



**MHA Nation Drone Project: Planning and Protocol Development**  
Submission to the Department of Transportation – SMART Grants

November 17, 2022

## 1 OVERVIEW

This project will develop a plan for and demonstrate the use of Uncrewed Aircraft Systems (UASs) to serve historically underserved populations with better access to medical care and equipment, and potentially other use cases in a Phase 2 deployment. The use of UASs have proven economic, environmental, and equity benefits that cannot be realized with extending operations Beyond Visual Line Of Sight (BVLOS). The MHA Nation will work with leaders in establishing BVLOS capabilities to plan, develop, and deploy UASs to provide better, more timely access to critical medical supplies across areas with surface transportation deficiencies.

The Fort Berthold Reservation lies within a rural and rugged landscape, covered by heavy oil production, rough roads, and unforgiving weather conditions. The MHA Nation has a long-standing relationship with the University of North Dakota (UND), including working together to explore use of UASs to improve health outcomes, especially with transport of medical samples and medicines between Twin Buttes and New Town. While the most pressing need is for rapid blood delivery, other use cases such as vaccines and other pharmaceutical delivery remain a priority.

The objective of the Stage 1 grant is to identify use cases, partnerships, and the required infrastructure needed to enable BVLOS operations within the MHA Nation. Thus, this will create a blueprint for a scalable system of BVLOS operations in rural areas (e.g., within the state of North Dakota) leveraging existing physical and digital infrastructure deployed by the VANTIS Network, which is hosted by the Northern Plains UAS Test Site—a Federal Aviation Administration (FAA)-approved test site. The preliminary feasibility analysis will demonstrate the ability of the project team to develop a safe, efficient, and scalable network within MHA Nation. The Stage 2 Grant will focus on infrastructure installation and operation of commercial flights, with a focus on system integration that can that maximizes the benefits of this initiative. The project team will develop the technical approach to **monitoring** the airspace use via sensor integration for **data collection** (air and ground risk, collection patterns to support planning activities for operational planning), and in time, **management** of the airspace.

The project team anticipates the following outcomes in order to continue to a Stage 2 grant:

1. An implementation plan that describes:
  - a. Detailed description of impacted communities
    - i. Anticipated distribution of benefits within the community being served
    - ii. Anticipated distribution of benefits associated with an at scale implementation
    - iii. Preliminary baseline data for evaluation of an at-scale implementation
  - b. Costs and benefits
    - i. Deployment and operational costs
    - ii. Benefits and savings
  - c. Performance metrics
  - d. Implementation factors (legal, policy, and regulatory requirements; procurement and budget, partnerships, etc.)
2. BVLOS Operations Plans
  - a. A communications, navigation, and surveillance infrastructure site selection plan.
  - b. CONcept of OPERationS (CONOPS)
    - i. Secondary monitoring and domain awareness.
    - ii. Supplemental Data Service Provider (SDSP) Platform and associated services.

c. An FAA-approved Safety Case.

Table 1 provides a summary of project goals and how these will be realized in this effort.

*Table 1: Project goals and how these will be realized in this project.*

<b>Safety</b>	Create an aviation-grade infrastructure network to support advanced UAS operations.
<b>Resiliency</b>	The project will provide additional, lower-cost transportation layers to an underdeveloped transportation network. Inserting advanced air mobility solutions creates a resilient transport network by providing multiple options for use cases.
<b>Equity and Access</b>	The project will ensure equitable access and coverage to historically disadvantaged and unserved communities so those communities may also receive the benefits of this new transportation system.
<b>Climate and Sustainability</b>	The vast majority of UAS and Advanced Air Mobility (AAM) systems are designed as fully-electric or hybrid electric systems. These systems will displace existing, fossil-fuel-based vehicles leading to reduced greenhouse gas emissions in the region.
<b>Partnerships</b>	Community engagement with local community organizations was the genesis of this project and will be a critical component in the planning, development, and deployment of this project.
<b>Integrations</b>	This project will explore how future UAS and AAM vehicles can support existing transportation networks to move both goods and people, with the eventual goal of a statewide or regional transportation network.

## 2 PROJECT LOCATION

MHA (Three Affiliated Tribes of Fort Berthold Reservation) is a large rural area designated as a Historically Disadvantaged Community (HDC). MHA Nation is located along both sides of the Missouri River (Lake Sakakawea) in north-central North Dakota on the Fort Berthold Indian Reservation. The land mass includes wide open plains and grasslands that border six ND counties including McLean, Mountrail, Dunn, Mercer, and Ward. These mineral-rich tribal lands encompass 988,000 acres, with 457,837 acres being owned by Native Americans as individual allotments or communally by the tribe. The governing structure is based on geography with six segments including Four Bears, Mandaree West, New Town North, Parshall Northeast, Twin Buttes South, and White Shield East. The landmass and population of each segment are provided as Geographical Information System (GIS) data by the MHA Nation Water Systems [Geographic Information Systems — MHA Nation](#). Of Note, the US Department of Interior in 2022 reaffirmed that the Missouri riverbed within the Fort Berthold Reservation belongs to MHA Nation following extensive disagreements (Our River Our Home, 4 February 2022, [MHA Nation's ownership of the Missouri Riverbed reaffirmed — Our River, Our Home](#)). Historically, the native lands of the Mandan Hidatsa and Arikara people extended from ND across the Missouri River basin through western Montana and Wyoming. A comprehensive history of the geography and culture of the MHA Nation is provided at <https://www.mhanation.com/history>.

### 3 COMMUNITY IMPACT

Funding for this proposal will assist with achieving the aim of improving the lives of the members of MHA Nation by expanding access to emergency services, public safety, nutrition, and healthcare. Planning and protocol development will ensure that infrastructure is in place to support government-to-government relationships necessary with the goal of improving access to basic needs using autonomous systems. This includes building a sustainable foundation to integrate the use of UAS on tribal lands. This need was created by past government actions, including the building of the Garrison Dam by the Federal government in the 1950s, which resulted in flooding of tribal lands. This created a dramatic and unwanted change to the geography, landscape, and resource base. A one-mile-long bridge connects six segments of MHA Nation creating the need for extensive travel and back tracking to cross the bridge to meet basic needs and to ensure access to emergency response and medications. Drones will allow transportation of goods and delivery of services across tribal lands without the limitations associated with use of one bridge that can cross the Missouri River.

### 4 TECHNICAL MERIT OVERVIEW

#### 4.1 Technical Solution

The MHA Nation team is proposing development of an overall plan that leads to a technical solution that leverages several of the noted eligible projects identified by the Department of Transportation to improve the lives of the MHA peoples. The solution addresses coordinated automation, sensors, systems integration, delivery/logistics, and innovative aviation.

The Nation has identified an immediate need to provide essential medical services to its citizens through utilization of UAS. The Nation has previously worked with UND to explore this opportunity. The next step is expansion of partnerships to identify all relevant use cases/operations and development of a detailed implementation plan that considers all aspects in this endeavor, including additional use cases, impacts/benefits, economic impacts and viability, workforce requirements, and regulatory and technical implementation requirements.

