DRISI
CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION
TRANSFORMING IDEAS INTO SOLUTIONS

Research Results

Recommendations for Update of California Airport Land Use Handbook

Help identify areas from the 2011 Handbook that need to be updated, and new areas will have to be added to address the arrival of emerging technologies and new aviation concepts.

Modal

JUNE 2024

Project Title: Recommendations for Update of California Airport Land Use Handbook

Task Number: 3917

Completion Date: December 31, 2023

Task Manager:

Keith Holowecky
Transportation Engineer Electrical
keith.holowecky@dot.ca.gov

WHAT WAS THE NEED?

California has long led the way regarding innovative planning practices. The California Airport Land Use Planning Handbook (Handbook) provides guidance to Airport Land Use Commissions (ALUC), local jurisdictions, the California Department of Transportation (Caltrans) planning staff and others seeking guidance regarding airport land compatibility planning. The Handbook has been used as the basis for similar documents in other states. The document incorporates relevant elements of the Public Utilities Code, related laws, and best planning practices. The Handbook was most recently updated by the Caltrans Division of Aeronautics in 2011. During the 12 years since the previous update, there have been changes to state law and planning practices. These changes include a greater awareness of equity issues within land use decision-making. In 2020, Caltrans Division of Aeronautics initiated a process to update the Handbook. The intent of this research is to provide a more in-depth review of the needs of Handbook users, changes to statutory expectations, existing information and data sources, and current best practices.

The current Handbook is based on outdated data and does not address several current issues. A revised Handbook provides California ALUCs, professional practitioners, decision-makers, and interested parties an updated and more comprehensive guidance to airport land use planning. It also helps entities outside of California seeking to update guidance. The document also enhances California's leadership position in multi-modal, sustainable, and equitable planning.

Caltrans

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

WHAT WAS OUR GOAL?

The goal is to identify the areas of the Airport Land Use Compatibility Plan Handbook which required an update and to add new areas to address the arrival of emerging technologies and new aviation concepts. Additional topics included gaps in current data or outdated data from the 2011 publication.

WHAT DID WE DO?

The University of California, Berkeley (UCB) conducted a thorough review of the 2011 Airport Land Use Compatibility Plan Handbook and identified a list of needs for updating. UCB constructed a template to identify a comprehensive list of opportunities for updating and improving the Handbook. Following this, they reviewed other literature, particularly recent literature on airport land use planning, and identified developments which are then captured in the Handbook update.

The researchers identified databases that were used to address safety issues. UCB identified gaps and provided methodologies for data analyses. They explored additional relevant databases to provide more precise safety studies. They compared the original National Transportation Safety Board data fields and information for the years 2000 through 2009 with the newer databases. They provided initial studies using the new database data on safety, noise, temperature, precipitation, floods, and rising sea levels. Next, they identified emerging transportation modes and technologies and determined their contributions to the Handbook. There was stakeholder engagement and community engagement. Finally, a digitized and written guide is presented which summarizes findings and data analysis.

WHAT WAS THE OUTCOME?

A series of reports discuss gives a clear outline for Handbook updates. The subject of these reports follows and applies to the six airport zones.

- Safety and Risk with Emerging Technologies (drones)
- Impact of Wildlife Strikes (bird incidents)
- Noise Exposure and environmental justice (green aircraft)
- Wind Analysis for California Airports (crosswinds)
- Stakeholder engagements
- A digitalization strategy and metadata files to help users access and apply this project's dataset in a data platform of their convenience.
- Accidents plotted in airport safety Zones 5 and 6
- Spatial Distribution Analysis of Aircraft Accident in Airport Safety Zones. The findings confirm a noticeable clustering of accidents near the shared boundary of Zones 5 and 6, suggesting that these areas might benefit from an expansion of Zone 5 into Zone 6 to adequately reflect the heightened risk landscape.

This research sets the stage for future projects to review and revise the 2011 Handbook by integrating best practices to reflect changes since the last publishing.

WHAT IS THE BENEFIT?

The research benefits the Caltrans Division of Aeronautics by providing specific content updates are that are needed since the completion of the previous 2011 Handbook.

The research project discusses the Airport Safety Zones with respect to population density and intensities. It considers laws affecting land use, housing, and equity and the emergence of new technologies, the use of Unmanned Aircraft Systems, the impacts of Advanced Aircraft Mobility, and other state policies. The research is a cost and time savings compared to the actual project of revising the Handbook because of the efficiency and cost effectiveness of the rigorous data evaluation completed in this research project.

LEARN MORE

https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/final-consolidated-report-for-the-alup-handbook-update-3917-v2.pdf

IMAGES

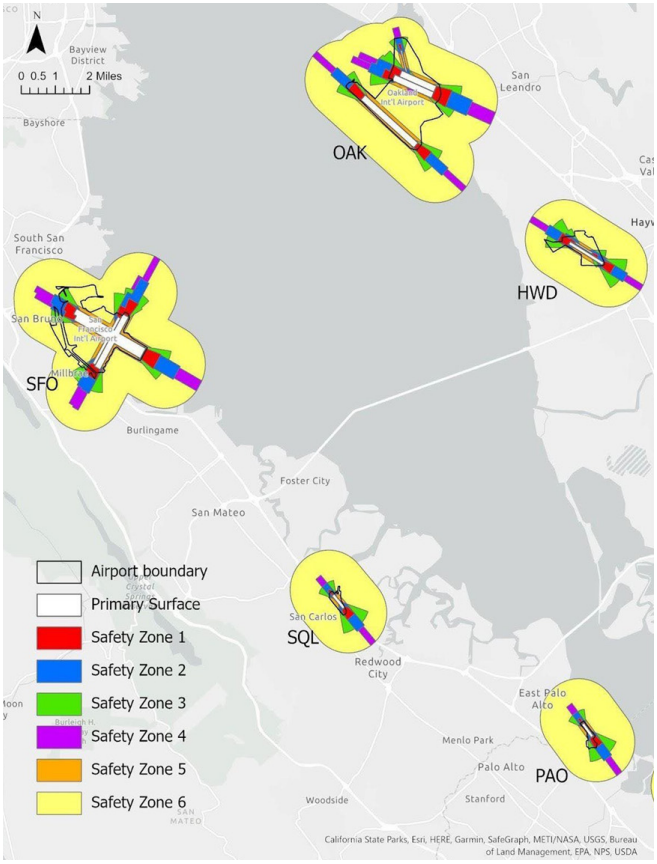

Image 1: Illustration of Generic Safety Zones of the Southern San Francisco Bay Area Airports

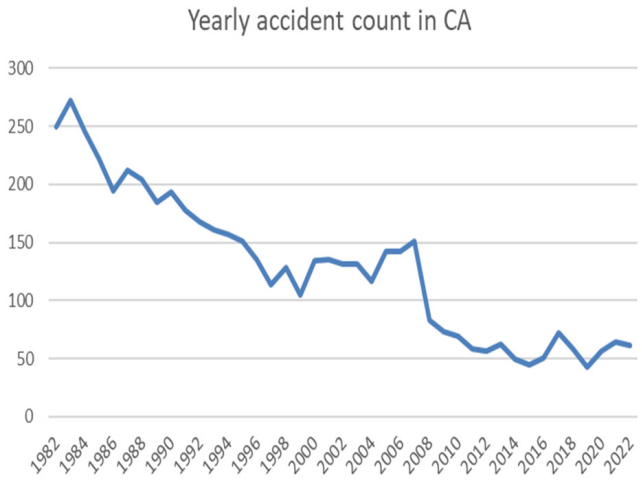

Image 2: Accident evolution in California