

North Carolina's Defense Ecosystem is Poised to Make a Significant Leap Forward

Executive Summary

The National Defense Authorization Act (NDAA) positions North Carolina to host a Defense Innovation Unit (DIU) OnRamp Hub—a critical node in the Department of Defense’s national innovation architecture. To maximize impact for both the warfighter and the nation, this Hub should be located in the Charlotte metropolitan region, centered on the Kannapolis– Mooresville–Charlotte corridor.

This region uniquely integrates proximity to military installations and special operations expertise in eastern North Carolina with a dense concentration of advanced manufacturing, financial services, energy, biotechnology, motorsports engineering, research universities, and entrepreneurial infrastructure spanning the rest of the state and neighboring regions. Anchored by R1 institutions, globally competitive manufacturing and logistics capabilities, robust workforce pipelines, and one of the nation’s most connected transportation hubs, the Charlotte metro area offers DIU an immediately operational, scalable, and cost-effective platform.

Locating the DIU OnRamp Hub in this corridor would most effectively mobilize North Carolina’s full innovation ecosystem—and extend its reach into South Carolina, Tennessee, and national laboratory networks—advancing DIU’s core mission: rapidly transitioning dual-use technologies into operational capabilities across all combatant commands.

I. The DIU OnRamp Hub Mission and National Context

With the recent enactment of the National Defense Authorization Act (NDAA), the state will receive a Defense Innovation Unit (DIU) OnRamp Hub. NC will join an existing constellation of eight such hubs situated in key locations across the nation.

A. The OnRamp Hub as the “Front Door” to Defense Innovation

Each of these OnRamp Hubs serves as a “front door” for the War Department – communicating the needs of the defense domain to potential suppliers – particularly those who may possess dual-use technologies and capabilities which can address both civilian and military needs – and guide candidates through the acquisition process.

B. Ecosystem Activation and Supply Chain Expansion

These hubs serve to communicate the needs of the defense domain to potential collaborators and suppliers, they spark dynamic, fast-paced environments - hosting conferences, training classes and education programs designed to extend and energize

the defense supply chain across their geographic regions. These efforts nurture and harvest the creativity across the surrounding ecosystem, igniting the entrepreneurial environment from ideation to innovation to product delivery – venture capital; collaboration between industry, research academia, non-profits and government; and driving engagement with early-stage tech founders, mature firms, capital providers and corporate innovators.

II. Strategic Rationale for the Charlotte–Kannapolis– Mooresville Corridor

A. Geographic Centrality and Statewide Reach

The central region of North Carolina, the Kannapolis-Mooresville-Charlotte region, is ideally positioned to host NC's OnRamp Hub. Such a location will optimally support the nation's defense needs by leveraging the developed connections with military operations and installations based in the eastern third of the state – rich in subject matter expertise specific to Special Operations and Rapid Reaction – with the manufacturing, financial, technological, research and creative powerhouse spread across the remaining two-thirds of North Carolina. But beyond the needs of the military activities based in NC, positioning the OnRamp Hub in this geographic region will most effectively mobilize the resources of the entire state to address the needs of all eleven combatant commands – a key element of DIU's core mission. This will unleash an ecosystem by linking resources from Raleigh to Charlotte and Wilmington to Asheville. Proximity to northern South Carolina and eastern Tennessee effectively extends the ecosystem as far as Charleston, Spartanburg, Clemson, Columbia, Shaw AFB, and potentially drawing in the Oak Ridge and Savannah River National Labs.

B. Transportation and Logistics Advantage

Another key element is the region's transportation connectivity. Centrally located, Charlotte Douglas International Airport, one of the busiest in the nation, provides excellent national and international connectivity. Robust interstate Highway connections and recently upgraded rail networks serve to streamline logistics and access for both personnel and matériel.

A more centrally located DIU presence would be a win-win proposition as not only would the DIU mission reap benefits but it would serve to energize resources in the region and promote economic expansion to a much greater extent than elsewhere.

This region is rich in assets which can serve as a base of operations enabling rapid start-up and agile pursuits.

III. Anchor Infrastructure: North Carolina Research Campus (NCRC)

A. A Proven Multi-Institutional Research Platform

The North Carolina Research Campus (NCRC), a crisp, attractive research complex in Kannapolis located adjacent to I-85, lies only thirty minutes north of Charlotte and one hour south of Greensboro. Initiated as a joint effort between the State of NC and the late financier David Murdock (then owner of Dole Foods), the original mission envisioned a focus on research around nutrition and health. A true phoenix rising from the ashes, it was built on the site of the former Cannon Mills Plant 1 (once the largest textile mill in the world) in the wake of that facility's closure - an event which resulted in the largest layoff in the state's history.

