), ensuring all formulas remain intact. Requests for budget revisions shall be made at least 30 calendar days prior to the need for implementation. Failure to provide this information may result in the budget revision being rejected by the Parallax Contracts Administrator.

Section I. Flowdown Terms and Conditions

The following clauses are provided as flowdown requirements from Parallax's prime contract. These flowdown requirements are hereby incorporated with full force and effect.

Representations and Certifications

I.1 Lobbying

By signing this Subcontract, the Subcontractor Authorized Official certifies, to the best of his/her knowledge and belief, that no Federal appropriated funds have been paid or will be paid, by or on behalf of the Subcontractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement in accordance with 2 CFR 200.450. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or intending to influence an officer or employee of any agency a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Subcontractor shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," to the PTE. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

I.2 Debarment

By signing this Subcontract, the Subcontractor Authorized Official certifies, to the best of his/her knowledge and belief that neither the Subcontractor nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, in accordance with 2 CFR 200.213 and 2 CFR 180.

I.3 Clean Air Act

By signature to this agreement, SUBRECIPIENT certifies that is in compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act of 1970 and the Federal Water Pollution Control Act as amended. Violations shall be reported to the Federal sponsoring agency and the regional office of the U.S. Environmental Protection Agency.

I.4 Drug and Alcohol-Free Workplace

By signature to this agreement, Subcontractor certifies that it will comply with the Drug Free Work Place Act of 1988 and its implementing regulations as amended.

I.5 Certification Regarding misconduct in Science

By signature to this agreement, SUB RECIPIENT certifies that it has established administrative policies as required by the Final Rule (42 CFR Part 93, Subpart A). and that it will comply with those policies and the requirements of the Final Rule regarding Procedures for Dealing with and Reporting Possible Misconduct in Science.

I.6 Conflict of Interest

No employees of Subcontractor or member of the governing body of any locality or other public official or employee of any such locality in which, or relating to which, the work under this Subcontract is being carried out, and who exercises any functions or responsibilities in connection with the review or approval of this Subcontract or carrying out of any such work, shall, prior to the completion of said work, voluntarily acquire any personal interest, direct or indirect, which is incompatible or in conflict with the discharge and fulfillment of his or her functions and responsibilities with respect to the carrying out of said work.

Any such person who acquires an incompatible or conflicting personal interest, on or after the effective date of this Subcontract, or who involuntarily acquires any such incompatible or conflicting personal interest, shall immediately disclose his or her interest to Parallax in writing. Thereafter, he or she shall not participate in any action affecting the work under this Subcontract, unless Parallax determines in its sole discretion that, in the light of the personal interest disclosed, his or her participation in any such action would not be contrary to the public interest.

Subcontractor, by signature of this document, certifies: (1) it has reviewed and understands the Ohio ethics and conflict of interest laws, and (2) will take no action inconsistent with those laws.

In addition, Subcontractor certifies by signature to this Subcontract that it has a federally compliant conflict of interest policy.

I.7 Research Compliance

The SUBRECIPIENT certifies by signature to this Agreement that the research project will comply with all Research Compliance and obtain all necessary approvals for Human Subjects, Vertebrate Animals, Recombinant DNA and any other areas that require protocol review.

I.8 Findings for Recovery

Subcontractor warrants that they are not subject to an "unresolved" finding for recovery under Ohio Revised Code 9.24. If this is found to be false, this Subcontract is void *ab initio* and Subcontractor shall immediately repay to Parallax any funds paid under this Subcontract.

I.9 Audit and Access to Records

Subcontractor certifies that by signing this Subcontract that it complies with the Uniform Guidance, will provide notice of the completion of required audits and any adverse findings which impact this

Subcontract as required by parts 200.501-200.521, and will provide access to records as required by parts 200.336, 200.337, and 200.201 as applicable.

Terms and Conditions

I.10 Whistleblower Rights Pilot Program for Enhancement of Contractor Employee Whistleblower Protections (Sep 2013)

- (j) This Subcontract and employees working on/under this Subcontract will be subject to the whistleblower rights and remedies in the Pilot Program of Contractor Employee Whistleblower Protections established at 41 U.S.C. 4712 by Section 828 of the National Defense Authorization Act for Fiscal Year 2013 (Pub. L 112-239) and FAR 3.908
- (iii) Parallax, Subcontractor and/or its lower-tier subcontractor is required to inform its employees in writing, in the predominant language of the workforce, of employee whistleblower rights and protections under 41 U.S.C. 4712.

I.11 Equal Opportunity

This Agreement is subject to the conditions of Executive Order No. 11246 entitled, "Equal Employment Opportunity," dated September 24, 1965, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60). Any Certificate of Non-Segregated Facilities is deemed given hereunder by the signature to this Agreement.

I.12 Data Rights

Any Subcontract awarded hereby incorporates the data rights requirements from the Air Force Research Lab ("AFRL") – Parallax Ohio Federal Research Network Flight Testing Demonstrations Cooperative Research and Development Agreement (CRADA), Attachment 2. Subcontractor grants those data rights requirements to AFRL as required by the CRADA. The Subcontractor grants to Parallax the right to use data created in the performance of the Subcontract solely for the purpose of and only to the extent required to meet Parallax's obligations to AFRL and the State of Ohio.

I.13 Nondiscrimination of Employment

Subcontractor agrees that Subcontractor, any lower-tier subcontractors, and any person acting on behalf of Subcontractor or lower-tier subcontractor, shall not discriminate, by reason of race, color, religion, sex, age, national origin, or disability against any citizen of this state in the employment of any person qualified and available to perform the work under this Subcontract.

