### Full Committee Meeting

Texas AAM Advisory Committee Meeting #3, March 27, 2024

### Agenda

- 1. Convene
- 2. Introduction of members and staff
- 3. Chair and Vice Chair comments
- 4. Working group updates
- 5. Stakeholder communication interviews update
- 6. Context for formulating legislative recommendations
- 7. Discussion regarding draft legislative recommendations
- 8. Specific information requests for research
- 9. Committee member comments
- 10. Public comments
- 11. Adjourn

### Context for good recommendations

- Texas airports and FAA preemptions
- Electric infrastructure and management in Texas
- Texas and local economic development information
- Workforce Development
- Industry considerations to select a location
- Summary of FL, VA, and OH's AAM leadership advantages
- Texas' inherent advantages

### Texas Airports and FAA preemptions

Dan Harmon

Director, Aviation Division

**TxDOT** 

D	Carl	
BV.	LOOK	
	COOK	

### **Department of Transportation**

### Proposed Funding and Rider Statewide Advanced Air Mobility Plan

### Overview

Increase General Revenue funding for the Department of Transportation by \$3.5 million and add a rider stating that it is the intent of the Texas Legislature that the department, using these appropriated funds, develop a statewide Advanced Air Mobility Plan or to contract with local municipalities to develop regional plans if the appropriated funds are insufficient to develop a statewide plan.

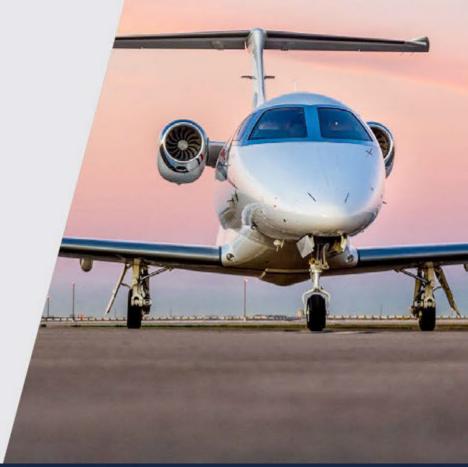
### **Required Action**

- (1) On page VII-18 of the Department of Transportation bill pattern, increase funding from General Revenue Funds in Strategy C.5.1, Aviation Services, by \$3,500,000 in fiscal year 2024.
- (2) On page VII-34 of the Department of Transportation bill pattern, add the following rider:
  - Statewide Advanced Air Mobility Plan. It is the intent of the legislature that the Department of Transportation develop a statewide Advanced Air Mobility Plan, or an update to the Texas Airport System Plan, that specifies potential locations for and classifications of vertiports and other associated infrastructure to guide the future operational environment of advanced air mobility. Amounts appropriated above in Strategy C.5.1, Aviation Services, include \$3,500,000 in General Revenue for the state fiscal biennium beginning September 1, 2023, are allocated for development of the plan. To the extent allowable by law, these appropriations may be used for the alternate purpose of contracting with local municipalities to evaluate the feasibility of Advanced Air Mobility technology in their region, should TxDOT determine that funds appropriated above would be insufficient to develop a statewide plan.



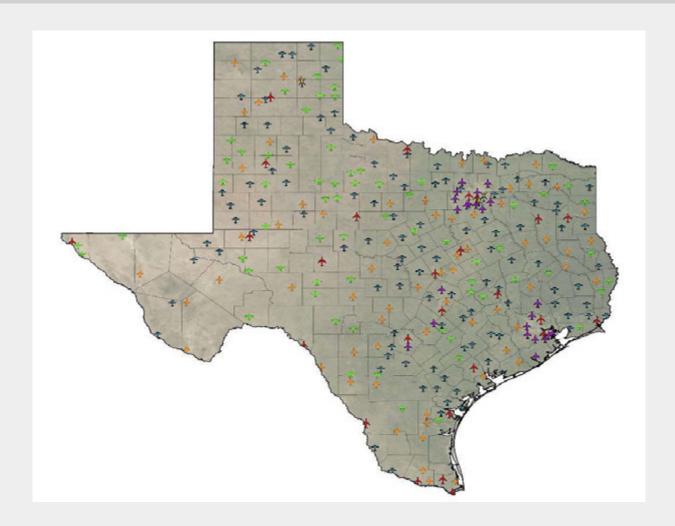


TxDOT Aviation
AVN 101



### The Texas Airport System

- 289 Airports in Texas Airport System:
  - 25 Commercial
  - 264 General Aviation
  - 24 Relievers
  - 186 in NPIAS
  - 42 Control Towers
- 8.8 Million ops (5.8 General Aviation)
- Economic impact:
  - \$94B annually
  - 780,000 jobs