The state of North Dakota, led by the Northern Plains UAS Test Site, has been developing the Vantis network—a first of its kind Beyond Visual Line of Sight (BVLOS) network that enables a broad set of use cases. The logical step is to expand the operational volume of Vantis to enable drone services within the boundaries of the Nation. This technical solution will require installation of additional ground-

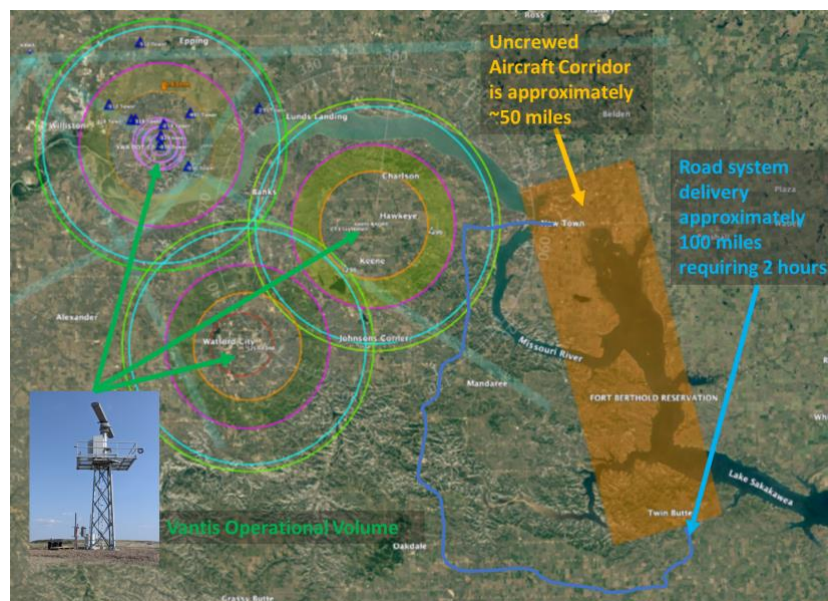


Figure 1. MHA Nation in proximity to Vantis BVLOS infrastructure coverage volumes.

based radar systems, secure communications devices to connect the Uncrewed Aircraft (UA) to the network, and a mission planning/community portal for flight planning and management. The area of proposed operations is currently outside of the Vantis coverage area as shown in **Error! Reference source not found.**

#### ***4.1.1 Components of the Technical Solution***

The MHA team's technical approach leverages FAA approved technology for the detection and tracking of aircraft and for communicating with a drone to ensure safe operations. Drone operators use a commercially proven tool to ensure reliability and safety. The Vantis mission and network operations center located in Grand Forks, ND, would oversee missions and ensure that the safety of the airspace and those on the ground will not be negatively impacted by flights.

MHA is confident that expansion of the services across the Nation, coupled with a UAS operator with a demonstrated track record of medical supply delivery with an air carrier certification will enable scalable, routine BVLOS operations. Improving the lives of our people to get critical medical supplies and equipment to underserved areas is within reach when we are selected for the DOT Smart Grant. This Stage I opportunity would enable the Nation to identify the proper use cases and operational locations and support infrastructure to ensure that deployment of Vantis-based systems in the Nation provides the needed benefits for its people and long-lasting, sustainable benefits.

#### **4.2 Technical Readiness Level**

The technical solution [that will be incorporated in Stage 2](#) is at Technology Readiness Level (TRL) 8. Vantis services are currently being used to support BVLOS operations in western North Dakota.

#### **4.3 Repeatability and Scalability of Solution**

Using drones to deliver supplies is not a new or novel concept in the US national airspace system. What is new is the desire for MHA nation to move towards a repeatable, scalable process to first fly short distances demonstrating the safety of the operation, and then expand operations to bring much-needed help and access for those who might otherwise not receive it in a timely manner. This is the ultimate opportunity to collaborate with industry and university partners to bring much needed services to the people of MHA nation. Once approvals are received from the FAA for these operations using Vantis technology, MHA will work with its partners to qualify the needs of other areas across the Nation where similar services can be implemented.

#### **4.4 Improving the Status Quo**

As shown in **Error! Reference source not found.**, creating and allowing MHA to provide drone services within the corridor depicted will dramatically improve the status quo. Drone delivery represents an opportunity to get vital supplies--in some cases life-saving supplies--to our people in a fraction of the time it would take using traditional, roadway-based transportation. The DOT has created an opportunity via the SMART Grant that will help to expedite use cases that would have otherwise taken many more years to realize.

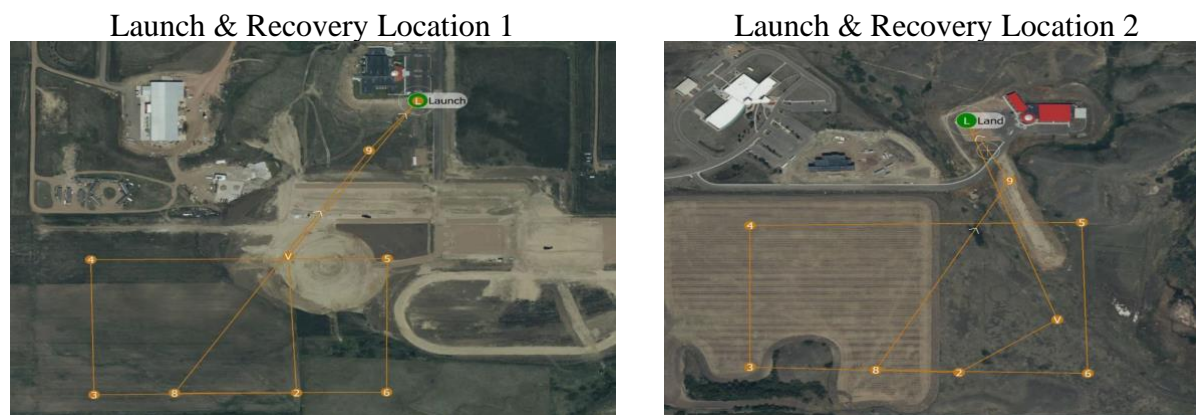
#### **4.5 Appropriateness of the Solution for MHA Nation**

The MHA nation is cognizant that providing services through BVLOS drone flights is not fully commercialized. The locations where we are proposing providing drone services (e.g., Figure 2) produce very little risk to the broader national airspace system or to the sparsely populated areas where we will be operating. The existing road transportation system and often inclement weather



does not allow for us to reach our people in need in a timely manner. It does provide an appropriate method for the nation to work with UND, NPUASTS, its partners and the DOT to help bring much needed health and human services to our people. We do not advocate for commercial operations at the onset, but, believe that taking an approach where we can prove missions between short distances and then expand the range and locations as we, and the DOT/FAA, validate the safety and security of what we are accomplishing.

We recognize that starting with the DOT planning phase will allow us to develop the needed partnerships, identify and prioritize use cases, identify the locations for needed infrastructure, and combine these into an implementation plan with robust metrics for moving into a Stage 2 effort.



*Figure 2—Possible launch and recovery locations.*

We recognize that starting with the DOT planning phase will allow us to develop the needed partnerships, identify and prioritize use cases, identify the locations for needed infrastructure, and combine these into an implementation plan with robust metrics for moving into a Stage 2 effort.

## **5 PROJECT READINESS REVIEW**

### **5.1 Feasibility of Workplan**

Figure 3 illustrates the project workplan, which is divided into four primary components—project management, implementation plan, workforce development, and prototyping. The project management component includes project kick-off, quarterly reports, development of the Evaluation and Data Management Plan, and regular (at least) bi-weekly team meetings (not shown figure neatness). The latter ensure that tasks stay on time and that milestones are being met.

The implementation plan has numerous subtasks, with CONOPS, Draft Implementation Plan, Approved Safety Case, and Final Implementation Plan as deliverables. Primary components of the Implementation Plan include (lead organizations are identified in parentheses):

- CONOPS development, driven by identification of partners (MHA, UND, Airspace Link) and evaluation of stakeholder needs (MHA, UND, Thales, Airspace Link) that lead to development of use cases (Team), and delineation of requirements (Team) and identification of infrastructure requirements (Team).
- Cost/benefit analysis that evaluates feasibility and sustainability, including providing insights into workforce development requirements (UND, MHA).

- Development of a safety case that enables initial flights over increasing distances that support expansion to full BVLOS operations through provision of data that enables FAA approval (NPUASTS, Thales).