The state of NC financed a portion of the cost of its development and committed the participation of the University of NC System. The effort developed a 350-acre research campus consisting of a 310,000-square-foot Core Lab building and two additional buildings housing state-of-the-art labs, clinical facilities, and office space.

The site currently hosts research teams from eight universities (seven UNC System institutions and Duke University), several private firms and startups as well as venture capital firms:

- David H. Murdock Research Institute (DHMRI)
- Duke University
- North Carolina A&T State University
- North Carolina Central University
- North Carolina State University
- University of North Carolina at Chapel Hill – UNC Nutrition Research Institute
- University of North Carolina at Charlotte
- University of North Carolina at Greensboro
- Appalachian State University - Human Performance Lab
- Standard Process
- Coddle Creek Capital

B. Defense-Relevant Research Domains

With more than a decade of experience behind it, this unique multi-institutional collaborative environment fosters multidisciplinary work and accelerates innovation – qualities that are essential to modern defense challenges in the fields of biotechnology security, advanced materials, human performance optimization, and data analytics. The site has ample capacity to extend its areas of focus to encompass fields such as AI, autonomous systems, hypersonics, cyber and telecommunications, energy, human systems/performance, space and contested logistics.

IV. Workforce and Manufacturing Readiness

A. Rowan-Cabarrus Community College (RCCC)

Co-located at NCRC, RCCC provides a ready pipeline of trained technicians for sustaining, deploying and enhancing long-term innovations. It is well-placed and equipped to transition innovations into operational capabilities. RCCC's 55,000-squarefoot Advanced Technology Center is located adjacent to the college's biotechnology as well as the NCRC Core Lab facility. The Center supports training in areas such as mechatronics, additive manufacturing, pneumatics, and hydraulics. Okuma America has partnered with RCCC to provide OEM training for their products and technologies at the Advanced Technology Center.

These assets can dramatically shorten the time for the fruits of defense R&D efforts to make it into the hands of warfighters at multiple levels.

B. Advanced Manufacturing Expansion

Adjacent to NCRC, Jabil, Inc. is developing a new advanced manufacturing facility in Rowan County to support cloud and AI data center customers. The facility will specialize in manufacturing solutions for cloud and AI data center infrastructure, including server and rack integration and data-center subsystems.

Just to the south of NCRC, the Concord area exhibits a dynamic landscape with a mix of entrepreneurial start-ups and large, established actors.

The downtown Cabarrus Center for Innovation and Entrepreneurship, powered by Flywheel Coworking – a network of purpose-driven coworking spaces in the Southeast – offers workspaces, meeting facilities, networking, mentoring, educational programming, startup grants, and business resources to launch and grow businesses.

In June 2024, pharmaceutical giant Eli Lilly opened a production facility in Concord. The \$2 billion investment occupies just over one million square feet, featuring two main buildings for manufacturing: one producing injectable products and the other for device assembly and packaging. In selecting the Concord site, Lilly cited the sophistication of the area's existing manufacturing labor force plus the city's proximity to universities with strong programs in science, technology, engineering and mathematics. The company also highlighted the benefits of nearby transportation infrastructure, which is beneficial to the largely local workforce Lilly has amassed at the Concord site. The state-of-the-art facility leverages a mix of high-speed lines, automation, and robotics to assemble prefilled syringes into autoinjectors. The site also employs automated guided vehicles (AGV) which ferry materials through the facility along preset paths.

The area between Concord and Charlotte, along with Mooresville and nearby Statesville, constitutes the center of the nation's motorsports industry, serving as home-base for numerous NASCAR teams as well as Formula 1 racing teams.

V. Motorsports Engineering as a Dual-Use Asset

The corridor between Concord, Charlotte, Mooresville, and Statesville is the epicenter of U.S. motorsports engineering. Firms such as Hendrick Motorsports, Joe Gibbs Racing, Team Penske, Richard Childress Racing, and Keselowski Advanced Manufacturing possess world-class dual-use rapid prototyping, materials, and analytics capabilities already aligned with defense needs.

General Motors (GM) is bringing the Cadillac brand to Formula 1 in 2026 as an 11th team, establishing a significant power unit development facility near Hendrick Motorsports in Concord, to design and build engines. They anticipate full operations by 2027 to support the new American-backed entry with its hybrid power unit technology. The area is also where GM Defense, in conjunction with Hendrick Motorsports, manufactures the Infantry Squad Vehicle (ISV). These activities, in conjunction with their supply chains, represent a potent component of an ecosystem which is geared to high-quality, quick-response deliverables.

