



INTEGRATING ADVANCED AIR MOBILITY INTO COMMUNITIES

Advancing Urban Air Mobility

Northwestern University Transportation Center

November 17, 2021



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.



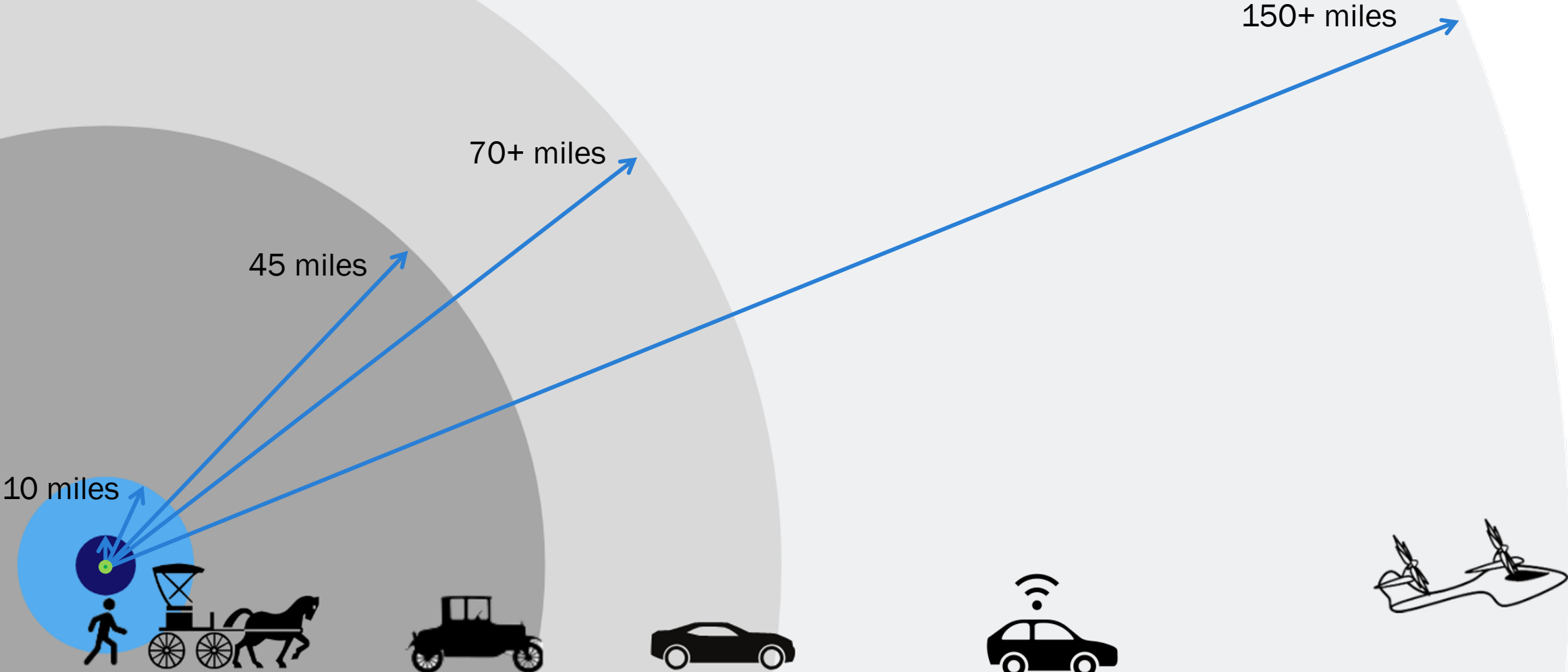
Definition of Advanced Air Mobility

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.

