



# AEROSPACE AND DEFENSE INDUSTRY

**ARIZONA**  
COMMERCE AUTHORITY

# ARIZONA IS AT THE FOREFRONT OF THE AEROSPACE & DEFENSE INDUSTRY

From cybersecurity to maintenance, repair and overhaul, the Aerospace & Defense industry flourishes in Arizona.

**Sustaining and expanding the state's industry are:**

- Specialized manufacturing capabilities
- Pro-business regulatory climate
- Culture of innovation
- A dry, sunny climate
- Miles of wide open space
- A strong commitment to America's military

Arizona's expertise ensures the state will remain at the leading edge of the Aerospace & Defense industry's most critical advances.

**BAE SYSTEMS**

BAE Systems manufactures body armor at its Phoenix facility.



Boeing builds and refurbishes the U.S. Army's Apache helicopters in Mesa.

**GENERAL DYNAMICS**

General Dynamics Mission Systems innovates in the fields of secure communications networks, radios, satellite technology and cybersecurity at its Scottsdale facility.



Northrop Grumman is developing unmanned aerial systems in Sierra Vista.



Raytheon's guided missiles division is headquartered in Tucson.



Orbital ATK produces satellites and launch vehicles at facilities in Chandler and Gilbert.



Robertson Fuel Systems fabricates aircraft fuel tanks in Tempe.



Honeywell Aerospace is headquartered in Phoenix and manufactures propulsion engines and auxiliary power units.



L3 Communications builds avionics systems at its Phoenix facility.



MD Helicopters is headquartered in Phoenix and manufactures several of its helicopter models in Arizona.



