Infrastructure Subcommittee

Texas AAM Committee

Meeting #4, May 9, 2024

Agenda

- Leadership comments
- Full committee summary
- Review Infrastructure recommendations, timeline, and costs
- Review other recommendations

Full Committee Summary

- 16 speakers presented on their AAM activity in Texas
  - Speakers were a mix of committee members and public
  - Presentations were categorized by services, airports, and testing
- The committee discussed all recommendations

AAM Activity in Texas
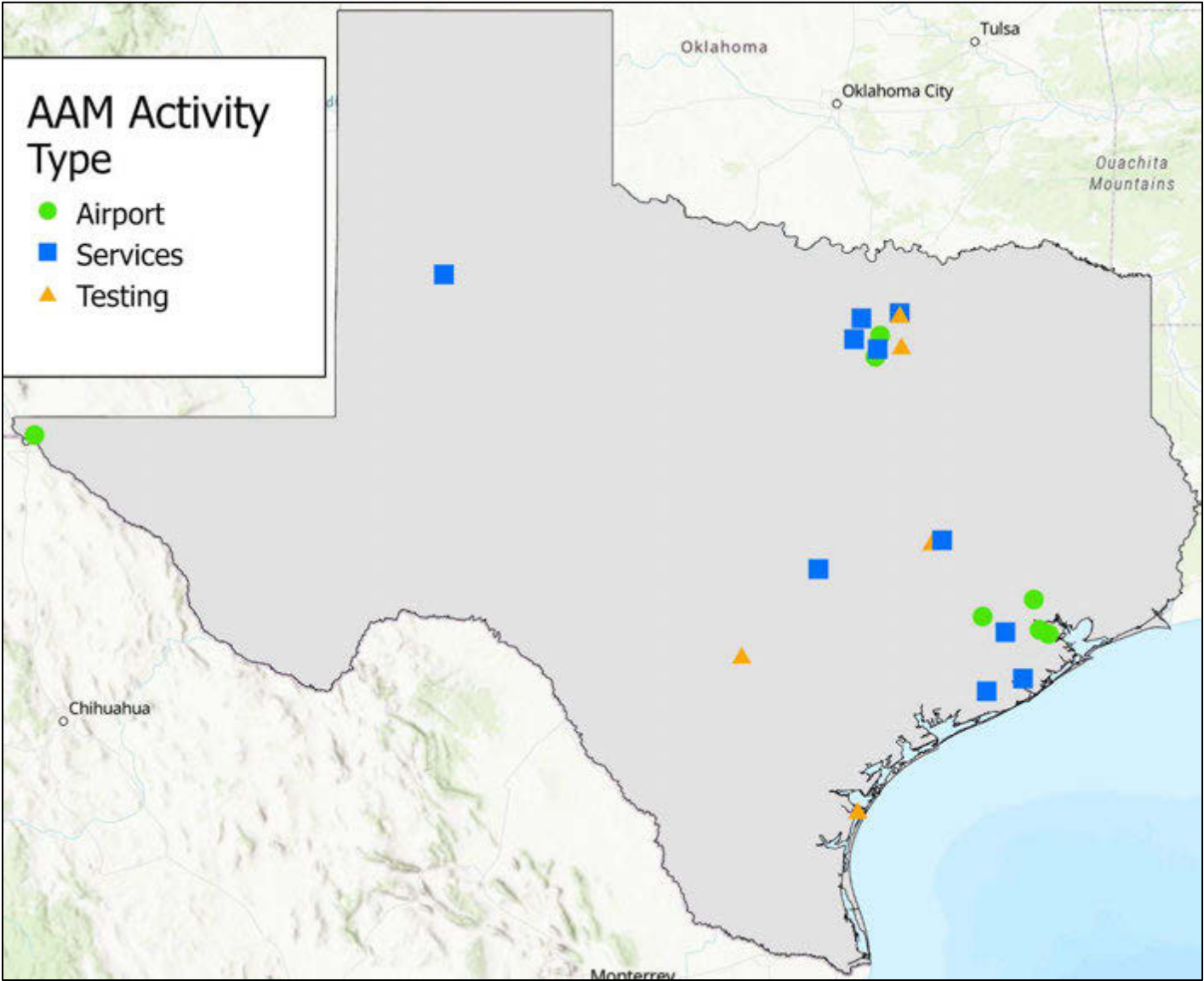
Recommendation	Funding Amount	Funding Notes	State	Industry	Federal	Timeframe	Priority
~~AAM Definition~~	$0		Y			26-27	
AAM Office	$0	Endorse TxDOT's ask for additional FTEs for AAM	Y			26-27	
State Agency Information Sharing	$0		Y			26-27	
Disallowed AAM Uses	$0		Y			26-27	
Revenue Streams for AAM	$0		Y			26-27	
AAM Rep on TxDOT Aviation Committee	$0		Y			26-27	
AAM Advisory Committee	~~$60,000~~	annually	Y			26-27	
AAM Public Awareness	$500,000	annually each from state and industry	Y	Y	Y	26-27	
Economic Impact Study (long-term)	$1,000,000		Y	Y	Y	26-27	
Statewide AAM Plan	$1,000,000		Y	Y	Y	26-27	
First Responder Training	$2,000,000	annually	Y		Y	26-27	
AAM Workforce – Higher Education	$10,000,000	annually (for a set period of time)	Y		Y	26-27	
AAM Research and Development	$20,000,000	annually	Y			26-35	
AAM Workforce – K-12	$2,000,000		Y			28-29	
<mark>Funding for AAM Infrastructure for Existing Airports</mark>	N/A					28-29	
~~Statewide Airspace Infrastructure~~	$15,000,000	annually	Y			28-29	
~~Vertiport Grant Program~~	$50,000,000	annually	Y			28-29	
~~Vertiport Construction Matching Program~~	$100,000,000		Y		Y	28-29	
~~Ancillary Off-airport Infrastructure~~	N/A		Y		Y	28-29	
~~Vertiports at Existing Airports~~	N/A		Y				
<mark>Electrical Infrastructure</mark>	N/A		Y		Y		
Data Capture and Analysis	N/A		Y				
Mitigation of Cybersecurity Risks	N/A		Y	Y	Y		

