

TESTIMONY OF
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EXECUTIVE DIRECTOR, NORTHERN PLAINS UAS TEST SITE
BEFORE THE
SENATE APPROPRIATIONS
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SENATE BILL NO. 2018

Good morning, Chairman and members of the committee. My name is Trevor Woods, and I am the Executive Director of the Northern Plains UAS Test Site. I appreciate the opportunity to provide written testimony in support of Senate Bill No. 2018.

Introduction: Who We Are and Why We Matter

The Northern Plains UAS Test Site (NPUASTS) is a state-authorized organization dedicated to advancing the integration and operations of Unmanned Aircraft Systems (UAS) and Advanced Air Mobility (AAM) in the United States. Established as one of seven FAA-designated test sites, NPUASTS has played a pivotal role in developing groundbreaking technologies, providing operational testing, and driving UAS innovation.

Our mission is not just about advancing technology; it's about creating a foundation for economic growth, public safety, and quality of life for North Dakotans. As a governmental function, NPUASTS serves as an enabler for statewide economic development, innovation, and the integration of cutting-edge technology into critical industries such as agriculture, energy, and public safety. It's a model of how state support can position North Dakota as a leader in a competitive and evolving industry.

The necessity for NPUASTS to remain a governmental function is clear: only through continued public support can we maintain the agility, neutrality, and vision required to drive collaboration with federal agencies, secure competitive funding, and ensure public benefits from our work. Private entities alone cannot adequately manage the infrastructure, public trust, or long-term vision needed for programs like Vantis, North Dakota's statewide UAS network.

Success from 2023–2025

From 2023 to 2025, NPUASTS has achieved remarkable success, solidifying its position as a national leader in UAS integration:

- **FAA Partnerships:** Participated in FAA notice of proposed rulemakings. FAA Beyond lead participant aiming to safely integrate unmanned aircraft systems (UAS), or drones,

into the national airspace system (NAS), focusing on beyond visual line of sight (BVLOS) operations, societal and economic benefits of UAS operations, and community engagement. Achieved groundbreaking BVLOS (Beyond Visual Line of Sight) waivers.

- **Economic Growth:** Contributed to the establishment and growth of UAS-focused businesses, attracting investment and driving job creation in North Dakota.
- **Technological Leadership:** Advanced Detect and Avoid (DAA) systems, safety protocols, and operational testing that have set benchmarks for the UAS industry.
- **Collaborations:** Partnered with public and private entities such as Thales and the Department of Agriculture, fostering innovation and addressing critical issues like rural connectivity and agricultural security.
- **National Recognition:** Positioned North Dakota as a premier location for UAS operations, bringing high-profile industry and government events to the state.

Economic Impact

NPUASTS continues to deliver significant economic impact, both directly and indirectly, for North Dakota. In the current biennium, NPUASTS is projected to generate approximately \$6 million in direct external project funding. This funding serves as a catalyst, creating additional financial benefits for our project partners, with a multiplier effect of \$2-\$3 for every \$1 received. This equates to an estimated \$14 million in indirect funding, bringing the total direct and indirect funding generated by NPUASTS to \$20 million for the biennium.

Looking ahead, the opportunity to significantly increase this funding is evident. For every \$1 of general appropriation funding provided to NPUASTS, we expect to generate approximately \$5 in external funding. The original \$7 million funding request, as approved by the Northern Plains Unmanned Systems Authority Board, is a critical investment that supports NPUASTS's strategic objectives. These include:

- **Expanding Advertising and Demand Generation:** Capturing time-sensitive market opportunities and strengthening North Dakota's reputation as a leader in UAS innovation.
- **Talent Recruitment and Retention:** Ensuring NPUASTS remains an industry leader by attracting and retaining top-tier expertise.
- **Leveraging Project ULTRA:** Unlocking expanded funding opportunities through strategic partnerships with the Department of Defense and Department of Homeland Security.

