North Central Texas Agile Curriculum Program for Aviation, Aerospace and Defense Manufacturing

Project Narrative

Objectives and Need for Assistance

Introduction and Background

The North Central Texas Council of Governments (NCTCOG) submits this application as the Lead Organization on behalf of a broad and diverse group of North Texas aviation, aerospace and defense manufacturers and the suppliers, workforce agencies, and educational institutions that support aviation, aerospace and defense manufacturing in North Texas. The North Central Texas Agile Curriculum Program will focus increasing the skill level of the workforce in aviation, aerospace and defense manufacturing by developing an institutionalized program, setting in place a framework, developing agile curriculum to meet the needs of industry partners, and recruiting and training students from existing employees and new applicants. This effort will be led by a governing body made up of industry, educational, and agency stakeholders to guide curriculum development and implementation.

NCTCOG has been working in the compatible use planning sphere since 2006 when the agency received a grant for a Joint Land Use Study (JLUS) around Naval Air Station Joint Reserve Base, Fort Worth (NAS JRB Fort Worth). Following this study, the NAS JRB Fort Worth Regional Coordination Committee was formed, which is made up of local governments surrounding the installation. A second JLUS was completed in 2018 and NCTCOG currently has a Compatible Use Program Implementation grant through the Office of Local Defense Community Cooperation. Through this work, NCTCOG has gained many contacts in the military and defense industry. These groups collaborated on an application to the Defense Manufacturing Community Support Program in 2020, which was ultimately not successful, but led to refinement of the scope of work down to the agile curriculum program presented here.

The North Texas region, commonly known as Dallas-Fort Worth or DFW, is characterized by many strengths that support the aviation, aerospace and defense manufacturing environment, including a highly educated workforce, a strong aerospace and aviation sector, a long history of technological innovation, and a unity of purpose among the public, private, and academic sectors.

Education

North Texas' 70-plus accredited universities and colleges provide the intellectual horsepower to drive one of the nation's most diverse economies. The University of North Texas at Denton (UNT), the University of Texas at Dallas (UTD), and the University of Texas at Arlington (UTA) are R-1 universities (very high research capability) in the Carnegie Classification of Institutions of Higher Education ranking, a greater concentration than any other region in the state. UTD is ranked third in the number of graduate students in computer science in the U.S. UTD, UTA, and Texas A&M University at Commerce rank second, third, and eleventh among the fastest-growing doctoral universities in the U.S. North Texas is the center of gravity for a five-state region that awarded more than 312,000 post-secondary credentials in 2018, including more

than 53,000 post-secondary degrees from North Texas institutions alone. University partners in this project include UTA, UTD and UNT at the program initiation.

As identified in a 2017 report entitled North Texas Aerospace and Aviation Talent Pipeline Study, North Texas community colleges currently offer certificates and associate of arts degrees as compared to universities that offer baccalaureate, masters, and Ph.D. degrees. In 2017, these post-secondary institutions offered a total of 39 certificate and degree programs of interest to North Texas defense related companies. The region's educational institutions have a long history consulting with employers to determine the feasibility and need for new programs and the curriculum design. However, maintaining these partnerships at the institutional level over the long term can be challenging because of limited staff and organizational capacity within both the employers and the educational institutions.

These colleges will play an important role in the certificate element of the agile curriculum program. Dallas College includes 7 campuses throughout Dallas County with over 101,000 credit and continuing education students participating in over 300 academic and technical degrees and certificates. The Dallas College system features schools of Engineering, Technology, Mathematics & Sciences as well as Manufacturing & Industrial Technology that are ideally suited for participation in the agile curriculum program. Tarrant College includes 6 campuses in Tarrant County with over 98,000 students enrolled in over 200 degree, certificate and occupation skills award programs. The Tarrant College system offers science and engineering fields of studies as well as internship programs in technical fields. Finally, Collin College includes 10 locations with over 59,000 credit and continuing education students participating in over 100 degrees and certificates including technical credit and workforce areas of study.