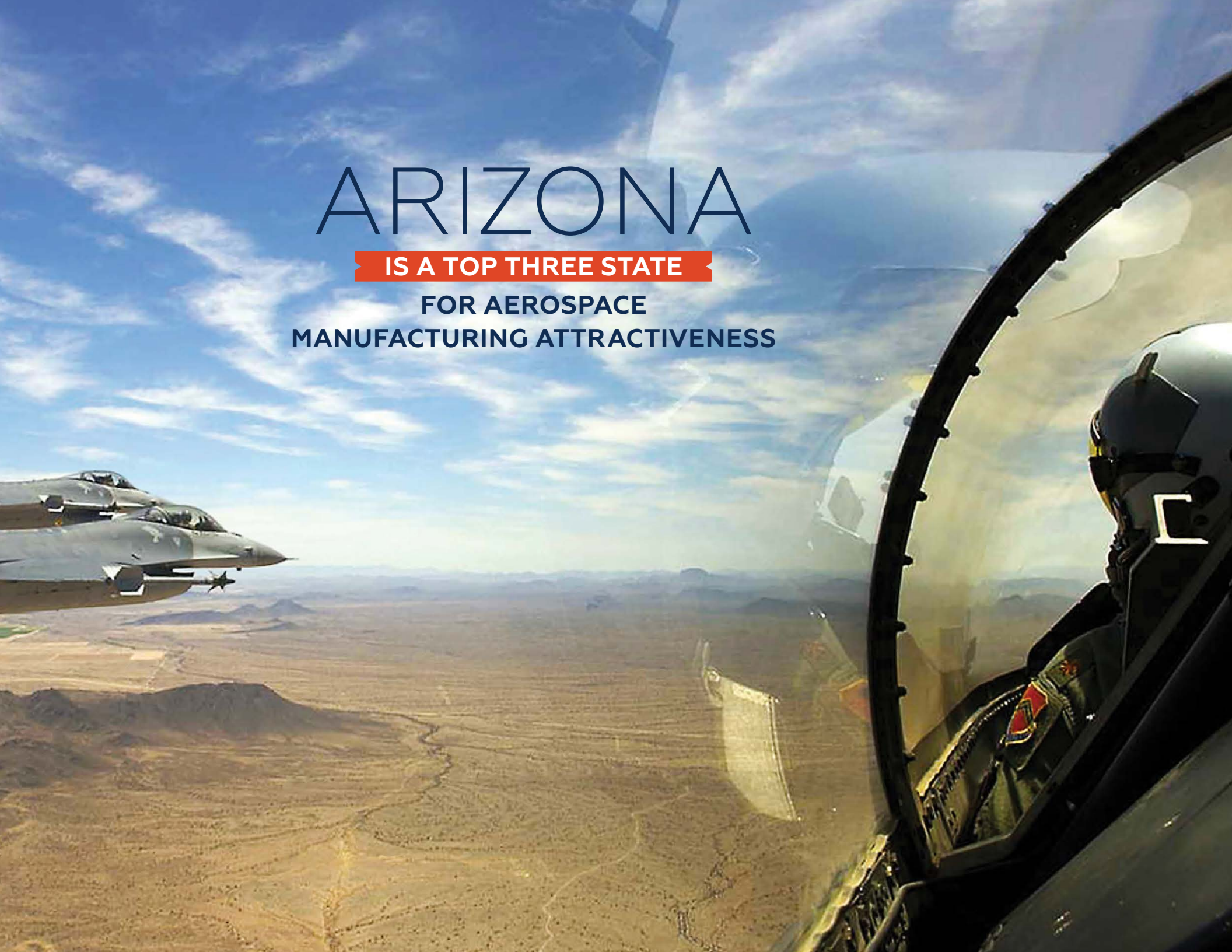
Securaplane



# ARIZONA

**IS A TOP THREE STATE**

**FOR AEROSPACE  
MANUFACTURING ATTRACTIVENESS**



# INDUSTRY HIGHLIGHTS AND RANKINGS

## Federal Spending

- \$11.8 billion in total federal contracts in fiscal year 2016
- \$9.1 billion in Department of Defense contracts in fiscal year 2016

## Labor Market

- 54,112 employees
- \$4.75 billion total annual payroll
- 1,200+ establishments

## Aerospace & Defense Exports

- \$3.99 billion total Aerospace & Defense exports in 2016
- \$983 million nominal growth in spacecraft and launch vehicle exports from 2015–2016
- Top 10 state for Aerospace & Defense export products in the nation
- Aerospace & Defense products made up 18% of Arizona's total exports for 2016

The aerospace industry  
in the region includes

1,860  
companies

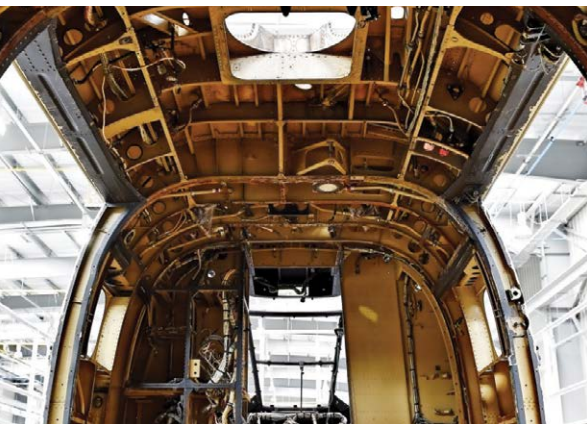
responsible for over

62,000  
jobs

3RD LARGEST

MAINTENANCE, REPAIR AND OVERHAUL  
ECONOMIC IMPACT AT

\$4 BILLION



# ARIZONA IS STRONG ACROSS AEROSPACE & DEFENSE INDUSTRY SEGMENTS

## Maintenance, Repair and Overhaul

Arizona is home to many MRO facilities, including 139 FAA-certified operations. Among these is Marana Aerospace Solutions near Tucson. One of the largest MRO facilities in the world, the 1,200-acre complex can accommodate up to 400 aircraft. Per the Aeronautical Repair Station Association's 2017 report "U.S. Employment & Economic Impact," Arizona's total aviation maintenance employment is 16,673, the sixth highest in the nation. Arizona's MRO operations have a total economic activity of \$4.0 billion, the third highest in the nation.