At the requested funding levels for NPUASTS, a REMI analysis conducted by the North Dakota Department of Commerce projects the following economic benefits for the upcoming biennium:

- **290 Supported Jobs:** Direct employment at NPUASTS and its program partners, along with indirect and induced employment from businesses supporting these activities.

- **Gross Domestic Product of \$67 Million:** Representing a \$1.50 return for every \$1 invested.
- **Tax Revenues of \$8.5 Million:** A direct contribution to the state’s fiscal health.

These figures do not include the additional economic impacts anticipated from the Drone Replacement program, further underscoring NPUASTS’ role as an economic driver for the state.

Beyond funding and job creation, NPUASTS and Vantis operations contribute significantly to local economies. Business travel associated with these programs, including visits from clients, subcontractors, vendors, and federal officials, is estimated to generate \$1 million in economic impact through overnight stays, meals, and associated purchases.

As a testament to the national and international interest in Vantis, the Mission & Network Operations Center at Grand Sky hosted approximately 50 tours over the past year. These visits not only highlight the value and appeal of Vantis but also position North Dakota as a global leader in UAS innovation.

The Case for Evolution

To continue delivering value and seizing opportunities, NPUASTS must mature as an organization. This means:

1. **Robust Strategy:** Executing on our comprehensive roadmap to align with commercial and federal opportunities.
2. **Higher Security Standards:** Implementing advanced processes and cybersecurity protocols to meet national security requirements, that continues to align North Dakota
3. **Training and Knowledge Management:** Building expertise across staff to remain at the cutting edge of UAS technology and regulation.
4. **Opportunity Development:** Expanding engagement strategies to attract commercial and federal partnerships.
5. **Attraction and Retention of Talent:** Creating a thriving workplace that draws and keeps the best minds in UAS innovation.

This evolution is not optional—it is essential for laying the groundwork to pursue federal contracts and long-term goals, including the potential commercialization of Vantis and FAA radar data services.

Budget Request

The NPUASTS projected a budget of \$7 million for the 2025-2027 biennium, as approved by the Northern Plains Uncrewed Systems Authority, allowing the NPUASTS to continue ensuring North Dakota's leadership in UAS technology. Specific activities of this request include:

- Supporting North Dakota public safety entities in achieving advanced FAA regulatory approvals, in particular tactical BVLOS waivers.
- Enhanced opportunity development with private sector and federal partners
- Management of critical FAA relationships needed for securing advanced regulatory approvals, a long-time standing North Dakota pedigree
- Strategic initiatives aligned with Department of Defense, Infrastructure, and Advanced integration
- Continue government relations across State and Federal Agencies necessary for communication and securing opportunities
- Provide ongoing support to the growing ecosystem of entrepreneurs and mature organizations.
- Support North Dakota business growth in adjacent sectors looking to use UAS
- Enhanced engagement and communication efforts, and long-standing cultural challenge.

Should funding be less than the projected \$7 million, NPUASTS will need to strategically re-evaluate and reassess priorities and planned initiatives for the 2025-2027 biennium.

Vantis: North Dakota's Shared UAS Infrastructure

What Is Vantis?

Northern Plains UAS Test Site is the longest standing federal UAS test site, and recognizes the greatest barrier to UAS advancement is policy and regulation. But there is an equally great secondary barrier, less often recognized, the lack of shared infrastructure to support UAS. Shared use infrastructure, a concept integral to all modes of transportation, does not currently exist for the UAS industry. For example, roadways, bridges, rail networks, and air traffic control systems all represent shared infrastructure. First Responders rely on emergency response networks, such as 911 systems, and public roadways, which provide a shared infrastructure that ensures swift coordination and deployment of critical services to protect lives during emergencies. These systems enable scalability, reduce redundancy, and serve the public good by fostering collaboration and efficiency. The UAS industry lacks this critical shared foundation. Each operator is often left to create their own systems for navigation, communication, and operation—an approach that is inefficient, costly, and limits the broader integration of drones into the National Airspace System (NAS). Vantis seeks to solve this gap by establishing shared use infrastructure for UAS.