VI. Academic and Innovation Anchor: UNC Charlotte

The University of North Carolina at Charlotte, which recently attained the Carnegie Classification of R1 – one of five such institutions in the state counted among the nation's highest cohort of "Doctoral Universities: Very High Research Activity" - anchors a dynamic research and entrepreneurial ecosystem. The university is particularly strong in the areas of energy transmission, advanced manufacturing, metrology, optics, cybersecurity and protection of critical infrastructure. In the latter domain, the university has a strong

partnership with leading utilities as well as an ongoing relationship with entities such as the Electric Power Research Institute (EPRI). Representatives from UNC Charlotte contributed, for example, in the drafting of the cybersecurity component of the Army's Tactical Microgrid Standard (TMS).

The university is the academic anchor behind Charlotte's North Tryon Tech Hub, a major economic development initiative in Uptown Charlotte, North Carolina, focused on turning the North Tryon corridor into a vibrant center for innovation, technology, research, and entrepreneurship. It's part of a broader vision to strengthen Charlotte's tech ecosystem and anchor long-term economic growth in the region.

Key components of the Tech Hub include:

The Innovation District: The Tech Hub is a portion of Charlotte's North Tryon Vision Plan, a strategy covering roughly 60 acres around North Tryon Street in Uptown. It's designed to attract businesses, researchers, startups, and talent to the area, fostering collaboration between academia, industry, and entrepreneurs.

CO-LAB at UNC Charlotte Center City: A flagship shared space within the Tech Hub where entrepreneurs, faculty, students, and business leaders collaborate on real-world projects spanning fintech, AI, climate tech, and more. It houses multiple entrepreneurial support organizations and draws thousands of visitors.

Creative & Workforce Hubs: Initiatives like the Creative Lab Uptown aim to provide co-working, studio, and support spaces for young entrepreneurs and creatives, with workforce programs targeting under-resourced communities.

The objectives of the Tech Hub are to:

- Attract and grow talent in tech and related sectors.
- Support startups and small businesses with space, mentorship, and resources.
- Connect research with commercial innovation, leveraging UNC Charlotte's presence.
- Boost economic opportunity for youth and diverse entrepreneurs in Charlotte.

The North Tryon Tech Hub is part of Charlotte's long-term plan to transform Uptown into an Applied Innovation Corridor—a place where infrastructure improvements, mixed-use development, and creative enterprise converge to strengthen the city's competitive edge in tech and innovation. In short, the North Tryon Tech Hub isn't just a single building or office park—it's a strategic innovation ecosystem built to cultivate Charlotte's next generation of technology, creative industries, and entrepreneurial success.

UNC Charlotte boasts a number of high caliber individuals with experience and insights into the national security domain. These include SMEs with experience at the highest levels of the national security and policy establishments. For example, the lead for the university's effort to transition intellectual property into the commercial sector previously served as a Deputy Undersecretary of Commerce for Intellectual Property and Deputy Director of the US Patent and Trademark Office. Also in the intellectual property domain, the university sponsors an annual nationwide "Invention of the Year" award and ceremony to recognize such achievements. Many of the judges for this event are drawn from the highest echelons of the defense and security space. The inaugural event, held in 2025, marked a new era of celebrating innovation at UNC Charlotte. The categories for the first iteration included key research areas such as:

- Clean Energy & Power Systems
- Information & Data Science
- Life Sciences & Health
- Physical & Material Sciences

UNC-Charlotte also hosts the US Performance Center (USPS), a private entity working with US Olympic athletes to optimize performance at both individual and team levels. The owners of USPS were recently awarded the World Military Games for 2027 which will be held in Charlotte. This \$2 billion effort will see military teams from over 100 nations coming to the Charlotte region in June-July 2027 to compete in sports events on an Olympic scale.

The wider Charlotte innovation landscape has experienced rapid growth and expansion in recent years. As the second largest financial hub in the US, it attracts tech talent and investment, particularly in data analytics, cybersecurity, and AI. The area hosts a variety of incubators and accelerators supporting emerging tech companies. These provide ready pipelines for defense firms and entrepreneurial startups with dual-use applications. The strong financial sector provides access to investors, venture capital, mentors, and corporate partnerships crucial for scaling defense innovations.

Charlotte also hosts dynamic biotech activities. The city's biggest recent development in biotech and medical innovation is The Pearl, a massive public-private innovation district built to bring research, biotech, education, clinical care, and startups together in one ecosystem. Key elements include:

General Motors' forthcoming Formula 1 power-unit facility and GM Defense's Infantry Squad Vehicle production further reinforce this dual-use ecosystem.