### TxDOT Aviation Division (AVN)

- Develop a statewide system of airports
- Maintain the system
- Support economic development
- Manage state aircraft fleet
- Manage TxDOT UAS Program





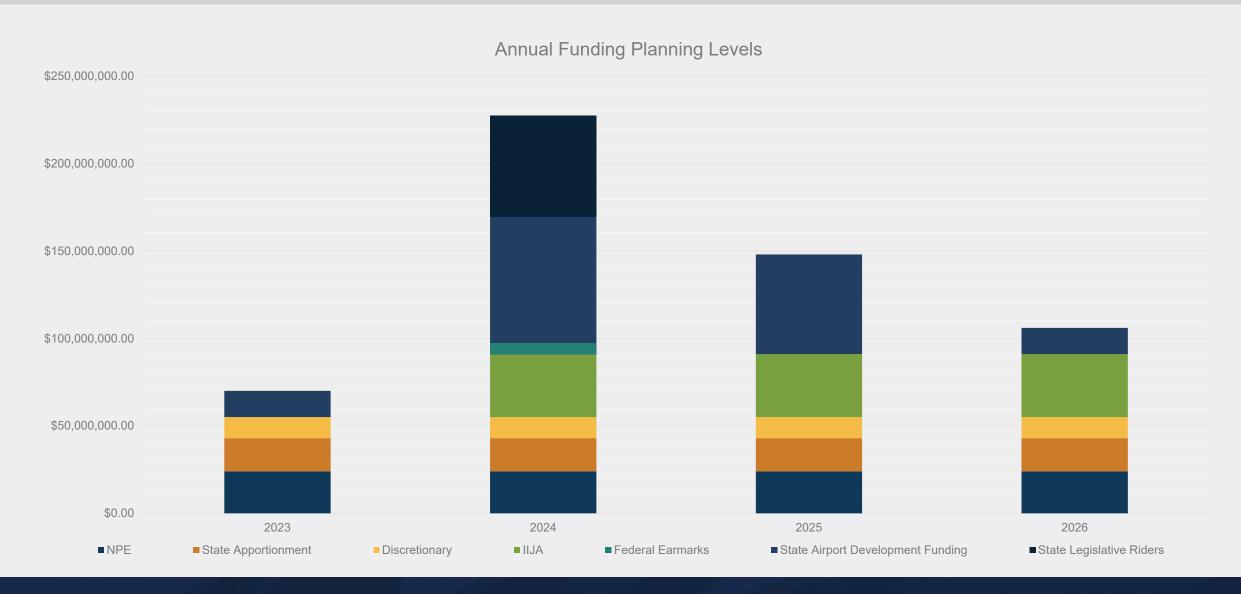


### FY24 – FY26 Aviation Capital Improvement Program (ACIP)

- Historical funding levels:
  - \$55M Fed (\$19M Apportionment, \$24M Non-Primary Entitlement (NPE), \$12M Discretionary)
  - \$20M State (\$5M Routine Airport Maintenance Program (RAMP), \$15M Airport Facilities Development Program)
- FY22-23:
  - \$58M Fed (\$19M Apportionment, \$24M NPE, \$15M Discretionary)
  - \$20M State (\$5M RAMP, \$15M AFDP \$5M available due to state riders)
- FY24-25:
  - \$58M Fed (\$19M Apportionment, \$24M NPE, \$15M Discretionary)
  - \$35M Fed Infrastructure Investment and Jobs Act Available (IIJA)
  - \$67M State (General Appropriations Act: \$20M Non-Dedicated Fund 6, \$47M General Revenue)
  - \$15M AFDP restored (S.B. 30)
  - \$58M Rider funded projects
- Federal Supplemental Programs: Supplemental, Community Grants, COVID.