Vantis is the nation's first statewide UAS system designed to enable safe, efficient BVLOS operations. While traditional infrastructure programs focus on physical assets like roads or utilities, Vantis is a comprehensive system of communication towers, radars, and command centers, providing the backbone for advanced UAS operations. Because this has never been done before, the Vantis program has had to tackle challenges that traditional infrastructure has not,

such as standards development, policy advocacy, regulatory approvals, demand generation, education, outreach, and more. At its core, Vantis remains an infrastructure initiative – bringing a shared use model to UAS, much like how roads bring shared infrastructure for motor vehicles.

Why North Dakota Pursued a Statewide Network

North Dakota chose to invest in Vantis to lead in UAS integration, viewing it as more than infrastructure. Vantis offers direct and indirect returns:

- **Direct ROI:**
 - **User Fees:** As Vantis attracts commercial operations, leveraging the system, a direct return on investment may be collected through user fee.
 - **Royalties;** The model established by Vantis has been recognized by at least a dozen other states and growing, gaining increased interest in buying into the model North Dakota has created, generating royalties' from Vantis expansion to other states.
- **Indirect ROI:** These are the less tangible, and harder-to-qualify benefits of the Vantis investment. Vantis brings immense amount of return on value. There isn't a simple formula to ROV because each is likely to put a different value on what's important to them.
 - **Rural connectivity:** In an advancing society, our rural communities often lag in the development of new services. Fiber and internet connectivity was one such example – the lack of fiber connectivity in rural communities drove people from their farmsteads and into more urban areas. North Dakota recognized the importance of providing opportunities for citizens to stay in their homes, and invested state resources in expanding connectivity, permitting families to stay in their homes. Vantis offers the same rural connectivity opportunities, by laying a foundation for UAS services to expand to rural and urban areas alike.
 - **Public Safety:** Without shared infrastructure model like Vantis, public safety entities must often develop redundant, costly, and bespoke systems to achieve their UAS missions, diverting resources that could be better allocated elsewhere. Vantis brings a shared foundation model, allowing agencies to enable drones as a first responder missions where UAS enhance the speed of life-saving emergency response missions. In 2023, as North Dakota faced a state wide emergency, Vantis was able to provide continuity in the state's emergency response, supporting not only the flood efforts of the Red River Valley, but also to assist in utility inspections in response to ice storms that swept across the west.
 - **Commercial Service Offerings:** Shared infrastructure provides a foundation for enabling new commercial service offerings as well. UAS commercial operations to date, have been driven into large metropolitan areas, where there is high demand to offset their investment. Package deliveries, as showcased in Texas, are once such example. But in North Dakota, we don't have a last mile challenge, we

have a last 100 mile challenge. Package deliveries aren't same day, and often aren't even the stereotypical "2 day delivery." Vantis enables attraction of these high value commercial operators to consider North Dakota with substantially less business investment, making North Dakota an attractive destination. Subsequently, the increased commercial services offered to North Dakota citizens enhances their quality of life.

The Value of Investment

The economic value of Vantis mirrors that of traditional infrastructure like roadways:

- **Economic Development:** Attracts businesses, increases tax revenue, and improves services for residents.
- **Rural Benefits:** Enables critical services, similar to rural fiber optic networks, allowing families to thrive in rural areas.
- **Public Safety:** Enhances emergency response capabilities, protecting lives and property.

Comparison to Roadways

Building roadways costs approximately \$1.5 million per mile. With \$70 million invested in Vantis to date, North Dakota has efficiently built a system that serves 3,000 square miles—far beyond what 35 miles of road could achieve with equivalent financial investment. Vantis aims to expand to 56,000 square miles, providing an unparalleled return on investment for the state.