## Cybersecurity

Arizona's cybersecurity professionals protect many of America's top companies. Large companies such as Honeywell, Charles Schwab, American Express and Securosis have some or all their security teams based in the Valley, while other Arizona research firms such as ARTIS work to understand human and state behavior related to cyber warfare. Many of the top cybersecurity companies in the world have operations in Arizona including:

- BAE Systems
- Cisco
- EY
- IBM
- LifeLock
- Lockheed Martin
- Raytheon
- root9b

## Total economic output for aircraft, aircraft engine, and parts manufacturing:

**\$11.8  
billion**

*(Top Five State)*



**4TH LARGEST**

EMPLOYMENT IN AEROSPACE & DEFENSE  
MANUFACTURING WITH

32,546 WORKERS



# ARIZONA IS STRONG ACROSS AEROSPACE & DEFENSE INDUSTRY SEGMENTS

## Unmanned Aerial Systems

Arizona serves as a hub for innovations in Unmanned Aerial Vehicle (UAV)/Unmanned Aerial Systems (UAS) technology. Four of the state's prominent universities – University of Arizona, Arizona State University, Northern Arizona University and Embry-Riddle Aeronautical University – are engaged in UAS-related research projects. In addition, Arizona State University, Embry-Riddle Aeronautical University and the Unmanned Vehicle University offer degrees in UAS.

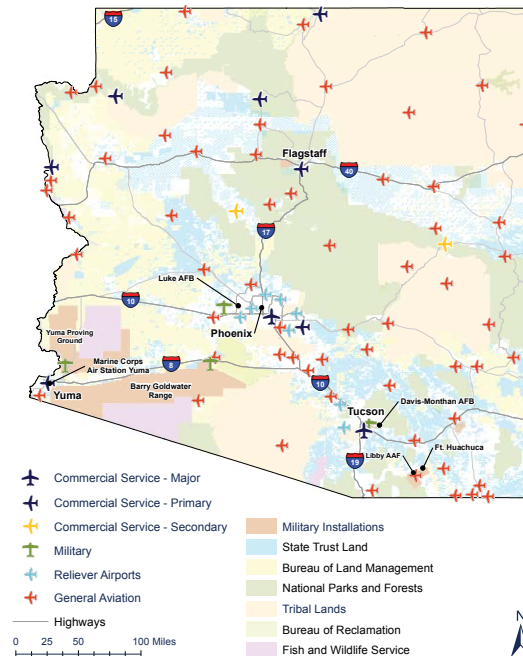
## Top-Ranked Aviation Facilities and Strategic U.S. Military Installations

Phoenix Sky Harbor, Arizona's largest airport, is ranked among the busiest 10 commercial airports in the United States offering nonstop service to 80 destinations, with more than 1,200 flights serving more than 120,000 passengers

and moving 800 tons of air cargo every day. Tucson International Airport offers 19 nonstop destinations and serves an average of 3.2 million passengers annually. In total, there are 83 airports in Arizona.

Yuma's airport has unparalleled military ties and is home to one of the country's most prestigious defense aviation parks, the 120-acre Defense Contractor Complex (DCC). The DCC is located near the airport and Yuma Proving Grounds, and supports defense contractors such as Boeing and other firms by providing a secure space to complete technical testing.

In addition, the Department of Defense has several military installations across the state including Davis-Monthan Air Force Base in Tucson, Fort Huachuca in Sierra Vista, and Luke Air Force Base in Glendale.





