

**STATUS OF THE UNMANNED AIRCRAFT SYSTEMS (UAS) PROGRAM AND  
STATUS OF THE BEYOND VISUAL LINE OF SIGHT UAS PROGRAM**

**AUGUST 12, 2019**

**COMMERCE COMMITTEE**

**ROUGH RIDER ROOM, STATE CAPITAL**

**REPRESENTATIVE LOUSER, CHAIRMAN**

**JAMES LEIMAN, PH.D. –DIRECTOR OF ECONOMIC DEVELOPMENT & FINANCE  
ND DEPARTMENT OF COMMERCE**

Chairman Louser and members of the Committee, my name is James Leiman. I serve as the Director of the Economic Development and Finance Division at the North Dakota Department of Commerce. I'm here today to provide the biannual report on the status of the Northern Plains UAS Test Site and the development of the beyond visual line of sight network. Nick Flom, Executive Director of the test site, is with me, to offer further insight and details on our plans.

The Northern Plains UAS Test Site is an asset to our state with the demand for their testing capabilities growing year over year. Over the last 18 months, private sector as well as government contracts to test, operate and commercialize in North Dakota have grown quickly resulting in a larger staff requirement at the site. In addition, with the announcement of North Dakota's quest to implement the first statewide beyond visual line of site (BVLOS), industry opportunities are presenting themselves at a pace not seen in a decade. Since the legislature adjourned in April, the test site has already been able to add another "first" in the long list of UAS achievements North Dakota can claim. As of June 20<sup>th</sup>, North Dakota is the first state authorized to fly over people through Department of Transportation's IPP program. This is a major step towards full commercialization of UAS and integration into the national airspace.

As an economic development agency, we see tremendous opportunity for the UAS industry to diversify our economic base while playing to our state's strengths. The state's investment in a beyond visual line of site (BVLOS) network will propel the success we've already seen in this industry into a competitive cluster that will continue to lead the nation by being the first to develop solutions to hurdles facing the industry – such as BVLOS. Solid examples of this growth include Grand Sky's recent agreement with Northrup Grumman to provide two Firebird assets which are currently designed to deliver critical Intelligence, Surveillance and Reconnaissance capabilities to the U.S. military. This product will now be commercialized and operated in North Dakota improving the unmanned, energy and agricultural industries in the state. In addition, I will be meeting with a multinational firm later this week that intends to open a hub in North Dakota manifesting similar capabilities. We have small, medium and large companies knocking at the door on a frequent basis given our knowledge, cluster of activity and infrastructure.

These are just two examples from the last several weeks, since April, approximately a dozen companies have expressed interest relocating or expanding operations into ND. In addition, several are already investing in North Dakota as they intend to capture the commercialization, research and development as well as operational opportunities in the state.

Based on informal data collected by our department, this investment pushes North Dakota into top position as the state most heavily invested in UAS. This is a notable announcement in the industry and will help secure our place above our competitors. The announcement of the statewide network was seen nearly 40 million times throughout the 37 iterations pushed out by the media within five days.

In addition to the Test Site and BVLOS update, Grand Sky is constructing its multitenant facility. This growth is in addition to the major expansion at Northrup Grumman as well as General Atomics plan to add another hanger along the flight line. In the aggregate, tens of millions of dollars' worth of facility expansion are occurring to accommodate growth requirements not seen in any other state. Well paying jobs are plentiful and states frequently consult North Dakota to facilitate their own growth and development. I would like to invite all legislators to Grand Forks on the 27<sup>th</sup> and 28<sup>th</sup> of August. At the annual UAS Summit and Expo, you will get a feel for the \$100 billion industry's growth as well as importance of North Dakota. In addition, there will be tours of Grand Forks AFB and the Grand Sky facility. The Department of Commerce has been able to secure free admission for legislators for you. This would be a prime opportunity for you to observe how well your investment in this industry is being leveraged. I am happy to share more details after this meeting.

We're very excited to have several tools available to us- Grand Sky, BVLOS funding and the test site, are orchestrating growth throughout the state. I want to extend gratitude as without your fiscal support of these operations, North Dakota would not be known as an international leader in unmanned systems operations.

At this point, Mr. Nick Flom will provide a comprehensive update and strategy for a BVLOS network moving forward. I am open to any questions at this point or following Mr. Flom's testimony. Thank you for your time.