The workforce development plan includes:

- Close engagement with stakeholders (MHA, UND) to identify workforce needs, including creation off high-quality jobs that are inclusive and enable rapid growth in this sector
- Exploration of agreements that enable establishment of a training program at the Nation (MHA, UND)
- Implementation of a prototype training program (MHA, UND)

The Prototyping phase includes:

- Establishment of infrastructure (NPUASTS, Thales)
- Test flights (NPUASTS)

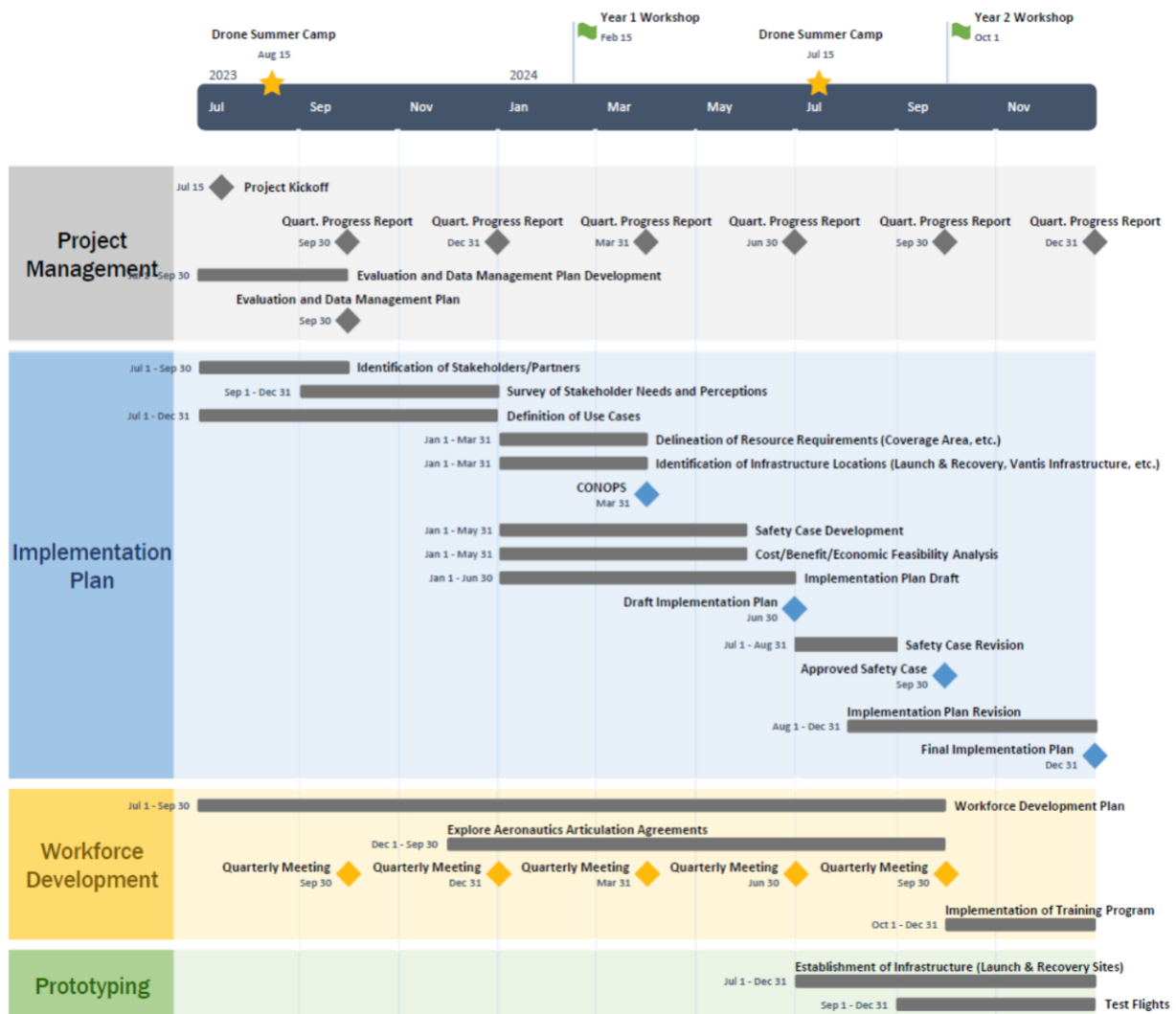


Figure 3—18 month workplan.

## 5.2 Community Engagement and Partnerships

This team will develop a plan to expand workforce capacity in aeronautics among MHA tribal members through a partnership between the University of North Dakota (UND), the Nueta, Hidatsa, Sahnish College, and the Northern Plains Unmanned Aerial System Test-Site and their partners to include Thales and Airspace Link. This will include both education and training and funding to participate in the planning of the current and future student population.

For example, the Boys and Girls Club at MHA Nation has agreed to co-sponsor a “drone camp” at the Earth Lodge Village each summer of the award to not only celebrate heritage but experience learning about aeronautics and the use of drones. Additionally, NHS College members and faculty and Boys and Girls Club Members can participate in a use case.

## 5.3 Leadership and Qualification (Team)

The lead applicant is MHA, with key partners being UND, the NPUASTS, Thales, and Airspace Link. The team has deep expertise in each of the primary task areas (project management, implementation plan, workforce development, and prototyping). This includes (organizations identified in parentheses):

- An understanding of processes for developing partnerships and identifying use cases provided (MHA, UND).
- Expertise in developing CONOPS, safety cases, and implementation of UAS operations (NPUASTS, Thales, and Airspace Link)
- Expertise in evaluating impacts and economic feasibility and sustainability (UND)
- Expertise in developing workforce development programs (UND)

Table 2 provides a high-level summary of key project personnel. Additional information regarding key team members is provided in Appendix I.

*Table 2: High-level summary of key project personnel.*

<b>Organization</b>	<b>Personnel</b>	<b>Core Function</b>
Nueta Hidatsa Sahnish (NHS) College	Kerry Hartman	PI/PD
MHA Nation/NHS	To be Identified	Program Management
University of North Dakota	Thomasine Heitkamp	Co-PI - Project Coordination and Workforce Development
University of North Dakota	Mark Askelson	Co-PI - Industry Coordination & Collaboration
University of North Dakota	David Flynn	Assessment and Sustainability
Thales	Frank Matus	Coordinator of BVLOS
Northern Plains UAS Test Site	Trevor Woods	Flight Safety Lead
Airspace Link	Greta Silewski	Community Engagement, Partnerships, & Digital Infrastructure



