



OKLAHOMA
ADVANCED
AIR **MOBILITY**
STRATEGY >
ACTION AGENDA





OKLAHOMA IS THE MODERN MOBILITY FRONTIER...

OKLAHOMA'S ADVANCED AIR MOBILITY STRATEGY LEVERAGES THE TALENTED TECHNOLOGISTS and CITIZENS OF THE STATE AS A PROVING GROUND FOR SAFER and MORE EFFICIENT TRANSPORTATION IN THE UNITED STATES. Oklahoma's advanced mobility strategy positions the state to build an ecosystem with transportation options for goods and people, an expanded industry presence and the creation of job opportunities to benefit all Oklahomans. Emerging modes and digitization are transforming the transportation landscape and improving mobility.

Advancements in technology enable the development of several new types of transportation that will soon be increasingly incorporated into our daily lives. Modal options include air and ground transport solutions with data-informed guidance systems, reliable autonomy and efficient fuels such as electric and hydrogen.

Oklahoma state and local governments, tribal nations, businesses and cutting-edge universities cultivate these technologies through research, development, testing and routine operations that benefit the state's residents.

» **UNMANNED AIRCRAFT SYSTEMS (UAS)** is the name given to technologies commonly called drones and the systems that support them. The widespread adoption of UAS in Oklahoma can contribute significantly to the well-being and prosperity of its communities, resulting in enhanced efficiencies, safety and environmental stewardship.

THESE TECHNOLOGIES

- Revolutionize precision farming practices
- Minimize risk on infrastructure inspections
- Inform disaster response
- Deliver lifesaving medicines
- Enable local safety officials to prepare and train the workforce in use of drones as a first responder

» **ADVANCED AIR MOBILITY (AAM)** is defined by the National Aeronautics and Space Administration (NASA) as a system of safe, affordable and ultimately automated air transportation for passengers and cargo in urban and rural settings.

THESE TECHNOLOGIES

- Utilize both conventional and vertical takeoff and landing styles
- Improve emergency service response
- Add convenient connections to remote locations
- Will add a more efficient, economical and eco-friendly mode of air transportation

A LEADER IN UAS TECHNOLOGY FOR FIRST RESPONDERS



TO PROTECT and
SAVE LIVES



ASSESS THE SCENE
AFTER A NATURAL DISASTER



STRATEGICALLY ASSIST
IN EXTINGUISHING WILDFIRES



DELIVER TIME-CRITICAL
MEDICAL SUPPORT



...CAVU

(**CEILING AND VISIBILITY UNLIMITED**)

INDUSTRY OPPORTUNITIES

THE SOONER STATE IS UNIQUELY POSITIONED for broader deployment leveraging its UAS leadership position and AAM research and development (R&D) presence. These transportation innovations are enabling new partnerships in technology and transportation – partnerships that will be instrumental in creating new jobs that influence Oklahoma’s existing educational resources.

EXAMPLES INCLUDE

- » **FEDERAL AVIATION ADMINISTRATION (FAA) MIKE MONRONEY AERONAUTICAL CENTER**
 - Is a national asset that supports the safe and efficient operations of our national and international aviation system.
 - Provides primary discipline services such as training, IT, financial management, supply chain management, human factors, medical research, flight inspection and elements dealing with aviation and space safety, including UAS and AAM, through a one-of-a-kind facility.
- » **TULSA INNOVATION LABS**
 - Supports growth in AAM entrepreneurial businesses.
 - Partnering with local public safety agencies to invest in Drone as First Responder (DFR) technologies.
- » **CHOCTAW NATION EMERGING AVIATION TECHNOLOGY CENTER**
 - Is a premier research and development site for UAS and AAM.
 - Is one of the first organizations in the country to have FAA approval to test Beyond Visual Line of Sight (BVLOS) drone flights.

Strategic investments and policy development in coordination with partners like these will help guide modernization to ensure earlier industry attraction and increased workforce opportunity in the advanced mobility industry.