Subcontractor further agrees that Subcontractor, any lower-tier subcontractors, and any person acting on behalf of Subcontractor or a lower-tier subcontractor shall not, in any manner, discriminate against, intimidate, or retaliate against any employee hired for the performance of work under this Subcontract on account of race, color, religion, sex, age, national origin, or disability.

Section J: Subcontract List of Attachments

1. Applicant Budget Proposal
2. Cooperative Research and Development Agreement (CRADA) / AFRL – Parallax
3. Closeout Documents
4. Non-Disclosure Agreement
5. Invoice Template

Section J. Attachment 1. Applicant Budget Proposal

[TBD]

Section J. Attachment 2. Cooperative Research and Development Agreement (CRADA) / AFRL – Parallax

Download document from OFRN Round 5 website

<https://www.ohiofrn.org/sites/ofrn/files/2020-11/AFRL-WSARC-OFRN-CRADA-FINAL.pdf>

Section J. Attachment 3. Closeout Documents

Within thirty-calendar days after the end of the period of performance for the services to be procured herein, as described in the attached Statement of Work and the satisfactory performance of which shall be solely determined by Parallax, Parallax will issue to the Subcontractor a Subcontract Closeout Package. The Package will include, as applicable, Subcontractor Release of Claims; Subcontractor's Assignment of Refunds, Rebates, Credits, and Other Amounts; Subcontract Patents Report; and any other documentation or request for information considered necessary by Parallax to closeout this Subcontract Agreement.

Subcontractor agrees to submit all information and documentation, including a FINAL invoice bearing the statement, "*This FINAL invoice was prepared using final audited rates*" as required by the Subcontract Closeout Package within thirty-calendar days of the date of the Package. The parties further agree if the information and documentation submitted by the Subcontractor is found by Parallax to be acceptable with or without negotiations (the necessity for which shall be solely determined by Parallax), Subcontractor's closeout submission shall be the final agreement between the parties with respect thereto.

In the event the Subcontractor fails to submit the required closeout information and documentation in a timely manner, such failure shall constitute Subcontractor's express agreement that the amounts paid to date by Parallax pursuant to this Agreement, as determined by Parallax's records, constitute the full, complete and final extent of Parallax's financial obligation to the Subcontractor, that the Subcontractor does forever fully and finally remise, release, and discharge Parallax, its officers, agents and employees, of and from any and all liabilities, obligations, claims, and demands whatsoever arising under or relating to this Subcontract Agreement, and that the Subcontractor expressly authorizes Parallax to rely on the foregoing representations and release in connection with Parallax's closeout of or other actions taken with respect to Parallax's contract with the Government

Depending upon the nature of work involvement with topics such as patents, data rights, classified efforts, government property, and dollar value of work, the subcontractor may be requested to participate in completing a Subcontract Closeout Checklist to address requirements for Closeout of contract files. This request will be prepared by Parallax as close as practical to the Subcontract End Date.

The final invoice for work under this subcontract agreement shall be marked final and shall be received by Parallax no later than thirty (30) days following the technical end date of the contract.

The following are samples of the closeout documents.

Parallax Advanced Research Corporation

SUBCONTRACT CLOSEOUT CHECKLIST

Subcontractor Name: _____

Subcontract Number: _____

- Final Delivery

All deliveries have have not been completed.

- Property

Property was was not acquired.

Property was returned to the government; was transferred to another contract.
(Attach acknowledgment transfer letter or any other type of UID documents.)

- Patents/Inventions

An invention or discovery was was not conceived.

All known inventions or discoveries have have not been disclosed.

- Invoices

The final invoice(s) has has not been submitted. (Reference invoice number.)

Contractor

Signature

Title

Date

Parallax Advanced Research Corporation

SUBCONTRACTOR'S RELEASE

Pursuit to the term of Subcontract number [REDACTED] and in consideration of the sum [REDACTED] dollars and [REDACTED] cents (Dollar value numeric \$ [REDACTED], [REDACTED]. [REDACTED]) which has been or is to be paid under the said Subcontract to [REDACTED] (hereinafter called the Subcontractor), or to its assignees, if any, the Subcontractor, upon payment of the said sum by Parallax Advanced Research Corporation (hereinafter called Parallax) does remise, release and discharge Parallax, its officers, agents, and employees, of and from all liabilities, obligations, claims and demands whatsoever under or arising from the said Subcontract, except:

4. Specified claims in stated amounts or in estimated amounts where the amounts are not susceptible or exact statement by the subcontractor, as follows:
5. Claims, together with reasonable expenses incidental thereto, based upon the liabilities of the Subcontractor to third parties arising out of the performance of the said Subcontract, which are not known to the Subcontractor on the date of the execution of this release and of which the Subcontractor gives notice in writing to the Parallax Contracts Administrator within the period specified in the said Subcontract.
6. Claims for reimbursement of costs (other than expenses of the Subcontractor by reason of its responsibility of Parallax against patent liability), including reasonable expenses incidental thereto, incurred by the Subcontractor under the provisions of the said Subcontract relating to patents.

The Subcontractor agrees, in connection with patent matters and with claims which are not released as set forth above, that it will comply with all of the provisions of the said Subcontract, including with limitation those provisions relating to notification to the Parallax Contracts Administrator and relating to the defense or persecution of litigation.

IN WITNESS WHEREOF, this assignment has been executed this [REDACTED] day of [REDACTED], 20XX.