### Aviation Funding FY23 – FY26





### **Aviation Funding Categories**

Airport Classification	National	Regional	Local	Basic	Unclassified	State
AIP Apportionment	Yes	Yes	Yes	Yes	Select Projects	N/A
AIP Non-Primary Entitlement	\$150K	\$150K	\$150K	\$150K	No	N/A
AIP Discretionary	Yes	Yes	Yes	Yes	Select Projects	N/A
Supplemental (All Source)	Yes	Yes	Yes	Yes	Yes	N/A
Infrastructure Investment and Jobs Act (IIJA)	\$844	\$292K	\$145K	\$113K	No	N/A
State Airport Facilities Development Funding	Yes	Yes	Yes	Yes	Yes	Yes
State Rider Funding	Yes	Yes	Yes	Yes	Yes	Yes
State Routine Airport Maintenance Program	Yes	Yes	Yes	Yes	Yes	Yes

### **Capital Improvement Plan**

• Project funding may be derived from one or more sources depending on cost, eligible funding sources, and availability of funds. With a few exceptions, a 10% minimum local match is required for participation.

### **Aviation Grant Programs**

### Capital Improvement Program (CIP)

Federal or State based on eligibility

90/10 Fed or State to local match for most authorized projects

Specific items such as tower, terminals, and Automated Weather Observation Systems (AWOS) may have different match requirements

### Routine Airport Maintenance Program (RAMP)

Assists with smaller maintenance projects

Airside projects given first priority

Pre- FY24: 50/50 cost share up to \$50K max of State

funding per Fiscal Year

FY24: 90/10 cost share up to 100K max State funding



### **UAS Subject to FAA Preemption Examples**

- Regulating UAS operations or restricting flight altitude or flight paths in order to
  protect the safety of individuals and property on the ground or aircraft passengers, or
  in order to ensure the efficient use of the airspace by UAS and/or other aircraft
- Implementing UAS traffic control systems
- Designating "highways" or "routes" for UAS
- Selling or leasing UAS-related air rights above roadways
- Regulating UAS markings
- Establishing a licensing scheme for UAS pilots
- Requiring air safety education or training
- Imposing requirements for the safe manufacturing of UAS
- Mandating safety-related equipment such as geo-fencing. Courts have found that state
  regulation pertaining to mandatory training and equipment requirements related to
  aviation safety is not consistent with the Federal regulatory framework.

### Texas Electrical Infrastructure

Andres Carvallo

Co-Director CIEDAR

Texas State University



### **ERCOT Summary**

- The Electric Reliability Council of Texas, Inc. operates Texas's electrical grid (1,250+ power gen units and 54,000+ transmission lines), which supplies power to more than 26 million Texas customers and represents 90 percent of the state's electric load. TEXAS POPULATION IS 30 MILLION.
- Key responsibilities:
  - Maintain system reliability.
  - Facilitate a competitive wholesale market.
  - Facilitate a competitive retail market.
  - o Ensure open access to transmission.



### **ERCOT Utilities**

- There are 4 Investor Owned TDSPs that servicing 22 million customers in the deregulated areas via 130 Retail Energy Providers.
- There are 72 Municipal Owned Utilities servicing
   5.1 million customers (e.g. CPS Energy and Austin Energy).
- There are 76 Texas Electric Cooperatives servicing 3 million customer (e.g. PEC and Bluebonnet).