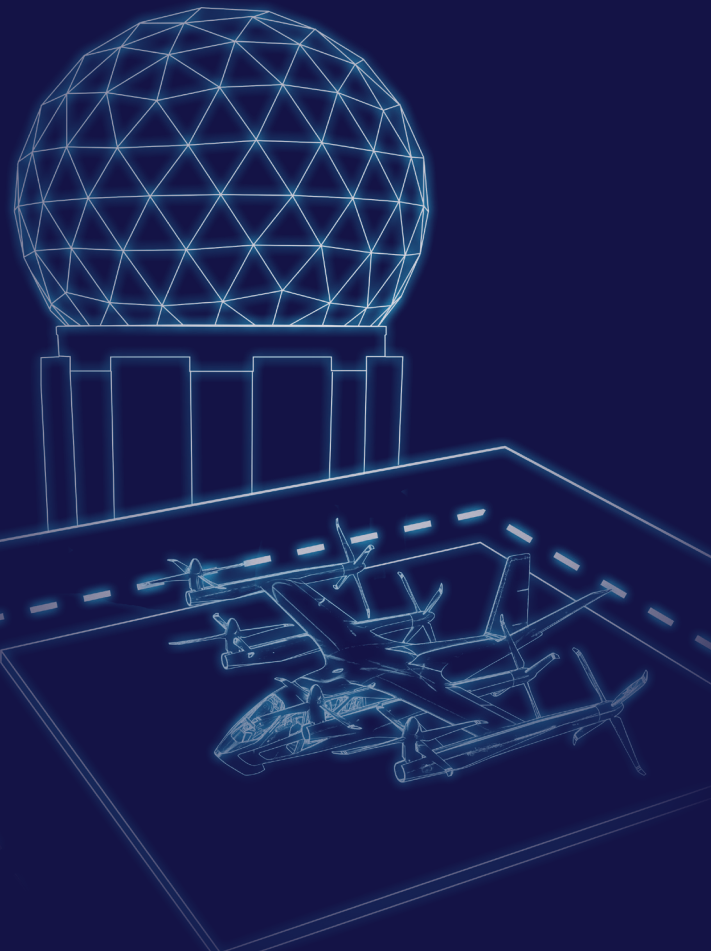


BUILDING ON OUR FOUNDATION IN FLIGHT

Both private and public contributors can work together to harness the future in AAM in Oklahoma. Based on initial needs and feasible revenue generation, we can support an estimated 30 strategically located vertiports and their required radar and detection systems by 2045.

“STRATEGIC INVESTMENT IN ADVANCED AIR MOBILITY LAYS THE FOUNDATION FOR OKLAHOMA’S FUTURE TRANSPORTATION GROWTH. AS WE MOVE TOWARD A MORE CONNECTED LANDSCAPE, EMBRACING EMERGING AEROSPACE and AVIATION TECHNOLOGY IS IMPERATIVE TO OUR SUCCESS. OUR COMMITMENT TO AEROSPACE, AVIATION and DEFENSE GOES BEYOND NUMBERS; **IT’S ABOUT SECURING OUR PLACE AS A GLOBAL LEADER IN THE SKIES.**”

— **MATT PINNELL, LIEUTENANT GOVERNOR**
STATE OF OKLAHOMA



CONSTRUCT

6

radar and detection technology sites and one centralized command and control operations per region