The 2017 study further points out that the region has specific examples of industry-academia partnerships that include industry community college partnerships to leverage state Workforce Development Funds for pipeline education and training programs. In addition, industry is working with technical schools to develop a pre-employment pipeline where students are pre-screened and vetted for employment by industry and receive additional training specific to industry needs while still in school. These partnerships also include instructors working at company sites to shape curriculum. Many instructors and faculty leverage their relationships with industry to help students identify and secure internships, work experience, and job placements during or after their coursework. However, these opportunities are person-dependent; they are not built into the systems and practices of either the educational institutions or the companies. This makes them highly flexible but also vulnerable to personnel changes.

Employers interviewed for this study expressed great interest in establishing more co-ops, where structured work experiences are built into the curriculum and students receive credit for this work toward their degree. However, educational institutions point out that the significant time requirements that are already imposed for graduation and accreditation make adding co-op hours extremely challenging.

North Texas colleges and universities have partnered over the past decade to leverage research capacities, attract talented students and researchers, and find new ways to partner with the private sector. For instance, the Texas Research Alliance (TRA), a partnership among North Texas' largest chambers of commerce, engages the private sector to determine critical

research and development needs and then connects companies with appropriate university research faculty across university systems to meet those needs.

Another effort that began to take shape around the Amazon HQ2 site selection process led to the production of Higher Education Review, a compendium of North Texas college and university strengths and contributions to what is one of the biggest centers for higher education in the U.S. The Review is scheduled for release shortly and will serve both as a talent recruitment tool and a call for legislative action regarding higher education funding. Most importantly, the effort has opened the door for the entire post-secondary system of education providers in North Texas to rapidly stand-up a regional effort to support disciplines, technologies, and industries with curriculum, faculty, and other resources.

Workforce Development

From a workforce development standpoint, North Texas is served by three workforce boards – Workforce Solutions North Central Texas, Workforce Solutions for Tarrant County, and Workforce Solutions Greater Dallas. Although they function as independent service providers, the three North Texas workforce boards closely coordinate activities in several areas, including veteran employment and industry cluster support. The latter falls under the auspices of the Regional Workforce Leadership Council (RWLC), a collaboration among North Texas workforce boards and industry leaders. Dating to the early 2000s, the RWLC was created to anticipate and meet the overall workforce needs of key industry clusters in North Texas. The aerospace and aviation cluster has proven to be one on the most successful efforts, largely due to the leadership of defense industry representatives on the RWLC. A key initiative of the aerospace and aviation cluster has been on promoting aviation careers to middle and high school students through participation in career fairs, promoting an aviation speakers bureau and development of the FLYBY DFW app, a flying game for Android and iPhone devices that incorporates aviation education and links to the NCT Aviation Careers website.

Strong Aviation/Aerospace/Defense Concentration

The RWLC selected the aviation, aerospace and defense industries as a key regional cluster for a number of reasons, including the concentration of major airlines' headquarters, the cargo and passenger transport capacity in the region, the contribution of the defense industry to local employment and economic output, and the non-defense-related technology benefits that accompany defense-specific research and development.

North Texas is among the nation's top regions for aviation, aerospace and defense activity. The region is home to the headquarters of two major airlines: American Airlines (Fort Worth) and Southwest Airlines (Dallas). Southwest operates a major maintenance base at Dallas Love Field, creating a strong foundation of aviation employment. Envoy Air, a regional jet operator and American Airlines partner, is headquartered in Fort Worth.

The regional aerospace and defense industries comprises more than 600 companies, accounting for more than 90,000 jobs in North Texas. Lockheed Martin and Bell Helicopter are the largest area aerospace/defense employers, with more than 25,000 000 employees between them. Furthermore, Airbus Helicopters North American headquarters is in Grand Prairie. L3Harris Technologies, Collins Aerospace, Elbit Systems of North America, Triumph, and Raytheon have major operations in the region.

Innovation Ecosystem

On the innovation front, North Texas is the home to many technology breakthroughs, not the least of which occurred in 1958. Texas Instruments led the nation into a new era of information and communication technologies with Nobel Laureate Jack Kilby's invention of the microchip. This invention spurred the development of laptop computers, smartphones, and space travel. Texas Instruments also anchors the Telecom Corridor, encompassing approximately 30 square miles in Dallas and Collin counties. The Telecom Corridor is one of the most significant high-tech business concentrations in the U.S., spawning thousands of patents. It also serves as the backbone for the Richardson Innovation Quarter, one of at least eight clusters of innovation activity in the region.