FY 26-27 Total Biennium Request = $69,000,000 **FY 28-29 Total Biennium Request = $4,000,000**

Legislative Tips

- Consolidate recommendations as much as possible so they can be easily remembered and communicated (10-15 recs)

- 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
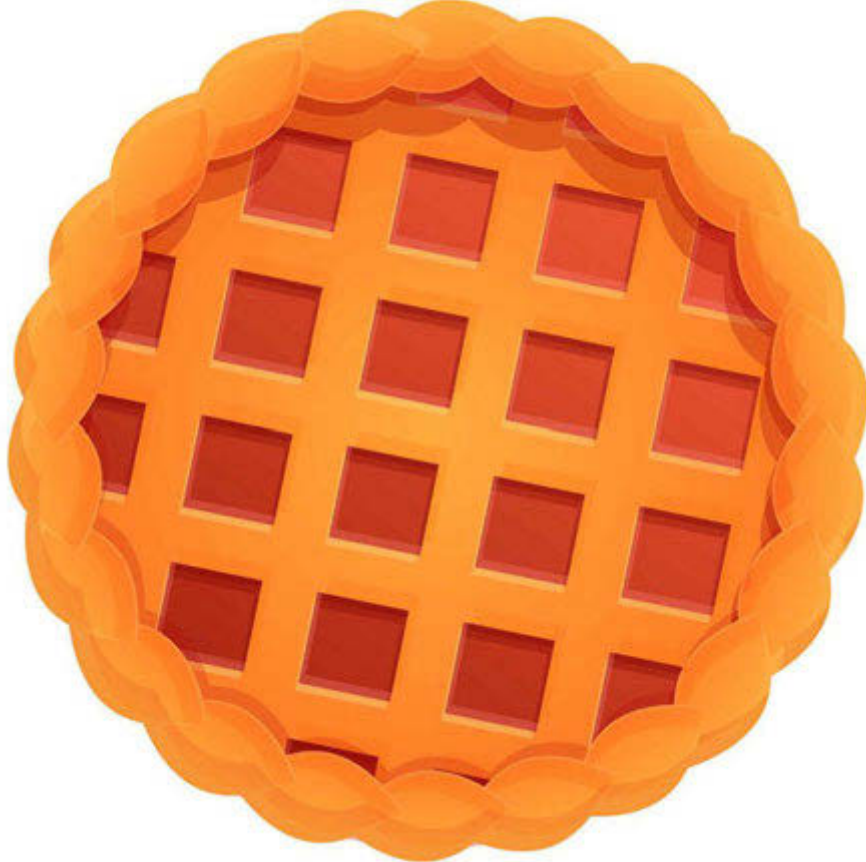
Infrastructure Recommendations