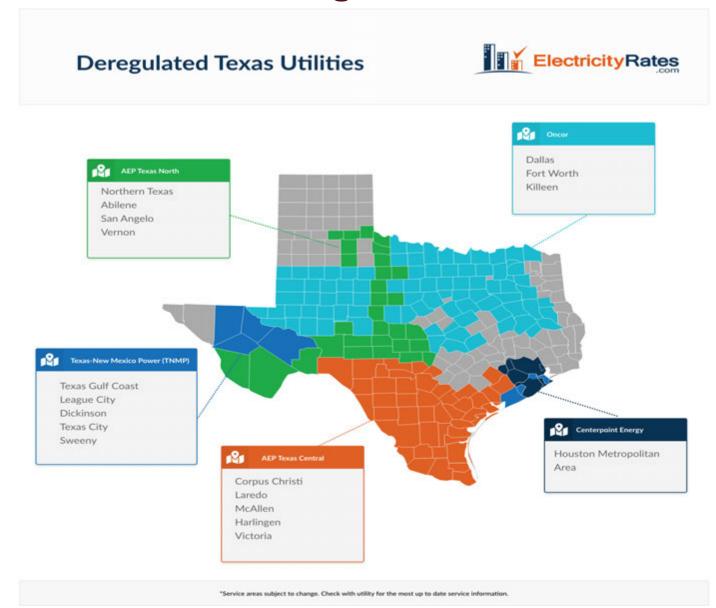


### **Texas Deregulated Market**

 Centerpoint Energy, Oncor, Texas-New Mexico Power, and American Electric Power are the power grid operators servicing about 130 retail electric providers in the state (like Reliant Energy, TXU Energy, Tesla Energy, Direct Energy, etc.). Each of those providers can have dozens of plan options.

