Investigating & Guiding Outcomes for Advanced Air Mobility (AAM)

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Advanced Air Mobility (AAM)

AAM is a new concept of air transportation using electric vertical takeoff and landing (eVTOL) aircraft to move people and cargo between places not currently or easily served by surface transportation or existing aviation modes. EVTOL aircraft may be powered by hybrid electric systems, batteries or potentially hydrogen fuel cells. (National Business Aviation Association)

Framing our Thoughts

- Three Points of Consideration
  - Convergence
  - Revolution
  - Policy/Ethics

AAM Aircrafts have arrived! (Photo by Joby Aviation)

Terms & Acronyms

UAM

URBAN AIR MOBILITY

RAM

REGIONAL AIR MOBILITY

UAS

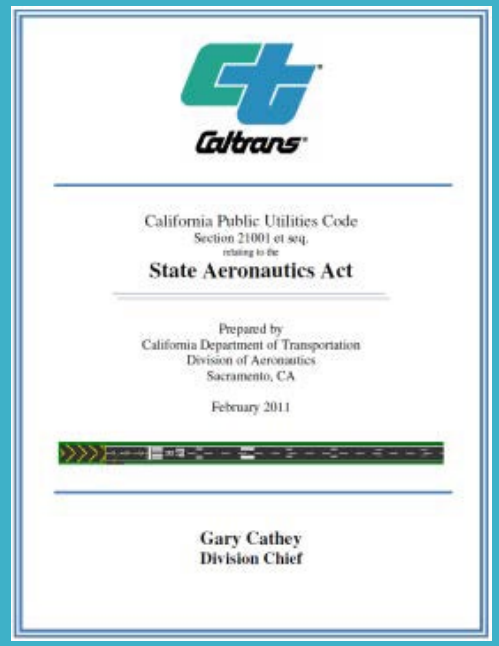
UNCREWED AIRCRAFT SYSTEM

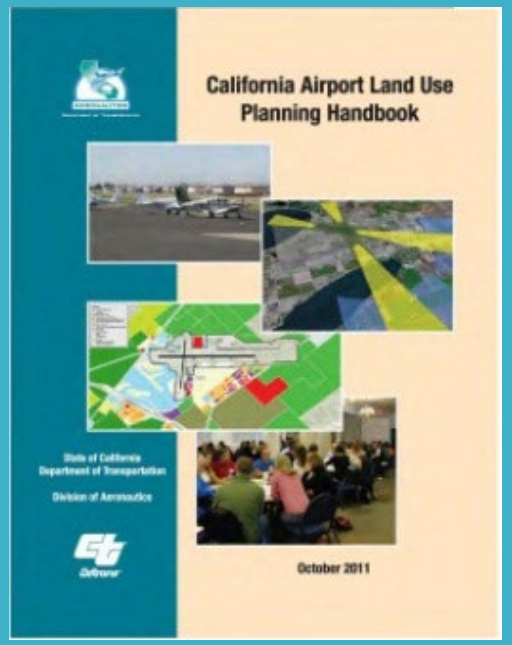
VERTIPORT

TAKE AND LANDING LOCATION FOR EVTOLS

Airport Land Use Planning

- Articulated via the Public Utilities Code(PUC)/ State Aeronautics Act (SAA)
- Guidance provided by the California Airport Land Use Planning Handbook (Handbook)
- https://dot.ca.gov/programs/aeronautics/airport-land-use-planning





Airport Land Use Planning in CA

- Land use planning is conducted by Airport Land Use Commissions (ALUC) in designated Airport Influence Areas (AIA)
- ALUCs compose Airport Land Use Compatibility Plans (ALUCP)
- ALUCPs address safety, noise and overflight
- Primary guidance relates to land use combability and noise
- Land use is dictated by a series of safety zones based on historic crash data
    - Land use restrictions are created in zones with higher risk

AAM in the Transportation System

- Getting it right this time and avoiding "infrastructure trauma" as experienced during the construction of the Interstate System
- Building a network of equitable facilities
  - Maximize existing uses, such as General Aviation Airports
    - Positive elements: Access to and from rural, disadvantaged or underserved communities, electrification
    - Negative elements: Increased noise, visual clutter, air quality degradation, surface congestion
- Building a system for AAM and incorporating it into a system plan
  - Where else do we place vertiports and integrate AAM into the transportation system?

Adequacy of Existing Guidance

- Current standard if 65 dB
  - Section 4.1 of "Handbook"
- Does this meet needs?
  - New sound measurement technologies
  - New sound impact awareness
  - Equity issues, who is impacted?