AAM: Special vs Part of Aviation
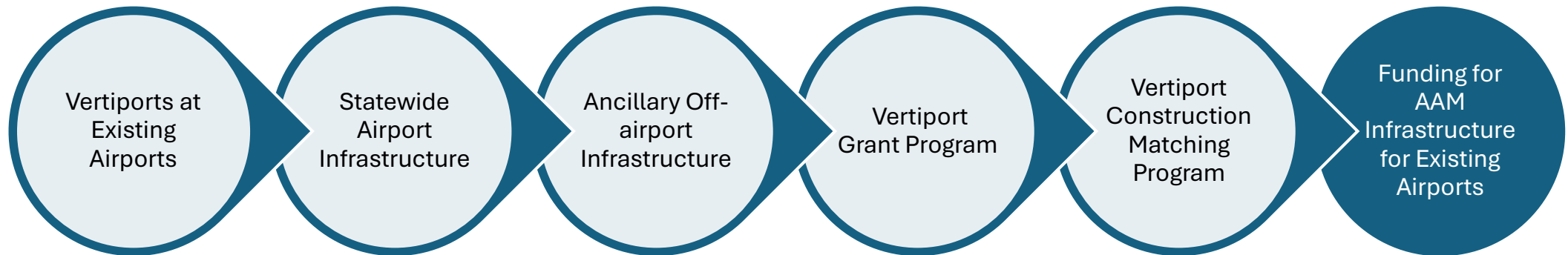

$15M
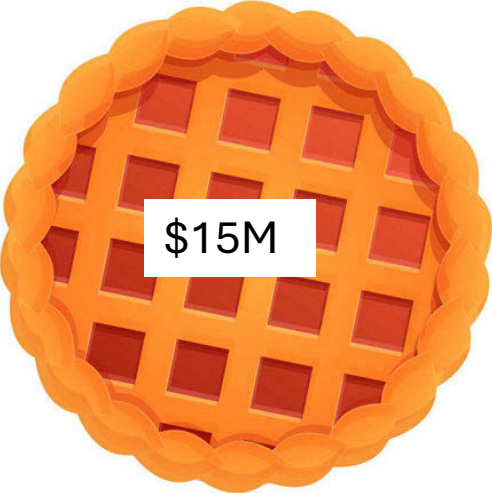
Existing aviation $
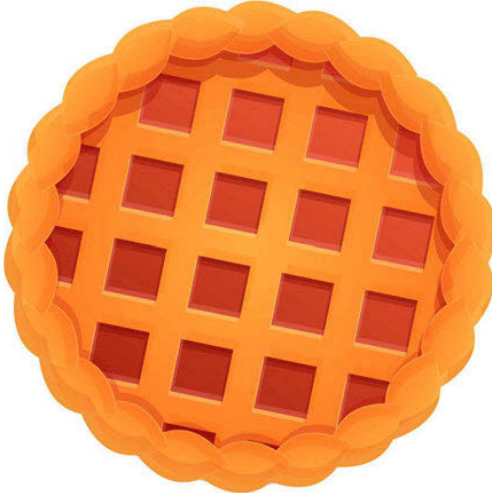
AAM $

Aviation including AAM $

Combination of Infrastructure Recommendations

These 5 recommendations were all asking for money from the same pot, so we consolidated them into one new recommendation to simplify management and communication.

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

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: ?

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.

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

~~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

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. Provide support for other fuel sources

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

Funding source: general, federal, rider, PPP

How much: **?**

Timeframe: FY 26-27

CRAWL, WALK, & RUN PHASES OF AAM

PILOT — On Board → Autonomous

THRUST — Electric → Hybrid & Hydrogen

WEATHER — Visual Flight Conditions → Instrument Flight Conditions

AIR TRAFFIC CONTROL — Traditional Air Traffic Controllers → Uncrewed Aircraft System Traffic Mgmt.

