

# Full Committee Meeting

Texas AAM Advisory Committee

Meeting #5, May 16, 2024

# Agenda

- Chair and Vice Chair comments
- Presentations from:
  - ERCOT
  - FAA
- Discussion of Legislative recommendations

Agee Springer - ERCOT

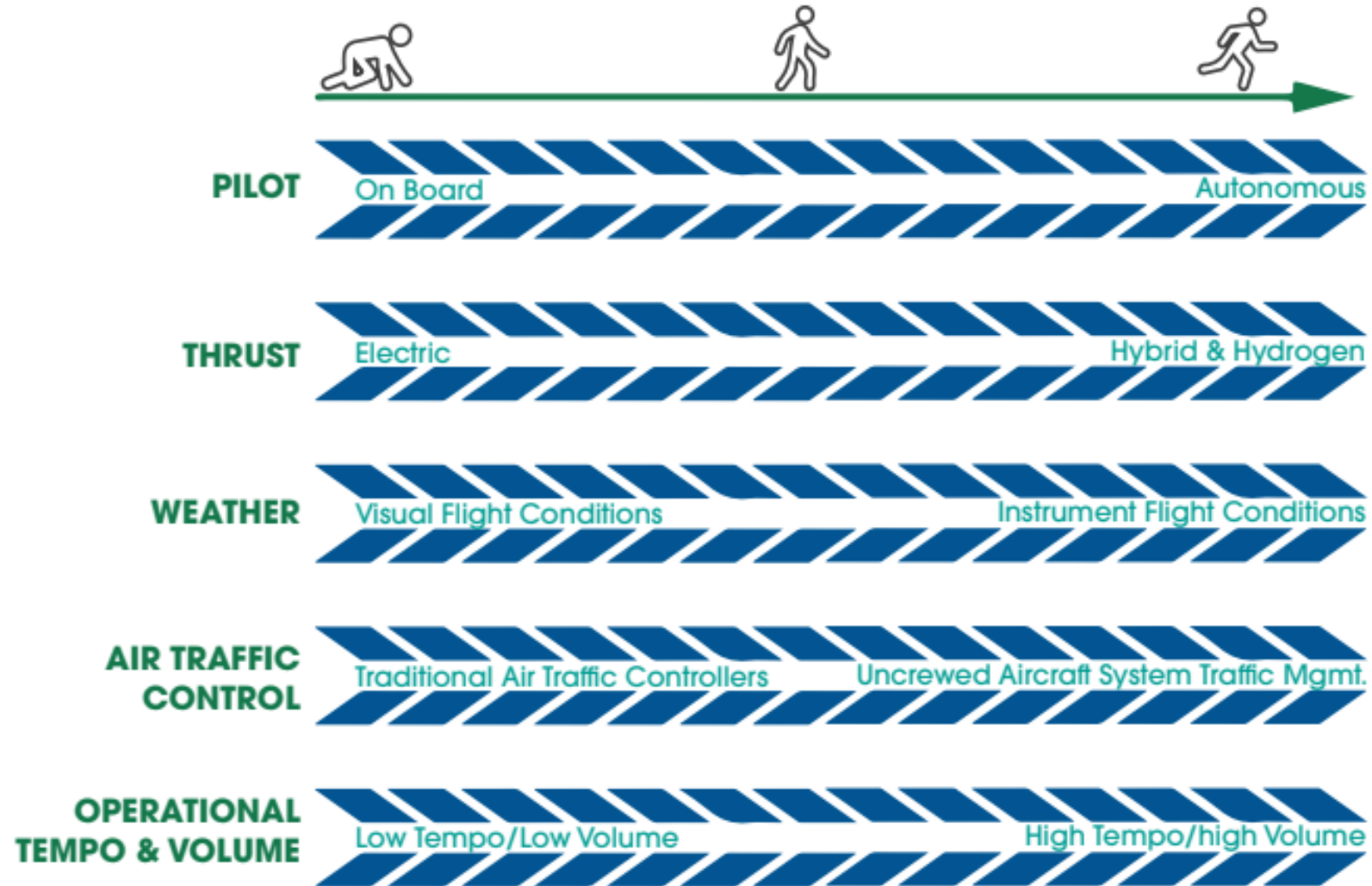
Rob Lowe & Arjuna Fields – FAA

# Recommendations

# Legislative Tips

- Consolidate recommendations as much as possible so they can be easily remembered and communicated (10-15 recs total)
- Ask for what you want, but asking for it will not necessarily make it happen
- Desired outcomes need to be clearly specified
- King's coin - if you take money from the king, you are now the king's man
- No state agency can lobby
- Advocacy for the industry is better handled by a trade association
- An economic impact study can help show the ROI for the state, with the importance increasing as the investment amount increases
  - It's best to have this information available in November 2024 when bills get filed
- Be careful "opening up" statute because you never know what changes will be made on the floor

# CRAWL, WALK, & RUN PHASES OF AAM



| Recommendation                                       | Funding Amount | State | Industry | Federal | Timeframe |
|--|----------------|-------|----------|---------|-----------|
| Statewide Economic Impact Study and AAM Plan         | \$2,000,000    | Y     |          |         | 26-27     |
| Electrical Infrastructure                            | ?              | Y     |          | Y       | 26-27     |
| AAM Advisory Committee                               | \$0            | Y     |          |         | 26-27     |
| AAM Definition                                       | \$0            | Y     |          |         | 26-27     |
| AAM Office (TxDOT)                                   | \$0            | Y     |          |         | 26-27     |
| AAM Position (OOG)                                   | ?              | Y     |          |         | 26-27     |
| Statewide Airspace Infrastructure                    | ?              | Y     |          |         | 28-29     |
| AAM Research and Development                         | ?              | Y     |          |         | 26-35     |
| AAM Workforce Development                            | \$0            | Y     |          | Y       | 26-27     |
| First Responder Training                             | \$0            | Y     |          |         | 26-27     |