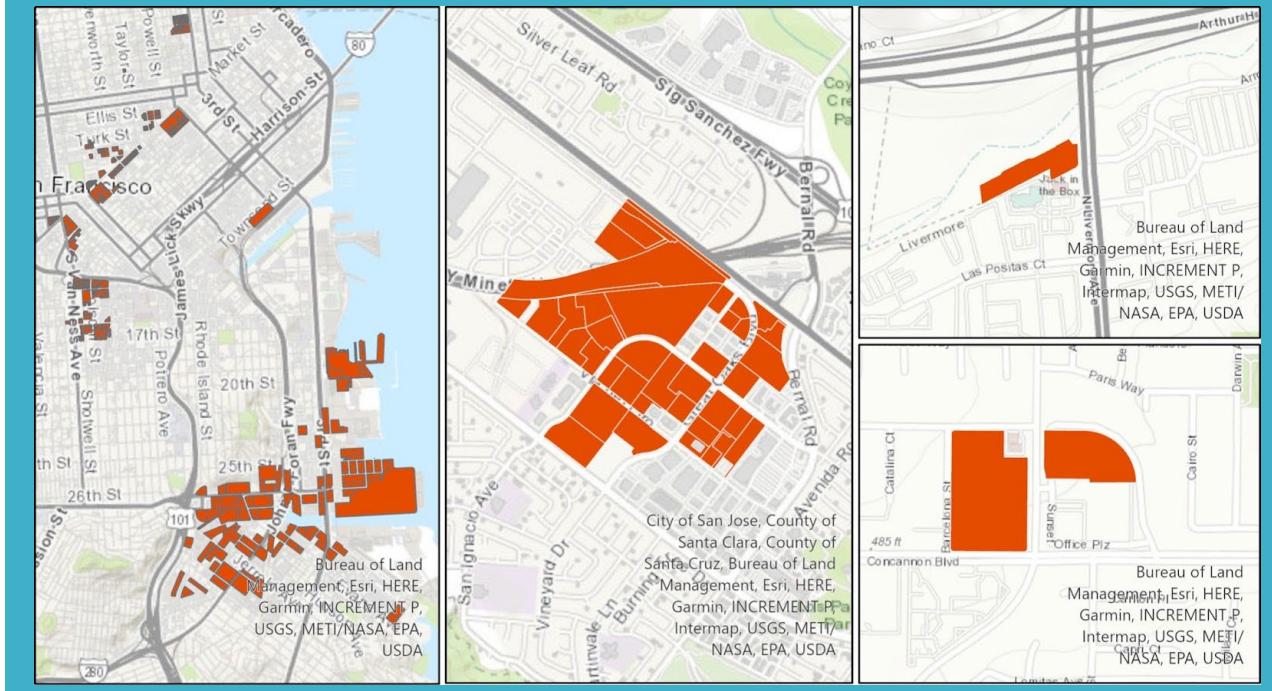
Placement of Vertiports

- Placement of vertiports is new territory for local land use authorities
- Land use issues have many additional and complex layers
- Importance of early consultation between stakeholders
- Caltrans sponsored research with SJSU & Mineta Transportation Institute to understand local considerations for vertiport site suitability in rural, suburban, and urban geographies related to safety, access, and equity using basic GIS tools

Icon Source: The Noun Project

SJSU Vertiport Case Study

- Three core areas of study for a land use analysis on vertiports: Safety, Access, Equity
  - *Many parameters are not considered in this analysis
- Determine variables based on the areas of the local geography, develop a list of non-negotiable "high-priority" parameters
- Understand that suitability varies by community and preferences change
- Developing site suitability maps using a basic GIS analysis can begin fostering early conversation for considerations



	San Francisco	San Jose	Livermore
Total Parcels	234,693	459,282	51,836
Suitable Parcels	1,392	43	3

Issues for Planners

General Planning Issues

- System Planning
- Access
- **Equity**
- Light
- **Noise**

Local Concerns

- Community Based Organizations
- Environmental Concerns
- Wildlife Interactions
- YIMBY & NIMBY

Placement of Vertiports

Technical Issues

- Zoning Code
- Use Permits
- Environmental Review

Policy Issues

- FAA Airworthiness Certification
- Manufacturers & investors are eager for deployment

Work is Underway

FAA Guidance

Engineering Brief 105 - Vertiport Design

AAM Implementation Plan

NASA

AAM Community Integration Considerations Playbook

AAM Vertiport Considerations: A List and Overview

Non-Profit

Community Air Mobility Initiative (CAMI) Resource Library

Urban Movement Labs – Integrating Advanced Air Mobility: A Primer for Cities

City Planning

Los Angeles UAM Policy Framework Considerations

Miami-Dade Air Mobility Blueprint

Other States

Ohio AAM Framework

Utah DOT Long-Range UAM Land-Use Planning for Vertiports

Research Publications

UC Berkeley – UAM: History, Ecosystem, Market Potential, and Challenges

SJSU Mineta Transportation Institute - Land Use Analysis on Vertiports Based on a Case Study of the San Francisco Bay Area

THANK YOU

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