



ADVANCED AIR MOBILITY (AAM) IS COMING TO A TOWN NEAR YOU... ARE YOU READY?

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Abstract

This briefing provides a high and low altitude view of what is coming in the way of Advanced Air Mobility (AAM) innovation. It is meant for county, town, or city officials; tribal governments; local businesspersons; airport, heliport, Fixed Base Operator (FBO), flight schools' owners/operators; and other individuals; who wish to capitalize on, and prepare for, a US industry expected to hit around USD 68 Billion by 2032. Is your community or organization prepared for this new economy? Are your customers, or constituents accepting of these new technologies? Are you ready to capitalize on this AAM market and all the growth it promises to bring with it? According to Deloitte, the foremost industry-insight, audit, and consultancy firm, the AAM market is estimated to reach USD 115 Billion annually by 2035, employing more than 280,000 high-paying jobs. Is your workforce up to the task? The high-altitude view shows the US government legislation and policies, while only briefly mentioning other countries' efforts by way of comparison. This legislation and policymaking include infrastructure development, cleaner energy sources, pilot certification, and novel aircraft designs and technology. The low-altitude view uncovers the details, in terms of operator training, operational frameworks, land use needs, environmental impact, access to airspace, energy grid demands, infrastructure planning, transportation connectivity, charging stations, physical security, cybersecurity readiness, public awareness, community engagement, and education campaigns. Additionally, this briefing includes a highlight of some of the US States that are ahead of others in terms of preparedness for AAM operations.

Introduction

Advanced Air Mobility (AAM) is an air transportation system concept that integrates new, transformational aircraft designs and flight technologies into existing and modified airspace operations. This system primarily utilizes electric aircraft, including electric vertical takeoff and landing (eVTOL) and electric conventional takeoff and landing (eCTOL) aircraft to carry passengers or cargo, with a gross takeoff weight of 1,300 pounds or more. Some hydrogen-powered aircraft, and hybrid-electric aircraft are also in the works.

Urban Air Mobility (UAM) is a term for aviation transportation systems that are highly automated. The ultimate vision of UAM is aircraft that can fly below typically approved altitudes and operate within towns, cities, and suburbs.

AAM expands the UAM concept to rural areas and incorporates intra-regional UAM services, building upon the UAM concept by incorporating use cases not specific to operations in urban environments, such as commercial inter-city (longer range/thin haul); cargo delivery; public services; and private/recreational vehicles.

While initial AAM operations will leverage existing infrastructure like airports and heliports (with modifications), new facilities, such as vertiports, vertibases, vertihubs, vertistops, and vertipads, will also accommodate these growing operations. A vertiport is a defined area that can support the landing and takeoff of eVTOL aircraft during flight operations.

The Federal Aviation Administration (FAA) defines a vertiport as “an identifiable ground or elevated area, including any buildings or facilities thereon, used for the takeoff and landing of tiltrotor aircraft and rotorcraft.”¹ According to the European Union Aviation Safety Agency (EASA), the basic definition of a vertiport is “an area of land, water, or structure used or intended to be used for the landing and take-off of Vertical Take-Off and Landing aircraft.”² In other words, vertiports are areas dedicated to groups of electric aircraft that allow advanced services to support UAM of both passengers and goods. Thus, vertiports also include all the tools that enable the implementation of such purposes, such as ticketing systems, secure boarding procedures, and charging facilities. The other ‘vertis’ mentioned above offer lesser amenities to varying degrees.

This briefing provides a high and low altitude view of what is coming in the way of AAM innovation. It is meant for county, town, or city officials; tribal governments; local businesspersons; airport, heliport, Fixed Base Operator (FBO), flight schools’ owners/operators; and other individuals; who wish to capitalize on, and prepare for, a US industry expected to hit around USD 68 Billion by 2032.³ According to

¹ <https://www.faa.gov/sites/faa.gov/files/eb-105-vertiports.pdf>

² <https://www.easa.europa.eu/en/document-library/general-publications/prototype-technical-design-specifications-vertiports>

³ <https://aws.amazon.com/marketplace/pp/prodview-ozfijidhem5o2#overview>

MarketsandMarkets, a revenue impacts and advisory firm, the AAM market is projected to increase from USD 3.8 Billion in 2023 to USD 28.5 Billion by 2030.⁴

The term FBO, mentioned above, is given to a commercial enterprise that has been granted the right by an airport authority to operate on that airport and provide aviation services, such as fuel, parking and hangar space, to the General Aviation (GA) community.

Is your community or organization prepared for this new economy? Are your customers, or constituents accepting of these new technologies? Are you ready to capitalize on this AAM market and all the growth it promises to bring with it? According to Deloitte,⁵ the foremost industry-insight, audit, and consultancy firm, the AAM market is estimated to reach USD 115 Billion annually by 2035, employing more than 280,000 high-paying jobs. Is your workforce up to the task?

The high-altitude view shows the US government legislation and policies, while only briefly mentioning other countries' efforts by way of comparison. This legislation and policymaking include infrastructure development, cleaner energy sources, pilot certification, and novel aircraft designs and technology.

The low-altitude view uncovers the details, in terms of operator training, operational frameworks, land use needs, environmental impact, access to airspace, energy grid demands, infrastructure planning, transportation connectivity, charging stations, physical security, cybersecurity readiness, public awareness, community engagement, and education campaigns.

Finally, for the legal disclaimer. This paper, while quite comprehensive, does not cover everything going on in the world. However, the author also has penned, among other legal textbooks, an eBook, *Drones Across the World*,⁶ free of charge thanks to Embry-Riddle Aeronautical University's Open Education Resources. This eBook is updated almost weekly. You are encouraged to stay up to date on all things drone and AAM, with the help of that, much like the universe, ever-expanding eBook.

⁴ <https://www.urbanairmobilitynews.com/market-analysis/sustainable-urban-air-mobility-uam-market-trends-global-forecasts-to-2030/>

⁵ <https://www2.deloitte.com/us/en/insights/industry/aerospace-defense/advanced-air-mobility.html>

⁶ <https://eaglepubs.erau.edu/dronesacrosstheworld/>

US Government Legislation and Policies

In chronological order, between 2018 and 2024, what follows is a synopsis of the important Acts of the US Congress, White House statements, US Department of Transportation (DOT), Federal Aviation Administration (FAA), and National Aeronautics and Space Administration (NASA) documents addressing AAM and the plans for its future in the US.

AAM: A National Blueprint (2018)

In 2018, NASA asked the National Academies of Sciences, Engineering, and Medicine to undertake a study, entitled *Advanced Aerial Mobility: A National Blueprint*,⁷ to evaluate the potential benefits and challenges associated with AAM, an emerging technological development that could be simultaneously transformative and disruptive for the nation's aviation infrastructure and industry.

Although the statement of task referred to UAM, while this study was under way the aviation community, and NASA itself, increasingly used the term AAM of which UAM is considered a subset (albeit the most challenging one). The committee performing this study therefore chose to use AAM to capture the broader range of opportunities and operations that were being discussed.

NASA has developed a framework for UAM Maturity Levels (UMLs), which categorizes anticipated evolutionary stages of a UAM transportation system into six levels. Each UML represents a level of maturity of the UAM ecosystem, with UML-6 representing the ubiquitous integration of UAM into daily life.

UAM ConOps Version 1.0 (2020)

In June 2020, the FAA NextGen Office developed and shared the *UAM Concept of Operations (ConOps) Version 1.0*⁸ with both internal and external stakeholders to describe a new, future, operational environment. Their vision is supported by the introduction of a cooperative operating environment known as Extensible Traffic Management (xTM), which complements the traditional provision of Air Traffic Services (ATS) for future passenger or cargo-carrying operations/flights. Version 1.0 has already been updated by version 2.0 and is shared further on in this paper!

⁷ <https://www.nationalacademies.org/ocga/briefings-to-congress/advanced-aerial-mobility-a-national-blueprint>

⁸ https://nari.arc.nasa.gov/sites/default/files/attachments/UAM_ConOps_v1.0.pdf

High-Density Automated Vertiport ConOps (2021)

In May 2021, NASA released its *High-Density Automated Vertiport Concept of Operations*.⁹ The NASA vision for AAM includes UAM – a concept involving VTOL aircraft, decentralized (or federated) traffic management, and new infrastructure to support urban, suburban, and rural flight operations. High-density performance-based routes or corridors enable prompt transportation of people and goods from node to node, where each node represents a vertiport, defined as an identifiable ground or elevated area used for the takeoff and landing of VTOL aircraft.

In the presence of uncertainty surrounding aircraft turnaround time on the ground, vertiports will be the critical end points in scheduling, sequencing, and spacing (SSS) of aircraft in dense metropolitan environments.

This ConOps includes vertiports of varying sizes, configurations, service offerings, and locations. UAM air vehicles include conventional rotorcraft, unmanned VTOL aircraft, and novel piloted VTOL aircraft. This ConOps focuses on operations at a high-density vertiport, supported by a Vertiport Automation System (VAS) with high-throughput operation capabilities under conditions defined as NASA's Urban Air Mobility Maturity Level Four (UML-4).

White House Summit on AAM (2022)

In August 2022, the White House Office of Science and Technology Policy (OSTP), in coordination with the National Security Council, hosted the first ever *White House Summit on Advanced Air Mobility (AAM)*.¹⁰ The summit brought together industry leaders, federal policymakers, and academic experts from across the country to discuss AAM, Uncrewed Aircraft System (UAS), also known as drones, and eVTOL aircraft technologies. These aircraft aim to merge into the National Airspace System (NAS) which includes traditional passenger and transport aircraft, creating a new aviation transportation ecosystem.

The event built on the Biden-Harris Administration's efforts to ensure that the US maintains its global leadership in aviation and furthers the Administration's commitment to leveraging science and technology to enhance equity, combat climate change, boost the economy, and sustain America's global standing.

⁹https://ntrs.nasa.gov/api/citations/20210016168/downloads/20210016168_MJohnson_VertiportAtmtnConOpsRprt_final_corrected.pdf

¹⁰ <https://www.whitehouse.gov/ostp/news-updates/2022/08/05/readout-of-the-white-house-summit-on-advanced-air-mobility/>

Engineering Brief No. 105 – Vertiport Design (2022)

In September 2022, the FAA released its *Engineering Brief No. 105, Vertiport Design*,¹¹ guidelines for infrastructure that would support AAM aircraft. The design standards are to serve as the initial step to provide key information for airport owners, operators, and infrastructure developers to begin development of facilities that will support operations of AAM aircraft that are electrically powered and take off and land vertically.

These eVTOL operations will transport passengers or cargo at lower altitudes in rural, urban, and suburban areas. The design standards include critical information that designers and builders will need to follow to allow for safe takeoffs and landings. Some of those include:

- (1) Safety-critical geometry and design elements: Dimensions for vertiport touchdown and liftoff areas, additional airspace needed for approach and departure paths and load-bearing capacity. In the future FAA anticipates a high rate of operations at many vertiports.
- (2) Lighting, markings, and visual aids: Guidelines on markings, lighting and visual aids that identify the facility as a vertiport.
- (3) Charging and electric infrastructure: Initial safety standards and guidelines for batteries and charging equipment that will be central to vertiports.
- (4) On-airport vertiports: Requirements for airports looking to add vertiports to an existing commercial airport, including the distance a vertiport would have to be from a current runway.
- (5) Elevated vertiports: Requirements and guidelines for vertiports that may be on top of existing structures.

This vertiport guidance will be used until performance-based vertiport design guidance is developed. The final design standards will be based on research conducted by the FAA, collaboration with industry partners and feedback from the public.

AAM Coordination & Leadership Act (2022)

On October 17, 2022, the *Advanced Air Mobility Coordination and Leadership Act (S.516)*¹² became Public Law No: 117-203. This Act directed the US DOT to establish an AAM interagency working group to plan and coordinate efforts related to the safety, infrastructure, physical security, cybersecurity, and federal investment necessary to bolster the AAM ecosystem, particularly passenger-carrying aircraft, in the US.

Additionally, the Government Accountability Office (GAO) was tasked with studying and reporting to Congress on the interests, roles, and responsibilities of federal, state, local, and tribal governments affected by AAM aircraft and operations.

¹¹ https://www.faa.gov/airports/engineering/engineering_briefs/engineering_brief_105_vertiport_design

¹² <https://www.congress.gov/bills/117/congress/senate/bills/516>

Vision for America’s Continued Leadership in Aeronautics (2023)

In March 2023, the White House released *A Vision for America’s Continued Global Leadership in Aeronautics*¹³ which identified three key priority areas that would be essential to US leadership in the industry of tomorrow:

- (1) Achieving sustainable aviation: The Administration is committed to reducing and eventually eliminating the climate impact of aeronautics and to achieve net-zero emissions by 2050. This includes implementing the US Aviation Climate Action Plan and the Climate Adaptation Plans across the federal government.
- (2) Transforming the national airspace system: The Administration is committed to transforming aviation in both urban and rural communities, creating new industries and jobs. This includes transitioning from legacy technologies, and integrating modern and emerging technologies, including drones and AAM aircraft, into the national airspace system.
- (3) Promoting connectivity and speed: The Administration is committed to exploring new technologies that will enhance global connectivity at greater speed. This includes continued support for research and development of superior aircraft and technologies, from subsonic through hypersonic technologies, that emphasize speed.

UAM ConOps Version 2.0 (2023)

In May 2023, the FAA released an updated *UAM Concept of Operations (ConOps) version 2.0*.¹⁴ This ConOps is not a policy statement nor a prescriptive statement of what the far term integration will be. Rather, it is a target description of the evolution of integration from the near-term *Innovate28* environment to a future of high-density urban operations.

The envisioned evolution for UAM operations includes an initial, low tempo set of operations that leverage the current regulatory framework and rules, such as Visual Flight Rules (VFR), and Instrument Flight Rules (IFR), as a platform for increasing operational tempo, greater aircraft performance, and higher levels of autonomy. This will include new operational rules and infrastructure to facilitate highly automated cooperative flow management in defined Cooperative Areas (CAs), enabling remotely piloted and autonomous aircraft to safely operate at increased operational tempos.

NPRM – Integration of Powered-Lift (2023)

In June 2023, the FAA released a Notice of Proposed Rulemaking (NPRM), *Integration of Powered-Lift: Pilot Certification and Operations; Miscellaneous*

¹³ <https://www.whitehouse.gov/ostp/news-updates/2023/03/17/a-vision-for-americas-continued-global-leadership-in-aeronautics/>

¹⁴ https://www.faa.gov/sites/faa.gov/files/Urban%20Air%20Mobility%20%28UAM%29%20Concept%20of%20Operations%202.0_0.pdf

*Amendments Related to Rotorcraft and Airplanes.*¹⁵ This NPRM proposed a Special Federal Aviation Regulation (SFAR) for alternate eligibility requirements to safely certificate initial groups of powered-lift pilots, as well as determine which operating rules apply to powered-lift on a temporary basis to enable the FAA to gather additional information and determine the most appropriate permanent rulemaking path for these aircraft.

Powered-lift will be type-certificated as special class aircraft under the existing regulations. Currently, there is not an established path for civilian pilots to be certificated with a powered-lift category rating. The general and commercial operating regulations do not contemplate operation of powered lift. In addition to proposed changes for powered-lift, this action also proposes changes that would affect practical tests in aircraft that require type ratings, including airplanes and helicopters, training center rotorcraft instructor eligibility, training, and testing requirements, and training center use of rotorcraft in flight instruction.

New rules are necessary because many of the proposed aircraft take off and land like a helicopter but fly enroute like an airplane. The powered-lift proposed rule is designed to provide certainty to pilots and the industry on what the requirements and expectations will be to operate these aircraft once it is finalized.

Under the proposed rule:

- (1) A clear pathway is proposed for pilots to earn powered-lift ratings specific to each type of aircraft they fly.
- (2) Pilots who work for powered-lift aircraft manufacturers could serve as the initial cadre of flight instructors, who could then train instructors at flight schools, training centers and air carriers.
- (3) To safely accelerate pilot certification, alternate eligibility criteria would enable certain pilots to meet flight-time experience requirements faster. This would apply to pilots who already hold a commercial pilot certificate and are instrument rated.
- (4) Powered-lift aircraft would follow the same set of operating rules as traditional aircraft that are used in private and commercial flights and air tours.

The proposal would conform to ICAO requirements, enabling US pilots to operate in other countries.

Powered-lift according to 14 CFR Part 1.1¹⁶ means a heavier-than-air aircraft capable of vertical takeoff, vertical landing, and low speed flight that depends principally on engine-driven lift devices or engine thrust for lift during these flight regimes and on nonrotating airfoil(s) for lift during horizontal flight.

¹⁵ <https://www.federalregister.gov/documents/2023/06/14/2023-11497/integration-of-powered-lift-pilot-certification-and-operations-miscellaneous-amendments-related-to>

¹⁶ <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-A/part-1/section-1.1>

Proposed Rule to Enhance LSA

In July 2023, the FAA proposed a rule to enhance the safety and performance of Light Sport Aircraft (LSA).¹⁷ The proposed *Modernization of Special Airworthiness Certification (MOSAIC)* rule would put performance safety standards around larger aircraft that innovators are building by expanding the definition of Light Sport Aircraft (LSA).¹⁸

Under the proposal, the aircraft's weight limit is based on its stall speed. By permitting higher stall speeds, the proposal would bring within the LSA regulatory framework aircraft weighing as much as 3,000 pounds. This more than doubles the weight of aircraft under the current definition of LSA of 1,320 pounds, allowing larger and stronger aircraft to qualify as LSA.

The proposal would also expand the type of aircraft sport pilots could operate and allows them to use their aircraft for a wider range of operations such as some aerial work. Although sport pilots could operate aircraft designed with up to four seats, they would remain limited to operating with only one passenger.

AAM Implementation Plan – Innovate 28 (2023)

In July 2023, the FAA released *Advanced Air Mobility (AAM) Implementation Plan* known as *Innovate28*.¹⁹ The FAA created *Innovate28 (I28)* to address the development of a near-term ecosystem. It is a joint government and industry initiative that will culminate in integrated AAM operations at one or more key site locations by the 2028 timeframe.

Request for comments – Aeronautical Activity (2023)

On November 15, 2023, the FAA published a *Request for Comments*²⁰ seeking input on its proposed policy update of the FAA's Office of Airports policy regarding the definition of "aeronautical activity" to include uncrewed aircraft systems (UAS), advanced air mobility (AAM), and commercial space launch or re-entry vehicle operations.

¹⁷ <https://www.faa.gov/newsroom/faq-proposes-rule-enhance-safety-and-performance-light-sport-aircraft>

¹⁸ <https://www.federalregister.gov/documents/2023/07/24/2023-14425/modernization-of-special-airworthiness-certification>

¹⁹ <https://www.faa.gov/sites/faq-proposes-rule-enhance-safety-and-performance-light-sport-aircraft>

²⁰ <https://www.federalregister.gov/documents/2023/12/08/2023-27008/policy-on-the-definition-of-aeronautical-activities>

Under federal law, an airport operator that has accepted federal grants or certain federal land conveyances is obligated to maintain the airport for public aviation use.

This proposed update will add UAS, AAM, and commercial space operations to the existing definition of aeronautical activity that is included in FAA Order 5190.6B, FAA Airport Compliance Manual, Appendix Z, and subsequent revisions.

NASA AAM Playbook (2024)

NASA has created, and is constantly updating, an *Advanced Air Mobility Playbook*,²¹ with videos and subject matter experts describing how they are building the system to make soaring over traffic in air taxis, providing public-good missions in the form of medical and emergency response by drone, receiving packages faster, and participating in a sustainable and safe mode of air transportation, a reality.

Up, Up, and Away, Innovations in AAM – US DOT Volpe Center (2024)

In February 2024, the US DOT Volpe Center and FAA wrapped up its seven-part thought leadership series, *Up, Up and Away, Innovations in AAM*.²² Over the course of the series, more than 20 federal officials, experts from the private sector, academia, and non-profit organizations considered AAM in the context of safety, global competitiveness, innovation, the environment, equity, international collaboration, and workforce requirements.

Throughout the series, experts discussed how to move quickly to embrace new technologies while ensuring that the aviation system of the future would be safer, more efficient, equitable, and sustainable. The videos are well-worth a watch to garner more information.

Securing Growth & Robust Leadership Act – HR 3935 (2024)

In May 2024, *HR3935, Securing Growth and Robust Leadership in American Aviation Act*²³ was enacted, reauthorizing the FAA through FY2028, including activities and programs related to airport planning and development, facilities and equipment, and operations. The NTSB was also reauthorized through FY2028. The Act also addressed a wide range of issues.

With respect to AAM, it directed the FAA to increase air traffic controller hiring targets; established a workforce development program to support the education, recruitment, and retention of aviation professionals; established an FAA Ombudsman to

²¹ <https://www.nasa.gov/centers-and-facilities/armstrong/nasa-is-creating-an-advanced-air-mobility-playbook-2/>

²² <https://www.volpe.dot.gov/events/and-away-innovations-advanced-air-mobility>

²³ <https://www.congress.gov/bill/118th-congress/house-bill/3935>

coordinate the response to submissions of inquiries or objections relating to issues such as aircraft certifications and registrations, pilot certificates, and operational approvals, waivers, or exemptions; required the FAA to issue rules to update the requirements for testing and operating uncrewed aircraft, including for drones operating beyond the visual line of sight; and required the FAA to issue rules for certifying pilots for powered-lift aircraft (i.e., capable of vertical takeoff and landing) and operational rules for powered-lift aircraft.