<p><b>Kerry Hartman, Ph.D. <a href="mailto:khartman@nhsc.edu">khartman@nhsc.edu</a></b>  <b>Nueta Hidatsa Sahnish College, (NHS College)</b>  <b>220 8<sup>th</sup> Avenue East, New Town, ND 58763</b>  <b>Role on MHA Drone Project: Project Director/PI</b></p>
<p><b>EDUCATIONAL BACKGROUND:</b> <i>*Ph.D., Biological Sciences</i>, South Dakota State University 2009, <i>*Master of Science (MS) in Counseling and Guidance</i>, University of Illinois Urbana, 1975, <i>*Bachelors Associates: Pre-Medicine</i>, University of Illinois Urbana, 1973.</p> <p><b>LEADERSHIP ROLES:</b> 1982-Present at Nueta Hidatsa Sahnish College (NEHS). Served as <i>*Interim President</i>, <i>*Academic Dean</i>, <i>*Chair of the Science Department</i>, <i>*Instructor of Math and Science</i></p> <p><b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Spearheaded Environmental Science Degree at NHS College</i>, <i>*Trainer and Organizer of STEM Culture Camp</i>, <i>*Extensive student mentorship on environmental wellbeing at MHA Nation</i>, <i>*Publications include:</i> Hartman, Kerry, <b>Reestablishing the Juneberry on the Fort Berthold Indian Reservation: Cultural, Horticultural, and Educational Connections:</b> South Dakota State University, Shimara Gunawardana, Keeli Eberhart, Kerry Hartman and Fathi T. Halaweish, <i>* Assessment of Chemopreventive Contents of Native American Juneberries</i> (Amelanchier alnifolia (Nutt.) Nutt. ex M. Roem.) Pharmaceutical Crops, 2016, 6, 13-21 3. Jamileh Shojaeiarani, Dilpreet S. Bajwa, Kerry Hartman, <b>Esterified Cellulose Nanocrystals as Reinforcement in Poly(lactic acid) Nanocomposites;</b> Cellulose pp 1–14</p>
<p><b>Thomasine L. Heitkamp LCSW, (ND - #137) <a href="mailto:thomasine.heitkamp@und.edu">thomasine.heitkamp@und.edu</a></b>  <b>Chester Fritz Distinguished Professor Emeritus/Behavioral Health Research Specialist</b>  <b>University of North Dakota, Grand Forks, ND 58202</b>  <b>Role on MHA Drone Project: Co-PI - Project Coordination and Workforce Development</b></p>
<p><b>EDUCATIONAL BACKGROUND:</b>  <i>*Master of Science in Social Work (MSSW)</i>, University of Wisconsin, Madison, WI, 1980,  <i>*Bachelor of Science in Social Work (BSSW)</i>, University of North Dakota, Grand Forks, ND, 1975.</p> <p><b>EMPLOYMENT:</b> University of North Dakota (UND), 1983 – 2021 <b>tenured faculty members. Leadership Roles:</b> <i>*Behavioral Health Research Specialist</i>, <i>*Principal Investigator</i> 10 million in external grant funds from the U.S. Dept of Health and Human Services, <i>* Associate Provost</i>, <i>*Chair of the Department of Graduate Nursing</i>, <i>*Chair of the Department of Social Work</i>, <i>*Coordinated Distance and Outreach Education to Advance Workforce</i></p> <p><b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Coordinated Test of Drone Delivery of Medications at Mandan Hidatsa and Arikara Nation</i>, <i>*Coordinated the first online distance social work education program in the U.S. serving rural and tribal communities</i>, <i>*Partnered with Turtle Mountain Community College and Sitting Bull College</i> to offer undergraduate social work degrees with a publication in Journal of American Indian Education (2015), <i>*Administered Title 4-E funding from Children’s Bureau</i> to advance child welfare workforce in tribal communities, <i>*Coordinated the AmeriCorps *VISTA project</i> with to advance workforce in tribal communities, <i>*Great Plain Tribal Leadership Board</i> consultation conducted assessment activities publication in Journal of Addiction Nursing (2022).</p>

<p><b>Mark A. Askelson, Ph.D., <a href="mailto:mark.askelson@und.edu">mark.askelson@und.edu</a></b>  <b>Associate Vice President for Research—National Security</b>  <b>University of North Dakota, Grand Forks, ND 58202</b>  Role on MHA Drone Project: Co-PI - Industry Coordination &amp; Collaboration</p>
<p><b>EDUCATIONAL BACKGROUND:</b><i>*Ph.D. in Meteorology</i>, University of Oklahoma, Norman, OK, 2002, <i>*M.S. in Meteorology</i>, University of Oklahoma, Norman, OK, 1996 <i>B.S.M.S. (Meteorological Studies) and B.S. in Mathematics (Statistics Concentration)</i>, University of North Dakota (UND), Grand Forks, ND, 1993.</p> <p><b>EMPLOYMENT:</b><i>*Associate Vice President for Research—National Security</i>, UND, 2022-Present, <i>*Executive Dir., Research Institute for Autonomous Systems (RIAS)</i>, UND, 2019-2022, <i>*Assoc. Dean of Res., John D. Odegard School of Aerospace Sciences</i>, UND, 2020-2022, <i>*Interim Executive Director, *RIAS</i>, UND, 2017-2019, <i>*Professor, Dept. of Atmospheric Sciences</i>, UND, 2014-2022, <i>*Associate Professor, Dept. of Atmospheric Sciences</i>, UND, 2006-2014, <i>*Assistant Professor, Dept. of Atmospheric Sciences</i>, UND, 2001-2006</p> <p><b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Coordinated Test of Drone Delivery of Medications at Mandan Hidatsa and Arikara Nation,</i>  <i>*Pioneered use of ground-based radar for Beyond Visual Line of Sight UAS operations,</i>  <i>*Led/leads numerous UAS projects, including multi-million-dollar projects</i></p>
<p><b>Trevor Woods, <a href="mailto:tjwoods@nd.gov">tjwoods@nd.gov</a></b>  <b>Executive Director</b>  <b>Northern Plains UAS Test Site, Grand Forks, ND 58202</b>  Role on MHA Drone Project: Flight UAS Safety Lead</p>
<p><b>EDUCATIONAL BACKGROUND:</b><i>*Master of Business Administration</i>, University of North Dakota Grand Forks, ND, 2017, <i>*B.B.A., Aviation Management</i>, University of North Dakota, Grand Forks, ND, 2008</p> <p><b>EMPLOYMENT:</b> <i>*Executive Director</i>, Northern Plains UAS Test Site, Jan. 2022-Present <i>Director of Safety</i>, Northern Plains UAS Test Site, 2017-2022, <i>*Director of Operations</i>, Northern Plains UAS Test Site, 2015-2017, <i>*UAS Lead Instructor</i>, University of North Dakota, 2011-2015, <i>*Assistant UAS Chief Pilot</i>, Grand Forks Sherriff's Department, 2011-2017</p> <p><b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Served as the Lead in the FAA's BVLOS ARC Working Group 2.1, *Led the test site participation in the FAA's IPP, now FAA's BEYOND program, *Served as liaison between North Dakota and FAA for obtaining regulatory approvals, *Supported the development and original concept for Vantis - ND's UAS Network, *Supported advancements in C2 and DAA technologies and BVLOS operations.</i></p>

<p><b>Frank Matus</b> <a href="mailto:frank.matus.e@thalesdigital.io">frank.matus.e@thalesdigital.io</a>  <b>Director, ATC &amp; Digital Aviation Solutions</b>  <b>Thales, Fargo, North Dakota</b>  Role on MHA Drone Project: Systems Integrator</p>
<p><b>EDUCATIONAL BACKGROUND:</b> <i>*Executive Masters in Business Administration (eMBA)</i>, Quantic School of Technology, 2021, <i>*B.A. in Political Science</i>, Syracuse University, Maxwell School of Public Affairs &amp; Citizenship, 2000  <b>EMPLOYMENT:</b> <i>*Director, ATC &amp; Digital Aviation Solutions</i>, Thales USA, Inc, 2010 – Present, <i>*Director Asia-Pacific Business Development</i>, Sensis Corporation, 2000 - 2010  <b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Lead the business responsible for the North Dakota Beyond Visual Line of Sight Infrastructure and Services Platform – Vantis</i>, <i>*Global expert on uncrewed aircraft systems integration</i>, <i>*Oversee BVLOS integration projects for Grand Sky Business Park for General Atomics</i>, <i>*Oversee BVLOS programs in other States including New York, Texas, Michigan, and North Carolina</i>, <i>*Working Group Chairman for the ATCA Blue Skies Initiative reimagining the US National Airspace System</i>, <i>*Lead operations teams working with NPUASTS in applications for P107 and 91.113 Waiver applications with the FAA</i>, <i>*Participated in several global aviation technology and policy advancements around surveillance and tower automation technologies including Automatic Dependent Surveillance Broadcast (ADS-B) in Australia and Capstone Program in Alaska; multilateral deployments in Asia-Pacific, and tower modernization across 28 Air Traffic Control Towers in Australia</i>, <i>*Led the Thales business team in the deployment and successful data communications trials activities under the DataComm Trial Automation Platform at Memphis and Newark International Airports</i></p>
<p><b>Greta Silewski</b> <a href="mailto:greta.silewski@airspacelink.com">greta.silewski@airspacelink.com</a>  <b>Account Director—North Dakota Airspace Link, Grand Forks, ND 58202</b>  Role on MHA Drone Project: Community Engagement, Partnerships, &amp; Digital Infrastructure</p>
<p><b>EDUCATIONAL BACKGROUND:</b> <i>*B.S. in Graphic Design Technology</i>, University of North Dakota, Grand Forks, ND, 2012, <i>*B.S. in Entrepreneurial Studies</i>, University of North Dakota, Grand Forks, ND, 2012  <b>EMPLOYMENT:</b> <i>*Account Director—North Dakota</i>, Airspace Link, 2022-Present, <i>*Public Affairs Manager</i>, City of Grand Forks, 2020-2022, <i>*Communications Specialist</i>, City of Grand Forks, 2018-2020, <i>*Marketing and Events Coordinator</i>, Downtown Development Association, 2017-2018  <b>RELATED EFFORTS/EXPERIENCE:</b>  <i>*Led COVID-19 Communication Efforts for the City of Grand Forks</i>, <i>*Liaison to NFI (New American, Foreign Born, and Immigrant) Advisory Board, assisting state agencies on behalf of the new American community</i>, <i>*Assisted in organizing and launching a mental health resource awareness campaign in Grand Forks, ND</i>, <i>*Managed and led engagement strategies and policies representing City Administration and institutional partners.</i></p>

