



Caltrans Division of Research,
Innovation and System Information

Research

Notes

Modal

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Project Title:
Transit Research

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Advanced Air Mobility Digitization

Develop a safe and efficient aviation transportation system that will use highly automated, low noise, and low polluting/zero emission aircraft to transport passengers or cargo at lower altitudes within urban, suburban, or rural environments.

WHAT IS THE NEED?

In recent years, technological, economic, environmental, and social forces have contributed to the growth of innovative and disruptive transportation technologies. As an emerging concept, Advanced Air Mobility (AAM) may pose many risks, e.g., to the safety of AAM users, other airspace users, and people on the ground. It could provide opportunities for passenger mobility, goods delivery, and emergency response use cases. Most AAM trips will be multi-modal and therefore benefit other regional transportation services. AAM can also create noise, air, and visual pollution, greenhouse gas emissions, and load the regional energy grid.

AAM will impact the airspace, existing transportation modes and networks, and underlying communities. California Department of Transportation (Caltrans) should initiate planning activities and research to better understand, anticipate, and plan for AAM integration as a new mode of transportation.

WHAT ARE WE DOING?

The research will seek software tools for AAM airspace digitization, then the application of the software tools over a selected geographical region to build a digital AAM Corridor/Airspace mode. Next, the research team will test the model with AAM simulations.

The simulations will be used to assess safety, equity, and environmental impacts on the airspace, transportation corridors, and surrounding community. Finally, documentation of the findings and guidelines for state and local agencies to assist with AAM integration will be made available.



DRISI provides solutions and
knowledge that improves
California's transportation system

This research is a joint effort from UC Berkeley, UC Davis, and UC Merced. UC Davis and Merced operate airports and the Center for Information Technology Research in the Interest of Society (CITRIS) Aerospace Initiative is exploring an AAM Corridor between Davis and Merced.

UC Berkeley is developing a new campus with the NASA Ames Center at Moffet Field and is exploring an AAM Corridor from its Richmond Field Station which is vertiport capable, and Moffet Field. This being a simulation study, the specific corridor of study can be chosen to be anywhere in California. The researchers propose to build the AAM Corridor Digitization tools and choose the actual study corridor in consultation with Caltrans.

WHAT IS OUR GOAL?

A simulation and feasibility study for AAM operations in a specific urban environment over a state highway route or network.

WHAT IS THE BENEFIT?

The research results will be used by Caltrans' Division of Aeronautics in developing simulation and modeling to be applied to the proposed siting and development of vertiports and airspace corridors. Understanding this modeling will help Aeronautics' efforts in bringing together state, federal, local governing bodies, industry, the community, and other stakeholders. This will help to plan, design, and execute methodology that promotes and regulates AAM to ensure transportation safety, utility, airspace optimization, efficiency, and equity and environmental justice.

The data, information, analysis, and models that will be used to prepare the AAM Corridors Plan will also serve to guide the development of AAM system integration into the national airspace system, as well as the development of laws, regulations, procedures, and best practices to shape this new technology in transportation. It will serve the state and Caltrans in particular to lead, as in 1949 with the establishment of state regulatory authority over airports, to take up the leadership mantle to safely and effectively integrate this new technology to benefit all California communities.

WHAT IS THE PROGRESS TO DATE?

Project will start in 2022.