Draft AC 21.17-4 Type-Certification – Powered-Lift

In June 2024, the FAA released *Draft Advisory Circular (AC) 21.17-4 Type Certification - Powered Lift*, providing guidance for the type, production, and airworthiness certification of powered-lift. This AC also designated the criteria in appendix A as an acceptable means, but not the only means, of showing compliance with 14 CFR 21.17(b) for FAA type certification of certain powered-lift.²⁴

²⁴ <https://www.faa.gov/media/80526>

US States leading the way in AAM innovation

What follows is a brief overview, in alphabetical order by state, of what has been happening within the US since about 2020. Some states have made huge strides in the AAM direction, whereas others have made no strides at all. This briefing is for everyone to either build on the shoulders of other states or get inspired to start the AAM journey. Legislation at the state level should focus on creating study committees for AAM; appointing a state agency to lead the charge; preventing exclusive rights for one operator to monopolize vertiport operations; zoning requirements for vertiport construction; ensuring compliance with FAA regulations; and securing funding for these efforts. The Association for Uncrewed Vehicle Systems International (AUVSI) has published guidance on their AAM Prepared webpages for recommended legislation for state and local lawmakers.²⁵

Alabama

In 2023, Alabama legislature passed *SJR3*, creating a study committee on AAM requiring a report and recommendations for legislation to be sent to the governor.²⁶ Alabama enacted *HB176*,²⁷ requiring the DOT to take certain actions regarding AAM. Montgomery Regional Airport (MGM) has partnered with BETA Technologies, an electric aerospace company based in Burlington, Vermont, to install the first-ever electric aircraft charging station in the state of Alabama. Alabama Power also served as a partner to bring these chargers online for public access. The BETA-designed charging stations are multimodal and interoperable, capable of powering electric aircraft and ground vehicles alike. The MGM installations include one Level 3 Fast-Charger located inside the fence (air side), primarily for use by electric aircraft, and one Level 2 Charger located outside the fence (car side), primarily for use by public EVs.²⁸

In 2024, Atlantic Aviation agreed to install electric charging stations at Alabama's Birmingham International Airport.²⁹

²⁵ <https://www.auvsi.org/aam-policy-making>

²⁶ <https://alison.legislature.state.al.us/files/pdf/SearchableInstruments/2023RS/SJR3-int.pdf>

²⁷ <https://arc-sos.state.al.us/ucp/L1548617.AI1.pdf>

²⁸ <https://verticalmag.com/press-releases/montgomery-regional-airport-partners-with-beta-technologies-to-commission-alabamas-first-electric-aviation-charger/>

²⁹ https://www.ainonline.com/aviation-news/futureflight/2024-01-09/atlantic-aviation-install-electric-chargers-fbos?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmi=289356540&_hsenc=p2ANqtz--2NTLRfr6FOXZbxCBN-JqUpO5d3n9-dF_BFAsue5N5EmRE_wFjNtftL3V7Rzvu129E6rMYoZ54gD1sdqZ4JrYLX11l8A&utm_content=289356540&utm_source=hs_email

Alaska

In 2023, Alaska Airlines and United Airlines, which both plan to be early adopters of electric aircraft,³⁰ shared details about how the new generation of AAM vehicles will likely be integrated into their operating networks.

In 2024, Alaska Department of Transportation & Public Facilities (DOT&PF) started working to improve Alaska aviation safety record by leveraging new and emerging technologies.³¹ The AAM project would address safety concerns highlighted by the 2022 NTSB analysis of Alaska's airspace. According to the NTSB analysis, midair collisions in Alaska accounted for 44% of the nation's total, making it the highest rate in the country. The state is committed to addressing these issues and ensuring safer aviation travel for all. The AAM contract, awarded to Collins Aerospace (an RTX business), would address current challenges facing Alaska, including the lack of adequate weather observing stations, webcam services, accurate aircraft surveillance, Global Positioning System (GPS) resiliency, aeronautical charting, and communications.

Arizona

In 2021, *Chapter 197* was enacted from *HB2485*,³² which was an Act establishing the UAM Study Committee.

Honeywell Aerospace, located in Phoenix, which has long been a supplier of avionics, propulsion, and other technology for jetliners and military aircraft, since 2020 is home to an AAM lab.³³

Arkansas

In 2022, Arkansas released its *Future Mobility Report*³⁴ in response to the governor's request for a council to be formed to explore the world of future mobility, to ensure that the state takes advantage of this unique moment and capitalizes on what may be one of the largest economic opportunities in the state's history.

In 2023, the Arkansas Council on Future Mobility set the *Blueprint for the Future* making the bold claim to become the global leader in next generation transportation by 2030.³⁵

³⁰ <https://aviationweek.com/air-transport/aircraft-propulsion/alaska-airlines-united-outline-aam-business-models>

³¹ <https://dot.alaska.gov/comm/pressbox/arch2024/PR24-0007.shtml>

³² <https://www.azleg.gov/legtext/55leg/1R/laws/0197.htm>

³³ <https://aerospaceamerica.aiaa.org/site-visit-honeywells-advanced-air-mobility-lab-in-arizona/>

³⁴ https://4mediagroup.postclickmarketing.com/Global/FileLib/ACFM/Arkansas_FMC_Report.pdf

³⁵ <https://myNBC15.com/features/interviews/arkansas-council-on-future-mobility-sets-blueprint-for-future>

California

In 2021, Los Angeles Department of Transportation (LADOT) shared their *UAM Policy Framework Considerations*³⁶ which was grounded in the values and goals outlined in the LADOT Strategic Plan Update 2021-2023, the Urban Mobility in a Digital Age Strategic Plan, and the Principles of the Urban Sky.

In 2023, California enacted *SB 800*,³⁷ to set up an AAM, Zero-Emission, Electrification Aviation advisory panel. The report is due to the Legislature by January 1, 2025. California is also home to Urban Movement Labs,³⁸ a 501(c)(3) partnership between the Los Angeles Mayor's Office, the LADOT, and Urban Movement Labs that is engaging conversations with residents across the city to ensure community voices are shaping the future. In 2023, Mineta Transportation Institute (MTI) published the results of a study entitled *Land Use Analysis on Vertiports Based on a Case Study of the San Francisco Bay Area*;³⁹ Supernal, Hyundai Motor Group's AAM company, opened its Engineering Headquarters in Irvine;⁴⁰ and Joby Aviation, an eVTOL aircraft developer, received CalCompetes Grant to support California facility expansion and 690 new jobs.⁴¹

In 2024, Joby Aviation and Clay Lacy Aviation, an FBO, partnered to bring the first electric air taxi charger to John Wayne Airport (SNA) in Orange County by mid-2025.⁴² Overair, an eVTOL aircraft developer, also partnered with Clay Lacy to bring charging stations to John Wayne Airport and Van Nuys Airport. Archer Aviation, an eVTOL aircraft developer, and Atlantic Aviation, an FBO, signed a Memorandum of Understanding (MOU)⁴³ to establish sites for electric aircraft operations in Los Angeles and San Francisco by 2025. Los Angeles International Airport issued a Request for Industry Comment (RFIC)⁴⁴ to industry for vertiport development in three potential sites on Los Angeles Airport (LAX). In a research paper, *Design of UAM Network and Ecosystem Integration*, from Supernal, an eVTOL aircraft developer, researchers have investigated the routes and procedures to bring UAM vehicles to market in Los Angeles

³⁶ <https://ladot.lacity.gov/sites/default/files/documents/ladot-uam-policy-framework-considerations.pdf>

³⁷ https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=PUC§ionNum=21208.&article=1.&highlight=true&keyword=advanced%20air%20mobility

³⁸ <https://urbanmovementlabs.org/>

³⁹ <https://transweb.sjsu.edu/sites/default/files/2122-Wei-Land-Use-Analysis-Vertiports-San-Francisco-Bay-Area.pdf>

⁴⁰ <https://newsroom.supernal.aero/supernal-showcases-future-of-work-mobility-with-irvine-office-335843f20e30>

⁴¹ <https://www.jobyaviation.com/news/joby-receives-calcompetes-grant-to-support-california-expansion/>

⁴² <https://verticalmag.com/press-releases/joby-and-clay-lacy-partner-to-bring-first-electric-air-taxi-charger-to-southern-california/>

⁴³ <https://www.archer.com/news/atlantic-aviation-and-archer-aviation-align-to-pursue-development-of-electric-aircraft-infrastructure-across-la-northern-california-south-florida-and-nyc-regions>

⁴⁴ <https://www.unmannedairspace.info/latest-news-and-information/los-angeles-airport-issues-rfic-to-industry-for-vertiport-development-in-three-potential-sites/>

Metropolis.⁴⁵ Archer, an eVTOL aircraft developer, and Kilroy, a realtor company, joined forces to build an air taxi ecosystem including South San Francisco, Napa, San Jose, Oakland, and Livermore.⁴⁶ Joby announced that New York City and Los Angeles will be the first two US cities that will see aerial ridesharing using Joby Aviation's eVTOL air taxi; and the pilots who will fly the aircraft, at least in the first few years of operations, will be former military and commercial airline pilots.⁴⁷ Southwest Airlines and Archer Aviation announced plans to develop electric air taxi service at California airports.⁴⁸ California's Alternative Energy And Advanced Transportation Financing Authority (CAEATFA) approved an award involving sales and use tax exclusion incentives related to Archer's planned advanced manufacturing project in the State of California.⁴⁹ Archer announced plans to launch an air taxi network in Los Angeles to replace one-to-two-hour drives with 10-20 minute electric flights; the planned network includes take-off and landing locations at Los Angeles International Airport, University of Southern California, Orange County, Santa Monica, Hollywood Burbank, Long Beach and Van Nuys; also coordinating with the Los Angeles Rams and Hollywood Park, the 300-acre district centered around SoFi Stadium, for a potential exclusive vertiport in the area. Archer's goal is to begin its LA network operations by as early as 2026.⁵⁰

Colorado

In 2022, the Aeronautics Division of the Colorado DOT made plans to follow up on the 2021 Electrification report and began looking at the dramatic reductions in energy costs by using AAM to enhance the impacts in rural areas from the congressionally mandated Essential Air Service program.⁵¹

In 2023, *HB 23-1281*, concerning measures to advance the use of clean hydrogen in the state, was enacted. Some AAM aircraft, are being developed using

⁴⁵ <https://www.urbanairmobilitynews.com/utm/supernal-researchers-investigate-uam-route-planning-in-the-high-density-airspace-of-los-angeles/>

⁴⁶ <https://www.flyingmag.com/general/archer-kilroy-building-electric-air-taxi-network-in-bay-area/>

⁴⁷ <https://verticalmag.com/news/joby-shares-evtol-air-taxi-rollout-plans/>

⁴⁸ https://www.avweb.com/aviation-news/southwest-airlines-and-archer-aviation-partner-on-electric-air-taxi-service-in-california/?MailingID=FLY240715003&utm_campaign=avwebflash&utm_medium=newsletter&oly_enc_id=8353H2976523A1C

⁴⁹ <https://news.archer.com/californias-alternative-energy-and-advanced-transportation-financing-authority-grants-archer-industry-leading-award-for-ramp-of-its-electric-powertrain-facility>

⁵⁰ <https://news.archer.com/archer-aviation-unveils-planned-los-angeles-air-taxi-network-ahead-of-major-sporting-events>

⁵¹ <https://aerospaceamerica.aiaa.org/colorado-takes-a-close-look-at-the-potential-impact-of-advanced-air-mobility-on-car-traffic/>

hydrogen for propulsion,⁵² whereas others are being developed using a hybrid of hydrogen and electric energy.⁵³

Florida

FDOT has dedicated an entire webpage⁵⁴ on its website to AAM, with numerous documents available for download.

In 2021, Orlando made plans to become a national leader in AAM aligning its *Future-Ready City Master Plan* with the new technology.⁵⁵ Also in 2021, Orlando was selected by NASA for an AAM Community Planning and Integration Partnership Opportunity.⁵⁶

In 2023, the FDOT AAM Working Group released their *Report and Recommendations*⁵⁷ and even identified airports compatible for AAM operations.⁵⁸ Tampa International Airport and Volocopter, a German eVTOL aircraft developer, teamed up to introduce Florida's first short-range intra-city aircraft.⁵⁹

In 2024, Lilium, another German eVTOL aircraft developer, designated Orlando International Airport (MCO) future vertiport as a network hub.⁶⁰ Archer Aviation, an eVTOL aircraft developer, and Atlantic Aviation, an FBO, signed an MOU⁶¹ to establish sites for electric aircraft operations in Miami by 2025. Joby, an eVTOL aircraft developer, partnered with the US Air Force, promising to deliver two eVTOL aircraft to MacDill AFB in Tampa.⁶² South Florida start-up carrier UrbanLink placed orders for 20 of Lilium's six-passenger eVTOL aircraft and plans to launch flights under 14 CFR Part 135,

⁵² <https://www.commercialuavnews.com/piasecki-aircraft-reveals-progress-in-u-s-department-of-energy-hydrogen-powered-urban-air-mobility-feasibility-study>

⁵³ <https://www.aviationtoday.com/2022/01/01/10-airlines-made-electric-hydrogen-powered-aircraft-investments-partnerships-2021/>

⁵⁴ <https://www.fdot.gov/aviation/advanced-air-mobility>

⁵⁵ <https://www.orlando.gov/News/Press-Releases/2021-Press-Releases/City-of-Orlando-Aims-to-Become-National-Leader-in-Advancing-Air-Mobility>

⁵⁶ <https://www.mass.gov/news/massdot-aeronautics-division-selected-by-nasa-for-an-advanced-air-mobility-aam>

⁵⁷ https://drive.google.com/file/d/1irR_mR-cXcyIWzbt4mZL8cd5lDWFxia/view

⁵⁸ <https://www.fdot.gov/aviation/fdot-advanced-air-mobility-airport-compatibility-considerations>

⁵⁹ <https://www.wtsp.com/article/traffic/tampa-international-airport-tpa-first-air-taxi-test-flight/67-ae6ca86b-4013-42ec-8c3a-caeda3859f8c>

⁶⁰ <https://lilium.com/newsroom-detail/lilium-designates-future-orlando-vertiport-as-key-network-hub>

⁶¹ <https://www.archer.com/news/atlantic-aviation-and-archer-aviation-align-to-pursue-development-of-electric-aircraft-infrastructure-across-la-northern-california-south-florida-and-nyc-regions>

⁶² <https://www.jobyaviation.com/news/joby-widens-usaf-partnership-will-deliver-two-evtol-aircraft-macdill-afb/>

connecting locations such as Miami, West Palm Beach, Boca Raton, Fort Lauderdale, and Marco Island.⁶³

Georgia

The Center for Urban and Regional Air Mobility (CURAM) is an interdisciplinary center that integrates existing capabilities and strengths of the faculty, students, and facilities from multiple schools, colleges, and research centers across Georgia Tech and the Georgia Tech Research Institute (GTRI). CURAM aims to establish Atlanta and surrounding regions in Georgia as a living laboratory for urban and regional air mobility, complementing Atlanta's existing smart city initiatives and city/regional master plans.⁶⁴

In 2023, Jones Lang LaSalle (JLL), together with its subsidiaries and affiliates, a leading global provider of real estate and investment management services, announced they were supporting clients in Atlanta at all levels of AAM, working with OEMs to identify sites for their office, R&D and manufacturing facilities, collaborating with vertiport developers to use real estate data to help define the available locations for a vertiport. JLL have the necessary connections with state and local government agencies to review their current infrastructure and determine how they can support the AAM industry.⁶⁵

In 2024, GDOT published its *AAM Study, Blueprint and Action Plan*.⁶⁶ This Blueprint provides actionable initiatives to integrate AAM into Georgia's transportation system.

Hawai'i

In 2022, Regent, the seaglider developer, signed accords to bring AAM seaglider flights to Hawai'i.⁶⁷ This involves a link-up with Mokulele Airlines to operate Regent's 12-passenger Viceroy seagliders on its regular flights between the 10 inner-island destinations it serves in Hawai'i.

In 2024, the Hawai'i Seaglider Initiative (HSI) launched with a broad coalition committed to delivering a new affordable and accessible transportation option to Hawai'i communities. HSI is a consortium of local government, private sector, and community

⁶³ https://www.ainonline.com/aviation-news/futureflight/2024-05-06/urbanlink-plans-south-florida-evtol-network-lilium-order?utm_campaign=AIN%20Alerts&utm_medium=email&hsenc=p2ANqtz-8g9BwZf1BesU1zTMtuuFl1idBqLmqyjD37snkeNxlwlrGbxuHnvxVHCX4LT7p2dG6wKeLfaEj8CMaMikdOkXDIRcA9gijw&_hsmi=306040904&utm_content=306040904&utm_source=hs_email

⁶⁴ <https://airmobility.gatech.edu/>

⁶⁵ <https://www.bizjournals.com/atlanta/news/2023/05/30/flying-cars-in-atlanta.html>

⁶⁶ <https://www.dot.ga.gov/InvestSmart/Aviation/AAM/Blueprint%20and%20Action%20Plan%20-%20GDOT%20AAM%20Study.pdf>

⁶⁷ <https://dronedj.com/2022/07/11/regent-signs-accords-to-bring-aam-seaglider-flights-to-hawaii/>

stakeholders working to increase awareness, understanding, and adoption of seaglidors in Hawai'i with a focus on community, culture and environment.⁶⁸

Idaho

In 2023, the Idaho Transportation Department published a *Research Report on Uncrewed Aircraft Systems Technology, Airspace Design, Privacy, and Safety in Idaho*. It included several references to AAM.⁶⁹

Illinois

The state has published on its DOT website, a page dedicated to the *Illinois AAM System Plan* that has several objectives, including fostering collaboration with constituents, promoting equity, and creating opportunities throughout the state. This plan will serve as a foundation for Illinois to establish a framework for the safe and efficient integration of AAM into its transportation network.⁷⁰

In 2024, eVertiSKY and Volatus Infrastructure & Energy Solutions (VI&E Solutions) began advancing their efforts to establish comprehensive operational infrastructure for UAM in Chicago. The Chicago UAM Living Labs initiative, which began in January 2024, focuses on identifying commercialization members whose capabilities will contribute to the UAM value chain, essential for establishing Chicago's first UAM Vertiport.⁷¹

Indiana

Aerovy Mobility, a startup founded at Purdue University, has developed a software platform it says will support the AAM sector. This software can analyze any metro area and understand the latent demand for mobility, both cargo and passenger. It can identify optimal locations to set up new aviation sites. In the case of an existing aviation site, such as a regional airport or a municipal airport, the software can understand what the expected demand for future mobility and project would be in terms of energy requirements and implications. It could also determine the assets that should be invested in to minimize cost over time.⁷²

⁶⁸ <https://www.hawaiiseaglider.org/>

⁶⁹ <https://apps.itd.idaho.gov/apps/research/Completed/RP304.pdf>

⁷⁰ <https://www.ilaviation.com/aam/>

⁷¹ https://www.aaminternational.com/2024/06/evertisky-volatus-transition-to-next-phase-of-chicago-uam-living-labs/?utm_source=AAM+Weekly+eBrief&utm_campaign=50d6b880c2-aam_ebrief_2024_06_12&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

⁷² <https://www.insideindianabusiness.com/articles/purdue-startup-targets-growing-electric-aircraft-market>

Kentucky

In 2022, AIR, an eVTOL aircraft developer, unveiled the full-scale eVTOL prototype at the Kentucky Derby.⁷³

Louisiana

In 2023, the Louisiana Drone Advisory Committee (LADAC) addressed AAM in their report to the Secretary of the Department of Transportation and Development.⁷⁴

Maryland

BETA Technologies, a manufacturer of eVTOL and eCTOL aircraft, continues to expand its network of US electric aircraft chargers in formal partnership with Signature Aviation, an FBO network for business and private aviation, with plans to install a system at Frederick Municipal Airport (KFDK) in Maryland by summer 2024.⁷⁵

Massachusetts

In 2021, MassDOT Aeronautics Division was selected by NASA for an AAM Community Planning and Integration Partnership Opportunity.⁷⁶

Since 2023, Boston has been home to MassAutonomy, an industry-led nonprofit center whose mission is to accelerate the integration of disruptive aviation technologies to advance an ecosystem's mobility system. They have set up an AAM Integration Task Force.⁷⁷

In 2024, Atlantic Aviation agreed to install electric charging stations at Westfield-Barnes Regional Airport in Massachusetts.⁷⁸

⁷³ <https://www.prnewswire.com/il/news-releases/air-unveils-full-scale-evtol-prototype-at-the-kentucky-derby-301542446.html>

⁷⁴ http://www.sp.dotd.la.gov/Inside_LaDOTD/Divisions/Multimodal/Aviation/Aviation%20Documents/2023%20Louisiana%20Drone%20Advisory%20Committee%20Recommendations%20Report.pdf

⁷⁵ <https://www.flyingmag.com/beta-technologies-signature-aviation-to-install-electric-aircraft-chargers-at-3-airports/>