| State Agency Information Sharing                     | \$0            | Y     |          |         | 26-27     |
| Mitigation of Cybersecurity Risks                    | ?              | Y     | Y        | Y       | ?         |
| Revenue Streams for AAM                              | \$0            | Y     |          |         | 26-27     |
| Disallowed AAM Uses                                  | \$0            | Y     |          |         | 26-27     |
| AAM Rep on TxDOT Aviation Committee                  | \$0            | Y     |          |         | 26-27     |
| Funding for Infrastructure at Existing Airports      | \$15,000,000   | Y     |          |         | 28-29     |
| Vertiport Grant Program                              | \$50,000,000   | Y     |          |         | 28-29     |
| Vertiport Construction Matching Program              | \$100,000,000  | Y     |          | Y       | 28-29     |
| Ancillary Off-airport Infrastructure                 | N/A            | Y     |          | Y       | 28-29     |
| AAM Workforce – K-12                                 | \$2,000,000    | Y     |          |         | 28-29     |
| Vertiports at Existing Airports                      | N/A            | Y     |          |         |           |
| Data Capture and Analysis                            | N/A            | Y     |          |         |           |
| AAM Public Awareness                                 | \$500,000      | Y     | Y        | Y       | 26-27     |
| <b>FY 26-27 Total Biennium Request = \$2,000,000</b> |                |       |          |         |           |



Not a Legislative Recommendation

# Economic Impact Study (short-term)

**Recommendation:** Put together a preliminary study estimating workforce development and economic impact potential.

**Who:** AAM committee, industry

**Funding source:** industry and/or local partners

**How much:** \$50,000-75,000

**Timeline:** complete by ~~January 2025 at the latest~~ November 2024 for optimal results

Recommendation

# Statewide Economic Impact and AAM Plan

**Recommendation:** Complete a comprehensive study estimating **the health, safety, environmental benefits**, workforce development, and economic impact potential, combined with a statewide plan for Texas AAM in conjunction with industry, similar to other AAM leader states.