CONSTRUCT

12

vertiport sites on locations with no existing aviation infrastructure

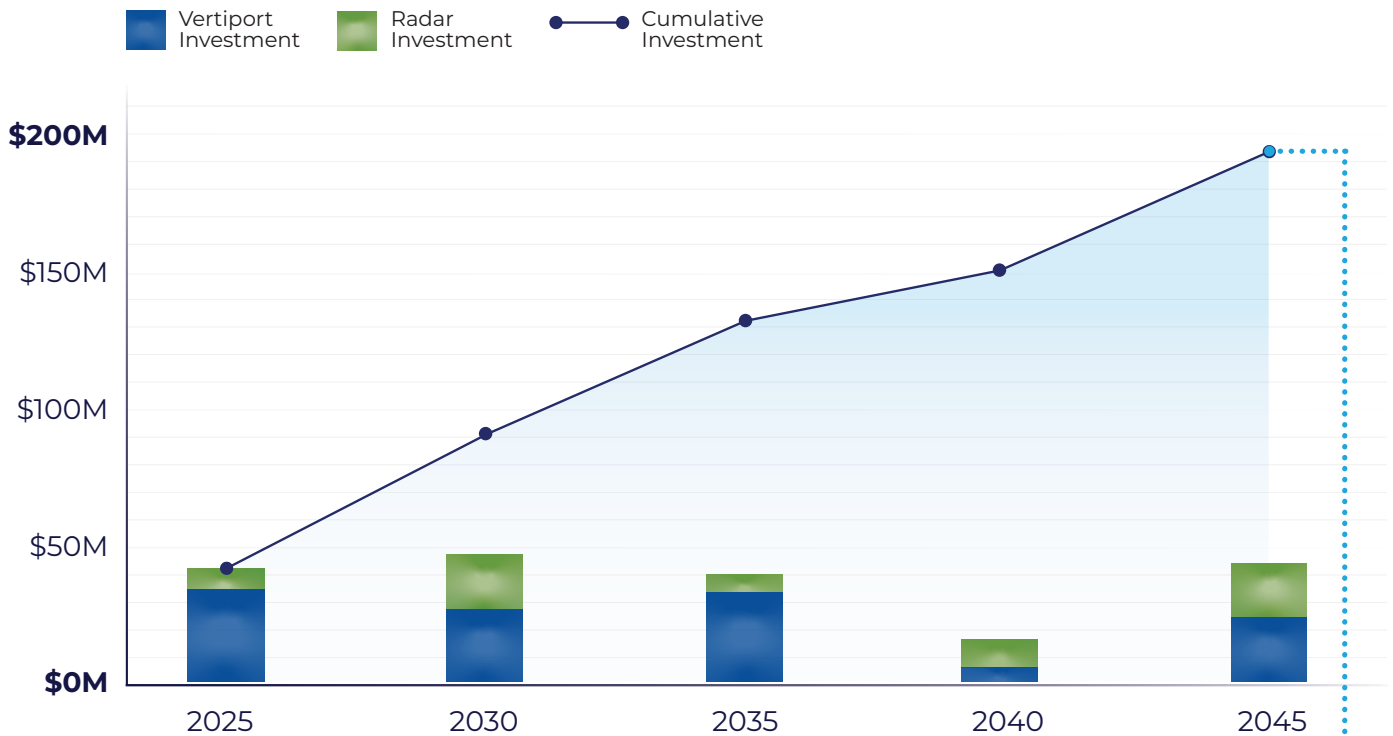
UPGRADE

18

existing heliports and small airports to vertiports

Building Vertiport and Radar Cumulative Infrastructure Investment by 2045

The data below refers to the public and private investment needs for vertiport ground infrastructure and radar communications equipment by time period.

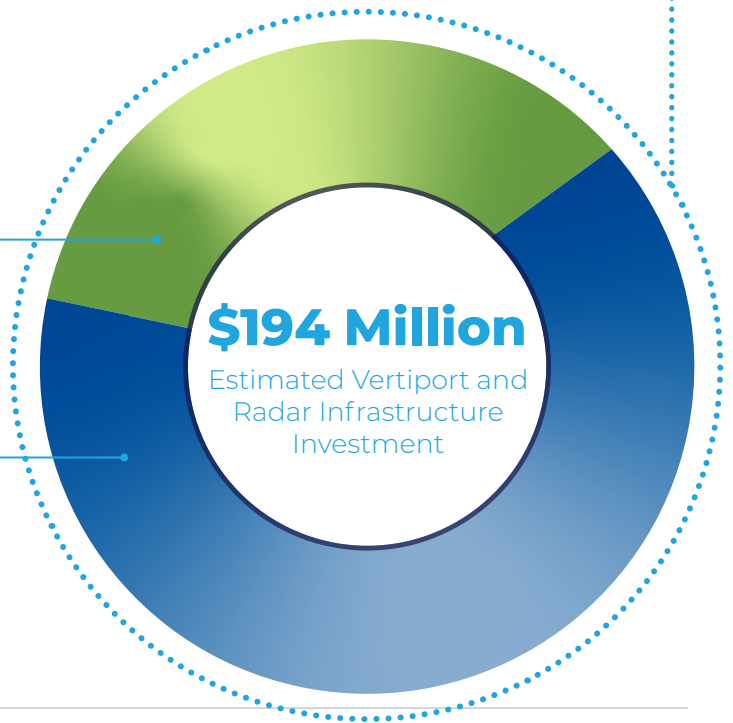


\$67 Million

The estimated necessary capital expenditure (CAPEX) for AAM Centralized Command Support System for future UAS/AAM traffic management radar.