⁷⁶ <https://www.mass.gov/news/massdot-aeronautics-division-selected-by-nasa-for-an-advanced-air-mobility-aam>

⁷⁷ https://massautonomy.org/?page_id=1971

⁷⁸ https://www.ainonline.com/aviation-news/futureflight/2024-01-09/atlantic-aviation-install-electric-chargers-fbos?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmi=289356540&_hsenc=p2ANqtz--2NTLRfr6FOXZbxCBN-JqUpO5d3n9-

to increase coordination across State entities and create a centralized pipeline of projects that can accelerate AAM readiness and growth in the state.⁸⁴

Minnesota

In 2021, Minnesota was selected by NASA for an AAM Community Planning and Integration Partnership Opportunity.⁸⁵

In 2022, Minnesota DOT published its *Air Mobility Strategic Plan*.⁸⁶

In 2024, the state enacted a transportation bill⁸⁷, defining flying cars as a new category of aircraft that could be driven to and from airports or private strips.⁸⁸

Mississippi

In 2024, Atlantic Aviation agreed to install electric charging stations at Jackson-Medgar Wiley Evers International Airport in Mississippi.⁸⁹

Nevada

Nevada County Transportation Commission dedicated a webpage to AAM.⁹⁰

In 2022, the University of Nevada, Reno (UNR) launched Nevada Autonomous, a new program to manage and enhance Nevada's UAS Test Site activities. The UAS Test Site service was created following Nevada's designation by the FAA as one of seven states to serve as a center for the development and testing of unmanned autonomous vehicles and systems.⁹¹

⁸⁴ [https://www.michigan.gov/whitmer/news/press-releases/2024/07/17/lt-governor-gilchrist-announces-over-\\$6-million-to-four-projects](https://www.michigan.gov/whitmer/news/press-releases/2024/07/17/lt-governor-gilchrist-announces-over-$6-million-to-four-projects)

⁸⁵ <https://www.mass.gov/news/massdot-aeronautics-division-selected-by-nasa-for-an-advanced-air-mobility-aam>

⁸⁶ <https://www.dot.state.mn.us/aero/airports.html>

⁸⁷ https://www.revisor.mn.gov/statutes/2023/cite/216B.1615?keyword_type=all&keyword=electric+vehicles

⁸⁸ https://www.avweb.com/aviation-news/minnesota-allows-flying-cars-on-roads/?MailingID=FLY240522004&utm_campaign=avwebflash&utm_medium=newsletter&oly_enc_id=8353H2976523A1C

⁸⁹ https://www.ainonline.com/aviation-news/futureflight/2024-01-09/atlantic-aviation-install-electric-chargers-fbos?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmi=289356540&_hsenc=p2ANqtz--2NtLrfr6FOXZbxCBN-JqUpO5d3n9-dF_BFAsue5N5EmRE_wFjNtftL3V7Rzvu129E6rMYoZ54gD1sdqZ4JrYLX11l8A&utm_content=289356540&utm_source=hs_email

⁹⁰ <https://www.nctc.ca.gov/Reports/Aviation-Reports/index.html>

⁹¹ <https://goed.nv.gov/newsroom/nevada-unmanned-aircraft-systems-uas-test-site-transitioning-to-unr/>

New Hampshire

In 2020, the state enacted a transportation bill⁹², defining flying cars as a new category of aircraft that could be driven to and from airports or private strips.⁹³

BETA Technologies, a manufacturer of eVTOL and eCTOL aircraft, continues to expand its network of US electric aircraft chargers in formal partnership with Signature Aviation, an FBO network for business and private aviation, with the installation in 2023 at Manchester-Boston Regional Airport (KMHT) terminal in New Hampshire, which the company said is the state's first such system.⁹⁴

New Jersey

In 2023, Blade Air Mobility, a technology-powered global air mobility platform, announced that it had entered into an agreement with Newport Helipad to operate and revitalize the Newport Helistop (91NJ), located in Newport, Jersey City, New Jersey, one of the largest and most successful mixed-use communities on the Hudson River waterfront, subject to the execution of definitive documentation. As part of the agreement, Blade would manage and operate the Helistop on behalf of Newport for both Blade flights and third-party operations. The Helistop is located on the Hudson River waterfront, approximately 3,800 feet from Manhattan.⁹⁵

In 2024, Joby Aviation, a company developing eVTOL aircraft for commercial passenger service, announced it had signed a definitive agreement with Helo Holdings, to install the first air taxi charger in the greater New York City region at the company's heliport in Kearny, New Jersey, located just a two-minute flight from Manhattan.⁹⁶

New Mexico

In 2020, a University of New Mexico (UNM) School of Engineering professor was selected for a multi-institutional NASA project to support various aeronautics research goals, including UAM, over four years.⁹⁷

⁹² <https://generalaviationnews.com/2020/08/22/new-hampshire-passes-jetsons-law/>

⁹³ https://www.avweb.com/aviation-news/minnesota-allows-flying-cars-on-roads/?MailingID=FLY240522004&utm_campaign=avwebflash&utm_medium=newsletter&oly_enc_id=8353H2976523A1C

⁹⁴ <https://www.flyingmag.com/beta-technologies-signature-aviation-to-install-electric-aircraft-chargers-at-3-airports/>

⁹⁵ <https://ir.blade.com/news-events/press-releases/detail/70/blade-to-bring-urban-air-mobility-to-newport-jersey-city>

⁹⁶ <https://www.jobyaviation.com/news/joby-to-install-first-electric-air-taxi-charger-new-york-city-region/>

⁹⁷ <https://engineering.unm.edu/news/2020/06/unm-professor-selected-for-nasa-project-will-focus-on-urban-air-mobility.html>

New York

In 2022, Archer Aviation, an eVTOL aircraft developer, and United Airlines announced their first airport to city center route between United's hub at Newark Liberty International Airport (EWR) and New York City. The Downtown Manhattan Heliport, located just above Battery Park on Pier 6 was confirmed as the first planned takeoff and landing site as part of Archer's broader plan to launch a UAM network across the New York Metropolitan Area. The goal of Archer's electric air taxi network is to provide passengers with safe, quick, quiet and cost-effective transportation to and from EWR.⁹⁸

In 2023, Blade Air Mobility, a technology-powered air mobility platform, and BETA Technologies, an electric aerospace company developing eVTOL aircraft (EVA) and supporting charging infrastructure, announced the successful completion of a historic test flight of BETA's Alia-250 EVA at the Westchester County Airport in White Plains, New York.⁹⁹ Joby Aviation, a company developing eVTOL aircraft for commercial passenger service, announced that it successfully performed an exhibition flight in New York City on Nov. 12, 2023, marking the first ever electric air taxi flight in the city and the first time Joby had flown in an urban setting.¹⁰⁰ Volocopter, a German AAM company, also completed its first flight test at the Downtown Manhattan Heliport (DMH) in New York City (NYC) with its crewed Volocopter 2X. Hosted by the mayor of New York City, and the New York City Economic Development Corporation (NYCEDC), the Volocopter 2X participated in what the company said was the world's largest and first public event showcasing multiple eVTOL aircraft in a city. Volocopter had also successfully and safely conducted flights in Singapore.¹⁰¹ The New York governor announced that BETA Technologies would partner with Clinton County on a USD 41 Million expansion of its existing facility at Plattsburgh International Airport. BETA's expansion in Plattsburgh would deepen the company's commitment to developing one-of-a-kind aerospace technology in New York State, strengthen the North Country's reputation as a modern transportation hub, and build on the governor's continued investments to support clean transportation and a greener economy.¹⁰²

In 2024, Atlantic Aviation started installing electric charging stations at its FBOs through a partnership with BETA Technologies. The first charger was installed at Atlantic's facility at Elmira Regional Airport in upstate New York.¹⁰³ Archer Aviation, an

⁹⁸ <https://verticalmag.com/press-releases/archer-and-united-airlines-announce-first-commercial-electric-air-taxi-route-in-the-us/>

⁹⁹ <https://verticalmag.com/press-releases/blade-air-mobility-and-beta-technologies-complete-historic-electric-vertical-aircraft-flight-in-new-york/>

¹⁰⁰ <https://verticalmag.com/press-releases/joby-flies-quiet-electric-air-taxi-in-new-york-city/>

¹⁰¹ <https://verticalmag.com/press-releases/volocopter-completes-its-first-flight-in-new-york-city/>

¹⁰² <https://verticalmag.com/press-releases/beta-technologies-plans-41m-expansion-of-facility-at-plattsburgh-international-airport/>

¹⁰³ https://www.ainonline.com/aviation-news/futureflight/2024-01-09/atlantic-aviation-install-electric-chargers-fbos?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmi=289356540&_hsenc=p2ANqtz--2NtLrfr6FOXZbxCBN-JqUpO5d3n9-

eVTOL aircraft developer, and Atlantic Aviation, an FBO, signed an MOU to establish sites for electric aircraft operations in New York by 2025.¹⁰⁴ Blade Air Mobility, a global UAM company, announced its partnership with Ocean Casino Resort to fly Ocean's guests by helicopter directly between Manhattan and Ocean's dedicated rooftop helipad in Atlantic City all throughout the summer of 2024.¹⁰⁵ Joby announced that New York City and Los Angeles would be the first two US cities that would see aerial ridesharing using Joby Aviation's eVTOL air taxi. And the pilots who would fly the aircraft, at least in the first few years of operations, would be former military and commercial airline pilots.¹⁰⁶ ResilienX, Inc., a leading developer of safety assurance solutions for autonomous systems, announced it has been awarded a prestigious Phase III Small Business Innovation Research (SBIR) contract. This contract would enable ResilienX to work closely with NASA's System-Wide Safety (SWS) project, an R&D project aimed at advancements towards the safety and resilience of future highly autonomous aviation systems and aircraft.¹⁰⁷

North Carolina

NCDOT has dedicated a webpage to Advance Mobility NC, which includes an informative video.¹⁰⁸

AeroX, started in 2024, is a nonprofit organization of business, government, and community partners focused on facilitating the safe and efficient commercialization of AAM technologies in North Carolina. It aims to capitalize on North Carolina's prominence as a UAS innovation leader by creating a national model ecosystem for AAM, a testbed for pioneering companies seeking to leverage these emerging technologies to grow their organizations.¹⁰⁹ North Carolina has received a \$500,000 grant from the Appalachian Regional Initiative for Stronger Economies (ARISE) to research aviation improvements in the western part of the state. It was one of three states to receive the grant, funded in part by the Bipartisan Infrastructure Law. The ARISE funds will pay for research to identify necessary upgrades at general aviation airports in Appalachian counties, preparing them for emerging AAM and sustainable electric aviation.¹¹⁰

[dF_BFAsue5N5EmRE_wFjNtftL3V7Rzvu129E6rMYoZ54gD1sdqZ4JrYLX11l8A&utm_content=289356540&utm_source=hs_email](https://www.bfasue5N5EmRE_wFjNtftL3V7Rzvu129E6rMYoZ54gD1sdqZ4JrYLX11l8A&utm_content=289356540&utm_source=hs_email)

¹⁰⁴ <https://www.archer.com/news/atlantic-aviation-and-archer-aviation-align-to-pursue-development-of-electric-aircraft-infrastructure-across-la-northern-california-south-florida-and-nyc-regions>

¹⁰⁵ <https://www.globenewswire.com/news-release/2024/05/16/2883404/0/en/Blade-Air-Mobility-Partners-with-Ocean-Casino-Resort-to-Offer-Direct-Flights-from-Manhattan-to-Atlantic-City.html>

¹⁰⁶ <https://verticalmag.com/news/joby-shares-evtol-air-taxi-rollout-plans/>

¹⁰⁷ <https://www.resilienx.com/news/resilienx-inc-awarded-a-phase-iii-sbir-contract-to-collaborate-with-nasas-system-wide-safety-project>

¹⁰⁸ <https://www.ncdot.gov/divisions/aviation/advance-mobility/Pages/default.aspx>

¹⁰⁹ <https://www.thedroningcompany.com/blog/aerox-pioneering-advanced-air-mobility-in-north-carolina>

¹¹⁰ <https://www.ainonline.com/aviation-news/business-aviation/2024-07-15/north-carolina-receives-airport-aam-readiness-grant>

North Dakota

The Northern Plains UAS Test Site, one of seven FAA UAS test sites in the nation, has added AAM to its research focus, which had started with UAS and Counter UAS.¹¹¹

Ohio

In 2021, Ohio was selected by NASA for an AAM Community Planning and Integration Partnership Opportunity.¹¹² Ohio UAS Center, formed in 2013 and operating as part of the Ohio DOT's DriveOhio Initiative, serves as the state's one-stop shop for uncrewed aircraft and advanced aviation technologies.¹¹³

In 2024, Joby Aviation, a company developing electric air taxis for commercial passenger service, announced it had acquired an existing facility at Dayton International Airport and begun hiring in support of the company's initial manufacturing operations in Dayton, Ohio.¹¹⁴

Oklahoma

Oklahoma Aerospace & Aeronautics has a webpage dedicated to AAM, that outlines the state's efforts with respect to UAS and AAM.¹¹⁵

In 2022, the Oklahoma-Arkansas region announced plans to develop the region as a national hub for AAM with the support of partners Tulsa Innovation Labs and Runway Group.¹¹⁶

In 2023, SB773 passed, establishing the Oklahoma Department of Aerospace and Aeronautics as the state clearinghouse to develop leadership strategy for AAM, among other things such as pilot programs and grants.¹¹⁷ The Choctaw Nation of Oklahoma, a well-established leader in emerging aviation technologies, assigned their

¹¹¹ <https://www.npuasts.com/services/research>

¹¹² <https://www.mass.gov/news/massdot-aeronautics-division-selected-by-nasa-for-an-advanced-air-mobility-aam>

¹¹³ https://drive.ohio.gov/programs/aam/uas/?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_K9I401S01H7F40QBNJU3SO1F56-ad6a839a-13fa-4266-b0ee-e9590d82d3e2-0a8-beJ

¹¹⁴ <https://www.jobyaviation.com/news/joby-acquires-facility-ohio/>

¹¹⁵ <https://oklahoma.gov/aerospace/advanced-air-mobility.html>

¹¹⁶ <https://www.unmannedairspace.info/latest-news-and-information/us-oklahoma-arkansas-region-to-develop-advanced-mobility-am-nation-hub/>

¹¹⁷ http://webserver1.lsb.state.ok.us/cf_pdf/2023-24%20ENR/SB/SB773%20ENR.PDF

Advanced Technology Initiatives (ATI) department to seek information about AAM vertiport development.¹¹⁸

Oregon

In 2023, *HB2834* passed, prohibiting local governments from granting an exclusive right to one operator to develop vertiports or control vertiport operations within the local government's jurisdiction.¹¹⁹ Jump Aero, an eVTOL aircraft developer for first responders, partnered with Oregon DOT to explore how their JA1 Pulse tailsitter aircraft could enhance rapid-response capabilities across the mostly rural state.¹²⁰

South Carolina

In 2023, SkyDrive, Japanese eVTOL manufacturer, announced plans to enter the US market with the establishment of a home base in South Carolina, with plans to develop an AAM ecosystem in both Columbia Metropolitan Airport (CAE) and Greenville Downtown Airport by 2026.¹²¹

Texas

In 2021, *SB763* was enacted to establish new Texas Transportation Code Section 21.004 and charge the UAM Advisory Committee with assessing current state law and identifying any potential changes to state law needed to facilitate the development of UAM operations and infrastructure in Texas.¹²² North Central Texas was selected by NASA for an AAM Community Planning and Integration Partnership Opportunity.¹²³

In 2022, the UAM Advisory Committee published their report with findings, recommendations, guidelines, and timelines.¹²⁴

In 2023, Helicopter Institute announced an executed lease agreement of the Dallas Central Business District (CBD) vertiport with the city of Dallas. The Dallas

¹¹⁸ <https://www.unmannedairspace.info/latest-news-and-information/choctaw-nation-of-oklahoma-seeks-information-about-aam-vertiport-development/>

¹¹⁹ <https://olis.oregonlegislature.gov/liz/2023R1/Downloads/MeasureDocument/HB2834/Enrolled>

¹²⁰ <https://aviationweek.com/aerospace/advanced-air-mobility/jump-aero-oregon-dot-partner-fast-response-evtols>

¹²¹ <https://www.aaminternational.com/2023/01/skydrive-reveals-plan-for-base-and-aam-ecosystem-in-south-carolina/>

¹²² <https://www.txdot.gov/about/advisory-committees/urban-air-mobility-advisory-committee.html>

¹²³ <https://www.mass.gov/news/massdot-aeronautics-division-selected-by-nasa-for-an-advanced-air-mobility-aam>

¹²⁴ <https://ftp.txdot.gov/pub/txdot/avn/uam-report.pdf>

vertiport has a dual deck, accommodating five helicopters in the parking area plus two VTOL aircraft at the same time using the dual landing pads.¹²⁵ Volatus Infrastructure, signed a letter of intent with Greenport International Airport and Technology Center to build an eVTOL vertiport.¹²⁶ Aeroauto, an eVTOL vehicle dealer, also signed a letter of intent with Greenport International Airport and Technology Center to establish a state-of-the-art eVTOL showroom, dealership, and maintenance service.¹²⁷ In 2023, Aloft Technologies, a trailblazer in drone fleet and airspace management, was selected to participate in the prestigious North Texas Airspace Awareness Project, underscoring Aloft's commitment to shaping the future of low-altitude airspace and AAM in one of the nation's most dynamic regions. The North Texas Airspace Awareness Project, spearheaded by the North Central Texas Council of Governments (NCTCOG), aims to integrate AAM solutions, including the exciting potential of scalable drone delivery and, ultimately, air taxis, into the region's airspace.¹²⁸ In late 2023, Joby Aviation, an eVTOL aircraft developer, and NASA completed a series of air traffic simulations at NASA's Ames Research Center, to assess how eVTOL air taxi operations could be integrated into public airspace, simulating flights at busy airports using existing air traffic control tools and procedures.¹²⁹

In 2024, the Houston Airport System announced plans to bring air taxis to the area just in time for the FIFA World Cup in 2026.¹³⁰ Wisk Aero, an AAM company, and the city of Sugar Land entered into a partnership to bring AAM to the Greater Houston region by selecting a location at the Sugar Land Regional Airport for the development of vertiport infrastructure that would allow for Wisk's autonomous air taxi operations.¹³¹ The AllianceTexas Mobility Innovation Zone (MIZ) is a first-of-its-kind, real-world ecosystem that brings cutting-edge technologies to commercialization to build the AAM-specific infrastructure of multimodal compatibility, 5G connectivity, sensory systems needs for communications, navigation, and surveillance, together with a skilled workforce.¹³² Port San Antonio, located on the site of the former Kelly Air Force Base, plans to build a state-of-the-art vertiport for housing and deploying eVTOL aircraft as

¹²⁵ <https://rotormedia.com/helicopter-institute-executes-agreement-with-dallas-cbd-vertiport/>

¹²⁶ https://www.urbanairmobilitynews.com/vertiports/volatus-to-build-a-vertiport-at-new-central-texas-greenport-airport-development/?utm_source=rss&utm_medium=rss&utm_campaign=volatus-to-build-a-vertiport-at-new-central-texas-greenport-airport-development

¹²⁷ <https://aeroautosales.com/aeroauto-and-greenport-international-airport-join-forces-to-create-a-futuristic-showroom-for-urban-air-mobility/>

¹²⁸ <https://www.aloft.ai/blog/aloft-selected-for-pioneering-north-texas-airspace-awareness-project-leading-the-way-in-advanced-air-mobility/>

¹²⁹ https://www.ainonline.com/news-article/2023-12-21/nasa-and-joby-complete-air-taxi-simulation-exercise-around-dallas-fort?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmt=287522713&_hsenc=p2ANqtz-8KsDlF73sPb5KVlIUM7kxIGE9P3xIJ97jWUgNi0q7aY4JX8KhjXlCOZT9TdeUWKwkv-w27UO8d3sRMUaGlmfBChkOg&utm_content=287522713&utm_source=hs_email

¹³⁰ <https://www.chron.com/news/houston-texas/article/electric-air-taxis-houston-18644278.php>

¹³¹ <https://wisk.aero/news/press-release/wisk-sugar-land/>

¹³² <https://dallasinnovates.com/the-integration-commercialization-of-advanced-air-mobility-aircraft-and-logistics-systems-1122/>

part of a USD 100 Million airfield renovation effort.¹³³ Wisk Aero established an MOU with Houston Airports to bring autonomous air taxis to Greater Houston.¹³⁴

Utah

In 2022, the Utah legislature requested the Division of Aeronautics conduct a study of the development and implementation of AAM in the state through *SB218* from 2021 and *SB122* from 2022.¹³⁵

In 2023, the governor signed into law, *SB161, Advanced Air Mobility Revisions*, creating a study for the DOT regarding AAM, including vertiport locations and infrastructure; implementation strategies of AAM technologies; UTM infrastructure; and the creation of an AAM sandbox.¹³⁶ Utah passed *SB24*,¹³⁷ *SB3*,¹³⁸ and *SB125*¹³⁹