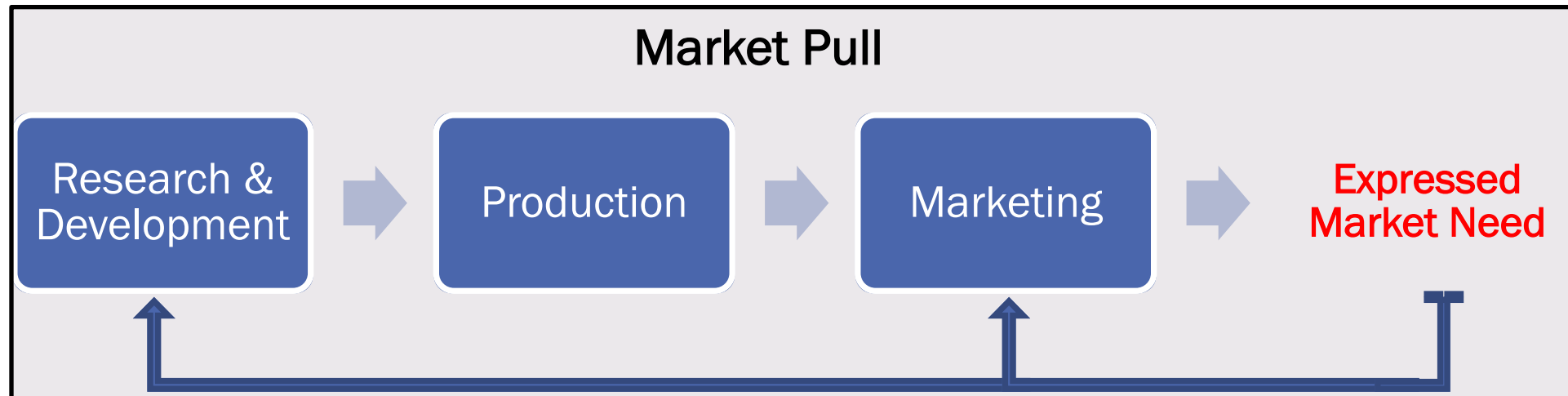
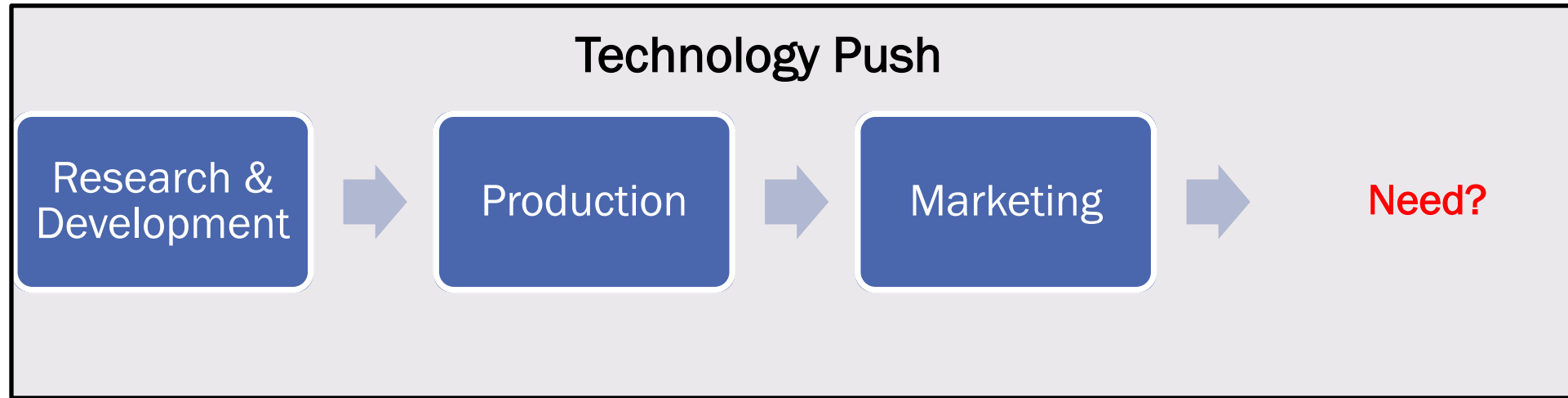
Urban Air Mobility: History, Ecosystem, Market Potential, and Challenges