In that spirit, a recent collaboration among university, non-profit and private sector representatives in North Texas undertook an assessment of the regional capacity to remain in a leadership role for the development and application of new and emerging technologies. Many factors were considered, including talent development and attraction, ability to secure public and private funding, short- and long-term economic projections, entrepreneurial spirit and supporting infrastructure and research, and patent and commercialization successes. The resulting conclusions in the Dallas-Fort Worth Regional Innovation Study 2018 informed a strategic plan for creating a regional innovation economy that recommends extending advances in the "internet of things," artificial intelligence, blockchain technologies, and extended reality across the strongest North Texas industry sectors, including aerospace and aviation.

Large and Growing Tech Industry Employment Base

North Texas has the seventh largest concentration of high-tech workers in the U.S and North Texas' tech sector is growing more rapidly than in almost all major US metropolitan regions, as seen in Figure 1.

Figure 1.

Region	2015 Jobs	2020 Jobs	2015-2020 Change	2015-2020 % Change	Total Jobs Rank	Absolute Change Rank
New York	462,540	501,052	38,512	8.3%	1	3
Washington, DC	345,285	368,523	23,238	6.7%	2	10
Los Angeles	330,257	363,345	33,088	10.0%	3	7
San Francisco	228,537	280,946	52,409	22.9%	4	1
Boston	231,411	269,332	37,920	16.4%	5	5
Chicago	240,682	256,525	15,843	6.6%	6	14
Dallas-Fort Worth	216,110	255,115	39,005	18.0%	7	2
Seattle	203,863	242,268	38,405	18.8%	8	4
San Jose	204,025	240,167	36,142	17.7%	9	6
Houston	203,342	210,664	7,321	3.6%	10	20

Strong Digital Infrastructure

North Texas has one of the strongest digital infrastructures in the U.S. Situated in a near-perfect geographic region for IT hosting and data center operations, North Texas is in the Central Time Zone, which is effective for institutions operating on both coasts. Speed and reliability are

important for any IT operation, and high-speed fiber connectivity is plentiful in the area. An extremely low incidence of natural disasters offers an environment with little disruption to data center up time. Compared to other peer metropolitan regions, North Texas offers some of the lowest power rates for large industrial users. For these reasons, North Texas ranks third among global data center markets according to the Cushman & Wakefield study, Global Data Center Market Comparison.

Regional Military Presence

North Texas hosts and has a regional connection with significant military installations, most notably Naval Air Station Joint Reserve Base, Fort Worth (NAS JRB Fort Worth), which is home to U.S. Navy, U.S. Air Force, U.S. Army, U.S. Marine Corps and the Texas Military. The base employs over 11,000 Active Duty, Reserve, and civilian personnel. With over 44 tenant commands in place, NAS JRB Fort Worth continues to grow as a strategic military asset with announcement in December 2020 of the intentions of the U.S. Air Force to establish the F-35A as the primary fighter aircraft supporting the 301st Fighter Wing at NAS JRB Fort Worth, with aircraft arriving in 2024.

Significant military installations are shown in Figure 2.

Figure 2.

Military Presence in the Dallas-Fort Worth-Arlington MSA

NAME	ADDRESS	CITY	STATE	ZIP	TYPE	Personnel
Naval Air Station Joint Reserve Base Fort Worth (Formerly Carswell Airforce Base)	1510 Chennault Avenue	Fort Worth	TX	76127	Navy Reserve; Marine Corps Reserve; Army Reserve; Texas Air National Guard	11,000*
Grand Prairie Armed Forces Reserve Complex (Formerly Naval Air Station Dallas / Hensley Field)	Camden Rd	Grand Prairie	TX	75051	Texas Army National Guard; Texas Air National Guard; Marine Forces Reserve; Army Reserve	N/A
Other Nearby Military Bases						
Sheppard Air Force Base (3.5 hours NW)		Wichita Falls	TX	76311		
Fort Hood (3 hours SW)		Killeen	TX	76544		
Dyess Air Force Base (3.5 hours W)		Abilene	TX	79607		