UDOT has a wonderful webpage full of resources and videos dedicated to AAM.¹⁴⁰

In 2024, UDOT, in collaboration with Utah State University (USU) conducted the State's first vertiport demonstration, by successfully launching an air taxi, using a Bell 505 helicopter, from a vertiport.¹⁴¹ Project Alta, formed under the umbrella of 47G, formerly Utah Aerospace and Defense Association, announced plans to establish a system of regional air corridors to accommodate passenger-carrying air taxis in time for the Winter Olympic Games in 2034.¹⁴²

Virginia

Since 2022, the Virginia Innovation Partnership Corporation (VIPIC) has been leading the technology development and operational framework group and the Virginia Department of Aviation (DOAV) working group has been leading the development of a

¹³³ <https://dronelife.com/2024/05/15/preparing-for-advanced-air-mobility-port-san-antonio-plans-construction-of-vertol-vertiport/>

¹³⁴ <https://wisk.aero/news/press-release/wisk-aero-houston-airports-partner/>

¹³⁵ <https://www.udot.utah.gov/connect/wp-content/uploads/sites/50/2022/11/AAMLegislativeReport-LW-Edits-Final-1.pdf>

¹³⁶ <https://le.utah.gov/~2023/bills/static/SB0161.html>

¹³⁷ <https://le.utah.gov/%7E2023/bills/static/SB0024.html>

¹³⁸ <https://le.utah.gov/%7E2023/bills/static/SB0003.html>

¹³⁹ <https://le.utah.gov/%7E2023/bills/static/SB0125.html>

¹⁴⁰ <https://www.udot.utah.gov/connect/employee-resources/uas/>

¹⁴¹ <https://udot.utah.gov/connect/2024/05/21/udot-conducts-utahs-first-vertiport-demonstration/>

¹⁴² <https://www.deseret.com/business/2024/05/30/utah-group-air-taxis-autonomous-aircraft-project-alta-drone-delivery-2034-winter-olympics/>

strategy for the relationships and infrastructure necessary to enable AAM operations.¹⁴³ DOAV has dedicated an entire webpage to AAM.¹⁴⁴

In 2023, the FAA approved the nation's first public-use vertiport at Allen C. Blackstone Army Airfield (KBKT), a dual-use airport for military and civilian flight operations.¹⁴⁵

In 2024, to prepare the 65 public-use airports in Virginia for the arrival of AAM aircraft, the Virginia Aviation Board (VAB) and the DOAV made available USD 200,000 to each airport interested in bringing in 3-phase electrical power and broadband connectivity.¹⁴⁶ BETA Technologies, a manufacturer of eVTOL and eCTOL aircraft, continues to expand its network of US electric aircraft chargers in formal partnership with Signature Aviation, an FBO network for business and private aviation, with plans to install a system at Charlottesville-Albemarle Airport (KCHO) in Virginia by summer 2024.¹⁴⁷

Washington

In 2020, WSDOT Aviation Division published its *Electric Aircraft Feasibility Study* which provided a roadmap for policy makers, airports, industry, and the public to facilitate the growth of AAM.¹⁴⁸

In 2023, LYTE Aviation, UK-based eVTOL developer, entered a close strategic partnership with the AAM Institute, a US non-profit corporation, to bring their 40-seat eVTOL, SkyBus LA-44, to connect Bainbridge Island to Seattle to Redmond.¹⁴⁹

¹⁴³ <https://stateaviationjournal.com/index.php/state-news/virginia/doav-and-vipc-organize-an-alliance-to-plan-for-a-new-phase-of-air-transportation-in-virginia>

¹⁴⁴ https://doav.virginia.gov/advanced_air_mobility/

¹⁴⁵ <https://www.einpresswire.com/article/657977444/faa-approves-nation-s-first-public-use-vertiport-in-blackstone-virginia>

¹⁴⁶ https://www.aaminternational.com/2024/03/virginia-takes-action-to-prepare-airport-infrastructure-for-advanced-air-mobility/?utm_source=AAM+Weekly+eBrief&utm_campaign=071541cd4c-aam_ebrief_2024_03_13&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

¹⁴⁷ <https://www.flyingmag.com/beta-technologies-signature-aviation-to-install-electric-aircraft-chargers-at-3-airports/>

¹⁴⁸ <https://wsdot.wa.gov/sites/default/files/2021-11/WSDOT-Electric-Aircraft-Feasibility-Study.pdf>

¹⁴⁹ <https://50skyshades.com/news/business-aviation/lyte-and-aam-institute-launch-ferry-alternatives-with-skybus-la-44-in-seattle>

West Virginia

In 2022, *HB4667* passed, which added sections to the existing code relating to uncrewed aircraft operation and prohibiting political subdivisions from regulating AAM aircraft or systems.¹⁵⁰

In 2023, a Deloitte study presented by Vertx Partners, showcased the state's potential for adopting AAM policies and infrastructure.¹⁵¹ Vertx Partners are also working to bring AAM to rural areas to improve healthcare in the state.¹⁵²

¹⁵⁰https://www.wvlegislature.gov/Bill_Status/bills_text.cfm?billdoc=HB4667%20SUB%20ENR.htm&yr=2022&sesstype=RS&i=4667

¹⁵¹ <https://vertxpartners.org/advanced-air-mobility/>

¹⁵² <https://vertxpartners.org/rural-advanced-air-mobility-healthcare/#:~:text=The%20Soaring%20Potential%20of%20Rural,redesign%20healthcare%20in%20the%20state.>

Foreign countries leading the way in AAM innovation

The following summary of foreign countries that are leading the way in AAM innovation follows the globe by expanding from North America to South America, then over to Oceania, Europe, and Asia. No countries are listed for Africa because none have made AAM strides currently. Within each region, countries are listed alphabetically.

North America

Canada

Transport Canada has a webpage dedicated to AAM.¹⁵³ The Canadian Advanced Air Mobility (CAAM) is a federal not-for-profit consortium acting as the national catalyst for AAM.¹⁵⁴

In 2022, CAAM and the Center for Advanced Research and Training, Mobility and Space (CARTAMS) announced a partnership to support the development of an advanced mobility and space (AMS) ecosystem.¹⁵⁵ VPorts, a Quebec-based designer of AAM infrastructure, announced the signing of an MOU to establish the first electric AAM corridor between Quebec and the US, with test flights planned for 2023.¹⁵⁶

In 2023, Jaunt Air Mobility, an eVTOL aircraft developer, partnered with Aero Montreal, Quebec's aerospace cluster think tank, to make Quebec Canada's AAM center.¹⁵⁷ Limosa, a Canadian eVTOL developer, partnered with BAC Aerospace for their Canadian eVTOL certification process.¹⁵⁸

In 2024, Autonomy of Future Air Mobility (AMAF) project partners Thales and Presagis (now TXT) united to bring together expertise in digital technologies, artificial intelligence (AI), critical systems and simulation to design key components for the autonomous aerospace of the future.¹⁵⁹

¹⁵³ <https://tc.canada.ca/en/aviation/advanced-air-mobility>

¹⁵⁴ <https://canadianaam.com/>

¹⁵⁵ <https://www.urbanairmobilitynews.com/air-taxis/caam-and-cartams-to-develop-five-year-uam-roadmap-for-canada/>

¹⁵⁶ <https://www.internationalairportreview.com/news/179361/vports-creates-electric-aam-corridors-between-quebec-and-u-s/>

¹⁵⁷ <https://rotormedia.com/jaunts-cote-joins-board-of-aero-montreal-to-help-build-quebec-as-aam-center/>

¹⁵⁸ <https://www.urbanairmobilitynews.com/air-taxis/limosa-partners-with-bac-aerospace-for-canadian-evtol-certification-process/>

¹⁵⁹ https://www.aaminternational.com/2024/04/development-partnership-for-autonomous-flight-solutions/?utm_source=AAM+Weekly+eBrief&utm_campaign=6a815551a0-aam_ebrief_2024_04_10&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

South America

Argentina

In 2022, Advanced Air Mobility and Corporación América Airports signed an MOU to develop, design, and integrate a service and support ecosystem for UAM operations in Latin America through eVTOL aircraft. Corporación América Airports, an important operator of 53 airports in six countries (including Argentina, Brazil, Uruguay, and Ecuador), is looking to develop vertiports across the region.¹⁶⁰

Brazil

In 2023, the National Civil Aviation Agency (ANAC) presented its first report on *Panorama AAM*, an open letter from ANAC to society presenting in a simple and realistic way what has been done so far, together with some challenges such as equipment certification, training of maintenance professionals and pilots, navigation, and infrastructure.¹⁶¹ Helisul Aviation, owner of one of Brazil's largest helicopter fleets, signed a letter of intent to purchase 50 aircraft from Moya Aero, an eVTOL aircraft developer.¹⁶² ANAC unveiled proposed airworthiness criteria for Eve Air Mobility, an eVTOL developer in Sao Paulo, Brazil.¹⁶³

In 2024, ANAC released a regulatory proposal for license and rating requirements for aircraft with vertical takeoff and landing capabilities.¹⁶⁴ Micaelis is a vertically integrated mobility company, promoting, selling, and supporting AAM products and services, from medical aid to aerial sightseeing, to passenger transportation.¹⁶⁵

Chile

In 2021, Airbus unveiled its eVTOL prototype CityAirbus NextGen.

In 2022, Airbus extended collaboration with Ecocopter, who operates a fleet of primarily Airbus helicopters, for UAM services in Chile, Ecuador, and Peru.¹⁶⁶

¹⁶⁰ <https://simpleflying.com/airports-in-argentina-brazil-ecuador-uruguay-could-become-evtol-hubs/>

¹⁶¹ <https://www.gov.br/anac/pt-br/noticias/2023/anac-apresenta-panorama-inedito-sobre-mobilidade-aerea-avancada-e-evtols>

¹⁶² <https://verticalmag.com/press-releases/helisul-aviation-to-purchase-50-moya-evtol-aircraft/>

¹⁶³ <https://www.eveairmobility.com/eve-air-mobilitys-evtol-airworthiness-criteria-released-for-public-consultation/>

¹⁶⁴ <https://www.gov.br/anac/pt-br/aceso-a-informacao/participacao-social/consultas-setoriais/consultas/2024/cs-03-2024/CS032024regulatoryproposal.pdf>

¹⁶⁵ <https://michaelis.com/>

¹⁶⁶ <https://www.airbus.com/en/newsroom/press-releases/2022-09-airbus-extends-collaboration-with-ecocopter-for-urban-air-mobility>

Costa Rica

In 2024, EHang, the manufacturer of the eVTOL EH216 pilotless aircraft, performed a demonstration flight at the Reserva Conchal resort in the Guanacaste province.¹⁶⁷

Mexico

In 2023, EHang unveiled plans to develop UAM on Latin America with the help of its Mexico-based distributor Air Mobility.¹⁶⁸ Redwings, a passenger and cargo operator, signed a letter of intent with Jaunt Air Mobility to purchase eVTOL aircraft to launch an air taxi service in Mexico City.¹⁶⁹

Oceania

Australia

In 2022, the Civil Aviation Safety Authority (CASA) published its *Remotely Piloted Aircraft Systems (RPAS) and AAM Strategic Regulatory Roadmap* outlining their approach for RPAS and AAM regulations over the next 10 to 15 years.¹⁷⁰

In 2023, CASA released Advisory Circular, *AC 139.V-01v1.0, Guidance for vertiport design*.¹⁷¹ Skyportz, Melbourne air taxi infrastructure developer, partnered with Perth's Electro.Aero, an emerging electric aircraft charger manufacturer, to power plans for a national vertiport network.¹⁷² Skyway, a leading Urban Air Traffic Management (UATM) operation center and air traffic navigation provider, and Skyportz began collaborating in a new partnership to expand the comprehensive infrastructure for UAM in Australia.¹⁷³ Pelligra, a property developer, partnered with Skyportz to jointly develop vertiport networks to attract air taxi and drone delivery services to Australia.¹⁷⁴ Australian AAM stakeholders expect to see the first commercial services in the country in 2027.¹⁷⁵

¹⁶⁷ <https://www.ehang.com/news/1054.html>

¹⁶⁸ <https://www.asianskygroup.com/ehang-outlines-uam-plans-in-latin-america-899/>

¹⁶⁹ <https://rotormedia.com/redwings-and-jaunt-air-mobility-sign-loi-for-purchase-of-jaunt-journey-evtol/>

¹⁷⁰ <https://www.casa.gov.au/resources-and-education/publications-and-resources/corporate-publications/rpas-and-aam-strategic-regulatory-roadmap#Download>

¹⁷¹ <https://www.casa.gov.au/sites/default/files/2023-07/advisory-circular-139.v-01-guidance-vertiport-design.pdf>

¹⁷² <https://www.businessnewsaustralia.com/articles/skyportz-partners-with-perth-s-electro-aero-to-power-plans-for-vertiport-network.html>

¹⁷³ <https://www.newswire.com/news/skyway-and-skyportz-announce-strategic-collaboration-22008448>

¹⁷⁴ <https://verticalmag.com/press-releases/pelligra-partners-with-skyportz-on-australian-vertiport-network/>

¹⁷⁵ <https://verticalmag.com/news/evtol-stakeholders-discuss-2027-target-launch-of-aam-in-australia/>

In 2024, researchers from Swinburne's Aerostructures Innovation Research Hub (AIR Hub) began working with Latrobe City Council, Textron Systems Australia, Federation University, and CASA, to pioneer new AAM technologies for the region and develop green aviation solutions to address real-world problems, such as Regional AAM Surrogate Trials that began in February 2024 with 30-60 minute flights from Latrobe Regional Airport at nighttime.¹⁷⁶ In summer 2024, the Australian Government's Emerging Aviation Technology Partnerships program announced that twelve projects will share in nearly \$13.5 Million of federal funding to develop and deploy AAM.¹⁷⁷ AMSL Aero, the zero-emission long-range VTOL aircraft designer and manufacturer, announced it had partnered with Aeria Management Group to make Australian aviation history by introducing hydrogen as an aviation fuel at Bankstown Airport in Sydney.¹⁷⁸ Skyportz, an Australian vertiport developer, expressed strong support for the newly released AAM Action Plan for the State of Victoria, which marks a significant step forward in establishing the necessary infrastructure for air taxi operations and other AAM initiatives.¹⁷⁹ Wisk Aero, a leading AAM company and developer of the first all-electric, self-flying air taxi in the US, and Skyports Infrastructure (Skyports), the leader in vertiport infrastructure for the AAM industry, announced they are expanding their partnership to identify an Entry-into-Service (EIS) network for Wisk's autonomous Generation 6 aircraft in the South East Queensland (SEQ) region of Australia.¹⁸⁰ Skyports Infrastructure and Wagner Corporation, an Australian property, infrastructure, and sustainable development company, have partnered to explore vertiport development opportunities in the state of Queensland, Australia.¹⁸¹

Also in 2024, Australian start-up airline Wilbur Air, a subsidiary of Melbourne-based advanced air mobility infrastructure developer Skyportz, announced plans to operate 100 of the five-passenger Integrity eVTOL aircraft under development by Spain's Crisalion Mobility. Wilbur Air plans to operate the aircraft, at a range of up to around 71 nm, to connect a network of vertiports it intends to build in cities across the country, in some cases using existing locations such as car parks.¹⁸² LYNEports have successfully integrated the Australian Vertiport Design Guidelines into its AAM planning software solution for airside infrastructure, including flight paths and ground infrastructure recommended design guidelines from Australian aviation authorities.¹⁸³

¹⁷⁶ https://www.miragenews.com/advanced-air-mobility-trials-to-commence-this-1153372/#google_vignette

¹⁷⁷ <https://minister.infrastructure.gov.au/chisholm/media-release/federal-funds-help-emerging-aviation-technology-take>

¹⁷⁸ <https://verticalmag.com/press-releases/amsl-aero-and-aeria-bring-hydrogen-aviation-fuel-to-bankstown-airport-in-australia/>

¹⁷⁹ <https://dronelife.com/2024/07/11/skyportz-welcomes-new-action-plan-for-advanced-air-mobility-in-victoria-australia/>

¹⁸⁰ <https://wisk.aero/news/press-release/wisk-and-skyports-expand-partnership/>

¹⁸¹ <https://verticalmag.com/press-releases/skyports-builds-momentum-through-partnership-with-australian-real-estate-developer/>

¹⁸² <https://www.ainonline.com/aviation-news/futureflight/2024-07-24/wilbur-air-plans-operate-crisalions-integrity-evtol-australia>

¹⁸³ https://www.aaminternational.com/2024/07/lyneports-integrates-australian-vertiport-design-guidelines-into-aam-planning-software/?utm_source=AAM+Weekly+eBrief&utm_campaign=77b36e0a2c-aam_ebrief_2024_07_31&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

Joby Aviation, Inc., a US company developing electric air taxis for commercial passenger service, announced it has formally applied for its revolutionary aircraft to be certified for use in Australia.¹⁸⁴

New Zealand

The Airspace Integration Trials Program (AITP) aimed at integrating AAM safely into the country's aviation system began in 2019, and in 2022 included Wisk Aero, California-based eVTOL aircraft developer.¹⁸⁵

In 2023, the Civil Aviation Authority of New Zealand (CAA) launched its emerging aviation technologies program, with the support of industry and academia.¹⁸⁶ Air New Zealand announced their intention to add BETA Alia's eCTOL aircraft to their fleet by 2026 as part of their Mission Next Gen Aircraft program.¹⁸⁷

In 2024, Wellington Airport was selected as the home base for New Zealand's first all-electric service, and Marlborough Airport was selected to establish its charging infrastructure.¹⁸⁸

Europe

The European Union Aviation Safety Agency (EASA) has been actively working to assist the AAM industry and advance clean energy for aviation since well before 2019 when they published their *Special Condition for small-category VTOL aircraft*.¹⁸⁹ EASA envisions that by 2030, 340 million people will live in EU cities and experience UAM.¹⁹⁰

In 2021, EASA published the results of its first *EU Study on Citizens' Acceptance of UAM*.¹⁹¹ Skyports, who in 2019 launched the first vertiport in the world in Singapore, in 2021 announced it would build and operate the first test vertiport in Europe.¹⁹²

¹⁸⁴ <https://www.jobyaviation.com/news/joby-applies-aircraft-certification-australia/>

¹⁸⁵ <https://verticalmag.com/features/bringing-autonomous-aam-to-new-zealand-through-airspace-integration-trials/>

¹⁸⁶ <https://www.aviation.govt.nz/about-us/media-releases/show/new-emerging-aviation-technologies-forum>

¹⁸⁷ <https://verticalmag.com/press-releases/air-new-zealand-announces-betas-alia-as-launch-aircraft-for-mission-next-gen-aircraft-program/>

¹⁸⁸ <https://www.wellingtonairport.co.nz/news/airport-updates/wellington-airport-selected-as-home-base-of-new-zealands-first-all-electric-service/>

¹⁸⁹ <https://www.easa.europa.eu/sites/default/files/dfu/SC-VTOL-01.pdf>

¹⁹⁰ <https://www.easa.europa.eu/en/what-is-uam>

¹⁹¹ <https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-publishes-results-first-eu-study-citizens-acceptance-urban>

¹⁹² <https://www.autoevolution.com/news/skyports-will-build-and-operate-the-first-test-vertiport-in-europe-175076.html>

In 2022, EASA published their proposed new regulatory framework for the operation of air taxis in cities,¹⁹³ as well as their prototype technical design specifications for vertiports.¹⁹⁴

Then in 2023, EASA published their proposed rules for VTOL operations including air taxis,¹⁹⁵ and their *Easy Access Rules for Airworthiness and Environmental Certification of Aircraft (Part 21)*.¹⁹⁶ EASA published a *Consultation Paper: Environmental protection technical specification (EPTS) for VTOL-capable aircraft powered by non-tilting rotors*.¹⁹⁷ EASA has also been busy developing technical requirements,¹⁹⁸ and publishing its *Artificial Intelligence Roadmap 2.0*.¹⁹⁹ They also collaborated with Brazil's ANAC on eVTOL certification.²⁰⁰ Eve Air Mobility, an eVTOL aircraft developer, and Blade Air Mobility announced a partnership to bring AAM to European route networks.²⁰¹

In 2024, the European Commission adopted a secondary legislative package on drones and VTOL aircraft, putting in place final rules for the launch of Innovative Air Mobility (IAM), including air taxi services.²⁰² The European Commission enacted the *Artificial Intelligence Act*, which impacts drones, UTM and eVTOLs.²⁰³ The General Aviation Manufacturers Association (GAMA) released a position paper with recommendations for accelerating the development of the electric aviation sector in Europe.²⁰⁴ It is noteworthy that UTM has been at the forefront in Europe. CORUS-XUAM, Concept of Operations for European UTM Systems – Extension for Urban Air

¹⁹³ <https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-publishes-worlds-first-rules-operation-air-taxis-cities>

¹⁹⁴ <https://www.easa.europa.eu/en/document-library/general-publications/prototype-technical-design-specifications-vertiports>

¹⁹⁵ <https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-proposes-rules-vertol-operations-including-air-taxis>

¹⁹⁶ <https://www.easa.europa.eu/en/newsroom-and-events/news/easa-publishes-updated-easy-access-rules-airworthiness-and-environmental-0>

¹⁹⁷ <https://www.easa.europa.eu/en/document-library/product-certification-consultations/consultation-paper-environmental-protection>