**NICHOLAS T. FLOM – EXECUTIVE DIRECTOR  
NORTHERN PLAINS UAS TEST SITE**

Chairman Louser and members of the Committee, I am Nicholas Flom, executive director of the Northern Plains UAS Test Site (NP UAS TS). I am here to report on the status of the Unmanned Aircraft Systems Program, established by the Federal Aviation Administration (FAA) under the North Dakota Department of Commerce (ND DOC), to administer an unmanned aircraft systems (UAS) test site in cooperation with the University of North Dakota, North Dakota State University, the Aeronautics Commission, the Adjutant General and private parties appointed by the governor. Additionally, I am here to report on the Beyond Visual Line of Sight UAS Program.

**Status of the NP UAS TS**

The UAS industry is maybe one of the most dynamic and fastest growing industries in recent memory. When the NP UAS TS was selected in 2013, there was not a clear path to even commercializing UAS operations, and now there are over 1 million registered drones. The NP UAS TS started working with NASA in 2015 to implement their UAS Traffic Management (UTM) program. This was on the forefront of Amazon announcing that one day they wanted to delivery packages to your house using a drone. Since then, we have seen NASA complete 4 phases of their UTM program, Google deliver popsicles with a drone, and the onset of flying cars. Uber has been leading a program that is enabling large electric powered vertical takeoff aircraft to be used in large cities to make local transportation 3 dimensional. The NP UAS TS has been a part of every one of these steps. The NP UAS TS has been able to support Xcel Energy as they have replaced using helicopters to inspect their transmission lines and are now using drones. The opportunities are endless and North Dakota is leading the way with not only the testing and research but also the enablement of commercial operations.

The NP UAS TS is a national asset. We are recognized across the country as leaders in UAS. This year alone, I have been asked to present in Chicago, Las Vegas and in November London, to name a few venues, to highlight the work that North Dakota is doing to move the UAS industry forward. The NP UAS TS has caught the attention of federal agencies as well, as we are now working with DHS, DOD, NASA, and the FAA to meet their research needs. Every time we engage with a new company or entity, we introduce them to North Dakota and what we as a state can provide. Just this past June, we hosted 25 out of state vendors and FAA employees in North Dakota for a week to highlight work that we collaborated together on with the FAA.

**2017-2019 Biennium Budget Overview**

The 65<sup>th</sup> Legislative Assembly appropriated \$2,000,000, plus \$1,000,000 carry-over from the 2015-2017 biennium funds, to support North Dakota's UAS program during the 2017-2019

biennium. The NP UAS TS operated over the 2017-2019 biennium with a total expenditure of \$3,883,428 with \$1,433,428 being received from private and federal contracts. Of the appropriated dollars, \$2,450,000 were spent with \$550,000 left unspent and was available for carry-over to the 2019-2021 biennium. During the 2017-2019 biennium, 63% of the overall budget relied on the appropriations while the Test Site spent only 80% of the available appropriated funds.

The approximate \$1,400,000 that was received from external contracts helps offset internal labor costs and pays for contracting of vendors and purchasing of equipment. Bringing in projects that require support from outside vendors allows companies from outside the state of North Dakota a chance to work within our state, get to know us, and bring national attention to our Test Site. These relationships have sprouted into more and more opportunities which allows the state of North Dakota the ability to grow our UAS ecosystem.

### **2019-21 Biennial Budget Overview**

The 66<sup>th</sup> Legislative Assembly appropriated \$2,225,000, plus carry-over from the 2017-2019 biennium funds, to support North Dakota's UAS program during the 2019-2021 biennium. The approximate \$2,725,000 appropriation will be part of an estimated \$5,000,000 budget for the NP UAS TS. Going into the 2019-2021 biennium, the NP UAS TS has \$1,300,000 of fixed priced projects already under contract. Over the past year, the NP UAS TS has been able to expand our support of both private and federal agencies. The NP UAS TS has been working closing with the Department of Homeland Security to support their Airspace Domain Awareness testing that will be conducted at Camp Grafton. Additionally, we are under contract to work with NASA and Department of Defense to test UAS Traffic Management at the Grand Forks Air Force Base.

Since May of 2018 when the State of North Dakota through the North Dakota Department of Transportation (ND DOT) was selected as one of ten participants in the UAS Integration Pilot Program (IPP), the NP UAS TS has been working closely with state, local and tribal governments. A direct outcome of the UAS IPP is that the NP UAS TS was able to get the ND DOT receive an advanced approval to fly their UAS over people. ND DOT plans on using this approval to conduct construction and survey work, stockpile and quarry pit analytics, and tower and bridge inspections. The IPP has also enabled Burleigh County Sheriff's office to receive operations over people approval so they start using UAS for use cases like accident investigations. Introducing state agencies to these advanced UAS operations prepares them for conducting beyond visual line of sight operations under the statewide network once those capabilities become available. The NP UAS TS will be hosting a training session for 16 ND DOT employees in September.