\$127 Million

The estimated necessary CAPEX for AAM vertiports.



“IN 2017, THE OKLAHOMA SPACE INDUSTRY DEVELOPMENT AUTHORITY CLINTON-SHERMAN SPACEPORT AT BURNS FLAT, OK WAS THE FINAL DECIDING FACTOR IN KRATOS SELECTING OKLAHOMA AS ITS EXPANSION HOME...**THE VALUE PER COST FOR CLINTON-SHERMAN COMPARED TO GOVERNMENT RANGES, PLUS THE SCHEDULE FLEXIBILITY, HAS BECOME A COMPETITIVE DIFFERENTIATOR and KEY ADVANTAGE FOR US IN OUR BUSINESS.**”

— **STEVE FENDLEY, PRESIDENT**
UNMANNED SYSTEMS DIVISION
INITIATIVES, KRATOS

FORECASTING OUR FUTURE IN FLIGHT

An economic impact analysis of UAS and AAM forecasts that **BY 2045, OKLAHOMA WILL ACCUMULATE:**



\$8.2 BILLION

IN TOTAL ECONOMIC BENEFIT.



\$5.5 BILLION IN NEW BUSINESS ACTIVITY.



\$2.2 BILLION IN DIRECT, INDIRECT and INDUCED ECONOMIC ACTIVITY WITH AN ELECTRIC VERTICAL TAKE-OFF and LANDING (eVTOL) MANUFACTURER COMMITMENT.



\$455 MILLION IN LOCAL and STATE TAX REVENUES.



3 MILLION

PASSENGERS ANNUALLY, OR NEARLY 8,000 PASSENGERS PER DAY, AMOUNTING TO ABOUT 12% OF COMMERCIAL AIR TRAFFIC IN THE STATE.



22 MILLION

PASSENGERS ARE EXPECTED TO HAVE TRAVELED IN OKLAHOMA USING NEW eVTOL SERVICES.



9,154 NEW JOBS

PROJECTED AS FULL-TIME EMPLOYMENT GROWTH IN THE INDUSTRY and ASSOCIATED FIELDS.

BY 2045, THE SMALL UNMANNED AIRCRAFT SYSTEMS (sUAS) MARKET WILL ADD

\$100 MILLION

ANNUAL CAPITAL EXPENDITURE ANTICIPATED FOR NEW DRONES THAT WILL OPERATE IN THE STATE

\$69 MILLION

STATEWIDE ANNUAL PAYROLL OF COMMERCIAL DRONE OPERATORS

1,425 JOBS

CUMULATIVE DRONE PILOT JOBS FORECASTED, WITH SIMILAR JOB TOTALS FORECASTED FOR SOFTWARE CREATORS and ANALYSTS

*“ONE OF THE BIG THINGS THAT WE STILL HAVE LEFT TO RESOLVE IN THIS COUNTRY IS SAFE and RELIABLE ACCESS. **IT’S REALLY A FUNDAMENTAL TRANSPORTATION PROBLEM WE’RE ABOUT TO SOLVE WITH AVIATION. IN OUR LIFETIMES, WE’RE GOING TO SEE SOME AMAZING THINGS.**”*

— JAMES GRIMSLEY, EXECUTIVE DIRECTOR

ADVANCED TECHNOLOGY INITIATIVES, CHOCTAW NATION OF OKLAHOMA



WE SUPPORT THE AAM INDUSTRY GROWTH AT HOME

THE INTRODUCTION OF WIDESPREAD UAS and AAM ACTIVITY WILL REQUIRE A ROBUST WORKFORCE.

Operation of UAS aircraft will rely on remote pilots or automated software controls. AAM aircraft will rely on remote and/or on-board pilots. Certified maintenance technicians will need to be versed in avionics, flight controls, electric propulsion systems and carbon-fiber composites. Additional opportunities will exist in engineering, software engineering and dispatch.