Contractor

Signature:

Title:

Section J. Attachment 4: Non-Disclosure Agreement

PARALLAX ADVANCED RESEARCH CORPORATION

NON-DISCLOSURE AGREEMENT

This AGREEMENT made effective this **DATE** is entered into by and between PARALLAX ADVANCED RESEARCH CORPORATION (“Parallax”), an Ohio corporation having a place of business at 4035 Colonel Glenn Highway, Suite 200, Beavercreek, OH 45431, and **PARTY (include legal name and address)** (each referred to herein as “Party” or collectively “Parties”).

It is understood under the terms of this Agreement that Parallax shall be: a disclosing Party;

a receiving Party; or both and PARTY shall be: a disclosing Party; a receiving Party; or both.

WHEREAS, the disclosing Party represents that it has developed and possesses, or may in the future develop and possess, certain non-public technical, business, marketing, financial or other material information; and

WHEREAS, such information is of value to the disclosing Party and such value would be adversely affected if such information became available to the public or known to its competitors; and

WHEREAS, Parallax and PARTY are interested in holding mutual discussions related to the Ohio Federal Research Network Round 5 SOARING effort (the “Purpose”) and other business opportunities that may be of interest to the Parties, and in connection therewith the Parties may exchange Confidential Information as that term is hereinafter defined; and

WHEREAS, in the course of discussions and in connection with any current or future contractual or business relationship between the Parties, Parallax and PARTY may have access to non-public information owned by the other Party; and

NOW, THEREFORE, in consideration of these premises, and the mutual promises and covenants contained herein, the parties hereto agree as follows:

1. Confidential Information. “Confidential Information” as used herein, shall include any and all information relating to any products or services, including without limitation, samples, plans, formulae, methods, know-how, software and hardware techniques, and all record bearing media containing or disclosing such information and techniques, material, specifications, sketches, data, drawings, diagrams, descriptions, specifications, certifications, schematics, designs, processes, test results, compilations, technologies, intellectual property, trade secrets, know-how, vendor lists, financial or marketing data, business operations, plans, analyses or projections, and any other documents, ideas, concepts or knowledge, whether oral, written or stored in electronic or other media, tangible or intangible, or obtained or obtainable by examination, testing, visual inspection or analysis of any equipment, processes or facilities, that a Party to this Agreement receives (the “Receiving Party”) from the other Party (the “Disclosing Party”) during the course of this Agreement.
2. Non-Confidential Information. “Confidential Information” shall not include any such knowledge which:
 - a) Is or later becomes generally known to or available to the public without breach of this Agreement by the Receiving Party or the breach of any obligation of confidentiality by any person; or
 - b) That is or becomes available to the Receiving Party from a third party having a legal right to disclose such information and who is not subject to a confidentiality obligation to the Disclosing Party with respect thereto; or
 - c) The Receiving Party can show was in its possession or known to it as demonstrated by tangible evidence prior to receipt from the Disclosing Party; or
 - d) Is disclosed in accordance with the written approval of the Disclosing Party; or
 - e) Is independently developed by employees of the Receiving Party without the use of Disclosing Party’s Confidential Information, as demonstrated by tangible evidence

3. Legal Duty to Disclose. The Receiving Party may disclose Confidential Information to the extent required by law, regulation, national securities exchange or association rule, or court order, including a request under the Ohio Public Records Act; provided that the Receiving Party shall: (1) notify the Disclosing Party immediately upon receipt of any pleading, discovery request, interrogatory, motion, investigative demand, subpoena, or other authorized written demand calling for the disclosure of the Disclosing Party's Confidential Information; and (b) and, at the Disclosing Party's request, provide reasonable assistance in opposing such action within the time allotted by the governing rules.
4. Safeguarding Information. The Parties agree, with respect to any Confidential Information as to which it is a Receiving Party:
 - 4.1 To protect and keep such Confidential Information from disclosure with the same degree of precautions and safeguards it uses to protect and keep its own trade secrets and confidential and proprietary information of like import, but in any case, with no less than reasonable care;
 - 4.2 Not to disclose or reveal such Confidential Information to any person other than representatives or advisors employed by it who have a need to know such Confidential Information and a contractual duty to maintain information that they receive in the course and scope of their employment in confidence;
 - 4.3 Not to use, or permit any person employed by it to use, such Confidential Information for any purpose other than as specified in this Agreement, the Parties recognizing that any other use of the Confidential Information is strictly forbidden;
 - 4.4 Without limitation to the foregoing, the Parties shall not attempt to analyze, decompile, disassemble, decode, redesign, determine the content or structure of or otherwise reverse engineer any Confidential Information, which restriction shall survive termination of this Agreement;
 - 4.5 To make the conditions of this Agreement known to any person to whom it has the right to disclose and discloses such Confidential Information and obtain from such person a commitment to be bound hereby; and
 - 4.6 The Receiving Party shall notify the Disclosing Party in writing immediately upon discovery of any unauthorized use or disclosure of Confidential Information and shall reasonably cooperate with the Disclosing Party to regain possession of the Confidential Information and prevent any further unauthorized use or disclosure.
5. Marking of Derivative Confidential Information. The Receiving Party shall mark all notes, translations, summaries, and other documents it may prepare that incorporate all or any portion of the Confidential Information of the Disclosing Party with a restrictive legend clearly identifying such documents as containing Confidential Information of the Disclosing Party.
6. Reproduction. Confidential Information shall not be copied or reproduced without the express written permission of the Disclosing Party, except for such copies as may reasonably be required for internal use commensurate with the purpose contemplated by this Agreement. Nevertheless, markings consistent with the markings contained on the Confidential Information shall be affixed to all copies, including partial copies. Dissemination for internal use shall be restricted to authorized employees having established need-to-know. All copies authorized for internal use shall clearly display the Disclosing Party's confidential legend.
7. Designation & Protection. In order for Confidential Information disclosed by one Party to the other to be protected in accordance with this Agreement, it shall (a) be clearly and conspicuously marked with an appropriate legend on each page indicating the confidential nature of the information, which may consist of a company confidential and/or proprietary legend, a limited or restricted rights notice specified by the FAR or an agency FAR supplement, or any other marking calculated to provide the possessing party with reasonable notice of its confidential or proprietary nature; and (b) delivered to the designated authorized representative identified herein.