¹⁹⁸ <https://www.easa.europa.eu/en/light/topics/vertical-take-and-landing-vertol>

¹⁹⁹ <https://www.easa.europa.eu/en/newsroom-and-events/news/easa-artificial-intelligence-roadmap-20-published>

²⁰⁰ <https://www.easa.europa.eu/en/newsroom-and-events/news/easa-and-anac-agree-cooperation-e-vertol-certification>

²⁰¹ <https://ir.blade.com/news-events/press-releases/detail/71/eve-and-blade-expand-partnership-to-accelerate-electric-air>

²⁰² <https://www.easa.europa.eu/en/newsroom-and-events/news/european-commission-adopts-regulatory-package-giving-go-ahead-vertol>

²⁰³ <https://www.urbanairmobilitynews.com/commentary/what-the-new-eu-artificial-intelligence-act-means-for-drones-utm-and-vertols/>

²⁰⁴ https://gama.aero/wp-content/uploads/GAMA-White-paper-Recs-for-Electric-Aviation-Sector-in-Europe-2024-0417.pdf?utm_campaign=AIN%20Alerts&utm_medium=email&_hsenc=p2ANqtz--nz2JpngRazrvrMerZHujFE1Ph3EaS5BLaStcxBpFTVbB3R_lacTgmPDylNkMSyHsO-LeL1L0SRR2UV9ACNEADCRifqA&_hsmi=303480391&utm_content=303480391&utm_source=hs_email

Mobility, was a two-year very large-scale demonstration project that demonstrated how U-space services and solutions could support UAM flight operations.²⁰⁵

Belgium

In 2021, Antwerp Port announced the launch of its UTM system, partnering with Unifly, technology company for the UTM platform that had previously worked in Canada and Germany. EU legislation permits ports to coordinate and manage their airspace.²⁰⁶ By 2024, Unifly had achieved very large-scale demonstrations, not only in Belgium, but also in France, Germany, UK, Italy, Spain, and Sweden.²⁰⁷

In 2023, Brussels Airport announced its investment in DronePort, a unique ecosystem focused on research, innovation, and development in the market of drones and AAM.²⁰⁸

Bulgaria

In 2023, Eurocontrol delivered a workshop to Bulgarian Civil Aviation Authority and BULATSA Air Navigation Service Provider to enhance U-space guidance and support in Sofia. Topics covered included EASA's *Acceptable Means Compliance and Guidance Material* for the U-space regulatory package.²⁰⁹

Denmark

In 2023, a partnership was announced between HCA Airport in Odense and Copenhagen Helicopter to build an infrastructure for electrically powered, flying taxis.²¹⁰

²⁰⁵ <https://corus-project.eu/about/>

²⁰⁶ <https://www.unmannedairspace.info/uncategorized/antwerp-port-becomes-first-seaport-with-utm-system-with-unifly-as-industrial-partner/>

²⁰⁷ <https://uasweekly.com/2024/04/04/uniflys-utm-platform-advances-urban-air-mobility-in-europe/>

²⁰⁸ <https://www.brusselsairport.be/en/pressroom/news/brussels-airport-focuses-further-on-drone>

²⁰⁹ <https://www.unmannedairspace.info/latest-news-and-information/eurocontrol-delivers-workshop-to-provide-u-space-guidance-and-support-in-sofia-bulgaria/>

²¹⁰ <https://verticalmag.com/press-releases/hca-airport-and-copenhagen-helicopter-partner-on-vertiport-development-in-denmark/>

Estonia

In 2023, the Estonian Transport Administration, with funding from the Estonian Business and Innovation Agency, launched a project to develop a sandbox for automated aviation systems built in Tartu.²¹¹

In 2024, ANRA Technologies, a global leader in uncrewed traffic management and operational solutions, partnered with the Estonian Aviation Academy, a state-owned institution, to operate UAS technologies for U-Space implementation.²¹²

Finland

In 2022, LIFT Future Aerospace Center, a new aerospace research center at the Helsinki-East Aerodrome, started operations and partnerships to drive drone and UAM innovation.²¹³

In 2023, a study was published, on the *Future of Helsinki's UAM*.²¹⁴

France

In 2022, successful UAM flight tests were conducted at Pontoise airfield.²¹⁵ Groupe ADP, Skyports, and Volocopter also collaborated on a fully integrated vertiport terminal at Pontoise-Cormeilles airfield.²¹⁶

In 2023, the French Civil Aviation Authority (DGAC), published the updated version of UAS in the specific category, and included UAM.²¹⁷ Volocopter and AutoFlight announced they would be partnering with Groupe ADP to offer air taxi flights over Paris during the Olympics in summer 2024.²¹⁸ Lilium, an eVTOL aircraft developer, and

²¹¹ <https://www.unmannedairspace.info/uncategorized/estonia-launches-u-space-sandbox-to-develop-uas-systems-and-technologies/>

²¹² <https://verticalmag.com/press-releases/anra-technologies-partners-with-estonian-aviation-academy-to-establish-u-space-test-center/>

²¹³ <https://www.aaminternational.com/2022/09/new-aerospace-research-center-to-drive-drone-and-uam-innovation-in-finland/>

²¹⁴ <https://mobilitylab.hel.fi/app/uploads/2023/05/2023-05-08-Helsinki-UAM-Report-final.pdf>

²¹⁵ <https://cordis.europa.eu/article/id/442425-urban-air-mobility-flight-tests-in-france-a-success>

²¹⁶ <https://dronelife.com/2022/11/16/air-mobility-testbed-in-france-launched-open-for-uam-ecosystem/>

²¹⁷ https://www.ecologie.gouv.fr/sites/default/files/Guide_categorie_Specifique_0.pdf

²¹⁸ <https://emag.directindustry.com/2023/06/23/evtols-expected-to-take-center-stage-at-paris-2024-olympic-games/#:~:text=As%20the%202024%20Paris%20Olympic,edge%20technologies%20during%20the%20event.>

UrbanV, a vertiport design and management company, announced a partnership to enable infrastructure in Italy and the French Riviera.²¹⁹

In 2024, Lilium, UrbanV, and Aeroports de la Cote d'Azur forged a partnership to create a vertiport network in the French Riviera between Monaco, Nice, Sophia Antipolis, Cannes, Golfe de Saint-Tropez, Aix-en-Provence, and Marseille by 2026.²²⁰ Then in summer 2024, German eVTOL manufacturer, Volocopter, announced that despite initial promises, so-called 'flying taxis' would not be circling above Paris during the Olympic Games due to delays in the certification for the vehicle's engine.²²¹ Later, Volocopter completed a crewed test flight at the Aerodrome of Saint-Cyr-l'École, southwest of Paris. Built by long-time Volocopter partner Groupe ADP, Saint-Cyr-l'École is the first bespoke commercial vertiport for eVTOL integrated with Volocopter's approved flights routes in Paris. This flight initiated the eVTOL operational validation phase, a critical step to making electric flights a norm in the French capital and beyond.²²²

Germany

In 2022, Airbus announced it was leading the AAM initiative in Germany.²²³

In 2023, Skyroads, developer of uncrewed traffic management systems, announced it was setting up a flight test site at Augsburg Airport in southern Germany to prepare for eVTOL integration.²²⁴ German aerospace center, DLR, announced plans to build, near Stuttgart, a new indoor facility for full-scale crash and impact testing of helicopters and eVTOL aircraft.²²⁵

In 2024, global airport operator Fraport and Lilium planned to collaborate on the development of a commercial eVTOL network.²²⁶ Lilium also collaborated with SEGULA Technologies, an engineering group, to open a facility near Munich, for Lilium Jet's simulated flights, system integration testing, and performance profiles.²²⁷ German start-up ERC-System unveiled plans to develop an eVTOL aircraft specifically designed for

²¹⁹ <https://www.globenewswire.com/news-release/2023/06/20/2691656/0/en/Lilium-and-UrbanV-to-collaborate-on-vertiports-in-Italy-the-French-Riviera-and-beyond.html>

²²⁰ <https://lilium.com/newsroom-detail/lilium-jet-to-take-flight-in-the-french-riviera-in-2026>

²²¹ <https://www.france24.com/en/live-news/20240808-paris-flying-taxi-test-flights-scrapped-during-olympics>

²²² <https://www.airportsinternational.com/article/paris-sets-stage-evtols>

²²³ <https://www.rotorhub.com/airbus-leads-advanced-air-mobility-initiative-in-germany/>

²²⁴ <https://www.ainonline.com/news-article/2023-01-20/advanced-air-mobility-flight-test-site-open-german-airport>

²²⁵ <https://aviationweek.com/aerospace/advanced-air-mobility/germanys-dlr-build-vtol-crash-impact-test-center>

²²⁶ <https://lilium.com/newsroom-detail/fraport-and-lilium-to-collaborate-on-development-of-commercial-evtol-network>

²²⁷ <https://lilium.com/newsroom-detail/lilium-begins-construction-of-certification-test-facility-for-the-lilium-jet>

emergency medical flights, with a payload of one pilot, one doctor and one passenger and a range of 190 kilometers.²²⁸

Greece

In 2022, the Hellenic Droneport facility in Messolonghi was inaugurated to support the holistic AAM and U-space ecosystem.²²⁹

In 2024, Aria Hotels, the Greek-born hospitality subsidiary of Libra Group, announced it would build and operate four vertiports to support eVTOL aircraft in Greece.²³⁰

Hungary

In 2021, the Ministry of Innovation and Technology, announced that an EASA survey reflected that more than two-thirds of Budapest residents were open to the use of UAM.²³¹

In 2023, Rolls-Royce received EUR 4.6 Million from the Hungarian Government to advance AAM electric flight.²³²

Iceland

In 2021, Wideroe, Norway-based regional airline, launched a collaborative project with Eve Air Mobility for services to regions with dispersed population centers and challenging geography.²³³

Ireland

²²⁸ https://www.ainonline.com/aviation-news/defense/2024-07-03/german-start-erc-unveils-emergency-medical-evtol-aircraft?utm_campaign=FutureFlight&utm_medium=email&_hsenc=p2ANqtz--K4A3lF1tBKXYsIkEfx7427nEhvOCHmjs3wIHj_TbYtrZRIHmhHy7bfxmEuBm97N3lx-V2jBO491nyi6FuWUJAEnlUw&_hsmi=314267651&utm_content=314267651&utm_source=hs_email

²²⁹ <https://www.unmannedairspace.info/latest-news-and-information/hellenic-u-space-institute-inaugurates-first-droneport-in-south-east-europe/>

²³⁰ <https://verticalmag.com/press-releases/aria-hotels-to-construct-four-evtol-vertiports-in-greece/>

²³¹ <https://dailynewshungary.com/budapest-residents-are-quite-welcoming-towards-urban-air-mobility-vehicles/>

²³² <https://www.urbanairmobilitynews.com/government-investment/rolls-royce-awarded-e4-6-million-from-the-hungarian-government-to-advance-electric-flight/>

²³³ <https://www.ainonline.com/news-article/2021-11-10/wideroe-explores-potential-scandinavian-urban-air-mobility-network>

In 2024, the Dublin City Council released a five-year drone and UAM strategy for the city.²³⁴

Italy

The Italian Civil Aviation Authority (ENAC) has published a *Strategic Plan (2021-2030) for AAM*,²³⁵ as well as a *Roadmap*.²³⁶

In 2022, Italy's first vertiport, a collaboration between Aeroporti di Roma, Atlantia, and UrbanV, was deployed at Fiumicino's Leonardo da Vinci International Airport, and Volocopter successfully completed its first crewed eVTOL test flights in Italian airspace.²³⁷

In 2023, Lilium partnered with Air-Dynamic to serve Italy and neighboring Switzerland.²³⁸

In 2024, ITA Airways, Airbus, UrbanV, and Enel announced a partnership to build an AAM ecosystem in Italy.²³⁹ The Edge Company's Bird Concentration Monitoring System (BCMS) began testing bird strikes at UrbanV's test vertiport in Fiumicino.²⁴⁰ In June 2024, ENAC published the first regulation regulating eVTOL flight operations, and introducing the requirements for construction and operation of vertiports.²⁴¹ In July 2024, Lilium, a leading electric aircraft manufacturer and pioneer in Regional Air Mobility (RAM), SEA, the operator of Milan's airports, and Skyports Infrastructure, the leader in vertiport infrastructure for the AAM industry, announced the signing of an MOU laying the groundwork for the development of a passenger eVTOL network in the Lombardy region in the north of Italy.²⁴² Then, Urban-Air Port and BAI Energy announced they are looking to modernize aviation infrastructure in Italy with the initial redevelopment of a trio of disused aerodromes to support the rollout of vertiports. Starting in Northern Italy,

²³⁴ <https://www.dublincity.ie/news/dublin-city-council-launches-first-ever-drone-strategy>

²³⁵ <https://www.enac.gov.it/pubblicazioni/piano-strategico-nazionale-aam-2021-2030-per-lo-sviluppo-della-mobilita-aerea-avanzata-in-italia>

²³⁶ https://www.enac.gov.it/sites/default/files/allegati/2021-Set/02_AAM%20Italian%20Ecosystem%20%E2%80%93%20Project%20overview%20and%20Roadmap_web.pdf

²³⁷ <https://www.suasnews.com/2022/10/italys-first-vertiport-deployed-at-fiumicino-airport/>

²³⁸ <https://www.globenewswire.com/news-release/2023/05/22/2673855/0/en/Lilium-signs-agreement-with-Air-Dynamic-to-serve-Switzerland-and-Italy.html>

²³⁹ <https://verticalmag.com/press-releases/ita-airways-airbus-urbanv-and-enel-partner-for-advanced-air-mobility-ecosystem-in-italy/>

²⁴⁰ https://www.aaminternational.com/2024/04/bird-strike-tech-undergoing-tests-at-urbanv-vertiport/?utm_source=AAM+Weekly+eBrief&utm_campaign=6a815551a0-aam_ebrief_2024_04_10&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

²⁴¹ <https://www.enac.gov.it/news/enac-pubblica-il-primo-regolamento-nazionale-per-la-mobilita-aerea-innovativa>

²⁴² <https://lilium.com/newsroom-detail/lilium-sea-milan-airports-and-skyports-to-launch-regional-air-mobility-network-in-northern-italy>

the Phase 1 first three locations under negotiations are in Venice, Piedmont and Trieste.²⁴³

Netherlands

In 2019, leading industry partners launched the Dutch Drone Delta²⁴⁴ consortium to focus on creating opportunities for future passenger and freight using UAM aircraft.²⁴⁵

Poland

In 2021, flight tests under Europe's USpace4UAM large-scale UAM demonstration began in Rzeszow.²⁴⁶

Spain

In 2022, Air Navigation Service Provider, Enaire, led testing of the European U-space system at the Atlas Centre in Villacarrillo, Jaen.²⁴⁷ In Jaen, UMILES Next, Concept Integrity, an eVTOL, developed by TECNALIA, took to the skies, testing UAM airspace integration concepts.²⁴⁸

In 2023, it was announced that Zaragoza would become the first city to have a vertiport in an urban environment, 7,500 square meters of space for the next 10 years.²⁴⁹ EHang, an eVTOL aircraft developer, inaugurated its first European UAM Center in Spain inside the Lleida-Alguaire International Airport.²⁵⁰

In 2024, airport management company Aena, UrbanV, the Italian vertiport operator, and Volocopter, German eVTOL aircraft developer, entered a partnership to

²⁴³ https://www.aaminternational.com/2024/08/disused-aerodromes-to-be-redeveloped-into-vertiports-in-northern-italy/?utm_source=AAM+Weekly+eBrief&utm_campaign=2fa8008e56-aam_ebrief_2024_08_07&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

²⁴⁴ <https://www.dutchdronedelta.nl/>

²⁴⁵ <https://www.unmannedairspace.info/latest-news-and-information/dutch-companies-launch-consortium-to-progress-urban-air-mobility/>

²⁴⁶ <https://aviationweek.com/aerospace/urban-unmanned-aviation/european-uam-project-gets-underway-poland>

²⁴⁷ <https://www.unmannedairspace.info/latest-news-and-information/spain-tests-urban-air-mobility-with-air-taxis-drones-and-conventional-aviation/>

²⁴⁸ <https://www.unmannedairspace.info/latest-news-and-information/umiles-nexts-evtol-flies-in-spain-to-test-uam-airspace-integration-concepts/>

²⁴⁹ <https://www.urbanairmobilitynews.com/vertiports/first-operational-european-urban-vertiport-will-be-built-in-zaragoza/>

²⁵⁰ <https://www.ehang.com/news/1012.html>

launch a pilot program to develop a UAM ecosystem in Spain.²⁵¹ Malaga Airport is preparing for an air taxi service, with test flights to start in mid-2025, for service in air corridors between Malaga and Marbella, Malaga and Granada.²⁵²

Sweden

In 2022, three drone demonstrations between Linköping and Norrköping paved the way for more complex UAM operations.²⁵³

In 2023, ZeroAvia, a hydrogen-electric eVTOL aircraft developer, struck a deal to provide routes from Skellefteå Airport in Northeast Sweden.²⁵⁴ Swedish design and technology company STILFOLD partnered with air mobility company Kookiejar, to produce vertiports using its sustainable “industrial origami” manufacturing technology.²⁵⁵

In 2024, Heart Aerospace announced their initiative to support sustainable, commercial electric air travel to and from Swedish Region Gotland, to explore operational needs, technical requirements, and ground infrastructure demands.²⁵⁶

Switzerland

Urban Air Mobility Association Switzerland (UAMAS) is on a mission to accelerate the transition to UAM in Switzerland by connecting stakeholders and informing the public.²⁵⁷

In 2023, Swiss Aviation Software and German Volocopter partnered for a multi-year contract for AMOS, a maintenance, repair, and overhaul software to manage Volocopter’s eVTOL aircraft fleet worldwide.²⁵⁸

²⁵¹ https://www.aaminternational.com/2024/03/development-of-uam-pilot-project-in-spain/?utm_source=AAM+Weekly+eBrief&utm_campaign=0b94fe133b-aam_ebrief_2024_03_06&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

²⁵² <https://www.surinenglish.com/malaga/malaga-airport-prepares-an-air-taxi-service-20240517131514-nt.html>

²⁵³ <https://www.unmannedairspace.info/latest-news-and-information/sweden-to-fly-linkoping-to-norrkoping-drone-missions-in-october-as-precursor-to-uam-aam/>

²⁵⁴ <https://www.urbanairmobilitynews.com/air-taxis/zeroavia-strikes-deal-to-bring-zero-emission-flights-to-sweden/>

²⁵⁵ <https://verticalmag.com/press-releases/stilfold-aims-to-revolutionize-urban-air-mobility-with-origami-vertiports/>

²⁵⁶ https://www.aaminternational.com/2024/07/electric-aircraft-initiative-for-swedish-island/?utm_source=AAM+Weekly+eBrief&utm_campaign=8753651a4a-aam_ebrief_2024_07_03&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

²⁵⁷ <https://uamas.ch/>

²⁵⁸ <https://www.volocopter.com/en/newsroom/volocopter-integrates-amos>

United Kingdom (UK)

In 2022, Eve Air Mobility and the UK Air Mobility Consortium announced a ConOps for the integration of UAM in the UK.²⁵⁹

In 2023, Spanish infrastructure operator, Ferrovial partnered with real estate developer, Milligan to develop vertiport locations in the UK.²⁶⁰ Vertical Aerospace, a global aerospace and technology company, opened the Vertical Energy Centre, UK's most advanced aerospace battery facility.²⁶¹

In 2024, the government and industry partners released its *UK Future of Flight Action Plan 2030* bringing eVTOL aircraft to the forefront.²⁶² UK Civil Aviation Authority launched a consultation on proposals for vertiport designs for existing aerodromes.²⁶³ Skyports Infrastructure, a vertiport developer, is planning UK's first vertiport testbed at Bicester Motion, Oxfordshire.²⁶⁴ Lilium, German eVTOL aircraft developer, confirmed eVTOL sales to eVolare, a subsidiary of Volare Aviation, one of UK's largest helicopter and private jet operators, for planned operations between London and other cities as well as coastal areas.²⁶⁵ The UK's first permanent vertiport opened at Snowdonia Aerospace Centre for drone and eVTOL testing.²⁶⁶ Vertical Aerospace, a global aerospace and technology company that is pioneering zero emissions aviation, announced in July 2024, that the scope of its Design Organization Approval (DOA) has been expanded by the UK CAA. The scope extension enables Vertical's own engineers to sign off compliance of an increasing number of technical areas, including further areas related to the flight control, avionics and electrical systems. Expanding Vertical's capacity to carry out certification activities streamlines the certification process.²⁶⁷ Joby, US-eVTOL aircraft developer, showed off its aircraft for the first time in Europe at the at the Farnborough Airshow. The display of the full-scale replica was also the first time Joby had brought the full-scale aircraft to the UK and offered attendees the opportunity to explore the cabin interior.²⁶⁸

²⁵⁹ <https://www.eveairmobility.com/uk-consortium-completes-urban-air-mobility-concept-of-operations-for-the-civil-aviation-authority/>

²⁶⁰ <https://www.businesstraveller.com/business-travel/2023/06/28/new-partnership-launched-to-develop-vertiports-in-the-uk/>

