The Department of Defense has identified several factors that threaten the health of our defense industrial base including “obsolescence, foreign dependency, fluctuating demand, industry consolidations and loss of design teams and manufacturing skills for critical defense products.”¹ These threats to our supply chains were exposed by COVID-19 as significant weaknesses that could be weaponized by adversaries, particularly China, if left unaddressed. The Administration and Congress view these vulnerabilities as threats to our national security and economic security and so have prioritized investments in our defense industrial base.

Funding from EDA’s Build Back Better grant to the West Texas Aerospace and Defense Manufacturing Coalition for “Reclaiming Aerospace and Defense Manufacturing Dominance through Frontier Technologies” will reinvent West Texas’ historical roots in manufacturing to help close America’s gap in aerospace and defense manufacturing capabilities. We will directly tackle threats to our defense industrial base by bringing new competitive U.S. entrants into the defense industrial ecosystem and by building design teams and manufacturing skills critical to reclaiming America’s aerospace and defense manufacturing dominance. This investment will also jumpstart our efforts to tackle the enduring challenges in our region of lagging incomes, brain drain and the hollowing out of a once vibrant manufacturing base.

The West Texas region which includes El Paso (48141), Hudsbeth (48229), Culberson (48109), Jeff Davis (48243), Brewster (48043) and Presidio (48377) Counties was once home to a robust manufacturing base that was built on the back of low-cost labor. That low-cost labor advantage was wiped out in the 1990s by NAFTA and globalization forces that found cheaper labor markets in Mexico and Asia. Within six years of NAFTA being signed, 22,000 jobs were lost in the region and dislocated workers were unable to find employment with similar wages and benefits because of the lack of education and skills needed to reintegrate into the economy. We also learned a similar lesson from COVID-19 economic disruptions—our residents who lack education and in-demand skills were the most vulnerable to job losses.

¹ Annual Industrial Capabilities, Published by Department of Defense, March 2018.
Our vision and strategy is informed by the hard economic lessons of our past. We can never again bet on low-cost labor as a competitive economic advantage. We have built this strategy from the strength of significant aerospace, defense and advanced manufacturing capabilities and activities that if better connected and resourced could make West Texas a strategic national hub for aerospace and defense manufacturing.

Anchoring our region’s capabilities and competitive advantage is the research preeminence and talent development at the University of Texas El Paso’s (UTEP) Aerospace Center and W.M. Keck Center for 3D Innovation. Both research centers are national leaders in supplying a diverse, industry-ready workforce and for their applied research in frontier technologies in aerospace, defense and additive manufacturing. Collectively, in the last decade, these research centers trained and placed more than 600 engineering graduates for the aerospace, defense and advanced manufacturing industry and performed over $90 million agency and industry sponsored research and development work. In 2019-2020 academic year alone, Lockheed Martin hired 101 UTEP engineering students across its business units from these research centers.

There is vast untapped opportunity in the region for job creation in aerospace and defense manufacturing including three military bases—Fort Bliss, White Sands Missile Range and Holloman Air Force Base. West Texas is also home to Blue Origin’s spaceport, one of the pioneers in commercial space travel and exploration. West Texas is part of the fourth largest manufacturing hub in the world which also includes Juarez, Mexico and Dona Ana County, New Mexico. Core strategic manufacturing strengths in our region that will contribute to strengthening the defense industrial base are in additive manufacturing, robotics and automation, precision and high temperature machining, advanced tool and die making, and electronics. Areas of potential growth opportunity are in electronics manufacturing and cybersecurity for manufacturing.

### Economic Opportunities

After devastating job losses from NAFTA, community leaders worked to rebuild the economy by strengthening public education, by facilitating broad access to secondary education and by diversifying the economy in sectors with higher wages. This economic re-tooling paid off with sustained low unemployment and an economy where healthcare and trade-related jobs helped boost chronically low-income levels.