If first disclosed in an oral or other intangible manner, such orally disclosed information shall be protected by the Receiving Party in a manner and to the same degree as if disclosed in writing under the terms of this Agreement provided that the Disclosing Party: (a) contemporaneously identifies such disclosure as being in confidence; (b) reduces such disclosure to written form; (c) marks such writing as confidential or proprietary; and (d) delivers such marked document to the Receiving Party within thirty (30) days after the date of first disclosure.

8. Inadvertent Disclosure. The Receiving Party shall not be considered to be in breach of this Agreement or be held liable in damages for inadvertent disclosure of Confidential Information received hereunder as long as it has (i) used at least the same degree of care in safeguarding the information as it uses for its own Confidential Information of like import, provided such degree of care is reasonably calculated to prevent inadvertent disclosure or unauthorized use, and (ii) limited access to the Confidential Information to those of its employees who have a need to know; and provided that the Receiving Party shall, upon discovery of any inadvertent disclosure or unauthorized use of Confidential Information by its organization: (i) diligently attempts to correct the effects thereof; (ii) promptly uses reasonable efforts to prevent any further inadvertent disclosure or unauthorized use; and (iii) promptly notifies the Disclosing Party.
9. Export Control Compliance. The Receiving Party agrees that no technical data furnished to it by the Disclosing Party shall be disclosed or exported in violation of the International Traffic in Arms Regulation and the Export Administration Regulations. The Receiving Party further agrees that technical data furnished to it by the Disclosing Party shall only be exported in compliance with the International Traffic in Arms Regulation and the Export Administration Regulations, including the requirement for obtaining an export license, if applicable. Notwithstanding any other provision of this Agreement, the Receiving Party shall be responsible for outcomes arising from the Receiving Party's failure to comply with this clause or U.S. Government export laws and regulations.

Technical data disclosed hereunder may be subject to U.S. export control laws and regulations. Accordingly, the Receiving Party shall not transfer technical data received under this Agreement to any foreign person, country, foreign subsidiary or parent corporation, without specific written authorization from the Disclosing Party and pursuant to an appropriate U.S. Government agency license. Further, the Receiving Party does assure the Disclosing Party it will not disclose technical data received hereunder to any employee, consultant or subcontractor employee not holding United States citizenship or granted admission or permanent residence in the United States under the Immigration and Nationality Act, as amended (8 USC 1101 et seq.).

10. License and Title. The Confidential Information shall be and remain at all times the sole and exclusive property of the Disclosing Party. Nothing in this Agreement shall be construed to create or grant any license or other rights in, to, or under the Confidential Information in favor of the Receiving Party by, through or under any copyright, invention, patent, trade secret or other intellectual property right owned or controlled by the Disclosing Party.
11. Term and Period of Nondisclosure. Unless terminated earlier by thirty (30) days written notice by either Party to the other, this Agreement will remain in effect for the duration of the Subcontract (the "Term"). The nondisclosure and non-use obligations of the receiving Party set forth in this Agreement shall survive for a period of three (3) years after expiration of the Term or earlier termination of this Agreement by either Party as set forth above.
12. Destruction or Return of Records. Upon the written request of the Disclosing Party or upon the completion of the Term of this Agreement, whichever is sooner, the Receiving Party shall (i) cease use of Confidential Information received from the Disclosing Party, (ii) destroy all such Confidential Information, including all copies thereof, and (iii) furnish the Disclosing Party with written certification of destruction. Alternatively, upon written request of the Disclosing Party, the Receiving Party shall return all Confidential Information, including any and all copies thereof, to the Disclosing Party. The Receiving Party shall also return or destroy all other documents containing any portion of the Disclosing Party's Confidential Information, as well as all notes, summaries, translations, abstracts, and synopses thereof. Within reasonable efforts, the Receiving Party shall also erase or destroy any such confidential data

stored by the Receiving Party in a computer memory, or data storage apparatus, or system. The return or destruction of Confidential Information pursuant to this paragraph shall not act to relieve the Receiving Party of its obligations regarding disclosure or use set forth herein.