**Who:** industry, state

**Funding source:** state, federal, industry

**How much:** \$1,000,000-2,000,000

**Timeline:** FY 26-27

# Statewide Economic Impact and AAM Plan

**Alternate Recommendation:** Direct TxDOT to complete--in consultation with industry--a two-part statewide study including (1) an economic impact study which includes an estimation of the potential workforce development, economic impact, health, safety, environmental, and other benefits of AAM, and (2) a plan for Texas AAM leadership in implementation.

Recommendation (include info from NASA electrical study)

# Electrical Infrastructure

**Recommendation:** ~~Provide matching funding to improve electrical capacity on or near Texas airports for aircraft.~~

**Alternate Recommendation:** Provide sufficient electrical generation and transmission capacity in Texas to accommodate AAM. Encourage the use of other fuel sources

**Who:** ~~TxDOT, AAM office,~~ ERCOT, PUC

**Funding source:** general, federal, rider, PPP

**How much:** ?

**Timeframe:** FY 26-27

Recommendation

# AAM Advisory Committee

**Recommendation:** Continue and expand the AAM Advisory Committee, in part to support the statewide economic impact and AAM plan(s).

**Who:** TxDOT

**Funding source:** TxDOT funding

**How much:** \$0 (supported by existing staff)

\*If a report or other significant deliverable is envisioned, then there is a cost

Recommendation

# AAM Definition

**Recommendation:** Include drones and UAS in Texas AAM definition

**Who:** Texas Legislature

**Funding source:** N/A

**How much:** \$0

# State AAM and Aircraft Definitions

## **AAM Definition from State Transportation Code and SB 2144:**

In this section, "advanced air mobility" means an aviation transportation system that uses highly automated aircraft, which may be manned or unmanned, to operate and transport passengers or cargo at lower altitudes for commercial, public service, private, or recreational purposes.

## **Aircraft Definition from State Transportation Code, Chapter 21**

“Aircraft” means a device intended, used, or designed for flight in the air.

# Federal AAM and Aircraft Definitions

## **AAM definition**

AAM is a transportation system that moves people and property by air between two points in the United States (U.S.) using aircraft with advanced technologies, including electric aircraft, or electric vertical takeoff and landing (eVTOL) aircraft, in both controlled and uncontrolled airspace.

## **Aircraft definition**

The term “aircraft” means a civil, military, or public contrivance invented, used, or designed to navigate, fly, or travel in the air.



# AUVSI, AAM Prepared AAM Definition

AAM is an air transportation system primarily utilizing electric aircraft, including eVTOL and eCTOL aircraft to carry passengers, cargo, or provide services in an urban or regional setting, with a gross takeoff weight of 300 lbs. or more.

Recommendation

## AAM Office (TxDOT)

**Recommendation:** ~~Create an office at TxDOT to increase adoption and awareness of AAM (through demonstration day coordination, conference presentations, etc.)~~

**Modified recommendation:** Create an office at TxDOT to provide technical support for AAM infrastructure at Texas airports

**Who:** TxDOT

**How much:** 0

**Note:** State employees cannot advocate for a particular industry. That is a role better served by a trade association

Recommendation

# AAM Position

**Recommendation:** Create a position at OOG to increase adoption and awareness of Texas on the national and international stage to attract investment in autonomous vehicles including AAM technologies (through demonstration day coordination, conference presentations, etc.)

**Who:** OOG

**Funding source:**

**How much:** 0

**Note:** State employees cannot advocate for a particular industry. That is a role better served by a trade association

# Texas Economic Development & Tourism

- Texas Economic Development & Tourism (EDT), within the Office of Governor Abbott, is tasked with marketing and promoting the state of Texas as a premier business location and travel destination
- The purpose of the Aerospace and Aviation Advisory Committee is to advise the Governor on the recruitment and retention of industry jobs and investment

# Texas Economic Development Corporation

- The Texas Economic Development Corporation (TxEDC) is an independently funded and operated 501(c)(3) nonprofit organization responsible for marketing and promoting Texas as a premier business location.
- Through a robust program of national and international investment attraction missions, industry events, media relations, advertising and other signature initiatives, TxEDC spreads the word of Texas' business advantages among a target audience of corporate decision makers and site selection consultants.