The United States aerospace industry is growing at a rate faster than the current workforce pipeline can keep up with, and it is estimated there will be a 50,000-person deficit nationally by 2027. Oklahoma has and will continue to take an aggressive role in economic and workforce development programs and incentives. The state is well positioned to meet this challenge, with aerospace degrees and certifications offered at several universities and a #1 ranking in high school aviation curriculum.



**70 AVIATION
APPRENTICESHIP
PROGRAMS** active
in the state.



**30 FLIGHT TRAINING
SCHOOLS** with
both public and
private education
opportunities.



**MULTIPLE
UNIVERSITIES**
offering bachelor's and
post-baccalaureate
degrees.



**74 TRAINING
CENTERS** needed for
the advanced mobility
industry.

OKLAHOMA IS TAKING AEROSPACE EDUCATION TO NEW HEIGHTS!

- » IN OKLAHOMA'S HIGH SCHOOLS, THE AIRCRAFT OWNERS & PILOTS ASSOCIATION'S (AOPA) "YOU CAN FLY" CURRICULUM AND CHOOSE AEROSPACE, are ranked first in the nation for enrollment of both programs in the state of Oklahoma. AOPA is a four-year high school aviation education program that offers students an introduction to multiple career pathways and STEM concepts to prepare them for a career in the industry. More than 100 schools across the state, including the full-immersion program in the Norman Aviation Academy and some homeschool co-ops will offer this program during the 2024-2025 school year. Choose Aerospace is a non-profit partnership of aerospace stakeholders whose goal is to promote this curriculum that puts students on a fast-paced pathway towards FAA mechanic certification.
- » TWO MAJOR RESEARCH and DEVELOPMENT PROGRAMS at Oklahoma's flagship universities enable the state to position itself as a leader in innovative research and workforce development increasing the potential to enhance the integration of these new technologies. Oklahoma State University's Oklahoma Aerospace Institute for Research and Education (OAI) and the University of Oklahoma's Oklahoma Aerospace and Defense Innovation Institute (OADII) are leading the way to support the state's aerospace industry in a multitude of ways that advance technologies across the spectrum.
- » THE OKLAHOMA DEPARTMENT OF CAREER AND TECHNOLOGY EDUCATION (CareerTech) connects students and businesses with training opportunities. Oklahoma CareerTech is recruiting record numbers of students, including more



*"WE ARE IN A NEW GOLDEN AGE OF AVIATION... WITH NOVEL PROPULSION, ELECTRIFICATION, and AUTONOMY SYSTEMS, STUDENTS CAN DESIGN and BUILD ROBOTIC AIRCRAFT TO ACCOMPLISH UNIQUE MISSIONS FROM PACKAGE DELIVERY TO ENVIRONMENTAL SENSING and SAMPLING. **WE ARE EXCITED TO NURTURE and TRAIN THE NEXT GENERATION WORKFORCE AS WE USHER STUDENTS INTO THE ERA OF ADVANCED MOBILITY."***

— JAMEY D. JACOB, PhD, DIRECTOR
OKLAHOMA AEROSPACE INSTITUTE
FOR RESEARCH AND EDUCATION
OKLAHOMA STATE UNIVERSITY (OSU)



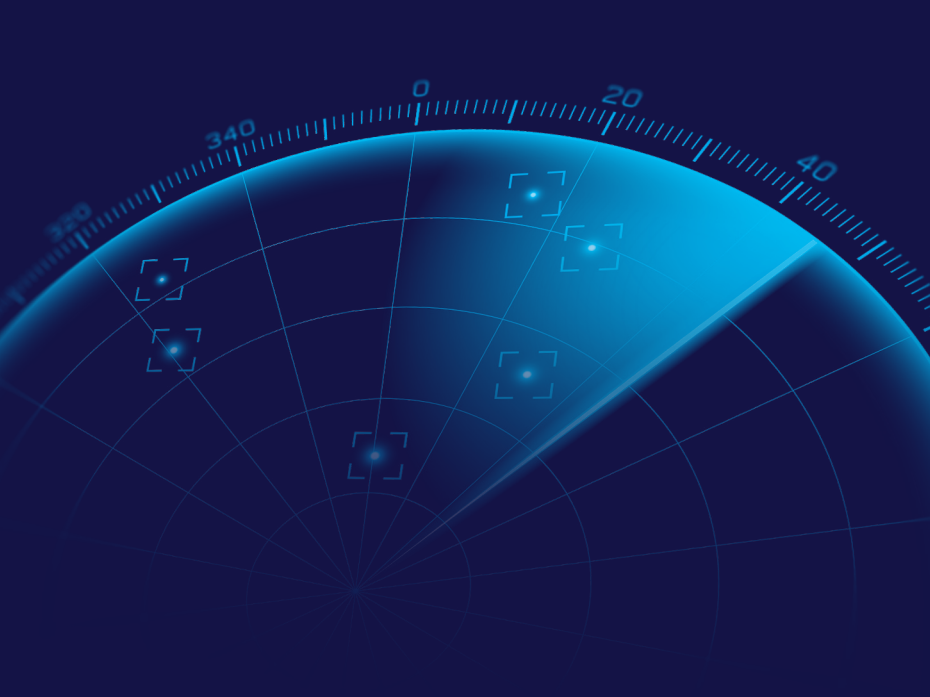
INDUSTRY INVESTMENT, INITIATIVES and INCENTIVES