13. Disclosure to U.S. Government. Confidential Information may be disclosed to the U.S. Government by the Receiving Party only if: (i) the specified Purpose requires the disclosure; (ii) the Disclosing Party consents to the disclosure; and (iii) the Receiving Party identifies the Confidential Information at the time of disclosure to the Government as the property of the Disclosing Party and marks such Confidential Information strictly in accordance with the applicable requirements of the FAR or any pertinent agency FAR supplement.
14. Classified Information. To the extent that the obligations of the parties hereunder require or involve access to classified information, such information shall be handled, used, protected and otherwise treated by the Receiving Party in accordance with the National Industrial Security Program Operating Manual (NISPOM) and/or the security laws of any nation or group of nations, as applicable.
15. Business Arrangement and Costs. Each of the Parties hereto acknowledges that this Agreement shall not be construed as a commitment by either Party to enter into any transaction involving the Confidential Information. Each Party shall bear all its respective costs and expenses incurred in connection with this Agreement. This Agreement is solely for the purpose of protecting Confidential Information, and shall not constitute, create, give effect to, or otherwise imply a joint venture enterprise, pooling arrangement, partnership or other similar contractual or business arrangement of any kind. Each Party shall act as an independent contractor and not as an agent of the other Party for any purpose whatsoever, and neither shall have any authority to bind the other, except as specifically set forth herein.
17. Designated Representatives. All Confidential Information shall be furnished only to the following individual employee(s) designated by each Party who is (are) responsible for further disseminating the Confidential Information to other employees of that Party who have a need to know:

Parallax Advanced Research Corporation Address: 4035 Colonel Glenn Hwy Beavercreek, OH 45431 Name: Phone: 937-705- Email:	Party Address: Name: Phone: Email:
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All contractual notices furnished hereunder shall be forwarded to the designated contractual representative of the parties, who are listed below.

Parallax Advanced Research Corporation Address: 4035 Colonel Glenn Hwy, Suite 200 Beavercreek, OH 45431 Name: Phone: 937-705- Email:	Party Address: Name: Phone: Email:
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Each Party may change its designation by written notice to the other. However, all properly marked Confidential Information exchanged hereunder shall be afforded the protection of this Agreement even if not furnished to the points of contact listed above.

16. Independent Development and Marketing. It is understood that the parties to this Agreement may have performed substantial, independent development relating to the subject matter in both products and

technology. This Agreement shall not limit either Party's development or marketing of products or systems involving technology or ideas of the same or similar nature to that disclosed, nor does this Agreement prevent either Party from undertaking the same or similar efforts or discussions with third parties, provided that the obligations hereunder are respected and not violated.

17. Amendment or Modification. No amendment or modification of this Agreement shall be valid or binding on the Parties unless made in writing and signed on behalf of each of the Parties by their respective, duly authorized representatives.
18. Jurisdiction. This Agreement is entered into and shall be construed and enforced in accordance with the applicable laws of the State of Ohio.
19. Severability. If any provision of this Agreement is found to be invalid or unenforceable in whole or in part, the Parties agree that the remaining provisions of this Agreement shall remain valid and enforceable to the maximum extent allowable by law. However, for any provisions that are deemed unenforceable, both Parties shall negotiate new enforceable provisions.
20. Assignment. This Agreement is not assignable or transferable without the prior written consent of the other Party, which shall not be unreasonably withheld. However, this provision shall not apply to a legally recognized successor in interest to all or substantially all of the Party's assets.
21. NonWaiver. Failure by either Party to enforce any provision of this Agreement or applicable law shall not constitute a waiver of the requirements of such provisions or law, or a waiver of the right of a Party thereafter to enforce such provision or law.
22. Entire Agreement and Modifications. This Agreement constitutes the sole existing agreement between the Parties regarding the subject matter hereof, superseding all prior or contemporaneous communications, agreements and understandings between the Parties with respect to the exchange of Confidential Information in connection with the Purpose. This Agreement may not be modified in any manner except by written amendment executed by each Party. The requirement for mutual execution of an amendment shall not apply to a change of address or designation of a new point-of-contact to receive Confidential Information. Such changes shall be accomplished by letter from the changing Party to the other Party.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed on the dates set forth under their respective signatures.

Parallax Advanced Research Corporation	Party
Signature:	Signature:
Name:	Name:
Title:	Title:
Date:	Date:

Section J. Attachment 5. Invoice Template

[TBD]


5.7 APPENDIX 6: BUSINESS & COST PROPOSAL TEMPLATE

Download the Business & Cost Proposal Template Amendment 1 document from OFRN Round 5 website

<https://www.ohiofrn.org/ofrn-current-solicitation>

5.8 APPENDIX 7: QUAD CHART

Use the PowerPoint template located at <https://www.ohiofrn.org/ofrn-current-solicitation>

Prime Applicant – Project Title	
<p style="text-align: center;">Technical Concept & Approach</p> <p>Place overview graphics here (this quadrant should be ~85% graphics, 15% text)</p> <ul style="list-style-type: none"> • Illustrate what you are trying to do. • What is the problem you seek to address? • Why is this challenging? 	<div style="text-align: right;">  <p>Ohio Federal Research Network <small>Driving Innovation Through Strategic Partnerships</small></p> </div> <p style="text-align: center;">Project Requirement, Federal Alignment, Sponsoring Organization(s)</p> <ul style="list-style-type: none"> • Identify the Federal stakeholders and their formal requirement. • Elaborate on the potential impact on federal stakeholder mission. <ul style="list-style-type: none"> • What is, and what are the limitations of, current practice? • What is new in your approach? • Summary of benefits for the federal customers
<p style="text-align: center;">Team & Economic Impact for State of Ohio</p> <ul style="list-style-type: none"> • Identify Team members • Elaborate on potential economic development impact for the state of Ohio. <ul style="list-style-type: none"> • Including jobs, additional research (federal grants, sponsored research, etc) • Identify commercial impact industry/sector/business partners 	<p style="text-align: center;">Budget, Schedules, Deliverables, & Risks</p> <ul style="list-style-type: none"> • Requested Budget Total: [\$] (per member and project totals) • 2021: [\$], 2022:[\$] (project yearly total only). • Period of Performance: [months] • Milestones: [up to 4] <ul style="list-style-type: none"> • Add highlights of your research plan. • List Deliverables • Identify key technical risks