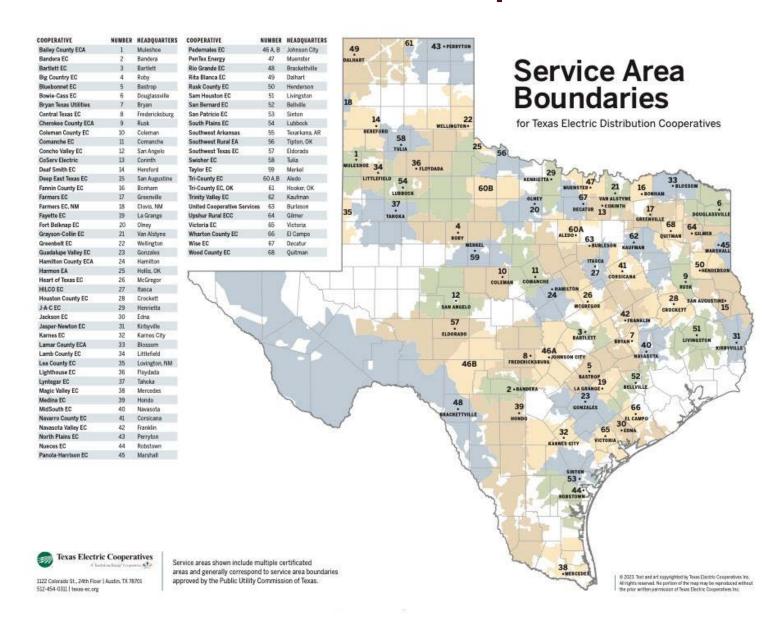
# The rising STAR of Texas

### **Texas Deregulated Market**



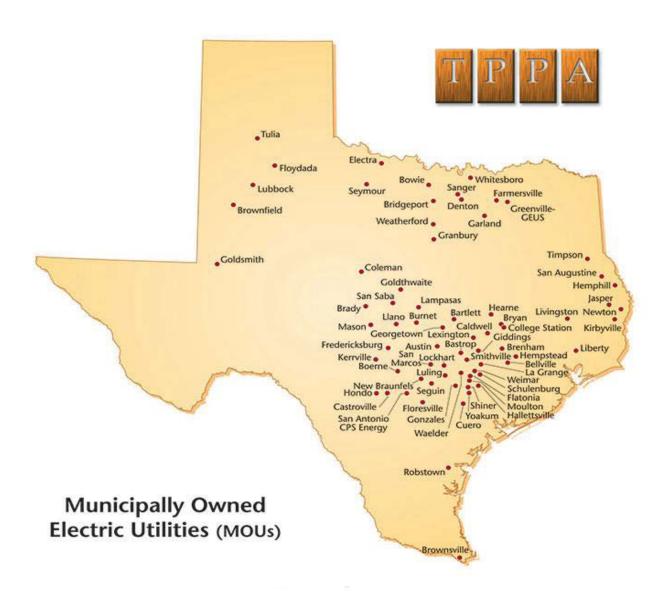
# UNIVERSITY The rising STAR of Texas

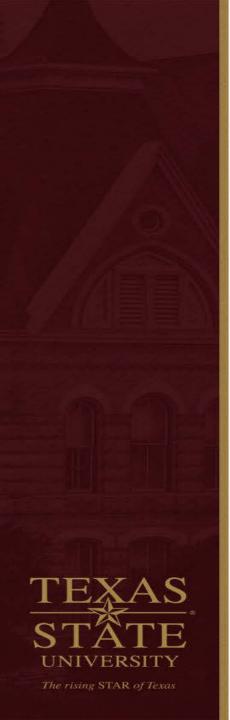
### **Texas Coops**



# The rising STAR of Texas

### **Texas Municipal Utilities**





### **Texas Public Power Association List**

### Municipally Owned Utilities (MOUs)

- Austin Energy
- City of Barlett\*
- Bastrop Power & Light\*
- City of Bellville
- City of Boerne
- City of Bowie
- City of Brady\*
- City of Brenham
- City of Bridgeport
- City of Brownfield
- Brownsville PUB
- Bryan Texas Utilities
- City of Burnet
- City of Caldwell
- · City of Castroville\*
- · City of Coleman
- College Station Utilities
- CPS Energy
- City of Cuero
- · Denton Municipal Electric
- City of Electra

- · City of Farmersville
- · City of Flatonia
- Floresville Electric Light & Power System
- City of Floydada
- City of Fredericksburg
- Garland Power & Light
- Georgetown Utility Systems
- City of Giddings
- City of Goldsmith\*
- City of Goldthwaite
- City of Gonzales
- City of Granbury
- Greenville Electric Utility System (GEUS)
- City of Hallettsville
- · City of Hearne\*
- · City of Hemphill
- City of Hempstead\*
- City of Hondo\*
- · City of Jasper\*
- Kerrville PUB
- City of Kirbyville
- City of La Grange

- City of Lampasas\*
- · City of Lexington
- City of Liberty
- · City of Livingston
- City of Llano\*
- · City of Lockhart
- Lubbock Power & Light
- · City of Luling
- · City of Mason
- · City of Moulton
- · New Braunfels Utilities
- City of Newton\*
- · City of Robstown
- City of San Augustine
- City of San Marcos
- City of San Saba
- · City of Sanger
- · City of Schulenburg
- City of Seguin
- · City of Seymour\*
- City of Shiner\*
- · City of Smithville
- · City of Timpson
- City of Tulia

- City of Waelder\*
- City of Weatherford
- City of Weimar\*
- · City of Whitesboro
- · City of Yoakum

### Cooperatives

- Bluebonnet Electric Cooperative
- · Fayette Electric Cooperative
- Pedernales Electric Cooperative

### **Joint Action Agencies**

- Sam Rayburn Municipal Power Agency\*
- Texas Municipal Power Agency
- West Texas Municipal Power Agency\*

### **River Authority**

 Lower Colorado River Authority (LCRA)

### Texas Economic Development

Joe Magruder
Industry Specialist

Office of the Governor



### **Workforce Development**

Dr. Kerry Ballast
Deputy Director, Workforce Development Division
Texas Workforce Commission



### **Education**

- Adult Education and Literacy
- Apprenticeship
- Career Schools & Colleges
- Dual Credit
- Early College High Schools
- Eligible Training Providers (ETPs)
- Education Outreach Specialists

### Grants

- Apprenticeship, including DOL Expansion and Texas Industry-Recognized Apprenticeships
- Jobs & Education in Texas (JET)
- Skills Development Fund
- Statewide Initiatives

### **Workforce Development Boards**

- 28 Workforce Areas
- In-Demand & Target Occupations
- Referrals to ETPs
- Youth Programs
- Externships
- Job Fairs and Hiring Events

### **Tri-Agency Workforce Initiative**

- TWC, TEA, & THECB
- Career Pathways
- Credentials of Value
- Learner Supports
- Infrastructure, including data sharing

### Industry considerations to select a location

Dan Dalton

Vice President, Global Partnerships

Wisk



"The Greater Houston area is experiencing some of the highest population growth in the country, which calls for new and efficient ways to move across the region. Sugar Land's strategic location within the Greater Houston region, and its forward-thinking city leadership, make it an ideal partner for us and one that is uniquely positioned as an early leader in the launch of air taxi services."