OKLAHOMA HAS SIGNIFICANT BUSINESS INVESTMENT and INCENTIVE PROGRAMS FOR AAM and UAS INDUSTRY JOB CREATORS. The following is a list of state-led investments, initiatives and incentives benefiting the aerospace industry.

- » **21ST CENTURY QUALITY JOBS PROGRAM** is an incentive of up to 5% of new payroll for up to 10 years for the creation of 10 jobs with an annual average wage of the lesser of \$112,100 or 300% of the county's average wage.
- » **SMALL EMPLOYER QUALITY JOBS PROGRAM** is a quarterly payment which may be as much as 5% of new taxable payroll for up to seven years.
- » **BUSINESS EXPANSION INCENTIVE PROGRAM** targets business expansion projects that include job creation and significant investment in facilities, machinery and equipment.
- » **AIRCRAFT SALES TAX EXEMPTION** is for certain aircraft maintenance facilities which are exempt from transaction related taxes such as sales of aircraft, aircraft parts and maintenance services.
- » **TAX CREDIT FOR AEROSPACE EMPLOYMENT and TUITION** offers both individual and company tax credits for the employment of aerospace industry engineers. Companies hiring engineers can receive a tax credit up to 10% of the compensation paid to an engineer. The company can also receive another credit of up to 50% of the tuition reimbursed to an engineer, and the engineer hired receives a tax credit of \$5,000 per year for five years.
- » **SOFTWARE/CYBER SECURITY WORKFORCE TAX CREDIT** includes a tax credit up to \$2,200 annually for qualifying employees who receive a degree from an ABET-accredited institution or \$1,800 annually for employees.

“IN OKLAHOMA, WE’RE NOT JUST EMBRACING THE FUTURE OF FLIGHT; WE’RE DEFINING IT. AS PIONEERS ON THE MODERN MOBILITY FRONTIER, WE’RE CHARTING NEW PATHS, LEVERAGING CUTTING-EDGE TECHNOLOGY, and FOSTERING COLLABORATION ACROSS THE AEROSPACE INDUSTRY TO HELP BRING ABOUT THE INTEGRATION OF ADVANCED AIR MOBILITY and TRANSFORM TRANSPORTATION FOR THE BENEFIT OF ALL OKLAHOMANS.”

— **GRAYSON ARDIES, EXECUTIVE DIRECTOR**
OKLAHOMA DEPARTMENT OF AEROSPACE and AERONAUTICS



*“TULSA IS PAVING THE WAY IN
ADVANCED MOBILITY INNOVATION,
and WE’RE GETTING NOTICED FOR OUR
WORK. OUR REGION HAS RECEIVED
TWO MAJOR DISTINCTIONS FROM THE
FEDERAL GOVERNMENT IN RECENT
YEARS—FIRST WITH OUR BUILD BACK
BETTER REGIONAL CHALLENGE AWARD
IN 2022 and MOST RECENTLY WITH
LAST YEAR’S TECH HUB DESIGNATION.*

**TULSA INNOVATION LABS IS
DRIVING THE REGION’S STRATEGY
TO GROW THESE INDUSTRIES and
TRAIN WORKERS FOR THE JOBS
NEEDED TO SUPPORT A THRIVING
INNOVATION ECONOMY.”**

**— JENNIFER HANKINS, MANAGING DIRECTOR
TULSA INNOVATION LABS**



COLORADO

NEW MEXICO

TEXAS



THE BLUEPRINT FOR OKLAHOMA'S ADVANCED AIR MOBILITY SUCCESS

Oklahoma has the skilled people, intelligence and facilities to support the burgeoning Advanced Mobility Industry.