<https://escholarship.org/uc/item/8nh0s83q>

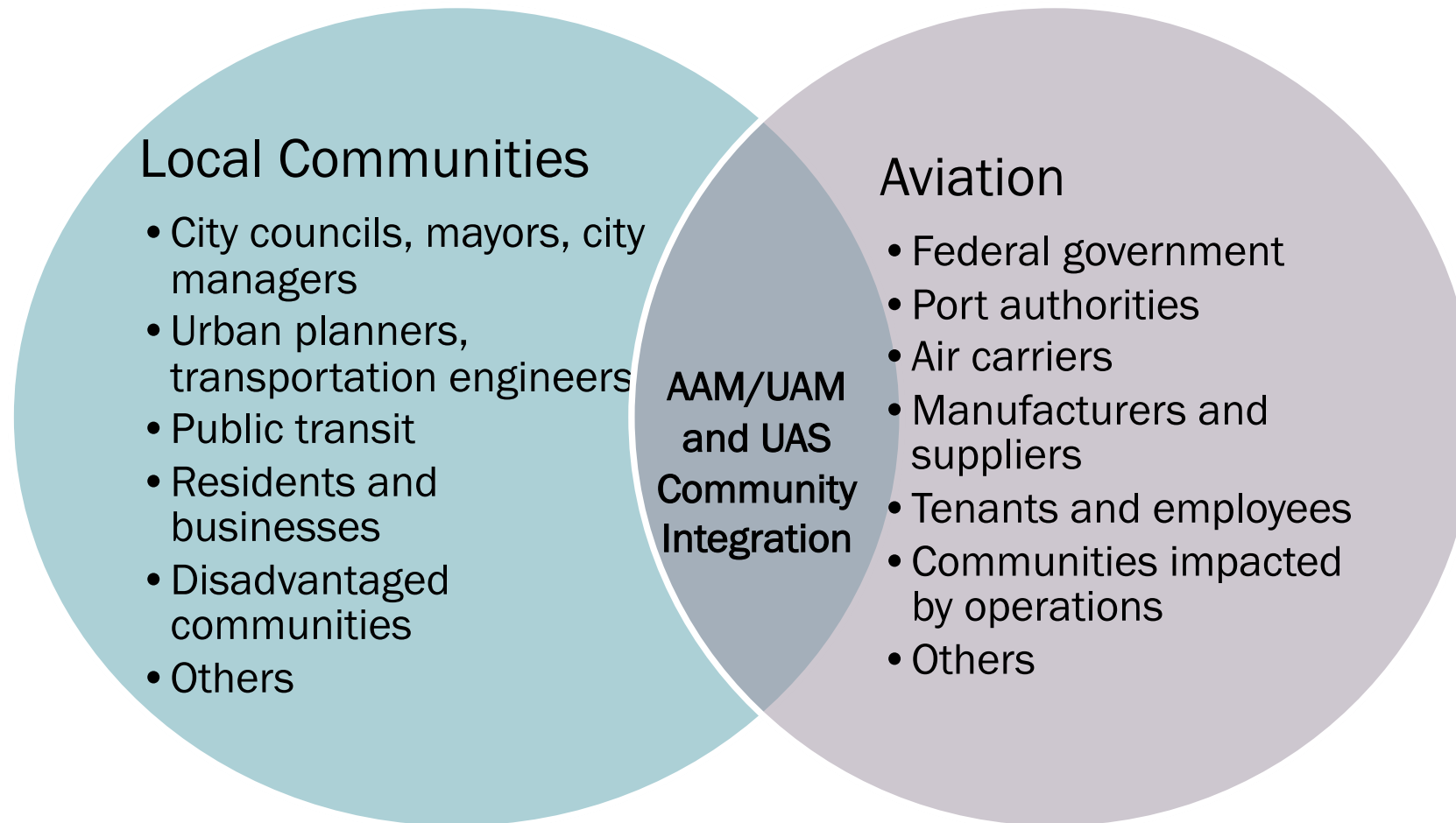
Marchetti's Constant



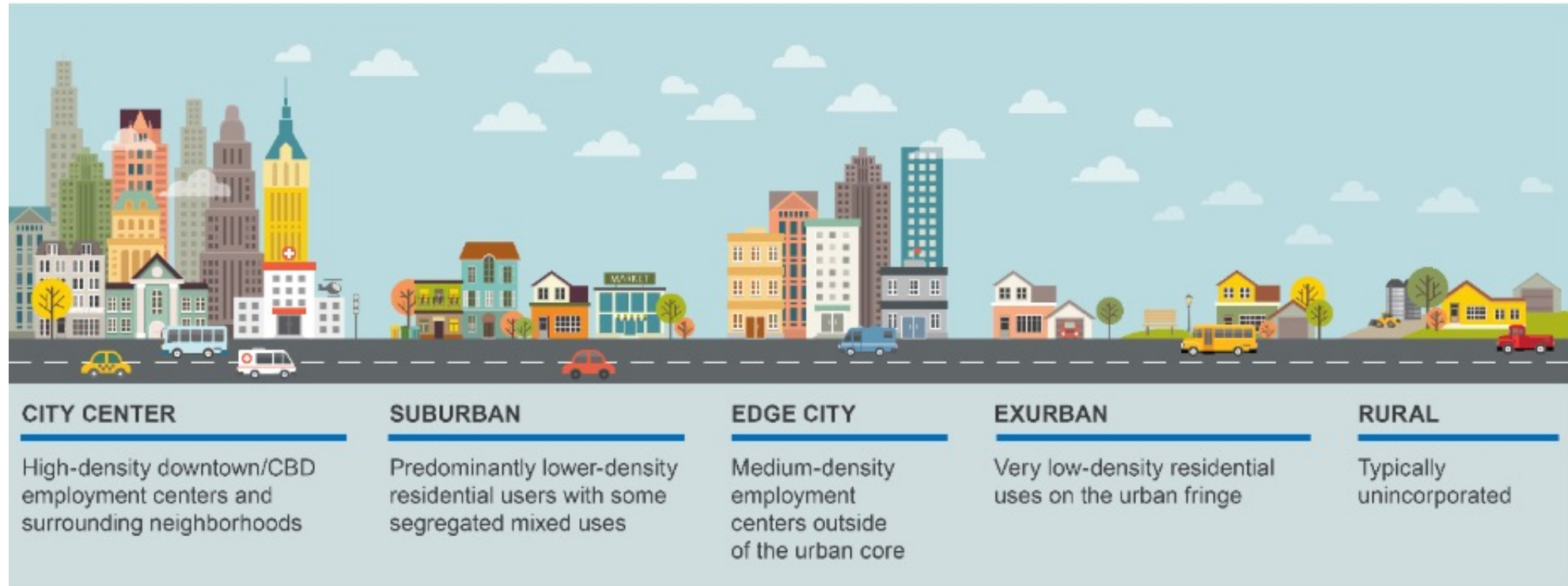
AAM: Technology Push vs Market Demand Pull



Understanding Community Integration: The Convergence of Two Historically Distinct Disciplines