A. R1 Research Strength and National Security Expertise

UNC Charlotte, recently designated an R1 institution, anchors the region's research enterprise with strengths in energy systems, advanced manufacturing, optics, metrology, cybersecurity, and critical infrastructure protection. Faculty and leadership bring direct national security and policy experience, including senior former Commerce and USPTO leadership.

B. North Tryon Tech Hub and Applied Innovation Corridor

UNC Charlotte is the academic anchor of the North Tryon Tech Hub, an applied innovation district integrating research, entrepreneurship, workforce development, and inclusive economic growth through initiatives such as CO-LAB, Creative Lab Uptown, and industry-focused collaboration spaces.

VII. Broader Innovation and Capital Ecosystem

A. Financial Services, Biotech, and Health Innovation

As the nation's second-largest financial hub, Charlotte offers deep capital markets, cybersecurity expertise, and AI talent. Biotech assets include The Pearl innovation district, Wake Forest School of Medicine–Charlotte, Connect Labs: Plug-and-play lab and office space for biotech startups, and IRCAD North America: The U.S. headquarters of a global surgical training and research institute focused on minimally invasive, laparoscopic, and robotic surgery.

B. High-Tech and National Security Firms

Northwest of Charlotte, the nearby Mooresville–Lake Norman area hosts a burgeoning high-tech and national security footprint with companies like Corvid Technologies, Emerging Technology Support, Apeiron UAV, MSI Defense Systems and others. Corvid Technologies hosts on-site high-performance computing and is currently in the midst of adding significant secure manufacturing space to its facility.

Oerlikon AM is one example of the caliber of firms in the area. The additive manufacturing (AM) division of OC Oerlikon, a Swiss-based global industrial technology group, Oerlikon AM focuses on industrial-scale metal additive manufacturing, combining advanced materials, production services, and digital manufacturing expertise. Oerlikon employs industrial-scale metal additive manufacturing, combining advanced materials, production services, and digital manufacturing. The site functions as a state-of-the-art additive

manufacturing (AM) innovation and production facility, anchoring the company's U.S. operations in one of the country's fastest-growing advanced manufacturing regions. The 125,000 sq ft Innovation Hub & Advanced Component Production facility is designed to support research, development, and volume production of complex AM parts. It serves as Oerlikon AM's central U.S. production site for additive production, design engineering, and post-processing of high-precision components. Oerlikon has a close research engagement with UNC Charlotte and has donated industrial AM equipment to the university's William States Lee College of Engineering, supporting hands-on education and research in metal Additive Manufacturing.

In the communications domain, Corning Optical Communications, a leading manufacturer of fiber optic communications system solutions for voice, data and video network applications worldwide, has its headquarters in Charlotte. Just to the west of Charlotte, in the Hickory area, the company manufactures optical fiber and optical cable used for high-speed telecommunications and broadband networks. In 2023, they opened a large optical cable manufacturing campus ("Trivium campus") to support fiber broadband buildouts and help connect underserved and rural communities to high-speed internet. This includes multiple new facilities and hundreds of jobs as part of a multi-hundred-million-dollar investment.

Charlotte is home to the Siemens Charlotte Advanced Technology Collaboration Hub (CATCH). CATCH is a strategic technology and research facility the objective of which is to help accelerate and industrialize additive manufacturing (AM) and related digital manufacturing technologies. It's designed as a collaborative ecosystem and innovation platform where Siemens works closely with industry partners, machine builders, end users, and national research labs

C. Capital

Venture capital resources in the area include Task Force X (TFX) Capital, Sparta Wealth Partners and Alphatec Partners, among other actors.

TFX, for example, is dedicated to empowering service-driven leaders through three core pillars:

TFX Advisors - accelerating growth by leveraging best practices from successful startups.

TFX Capita - investing in early-stage startups tackling national security and healthcare challenges.

Service First Foundation - providing resources and support to mission-driven entrepreneurs.

VIII. Communications, Space, and Western NC Assets

A. Communications Infrastructure

Corning Optical Communications, headquartered in Charlotte, anchors fiber and broadband manufacturing across western North Carolina, supporting secure communications and resilience.

B. Space and Astronomy Capabilities

Nearby Asheville is ranked as one of the fastest-growing tech hubs in the U.S. in recent years, reflecting notable expansion in software companies and remote tech talent.

Also in the Asheville region lies the Pisgah Astronomical Research Institute (PARI). PARI is a unique scientific, educational, and research facility in Balsam Grove, North Carolina, about 30 miles southwest of Asheville. A former NASA and NSA satellite tracking and communications facility, it is located on a 200-acre remote site and has four 26-meter radio telescopes and tracking and communications capabilities. The site is also equipped with multiple optical telescopes of 18" to 24" size. It is one of only two dark sky sites in NC and serves as a non-profit observatory and STEM center, with capabilities spanning research astronomy, education, public outreach, and data archiving.