**Brian Yutko, CEO Wisk Aero** 



### Who We Are

People: ~700\* with most in engineering, manufacturing, and flight test

Locations: US, New Zealand, Canada, and Australia

Patents issued: 255+

Test flights: 1750+ (all full-scale aircraft)

Backed by: The Boeing Company

\* Includes contractors



### A History of Flight











Generation 1 2011 - 2014 Autonomous Generation 2 2015 Piloted Generation 3 2015 - 2017 Piloted Generation 4 2017 - current Autonomous **Generation 5** 2018 - current Autonomous

### **Generation 6:**

Designed for Advanced Air Mobility, Built for Safety

Seats	4	
Altitude	2500-4000 Ft. AGL	
Dimensions	<50 Ft. Wingspan	
Range	90 Miles (w/Reserves)	
Speed	110-120 Knots	
Charge Time	15 Minutes	
Storage	Carry-on and Personal Items	
Operation	Autonomous w/Human Oversight	



### **Safety First, Always**





Highest Possible **Safety** Standard



**Autonomous** Flight with Human **Oversight** 



**Simplified** Design



**No Single Point of Failure** 



### Why Texas?

- Nationwide Leader in Innovation and Aerospace
- Supportive of Advanced Air Mobility and Autonomy
- Diverse Industry
   Landscape to Build AAM
   Ecosystem



### Regional Benefits of AAM

Supports faster, multi-center metro development at lower infrastructure costs

Commuting time-savings for the riders

Reduces pressure on existing infrastructure

Workforce development & education opportunities

Raises the profile of cities as an attractive and sustainable urban destination



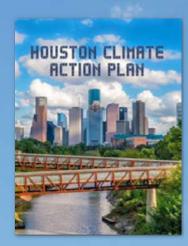
### The Vision for Houston Region

- Make clean air and clean transportation a reality for the Houston Region — Evolve Vision
- Increase regional transportation choice Resilient Houston Goal 15
- Expand access to wealth building and employment opportunities Resilient Houston Goal 2
- Stimulate sustainable, long-term economic prosperity for Bay Area Houston — BAHEP
- Texas to be the role model for safe deployment of AAM
   TxDOT UAM Report
- Raise the profile of Houston as an attractive and sustainable urban destination — GHP



THE ENERGY TRANSITION
CAPITAL OF THE WORLD
HOUSTON'S OPPORTUNITY
TO WIN BY CATALYZING
CAPITAL FORMATION







## Why Sugar Land & Houston?

- City Sprawl + Congestion
- Supportive Public Partners
- High Market-Potential with Network Demand

### What's Needed? Ecosystem Enablement -> Together

### At the City/Regional Level

- Assess how AAM can improve mobility
- Develop policy pathways for AAM
- Electrical infrastructure planning
- Support public engagement on AAM
- Apply for federal and/or state grants

### At the State Level

- Assess current AAM efforts
- Establish AAM in State DOT planning
- Develop policies that support AAM
- Educate state/local officials on AAM
- Collaborative planning with local authorities and utilities
- Support local planning for AAM through state funded efforts



# Summary of FL, VA, OH, and TX AAM State Government Leadership

	Florida	Ohio	Virginia	Texas
State Plan/Report	X	<u>X</u>	<u>X</u>	<u>X</u>
			*includes vertiports and economic impact	
Economic Impact Study		<u>X</u>		
Workforce Development		X		
State Investment		X	<u>X</u>	
Public Awareness	X		<u>X</u>	
Recommended Minimum Standards for Vertiports	X			

## Texas' inherent advantages

- High population and high expected growth
- Good business environment
- Vibrant economy
- Positive job growth
- Significant urban-rural divide lends itself to Regional Air Mobility needs
- Large number of airports and airlines
- Technological innovation
- Long history of aerospace and aviation

## Texas AAM Needs

## Legislative framework

- 1. Official definition of AAM in state statute (VTOLS, drones, etc.)
- 2. Flexible regulatory scheme for AAM efforts
- 3. List of ways that AAM will not be used and encouragement of liberal use when applicable (e.g., use on state land)
- 4. State standards for infrastructure consistency
- 5. Continuation of AAM Advisory Committee