6TH LARGEST

EMPLOYMENT IN MAINTENANCE, REPAIR  
AND OVERHAUL WITH

16,673 WORKERS



# ARIZONA IS STRONG ACROSS AEROSPACE & DEFENSE INDUSTRY SEGMENTS

## Space

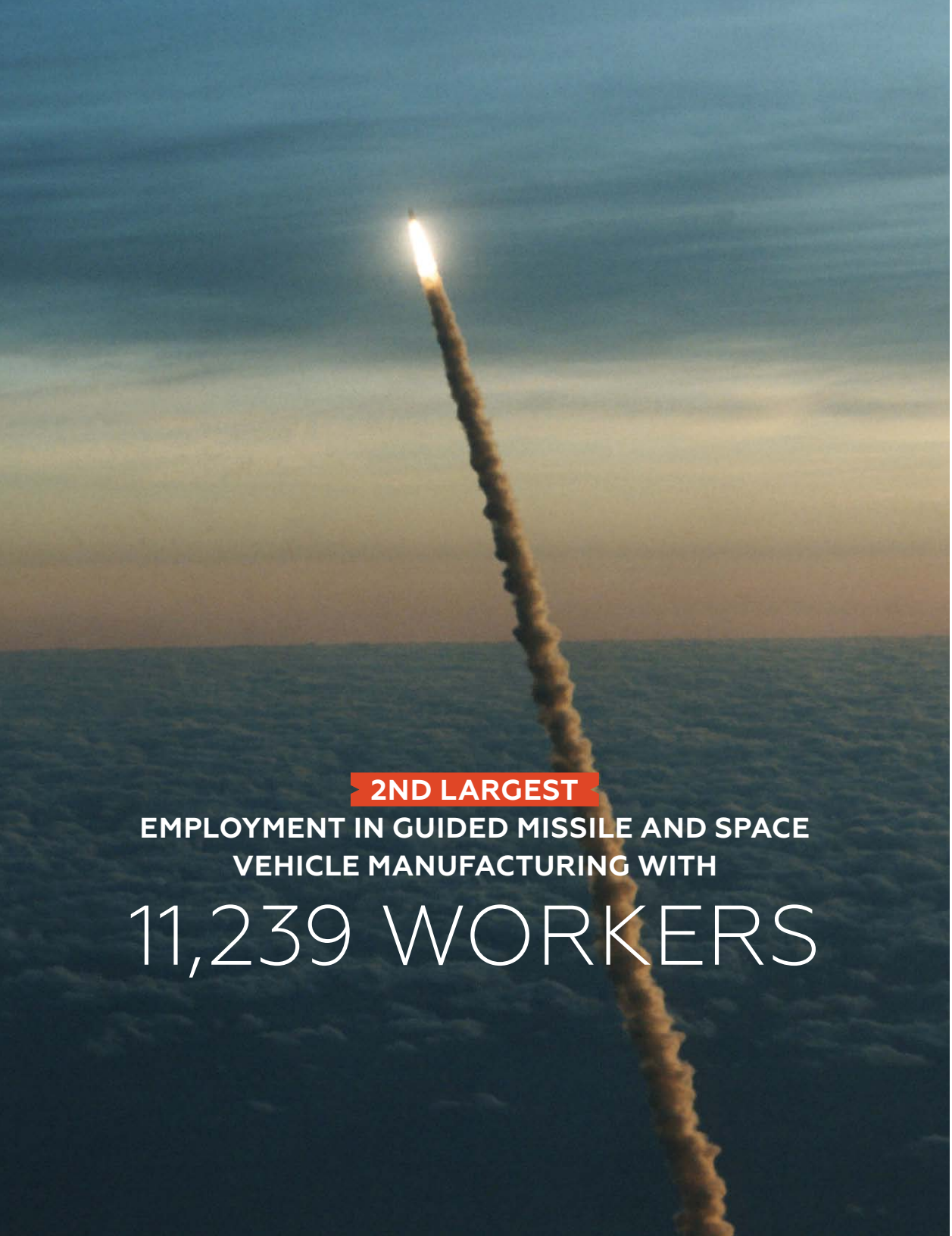
Orbital ATK produces satellites in the greater Phoenix area while scientists from around the world visit Arizona's Mount Graham International Observatory and the Lowell Observatory to conduct research on submillimeter wavelengths, galactic astronomy and star positioning. Both Arizona State University and the University of Arizona have been instrumental in furthering research about Mars, including developing instruments used on the Mars rovers Spirit, Opportunity and Curiosity. Travel to space, once the exclusive purview of elite astronauts, is now being marketed to tourists and adventurers. In Tucson, World View Enterprises has developed a high-altitude balloon capsule capable of taking travelers and payloads more than 19 miles above the earth.

## Optics

Optics and photonics have long been a key piece of modern innovation and the Tucson region, sometimes referred to as Optics Valley, is a leader in the state's \$3 billion optics industry. The University of Arizona serves as a hub for these innovations and is currently producing some of the largest and most advanced telescope mirrors for use in the Magellan Telescope. Southern Arizona manufacturers offer a wide range of precision-machined optical products and instruments as well as optical engineering services.