Some very significant weaknesses still exist in our economy. Our wages are still significantly lower compared to other communities of our size. We have made significant strides in increasing the number Associate’s and Bachelor’s degrees awarded in West Texas, particularly in STEM fields. However, the region’s dearth of STEM occupations—3 percent of jobs in West Texas are in STEM occupations, compared to 6.7% for Texas and the U.S.—and lower wages result in a significant number of these graduates seeking employment in other communities. This loss of STEM talent to other communities has thwarted our ability to take advantage of growth in innovation and technology fueled industries.

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2 UTEP is one of most significant producers of Hispanic engineers and computer scientists in the country, graduating more than 800 Bachelor, Masters, and Ph.D. students every year. Nearly 99% of these graduates have been forced to relocate from El Paso County for employment opportunities.
We seek to tackle these persistent challenges, made more acute by disruptions from the COVID-19 pandemic, by investing in a multi-pronged strategy that will create jobs and business opportunity in aerospace and defense manufacturing. The aerospace and dense industry represents a $909 billion market with steady annual growth. Aerospace and defense employees receive wages and benefits far higher than the national average, with the average A&D worker receiving around $102,900 in wages and benefits which is 46% higher than the comparable national average for all workers.³ Investment in this sector would produce more STEM occupations and significantly improve incomes in our communities. The median non-STEM occupation hourly wage in West Texas is $14.42 while the median hourly wage for STEM occupations is twice that at $30.58.⁴

Aerospace and defense manufacturing has to be anchored in the U.S. and is not reliant on low wage advantage and instead needs be re-built from dominance in innovation and highly skilled talent, all areas where the West Texas region excels.

Reclaiming Aerospace and Defense Manufacturing Dominance through Frontier Technologies

The West Texas Aerospace and Defense Manufacturing Coalition proposes to catalyze economic growth in aerospace and defense manufacturing by developing the El Paso Makes Advanced Manufacturing District and the West Texas Advanced Technology Corridor.

EL PASO MAKES ADVANCED MANUFACTURING DISTRICT

Future proofing our defense industrial base will require wide-scale adoption of advanced manufacturing technologies, shortening supply chains and building green infrastructure that dramatically reduces the carbon footprint required for mass production. The El Paso Makes Advanced Manufacturing District will answer that challenge by radically re-imagining the way products are made and the way that the systems and infrastructure that undergird production are built. The El Paso Makes Advanced Manufacturing District is a 250-acre area that will be dedicated and master planned by the City of El Paso to co-locate aerospace and defense and other advanced manufacturing activities near the El Paso International Airport area. It will be designed to create economies of scale for tenants. Benefits will include cost savings in training, back-office support, environmental management, product design, and value chain administration.

Working with GM and El Paso Electric Company as partners in design, the City of El Paso and El Paso Makes will build the manufacturing infrastructure and productions systems of the future with a relentless focus on reducing the carbon footprint required to design, test, fabricate, assemble and transport products. All facilities will be designed and built out with a common cyber-physical security infrastructure required to protect our industrial supply chains.

The El Paso Makes Advanced Manufacturing District will include:

1. **Innovation Factory.** The Innovation Factory, located in a 50,000+ square foot existing facility at the El Paso International Airport, will house eligible hardware start-ups or small manufacturers deploying advanced manufacturing technologies with high-growth potential in aerospace, defense and advanced manufacturing. The purpose of the Innovation Factory

is to catalyze the rapid growth of hardware companies creating breakthrough products. Companies chosen to participate will have access to resources and support developed to foster their rapid growth.

2. **Advanced Manufacturing Campus.** The Advanced Manufacturing Campus will be developed for public and private investment in aerospace and defense manufacturing to include university and industry design centers and low- and medium-volume manufacturers.

3. **Advanced Manufacturing Industrial Park.** The Advanced Manufacturing Industrial Park will be master planned for high-volume manufacturers to locate in build-to-suite facilities.