IX. Cost Efficiency and Taxpayer Value

Compared to peer tech hubs, the Charlotte region offers a significantly lower cost of living thus rendering it more affordable and attractive for businesses and employees – DIU will get more “bang for the taxpayers’ bucks” to achieve greater mission impact per federal dollar while attracting and retaining top talent.

Conclusion

The Charlotte metro region represents a rare convergence of national security relevance, industrial capacity, research excellence, and logistical connectivity. Few locations can offer DIU a comparable ability to translate ideas into deployable capabilities at speed and scale—while simultaneously strengthening domestic supply chains, workforce readiness, and regional economic resilience.

From the North Carolina Research Campus and advanced manufacturing assets in Kannapolis and Concord, to UNC Charlotte’s R1 research enterprise and the North Tryon Tech Hub, to motorsports-driven rapid prototyping, secure computing, biotechnology, energy, and communications infrastructure, this ecosystem is purpose-built for the

demands of modern defense innovation. The presence of strong community college pipelines, global firms, venture capital, and a deep bench of national security and policy expertise further reduces friction from concept to contract to capability.

Placing North Carolina's DIU OnRamp Hub in the Charlotte region is not merely a geographic decision—it is a strategic one. It ensures that DIU gains a centrally connected, operationally agile, and economically efficient foothold capable of serving all eleven combatant commands. In doing so, it delivers maximum return for taxpayers, accelerates outcomes for the warfighter, and positions North Carolina as a national leader in defense innovation for decades to come.

Why Charlotte

The Optimal Location for North Carolina's DIU OnRamp Hub

The Case in One Sentence

Placing North Carolina's Defense Innovation Unit (DIU) OnRamp Hub in the Charlotte–Kannapolis–Mooresville corridor delivers the fastest path from commercial innovation to operational capability—at the lowest cost to taxpayers—by leveraging unmatched connectivity, industrial depth, and research capacity.

Why It Matters to the War Department

Directly Advances DIU's Mission

Charlotte enables rapid access to non-traditional, dual-use technology providers and supports transition across all eleven combatant commands—aligning squarely with DIU's core mandate.

Mobilizes the Entire State (and Beyond)

This central location links military installations and special operations expertise in eastern North Carolina with advanced manufacturing, energy, finance, biotech, and R&D assets statewide, while extending reach into South Carolina and Tennessee (including Shaw AFB, Charleston, Clemson, Oak Ridge, and Savannah River).

Operational Advantages

Immediate Stand-Up Capability

The North Carolina Research Campus (NCRC) in Kannapolis offers ready lab, office, and collaboration space within a secure, multi-institutional environment with a proven track record of accelerating innovation.

National-Scale Connectivity

Charlotte Douglas International Airport—one of the nation's busiest—combined with robust interstate and rail infrastructure enables efficient access for personnel, partners, and materiel.

Innovation at Speed and Scale

Advanced Manufacturing & Rapid Prototyping

The region hosts world-class capabilities in additive manufacturing, robotics, mechatronics, and precision engineering. Motorsports engineering firms already supporting defense programs bring unmatched rapid-iteration expertise.

Research Excellence with Defense Relevance

UNC Charlotte, an R1 institution, anchors the ecosystem with strengths in energy systems, cybersecurity, optics, advanced materials, and critical infrastructure protection—supported by faculty and leadership with direct national security and federal policy experience.

Biotech, Data, and Human Performance

Assets including NCRC, The Pearl innovation district, Wake Forest School of Medicine–Charlotte, and the U.S. Performance Center support defense priorities in biotechnology security, medical readiness, and human systems optimization.

Workforce & Supply Chain Readiness

End-to-End Talent Pipeline

Regional universities and Rowan-Cabarrus Community College provide a trained workforce capable of sustaining, scaling, and deploying defense technologies.

Strong Non-Traditional Supplier Base

Startups, mid-tier firms, and large enterprises with dual-use capabilities are already operating in the region—the precise supplier profile DIU is designed to engage.

Taxpayer Value

Lower Cost, Higher Return

Compared to coastal tech hubs, Charlotte offers a significantly lower cost of living and operating environment—allowing DIU to achieve greater mission impact per federal dollar.

Bottom Line

Charlotte offers DIU a **ready, scalable, and cost-efficient platform** to accelerate innovation to the warfighter. Locating North Carolina's OnRamp Hub in this corridor is the fastest and most fiscally responsible way to deliver results—now and over the long term.