## **PROJECT BUDGET NARRATIVE**

**Organization: MHA Nation (project lead)**

**PI Name: Kerry Hartman**

**Sponsor: US DOT**

MHA Nation is submitting a project budget for the proposed project titled “MHA Nation Drone Project: Planning and Protocol Development”, for a time period of 18 months. Salary amounts are based on actual salaries, and personnel indicated here are appointed on a calendar year basis.

### **PERSONNEL COSTS**

MHA Nation requests funds to support one PI/PD, and two senior personnel.

#### **SENIOR PERSONNEL**

Kerry Hartman serves as the PI of the proposed project. His salary support constitutes 6 calendar months in Year 1 (Y1) and 3 calendar months in Year 2 (Y2). The amount requested for his salary is \$90,000.

#### **OTHER PERSONNEL**

A full time Program Manager (TBD) and Tribal College Liaison are also included in the budget. The amount requested for the Program Manager is \$105,000 and for the Tribal College Liaison is \$105,000.

Total personnel cost is \$300,000.

#### **FRINGE BENEFITS**

Amounts shown for fringe benefits are estimated from historical data and are provided for proposal evaluation purposes. Actual fringes will be charged to the grant according to each employee’s actual benefits. Fringe benefits are estimated at 30%, resulting in a total estimated fringe of \$90,000.

### **NON-PERSONNEL COSTS**

#### **SUBCONTRACTS**

Funding in the amount of \$139,640 is requested for the Nueta Hidatsa Sahnish College. Details regarding these expenses are provided in the respective section of the budget narrative. Funding in the amount of \$1,244,505 is requested for the University of North Dakota. Details regarding these expenses are provided in the respective section of the budget narrative.

Total subcontract cost is \$1,384,145.

**TRAVEL**

We ask for travel support to allow the project team to travel to a project meeting in Grand Forks, North Dakota. Travel support is requested in Y1 for an amount of \$2,374.

**EQUIPMENT**

No equipment is requested.

**MATERIALS and SUPPLIES**

No materials and supplies are requested.

**OTHER DIRECT COSTS**

Drone Camps Refreshments – \$1500 is requested for each of the (2) drone camps for food/refreshments for attendees. Total request is \$3000.

Professional Fees—Industry Drone Operator – A total of \$30,000 is requested to support flight tests.

**TOTAL DIRECT COSTS**

\$1,809,519

**INDIRECT COSTS**

MHA has an approved indirect cost rate of 32.99%. This is applied this rate to modified direct costs (total direct costs excluding equipment and subcontractors' costs over the first \$25,000). Therefore, the total indirect costs are \$156,826.

**Total PROJECT COSTS: Total project costs, including subaward costs are \$1,966,345.**



**Organization: Nueta Hidatsa Sahnish College (subcontract to MHA)**

### **PERSONNEL COSTS**

Nueta Hidatsa Sahnish College (NHSC) requests funds to support two graduate students.

#### **SENIOR PERSONNEL**

Support for senior personnel is not required for NHSC.

#### **OTHER PERSONNEL**

Support for two full time graduate students, who will support workforce development, implementation, and other tasks as appropriate, is requested at a rate of \$30,000 yr<sup>-1</sup> for the project period (18 months)

Total personnel cost is \$90,000.

#### **FRINGE BENEFITS**

Amounts shown for fringe benefits are estimated from historical data and are provided for proposal evaluation purposes. Actual fringes will be charged to the grant according to each employee's actual benefits. Fringe benefits for students are estimated at 10%, resulting in a total estimated fringe of \$9,000.

### **NON-PERSONNEL COSTS**

#### **SUBCONTRACTS**

NHSC is not requesting support for subcontracts.

#### **TRAVEL**

We ask for travel support to allow the students to travel to a project meeting in Grand Forks, North Dakota and to support travel to support field work and possible presentation of results at relevant meetings/conferences. Travel support is requested in Y1 for an amount of \$4,000 and Y2 for an amount of \$2,000. The total travel request is \$6,000.

#### **EQUIPMENT**

No equipment is requested.

#### **MATERIALS and SUPPLIES**

No materials and supplies are requested.

#### **OTHER DIRECT COSTS**

No other direct costs are requested.

#### **TOTAL DIRECT COSTS**

\$105,000

## **INDIRECT COSTS**

NHSC has an approved indirect cost rate of 32.99%. This is applied this rate to modified direct costs (total direct costs excluding equipment and subcontractors' costs over the first \$25,000). Therefore, the total indirect costs are \$34,640.

**Total PROJECT COSTS: Total project costs, including subaward costs are \$139,640.**

**Organization: University of North Dakota (subcontract to MHA)**  
**PI Name: Thomasine Heitkamp**

### **PERSONNEL COSTS**

The University of North Dakota (UND) requests funds to support one PI/PD, and Co-PI.

#### **SENIOR PERSONNEL**

Thomasine Heitkamp serves as the PI of the proposed project. Her salary support constitutes 6 calendar months in Year 1 (Y1) and 3 calendar months in Year 2 (Y2). The amount requested for her salary is \$90,000.

Mark Askelson and David Flynn serve as Co-PIs for this effort. For Dr. Askelson, we request 0.6 months of support for Askelson in Y1 and 0.3 months in Y2. For Dr. Flynn, we request 2.4 months in Y1 and 1.2 months in Y2. The support amount for Dr. Askelson is \$13,500 and for Dr. Flynn is \$54,900.

#### **OTHER PERSONNEL**

Support for a half-time Program Manager (PM) from the Research Institute for Autonomous Systems (RIAS) and a Co-I from the Business School is requested. The RIAS PM support is for 9 total calendar months and is \$42,471. The Co-PI support is for 1.2 person months of support in the first year for \$17,000.

Full support for three graduate research assistants is requested at \$30,000 yr<sup>-1</sup>, resulting in total student support of \$135,000.

Total personnel cost is \$352,871.

#### **FRINGE BENEFITS**

Amounts shown for fringe benefits are estimated from historical data and are provided for proposal evaluation purposes. Actual fringes will be charged to the grant according to each employee's actual benefits. Fringe benefits are estimated at 30% for faculty and 10% for students, resulting in a total estimated fringe of \$74,361.

### **NON-PERSONNEL COSTS**

#### **SUBCONTRACTS**

Funding in the amount of \$600,000 is requested for the Northern Plains UAS Test Site (NPUASTS). Details regarding these expenses are provided in the respective section of the budget narrative.

Total subcontract cost is \$600,000.