Achievements of Vantis in the 2023–2025 Biennium

We extend our sincere gratitude for the \$26 million in funding allocated to Vantis for the 2023–2025 biennium. While this substantial investment has propelled our initiatives forward, enabling the full strategic vision for this period was projected to require \$30 million. Consequently, we conducted a thorough re-evaluation of our program's strategic goals, resulting in the postponement of certain initiatives. Despite these adjustments, Vantis has achieved monumental successes during this timeframe.

Key Highlights from 2023–2025 Biennium

- **FAA Approval for BVLOS Operations:** In 2023, uAvionix, a UAS operator leveraging the Vantis network, received approval from the Federal Aviation Administration (FAA) to conduct beyond visual line-of-sight (BVLOS) small unmanned aircraft flights in North Dakota. This marked a significant milestone, demonstrating that Vantis provides the necessary infrastructure to meet stringent safety standards for advanced UAS operations.
- **Industry Recognition and Collaboration:** Throughout 2023, Vantis and the Northern Plains UAS Test Site (NPUASTS) engaged with industry and government leaders at major events, including the Commercial UAV Expo, AUVSI Xponential, and Autonomous Nation, featuring the success of the Vantis program. These engagements have elevated North Dakota's profile as a leader in UAS integration and facilitated valuable partnerships, cultivating a foundation for return on investment.

- **Strategic Planning for Expansion:** In December 2023, NPUASTS convened a comprehensive strategy session with over three dozen stakeholders to chart the course for Vantis' next phase. This collaborative effort focused on generating new use cases, improving services, and expanding the network's capabilities to support high-availability, multi-user operations. Throughout 2024, this strategy was put into development building an impact for years to come.
- **More FAA Approvals for BVLOS Operations:** In 2024, iSight Drone Services achieved a significant milestone by obtaining a BVLOS waiver from the FAA. This authorization enables iSight to conduct extended drone operations, enhancing their capacity to undertake large-scale projects such as comprehensive inspections of utility poles and lines. The BVLOS capability also opens avenues for critical services, including embarking on a partnership with Altru Health System, aiming to improve healthcare accessibility for communities in need.
- **Enhance Public Service Capabilities:** Grand Forks Fire Department (GFFD) secured a Tactical Beyond Visual Line of Sight (TBVLOS) waiver from the FAA in July 2024. This waiver empowers GFFD to deploy drones beyond the operator's visual line of sight during extreme emergency situations, such as assessing large fires, conducting aerial searches, or locating missing individuals in challenging environments. The enhanced situational awareness provided by this capability facilitates faster decision-making, ensuring swift aid to the community while reducing risks to first responders.
- **Enhanced Infrastructure and Safety Measures:** In October 2024, Vantis achieved an industry milestone with FAA approval for BVLOS operations, underscoring the network's advanced capabilities and robust safety features. This approval positions Vantis as a replicable model for UAS integration across the United States.

These achievements underscore Vantis' commitment to advancing UAS integration, fostering economic growth, and enhancing public safety in North Dakota. The support and investment from the state have been instrumental in realizing these milestones, and we remain dedicated to building upon this foundation to achieve even greater success in the future.

The FAA Radar Data Pathfinder Program: A Groundbreaking Opportunity for North Dakota

In the 2023–2025 biennium, Vantis solidified its position as a national leader in UAS integration through unprecedented collaboration with the Federal Aviation Administration (FAA). One of the most significant achievements was becoming the first non-federally sanctioned entity to participate in the FAA Radar Data Pathfinder Program.

This program is a natural extension of North Dakota's strategic vision for Vantis. Its goal is to demonstrate how federal surveillance data can meaningfully contribute to the safe and efficient integration of UAS into the National Airspace System (NAS). This initiative is groundbreaking in its scope and ambition, marking the first collaboration of its kind between the FAA and a state

entity. It not only positions North Dakota as a pioneer but also sets the national standard for UAS integration, establishing benchmarks that others must meet to leverage FAA radar data.