Built Environment



Emergency Services

- Disaster response
- Aeromedical
- Firefighting
- Law enforcement



Image: Creative Commons Piqsels



Image: Zipline

Air Taxi

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



Image: NASA

Air Metro

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

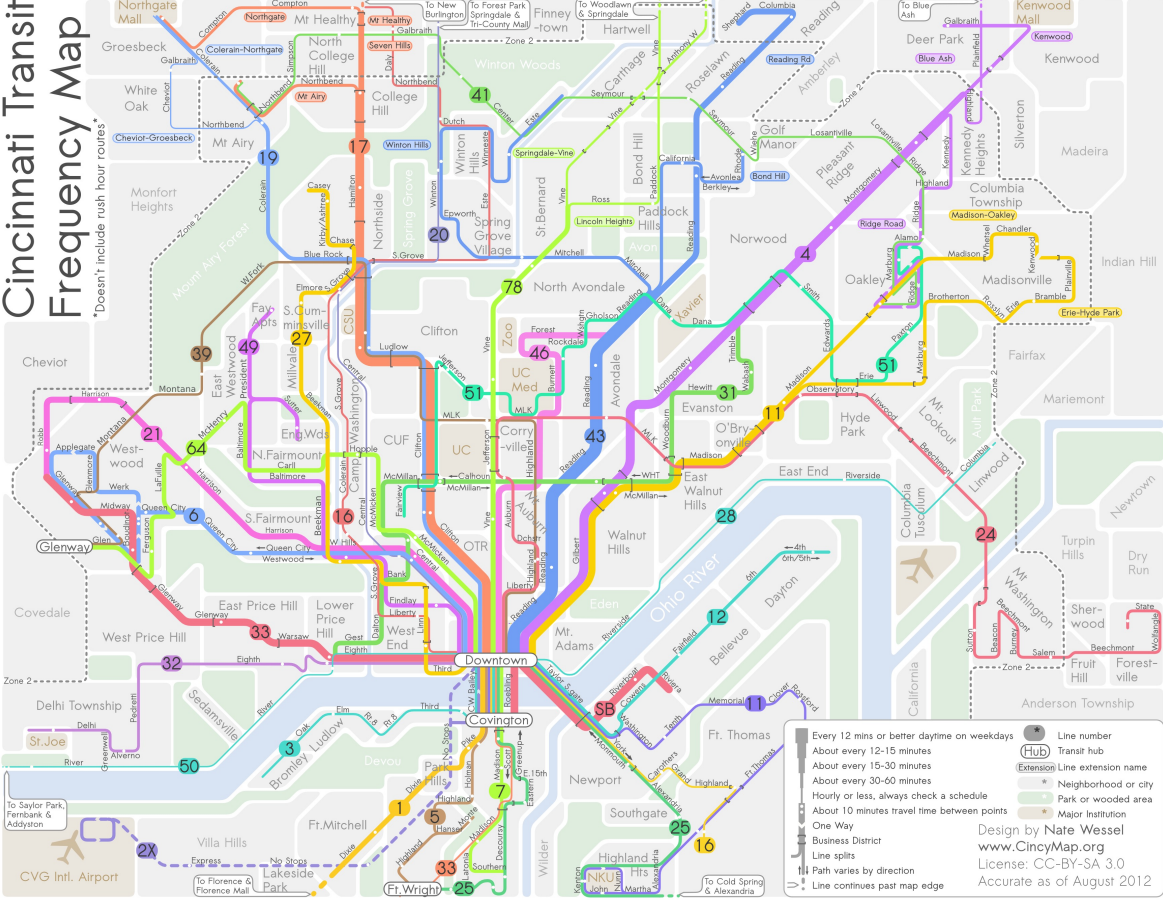


Image: Cincinnati Bus Diagram from 2011