## Steward Observatory Mirror Lab

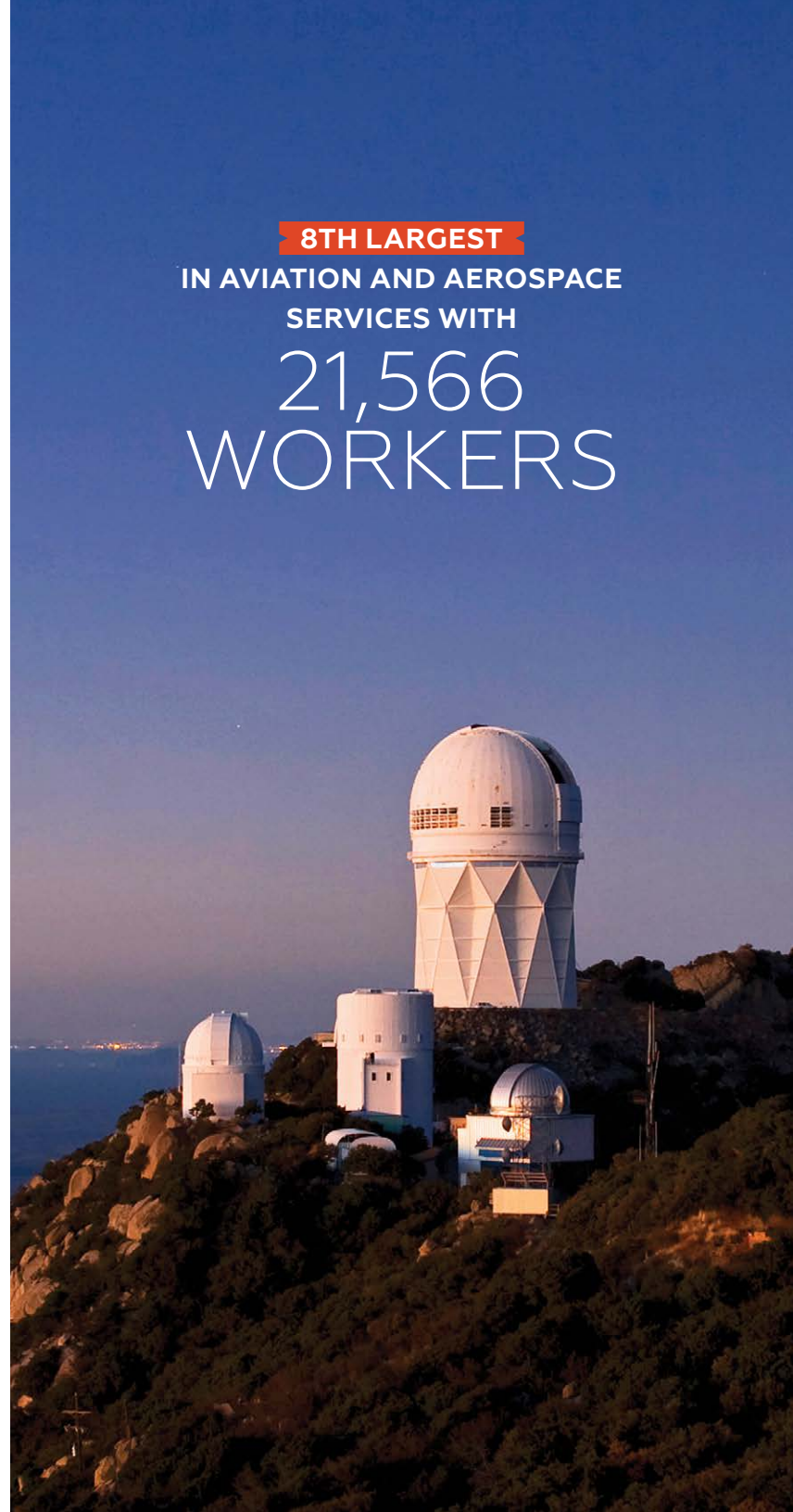
*Located underneath the campus of the University of Arizona in Tucson, which offers the largest astronomy graduate program in the country, the Mirror Lab is helping astronomers capture the most miraculous images of the universe to better understand the secrets of our galaxy.*



**2ND LARGEST**

EMPLOYMENT IN GUIDED MISSILE AND SPACE  
VEHICLE MANUFACTURING WITH

11,239 WORKERS



**8TH LARGEST**

IN AVIATION AND AEROSPACE  
SERVICES WITH

21,566  
WORKERS

# ARIZONA IS EDUCATING THE FUTURE AEROSPACE & DEFENSE WORKFORCE

Arizona's Aerospace & Defense research initiatives abound at the university level, demonstrating both the state's commitment to the industry's growth and strong cooperation between Arizona's businesses, universities, community colleges and K-12 schools.