Recommendation (will be modified)

# Statewide Airspace Infrastructure

- The State of Texas SHOULD **support** the creation of state-wide airspace infrastructure that provides 24/7 surveillance, situational awareness, traffic management support (not Air Traffic Control), communication / telemetry support, identification services, and micro weather infrastructure. Allow private infrastructure investors to support
- Key Considerations:
  - The State could invest in the core infrastructure and create the framework that operators and developers could “plug in” to exchange data.
  - Important for the State to not pick winners / losers but provide the framework that other system developers and operators can push data to and pull data from.
  - Funds for the system could be appropriated to TXDOT who could then hire integration engineers to define the system and possibly operate it on behalf of the State.
  - Significant upside for communities, workforce, and development of the AAM and broader UAS industries.
- Funding – State of Texas for core system - \$50M to \$100M over 4-6 years but cost will vary depending on surveillance hardware required.

Recommendation

# Vertiport Standards

- ~~The State of Texas should NOT establish independent vertiport standards~~
- The State should encourage the use of consensus-based vertiport standards.
- Key Considerations:
  - FAA Engineering Brief #105 – Guidance for Vertiport design for VTOL capabilities already exists and will be updated over time.
  - Various AAM and vertiport guidance documents from FAA, NASA, Vertical Flight Society, Vertical Aviation International available to communities and vertiport developers. (List is not exhaustive, merely representative).
  - Merging of Vertiport and Heliport standards.
  - If Texas develops preferred standards that end up going against FAA guidance in the future, extensive potential rework and expense may be necessary.
- Funding: None

Recommendation

# AAM Research and Development

**Recommendation:** Support research and development for AAM technologies, products, and services in Texas by creating a program for state universities (e.g., developing UTM systems, integrating autonomous aviation to the NAS) which could be used as matching funds for federal grants and a minimum percentage of community or industry match.

**Who:** TxDOT

**Funding source:** general

**How much:** match federal funds



Recommendation

# AAM Workforce Development

**Recommendation:** Direct state universities, community colleges, vocational schools, and TEA to put together an action plan detailing requirements to develop a robust AAM industry.

**Who:** workforce solutions, TWC, THECB, TSTC

**Funding source:** federal (DOD), state, general

**How much:** ~~\$10M annually (for a set period of time)~~

**Timeframe:** FY 26-27

Recommendation

# First Responder Training

**Recommendation:** TDEM establish a working group to research the development of curriculum for first responders to deal with AAM related emergencies and maintain a resource repository of all documents.

**Who:** TDEM

**Funding source:**

**How much:** \$0

Recommendation

# State Agency Information Sharing

**Recommendation:** Reestablish working group from legislation (HB2340 2019, Sec. 418.055) and include members of the AAM community in the group.

**Who:** legislature

**Funding source:** N/A

**How much:** \$0

Recommendation

# Mitigation of Cybersecurity Risks

**Recommendation:** Texas A&M establish a working group to look at cybersecurity and data risks posed by autonomous vehicles including AAM technologies. The working group shall include state and local public safety representatives, NIST, CISA, and industry.

**Who:** Texas A&M

**Funding source:** state

**How much:** ?

Recommendation

## ~~AAM Workforce – K-12~~

**Recommendation:** Direct the TEA to integrate AAM into K-12 curriculum (e.g., NASA toolkit) and coordinate with TWC on developing AAM apprenticeship programs at high schools.

