Research Project

95-8SS

Capsule

Technology Transfer Program

LTRC

July 1996

Development of an Aircraft Operations Classification System for Louisiana Airports

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Problem

Counting aircraft operations and categorizing aircraft at airports is a difficult task. This is particularly true for smaller, non-towered facilities which are frequently unmonitored. These tasks are, however, essential to support planning and programming of construction and maintenance activities at these facilities. Most management systems, such as those described in current ISTEA legislation, require data pertaining to airport use to be collected in support of these different systems. The past planning process for forecasting future aircraft activity and the resulting engineering design criteria have been imprecise, having a direct impact on the efficiency and effectiveness of development programs at airports nationwide.

Previously, the Department attempted to use an acoustical system which was cumbersome. The system provided unreliable data and was manpower intensive in all phases of operation and support. This system has proven to be unsatisfactory to the FAA and the state for its continuance.

Objectives

The objectives of the research are three-fold:

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For small, untowered airports, counting and categorizing aircraft is a difficult but necessary task for planning.

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Louisiana Transportation Research Center

Sponsored jointly by the Louisiana Department of Transportation and Development and Louisiana State University
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- Develop a method of accurately accounting for aircraft that use airports throughout the state
- Provide a system which categorizes the type of aircraft -- such as helicopter or single engine -- identified through the counting process
- Develop the appropriate hardware and instrumentation to accomplish the task of aircraft counting

Description

Several approaches will be used in addressing the problem and achieving objectives.

1. The aviation industry will be canvassed to determine what existing technologies might be incorporated to count and classify aircraft operations.
2. If such technologies exist, they will be evaluated for their ability to count and classify aircraft operations while the deficiencies of previous methods are minimized or eliminated.
3. The effectiveness and efficiency of these available systems measured against minimum performance criteria will be determined. The minimum performance criteria will be established jointly with LTRC during the initial phase of the project.
4. Methods will be developed based on current technologies which are realistic, feasible for further development..
5. The proposed methods will be tested on an unmanned airport. The performance and suitability of the methods will be evaluated as a possible solution to the problem.

Implementation Potential

Researchers intend to economically develop an aircraft counting and classification system suitable for operation in a variety of airport environments. The system will be a portable unit that can be easily transported to different airports as needed.

A prototype system will be developed with a leading vendor of aircraft counting systems. The counting and classification system will be based upon acoustic signatures of aircraft operations. An extensive database of aircraft operations data will be collected and used to develop and evaluate aircraft classification methods for the prototype.

After development, the performance of the prototype system will be evaluated in operation at Louisiana airports as a solution to the problem. A comprehensive report describing the project and addressing the manner in which the objectives have been met will be prepared.