²⁶¹ <https://www.businesswire.com/news/home/20230314005332/en/Vertical-Announces-the-Opening-of-the-Vertical-Energy-Centre-the-UKs-Most-Advanced-Aerospace-Battery-Facility>

²⁶² <https://assets.publishing.service.gov.uk/media/661943b7679e9c8d921dfeeb/fof-action-plan.pdf>

²⁶³ <https://consultations.caa.co.uk/air-traffic-management/vertiport-design-proposal-for-existing-aerodrome/>

²⁶⁴ <https://skyports.net/skyports-and-bicester-motion-unveil-plans-for-uks-first-vertiport-testbed-for-air-taxi-industry/>

²⁶⁵ <https://lilium.com/newsroom-detail/lilium-and-evolare-confirm-the-signing-of-sale-and-purchase-agreements-for-4-lilium-jets>

²⁶⁶ <https://zagdaily.com/trends/uks-first-permanent-vertiport-opens-in-wales/>

²⁶⁷ <https://vertical-aerospace.com/wp-content/uploads/2024/07/UK-Civil-Aviation-Authority-expands-scope-of-DOA-for-Vertical-Aerospace-and-agrees-certification-co-operation-with-European-Union-Aviation-Safety-Agency-2.pdf>

²⁶⁸ <https://www.businessairportinternational.com/news/technology/joby-exhibits-evtol-for-first-time-in-europe.html>

The UK CAA released their Airspace Modernization Strategy, the plan for their airspace through 2040, which is based on four strategic objectives: Safety, Integration, Simplification and Environment, taking into account the latest developments in innovation and technology, by placing integration of all airspace users at the core of the strategy, including accommodating new types of vehicle such as drones, aerial taxis and spacecraft.²⁶⁹ Joby has also applied to have its FAA type certificate, once received, validated by the UK CAA.²⁷⁰

Asia

In summer 2024 at the 2024 Farnborough International Airshow, Supernal LLC, Hyundai Motor Group's (HMG) AAM company, and Sigma Air Mobility, a Luxaviation Group company, announced a joint effort to identify and develop targeted markets for future AAM infrastructure and investments, targeting key markets in South and Southeast Asia. The collaboration is intended to leverage the companies' combined expertise to lead in the visioning, launch and scale-up of decarbonized and accessible air mobility networks in these regions, with Sigma operating Supernal eVTOL aircraft and providing vertiport development and operations and related services. Together, the two parent companies operate in more than 60 countries, with HMG's global presence in 42 countries and Luxaviation operating in 23.²⁷¹

China

In 2020, the EU and China signed a Bilateral Aviation Safety Agreement to bring European and Chinese safety regulators closer together in UTM and UAM/AAM regulations and standards.²⁷²

In 2021, the Civil Aviation Administration of China (CAAC) accepted the first type certificate for EHang's autonomous flight eVTOL, then in 2023 accepted the first type certificate for DAP Technologies piloted eVTOL.²⁷³

In 2023, EHang signed an MOU with the Bao'an District Government of Shenzhen municipality to provide commercial operations for aerial tourism and sightseeing.²⁷⁴ Later, the Bao'an District Government signed agreements with

²⁶⁹ <https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-modernisation-strategy/about-the-strategy/>

²⁷⁰ <https://www.jobyaviation.com/news/joby-applies-aircraft-certification-australia/>

²⁷¹ <https://www.supernal.aero/newsroom/supernal-and-sigma-air-mobility-collaborate-on-aam-market-development/>

²⁷² <https://www.unmannedairspace.info/emerging-regulations/new-agreement-moves-china-and-eu-closer-together-on-utm-and-uam/>

²⁷³ <https://verticalmag.com/news/china-accepts-first-type-certification-application-for-piloted-evtol/>

²⁷⁴ <https://www.ehang.com/news/973.html>

AutoFlight, another Chinese eVTOL aircraft developer, and Germany's Lilium.²⁷⁵ China published its *Interim Regulations on the Management of Unmanned Aircraft Flights* that went into effect January 2024.²⁷⁶ CITIC Offshore Helicopter, China's sole helicopter port pilotage provider, and Lilium agreed to collaborate on an eVTOL network in the Greater Bay Area.²⁷⁷ According to CAAC's National Airspace Basic Classification Method, two bands of low-altitude airspace zones would be introduced, Class G and Class W, opening up more routes for AAM aircraft.²⁷⁸

In 2024, EHang received the CAAC's production certificate, clearing the path for mass production of its EH216-S pilotless eVTOL aircraft.²⁷⁹ EHang continued to report more sales, this time to Taiyuan Xishan Ecological Tourism Investment to jointly develop the low-altitude economy of Taiyuan City, Shanxi Province.²⁸⁰ Sichuan Huahui Business Aviation Services, the FBO at China's Chengdu Shuangliu International Airport, opened a new facility that integrates long-haul business aviation with eVTOLs.²⁸¹ EHang announced an MOU with China Southern Airlines General Aviation Company Limited, a general aviation service provider to jointly cultivate eVTOL solutions for the low-altitude economy.²⁸² On August 1, AutoFlight's 2-ton eVTOL aircraft completed its inaugural cross-Yangtze River flight. The journey began at the Nanjing UAV base in Pukou District, Nanjing, where the aircraft took off, flew over the Yangtze River, circled along the river, and then returned to the base.²⁸³

²⁷⁵ <https://www.ainonline.com/news-article/2023-07-25/shenzhens-baoan-district-bids-become-advanced-air-mobility-hub-china>

²⁷⁶ <https://www.unmannedairspace.info/emerging-regulations/china-publishes-new-rules-on-drone-operations-management-and-utm/#:~:text=The%20new%20regulations%20cover%20UAS%20and%20operator%20management,and%20emergency%20response%2C%20legal%20responsibilities%20and%20supplemental%20provisions>

²⁷⁷ <https://lilium.com/newsroom-detail/citic-offshore-helicopter-and-lilium-partner-to-launch-evtol-network-in-chinas-greater-bay-area>

²⁷⁸ <https://asia.nikkei.com/Spotlight/Caixin/China-plans-to-open-airspace-zones-for-drones-electric-aircraft>

²⁷⁹ https://www.aaminternational.com/2024/04/caac-production-certificate-secured-by-ehang-for-the-eh216-s/?utm_source=AAM+Weekly+eBrief&utm_campaign=6a815551a0-aam_ebrief_2024_04_10&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

²⁸⁰ <https://www.ehang.com/news/1087.html>

²⁸¹ https://www.ainonline.com/aviation-news/business-aviation/2024-07-02/new-china-fbo-looks-meld-bizjets-and-aam?utm_campaign=AIN%20Alerts&utm_medium=email&_hsenc=p2ANqtz--MCtX8L_vzNtMsmToTjyN2iTjJ-ZVSQ8E3liUsxhmwlERT3p3WtSpXn3NaO0oSynynrUDytVpAbXsmShefROihkMJDBg&_hsmi=314150843&utm_content=314150843&utm_source=hs_email

²⁸² <https://verticalmag.com/press-releases/ehang-and-china-southern-airlines-general-aviation-forge-strategic-partnership/>

²⁸³ https://www.youtube.com/watch?v=m_iKZf-YCiU

India

In 2023, India unveiled its AAM plan.²⁸⁴

In 2024, the Ministry of Civil Aviation announced the country's ambition to embrace AAM by 2025, capitalizing on the next-gen mobility USD 1.5 Trillion market.²⁸⁵ FlyBlade India, a joint venture between Hunch Ventures and Blade Air Mobility, which began in 2019 to offer cost effective air transportation between routes in Mumbai, Shirdi, Pune, and Bangalore, announced a partnership with Jaunt Air Mobility to launch eVTOL aircraft operations in India by 2027.²⁸⁶ Eve Air Mobility also partnered with Hunch Mobility to bring eVTOL flights to Bangalore.²⁸⁷

Also in 2024, SkyDrive, Japanese eVTOL aircraft developer, and the Government of Gujarat signed a partnership to bring eVTOLs and their ecosystem to the State of Gujarat in India by 2027.²⁸⁸ Horizon Aircraft, a hybrid eVTOL aircraft developer, signed a letter of intent with JetSetGo, a regional air operator in India, to deliver 50 Cavorite X7 aircraft.²⁸⁹

Indonesia

Vela Prima Nusantara, an Indonesian eVTOL aircraft manufacturer headquartered in the West Java capital of Bandung, is developing the Vela Alpha, a four-passenger eVTOL, which it intends to have certified and in service in Asia and North America by 2028.²⁹⁰

²⁸⁴ <https://www.deccanherald.com/business/india-unveils-ambitious-advanced-air-mobility-plan-1204152.html>

²⁸⁵ <https://www.expresscomputer.in/guest-blogs/beyond-roads-india-embraces-advanced-air-mobility-technology-for-next-gen-mobility-in-a-1-5-trillion-market/110556/>

²⁸⁶ <https://rotormedia.com/blade-and-jaunt-air-mobility-form-strategic-partnership-to-launch-urban-air-mobility-operations-in-india/>

²⁸⁷ <https://www.eveairmobility.com/eve-air-mobility-and-hunch-mobility-collaborating-to-bring-evtol-flights-to-bangalore/>

²⁸⁸ <https://en.skydrive2020.com/archives/11739>

²⁸⁹ <https://www.globenewswire.com/news-release/2024/01/16/2809845/0/en/Horizon-Aircraft-Enters-into-Letter-of-Intent-to-Purchase-250M-of-Cavorite-X7-Aircraft-with-an-Option-for-up-to-500M.html>

²⁹⁰ https://www.ainonline.com/news-article/2024-03-05/vela-alpha-evtol-could-be-indonesias-first-new-civil-aircraft-decades?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmt=297460123&_hsenc=p2ANqtz-9Ci4r-HG60nvXvVa7g8cRB9GZBcwsyHoAnm2uyc_qt-5S-Szl_9afMxDz4dwkC71pznNUe70T5w88sD7KxIw4HxciGJA&utm_content=297460123&utm_source=hs_email

Japan

As early as 2021, the Japanese Ministry of Economy, Trade and Industry (METI) and Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) announced their AAM plans for development.²⁹¹ MLIT also published its ConOps for AAM.²⁹²

The Osaka Edition Roadmap and the action plan toward the social implementation of the Air Mobility Revolution was released in 2022.²⁹³

In 2023, EHang completed its first passenger-carrying demo flight in its EH216 along the coast of Tanoura Beach in Oita City.²⁹⁴ LIFT Aircraft completed its first-ever piloted eVTOL demonstration in Japan with their aircraft HEXA.²⁹⁵ Wisk Aero, an AAM company, penned a partnership with Japan Airlines to bring eVTOL air taxi services to Japan.²⁹⁶ SkyDrive, a Japanese eVTOL manufacturer, began identifying airports and flight routes for Osaka Bay Area eVTOL services in 2025.²⁹⁷ Skyports Infrastructure announced its involvement in the next phase of research for a ConOps for AAM for the Japan Civil Aviation Bureau (JCAB) and will work alongside its partners Kanematsu Corporation, Japan Airlines and Eve Air Mobility to define Japan's framework for the development and implementation of AAM operations in Japan.²⁹⁸ Joby Aviation, an eVTOL aircraft developer, and ANA Holdings partner with Nomura Real Estate Development for vertiports in Japan.²⁹⁹ Eve Air Mobility partnered with SkyScape, a Japanese vertiport development and management company in Osaka to bring Eve's Urban ATM to Japan.³⁰⁰

In 2024, SkyDrive began production of their eVTOL aircraft with Japan's auto manufacturer, Suzuki.³⁰¹ EHang established Japan's first UAM Center in Tsukuba City, Ibaraki Prefecture.³⁰² AutoFlight delivered its first eVTOL Prosperity to an AAM operator in Japan.³⁰³ SkyDrive, leading Japanese eVTOL aircraft manufacturer submitted their type certificate application to the FAA through JCAB.³⁰⁴ Joby, US eVTOL aircraft

²⁹¹ https://www.mlit.go.jp/koku/content/Advanced_Air_Mobility_in_JAPAN_2021.pdf

²⁹² <https://www.mlit.go.jp/koku/content/001739467.pdf>

²⁹³ <https://www.pref.osaka.lg.jp/documents/8418/roadmap20and20the20action20plan.pdf>

²⁹⁴ <https://www.globenewswire.com/news-release/2023/02/17/2610899/0/en/EH216-AAV-Completes-Its-Japan-s-First-Passenger-Carrying-Demo-Flight.html>

²⁹⁵ <https://verticalmag.com/press-releases/lift-aircraft-completes-piloted-evtol-demonstrations-in-japan/>

²⁹⁶ <https://wisk.aero/news/press-release/wisk-ja/>

²⁹⁷ <https://www.urbanairmobilitynews.com/air-taxis/skydrive-given-green-light-to-identify-vertiports-and-flight-routes-for-osaka-evtol-services-in-2025/>

²⁹⁸ <https://skyports.net/skyports-infrastructure-and-conops-partners-contribute-expertise-to-shape-japans-aam-future/>

²⁹⁹ <https://www.jobyaviation.com/news/joby-ana-partner-nomura-real-estate-vertiports-japan/>

³⁰⁰ <https://verticalmag.com/press-releases/eve-air-mobility-and-skyscape-announce-first-urban-atm-agreement-in-japan/>

³⁰¹ <https://en.skydrive2020.com/archives/12380>

³⁰² <https://www.ehang.com/news/1057.html>

³⁰³ <https://rotormedia.com/aeroflight-delivers-prosperity-air-taxi-to-japanese-operator/>

³⁰⁴ <https://en.skydrive2020.com/archives/13054>

manufacturer, has also applied to have its FAA type certificate, once received, validated by the JCAB.³⁰⁵

Qatar

In 2024, the Ministry of Transport put plans in place to test electric air taxi and delivery aircraft in early 2025.³⁰⁶

Saudi Arabia

In 2023, NEOM, the smart and sustainable regional development in northwest Saudi Arabia, and Volocopter, German eVTOL aircraft developer, began test flights.³⁰⁷

In 2024, the Saudi Arabian General Authority of Civil Aviation (GACA) published *Enabling Advanced Air Transport in the Kingdom* which follows 2022's release of the *Environmental Sustainability Development Plan in Civil Aviation*, which seeks to establish a regulatory framework based on best global practices, aimed at minimizing aviation's environmental footprint. This is an ambitious roadmap to make the Saudi air transport sector the safest and most developed in the Middle East.³⁰⁸ Joby Aviation, and Mukamalah Aviation signed an MOU to expedite Joby's entry in the Saudi Arabia market.³⁰⁹ Eve Air Mobility and Saudia Technic also signed an MOA to explore potential MRO activities and eVTOL reassembly in Saudi Arabia.³¹⁰ EHang completed their first test flight in Mecca, and partnered with Front End, a Saudi-based enterprise.³¹¹ The Minister of Transport and Logistics Services and the General Authority of Civil Aviation (GACA) announced they intend to approve eVTOL aircraft to carry pilgrims between holy sites, emergency medical support, and carrying medical supplies.³¹² UrbanV, a vertiport developer, and ICAD, construction and technology integration company, announced their partnership to develop vertiport operations and infrastructure in Saudi Arabia and beyond.³¹³ Saudia Group and Lilium, a leading electric aircraft manufacturer

³⁰⁵ <https://www.jobyaviation.com/news/joby-applies-aircraft-certification-australia/>

³⁰⁶ <https://mot.gov.qa/en/news/ministry-test-air-taxi-electric-delivery-planes-early-2025>

³⁰⁷ <https://verticalmag.com/press-releases/volocopter-neom-complete-electric-air-taxi-flight-in-saudi-arabia/>

³⁰⁸ <https://www.timesaerospace.aero/features/business-aviation/saudi-mobilises-its-aam-roadmap>

³⁰⁹ https://www.aaminternational.com/2024/05/joby-partners-to-introduce-evtols-to-saudi-arabia/?utm_source=AAM+Weekly+eBrief&utm_campaign=0c30af758d-aam_ebrief_2024_05_22&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

³¹⁰ <https://www.eveairmobility.com/eve-air-mobility-and-saudia-technic-sign-moa-to-explore-mro-activities-and-evtol-reassembly-in-saudi-arabia/>

³¹¹ <https://www.ehang.com/news/1089.html>

³¹² https://www.ainonline.com/aviation-news/futureflight/2024-06-13/saudi-officials-seize-initiative-early-evtol-air-services?utm_campaign=AIN%20Alerts&utm_medium=email&_hsenc=p2ANqtz-8UhxMLlqMdZvHqcAFTRgJQVX7fYVagceZatCEBYd3kU8S4tS0wyPYtZ3PxOO2uQzYrc1jG_d7PtPqcozj4kNKtuAYvA&_hsmi=311669196&utm_content=311669196&utm_source=hs_email

³¹³ <https://www.urbanv.com/en/urbanv-and-icad-join-forces-to-bring-aam-in-saudi-arabia-and-beyond/>

and pioneer in Regional Air Mobility (RAM), signed a binding sales agreement for 50 Lilium Jets, with options for the purchase of 50 more.³¹⁴ GACA and Lilium, signed an MOU, at the Farnborough International Airshow in summer 2024, to develop and implement the required regulations for eVTOL operations in the Kingdom of Saudi Arabia beginning in 2026.³¹⁵

Singapore

In 2023, the Civil Aviation Authority of Singapore (CAAS) and the UK Civil Aviation Authority (CAA) stepped up collaboration in the creation of regulatory roadmaps for AAM.³¹⁶ Volocopter published *the Launch of Urban Air Mobility in Singapore – A Roadmap* to pioneer their entry into the Asia-Pacific Region.³¹⁷ Singapore-based tech startup, Heron AirBridge, began to expand its reach in the Asia-Pacific region with a UTM platform that it expects to be a key enabler of AAM services using eVTOL aircraft.³¹⁸

In 2024, Singapore Economic Development Board (EDB) and CAAS began seeking input from Hyundai subsidiary Supernal, who began developing a four-passenger eVTOL aircraft, on the framework for aircraft certification, validation, acceptance, and entry into service.³¹⁹ Global Sky signed an MOU with VoltAero for the pre-order of 15 Cassio aircraft, becoming a candidate launch customer in Southeast Asia for VoltAero's family of electric-hybrid airplanes.³²⁰

³¹⁴ <https://lilium.com/newsroom-detail/saudia-group-signs-industry-leading-sales-agreement-with-lilium-to-acquire-up-to-100-evtol-jets>

³¹⁵ <https://lilium.com/newsroom-detail/saudi-arabias-general-authority-of-civil-aviation-and-lilium-to-collaborate>

³¹⁶ <https://www.caas.gov.sg/who-we-are/newsroom/Detail/singapore-and-the-united-kingdom-to-step-up-collaboration-in-five-areas-to-prepare-aviation-sector-for-the-future>

³¹⁷ https://cdn.volocopter.com/assets/vnrac6fvfrab/DcsQRmxTSPHAcK1xmKnS4/5290e554030c7b2a093e14d1eafbe7e5/Volocopter_Whitepaper_Singapore-Roadmap_web.pdf

³¹⁸ <https://www.ainonline.com/aviation-news/futureflight/2023-08-07/uncrewed-traffic-management-pioneer-works-kick-start-advanced>

³¹⁹ https://www.ainonline.com/aviation-news/futureflight/2024-02-21/singapore-and-supernal-develop-advanced-air-mobility?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmi=295064998&_hsenc=p2ANqtz-_l9GfvKmGn6RkNiuZ_3-NPb_u8_0Fw1KPfnhnJOro7inbQGxc4ZNtdY0dj6fyfgKtCYh2GBxtQT9V4_jnR6CUA4-55uQ&utm_content=295064998&utm_source=hs_email

³²⁰ <https://www.voltaero.aero/press-releases/voltaero-global-sky-agreement-cassio-electric-hybrid-aircraft-southeast-asia/>

South Korea

In 2021, the Korean Aerospace Research Institute set up the K-UAM Grand Challenge to open the urban sky following the lead of the roadmap for UAM laid out by the government in 2020.³²¹

In 2022, flight testing for AAM was slated to take place in an open area in Goheung, South Jeolla.³²²

In 2023, Vertical Aerospace established a multi-faceted partnership with Kakao Corporation, super app provider and internet giant, to link air taxis in a mobility app.³²³ Plana, South Korea's eVTOL aircraft developer, plans to create air taxi corridors between South Korea and Japan, and signed an MOU with Osaka-based vertiport company, SkyScape Japan.³²⁴ South Korean mobility technology company, Kakao Mobility, with over 30 million registered users for its existing Mobility-as-a-Service ride-hailing, announced it was branching into a seamless air-to-ground passenger journey by ordering 50 VX4 aircraft from Vertical Aerospace.³²⁵ Eve Air Mobility and Jeju Air, South Korea's low-cost airline, announced plans for eVTOL flights on Jeju Island.³²⁶

In 2024, Incheon Metropolitan City announced a partnership with MITRE Corporation and the Institute for Aerospace Industry-Academia Collaboration (IAIAC) to outline an approach to AAM integration and release a ConOps.³²⁷ Kakao Mobility selected Archer Aviation to conduct public flight demonstrations as part of Korea's Grand Challenge.³²⁸ Skyports Infrastructure entered a partnership with Jeju Air Co, a low cost airline, to support the development of vertiports for air taxi operations.³²⁹

³²¹ <https://aam-cms.marqui.tech/uploads/aam-portal-cms/originals/c1a9254d-d379-47f8-b4dd-24ac3447866f.pdf>

³²² https://www.investkorea.org/ik-en/bbs/i-465/detail.do?ntt_sn=491813&clickArea=enmain00019

³²³ <https://dronedj.com/2023/05/23/verticals-south-korea-aam-partner-to-link-air-taxis-in-mobility-app/>

³²⁴ <https://dronedj.com/2023/03/06/plana-looks-to-create-asias-first-evtol-corridor-between-south-korea-and-japan/>

³²⁵ <https://www.businesswire.com/news/home/20230521005007/en/Vertical-Expands-Presence-in-Asia-Pacific-With-VX4-Aircraft-Pre-order-From-Leading-South-Korean-Mobility-Firm-Kakao-Mobility>

³²⁶ <https://www.eveairmobility.com/eve-air-mobility-and-jeju-air-release-concept-of-operations-for-uam-in-south-korea/>

³²⁷ <https://www.businesswire.com/news/home/20240318726245/en/Incheon-Metropolitan-City-IAIAC-and-MITRE-Unveil-Advanced-Air-Mobility-Concept-of-Operations>

³²⁸ <https://news.archer.com/archer-named-kakao-mobility-evtol-air-taxi-partner-for-korean-commercialization-efforts>

³²⁹ <https://skyports.net/skyports-partners-with-koreas-leading-domestic-carrier-on-vertiport-development/>

Thailand

In 2024, SkyDrive, a Japanese eVTOL aircraft manufacturer, signed an MOU to explore new business options for eVTOLs in Thailand.³³⁰

United Arab Emirates (UAE)

In 2018, the General Civil Aviation Authority (GCAA) released *Civil Aviation Regulations (CAR) Part IV Operational Regulations for Passenger-Carrying Autonomous UAS Experimental Operations*.³³¹

In 2020, GCAA released *CAR-UAM for Urban Air Mobility Operations*.³³²

In 2023, GCAA released *CAR-HVD Heliports (Onshore/Offshore) Vertiports (Onshore)*.³³³ VPorts, an AAM infrastructure company, inked strategic agreements to boost development of Dubai's AAM Center with Electra.aero, Falcon Aviation, and SkyDrive.³³⁴ EVFLY, an air fleet management and eVTOL operating company, and Al Shaheen Aviation Holding, a provider of air navigation services, signed an MOU to advance AAM.³³⁵ Skyports Infrastructure had its vertiport design approved for development at the World Government Summit 2023.³³⁶ Architects Foster+Partners and Skyports showed the preliminary design of Dubai vertiport, located next to Dubai International Airport (DXB).³³⁷ VPorts, an AAM infrastructure company, announced construction of the vertiports would start in 2024.³³⁸ Archer Aviation and Abu Dhabi Investment Office announced plans to launch eVTOLs across the UAE.