## TRAVEL

We ask for travel support for the following:

- Twice a month trips to New Town, ND (from Grand Forks), for PI Heitkamp and the RIAS PM resulting in 36 trips.
  - Per Diem—3 days per trip and 6 person days for each trip for a total of 216 days of per diem:  $216 \times \$46/\text{day} = \$9,936$
  - Hotel—Assume 2 nights per trip with two people resulting in 4 person nights per trip and a total of 144 person nights:  $144 \times \$140/\text{night} = \$20,160$
  - Vehicle—State fleet minivan for 36 trips at 600 miles/trip + 3 trips additional 180 miles for travel to Twin Buttes:  $36 \times 600 \times \$0.473/\text{mile} + 3 \times 180 \times \$0.473/\text{mile} = \$10,472$ .
  - Total: \$40,568
- Askelson 3 trips to New Town, ND.
  - Per Diem—3 days per trip for a total of 9 days of per diem:  $9 \times \$46/\text{day} = \$414$
  - Hotel—Assume 2 nights per trip resulting in a total of 6 person nights:  $6 \times \$140/\text{night} = \$840$
  - Vehicle—State fleet sedan for 3 trips at 600 miles/trip:  $3 \times 600 \times \$0.383/\text{mile} = \$689$ .
  - Total: \$1,943
- Dr. Hansen travel to New Town, ND, in Y1.
  - Approximated as \$4090
- RIAS travel for drone camps:
  - As with Askelson, but for 2 trips and 2 persons: \$2592

Travel total is: \$49,193

## EQUIPMENT

No equipment is requested.

## MATERIALS and SUPPLIES

Supplies for drone camps are requested at a total of \$2,000 (\$1,000 per camp).

## OTHER DIRECT COSTS

No other direct costs are requested.

## TOTAL DIRECT COSTS

\$1,078,425

## INDIRECT COSTS

UND has approved an indirect cost rate for this proposal of 32.99%. This is applied this rate to modified direct costs (total direct costs excluding equipment and subcontractors' costs over the first \$25,000). Therefore, the total indirect costs are \$166,080.

**Total PROJECT COSTS: Total project costs, including subaward costs are \$1,244,505.**

## **Organization: Northern Plains UAS Test Site (subcontract to UND)**

Northern Plains UAS Test Site is submitting a project budget for the proposed project titled “MHA Nation Drone Project: Planning and Protocol Development”, for a time period of 18 months. Salary amounts are based on actual salaries, and personnel indicated here are appointed on a calendar year basis.

### **PERSONNEL COSTS**

Northern Plains UAS Test Site requests funds to support Project Managers, Regulatory and Policy Managers, and Executive Leadership.

#### **SENIOR PERSONNEL**

The Executive Director at Northern Plains UAS Test Site will provide support for monthly meetings with tribal leaders, local and state government officials. His salary support constitutes .6 calendar months in Year 1 (Y1) and .4 calendar months in Year 2 (Y2). The amount requested for his salary is \$14,908.

The Director of Research and Development at Northern Plains UAS Test Site will provide support for monthly meetings, feasibility report writing, and executive leadership. His salary support constitutes 1 calendar month in Year 1 (Y1) and 1 calendar month in Year 2 (Y2). The amount requested for his salary is \$15,634.

#### **OTHER PERSONNEL**

Northern Plains UAS Test Site is requesting funding support for two Project Managers who will attend meetings, track project deliverables, and assist with project planning. Their salary support constitutes 6 calendar months in Year 1 (Y1) and 2 calendar months in Year 2 (Y2). The amount requested for their salary is \$26,732.

Northern Plains UAS Test Site is requesting funding support for two safety personnel and regulatory/policy managers. They will work to define the regulatory pathway and safety case. Their salary support constitutes 5 calendar months in Year 1 (Y1) and 2 calendar months in Year 2 (Y2). The amount requested for their salary is \$41,592.

Northern Plains UAS Test Site is requesting funding support for administrative personnel. She will be responsible for invoicing, travel reservations and other administrative tasks. The salary support constitutes 1 calendar month in Year 1 (Y1) and 1 calendar month in Year 2 (Y2). The amount requested is \$3,902.

Total Personnel Cost: \$103,491



## FRINGE BENEFITS

Fringe benefits are requested to cover paid time off for employees, payroll taxes, and healthcare insurance. The Northern Plains UAS Test Site fringe benefits are estimated at 45% to account for individual task items with varying staff fringe rates. Actual fringe benefits will be charged to the project. The estimated fringe benefits are \$46,569.

## CONSULTANTS

No consultants are requested

## NON-PERSONNEL COSTS

### TRAVEL

We ask for travel support for the following:

- Once a month trips to New Town, ND (from Grand Forks), for two members of the Northern Plains UAS Test Site resulting in trips.
  - Per Diem—3 days per trip and 6 person days for each trip for a total of 108 days of per diem:  $108 \times \$46/\text{day} = \$4,968$
  - Hotel—Assume 2 nights per trip with two people resulting in 4 person nights per trip and a total of 72 person nights:  $72 \times \$140/\text{night} = \$10,080$
  - Vehicle—State fleet for 18 trips at 600 miles/trip:  $18 \times 600 \times \$0.473 = \$5,108.4$
  - 1 additional trip for a kickoff meeting
    - Per Diem – 6 person days  $\times \$46/\text{day} = \$276$
    - Hotel – 4 person nights  $\times \$140/\text{night} = \$560$
    - State Fleet – 600 miles  $\times .473 = \$283.8$

Travel total is: \$21,276

### EQUIPMENT

No equipment is requested

### MATERIALS and SUPPLIES

We ask for funding support to cover the following materials and supplies:

Item	Description / Need	Cost Per Item	Number of Items	Cost
Office Supplies	Duplicating, coping, binders, postage for project			\$485.00

The total cost of materials and supplies is \$485.00

**OTHER DIRECT COSTS**

Funding in the amount of \$355,000 is requested for the Thales and Airspace Link. Details regarding these expenses are provided in the respective section of the budget narrative.

**TOTAL DIRECT COSTS**

\$526,821

**INDIRECT COSTS**

Northern Plains UAS Test Site has approved an indirect cost rate for this proposal of 32.99%. This is applied to modified direct costs (total direct costs excluding equipment and subcontractors' costs over the first \$25,000). Therefore, the total indirect costs are \$73,179.

**TOTAL INDIRECT COSTS**

\$73,179

**Total NPUASTS: Total project costs, including subaward costs are \$600,000**

**Organization: Thales (subcontract to NPUASTS)**

**Thales will provide services that will cover the following tasks:**

- Assisting MHA in the planning and coordination of the establishment of BVLOS operations between discrete locations within the nation;
- Providing technical and programmatic insight on the drone corridor implementation as well as identifying and targeting use cases within the corridor that are repeatable, scalable, and economically viable

**Thales will dedicate the following personnel:**

- Technical & Operational Expert
- Senior Engineer
- Staff Engineer
- Operations Specialist

Total funding support requested for Thales is \$105,000. This cost will cover personnel costs, travel costs, software costs, and indirect costs.

**Organization: Airspace Link (subcontract to NPUASTS)**

**Airspace link will provide services that will cover the following tasks:**

- Serve as a liaison between MHA & NPUASTS (Vantis) to do community planning to reduce the risk of drone operations over communities within the nation;
- Tailor the Vantis AirHub portal to engage with UAS operators for mission planning;
- Work with MHA, NPUASTS and emergency services community to plan routes for medical supply delivery by investigating ground risk profiles;
- Contribute to the CONOPS and assist the drone operator in the waiver process for BVLOS flights

**Airspace link will dedicate the following personnel:**

- Account Director - Business Development
- UAS Solutions Architect
- Geospatial Solutions Architect
- Geospatial Analyst
- Geospatial Solutions Engineer

Total funding support requested for Airspace link is \$250,000. This cost will cover personnel costs, travel costs, software costs, and indirect costs.