AAM\UAS MOBILITY

◆ EXISTING ■ PROPOSED



AEROSPACE RESEARCH and DEVELOPMENT ASSETS

- ◆ FAA Mike Monroney Aeronautical Center - Oklahoma City
- ◆ Choctaw Nation Emerging Aviation Technology Center
 - ◆ McAllister to Durant Low-Altitude Testing Corridor
 - Durant to Dallas Low-Altitude Testing Corridor
- ◆ Osage Nation Skyway 36 and Airspace
 - ◆ Skyway Range Low-Altitude Testing Corridor
 - Skyway Range Expansion
- ◆ OADII - University of Oklahoma
- ◆ OAIRE - Oklahoma State University
- ◆ Camp Gruber
 - ◆ Oklahoma National Guard UAS Schoolhouse



AEROSPACE RESEARCH and DEVELOPMENT FACILITY

- ◆ Oklahoma Space Industry Development Authority (OSIDA) Air and Space Port
 - ◆ Spaceflight Corridor
 - Low-Altitude Testing Facility
- ◆ The Fires Innovation Science and Technology Accelerator (FISTA) Innovation Center
 - Counter-UAS Technologies



PUBLIC SAFETY and EMERGENCY MANAGEMENT ORGANIZATIONS

- ◆ Oklahoma City Police Department
 - ◆ Patrol Led Drones as a First Responder
- ◆ Tulsa Fire Department
 - Drones as a First Responder Pilot Program
- ◆ Oklahoma Bureau of Narcotics
 - ◆ Drone Program

AIRSPACE OPERATING and TESTING AREA

SPACE FLIGHT CORRIDOR

PROPOSED AIRSPACE OPERATING and TESTING AREA

PROPOSED FLIGHT CORRIDORS

EDUCATION



- » Counter-UAS Academy
- » US Army
- » Rogers State University
- » Rose State College
- » Oklahoma State University (OSU)
- » Southeastern Oklahoma State University
- » Southwestern Oklahoma State University
- » University of Oklahoma (OU)
- » University of Tulsa



See how we plan to



for the future of Oklahoma..

ADVANCED AIR MOBILITY ACTION AGENDA

As part of the Oklahoma Advanced Mobility Strategy, this Air Action Agenda provides a framework for policy development to spark the growth and economic vitality of the Oklahoma advanced mobility ecosystem.

Community Outreach and Education

LEGISLATIVE OBJECTIVE

Host statewide and regional education and advocacy events in partnership with legislative and state-level officials.

ADMINISTRATIVE OBJECTIVE

Educate stakeholders on benefits of advanced mobility in the air and on the ground, including improvements in mobility, infrastructure requirements, workforce needs and economic development opportunities.

Infrastructure Planning

LEGISLATIVE OBJECTIVE

Establish a minimum annual threshold for advanced mobility investments for an Infrastructure Investment Prioritization Program.

ADMINISTRATIVE OBJECTIVE

Develop and implement an Infrastructure Investment Prioritization Program.

Workforce Development – Broad Support

LEGISLATIVE OBJECTIVE

Set broad educational standards, messaging and funding for educational programs.

ADMINISTRATIVE OBJECTIVE

Work closely with universities, community colleges and trade schools to develop a workforce for advanced mobility technologies.

Leadership in the Field

LEGISLATIVE OBJECTIVE

Evaluate the establishment of a Centralized Command Support System for advanced mobility testing.

ADMINISTRATIVE OBJECTIVE

Report to the legislature on the feasibility of establishing a multi-site center of excellence for advanced mobility testing.

Specialized Regulations

LEGISLATIVE OBJECTIVE

In broadly permissive language, define what constitutes AV testing and operations in the State of Oklahoma and establish permissive and expedient permitting for specialized industry testing and piloting at statewide test site locations.