Realizing the Opportunity and Its Costs

The opportunity to participate in the FAA Radar Data Pathfinder Program was recognized in February 2024 when NPUASTS approached then-Governor Burgum's administration. This initiative, while aligned with North Dakota's long-term strategic goals, presented an unbudgeted financial demand. The total cost of the 1 year pathfinder program, \$11 million, was beyond the scope of the current biennium's budget.

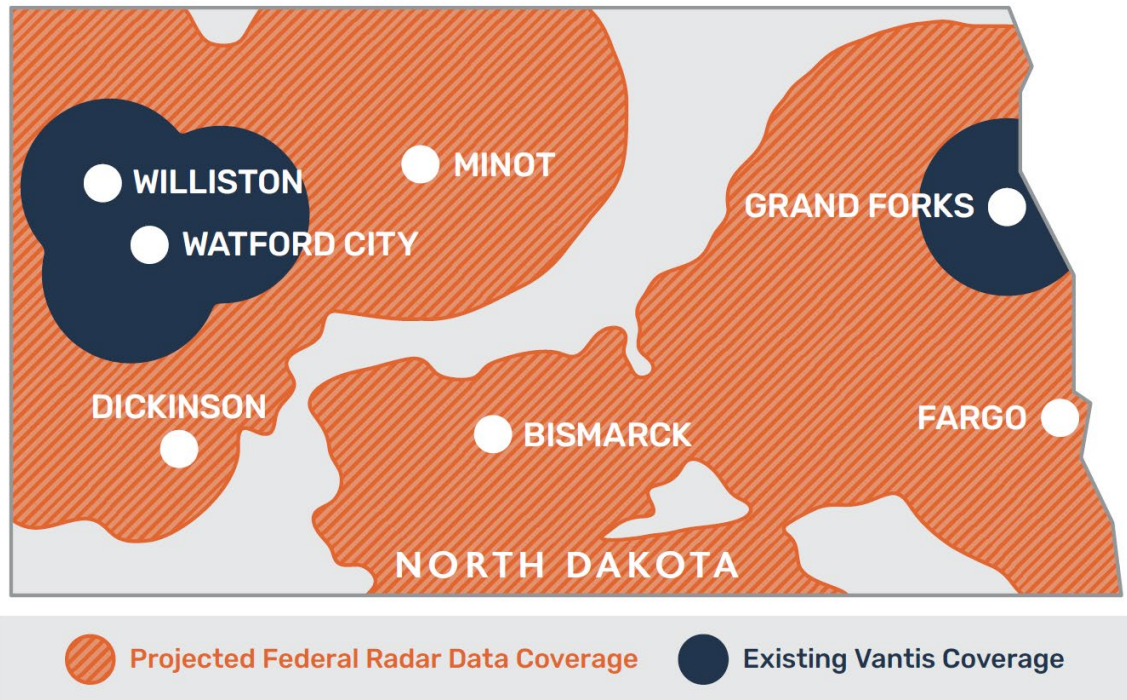
The state faced a critical decision: prioritize either the radar data pathfinder program or the in-state expansion of Vantis. Recognizing the immense value of both, the administration directed NPUASTS to pursue both opportunities, committing to work diligently to find the necessary funding. Despite extensive efforts to secure the required funds through the end of 2024, all traditional options were exhausted. As a result, HB 1038 was introduced with an emergency clause to address this unbudgeted expense and ensure North Dakota remains at the forefront of UAS innovation.

Value of the FAA Radar Data Opportunity

The FAA Radar Data Pathfinder Program provides unparalleled value for North Dakota:

- **Expanding Coverage:** The integration of FAA radar data will enable Vantis to expand from its current 3,000 square miles of coverage to a potential 56,000 square miles—17 times greater than its current reach.
- **National Leadership:** North Dakota will define the federal standard for utilizing FAA radar data in UAS operations, cementing its leadership role in UAS integration.
- **Economic Impact:** Enhanced network capabilities will attract businesses and investments to the state, driving economic growth and technological innovation.