*Combined active, reserve, and civillian personnel

Implementation Activity Need for Assistance

The 2018 report of the Interagency Task Force in Fulfillment of Executive Order 13806, Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States, notes that accelerating workforce development efforts to grow domestic science, technology, engineering, mathematics (STEM), and critical trade skills are a strategic critical need in supporting our national defense industry. The report notes that diminishing U.S. STEM and trade skills, increasing globalization of the supply chain and a diminishing domestic manufacturing sector are combining to create human capital gaps and erosion of American defense manufacturing capabilities. Specifically, STEM knowledge and core trade skills are necessary to ensure the holistic and synergistic health of the defense ecosystem. The Bureau of Labor Statistics projects that STEM jobs will see an increase of 11%, which is much higher than the average occupational rate increase, which is expected to be 7.4% between 2016 and 2026. Also noted was the overall aging of the manufacturing workers across the defense industry. The most concerning aspect of the manufacturing workers demographics is the decrease in workers

in the 35-44 age range. In the prime of their careers and poised to internalize knowledge transfer from older workers, the loss of mid-career workers to other sectors poses a direct threat to the long-term viability of manufacturing. The risk that knowledge will fail to be transferred to new entrants into the labor market is rising, particularly in skilled production occupations, which account for over 50% of manufacturing workers.

This study cites that some of the most challenging aspects in the manufacturing sector are recruitment and retention. In a recent manufacturing skills gap study conducted by the Manufacturing Institute and Deloitte, only one third of respondents indicated they would encourage their children to pursue a career in manufacturing. Gen Y (ages 19-33 years) respondents ranked manufacturing as their least preferred career destination. Yet once a candidate is hired, the struggle continues. 79% of executives surveyed stated it is moderate to extremely challenging to find candidates to pass screening and/or the probationary period, leaving them with employees unable to perform the work for which they were hired.

When industry or the government is unable to hire or retain U.S. workers with the skills sets, or capabilities, needed to support the industrial base, gaps in U.S.-based human capital arise. According to this study in December 2017, a survey of 662 manufacturing companies conducted by the National Association of Manufacturers found the inability to attract and retain a quality workforce the top business challenge, cited by 72.9% of respondents. To address this workforce challenge, 66% of respondents said they are increasing the workload of their existing employees. 34.4% stated their company had been unable to take on new business and had lost revenue opportunities because of the inability to attract and retain workers. Given the number of manufacturers who exist in the supply chain of the industrial base, these numbers are significant. The industrial base consistently competes with commercial industry for STEM talent, and the education pipeline is not providing the necessary resources to fully meet current or future demands in the commercial sector and defense ecosystem, such as software design engineers and biophysicists. In addition, the trade skills gap affects a wide range of occupations (e.g., industrial machinery mechanics and welders) which could have potentially significant impacts on production of critical defense-related materials, vehicles, and machinery, as well as other goods and services necessary to supply our nation's armed forces.

North Texas aviation, aerospace and defense manufacturers face a chronic shortage of software talent and existing software resources are not fully aligned with DoD's "software factory" approach. With respect to software, the report states that "Software skills are also a critical issue for the aircraft sector. In fourth-generation fighters, software made up about 15% of the total engineering of the aircraft. In fifth-generation fighters, software now accounts for over 40% of the engineering of the aircraft. It is becoming increasingly difficult to hire skilled, cleared, and capable software engineers." Failure to plug the gaps that are current weaknesses poses a long-term threat to the health of the North Texas aviation, aerospace defense manufacturing community.

The Dallas-Fort Worth Aerospace Consortium commissioned a study that was completed in 2017 called the North Texas Aerospace and Aviation Talent Pipeline Study that assessed needs and provided recommendations specific to the North Texas region. Key findings for the regional aerospace industry are increased investment and use of automation, additive manufacturing, advanced materials, sensors, composites, and 3-D printing as well as turnkey solutions that integrate design engineering, process development, supply chain management, manufacturing installation, training, and support. The use of composites and 3-D printing changes the mix of manufacturing skills required and increases the need for technicians trained in adhesive and

bonding materials, repairing and maintaining composites, and techniques for testing these materials. The move to turnkey solutions demands employees with more advanced and additive manufacturing skills. Increased sustainment and maintenance operations in aerospace create demand for workers with high-end custom design, manufacturing and repair skills rather than “drill and fill” assembly. The report also identified the need regionally to bring younger and more diverse candidates to the aerospace manufacturing sector.