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NUETA HIDATSA SAHNISH COLLEGE

MANDAN HIDATSA ARIKARA NATION

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Twyla Baker, Ph.D  
President

P.O. Box 490, 220<sup>th</sup> 8<sup>th</sup> Ave. N.  
New Town, ND 58763-0490  
P: 1(701)627-8095  
F: 1(701)627-3609  
[www.nhsc.edu](http://www.nhsc.edu)

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November 16, 2022

Dear Secretary Buttigieg,

I am writing this letter of commitment on behalf of Nueta Hidatsa Sahnish (NHS) College, which serves as a public Tribal land-grant college that is chartered by the Three Affiliated Tribes of the Fort Berthold Reservation. We are committed to working with the MHA Drone Project on behalf of the submission by the Mandan Hidatsa and Arikara Nation, Three Affiliated Tribes, to the Department of Transportation for SMART grant dollars.

To support the project and we are committed to the following activities as a sub-awardee:

1. Providing the expertise of a Program Director and Program Managers for the MHA Drone Project. These efforts will support the planning and protocol development relative to advancing the delivery of needed goods and services using drone technology.
2. Supporting Tribal governance in government-to-government relationship building.
3. Supporting academic and public partnerships that create career pathways in research and aeronautics. The proposal is aligned with our mission of enhancing the quality of life for the Three Affiliated Tribes.
4. Advancing and supporting community outreach efforts to include expanding the use of drone technology.
5. Leveraging the depth and breadth of our faculty and staff to ensure strong deliverables. NHS College currently has the capacity in workforce development, education, and training for academic institutions (UND and NHS College) to work together in a meaningful manner to accomplish an important goal of advancing research capacity among students at both institutions.
6. Partnering with the Boys and Girls Club of MHA Nation to offer a drone camp. NHS College currently offers a science camp at the Earth Lodge Village and this will be an excellent addition with a robust focus on technology. I value the aim of the project to create a career pathway for workforce development in aeronautics to ensure autonomy in drone delivery for MHA Nation. This includes expanding efforts to support beyond visual line-of-sight planning on our Tribal lands.

The commitment from NHS College is a high impact given that key personnel are located at the College in New Town, ND which is the center of Tribal government. We will offer key resources to support and assist with team building and infrastructure development for the Stage 1 Planning

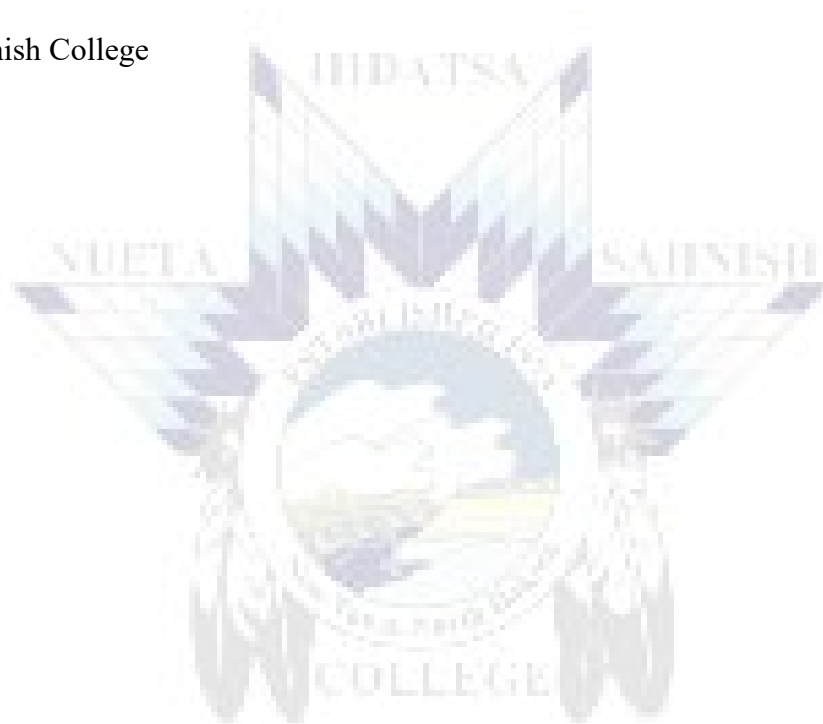
and Prototyping process. We are committed to advancing equity to improve the lives of members of our Tribal Nation.

In conclusion, I hope the Department of Transportation will look favorably upon this request. It is unique in the capacity to bring public, private, Tribal, academic, and industry partners together to offer a process that would be groundbreaking in our Tribal Nation and a blueprint for other Tribal communities. Do not hesitate to reach out with any questions at [tbaker@nhsc.edu](mailto:tbaker@nhsc.edu).

Respectfully,



Twyla Baker, Ph.D.  
President  
Nueta Hidatsa Sahnish College





**Office of the President**

Twamley Hall, Room 300  
264 Centennial Dr Stop 8193  
Grand Forks, ND 58202-8193  
Phone: 701.777.2121  
Fax: 701.777.3866

November 16, 2022

Secretary Pete Buttigieg  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Secretary Buttigieg:

I am writing this letter on behalf of the University of North Dakota, a public research institution of higher learning in North Dakota. We are fully committed to working with the Mandan Hidatsa and Arikara Nation, Three Affiliated Tribes of the Fort Berthold Reservation, on the proposed MHA Drone Project.

To support the project and its partners, the University of North Dakota (UND) is committed to the following activities:

Providing resources to support and assist with team building and infrastructure development for the Stage 1 Planning and Prototyping process to advance technology, equity, and access to needed health and safety support on these tribal lands. UND will provide training and technical assistance, conduct research and policy analysis, ensure collaboration, support team partnerships, and expand workforce capacity. We will collaborate with industry partners in expanding the capacity to fly beyond the visual line of sight.

The commitment from UND is as follows:

1. Provide expertise from faculty and staff at the *UND Research Institute on Autonomous Systems (RIAS)*. RIAS is a global leader in unmanned and autonomous systems research, application, and policy development. Their mission is aligned with the project's aim to serve rural and tribal communities to expand access to goods and services using drone delivery. RIAS also works collaboratively with the *Northern Plains Unmanned Aircraft Systems Test Site (NPUASTS)* which works in collaboration with many industry partners who have agreed to serve as critical stakeholders on this project. The partnership with NPUASTS is critical to pursuing approvals from the Federal Aviation Administration to prepare for flights. We will also partner in hosting a summer drone camp at the Earth Lodge Village in New Town, ND.

2. Provide expertise from the *UND Office of Research and Economic Development* staff to serve as a liaison between the University of North Dakota and MHA Nation in planning and protocol development. This will include expanding economic development opportunities and working collaboratively on research and aeronautics training and education. The goal is a partnership with Nueta Hidatsa and Sahnish (NHS) College to expand workforce capacity.
3. Provide expertise from the *UND Institute of Policy and Business Analytics* with faculty and staff who will be a value add to the MHA Drone Project. Their mission aligns with the focus of this project to conduct research that serves the region and state and provides educational opportunities that enhance public outreach and engagement. The opportunity for research collaboration between students at UND and NHS College can serve as a future model. The effort will advance a greater understanding of the policy implications of drone use on tribal lands.

The commitment by UND will support several critical deliverables as part of the UND sub-contract in the work plan. The proposed work plan will lead to a substantive model for all components and processes to enable drone delivery via beyond-visual-line-of-sight architecture on tribal lands. I note in the budget, extensive travel to MHA Nation among UND faculty and staff identified in the project. Travel and face-to-face interaction are critical as this collaboration must be culturally responsive and demonstrate a meaningful partnership to be successful. This is a new endeavor for UND.

In conclusion, it is my sincere wish that the Department of Transportation will look favorably upon this application and support funding for the tribal nation project. Three Affiliated Tribes lost much of their valuable land due to the Garrison Diversion Project and other historical efforts that removed these three tribes from their native lands. The Garrison project further hindered land transportation between sectors of the reservation. The need statement in the narrative underscores the consequences of these actions. We value the opportunity to partner with MHA Nation to advance a skilled and inclusive workforce tailored to the needs of this historically disadvantaged community. I anticipate that lessons learned will be transferable to other tribal lands and partnerships between tribes and academic and industry partners expanded as a result.

