

DIVISION OF RESEARCH, INNOVATION & SYSTEM INFORMATION

Research Initial Scope of Work SUBMITTAL FORM - FY 2021/22

I. Project Number: P1589
Project Title: Advanced Air Mobility Air Digitization

II. Task Number: 3923
Task Title: Digitizing corridor airspace for Unmanned Aircraft Systems/Advanced Air Mobility

III. Project Problem Statement:

The vision behind Advanced Air Mobility (AAM) is for 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. AAM, which expands the concept of Urban Air Mobility (UAM), encompasses transportation network companies, private vehicles, cargo, public services, and inter-city operations. AAM is now possible due to technological advancements over the last decade in several sectors including airframes, avionics, battery design, and digital communication. While AAM platforms have advanced beyond concept and into actual production, there are many safety, logistical, and regulatory hurdles to scaling AAM into a viable transportation mode and integrating it into the National Airspace System.

IV. Objective:

The objective of the project is to research, develop and implement an guidelines and best practices for the State and local agencies in the understanding, development, and approval of airspace corridors and their impacts on the community in terms of safety, equity, and environmental impacts. The outcome includes identifying and defining the critical roles and responsibilities of stakeholders involved in the implementation of AAM,

V. Task Description of Work and Expected Deliverables:

Prepare a digital airspace corridor project that involves 3D digitization along a key transportation corridor and an existing airport airspace. Research will include:

1. Identifying the proper software tools that can be employed for airspace digitization. Partner with software provider or airspace digitization provider as needed.
2. Leveraging existing AAM literature, feasibility studies, and white papers.
3. Developing the airspace model over a selected geographical region
4. Testing the model with AAM simulations

5. Evaluating impacts including transportation corridor, airspace, and surrounding community through the lens of safety, equity, and the environment.
6. Documenting findings and producing guidelines, best practices, and tools for State and local agencies to assist with AAM integration

The goal of this research is a simulation and feasibility study for AAM operations in a specific urban environment over a state highway route or network.

VI. Background:

Caltrans is preparing for advanced air mobility taking flight. One of the key factors is understanding infrastructure and the technology and physical assets necessary to enable the scaled adoption of piloted and fully autonomous electric and hybrid electric vertical takeoff and landing aircraft for either people or cargo transportation.

VII. Estimate of Duration:

24 months

VIII. Related Research:

IX. Deployment Potential:

The deployment potential for this research is high.

Once this model and study is completed it can serve to inform Caltrans and local agency planners on the issues, challenges, and opportunities around AAM deployment in California regions.

X. Author: Nathan Loeb

Date: May 20, 2021

Research Initial Scope of Work Guidelines

FY 2021/22

INTRODUCTION:

The Project Manager/Task Manager (PM/TM) who decides to advertise their FY21/22 **approved** task(s) should follow the guidelines below. The completed Initial Scope of Work Submittal Form and any back-up documents should be forwarded to Stephanie Davis **on or before May 21, 2021**.

GUIDANCE ON INITIAL SCOPE OF WORK SECTIONS:

- I. **Project Number and Title:** (Limit titles to *no more than 60 characters*.)
- II. **Task Number and Title:** (Limit titles to *no more than 60 characters*.)
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- III. **Project Problem Statement:** (Describe the project problem statement.)
- IV. **Objective:** (Describe the overall task objective(s).)
- V. **Task Description of Work and Expected Deliverables:** (Optional section for the PM/TM to provide specifics about work requested in the proposal.)
- VI. **Background:** (A brief background statement or description of how the task relates to the project, and to departmental operations.)
- VII. **Estimate of Duration:** (Duration estimate for *this task*. Please align the schedule with the RPMD.)
- VIII. **Related Research:** (Results of PM/TM's literature review and/or Preliminary Investigation for new projects, or research results from previous tasks in this project. Also include additional research results/data and relevant literature.)
- IX. **Deployment Potential:** (Is this an incremental part of a larger research project? What stage of research is this project in now? What might be the eventual deployable product? What division/office/entity is the identified sponsor?)
- X: **Author and Date:** (Self-Explanatory)