This report also identified some challenges in the education environment that need to be addressed to produce qualified candidates for these more specialized positions. Technical programs are not generating enough graduates to meet demand for adhesive bonding machine operators and tenders; aircraft assemblers; aircraft mechanics and service technicians, particularly programs that prepare candidates for A&P certification; and machinists, including CNC machinists. The number of graduates from software developer, applications developer and computer network/software systems programs is insufficient to meet employer demand for these positions. Employers prefer to hire individuals with work experience. There is broad agreement among educators, workforce training providers and employers about the importance of providing opportunities for students to gain real-world, hands-on experience, and the need for more such programs. While some large employers offer structured, formal internship programs, many others operate on an ad hoc basis and rely on individual relationships with particular education institutions, between an instructor and specific supervisors or departments for implementation.

Overall, new graduate supply does not meet employer demand for occupations like avionics technicians, aircraft mechanics, aerospace engineers, CNC machinists, adhesive bonding machine operators and tenders, and computer application developers. In these cases, the majority of labor supply is currently coming from churn in existing workers or Unemployment Insurance (UI) applicants who may or may not be currently available for work and may not have the right skills for open positions. Software developers, application developers and computer analysts, which are growth positions, are in short supply across the region. Aerospace and aviation employers are competing with many other industries to hire for these positions. The number of new graduates in these fields is insufficient to meet regional demand overall. Aerospace and aviation employers need to aggressively market their positions to IT graduates and collaborate with employers in other industries to increase the number of completions in these programs.

NCTCOG in partnership with aviation, aerospace and defense manufactures, universities, community colleges, workforce boards, chambers of commerce and economic development entities is proposing an agile curriculum council that will increase the resiliency of the manufacturing and defense industrial base by expediting the availability and qualifications of STEM graduates. This council is specifically geared towards closing gaps in the robust North Texas aviation, aerospace and defense manufacturing sectors by making improvements that leverage existing resources and are sustainable over the long term.

It is clear from our regional as well as national experience that the tools for helping students be prepared to be life-long learning and as well as be successful in their first post-graduation jobs are available. These tools, internships, certificate training, co-op programs and articulation agreements between universities and community colleges are already in our toolbox. The missing component is institutionalizing the continuing relationships and feedback loops between companies and educational institutions.

To meet this need, we propose a coordinating body and institutional road maps that will, on a continuing basis, bring industry and academia together to constantly provide real-time enhancements to the existing tools to and deliver graduates who are lifetime learners as well as ready for success in their first job. This group will have a governing board and technical advisory committees. The governing board will maintain the organization as well as promote and execute programs. The body will provide the framework for needs development and facilitate the transition of those needs into tool solutions (certificates, training programs and degrees) that will meet the needs expressed stakeholders.

The OLDCC process as shown is Figure 3 will be the foundational logic guiding the overall development and implementation of the agile curriculum program. The iterative process of getting program feedback and emphasis on communication are two key element that will drive this process.

Figure 3.

Grant Abstract

The North Central Texas Agile Curriculum Program will focus on increasing the skill level of the workforce in aviation, aerospace, and defense manufacturing by developing and institutionalizing a framework for agile curriculum development that meets the needs of industry partners. This reduces the time required for rapid upskilling and reskilling of existing employees and post-secondary education new hires as well as recruiting and training students who are job-ready from day one.

The overall goals of the project are to develop a sustainable agile curriculum program founded on communication and relationship-building of, by, and for program stakeholders; develop the agile curriculum materials that will drive the appropriate degree, certificate, or internship programs within existing educational institutions and industry partners; expedite more workers

with job-ready skills needed in the industries; and deliver the training programs to upskill and reskill employees and new hires.