5.9 APPENDIX 8: DEMO DELIVERABLE REQUIREMENTS FOR SELECT AOI

- AOI 1) Vertical Take-Off & Landing (VTOL)
- AOI 2) Situational Awareness & Proliferated Surveillance Systems
- AOI 3) Patient care in austere and contested environments
- AOI 4) Personal Exposure Devices
- AOI 5) Acceleration effects
- AOI 6) Enabling Human-Machine Teaming Using Brain-Machine Interfaces
- AOI 7) Advanced Power Systems Applicable to Aviation Propulsion, Micro-Grids, and Lunar Surface Operations
- AOI 8) Quantum Communications
- AOI 9) Applications of commercial satellites to humanitarian, disaster, and defense topics
- AOI 10) Large Data Set Triage
- AOI 11) Journal Article Warning and Correlation

5.9.1 AOI 1: Vertical Take-Off & Landing (VTOL)

DESCRIPTION: There has been an explosion of interest in the ‘flying car’ concept to the Air Force due to the lack of need for runway. The ability to land wherever, whenever greatly eases the logistic burden of resupply and minimizes trends in terms of operational footprints. Building off the extensive commercial drone market, a number of key technologies are needed to enable such concepts at an order of magnitude larger in scale in order to address the areas and challenges for military / civil VTOL systems. These include for large VTOL capabilities:

- d) Battery Energy Storage
 - Battery/recharging designs, which facilitate safe, rapidly recharge systems without overheating or degrade longevity and reliability, to provide high-rate recharge (5-10 min) for multiple cycles (50-100 per day), and to support the demands of the appropriate lift/weight ratios (*Note: This is not about developing a new battery chemistries but enabling battery consistency in government / commercial sectors (e.g. Lithium/Ion/Polymer types)*).
 - Power supply – recharging stations which should be able to run safely and effectively off of commercially available circuits/wattage/ampereage in a residential or office building
- e) Propulsion sources to provide the appropriate lift/weight ratio and decrease ambient noise
- f) Sensing hardware/software and platform designs to enable both manned and unmanned flight operations addressing
 - Reliable, Controllable Flight in Three-Dimensional Flow Fields
 - i. Design objectives accounting for wind turbulences (e.g., up, down, cross drafts) in congested urban settings, and maintaining reliable flight control
 - ii. Air data sensors to detect and avoid “clear day” wind shears (e.g., updrafts, downdrafts, crosswinds)
 - iii. MS&A of air currents will lead to enhancements to stability controls of aircraft to ensure safety, security, and reliability in these settings. This is essential for Air Worthiness certification
 - Human Factors / Human-Machine Interfaces
 - i. On-board passenger interaction with “virtual pilot” for situational awareness of impending maneuvers and phases of flight. Dealing with onboard passenger emergencies (e.g., sickness, etc.) and ability to reroute to emergency care; activation of 911 system at destination or alternate land sites, etc.
 - ii. External interface with passengers while on ground – awareness and communication with passengers and non-passengers in proximity to the vehicle, and maintenance personnel
 - Modeling and Simulation of air traffic management system for airspace deconfliction, route planning and approval, protocols for degraded visibility, weather / darkness

DEMO DELIVERABLE REQUIREMENTS:

Battery Energy Storage: Design and demonstrate (e.g., benchtop, flight test) prototype battery packaging approach which addresses the stated performance parameters (ref above) within a realistic flight profile. Exhibit a working relationship with local industry that can provide working level metrics specific to appropriate lift/weight ratios of a common VTOL platform.

Propulsion Sources: Optimum: Open air flight test conducted in a 3-dimensional environment that successfully demonstrates a complete system (at right scale) of interdependent components working together to address lift/weight ratios with reduced ambient noise.

Threshold: Flight test within a controlled facility (closed air) that successfully demonstrates a complete system (at right scale) of interdependent components working together to address lift/weight ratios with reduced ambient noise.

Sensing Hardware & Software: Open air flight/ground test conducted in a 3-dimensional environment that successfully demonstrates reliable, stable, controllable flight in multi flow fields, and with human-machine teaming interfaces addressing stated performance parameters (ref above). MS&A depicting before and after results of enhanced capability

5.9.2 AOI 2: Situational Awareness and Proliferated Surveillance Systems

DESCRIPTION: Building upon technological advances in sensors and sensor suites, DoD is looking for unique affordable solutions for surveillance on the ground, in the air, and in space. Proposals may include but are not limited to, a complete surveillance system for ground, air, and/or space; affordable sensor suites, data visualization tools to display complex data simply and quickly; and the ability to analyze images. Technical approaches should focus on the “find, fix, and track” part of the kill chain.