ADMINISTRATIVE OBJECTIVE

Implement permitting for specialized industry testing and pilot projects.

Infrastructure Investment

LEGISLATIVE OBJECTIVE

Leverage the Advanced Mobility Council (AMC) to prioritize capital investment funding for an Infrastructure Investment Prioritization Program and support proposal decision making.

ADMINISTRATIVE OBJECTIVE

Coordinate a “menu of funding opportunities” for AAM project proposals to forward to ODAA and the AMC for funding implementation. Utilize existing authorities within ODAA to roll out an Infrastructure Investment Prioritization Program for statewide integration partners.

Industry Attraction and Development

LEGISLATIVE OBJECTIVE

Support the implementation of AAM technology by creating manufacturing and testing incentives specific to this segment of the industry.

ADMINISTRATIVE OBJECTIVE

Develop a comprehensive industry attraction plan to expand existing and recruit new mobility technology companies.

Workforce Development – Focused Support

LEGISLATIVE OBJECTIVE

Fund training programs that target early adoption industries such as infrastructure monitoring and public safety.

ADMINISTRATIVE OBJECTIVE

Promote commercial certification and training opportunities within existing educational institutions at the high school, CareerTech and higher education levels.

Enhanced Job Creation

LEGISLATIVE OBJECTIVE

Develop economic incentives that support locally-based startup business opportunities.

ADMINISTRATIVE OBJECTIVE

Position department-level agencies such as Oklahoma Department of Aerospace and Aeronautics (ODAA) and Oklahoma Department of Transportation (ODOT) as clearinghouse resources and subject matter experts that state and local economic development organizations can utilize to attract new business opportunities.

In-State Innovation Testing

LEGISLATIVE OBJECTIVE

Dedicate resources to reduce the regulatory hurdles to support specialized industry testing and pilot programs.

ADMINISTRATIVE OBJECTIVE

Implement an expedited process for innovative technologies to be developed, tested and manufactured throughout Oklahoma’s network of integration test sites.

Local Regulation Framework

LEGISLATIVE OBJECTIVE

Support the state administration’s proposals for model zoning ordinances.

ADMINISTRATIVE OBJECTIVE

Develop model zoning ordinances and local government guidance.



OKLAHOMA THE NEW FRONTIER OF FLIGHT is home to more than 1,100 aerospace entities, providing over 120,000 jobs and ample talent for the next generation of flight. Oklahoma's central location and over 350 flying days a year make it an attractive UAS/AAM destination.

PARTNERS IN PROGRESS

These organizations collaboratively contribute to the advanced mobility ecosystem in the state. They are resources and partners advancing the industry at home and creating more workforce opportunities for Oklahomans.

FEDERAL

- » FAA Mike Monroney Aeronautical Center
- » Department of Defense Installations

TRIBAL

- » Choctaw Nation
- » Osage Nation
- » Cherokee Nation

STATE

- » Oklahoma Department of Aerospace and Aeronautics
- » Oklahoma Department of Transportation
- » Oklahoma Department of Commerce
- » Oklahoma Center for Advancement of Science and Technology
- » Oklahoma Department of Career and Technology Education
- » Oklahoma National Guard
- » Oklahoma State Regents for Higher Education
- » Oklahoma Space Industry Development Authority

INDUSTRY

- » Airwise Solutions
- » Berry Aviation
- » Droneport Network
- » Kratos
- » The FISTA Innovation Park
- » Vigilant Aerospace
- » Windshape

EDUCATION

- » University of Oklahoma
- » Oklahoma State University
- » Oklahoma CareerTech Institutions
- » University of Tulsa
- » Oklahoma Regional Universities
- » Oklahoma Community Colleges

LOCAL and REGIONAL

- » Tulsa Innovation Labs
- » Commercial and General Aviation Airports
- » Association of Central Oklahoma Governments
- » Indian Nations Council of Governments
- » Local and Regional Chambers of Commerce
- » Oklahoma City Police Department
- » Tulsa Fire Department
- » Oklahoma Bureau of Narcotics



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Developed by the Oklahoma Advanced Mobility Program Advisory Council in coordination with the Oklahoma Department of Aerospace and Aeronautics, Oklahoma Department of Transportation and their partners.