Project deliverables include creating a framework agreement to guide the program, creating an inventory of existing training as well as creating a system for identifying and filling training gaps that will ultimately be prioritized, establishing program organizational implementation maps, creating evaluation criteria, establishing a governing body and technical advisory committees, collecting and reporting data, developing long-term sustainability and expansion plans, developing the agile curriculum materials to meet established training gaps, implementing the agile curriculum courses, certificates, training programs, and internships in educational institutions and industry, linking training courses with internships, and recruiting and training teachers and students. The North Central Texas Council of Governments is serving as the sponsor for the 18-month study and will coordinate with partners throughout the region.

Results or Benefits Expected

Funding for the agile curriculum initiative is expected to achieve three overarching goals: (1) development of a sustainable agile curriculum program founded on communication and relationship-building of, by and for the program stakeholders; (2) development of the agile curriculum and appropriate degree, certificate and internship programs within educational institutions and industry partners that will expedite upskilling and retraining of the current workforce and facilitate a greater availability of well-trained and highly qualified applicants; and (3) work through existing and newly-created structures to recruit students and deliver training to upskill the current workforce and training new employees.

Development of a sustainable agile curriculum program founded on communication and relationship-building of, by and for the program stakeholders.

- A framework should be developed, as depicted in Figure 4 by the program stakeholders that guides implementation through inventorying current training, identifying initial training gaps, agreeing to work together and utilize innovative approaches, and developing evaluation criteria.
- An institutionalized organization is needed to serve as the main point of contact, carry out grant and agreement requirements, build and maintain program contact road maps, and provide staff to the initiative.
- A governing body, along with technical advisory committees as necessary, should be established composed of program stakeholders that meets on a continuing basis to implement the framework and ensure the program is achieving results.
- While startup funding from the Department of Defense is needed, the program needs to demonstrate value, by establishing realistic outcomes and achieving results, to all program stakeholders and eventually be funded through the local community and can serve as a catalyst for expanded agile curriculum programs for more schools in North Texas as well as across Texas and the U.S or in additional types of manufacturing.
- Active feedback is critical to the agile curriculum program and data needs to be collected at all levels to ensure the program is meeting established criteria and that new training needs are constantly evaluated and addressed to ensure long-term sustainability and value to the program stakeholders.

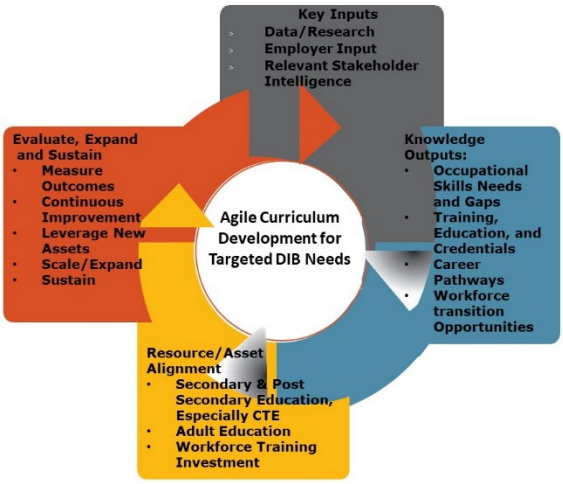
<u>Development of the agile curriculum and appropriate degree, certificate and internship programs within educational institutions and industry partners that will expedite upskilling and retraining of the current workforce and facilitate a greater availability of well-trained and highly qualified applicants.</u>

- As training needs are identified by the governing body, curriculum will be developed through an integrated approach among the program stakeholders, which may be targeted to upskilling existing employees or attracting new applicants.
- With each new course developed, education institutions will need to implement the curriculum into an appropriate degree or certificate program, including identifying appropriate instructors.
- Degree and certificate programs need to be linked to internship programs within industry to enhance the ability of participants to be "job ready" upon completion of the education and on-the-job training components.

<u>Work through existing and newly-created structures to recruit students and deliver training to upskill the current workforce and training new employees.</u>

- With curriculum developed and on offer at educational institutions, students will be recruited from the current workforce as well as new applicants and focus should be given to recruiting both from students traditionally underrepresented in aviation, aerospace and defense manufacturing careers as well as military personnel transitioning from active military service to civilian employment.
- Students will need to understand the benefits of participation in the agile curriculum program and industry internships as a viable career path.