³³⁰ <https://verticalmag.com/press-releases/skydrive-signs-mou-to-explore-new-business-options-for-evtols-in-thailand/>

³³¹ [https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20\(CARs\)/EMERGING%20TECHNOLOGIES/ADVANCED%20AIR%20MOBILITY%20\(AAM\)/CAR-AutoUAS%20-%20PASSENGER%20CARRYING%20AUTONOMOUS%20UNMANNED%20AERIAL%20SYSTEM%20\(UAS\)%20EXPERIMENTAL%20OPERATIONS%20-%20ISSUE%2001.pdf](https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/EMERGING%20TECHNOLOGIES/ADVANCED%20AIR%20MOBILITY%20(AAM)/CAR-AutoUAS%20-%20PASSENGER%20CARRYING%20AUTONOMOUS%20UNMANNED%20AERIAL%20SYSTEM%20(UAS)%20EXPERIMENTAL%20OPERATIONS%20-%20ISSUE%2001.pdf)

³³² [https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20\(CARs\)/EMERGING%20TECHNOLOGIES/ADVANCED%20AIR%20MOBILITY%20\(AAM\)/CAR-UAM%20-%20URBAN%20AIR%20MOBILITY%20OPERATIONS%20-%20ISSUE%201.pdf](https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/EMERGING%20TECHNOLOGIES/ADVANCED%20AIR%20MOBILITY%20(AAM)/CAR-UAM%20-%20URBAN%20AIR%20MOBILITY%20OPERATIONS%20-%20ISSUE%201.pdf)

³³³ [https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20\(CARs\)/CAR%20IX%20-%20AERODROMES%20REGULATIONS/CAR-HVD%20-%20On-shore%20\(HELIPORTS-VERTIPORT\)%20AND%20Off-shore%20\(HELIDECK\)%20-%20ISSUE%2001.pdf](https://www.gcaa.gov.ae/en/epublication/EPublications/Civil%20Aviation%20Regulations%20(CARs)/CAR%20IX%20-%20AERODROMES%20REGULATIONS/CAR-HVD%20-%20On-shore%20(HELIPORTS-VERTIPORT)%20AND%20Off-shore%20(HELIDECK)%20-%20ISSUE%2001.pdf)

³³⁴ <https://vports.com/vports-inks-strategic-agreements-to-boost-development-of-dubais-advanced-air-mobility-centre-with-electra-aero-falcon-aviation-and-skydrive/>

³³⁵ <https://www.urbanairmobilitynews.com/air-taxis/evfly-and-al-shaheen-aviation-holding-partner-to-advances-uae-aam-operations/>

³³⁶ <https://verticalmag.com/press-releases/skyports-infrastructures-vertiport-design-approved-for-development-in-dubai/>

³³⁷ <https://www.urbanairmobilitynews.com/vertiports/architects-fosterpartners-and-skyports-show-preliminary-design-of-dubai-vertiport/>

³³⁸ <https://verticalmag.com/press-releases/vports-initiates-certification-process-for-its-vertiports-in-dubai/>

In 2024, Skyports, RTA, and Joby announced they would launch commercially by 2026.³³⁹ Falcon Aviation and Archer announced plans to launch Abu Dhabi-Dubai eVTOL flights as early as 2025.³⁴⁰ FlyNow, an Austrian company, recently certified by EASA, announced plans to set up a “sandbox” testing environment for the vehicles in the UAE and Saudi Arabia in 2025.³⁴¹ Dubai-based company, Aviterra signed a deal with PAL-V, to introduce the Liberty flying car, a combination of gyroplane and car, to the Middle East and Africa.³⁴²

The UAE’s first operational albeit temporary vertiport facility, unveiled in early 2024, constructed in line with the latest industry standards and regulations set by the GCAA, offers a glimpse into Abu Dhabi’s strategy to deliver one of the world’s most advanced sectors for eVTOLs by 2026.³⁴³ A multilateral agreement signed with three Abu Dhabi government departments identified support for establishing and scaling Joby’s air taxi service, and developing a full air taxi ecosystem, including training, infrastructure development, flight operations, and manufacturing.³⁴⁴ Archer signed a framework agreement in Abu Dhabi to launch air taxis by late 2025.³⁴⁵ Ras Al Khaimah Transport Authority (RAKTA) signed an MOU with Skyports to develop a network of vertiports in alignment with RAKTA’s Strategic Plan 2030.³⁴⁶ Blade Air Mobility and UAE announced their partnership to enable seamless booking of flights between Dubai and Monaco.³⁴⁷ EHang completed passenger-carrying eVTOL demonstration flights at the Emirates Falcons Aviation Club in Al Ali, Abu Dhabi.³⁴⁸ DCAA has issued certification to Air Chateau DWC, giving it clearance to develop new vertiports and heliports. The aviation consultancy said the approval will allow it to press ahead with plans that include a large-scale helicopter project in the UAE announced in October.³⁴⁹

³³⁹ <https://skyports.net/skyports-rt-a-and-joby-to-launch-air-taxi-service-in-dubai/>

³⁴⁰ https://www.ainonline.com/aviation-news/futureflight/2024-03-11/falcon-and-archer-launch-abu-dhabi-dubai-evtol-flights?utm_campaign=AIN%20Alerts&utm_medium=email&_hsmt=297739037&_hsenc=p2ANqtz-8OwY5lkZ4oq6S_Wezd-wpHrLwem_XaMjGJ7UDTbwQDxCOvKIVyhytFl4N1xMHgK_oPiV0K0LH_8h17O88tp5NHLD5jA&utm_content=297739037&utm_source=hs_email

³⁴¹ <https://gulfbusiness.com/evtol-firm-flynow-saudi-arabia-uae/>

³⁴² https://www.aaminternational.com/2024/04/dubai-based-firm-acquires-over-100-flying-cars/?utm_source=AAM+Weekly+eBrief&utm_campaign=06abf4abf8-aam_ebrief_2024_04_03&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

³⁴³ <https://www.arnnewscentre.ae/en/news/business/photos-uaes-first-operational-vertiport-unveiled-in-abu-dhabi/>

³⁴⁴ <https://www.jobyaviation.com/news/joby-partners-abu-dhabi-establish-electric-air-taxi-ecosystem/>

³⁴⁵ <https://news.archer.com/archer-signs-framework-agreement-for-multi-hundred-million-dollars-to-accelerate-commercial-air-taxi-operations-across-uae>

³⁴⁶ <https://skyports.net/skyports-and-ras-al-khaimah-to-elevate-tourism-with-electric-air-mobility/>

³⁴⁷ <https://www.globenewswire.com/news-release/2024/05/15/2882390/0/en/Blade-and-Emirates-partner-to-enable-seamless-booking-of-flights-between-Dubai-and-Monaco.html>

³⁴⁸ https://www.aaminternational.com/2024/05/ehang-completes-passenger-carrying-evtol-demonstration-flight-in-uae/?utm_source=AAM+Weekly+eBrief&utm_campaign=7491bc00d2-aam_ebrief_2024_05_15&utm_medium=email&utm_term=0_-b9b9ad5c02-%5BLIST_EMAIL_ID%5D

³⁴⁹ <https://www.ainonline.com/aviation-news/business-aviation/2024-07-25/dubai-clears-air-chateau-develop-vertiports>

It is highly likely that in the next two years, the airspace above the UAE will be buzzing with eVTOL aircraft, some crewed, others not, as the country is embracing this technology with arms wide open!³⁵⁰

Vietnam

In 2023, SkyDrive, a leading Japanese eVTOL aircraft manufacturer, received a pre-order of 100 eVTOL aircraft from CT UAV JSC, a multi-business group in Ho Chi Minh City in Vietnam.³⁵¹

³⁵⁰ <https://verticalmag.com/features/aam-in-the-uae/>

³⁵¹ <https://verticalmag.com/press-releases/skydrive-receives-pre-order-of-up-to-100-evtol-aircraft-from-ct-uav-jsc-in-vietnam/#:~:text=in%20Vietnam%20signed%20an%20MOU,operating%20in%20nine%20business%20lines.>

Ground Infrastructure for AAM

As mentioned earlier in this paper, in September 2022, the FAA released its *Engineering Brief No. 105, Vertiport Design*,³⁵² guidelines for infrastructure that would support AAM aircraft. However, the vertiport itself, is but one small piece of the ground infrastructure. Other major pieces include siting of the vertiport, design, operational considerations, electric charging stations, cybersecurity, artificial intelligence, and weather data availability.

Also, mentioned earlier in this paper, in July 2023, the FAA released the *Advanced Air Mobility (AAM) Implementation Plan* known as *Innovate28*.³⁵³ Highlights of its infrastructure portion mentions that operators, manufacturers, state and local governments, and other stakeholders would be responsible for planning, developing, and enabling heliport/vertiport infrastructure. Furthermore, AAM would initially operate at existing heliports, commercial service airports, and general aviation airports. Modifications may be necessary to install charging stations, parking zones, and taxiing space. Highlights of its environment portion mentions that the FAA would consider the environmental impacts of AAM operations, including factors such as noise, air quality, visual disturbances, and disruptions to wildlife.

All the below-mentioned ground infrastructure topics will have an impact on public perception and acceptance which will be discussed later in this paper.

Siting of the Vertiport

Location is crucial for ensuring vertiports meet the needs of the community.

Considerations include proximity to residential (privacy and safety) and commercial areas, environmental impacts (birds and other animals), access to public transportation, and noise impact on surrounding communities.

Land use could be underutilized land or existing infrastructure that could be repurposed for a vertiport. Land use could include rooftops of buildings, parking lots, or brownfields, former industrial or commercial sites where future use is affected by real or perceived environmental contamination.

Easy access by road and public transportation is essential for passengers and cargo. This includes space for the parking of one's vehicle prior to boarding the AAM aircraft.

³⁵² https://www.faa.gov/airports/engineering/engineering_briefs/engineering_brief_105_vertiport_design

³⁵³ <https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf>

The location should minimize risk to people and property on the ground in case of accidents. This includes factors like clear approach and departure paths, and airspace separation from existing air traffic. More on this later in the paper. Nearby services should include emergency services (fire stations and hospitals), restaurants, shops, hotels, and access to ride-shares, taxis, buses, light-rail, or trains. In some cases, there needs to be access to large airports, for both domestic and international flights.

Design

The size and capacity will depend on the projected volume of traffic, the type of eVTOL aircraft the vertiport will accommodate, and the available space.

Landing and takeoff pads will need to be designed to handle the weight and specific requirements of eVTOL aircraft, especially if located on building rooftops.

Passenger and cargo handling facilities should include areas for ticketing, security screening, baggage claim, and cargo handling. Ground support equipment that is required includes equipment for charging eVTOLs, firefighting, and emergency response.

Measures should be taken to reduce noise pollution for nearby communities, such as soundproofing and strategic building orientation.

Visual pollution should be considered, so that the design is visually pleasing.

Operational Considerations

Air traffic management is required. This is a system for safely managing eVTOL traffic in and around vertiports, integrating it with existing air traffic. More on this later in the paper.

Security measures must be put in place to ensure the safety of passengers, cargo, and staff, including security screening and access control.

Maintenance, repair, and overhaul, as well as support facilities must be located nearby for eVTOL maintenance and repairs.

As mentioned in the first portion of this paper, vertiport operations need to comply with all relevant federal, state, and local regulations.

Earlier in this paper, it was shared that in July 2023, the FAA released the *Advanced Air Mobility (AAM) Implementation Plan* known as *Innovate28*.³⁵⁴ Highlights of its operations portion mentions that pilots would be able to fly the new AAM aircraft to and from multiple locations at the sites, using predetermined flight schedules with pilots aboard. Furthermore, AAM aircraft likely would operate up to 4,000 feet altitude in urban and metropolitan areas, using existing or modified low altitude visual flight rules (VFR) routes where possible within controlled Class B and C airspace around major airports. Highlights of its security portion mentions that the Department of Homeland Security (DHS) would determine what type of security is necessary. Furthermore, the TSA and FAA are evaluating the need for expanded cybersecurity requirements due to the use of advanced technology and operational protocols. More on cybersecurity later in this paper.

Electric Charging Stations

A large-scale shift to electric vehicles will undoubtedly increase the overall demand for electricity. This will strain the existing grid, especially during peak hours. This could lead to brownouts, drops in the magnitude of voltage, or even blackouts, failure of the electrical power supply, if the grid is not prepared for the additional strain. Evenly distributing the charging load is important. For example, if a neighborhood has a surge of electric vehicles plugged in all night, it could overload local transformers, overheating them, and potentially causing damage.

Some solutions to the energy demands include:

- (a) Developing a system for “smart chargers” that can adjust charging rates based on grid conditions. This could mean slowing down charging during peak hours and potentially offering incentives for off-peak charging.
- (b) Investing in upgrading the existing power grid infrastructure, including transformers and transmission lines, to handle the increased demand.
- (c) Increasing reliance on renewable energy sources like solar and wind power to meet the growing electricity demand from electric vehicles. This would ensure a cleaner overall emissions profile.
- (d) Urban areas and workplaces might be ideal locations for a higher density of charging stations. This could leverage midday solar power generation and reduce reliance on the grid during peak evening hours.

Earlier in this paper, it was shared that in July 2023, the FAA released the *Advanced Air Mobility (AAM) Implementation Plan* known as *Innovate28*.³⁵⁵ Highlights of its power grid portion mentions that the electrical power grid may require upgrades to serve AAM operations. The FAA has an interagency agreement with the Department of Energy’s National Renewable Energy Laboratory (NREL) to determine how aircraft electrification would affect a vertiport, heliport, or airport’s electrical grid.

³⁵⁴ <https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf>

³⁵⁵ <https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf>

The NREL recently analyzed electrifying vertiports in a study for the FAA.³⁵⁶ Their report also offers solutions, crucial for city planners and policy makers.

In 2023, AFWERX, the innovation arm of the US Air Force, and one of its Prime division partners, BETA technologies, an electric aerospace company, broke ground on the first electric aircraft charging station on a military installation at Duke Field, Florida.³⁵⁷

Cybersecurity

Charging batteries will require a data link to be established through the cable between the eVTOL aircraft and the charging station, so that the charger can determine the battery's charge level. Since this might pose a cybersecurity risk, it will be necessary to ensure that no avionics software updates will be sent through charging cables.³⁵⁸

In 2021, NASA published *A Review on Cybersecurity Vulnerabilities for Urban Air Mobility*³⁵⁹ in which several known cybersecurity vulnerabilities and previous attacks associated with drones and aircraft core communication systems were reviewed. Also in this review, NASA provided current solutions, and a basic framework featuring a blockchain-based PKI with secondary navigation systems to allow for the development of secure airspace. Possible cybersecurity attacks on the various data links of aircraft include (1) jamming, using a device to interrupt a targeted RF signal physically; (2) spoofing, in which a nearby radio transmitter sends illegitimate information, to the receiver to trick it; (3) man-in-the-middle (MITM), or interception attacks; (4) denial of service (DOS), common with wireless connections; (5) internet connectivity, allowing users to use the internet while flying, outside of any cellular network; (6) ADS-B, which is unencrypted and unauthenticated; and (7) RFID, like the technology in credit cards.

In 2023, the National Cybersecurity Strategy was issued and translated into mode-specific requirements by the TSA.³⁶⁰

Another cybersecurity vulnerability involves the use of apps, which AAM passengers would download to their mobile device so they would be able to hail a ride. In 2024, Joby Aviation announced its software system, ElevateOS, that was developed to support on-demand commercial air taxi services, planned for 2025. This suite of software tools includes a flight-booking app for customers, as well as a planning tool for

³⁵⁶ <https://verticalmag.com/features/electrifying-vertiports/>

³⁵⁷ <https://www.af.mil/News/Article-Display/Article/3534361/duke-field-breaks-ground-on-first-electric-aircraft-charging-station/>

³⁵⁸ <https://aerospaceamerica.aiaa.org/concerns-grow-that-airport-charging-infrastructure-lags-air-taxi-designs/>

³⁵⁹ <https://ntrs.nasa.gov/api/citations/20205011115/downloads/A%20Review%20of%20Cybersecurity%20Vulnerabilities%20for%20UAM%20Final%20Draft.pdf>

³⁶⁰ <https://verticalmag.com/features/cracking-the-cybersecurity-code-for-aam/>

pilots, and an intelligent matching engine that connects available pilots, aircraft, and ground infrastructure for each journey.³⁶¹

Artificial Intelligence (AI)

No discussion on cybersecurity in AAM would be complete without touching on artificial intelligence (AI). With the birth of 5G, hyper-automation, machine learning, and analytics filtering every aspect of life, it is expected that AI will play a large role in aviation in the coming years.

Among other things, AI can be applied to enhance maintenance. In predictive maintenance, AI algorithms analyze data from sensors and onboard sources to predict when AAM vehicles will require maintenance. In maintenance inspections, AI can analyze images and data collected during inspections to swiftly identify potential issues, aiding in prompt and accurate issue resolution. In decision support, AI can process complex data, including repair costs, spare parts availability, and impact on vehicle availability, aiding decision making. Future AI-powered autonomous maintenance systems could perform certain tasks without human intervention. Robotic systems equipped with AI algorithms might conduct routine inspections, minor repairs, or component replacements. AI can also assist technicians in diagnosing problems. Applying AI to maintenance enables a proactive approach, thus increasing aircraft availability, while reducing cost and improving safety.³⁶²

In 2023, EASA published its *Artificial Intelligence Roadmap 2.0*, which outlines their vision for the safety and ethical considerations of AI in aviation. The roadmap provides a comprehensive action plan and sets the pace for conceptual guidance deliverables and anticipated rulemaking activities.³⁶³

In the US, the FAA released their Roadmap for Artificial Intelligence Safety Assurance.³⁶⁴ The primary purpose of the roadmap is to establish the guiding principles for assuring the safety of AI in aviation and to establish priorities and plans for its safe introduction into aviation. This would provide a path to assuring the safety of AI in aircraft and related systems for inflight operations. The treatment of the ethical use of AI is outside the scope of this roadmap.

