INTEGRATING ADVANCED AIR MOBILITY INTO COMMUNITIES

Advancing Urban Air Mobility
Northwestern University Transportation Center
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Supporting the responsible integration of the third dimension into our daily transportation needs through education, communication, and collaboration.

CAMI is a 501(c)(3) nonprofit organization dedicated to the responsible integration of advanced air mobility into communities by providing education, communication, and collaboration.

CAMI understands the importance of connecting communities and industry by working with all stakeholders to develop advanced air mobility that integrates with existing and future urban and regional transportation systems.

CAMI educates and equips state and local decision makers, planners, and the public with the information they need to set policies and design infrastructure and systems to successfully integrate aviation into daily transportation options.

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Definition of Advanced Air Mobility

AAM is a broad concept focusing on emerging aviation markets and use cases for on-demand and scheduled aviation in urban, suburban, and rural communities. AAM includes local use cases of about a 50-mile radius in rural or urban areas and intraregional use cases of up to a few hundred miles that occur within or between urban and rural areas.

Urban Air Mobility: History, Ecosystem, Market Potential, and Challenges
https://escholarship.org/uc/item/8nh0s83q
Marchetti’s Constant

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AAM: Technology Push vs Market Demand Pull

Technology Push:
- Research & Development
- Production
- Marketing
- Need?

Market Pull:
- Research & Development
- Production
- Marketing
- Expressed Market Need
Understanding Community Integration: The Convergence of Two Historically Distinct Disciplines

Local Communities
- City councils, mayors, city managers
- Urban planners, transportation engineers
- Public transit
- Residents and businesses
- Disadvantaged communities
- Others

Aviation
- Federal government
- Port authorities
- Air carriers
- Manufacturers and suppliers
- Tenants and employees
- Communities impacted by operations
- Others

AAM/UAM and UAS Community Integration
Built Environment

CITY CENTER
High-density downtown/CBD employment centers and surrounding neighborhoods

SUBURBAN
Predominantly lower-density residential users with some segregated mixed uses

EDGE CITY
Medium-density employment centers outside of the urban core

EXURBAN
Very low-density residential uses on the urban fringe

RURAL
Typically unincorporated
Emergency Services

- Disaster response
- Aeromedical
- Firefighting
- Law enforcement
Air Taxi

- On demand, point-to-point
- App-based like transportation network companies / ride hailing services.
Air Metro

- Fly a specified route on a specified frequency but without exact scheduled times
- Potential strategy to serve transportation deserts
Microhaul Airline Operations

- Scheduled air carrier flights with set routes and times
- Potential to serve regional air mobility, and for hub airport access.
- Potential to increase utility of smaller nearby airports and distribute passengers

Image: Cape Air New England Route Map
Potential Impacts of AAM

- Connect affordable housing with jobs and services
- Reduced emergency response times
- Stronger connection of rural areas to urban opportunities
- Workforce development and economic opportunities
- Increased utility of GA airport infrastructure

- Noise and visual pollution
- Increased demands on local grid capacity
- Negative impacts on existing public transit
- Sprawl and gentrification
- Competition for funding for other critical infrastructure

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Integration with mobility on demand (MOD), mobility as a service (MaaS), and public transportation is key.

Physical integration provides places where people can make seamless connections between travel modes (e.g., AAM, on-demand mobility, shared AVs, public transportation).

Co-locating multiple modes could support development of mobility areas and create a network effect that can multiply effectiveness of AAM, on-demand mobility, and shared AVs.
Public Acceptance is Multifaceted

**Trust**
- Safe Vehicles
- Safe Infrastructure
- Secure Operations

**Public Benefit**
- Emergency Services
- Increased travel options
- Economic opportunities

**Limited Adverse Impacts**
- Noise and visual impact
- Emissions and environment
- Privacy

**Integration**
- Existing transit & roads
- Grid capacity
- Social Equity

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Systems Master Planning for Advanced Air Mobility

A comprehensive process which includes internal assessment, community engagement, resources and data collection, and development of an implementation plan. Considerations include:

- Integration into multi-modal transportation systems
- Incorporating local priorities and policies
- Addressing sustainability – environment, economy, equity
- Business models and forecasting
- Infrastructure mapping
- Airspace management and route design
- Grid capacity and power strategies
- Funding and timelines
Concluding Thoughts

• Research and policy are needed to guide equitable and sustainable AAM outcomes

• Planning and policy are needed mitigate adverse impacts and maximize potential benefits

• Key focus areas:
  • Multimodal integration
  • Land use
  • Environmental impacts
  • Social equity

• Research, demonstrations, and evaluations can:
  • Assist local and regional governments develop the ability to integrate AAM with existing transportation services
  • Understand the impacts, equity, and community concerns with AAM
  • Validate the technical and institutional feasibility of AAM deployments
CAMI’s Online Resources

CAMI Notes:
- What is Urban Air Mobility?
- Community Benefits of Urban Air Mobility
- eVTOL Aircraft: What they are & why they matter
- Urban Air Mobility Operations Overview
- Legal Considerations for Urban Air Mobility
  Part 1: Aviation Law
- Components of Public Acceptance for AAM & UAM

Videos
- UAM 101
- American Planning Association: Advanced Air Mobility
- AAM 101

Guidebooks (coming soon)
- Why We Need Advanced Air Mobility for our Cities: A Planner’s Guide to Advanced Air Mobility
- Incorporating Advanced Air Mobility into Regional and GA Airports
- Foundational Information for Advanced Air Mobility

https://www.communityairmobility.org/resources

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APA PAS Report on Planning for Advanced Air Mobility

Goals of the Report:

- Provide planners with an overview of advanced air mobility and how it may impact communities and planning practice
- Discuss the potential impacts and challenges of advanced air mobility
- Explain considerations for integrating advanced air mobility with other transportation modes
- Explain how advanced air mobility can impact social equity and potential strategies for enhancing it and mitigating adverse impacts on underserved populations
- Explain how advanced air mobility can be integrated into planning practice

PAS Reports

The mission of the Urban Air Policy Collaborative is to develop a policy framework for the local implementation of advanced air mobility through the sharing of knowledge, discussion of issues, development of recommendations, and collaboration with peers through an ongoing program of workshops, presentations and conversations.

The UAPC has two programs – the Cohort and the Forum
Kickoff Meeting


Module 3: Social Equity and Integrating AAM into the Transportation Ecosystem: Multimodal Integration, Equity, Community Engagement

Module 4: AAM Modeling and Forecasting: Regional and Local Modeling and Simulation, Market and Economic Forecasting

Module 5: Community and Environmental Impacts Part: Noise, Visual Pollution, Routes


Module 7: Planning for AAM Part 2: AAM at Existing Airports, Digital Policy, Utilities and Energy

Module 8: Roles and Responsibilities, Next Steps, and Wrap Up
Supporting the responsible integration of the third dimension into our daily transportation needs through education and advocacy.

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