Figure 4.



Project Approach and Timeline

It is anticipated that the North Central Texas Council of Governments (NCTCOG) will serve as the project sponsor for the North Central Texas Regional Compatible Use Program. A resolution from the NCTCOG Executive Board supporting the application submission is included as Attachment 1. No major factors are expected to impede work, although coordination amongst many partner organizations as well as starting a completely new effort in the North Texas area may be difficult. NCTCOG complies with conflict of interest requirements under 2 CFR Part 200.112 and mandatory disclosures under 2 CFR Part 200.113. NCTCOG is not aware of any actual or potential, personal, or organizational conflicts of interest in its application. NCTCOG has not been subject to any actions that would disqualify them from receiving a Federal award.

The North Central Texas Council of Governments (NCTCOG) is pursuing funding from the U.S. Department of Defense Industry Resiliency Program for the creation of an Agile Curriculum Development Program. By partnering closely with aviation, aerospace and defense manufacturers, universities and community colleges, as well as community organizations this initiative will create a program framework leading to industry coordinated education and training that will result in certificates, course offerings, and work experiences to expedite the availability of upskilled employees and well-prepared, highly qualified job applicants. The primary goal of this program is to increase the availability of workers that can immediately respond to the rapidly growing and evolving Aviation, Aerospace and Defense Manufacturing Industries in North Texas. This grant application is based on a logic model used to plan elements of the program, included as Attachment 2.

NCTCOG will work with program stakeholders throughout the entire program. Though this list is likely to change as time goes on, an initial list is included here:

Agency/Organization Stakeholders

Texas Research Alliance

North Texas Center for Mobility Technologies

North Texas Commission

North Texas Commission Aviation, Aerospace & Defense Council

Work Force Solutions for Tarrant County

Work Force solutions for Dallas County

DFW Regional Aerospace Consortium

NAS JRB Fort Worth Regional Coordination Committee

NCTCOG Regional Transportation Council

Fort Worth Chamber of Commerce

Dallas Regional Chamber

Arlington Chamber of Commerce

Aviation, Aerospace and Defense Industry Stakeholders

Lockheed Martin

Bell

L3Harris

Raytheon Technologies

Elbit Systems of North America

National Defense Industrial Association, Lone Star Chapter

Education Stakeholders

Dallas College

Tarrant County College

Collin County College

University of Texas at Arlington

University of Texas at Dallas

University of North Texas

NCTCOG also anticipates subgrantee awards to a specific set of partner stakeholders to administer components of the agile curriculum program and to develop the curriculum courses. The entities anticipated to be subgrantees are:

- Dallas College
- Tarrant College
- University of Texas at Arlington
- University of Texas at Dallas
- University of North Texas
- North Texas Commission

The implementation effort is anticipated to take 18 months to complete with a goal to continue the program past this time if the program demonstrates success. A preliminary project timeline is provided below.

Timeframe	Milestone
July 2020	North Texas application to the Defense Manufacturing Community Support Program
October 2020-March 2021	Coordination with partner organizations to develop relationships and refine scope of work
April 2021	Final Agile Curriculum Application to be submitted
Summer 2021	Anticipated grant award announcement
Months 1-6	Implementation of Tasks 1-4
Months 7-12	Implementation of Tasks 5-7
Months 9-18	Implementation of Task 8

Months 17-18	Prepare Study Report
Months 17-18	Next phase grant submittal

<u>Development of a sustainable agile curriculum program founded on communication and relationship-building of, by and for the program stakeholders.</u>

Task 1: Program Initialization

- Framework agreement among the program stakeholders to determine roles and responsibilities, guide implementation of the agile curriculum program and utilize innovative approaches to deliver the curriculum to students.
- Inventory of current training programs related to aviation, aerospace, and defense manufacturing careers with a focus on participating educational institutions, but that may include other North Texas colleges and universities.
- Using a compression planning approach (Attachment 3), inventory and prioritization of initial training gaps (curriculum, instructors, facilities, workforce needs, etc.) in these industries to be addressed through the agile curriculum program.
- Evaluation criteria, including performance metrics and a framework for data to be collected and reported, to determine success of the program.