**Arizona State University** has approximately 20,000 students enrolled in engineering programs, including nearly 750 aerospace engineering students. *U.S. News and World Report 2017* ranked ASU #1 in the U.S. for innovation.

The **University of Arizona** offers a wide range of activities and academic opportunities to more than 2,600 engineering students. *U.S. News and World Report 2017* ranked UA third nationwide for its management information systems program.

**Northern Arizona University** has developed a curriculum that aligns perfectly with the state's aerospace and defense initiatives. This includes diverse astrophysics programs, mechanical engineering, aerospace studies, adaptive research and materials, composites, and optics.

**Embry-Riddle Aeronautical University** is the only fully accredited, aviation-oriented university in the world. It has a total undergraduate enrollment of 2,205. *U.S. News and World Report 2017* ranked Embry-

Riddle 13th in the country for its undergraduate engineering programs at schools where no doctorate is offered.

The **Maricopa County Community College District** has 206,000 students enrolled. Many of the community colleges offer specialized programs in automation, welding, and advanced manufacturing, each based on local employer input. The system also offers specialized programs for employers, including Boeing and Caterpillar.

**Western Maricopa Education Center** offers high school students opportunities to train for jobs in growing industries, including aerospace and defense. West-MEC students can complete a two-year program in aviation technology which prepares them for a career in aircraft repair and maintenance. After completing the program, the students can test for FAA airframe and powerplant certification. West-MEC also offers a two-year avionics and electronics program that allows students to test for

the Federal Communications Commission certification.

**Pima Community College's**

Aviation Technology Programs are commercial aviation-oriented and provide pathways to the aviation maintenance field. Specifically, Pima Community College provides a structural repair program, an avionics technician program, and an airframe and powerplant certification program. All programs award students certificates or associate degrees, and several programs also provide federal licensure opportunities.

The **East Valley Institute of Technology** prepares high school students for careers in Aerospace & Defense through its aviation program. The program has several tracks including flight operations, flight service, unmanned aerospace vehicles, air traffic control, maintenance, air transportation, and flight operations. The program varies in length of time to complete depending on which area of focus a student chooses, but some courses qualify for dual enrollment with the Maricopa County Community College System.



# ARIZONA OFFERS PROGRAMS DESIGNED TO ENHANCE THE SUCCESS OF AEROSPACE & DEFENSE COMPANIES.

Arizona has lowered taxes, streamlined regulations, and established a suite of programs to support corporate growth and expansion.



### Quality Jobs Tax Credit Program

Provides tax credits to employers creating new jobs and making capital investments in Arizona.



### Research & Development Tax Credit Program

Provides income tax credits for increased research and development activities conducted in Arizona.



### Foreign Trade Zone Tax Credit Program

Provides up to an 80 percent reduction in state real and personal property taxes for businesses located in a foreign trade zone or sub-zone.



### Qualified Facility Tax Credit Program

Offers a refundable income tax credit to eligible manufacturing companies making a capital investment to establish production facilities or manufacturing-related research & development or headquarters operations.



### Military Reuse Zone Tax Credit Program

Provides a transaction privilege tax (sales tax) exemption or property tax reclassification for aerospace & aviation companies or airport authorities located in a military reuse zone.



### Job Training Grant Program

Provides up to a 75 percent reimbursement of eligible training expenses to employers creating new jobs.



### **Additional Depreciation Program**

Accelerates depreciation schedules for prospective acquisitions of commercial personal property.



### **Public Infrastructure Funding Program for Manufacturing**

Provides manufacturers a means of mitigating infrastructure costs by allowing construction sales tax dollars to be redirected toward public infrastructure costs.



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