Electro-optical (EO) and radio frequency (RF) sensing strategies such as:

- Advanced EO and IR sensing systems that balance cost and performance are needed for new expendable and attritable air systems, and replenish space
- Technologies that address flexible high resolution, long range EO/IR imaging along with multi-mode LIDAR (3D shape, vibration sensing, and synthetic aperture imaging) for stand-off and penetrating ISR.
- Technologies for a compact hyperspectral imaging (HIS) system and staring infrared search and track for attritable platforms for use in highly contested environments.
- Technology that addresses the need for low cost, size, weight, and power (C-SWaP) RF sensors for attritable and expendable platforms. This would include such things as additive manufacturing techniques to reduce cost over traditional fabrication techniques, as well as the use of commercial off-the-shelf components, including transmit/receive modules, RF system-on-chip, FPGAs, and software-defined radio (SDR) technology to build low-cost RF sensors.
- RF sensing concepts that take advantage of the diversity (spatial, temporal, power, frequency and polarization) made possible via wideband, dual-polarized and software-defined RF systems to enhance sensor capability to find, fix and track targets of interest and improve situational awareness. Techniques that use multiple, proliferated RF systems to improve performance via geometric diversity are also of interest.

Solutions/concepts addressing these technical needs are preferred, but others will also be considered.

DEMO DELIVERABLE REQUIREMENTS:

Hardware Focused Research: Demonstration within an indoor or outdoor laboratory setting which effectively demonstrates either Electro-Optical and/or Radio Frequency sensing strategies addressing the requirements stated above. If addressing low-cost approaches, a demonstration of the use of additive manufacturing, SDRs, COT components, or other is highly recommended. Demonstration of any developed support software code should be included along with a final report with significant detail of system design and code.

Non-Hardware Focused Research: Demonstration using MS&A simulating the developed algorithms and associated code which effectively demonstrates stated requirements above, or more specifically, focuses on the enhancements to performance of wideband, software-defined and/or multistatic RF systems is highly recommended. An accompanying detailed report and code, showing the analysis and result is expected

5.9.3 AOI 3: Patient Care in Austere and Contested Environments

DESCRIPTION: Technologies to enhance patient recovery, transport, and care to include autonomous recovery of injured service members in contested environments, UAV-based casualty evacuation (CASEVAC). Operations and enabling technologies may include autonomous/remotely commanded robotic casualty recovery and stabilization in contested environments, casualty monitoring, integrated smart medical equipment, autonomous and/or remote care en route, secure data streaming to receiving facility, medical sensor fusion and diagnostics, robotics, artificial intelligence, and other technologies.

DEMO DELIVERABLE REQUIREMENTS – n/a

5.9.4 AOI 4: Personal Exposure Devices

DESCRIPTION: Development of personal exposure monitoring devices, such as personal dosimeters, to measure and report exposure to biological and toxic industrial chemicals and compounds. Devices should report exposure levels in real-time.

DEMO DELIVERABLE REQUIREMENTS – n/a

5.9.5 AOI 5: Acceleration Effects

DESCRIPTION: Military operations including ground, sea, air, and space based missions expose service members to various unusual or extreme accelerative forces, presenting threats to health, safety, readiness, and mission performance. There is broad interest and need for better understanding and mitigation of such accelerative threats as whole-body vibration, impact acceleration (i.e., crash), high-g acceleration, and dynamic acceleration. Mitigations for fatigue, neck and back pain and injury, impact injury, g-loss of consciousness, spatial disorientation, and motion sickness are of particular interest.

DEMO DELIVERABLE REQUIREMENTS – n/a

5.9.6 AOI 6: Improving Human-Machine Teaming Performance Using Brain-Machine Interface (BMI) Technologies

DESCRIPTION: Design, develop, and validate a multi-modal brain-machine interface (BMI)-enabled technology platform that simultaneously operates for both active and reactive control for enabling decision making in information dense environments, and facilitating human-machine cooperative intelligence.

DEMO DELIVERABLE REQUIREMENTS: Demonstration of a user's cognitive state information through the use of Brain Machine Interfaces (BMIs), that they were able to significantly improve the performance of the system over baseline. The team must define how performance will be measured – for example, it can be task performance, greater autonomy, trust between human-machine, sense of agency, etc., or a combination thereof.

5.9.7 AOI 7: Advanced Power Systems Applicable to Aviation Propulsion, Micro-Grids, and Lunar Surface Operations

DESCRIPTION: There is an increasing demand for electrical power to be available independent of the current Electrical Power Grid(s) found on Earth. This includes critical aviation, space, and terrestrial applications where crew well-being, productivity, critical infrastructure (data servers, etc.), and security are involved. These applications require high efficiency power management and distribution systems

delivering highly reliable power (>0.999999) and includes diverse power source and energy storage integration strategy to meet the needs of the consumer. These future systems require development of key technologies and capabilities:

- f) System control – Solutions that can integrate regulators and interface converters and result in a collaborative system instead of a competitive system. For example, being able to integrate and equally consume power from different types of power sources without having the two regulators fight each other and having to switch between the sources.
- g) System Protection – Methods enabling robust specification and assurance of safety critical functions, despite mission and fault transients, within and beyond the electrical power system. Develop system protection approaches using regulators to reduce fault energy and provide fast detection, isolation, and reconfiguration of electrical network elements.
- h) System Stability - A solution to reduce the influence and destabilizing effects of nonlinearities such as constant power, change to constant current, fold back, pulsed loads, and system bifurcation modes.
- i) Thermal - An integrated power and thermal management system which can be used to provide enhanced monitoring, diagnostic, and prognostic understanding of power system states and avoid thermal constraints by restricting power to avoid exceeding thermal limits. The intended solution would provide superior power management capability including predictive thermal operational issues and provide time to change power management directions.
- j) Energy Storage – Understanding usage of distributed energy storage (batteries, capacitors, inductors, supercapacitors, flywheels, etc.) and hybrid energy storage and control methods to enable advanced power system control approaches. This can include power architectures that enable advanced methods of control and integration of energy storage.