³⁶¹ https://www.ainonline.com/aviation-news/futureflight/2024-06-20/joby-debuts-elevateos-software-air-taxi-operations?utm_campaign=AIN%20Alerts&utm_medium=email&hsenc=p2ANqtz-89cayeD50Ah4tuMQeZeO2IF9fkyTYogxOjeKcO-U8c6qMq87hRiJdzaUkjEm1wz3T6sZz4aCb2TKtPR4YZWOYfD4tT3Q&_hsmi=312664255&utm_content=312664255&utm_source=hs_email

³⁶² <https://cxotoday.com/specials/how-artificial-intelligence-is-transforming-urban-air-mobility-uam/>

³⁶³ <https://www.easa.europa.eu/en/domains/research-innovation/ai>

³⁶⁴ <https://www.faa.gov/media/82891>

In May 2024, the US DOT issued a Request for Information (RFI) regarding opportunities and challenges of AI in transportation.³⁶⁵ Later, in June 2024, the FAA issued an RFI calling on the artificial intelligence industry for ideas on how to use the burgeoning technology to improve aviation safety, considering the major controller shortage and growing list of airliner-involved runway incursions.³⁶⁶

Microweather Data Availability

It is a well-known fact that weather reports and forecasts are invaluable data for pilots, of crewed and uncrewed aircraft alike. Thus far, local weather data comes from Meteorological Aerodrome Reports, or Meteorological Terminal Aviation Routine Weather Reports (METARs)³⁶⁷ and Terminal Aerodrome Forecasts (TAFs),³⁶⁸ that are centered around airports, but what happens when AAM aircraft start flying around urban areas, where weather data is scarce or even unavailable?

Microweather describes immediate hyperlocal atmospheric observations within the nearest kilometer, or 0.62 miles.³⁶⁹ To help with the collection of this microweather data, weather stations are already being manufactured to be mounted on drones and/or on their ground control stations. For example, Li-Cor sells compact 3D ultrasonic anemometers and weather sensors,³⁷⁰ and Airmar Technology Corporation sells weather monitoring stations.³⁷¹ Climavision offers a nationwide supplemental network of low-altitude gap filling dual-pol weather radars, and uses comprehensive radar algorithms for weather detection, estimation, and forecasts.³⁷² These technologies could be utilized by AAM aircraft.

In 2022, NASA awarded TruWeather Solutions a USD 750,000 Phase II Small Business Innovation Research contract to test a network of ground-based weather sensors, in Hampton, Virginia. This sensor network should provide weather measurement and prediction data for both drones and AAM aircraft. This test involved gathering data from two Doppler lidars, from Metro Weather of Japan, from wind and potential cloud-height data covering about 30 to 40 square miles, and up to 6,000 feet above ground. This data was then fused with data from 30 microweather stations in

³⁶⁵ <https://www.federalregister.gov/documents/2024/05/03/2024-09645/opportunities-and-challenges-of-artificial-intelligence-ai-in-transportation-request-for-information>

³⁶⁶ https://www.avweb.com/aviation-news/faa-looking-for-ai-help-with-flight-safety/?MailingID=FLY240627013&utm_campaign=avwebflash&utm_medium=newsletter&oly_enc_id=8353H2976523A1C

³⁶⁷ <https://aviationweather.gov/data/metar/>

³⁶⁸ <https://aviationweather.gov/data/taf/>

³⁶⁹ <https://www.intellisenseinc.com/microweather-vs-microclimate-whats-the-difference/>

³⁷⁰ <https://www.licor.com/env/products/trisonica/>

³⁷¹ https://www.airmar.com/?utm_source=www.unmannedsystemstechnology.com&utm_medium=referral

³⁷² <https://climavision.com/radar-as-a-service/>

downtown Hampton, satellite data, and radar to predict where and when it would be safe to operate drones and AAM aircraft.³⁷³

In 2024, MITRE published their microweather research to aid the AAM industry. They used an atmospheric physics model managed by Aeris LLC, validated for use in aviation, and added three-dimensional building, infrastructure, and surface composition data for the cities identified for their study. They then created a hazard product, Shake and Sharp™, where ‘shake’ refers to the turbulence contribution of microweather hazards, and ‘sharp’ refers to the wind shear contribution.³⁷⁴

Additional Resources

Some additional resources are listed below.

In 2022, NASA released a paper, *Advanced Air Mobility Vertiport Considerations: A List and Overview*, which describes a variety of considerations related to AAM vertiports that need to be considered when planning.³⁷⁵

Planning for AAM,³⁷⁶ released in 2024 is a report that was funded in part by the Mineta Transportation Institute at San Jose State University through a grant from the US DOT's University Transportation Centers Program.

In 2024, UC Berkely, Institute of Transportation Studies, published *Planning for AAM*, presenting planners and policymakers with potential AAM considerations and community impacts.³⁷⁷

³⁷³ <https://aviationweek.com/aerospace/advanced-air-mobility/nasa-study-urban-weather-air-taxi-cargo-drone-operations>

³⁷⁴ <https://www.mitre.org/news-insights/impact-story/microweather-research-shines-light-advanced-air-mobility-safety-planning>

³⁷⁵ <https://ntrs.nasa.gov/api/citations/20220007100/downloads/Vertiport%20Considerations%20Paper%20Final%20v2.pdf>

³⁷⁶ <https://www.planning.org/publications/report/9286262/>

³⁷⁷ <https://tsrc.berkeley.edu/publications/planning-advanced-air-mobility>

Airspace Requirements and Air Traffic Management

Air Traffic Management (ATM) for AAM presents a unique set of challenges compared to traditional airplanes. A significant number of eVTOL aircraft will be operating at lower altitudes, as compared to traditional airplanes, creating a denser traffic environment that will need careful management. Many AAM concepts involve a high degree of automation for eVTOL vehicles. Integrating these automated systems with existing air traffic control (ATC) needs to be seamless and reliable. Vertiports will likely be in urban areas, requiring close coordination with existing ground traffic management. Potential solutions include new systems specifically designed for AAM, such as uncrewed aircraft traffic management (UTM). These UTM systems will manage eVTOL traffic flow, separation, and communication within designated airspace.

Advanced digital infrastructure will be crucial for real-time tracking, route planning, and communication between eVTOLs, UTM systems, and traditional ATC.

A reliance on automated flight management systems and on-board sense-and-avoid technology, to detect and avoid other aircraft, will be important for safe and efficient operations.

The trend in ATC is to replace analog systems with modern, digital information exchange systems supporting automation and improved decision support. Public and private collaboration programs such as Next Generation Air Transportation System (NextGen) in the US³⁷⁸ and SESAR in Europe³⁷⁹ are spearheading this modernization of ATC.

NextGen is a large-scale FAA initiative to modernize the US National Airspace System (NAS). Through NextGen, the FAA has revamped ATC infrastructure for communications, navigation, surveillance, automation, and information management to increase the safety, efficiency, capacity, predictability, flexibility, and resiliency of US aviation. NextGen's scope includes airport infrastructure improvements, new air traffic technologies and procedures, and safety and security enhancements. NextGen also helps to reduce aviation's effects on the environment. The FAA supports programs to facilitate sustainable aviation fuel uptake as well as aircraft and engines that lower fuel consumption and emissions.³⁸⁰

Info-centric NAS is the FAA's vision for the future of the US airspace, building on NextGen, and seeking to address anticipated changes in aviation, such as AAM. The FAA is basing this vision on three pillars, namely, operations, supporting infrastructure, and integrated safety management. Operations in the 2035 NAS show a collaboration among and within diverse traffic management services, enabling the increased variety

³⁷⁸ <https://www.faa.gov/nextgen>

³⁷⁹ <https://www.sesarju.eu>

³⁸⁰ <https://www.faa.gov/nextgen>

and number of new vehicles, missions, and operations, and made possible through a fully integrated information regime with interoperable sharing of information. Infrastructure increasingly leverages commercial assets, services, and new technologies in support of operations across diverse traffic management services which are ubiquitous, meaning available everywhere and always, resilient to unanticipated changes, and agile to respond to future user needs. Safety management for air traffic establishes tailored safety assurance to achieve acceptable safety based on operational characteristics. With big data, the NAS assures real-time safety through continuous monitoring, modeling, and verification to detect anomalies and correct for real-time spikes in risk. The compliance philosophy, including the use of the Safety Management System (SMS), will assure each organization accounts for interoperability across a variety of new interactions, and increased diversity of operations.³⁸¹ More on SMS later in this paper.

The SESAR 3 Joint Undertaking is an institutionalized European partnership between private and public sector partners set up to accelerate through research and innovation the delivery of the Digital European Sky. To do so, it is harnessing, developing and accelerating the take-up of the most cutting-edge technological solutions to manage conventional aircraft, drones, air taxis and vehicles flying at higher altitudes.³⁸²

Proposed by SESAR in 2017, and then developed by 2020, the Digital European Sky leverages the latest digital technologies to transform Europe's aviation infrastructure enabling it to handle the future growth and diversity of air traffic safely and efficiently, while minimizing environmental impact. This transformation centers on technologies that can increase the levels of automation, cybersecure data sharing and connectivity in ATM, and air traffic service in all types of airspace, including for very low and high-altitude operations.³⁸³

The Flight and Flow In a Collaborative Environment (FF-ICE) concept, described by the International Civil Organization (ICAO) Global Air Navigation Plan (GANP) and Global Air Traffic Management Operational Concept (Doc 9854) allows new information technologies and procedures to be incorporated in a planned manner.³⁸⁴ Datalink communications are an integral pillar in the transition to a globally interoperable "aeronautical Internet" and support of aviation IP applications for ATC, Trajectory Based Operations, airline operations, and information management leveraging Commercial-Off-The-Shelf (COTS) implementations. Modern voice communications, including digital voice, are another essential element in providing efficient management of communication channels and user operation.³⁸⁵

³⁸¹ https://www.faa.gov/about/office_org/headquarters_offices/ang/icn

³⁸² <https://www.sesarju.eu>

³⁸³ <https://www.sesarju.eu/sites/default/files/documents/digital%20european%20sky%20blueprint.pdf>

³⁸⁴ <https://www.icao.int/airnavigation/ffice/Pages/default.aspx>

³⁸⁵ <https://skymantics.com/what-we-do/industries/air-traffic-management-atm-and-advanced-air-mobility-aam/>

Training this new AAM workforce

At the time of writing, the new eVTOL aircraft are being built and test-flown, the new ground infrastructure is being planned and constructed, and the ATC requirements mentioned above will necessitate new skills and training for professionals in the AAM workforce.

CAE, the largest and most experienced pilot recruitment agency in the world, is gearing up for training the pilots of these new eVTOLs.³⁸⁶ As a technology company, they are deploying software-based simulation training, and critical operations support solutions. CAE has developed modern and innovative solutions to help address eVTOL pilot training challenges, by leveraging modern learning techniques such as competency-based training and assessment (CBTA) and adaptive learning techniques.³⁸⁷

Pilot training for eVTOLs differs from traditional training due to the unique characteristics of the aircraft, namely, the distributed electric, or hybrid-electric, or hydrogen propulsion systems, vertical takeoff and landing, and autonomous features. In addition to theoretical knowledge, there should be full flight simulator training, or a combination of different simulator levels and training in the aircraft. Pilot fatigue will be a factor as these short flights will involve multiple critical phases of takeoffs and landings per hour, in highly congested airspace, and near other vehicles and ground infrastructure.

Likewise, training for maintenance personnel will differ for eVTOLs. This too must be addressed in the coming months and years as the AAM world unfolds.

Simulators

Simulation and virtual training environments play a crucial role in training eVTOL pilots in a safe and immersive platform. They replicate a real-world virtual environment and high-risk operations for understanding aircraft behaviors in different phases of flight, practicing various flight scenarios, emergency procedures and complex maneuvers.³⁸⁸

In 2022, CAE launched the CAE 700MXR mixed reality flight simulator to prepare eVTOL pilots for the dynamic and evolving demands of the industry. Mixed reality is a technology that combines physical reality and digital environments to enable

³⁸⁶ <https://www.cae.com/civil-aviation/evtol-air-mobility-pilot-training/>

³⁸⁷ <https://www.aviationtoday.com/2024/05/30/educating-pilots-on-evtol-air-mobility-and-this-new-generation-of-air-taxis/>

³⁸⁸ <https://www.aviationtoday.com/2024/05/30/educating-pilots-on-evtol-air-mobility-and-this-new-generation-of-air-taxis/>

interactions with the real-world amongst virtual objects.³⁸⁹ Also in 2022, CAE agreed to build immersive eVTOL training simulators for Joby.³⁹⁰ In 2024, Joby announced that it was planning to help its pilot candidates build flying hours through its part 141 pilot school certificate, as well as its Level C full-flight simulator, developed by CAE, and qualified by the FAA under part 60. In addition to the flight simulator training, this six-week type rating course would include training materials and manuals, flights in Joby's actual eVTOL aircraft, competency checks, a final checkride in the simulator, followed by initial operating experience in the market prior to carrying passengers.³⁹¹

Meanwhile in 2024, in the UAE, Archer announced a partnership with Abu Dhabi-based Etihad Aviation Training to recruit and train pilots for its eVTOL Midnight after they deliver a Midnight simulator to Etihad for research and development of pilot training competencies and to support the required regulatory certifications.³⁹²

Safety Management System (SMS) programs

The FAA has mandated the use of a Safety Management System (SMS) by all charter, commuter, and air tour operators by 2027. This includes eVTOL companies that plan to fly Part 135 commuter and on-demand operations.³⁹³

SMS is a formal, top-down, organization-wide approach to managing safety risk and ensuring the effectiveness of safety risk controls. SMS is made up of four components:

- (1) Safety Policy – The certificate holder's documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees regarding safety.
- (2) Safety Risk Management – A process within the SMS composed of describing the system, identifying the hazards, and analyzing, assessing, and controlling safety risk.
- (3) Safety Assurance – Processes within the SMS that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through collecting, analyzing, and assessing information.
- (4) Safety Promotion – A combination of training and communicating safety information to support an organization's safety performance and safety culture.³⁹⁴

³⁸⁹ <https://www.cae.com/news-events/press-releases/cae-launches-new-mixed-reality-flight-simulator-for-evtol-market/>

³⁹⁰ <https://www.flyingmag.com/modern/uber-like-software-suite-a-key-part-of-joby-air-taxi-flight-plan/>

³⁹¹ <https://verticalmag.com/news/joby-shares-evtol-air-taxi-rollout-plans/>

³⁹² <https://verticalmag.com/features/aam-in-the-uae/>

³⁹³ <https://www.faa.gov/faq-aviation-safety-outreach/safety-management-system>

³⁹⁴ https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1042733

In 2022, Wisk, eVTOL aircraft developer, joined the SMS program, implementing it across the entire company.³⁹⁵

In 2023, Joby's SMS was approved by the FAA, and is being implemented across all operations, from manufacturing to training to MRO.³⁹⁶

³⁹⁵ <https://verticalmag.com/features/why-evtol-firms-should-start-now-with-sms/>

³⁹⁶ <https://www.flyingmag.com/modern/uber-like-software-suite-a-key-part-of-joby-air-taxi-flight-plan/>

Public Perceptions and Education Campaigns

Community and social impact will be discussed next, as this paper draws to a close. Noise pollution from eVTOL operations is a major concern. Vertiport design and operation need to minimize noise impact on nearby communities. Vertiports should be designed to be visually compatible with the surrounding area.

Vertiports should be accessible to all members of the community, regardless of income or disability. AAM planning and implementation, from the ground up, should consider social equity. It is imperative that this planning includes broad access to air services, employment opportunities, and economic development. Social equity concerns the immediate vicinity, affordability, and accessibility to AAM.

Local communities should be involved in the planning process for vertiports to ensure they meet their needs.

Earlier in this paper, it was shared that in July 2023, the FAA released the *Advanced Air Mobility (AAM) Implementation Plan* known as *Innovate28*.³⁹⁷ Highlights of its community engagement portion mentions that the FAA would engage with airports, and local, state, and tribal communities to better understand community concerns about AAM operations, including noise and mitigations. Furthermore, many other stakeholders, such as AAM operators and airport and vertiport operators would have important roles in community engagement.

In 2019, Airbus released a study on the public perception of UAM. They found that safety, the type of sound generated from the aircraft, the volume of sound, the time-of-day aircraft would be flown, altitude, landing site, inequity, visual pollution, and privacy were areas of concern. Nevertheless, about 44% of respondents showed support for this new technology.³⁹⁸

In 2021, EASA published the results of its first European Union (EU) study on citizens' acceptance of UAM. The majority of those questioned broadly welcomed the prospect of services such as air taxis, air ambulances, and drone deliveries, even though they had concerns about potential issues such as safety, security, noise, and the impact on wildlife.³⁹⁹

In 2023, another study entitled, *Public Perception of Advanced Aviation Technologies: A review and roadmap to acceptance*, reported that support for air taxis sat at around 50%.⁴⁰⁰

³⁹⁷ <https://www.faa.gov/sites/faa.gov/files/AAM-I28-Implementation-Plan.pdf>

³⁹⁸ <https://www.airbus.com/sites/g/files/jlcbta136/files/2022-07/Airbus-UTM-public-perception-study%20-urban-air-mobility.pdf>

³⁹⁹ <https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-publishes-results-first-eu-study-citizens-acceptance-urban>

⁴⁰⁰ <https://www.sciencedirect.com/science/article/abs/pii/S0376042123000155>

In 2024, Airbus conducted another study, *Building Public Trust in AAM*, that helped shed light on public acceptance of AAM. Safety again emerged as the primary concern, with 56% of respondents stressing that aircraft safety was vital. Noise-related issues, including the type (49%) and volume (49%) of sound generated also ranked high among concerns. The overall acceptance was reported as 41%.⁴⁰¹

In 2022, NASA, under its AAM National Campaign, announced that it had signed agreements with four organizations to exchange information related to the development and testing of vehicles, systems, and technology. The four organizations were Electra Aero, OverAir, Supernal, and Ellis & Associates.⁴⁰²

NASA, as part of its STEM Gateway, also offers internships under its AAM National Campaign where the intern would work with the airspace team on building up an ecosystem to enable UAM through a series of flight demonstrations and simulations.⁴⁰³

As mentioned earlier in this paper, in 2023, AUVSI launched an AAM advocacy initiative and educational campaign for legislators, named AAM Prepared. The intent is to bring together industry stakeholders to educate state, tribal, and local lawmakers in the US to influence legislative decisions.⁴⁰⁴

In 2023, RTCA, a standards development organization, launched a series of workshops and webinars for industry and government participants to address the framework and system requirements of AAM needed to support future aviation flight operations.⁴⁰⁵

Additional Resources

The Advanced Air Mobility Institute is an international non-profit research center dedicated to educating and advocating for the broadest public benefit through the AAM ecosystem globally.⁴⁰⁶ In 2023, the Institute formed a strategic partnership with the Gilmore Group, an industrial design and branding firm, to develop awareness campaigns to build support and future acceptance of AAM.⁴⁰⁷

⁴⁰¹ <https://vertxpartners.org/building-public-trust-in-aam/>

⁴⁰² <https://www.nasa.gov/centers-and-facilities/armstrong/nasas-advanced-air-mobility-national-campaign-adds-new-partners/>

⁴⁰³ <https://stemgateway.nasa.gov/public/s/course-offering/a0Bt000004LLBbEAM/onsitevirtual-advanced-air-mobility-national-campaign>

⁴⁰⁴ <https://www.auvsi.org/aam-prepared>

⁴⁰⁵ <https://www.rtca.org>

⁴⁰⁶ <https://aaminstitute.org>

⁴⁰⁷ <https://evtolinsights.com/2023/08/the-importance-of-aam-acceptance-and-awareness/>

The National Business Aviation Association (NBAA) is addressing AAM and SMS in its Emerging Technologies Committee together with NASA.⁴⁰⁸

The US DOT has an AAM Interagency Working Group with a webpage dedicated to their efforts, including meetings and reports to Congress.⁴⁰⁹

In June 2024, NASA announced its air taxi passenger comfort studies, using a new custom virtual reality flight simulator they built to explore how passengers would react to air taxi rides. The data could help designers of new eVTOL aircraft. Passengers wear a virtual reality headset and headphones. The simulated ride starts with a takeoff from a conceptual vertiport on top of a parking garage in downtown San Francisco, then lands at another vertiport on top of a skyscraper.⁴¹⁰

⁴⁰⁸ <https://nbaa.org/aircraft-operations/emerging-technologies/advanced-air-mobility-aam/>

⁴⁰⁹ <https://www.transportation.gov/aamiwg>

⁴¹⁰ <https://www.nasa.gov/centers-and-facilities/armstrong/nasa-prepares-for-air-taxi-passenger-comfort-studies/>

Conclusion

The path forward for this exciting burgeoning industry involves garnering public trust and acceptance. Community concerns should be addressed. Industry should partner with academia and begin comprehensive education efforts. This is underway at Embry-Riddle Aeronautical University (ERAU) in both Prescott and Daytona campuses. The author of this paper teaches one such course as part of an undergraduate degree in Applied Aviation Science. Industry should also showcase real-world applications, providing hands-on experiences, in air taxis, cargo delivery, and air ambulance, to name a few useful applications.

This paper, while quite comprehensive, did not cover everything going on in the world. As mentioned earlier on, the author also has penned, among other legal textbooks, an eBook, *Drones Across the World*,⁴¹¹ free of charge thanks to ERAU's Open Education Resources. This eBook is updated almost weekly. You are encouraged to stay up to date on all things drone and AAM, with the help of that, much like the universe, ever-expanding eBook.

⁴¹¹ <https://eaglepubs.erau.edu/dronesacrosstheworld/>