## AAM Understanding and Influence

- 5. AAM representation on the 9-member TxDOT Aviation Advisory Committee
- A position at TxDOT or OOG to serve as a central point of contact and AAM ambassador to increase adoption and awareness of AAM
- 7. Public awareness about the benefits and potential of AAM
- 8. AAM research and development in Texas
- 9. Economic impact study for Texas (similar to the Wisk study done in California)

## Safe Operations

- 10. Legislation governing information sharing among agencies using AAM during disasters (HB2340-89R)
- 11. Funding for safety training for first responder personnel
- 12. Mitigation of cybersecurity risks
- 13. Air traffic management and airspace deconfliction (e.g., UTM)\*

## Workforce Development

- 14. Diverse, highly skilled workforce (near-term)
- 15. AAM knowledge and skills pipeline (long-term)

## Infrastructure

- 16. AAM infrastructure at existing airports
- 17. New vertiports
- 18. Electrical capacity at Texas airports
- 19. Funding to support ancillary infrastructure (e.g., micro wind sensors)
- 20. Gap analysis for AAM integration into existing airport infrastructure
- 21. New designated revenue streams to pay for and maintain AAM infrastructure

## Crafting Actionable Recommendations

- I want the state to \_\_[do what specifically]\_\_?
- What State entity(s) do you want to do that?
- Where does the money come from (funding mechanism) and how much money will it take ballpark?

Strengthen recommendations by documenting private industry contributions (e.g., matching funds, in-kind contributions)

## Recommendations Discussion

Look at each draft recommendation and yay or nay the concept Edit the recommendation and fill in missing information

Need: Official definition of AAM in state statute (VTOLS, drones, etc.)

**Recommendation:** Adopt FAA definition

Who: Texas Legislature

Funding source: N/A

How much: \$0

## FAA AAM Definition

(1) ADVANCED AIR MOBILITY; AAM.—The terms "advanced air mobility" and "AAM" mean a transportation system that transports people and property by air between two points in the United States using aircraft with advanced technologies, including electric aircraft or electric vertical take-off and landing aircraft, in both controlled and uncontrolled airspace.

**Need:** Flexible regulatory scheme for AAM efforts

**Recommendation:** 

Who:

**Funding source:** 

**Need:** List of ways that AAM will not be used and encouragement of liberal use when applicable (e.g., use on state land)

**Recommendation:** 

Who:

**Funding source:** 

## Use of Unmanned Aircraft

GOVERNMENT CODE CHAPTER 423. USE OF UNMANNED AIRCRAFT (texas.gov)

## The UAS program will *not* be used to:

- Conduct random surveillance activities
- Target a person based solely on individual characteristics, such as race, color, ethnicity, national origin, sex, sexual orientation, age, gender, religion, or disability
- Harass, intimidate, or discriminate against any individual or group
- Conduct personal business or any other unauthorized use
- Support any facial or license plate recognition technology
- Carry or deploy any types of weapons
- Monitor traffic for the purpose of issuing traffic citations
- Intercept and collect Wi-Fi data

**Need:** State standards for infrastructure consistency

**Recommendation:** 

Who:

**Funding source:** 

**Need:** Continuation of AAM Advisory Committee

**Recommendation:** 

Who:

**Funding source:** 

**Need:** AAM input on TxDOT aviation policy

**Recommendation:** Add AAM representation to the existing 9-member TxDOT Aviation Advisory Committee.

Who:

**Funding source:** 

**Need:** A position at TxDOT or OOG to serve as a central point of contact and AAM ambassador to increase adoption and awareness of AAM (through demonstration day coordination, conference presentations, etc.)

**Recommendation:** 

Who:

**Funding source:** 

Need: Public awareness about the benefits and potential of AAM

**Recommendation**: Provide funds to create communication materials targeted to the public, decision makers, and recreational drone users that can be implemented as appropriate.