DEMO DELIVERABLE REQUIREMENTS: The products from a successful project selected in the “Advanced Power Systems Applicable to Aviation Propulsion, Micro-Grids, and Lunar Surface Operations” should be a demonstration of:

- A dynamic system simulation of the methods developed for system control, protection, stability, integrated power/thermal management, and energy storage. Modeling, simulation, and analysis may have a mixture of digital and hardware simulators that show the benefit of the technology and are suitable for guiding next phase technology investments and interactions with a power system testbed.
- Hardware, hardware simulators, or emulators that are suitable for interaction with a power system testbed.

Components that can be incorporated into a testbed that can safely introduce a fault, failure, or instability.

5.9.8 **AOI 8: Quantum Communications**

DESCRIPTION: NASA and AFRL seek quantum communications and sensing technologies for new mission capabilities and secure communication networks for aviation and spacecraft applications. Quantum communications utilize quantum entangled photons for transmission and entanglement distribution. Entanglement distribution is anticipated to enable new capabilities with entangled sensor networks, facilitate a quantum internet and perhaps provide highly secure communication systems. NASA and AFRL are interested in the development and demonstration of quantum communications technologies such as high-efficiency photon entangled sources, high rate / throughput and low jitter FPGA based photon counting electronics, quantum repeaters, quantum memory, high-efficiency single photon and photon number resolving detectors, quantum sensors, photonic integrated circuits, quantum transduction and new forms of quantum cryptography. Advances in these technologies

will enable quantum communication networks that may create long baseline sensor networks, quantum computers or enable new security measures for communications.

DEMO DELIVERABLE REQUIREMENTS: Technical and financial reports, laboratory demonstrations of quantum communication components, and prototype hardware systems with the necessary control software.

5.9.9 **AOI 9: Applications of commercial satellites to humanitarian, disaster, and defense topics**

DESCRIPTION: With recent growth in commercial satellite availability the DoD is interested in tools and data management processes using these commercially available sensors. How might these resources be rapidly tasked and exploited in a time sensitive crisis to support humanitarian, disaster relief, and defensive efforts.

DEMO DELIVERABLE REQUIREMENTS: The successful demonstration of a technology produced to support this proposal should be able to ingest publicly available data and produce an automated and timely reporting system to track fires and predict their spread, locate and predict flooding, locate probably destroyed structures during a fire or flood, locate partially submerged buildings during flooding, as well as locate nearby grass, gravel, and paved areas suitable for use by supporting services. Suggested data sources are listed below but other publicly available data sources should also be considered to support and speed up data accuracy and reporting.

Suggested Data Sources:

- NOAA GOES: <https://www.star.nesdis.noaa.gov/GOES/index.php>
- DigitalGlobe: <https://discover.digitalglobe.com/>
- ESA Sentinel Data: <https://sentinel.esa.int/web/sentinel/sentinel-data-access>
 - Cloud: <https://browser.creodias.eu/>
 - Download: <https://scihub.copernicus.eu/dhus/#/home>
- ESA Sentinel Data: <https://sentinel.esa.int/web/sentinel/sentinel-data-access>
 - Cloud: <https://browser.creodias.eu/>
 - Download: <https://scihub.copernicus.eu/dhus/#/home>
- Alaska Satellite Facility: <https://search.asf.alaska.edu/#/>
- NOAA GOES: <https://www.star.nesdis.noaa.gov/GOES/index.php>
- ESA Essential Data: <https://sentinel.esa.int/web/sentinel/sentinel-data-access>
 - Cloud: <https://browser.creodias.eu/>
 - Download: <https://scihub.copernicus.eu/dhus/#/home>
- NASA Earth Data: <https://earthdata.nasa.gov/earth-observation-data/find-data>

5.9.10 **AOI 10: Large Data Set Triage**

DESCRIPTION: With the advent of large file storage systems, the DoD is interested in tools and techniques aimed at the timely triage of large computer file collections (i.e. potentially terabytes of data). The need to determine the most useful files (e.g. relevancy) to be examined by analysts is critical for managing resources to allow for timely translation and analysis of the data.

DEMO DELIVERABLE REQUIREMENTS: Demonstration of a tool or set of tools capable of quickly ingesting of at least 5 TB of data containing at least 15,000 files, consisting of executables, documents, text files, CAD drawings, videos, and other file types that may be considered relevant. The tools should be able to quickly separate and categorize files according to their data, language, metadata, and other criteria to make triage and sorting of the files easier and quicker. Information regarding the data should be aggregated and presented to the user. Associated files of importance should be identified by keywords. The tools should be presented through a user interface that can be quickly understood through minimal training.

5.9.11 AOI 11: Journal article warning and correlation

DESCRIPTION: In trying to determine the most disruptive and critical emerging technologies the DoD is interested in tools that can read, and correlate people, places, and technologies that will allow us to set alerts for breaking or new technologies (i.e. a sudden 50% increase in a specific area could be one example of an alert), and capable of reading and processing in multiple languages (i.e., structured data, multiple databases).

DEMO DELIVERABLE REQUIREMENTS: A successful demonstration of this proposal would be capable of ingesting academic and research databases in multiple languages focused on science and technology development. This data should then be used to create and display relational data of technologies, institutions, authors, collaborators, and sponsors. The developed tools should also be capable of finding emerging trends in authorship, technology maturity, and reporting frequency to alert users to a rapidly changing technology R&D environment.