Over this biennium the NP UAS TS will continue to see long-term growth. Our engagements with NASA, DOD, and DHS will help provide foundational financial support that will allow us to grow our team. With additional bandwidth from our staffing, we will continue to bring on larger, more

innovative partners to the State. Additionally, we are seeing more and more state entities introducing UAS into their agencies. The relief through HB 1230 that now allows state agencies to purchase UAS will enable more UAS operations across the state. The NP UAS TS is here to support this state growth through training of pilots, developing policies and procedures, or by helping them receive advance approvals to meet their mission objectives.

### **Beyond Visual Line of Sight UAS Program**

On behalf of the ND DOC and the State of North Dakota, the NP UAS TS is responsible for establishing and administering a beyond visual line of sight (BVLOS) unmanned aircraft system program for the design, purchase, implementation, and operating costs of a beyond visual line of sight unmanned aircraft system. Since HB1180 was signed, the NP UAS TS and the ND DOC have been actively working on getting the BVLOS program up and running.

Some of the highlights that have been accomplished thus far include an initial inventory of state assets that could support this network. The NP UAS TS has worked with ND DOT to better understand assets, like towers, that they own and control across the state. Leveraging existing infrastructure is not only prudent but also a core basis of deploying the BVLOS network. The NP UAS TS has also been actively working with the FAA to educate them on this initiative. In late April, the Executive Director of the FAA's UAS Integration Office, Jay Merkle, was in North Dakota and we were able to brief him on the state's initiative. Mr. Merkle assured the state that the FAA would be a supportive partner on our BVLOS program. Additional offices within the FAA have also been briefed, which has helped set the expectations of the level of support that we will need from them.

To enable this initiative, the NP UAS TS and ND DOC, have engaged with MITRE Corporation, a federally funded research and development center, to help guide this initiative. They will be able to play multiple roles on behalf of the state. First off, their federal customer is the FAA which means that they cannot support an individual entity unless it has broad level support for the FAA. This is exactly what this program is looking to accomplish. The BVLOS network in North Dakota is going to set the national standard and MITRE will assure that we are not building out a standalone network that is not compatible with all users.

A request for proposal (RFP) is being finalized for release to contract with a national communications teams to assure that North Dakota's message is being heard outside our state border. The statewide BVLOS network will attract national companies and attention and we want to make sure that the state's investment is reaching the right entities. This RFP will be looking for

assistance with assuring that North Dakota is recognized and marketed as the national leader in UAS which will help attract companies.

To help lead this initiative, the NP UAS TS has been actively seeking a Program Manager to help oversee this program. Just last week an offer was made to an applicant. We hope to bring this person on full time in early September. This Program Manager will help build the internal team that will support this program.

The NP UAS TS has also been in communication regular with many potential users of the network over the last couple of months. This includes commercial UAS operators who find value in this technology and also communities and companies across the state. We already have early adopters that will play a critical role in deployment of the network over the next year.

One of the most critical next steps that the statewide BVLOS program will be accomplishing is the release of a request for qualification (RFQ) to bring on a partner to help deploy the network. The RFQ process will come after we host an industry day that will outline the goals and objectives of the network. This industry day is in the final stages of planning and we are hoping to have a date and location released within the week.

On August 27 and 28<sup>th</sup>, the UAS Summit and Expo will be held in Grand Forks. At this Summit, I will be announcing the date and location of the industry and outlining the timeline for the RFQ. The intention of the RFQ is to have our partner established by the 4<sup>th</sup> quarter of 2019 with the first task order being sent out at the end of the 4<sup>th</sup> quarter or immediate beginning of the 1<sup>st</sup> quarter of 2020 to start implementing the backbone of the statewide BVLOS network.

Through MITRE, our internal team, and the selected partner, the deployment strategy for 2020 will be established. This will include leveraging state assets, federal assets and partner technologies. The North Dakota team will continue to be working diligently on a daily basis to work on the goal of having operational activity on the network by the end of the second quarter of 2020. Our engagement with companies like Marathon Oil, Xcel Energy, and General Atomic Aeronautical Systems assures us that there is early interest in establishing users on the network. This is not an inclusive list as on almost a daily basis we are learning about more entities that find value of partnering with North Dakota to advance their UAS efforts.