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

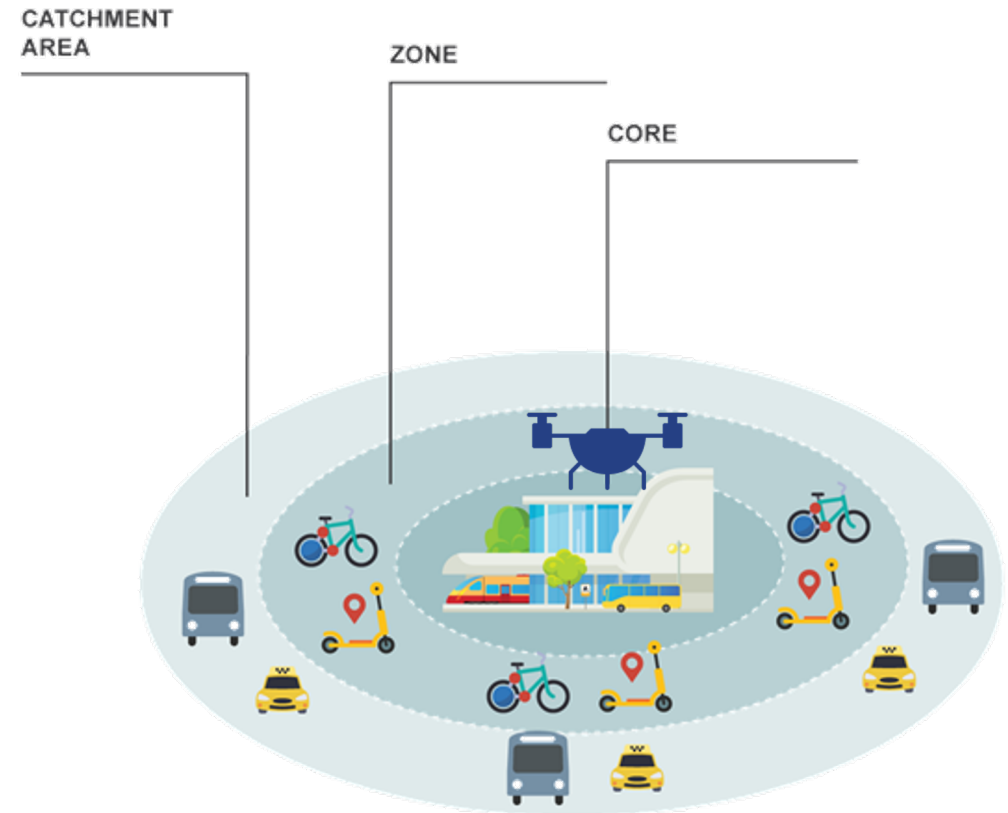
Multimodal Integration

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

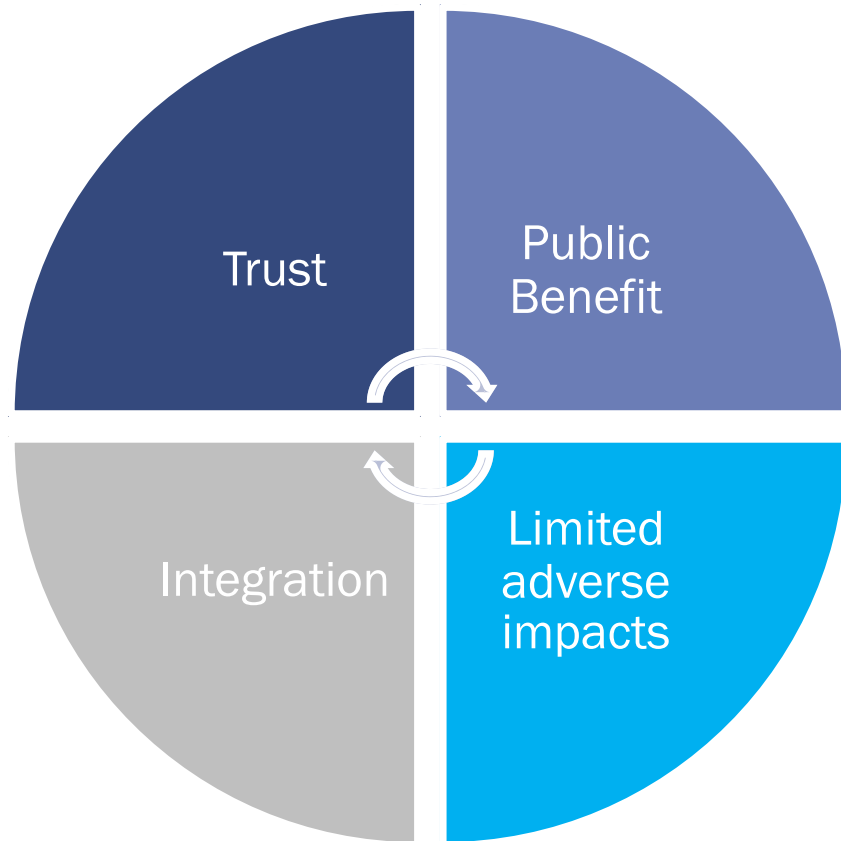
Physical integration provides places where people can make seamless connections between travel modes (e.g., AAM, on-demand mobility, shared AVs, public transportation)