Task 2: Project Management

- Completion of all federal grant agreement, reporting, and reimbursement requirements.
- Management of all subgrantee agreements, invoice reviews, and payments.
- Program contact road map maintained with current points of contact for each program stakeholder defining institutional touch points and responsibilities.

Task 3: Governing Body

- Establishment of a governing body composed of program stakeholders, including development of bylaws or standard operating procedures.
- As necessary, establishment of technical advisory committee that report to the governing body that bring specialized knowledge or to focus on components of the overall program.
- Ongoing staff support to the governing body and technical advisory committees.

Task 4: Feedback Loop and Program Sustainability

- Feedback loop process and tool developed to collect data, report on progress towards outcomes, and identify needed program improvements related to academic implementation, student completion/graduation, career placement, and student career performance, among others.
- Plan for long-term funding through the program through demonstrated success or program outcomes.
- Evaluation of the potential to expand the agile curriculum program to the DOD manufacturing institutes and additional North Texas academic institutions as part of those organizations' processes.

Development of the agile curriculum and appropriate degree, certificate and internship programs within educational institutions and industry partners that will expedite upskilling and retraining of the current workforce and facilitate a greater availability of well-trained and highly qualified applicants.

Task 5: Agile Curriculum Development

- Based on prioritized training gaps identified, agile curriculum will be developed as a collaborative process among program stakeholders at the appropriate level (enhancement to existing courses, new courses, degree programs, certificates, training for specific employer, etc.) and may be targeted to upskilling existing employees or attracting new applicants.

Task 6: Agile Curriculum Deployment

- As new agile curriculum courses are developed, the appropriate educational institution will prepare to offer the course for students, including identifying appropriate instructors.
- Training for instructors in the newly developed curriculum.
- If necessary, educational institutions adoption of certificate or other non-degree completion achievement.

Task 7: Internships and On-the-Job Training

- Industry stakeholders link internships or on-the-job training for agile curriculum program students to enhance the students' job readiness.
- Some agile curriculum courses, especially within degree programs, may have internship requirements built into the degree structure.

Work through existing and newly-created structures to recruit students and deliver training to upskill the current workforce and training new employees.

Task 8: Student Recruitment and Career Path

- Student recruitment strategic plan.
- Student recruitment materials developed and distributed to students at all levels (high school, community college, university, existing workforce) to promote each agile curriculum course as well as to raise awareness in the community at large about career opportunities in aviation, aerospace, and defense manufacturing industries.
- Specific student recruitment to individuals traditionally underrepresented in these industries such as women, minority, and low-income candidates.
- Specific student recruitment to military personnel transitioning from active military service to civilian employment, including integration with other ongoing DOD initiatives.

Expected Deliverables

- Framework agreement among the program stakeholders to determine roles and responsibilities, guide implementation of the agile curriculum program and utilize innovative approaches to deliver the curriculum to students.
- Inventory of current training programs related to aviation, aerospace, and defense manufacturing careers with a focus on participating educational institutions, but that may include other North Texas colleges and universities.
- Using a compression planning approach (Attachment 2), inventory and prioritization of initial training gaps (curriculum, instructors, facilities, workforce needs, etc.) in these industries to be addressed through the agile curriculum program.
- Evaluation criteria, including performance metrics and a framework for data to be collected and reported, to determine success of the program.
- Feedback loop process and tool developed to collect data, report on progress towards outcomes, and identify needed program improvements related to academic implementation, student completion/graduation, career placement, and student career performance, among others.
- Based on prioritized training gaps identified, agile curriculum will be developed as a collaborative process among program stakeholders at the appropriate level (enhancement to existing courses, new courses, degree programs, certificates, training for specific employer, etc.) and may be targeted to upskilling existing employees or attracting new applicants.
- Student recruitment materials developed and distributed to students at all levels (high school, community college, university, existing workforce) to promote each agile curriculum course as well as to raise awareness in the community at large about career opportunities in aviation, aerospace, and defense manufacturing industries.