**Who:** TEA, TWC

**Funding source:** state

**How much:** \$2M

**Timeframe:** 28-29

Recommendation

# ~~Data Capture and Analysis~~

**Recommendation:** Coordinate collaborative mechanism for capturing and analyzing existing public data on airspace integration and from drone detection companies to enhance air safety, especially for public safety uses, enabling further scaling and automation of operations.

**Who:** TxDOT? Texas Comptroller model?

**Funding source:** state

**How much: ?**

Recommendation

## ~~Funding for AAM Infrastructure for Existing Airports~~

**Recommendation:** Increase available funding for on-airport and off-airport infrastructure to support AAM if the infrastructure meets public use/public good standard.

**Who:** TxDOT

**Funding source:** non-dedicated source as directed by the Legislature

**How much:** ? (current airport funding pot is \$15M/yr for 80 airports)

**Timeframe:** FY 28-29

Recommendation

# ~~Vertiports at Existing Airports~~

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

**Who:** legislature

**Funding source:** N/A

**How much:** ?



Recommendation

# ~~Ancillary Off-airport Infrastructure~~

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

**Who:** TxDOT, OOG, AAM office

**Funding source:** federal, state, general, rider

**How much:**

# ~~Vertiport Grant Program~~

- The State of Texas SHOULD create a grant program for the development of Vertiports across the State.
- Key Considerations:
  - Funds to be appropriated and managed by TXDOT and awarded on rolling basis over next two years.
  - Grants to be two-step process – initial planning grant followed by implementation grant; Initial planning grants \$500K-\$1M with implementation grants up to \$20M. Possible fund matching criteria.
  - Grant proponents could be communities, economic development, development authorities, academic institutions, quasi-governmental, or possibly land stakeholders. (This list is not exhaustive, but grantees should have sign-off from stakeholders with land use planning authority.)
  - TXDOT to set up grant management committee to set up rules, eligibility, process, review proposals, review plans, and conduct ongoing grant management reviews. May need multiple committees
  - Planning grants awarded based on make-up of team, core details of the plan, planning approach; Implementation grants awarded based on comprehensiveness of plan for economics, sustainability, workforce, community engagement and other key criteria. Other criteria TBD.
- Funding: \$200M over 4 years

Recommendation

# ~~Vertiport Construction Matching Program~~

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

**Who:** TxDOT, AAM office

**Funding source:** general, rider, federal

**How much:** \$100M

Recommendation (combine with economic impact rec.)

## ~~Revenue Streams for AAM~~

**Recommendation:** Develop and recommend a list of revenue streams to educate the legislature on their options

**Who:** legislature

**Funding source:** N/A

**How much:** \$0

**Note:** the legislative experts noted that the Legislature is very familiar with existing revenue stream options

Recommendation

# ~~AAM Rep on TxDOT Aviation Committee~~

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

**Who:** TxDOT

**Funding source:** N/A

**How much:** \$0

AAM industry representatives could already qualify

Recommendation (highlight in the report)

## ~~AAM Public Awareness~~

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

**Who:** Texas Economic Development, TxDOT, Program Manager

**Funding source:** general fund, rider, industry funds (advertising campaign), federal funds

**How much:** \$500,000 annually each from state and industry

Recommendation

## ~~Economic Impact Study (long-term)~~

**Recommendation:** Put together a comprehensive statewide study estimating workforce development and economic impact potential.

**Who:** regional and state stakeholders, industry, and other relevant parties

**Funding source:** state, industry, federal

**How much:** \$500,000-1,000,000

**Timeline:** FY 26-27

Recommendation

## ~~Statewide AAM Plan~~

**Recommendation:** TxDOT develop a statewide plan for Texas AAM in conjunction with industry, similar to other AAM leader states

**Who:** industry, state

**Funding source:** state, federal, industry

**How much:** \$500,000-1,000,000

**Timeline:** FY 26-27



Recommendation (fold into education recommendation)

## ~~Disallowed AAM Uses~~

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

**Who:**

**Funding source:**

**How much:** \$0

# Next Meeting Dates

- Full committee: July 24, 9:00-12:00