The \$11 million allocated for this program through HB 1038 supports essential activities, including cybersecurity improvements, system integration, safety assessments, and operational testing. This funding ensures that the foundational work required for long-term success is completed during the one-year test program, setting the stage for stable and scalable service in the future.



Looking Ahead: The 2025–2027 Biennium

The Radar Data Pathfinder Program will extend into the early months of the 2025–2027 biennium, but transitioning from a test program to a stable service will require ongoing investment. Beyond the initial test program, an additional \$3.5 million annually will be needed to support:

- **System and Network Administration:** Ensuring reliable operations and scalability.
- **Security Management:** Meeting stringent federal requirements through periodic third-party audits and assessments.
- **Further Development:** Enhancing Vantis capabilities to serve public and private sectors effectively.

What Vantis Will Achieve in the 2025–2027 Biennium

The current executive budget proposal includes \$20 million in funding for Vantis, which is a critical step in sustaining and growing the nation’s first statewide UAS network. However, an ideal funding level of \$27 million would enable Vantis to achieve its full strategic potential, ensuring North Dakota remains at the forefront of UAS integration. With \$27 million, Vantis could not only sustain its current operations but also expand infrastructure, enhance safety and operational programs, and attract new operators, paving the way for unmatched economic and technological returns for the state.

Here is what the proposed \$27 million funding would achieve:

Infrastructure-as-a-Service

A significant portion of the funding will go toward building and maintaining the physical infrastructure of Vantis. This includes:

- **New Surveillance Radar Sites:** Expanding coverage to underserved areas by installing additional radar sites, increasing the network's reach to support more advanced UAS operations.
- **Ongoing Maintenance, Insurance, and Warranty Services:** Ensuring that existing and new infrastructure remains reliable and operational, safeguarding the state's investment and operational continuity.

Software-as-a-Service

The program will fund the critical software backbone of Vantis, which provides real-time operational control and management. This includes:

- **Network Management Software:** Monitoring and controlling the performance of the network at the Mission Network Operations Center (MNOC) in Grand Forks, North Dakota.
- **Pilot Interface and Mission Planning Software:** Enabling operators to plan and execute flights safely and efficiently within the Vantis network.
- **Safety and Monitoring Software:** Ensuring live oversight of network performance, flight safety, and compliance with regulatory requirements.

Operations and Safety

To support the operational and safety aspects of Vantis, the funding will cover:

- **Technical Operations and Flight Operations:** Managing the day-to-day operations of the network, ensuring seamless service for current and new users.
- **Safety Assessments and Risk Evaluations:** Establishing and maintaining robust safety programs to meet and exceed FAA standards and support future regulatory frameworks.
- **Lifecycle Technology Replacements:** Ensuring that aging technology is replaced at the appropriate time to maintain the reliability and effectiveness of the network.

Demand Generation and Outreach

The funding will enable targeted initiatives to attract and retain users, including:

- **Education and Outreach:** Promoting the benefits of Vantis to new operators and educating potential users on how to integrate with the network.
- **Demand Generation:** Actively engaging with industries to demonstrate the value of Vantis and bring new customers onto the system.
- **Customer Support:** Providing ongoing assistance and training to ensure operators are able to fully utilize the network's capabilities.

Strategic Leadership and Collaboration

The program will also prioritize strategic leadership and collaboration with key stakeholders, including:

- **FAA Collaboration:** Driving regulatory support and shaping industry standards by working closely with the FAA to ensure that Vantis becomes the model for UAS integration nationwide.
- **Performance Monitoring:** Establishing systems to track and improve the network's performance, ensuring it meets the highest standards of reliability and safety.
- **Leadership and Oversight:** Supporting executive and strategic leadership to guide the program, expand its influence, and attract new opportunities to North Dakota.