OPERATIONAL TEMPO & VOLUME — Low Tempo/Low Volume → High Tempo/high Volume

Source: GDOT Plan (May 2024)
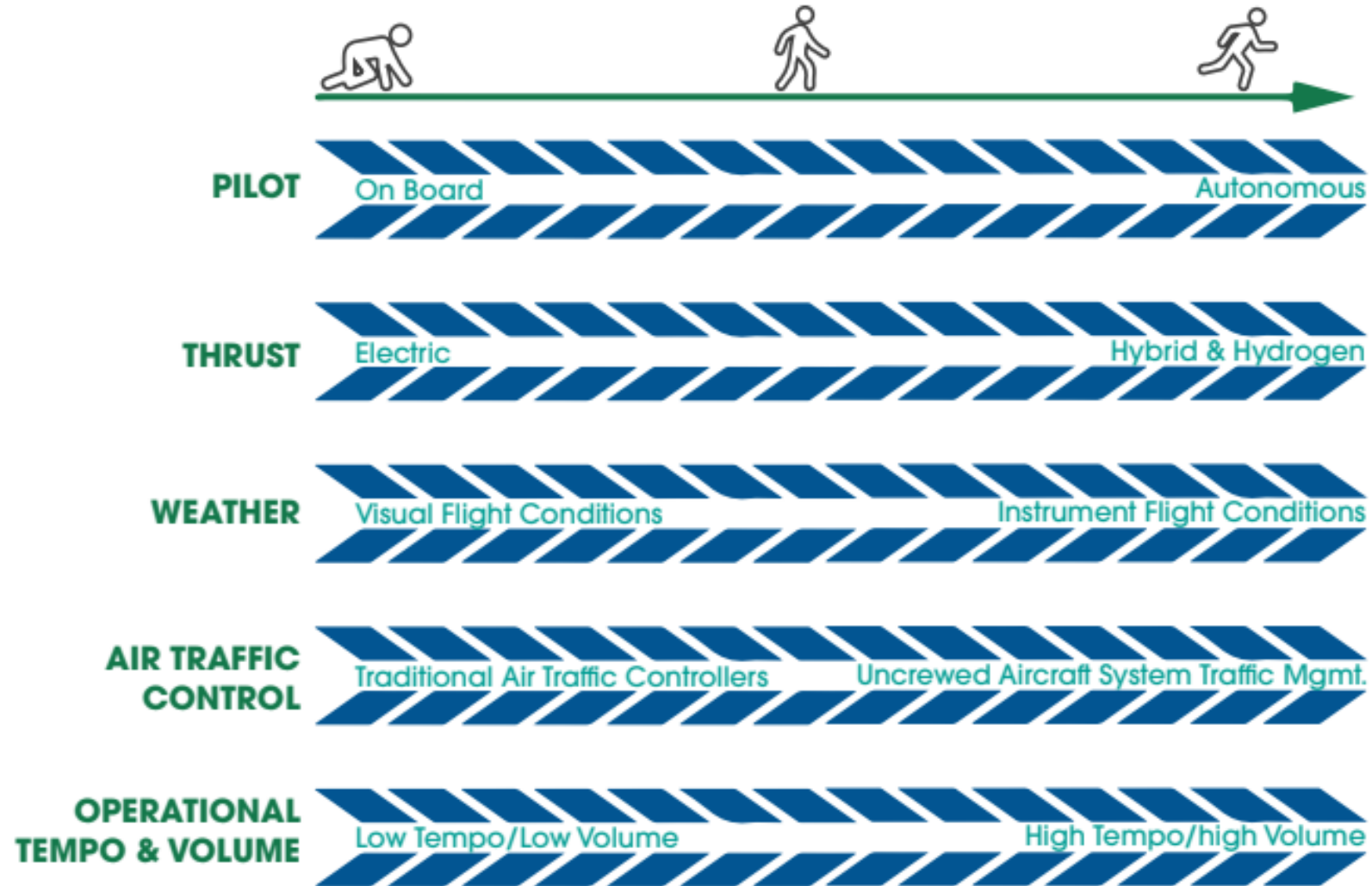
Crawl-Walk-Run Methodology

	CRAWL (MVP)	WALK	RUN	SOAR
FLIGHT RULES	— VFR — Current operating procedures	— VFR/IFR — Current operating procedures	— Bridge to automated ATM — Piloted	— Uncrewed and automated
OPS & TEMPO	— Low volume — LOAs — Existing VFR flyways & helicopter routes	— Medium volume — LOAs — New VFR flyways & helicopter routes	— High volume — UAM corridors — All airspace	— High volume — UAM corridors — All airspace
INFRASTRUCTURE	— Existing aviation infrastructure — Light retrofits	— Existing aviation infrastructure — Light retrofits — Low-volume new builds	— Existing aviation infrastructure — High-volume new builds	— Broad network of purpose-built infrastructure

TIME AND COMPLEXITY

Current Focus

Source: Archer

Other Recommendations

AAM Definition

Recommendation: Include drones and UAS in Texas AAM definition

Who: Texas Legislature

Funding source: N/A

How much: $0

Under the current state definition of AAM in SB 2144, drones and UAS are not excluded

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.

Sec. 21.072. ADVANCED AIR MOBILITY.

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

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

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

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

AAM Office

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

Funding source: Endorse TxDOT's ask for additional FTEs for AAM

How much: 0

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

AAM Advisory Committee

Recommendation: Continue the AAM Advisory Committee

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

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

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

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

Use of Unmanned Aircraft

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

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.

Who: TxDOT? Texas Comptroller model

Funding source: state

How much:

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: $20M annually

State Agency Information Sharing

Recommendation: update legislation (HB2340-86R) to include AAM aircraft

Who: legislature

Funding source: N/A

How much: $0

Mitigation of Cybersecurity Risks

Recommendation: Develop a statewide certification process to ensure good cybersecurity practices are adhered to for autonomous AAM technologies for services to be purchased by the state and connected to state systems

Who: DIR, NIST, CISA

Funding source: general, federal, industry

How much: ?

First Responder Training

Recommendation: Provide a funding mechanism to help with first responder training

Who: AAM office, Texas DPS, TDEM, TEEX, TCOLE

Funding source: general, federal (DOJ, homeland security, FEMA)

How much: $2M annually

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

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

AAM Workforce – Higher Education

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: workforce solutions, TWC, THECB, TSTC

Funding source: federal (DOD), state, general

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