I am pleased that UND is included in this project. Do not hesitate to reach out to me with any questions at [andrew.armacost@und.edu](mailto:andrew.armacost@und.edu).

Sincerely,



Andrew P. Armacost  
President



NPUASTS.COM



VantisUAS.com

November 17, 2022

Secretary Pete Buttigieg  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Secretary Buttigieg,

I am writing on behalf of the Northern Plains UAS Test Site, one of seven Federal Aviation Administration (FAA) UAS Test Site Program organizations. The NPUASTS supports the FAA with integration activities of Uncrewed Aircraft into the national airspace system (NAS). We are fully committed to working with the Three Affiliated Tribes of the Fort Berthold Reservation (Mandan, Hidatsa, and Arikara Nation), on the proposed MHA Drone Project.

The NPUASTS is a global leader of autonomous solutions by collaborating with government and industry to innovate and advance autonomous technology. The NPUASTS has been critical for successfully advancing initiatives to enable Beyond Visual Line of Sight (BVLOS) since 2014, by paving the way for safe, scalable, and repeatable advanced flight operations for government and industry.

The commitment from the NPUASTS, and its partners, are as follows:

1. The NPUASTS will leverage the investment of the North Dakota statewide Beyond Visual Line of Sight System, known as Vantis. Vantis has had four years of development, built on the foundation of research and operations from the NPUASTS, the University of North Dakota, and industry partners, to deploy an economical solution for advanced uncrewed operations in North Dakota.
2. The NPUASTS will provide support and expertise on Flight Test Management to deploy, validate, and enable flight operations. The NPUASTS' core competence is in applying NASA-like processes used in aeronautics and space flight, to ensure safety is number one priority for advanced aviation flight, while ensuring objectives are met during flight.
3. The NPUASTS will provide support and expertise in for regulatory approvals. This organization maintains and builds collaborative relationships with the Federal Aviation Administration, the regulatory agency responsible for the safety of the Nation's airspace system. As a result, the NPUASTS can collaborate with other governments, industry, and academic institutions to ensure investments into uncrewed and advanced aviation are best aligned for regulatory approvability.

This commitment from the NPUASTS is very relevant to this project. Vantis is a fundamental and realistic component to enabling BVLOS for the Three Affiliated Tribes. This infrastructure is being designed and deployed much the same way as existing shared infrastructure, such as roadways and airports, where standards are being set, allowing it to scale for other public interests. With the expertise of the NPUASTS working with the FAA, the investments from North Dakota have a history of generating real and practical value in a field that is continuing to develop and mature. This infrastructure can significantly improve



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quality of service, and therefore quality of lives to those who will realize benefits, by leveraging new technology to solve challenges that have not been economically or safe to address previously.

In conclusion, the Northern Plains UAS Test Site is committed to supporting the Three Affiliated Tribes of the Fort Berthold Reservation in their endeavor to incorporate uncrewed and autonomous technology for the betterment of society.

Sincerely,

A handwritten signature in black ink that reads 'Trevor Woods'.

Trevor Woods, Executive Director  
Northern Plains UAS Test Site

November 17, 2022

Pete Buttigieg  
Secretary of Transportation of the United States  
U.S. Department of Transportation  
1200 New Jersey Ave., SE Washington, DC 20590

Dear Secretary Buttigieg:

I am writing on behalf of Thales USA, Inc., a global leader in UAS integration and multinational provider of solutions for the defense, aeronautics, space, transportation and digital identity and security markets. Thales is committed to working with the **Mandan Hidatsa and Arikara Nation/Three Affiliated Tribes of the Fort Berthold Reservation (MHA Nation)**, as a partner on the proposed project, titled “**MHA Nation Drones Project: Planning and Protocol Development**” and submitted to the Office of the Assistant Secretary for Research & Technology, U.S. Department of Transportation under Assistance Listing #20.941.

Of particular interest, Thales is currently the long-term Systems Integrator on the "first of its kind" statewide BVLOS UAS capability recently established for Vantis - North Dakota's statewide UAS network. Implementing this autonomous BVLOS system has shaped, and will continue to shape, how the FAA and the aviation industry as a whole approach UAS integration on a broader scale. Thales understands that BVLOS operations are the economic driver for sustained commercial UAS use-cases. The technical knowledge, expertise, and lessons learned from the successful Vantis project could easily be applied to the MHA Nation effort.

To support the MHA Nation project and its partners, Thales is committed to the following:

- Assisting MHA in the planning and coordination of the establishment of BVLOS operations between discrete locations within the nation;
- Providing technical and programmatic insight on the drone corridor implementation as well as identifying and targeting use cases within the corridor that are repeatable, scalable, and economically viable

In conclusion, Thales is excited about the MHA Nation project and the potential benefits for the rural, underserved populations within MHA that would be provided by BVLOS capability and drone corridors. We look forward to the possibility of being a part of this strategic UAS initiative and collaborating with such a dynamic team that the MHA Nation and its partners are assembling.

We appreciate your consideration of this grant application.

Sincerely,



Frank Matus  
Director, ATC and Digital Aviation Solutions  
Thales USA, Inc.





November 15<sup>th</sup>, 2022

Michael Healander  
CEO & Co-Founder  
1250 Library Street  
Detroit, Michigan,

Dear Secretary Buttigieg,

I am writing on behalf of Airspace Link, a Michigan-based software and services company, specializing in the planning and management of Uncrewed Aviation Systems (UAS, also known as “drones”). We commit to working with the Mandan Hidatsa and Arikara Nation/Three Affiliated Tribes of the Fort Berthold Reservation, as a partner on the proposed project, titled “MHA Nation Drones Project: Planning and Protocol Development” and submitted to the Office of the Assistant Secretary for Research & Technology, U.S. Department of Transportation under Assistance Listing #20.941.

Airspace Link is the market leader in Aviation, Federal, State & Local Government drone planning and management software, data exchange, and mapping, offering the most powerful geospatial cloud available connecting the FAA and state/local government authorities to the drone industry. Airspace Link has collaborated with North Dakota’s Northern Plains UAS Test Site and are involved with their Vantis initiative, advancements in their technology have great impact to the state of North Dakota, a partner in the proposed project.

To support the project and its partners, Airspace Link, commits to the following:

- Serve as a liaison between MHA & NPUASTS (Vantis) to do community planning to reduce the risk of drone operations over communities within the nation
- Tailor the Vantis AirHub portal to engage with UAS operators for mission planning
- Work with MHA, NPUASTS and emergency services community to plan routes for medical supply delivery by investigating ground risk profiles
- Contribute to the CONOPS and assist the drone operator in the waiver process for BVLOS flights

This commitment is new, specific, and measurable in the following ways:

**Relevant** – Airspace link will provide planning and monitoring services for drone operations. Airspace link is already a partner of the Northern Plains UAS Test Site and has been conducting UAS planning in ND area.

**Public** – Airspace Link is committed to creating processes and digital infrastructure that will serve the MHA nation. All Airspace Link outputs will be proprietary of the MHA Nation.

**High Impact** – Airspace Link contribution to the project will empower the MHA Nation by bringing advanced technologies to the communities.

Lastly, the SMART NOFO mentions compliance with the FAA **Low Altitude Authorization and Notification Capability** (LAANC), used to obtain airspace authorization to fly in controlled



airspace, and **part 107 waiver** resources, used to enable more complex UAS operations. Airspace Link is a LAANC provider authorized by the FAA and regularly supports part 107 waiver applications.

In conclusion, Airspace Link is committed to deploying these technologies, participating in the project, and assisting with the future expansion of these services. We are excited to engage with the Mandan Hidatsa and Arikara Nation/Three Affiliated Tribes of the Fort Berthold Reservation, and both the public sector and private sector providers.

Sincerely,

DocuSigned by:  
  
12E19E86DF16419...

Michael Healander  
CEO  
Airspace Link