

Priority	Infrastructure Project	Description	Estimated Cost
1	SCIF (Secured Classified Information Facility)*	This will enable UND to do classified work with the DoD and DHS and create opportunities to work with the Grand Forks Air Force Base, Cavalier Space Force Station, Grand Sky and to host national security visitors from across the nation.	\$ 2,500,000
2	Controlled UAS and counter UAS Environment Test and Evaluation Facility*	The use of autonomous systems in conflicts (e.g., the Ukraine) has expanded very rapidly. This accelerated use has produced extremely high demand for counter-autonomous test facilities and ranges that cannot be met with current U.S. assets. This UND facility would enable bench testing and field testing of counter-autonomous and autonomous systems within a controlled environment. A key piece of this is the establishment of a large anechoic chamber that confines electromagnetic (EM) transmissions and, thus, prevents testing in this facility from creating hazards for others (e.g., general aviation). This facility would also enable testing of autonomous systems (e.g., drones) within a controlled environment that also would eliminate dangers for non-participants.	\$ 15,000,000
3	Autonomy and Counter UAS @ NDSU	North Dakota State University will use this support to build on emerging work in autonomy and counter UAS.	\$ 2,000,000
4	Collaborative Higher Education Approach to Meet UAS Workforce Needs (with Minot State & Lake Region)	UND has been a leader in education, research, and training in UAS and Autonomous Systems. UND's success in training UAS pilots would support new programs at Minot State University and Lake Region State College to train Part 107-qualified UAS pilots. This is a critical workforce development piece necessary to allow support of existing and development of new UAS/CUAS industry in North Dakota. This investment would include the purchase of UAS systems for training.	\$ 500,000
5	Satellite Testbeds	The development of novel satellites requires the use of a "bus" and a "payload" where the bus provides all elements needed to support basic satellite operations and provides support for the payload. To advance education and research on satellite development, we propose the development of satellite testbeds that consist of space-qualified flight hardware to form a complete bus but arranged in the form of a flat satellite (i.e., on a workbench). Such testbeds would provide invaluable resources in the development and integration of a variety of payloads for the foreseeable future.	\$ 2,500,000
6	Digital Engineering and Virtual Reality - DREAM Laboratory*	This investment will create the Digital Realism in Engineering and the Applied Metaverse (DREAM) and establish UND as the institutional lead. The partnership consists of four major academic and industry collaborators: UND, NVIDIA Corp., Lenovo USA, and the Ohio Supercomputing Center (OSC). DREAM will expand existing UND-based Artificial Intelligence (AI) and Virtual Reality (VR) projects. This growing UND research capacity addresses clear needs of national defense labs to reproduce reality as high-fidelity virtual spaces (aka Digital Twins). Such Metaverse environments allow for the integration of human physical training into virtual combat spaces while simultaneously providing the capability to generate synthetic data for use in training digital bots for real-world military missions via AI and Machine Learning (ML) algorithms.	\$ 3,500,000
7	Space Development Agency Digital Twin	A digital twin of the SDA operation, including planning, operations, and anomaly resolution. This twin leverages the existing Space Operations Center and includes addition of computing resources--primarily for anomaly resolution.	\$ 500,000

8	Radar ISR Lab	RADAR technologies are the mainstay of Intelligence, Surveillance, and Reconnaissance missions in the space, air, and ground domains. This lab will be located on the National Security Corridor at UND and will provide the key resources necessary to advance state-of-the-art technologies and integration solutions to support the ISR mission across the state.	\$ 2,000,000
9	Optics ISR Lab	Optical technologies are critical to the Intelligence, Surveillance, and Reconnaissance missions that are crucial to the DoD presence in the state. Despite its importance, much research is needed to advance state of the art in areas of threat observation, novel detectors, system integration, and autonomous interpretation of detected signals. This proposed lab will reside on the National Security Corridor at UND and will provide modern equipment and tools needed to support the space, air, and ground autonomy activities across the state.	\$ 2,000,000
10	Cyber Range (with Minot State)*	In collaboration with Minot State University and UND, this investment will create a cloud-based cross-disciplinary training tool that training students to manage cyber security attacks in a variety of scenarios. It is a very immersive experience providing performance-based learning and assessment, an environment for teams to work together to improve teamwork, and simulate on-the-job experiences related to Security Operations (SecOps) and Development Operations (DevOps).	\$ 2,000,000
11	Cybersecurity Research Infrastructure*	Current national security systems are heavily networked and utilize a significant amount of compute resources to function. These systems rely on cutting-edge cybersecurity algorithms and approaches to ensure reliable behavior. However, adversaries are continuously developing new and unique approaches to overcome these protections. This proposed investment will create a stand-alone system with infrastructure to enable researchers to develop and test novel cybersecurity tools and techniques on a production-like environment. This system will also allow advanced system integration for cybersecurity research on development platforms to create networks and tools for future cyber security techniques. These tools and techniques benefit all aspects of the national security systems, particularly Unmanned Aerial Systems (UAS) and systems that are designed to counter UAS (CUAS) platforms.	\$ 2,000,000
12	Materials Characterization	Specialized equipment for handling high-temperature materials. This is important to the study of hypersonics.	\$ 1,500,000

* 2023 UND request

Total

\$36,000,000