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

MOBILITY AREAS



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

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

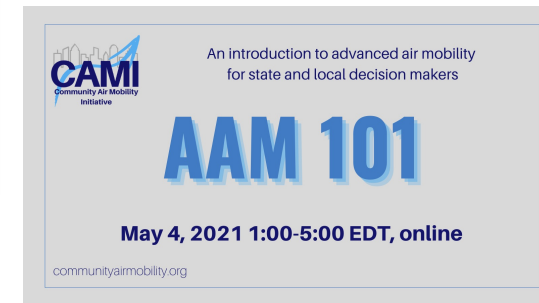
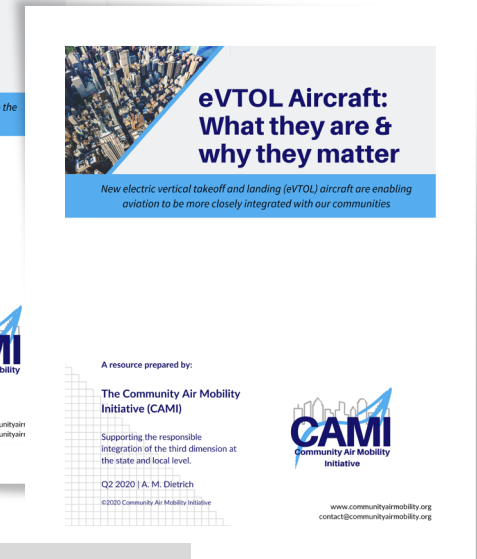
Videos

- 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>



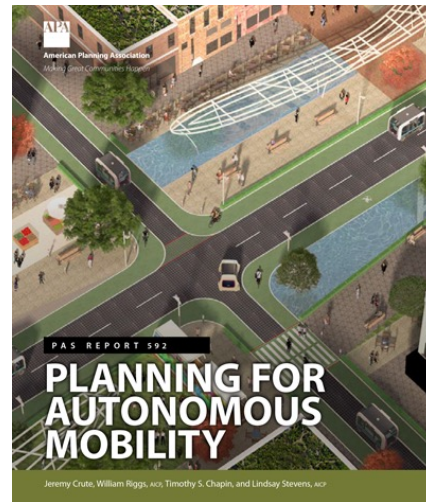


UNIVERSITY OF CALIFORNIA *Berkeley*
Transportation Sustainability
RESEARCH CENTER

APA PAS Report on Planning for Advanced Air Mobility

PAS Reports

APA's Planning Advisory Service published its first Information Report in 1949. Each PAS Report provides authoritative guidance on current issues and innovative practices in the field of planning.



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

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 1: AAM Fundamentals Part 1: Aircraft, Air Traffic Management, and the Existing Regulatory Environment

Module 2: AAM Fundamentals Part 2: AAM Operations - Use Cases, Operational Zones, Safety, and Security

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 6: Planning for AAM Part 1: Developing an AAM Plan and Policy Framework, Vertiport Locations, Vertiport Ownership Considerations

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



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www.communityairmobility.org