Operational Support

Funding will also cover essential operational costs, including:

- **Mission Network Operations Center:** Supporting the ongoing operation of the MNOC, which serves as the command hub for the Vantis network.
- **Rents, Utilities, and IT Support:** Ensuring the infrastructure remains secure, functional, and scalable.
- **Network Security:** Maintaining robust connectivity, firewalls, and cybersecurity measures to protect the network and ensure compliance with federal requirements.

Expansion and Integration

Vantis will continue to leverage the FAA Radar Data Pathfinder Program to expand its capabilities, augmenting both federal and state infrastructure to better serve key North Dakota populations. This effort will allow Vantis to enhance its coverage, attract new users, and set the standard for UAS operations across the country.

Building the Future of UAS with Vantis

In just six years, North Dakota's investment in Vantis has already begun to yield tangible returns. A modest yet promising direct return on investment has been realized through the deployment of Vantis-like infrastructure in Texas, demonstrating the scalability and appeal of North Dakota's shared-use UAS model. Additionally, imminent contracts with other states signal the potential for substantial revenue growth from user fees and royalties as Vantis expands nationally. These successes provide clear evidence that the direct ROI models underpinning Vantis are viable and effective.

However, the true value of Vantis lies in its indirect benefits, which have the potential to transform North Dakota's economy, public safety, and quality of life in profound ways:

- **Economic Growth and Business Attraction:** By establishing North Dakota as the national leader in UAS infrastructure, Vantis attracts cutting-edge businesses and high-

value commercial operators, fostering job creation and increasing tax revenues. For example, the availability of advanced UAS infrastructure could attract tech companies to establish headquarters or operations in the state, further diversifying the economy.

- **Rural Connectivity:** Just as fiber-optic networks revolutionized rural internet access, Vantis can bridge the service gap in rural areas, enabling everything from same-day package delivery to emergency medical supply transport. This connectivity allows families to remain in their homes while enjoying the benefits of modern services, ensuring rural communities can thrive.
- **Enhanced Public Safety:** Vantis empowers first responders to deploy drones rapidly for search and rescue missions, disaster response, and critical infrastructure inspections. Imagine drones equipped with thermal imaging locating lost hikers in vast rural landscapes or assessing flood-damaged areas in real-time to direct resources where they're most needed.
- **Quality of Life Improvements:** Commercial drone services made possible by Vantis will enable North Dakotans to access services previously unavailable in the state, such as remote healthcare delivery and agricultural monitoring that saves farmers time and resources.

These examples of indirect value illustrate that Vantis is more than an infrastructure project; it is a platform for opportunity, innovation, and improved quality of life.

A Call to Action: Invest in the Future

North Dakota is poised at a pivotal moment. The foundation laid by Vantis has already positioned the state as the leader in UAS integration, attracting national attention and setting the standard for future developments. Yet, the full potential of Vantis can only be realized through continued investment.

This is not just about funding infrastructure—it is about securing North Dakota's place at the forefront of a rapidly growing industry, ensuring our rural communities have the tools to thrive, and enabling businesses and public safety agencies to deliver better, faster, and more efficient services.

The choice is clear: investing in Vantis is an investment in North Dakota's future. It ensures the state remains the national model for UAS infrastructure, driving economic growth, improving quality of life, and enhancing public safety. Now is the time to act boldly and decisively to capitalize on the momentum we have built. Vantis is not just a program—it is a vision for a more connected, prosperous, and innovative North Dakota. Let us work together to make this vision a reality.

Conclusion

Investing in NPUASTS and Vantis is investing in the future of North Dakota. The requested funding is the minimum to ensure NPUASTS remains a national leader, attracting opportunities, delivering economic growth, and providing value to all North Dakotans. The state's commitment today will position North Dakota as the hub of UAS innovation and operations for decades to come.