Who:

**Funding source:** 

**Need:** AAM research and development in Texas

**Recommendation 7**: Support research and development for AAM technologies, products, and services in Texas by providing funds and resources for state universities (e.g., developing unmanned traffic management systems)

Who:

**Funding source:** 

**Need:** Economic impact study for Texas

**Recommendation:** 

Who:

**Funding source:** 

**Need:** Legislation governing information sharing among agencies using AAM during disasters (HB2340-89R)

**Recommendation:** 

Who:

**Funding source:** 

#### TX HB 2340 2019 (R) Sec. 418.055

## Information Sharing Working Group

- a) In this section, "work group" means the work group established under this section.
- b) The division shall establish a work group of state agencies involved in disaster management. The work group consists of members appointed by the chief of the division who represent:
  - 1) the comptroller's office;
  - 2) the Department of State Health Services;
  - 3) the Texas Department of Transportation;
  - 4) the General Land Office;
  - 5) the Health and Human Services Commission;
  - 6) institutions of higher education; and
  - 7) to the extent practicable, appropriate federal agencies.

- c) The work group shall develop recommendations for improving the manner in which electronic information is stored by and shared among state agencies and between state agencies and federal agencies to improve the capacity of the agencies to:
  - 1) respond to a disaster; and
  - 2) coordinate the agencies' responses to a disaster.
- d) Not later than November 1 of each even-numbered year, the work group shall submit the group's recommendations to the governor.

Need: Funding for safety training for first responder personnel

**Recommendation:** 

Who:

**Funding source:** 

**Need:** Mitigation of cybersecurity risks

**Recommendation:** 

Who:

**Funding source:** 

**Need:** Air traffic management and airspace deconfliction (FAA preemption?)

**Recommendation:** 

Who:

**Funding source:** 

Need: Diverse, highly skilled workforce

**Recommendation**: Support education and workforce development for AAM by providing funds and resources for state universities, community colleges, and vocational schools to develop and offer programs and courses related to AAM.

Who:

**Funding source:** 

Need: AAM knowledge and skills pipeline

Recommendation: Integrate AAM into K-12 curriculum (e.g., NASA

toolkit)

Who:

**Funding source:** 

**Need:** AAM infrastructure at existing airports

**Recommendation:** Modify Chapter 21 of the Transportation Code to enable existing airports to function as vertiports and increase available funding if the vertiport meets public use/public good standard.

Who:

**Funding source:** 

**Need:** Funding for new vertiport development

**Recommendation**: Create a state matching program for new public good/public use vertiport construction

Who:

**Funding source:** 

## Florida bill to fund new vertiport construction

#### As part of the Supply Chain Innovation Grant Program

"The Department of Commerce and the Department of Transportation shall also consider applications for funding submitted by public and private entities seeking to develop and establish vertiports in this state. Each award made for vertiport development shall be matched dollar-for-dollar by nonstate funds. For purposes of this subsection, the term "vertiport" means a system or infrastructure with supporting services and equipment used for landing, ground handling, and takeoff of manned or unmanned vertical takeoff and landing (VTOL) aircraft."

https://www.flsenate.gov/Session/Bill/2024/1301/BillText/c3/PDF

**Need:** Electrical capacity at Texas airports

**Recommendation:** Provide funding to improve electrical capacity at Texas airports for airborne and ground vehicles.

Who:

**Funding source:** 

**Need:** Funding to support ancillary infrastructure (e.g., micro wind sensors)

**Recommendation:** Increase TxDOT aviation funds and allow funds to be used off-airport to construct infrastructure to enhance the aviation system.

Who:

**Funding source:** 

Need: Gap analysis for AAM integration into existing airport infrastructure

**Recommendation:** Develop a statewide plan, or integration within the Texas Airport System Plan, that addresses the potential locations for and classifications of vertiports and other associated infrastructure to help define the future operational environment UAM/AAM.

Who:

**Funding source:** 

**Need:** New designated revenue streams to pay for and maintain AAM infrastructure

**Recommendation:** 

Who:

**Funding source:** 

## Next Meeting Dates

Meeting	Date	Time
Full Committee	April 30	9:00 am - 12:00 pm
Funding Subcommittee	April 3	10:00 am – 12:00 pm
Infrastructure Subcommittee	April 11	1:30 pm – 3:30 pm
Economic Impact Subcommittee	April 17	10:00 am – 12:00 pm
Community Integration Subcommittee	April 17	1:30 pm – 3:30 pm
Public Good/Safety Subcommittee	April 18	10:00 am – 12:00 pm

# Closing Remarks