4. **Aerospace and Defense Supply Chain Innovation Network for Manufacturers.** Industry support services will be available at the Innovation Network for Manufacturers, a one-stop-shop for local manufactures to prepare them to compete successfully for business in aerospace and defense. A critical component of these services is the **Aerospace and Defense Technologies Training Center** which will provide training and certification in technology skills for these industries. Two programs have already been created: Keck Center’s DRIVE AM program funded by the DoD for skill development in additive manufacturing and Western Technical College’s Aerospace and Defense Technologies Associate’s Degree developed in partnership with the Aerospace Center and funded through a NASA grant. This Training Center will recruit and train transitioning soldiers from Fort Bliss in addition to area residents. Fort Bliss transitions 19,000 soldiers annually who have already developed significant skills in aerospace and defense technologies and who want to put these skills to work in the private sector but need additional training and credentials.

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**WEST TEXAS ADVANCED TECHNOLOGY CORRIDOR**

The vast expanse of wide open West Texas offers an opportunity for the growth of commercial space exploration and an opportunity to connect underserved rural residents to high-paying, high-tech jobs that don’t require relocation to big cities. The **West Texas Advanced Technology Corridor** is an investment in rural communities along the 1-10 corridor in the growth of region’s space industry from El Paso to Culberson County, Texas.

Blue Origin, Virgin Galactic and SpaceX have charted an ambitious path for private industry in space exploration and tourism. Their success has sparked new innovation and investment in commercial space exploration. The **Aerospace Technology District** will accelerate the growth of commercial space start-ups by providing design studio space and support services at the **Horizon Tech Accelerator** in the City of Horizon and access to testing facilities and technology support at the **Aerospace Center's Technology Research and Innovation Acceleration Park** at Fabens Airport in Fabens and the **Unmanned Aerial System Flight Test Range** in Tornillo. This rich collection of aerospace and defense research, expertise and design and testing infrastructure in far east El Paso County will be the foundation of a radical reinvention of the economy of the suburban community of Horizon City and the poor rural communities of Fabens and Tornillo.

Blue Origin’s spaceport investment in Culberson County should be matched with public investment that provides area residents a pathway to jobs at Blue Origin and provides area manufacturers new business opportunities. We will develop **Satellite Centers for Aerospace and Defense Supply Chain Innovation Network for Manufacturers** in the Town of Van Horn near Blue Origin and at Sul Ross State University in Alpine. Each will include an **Aerospace and Defense Technologies Training Center.**
Metrics for Success

The West Texas Aerospace and Defense Manufacturing Coalition’s goal is to help 300 small and medium manufacturers become part of the aerospace and defense supply chain and create 4,000 new engineering and technologist positions and 13,000 technical positions by 2030. These high paying jobs in STEM occupations will help increase regional wages, and the increase in the number of engineering positions and technical positions available in these industries will provide opportunities in West Texas for STEM graduates and technicians that do not exist in today.

Implementation

The Coalition is led by El Paso Makes, a partnership of UTEP’s Aerospace Center (the applicant) and the W.M. Keck Center for 3D Innovation and the El Paso Chamber. This partnership has been formalized through the creation of a non-profit corporation called El Paso Makes. The Coalition also includes the City of El Paso and Workforce Solutions Borderplex. The Coalition is fully committed to the mission of creating jobs and business opportunity in aerospace and defense manufacturing and has developed key foundational elements of this effort.

The City of El Paso will lead efforts to develop the Advanced Manufacturing District. The Aerospace Center and Keck Center will lead efforts to develop the Innovation Factory and the Aerospace Technology District, and Workforce Solutions Borderplex will lead efforts to develop the Aerospace and Defense Technologies Training Centers. The El Paso Chamber will develop financial models and business plans for all project components. Each coalition member will develop the component projects in consultation with our public, non-profit and industry partners.

Matching funds will be available and accessible through our project partners. The City of El Paso has created a Tax Reinvestment Zone in addition to dedicating land for the Advanced Manufacturing District. Our public partners will identify additional sources of local tax revenue or enterprise funds to be dedicated to the project. The El Paso Chamber and its foundation will launch a capital campaign to raise private funds from industry partners and local philanthropy.

Project planning is estimated at 12 months and construction at 18 months.

These projects are in the process of being developed but they are currently under-resourced to be able to reach their maximum impact on the economy. All of the counties have very limited tax bases, particularly those east of El Paso, to support economic development. We will identify ways to share costs and raise additional funds to mitigate these barriers.