ACRP Problem Statement 17-09-03

Best Practices for Airport Obstruction Management

ACRP Staff Comments

Several of the topics identified in the problem statement (including case studies) are covered in ACRP Report 38: Understanding Airspace, Objects, and Their Effects on Airports, so care will be needed to ensure the proposed research builds on this previous effort.

TRB Aviation Committee Comments

AIRCRAFT/AIRPORT COMPATIBILITY: The purpose of 14 CFR 77 is to protect any and all surfaces that might be needed for aircraft operations, and the surfaces include a buffer that is supposed to protect aircraft from obstructions. Of more value is how airports manage proposals for objects that risk penetrating obstruction surfaces and how they would mitigate the potential impacts. That's different research. However, inconsistencies between Part 77, TERPS, and other obstruction guidance should be discovered so they can be resolved.

Review Panel Recommendation and Comments

Recommended. A consistent approach to evaluating and addressing obstructions would benefit the industry. With ties to safety, this is an important topic.

AOC Disposition

This problem statement received an average rating of 3.5 points out of a possible 5 points among voting AOC members. The proposed research would be beneficial for small airports. Approved and funded at $300,000 as ACRP Project 09-16.
I. PROBLEM STATEMENT TITLE: Best Practices for Airport Obstruction Management

II. BACKGROUND

There is a gap between the criteria used to establish the various imaginary surfaces airports are required to protect for safe flight, and the obstruction-related evaluation criteria air carriers must use to determine aircraft performance and passenger loads. Lacking appropriate coordination and communication between airports and airlines, this gap often results in performance penalties for air carriers. These penalties affect airlines' ability to serve passenger demand, but airports may not account for these implications in their obstruction mitigation decision-making. Airports today do not have a tool to adequately determine the impact, financial or otherwise, resulting from a reduction in passenger throughput and efficiency when an air carrier’s performance calculations are affected by an obstruction. This problem is further aggravated by redundant and, frequently obsolete, data contained in various obstruction databases.

Airports are required to protect surfaces described in 14 CFR Part 77 and Part 139. Airports also monitor and protect flight procedure surfaces described in Order 8260.3 (TERPS) because impact to these procedures would result in a quantifiable change to airport performance (e.g. higher approach minimums). By comparison, air carriers are required to evaluate obstructions based on 14 CFR Part 121, Part 135 and Advisory Circular 120-91, which requires the use of an Obstacle Accountability Area (OAA), unique to each air carrier. The OAA does not typically coincide with any of the surfaces protected by airports.

Air carriers are further required to use the “best and most accurate available obstacle data for a particular airport at the time of analysis.” These data sources do not have to be approved by the FAA, resulting in a multitude of obstruction resources. Airports provide the FAA with obstruction data through aerial or project-based surveys. This data is then made available to airlines through various databases and publications however, there is no clear or comprehensive way of reconciling the various data sources. As these data sources are generally independently managed, there is often a mismatch in the location, height and quantity of obstructions, leaving carriers with no choice but to assume pessimistic performance values. Though the FAA’s Airports GIS program seeks to resolve these inconsistencies, it is a long-term initiative, currently limited to “Core 30” large-hub airports, with few immediate applications for the industry.

The industry would benefit from a consistent approach for evaluating and addressing obstructions, including a comprehensive analysis tool and communication framework. This would enable airports to identify and dedicate resources to addressing the highest impact obstructions. That is, those that not only have a direct impact on airport surfaces and procedures, but those that indirectly affect airport efficiency through air carrier penalties. Further, airports have an insufficient understanding of the collection, sourcing and submission requirements for the major obstruction databases. By understanding how these databases interact, a standard or best practice workflow can be established that would minimize inconsistencies, thereby reducing
costly and often unnecessary performance penalties.

III. OBJECTIVE

To develop best practices for airport obstruction evaluation and management.

IV. PROPOSED TASKS

This project will be comprised of the following tasks:

a) Regulatory comparison Part 77, TERPS, Part 121, 139 and AC 120-91
b) Airport case studies
c) Development of comprehensive obstruction mitigation benefit/cost analysis tool  
   o to include cost to airport of penalties incurred by air carriers
d) Evaluate various obstruction data sources  
   o Terminal Procedures Charts  
   o Digital Obstacle File (DOF)  
   o FAA’s AVNIS  
   o Universal Data Delivery Format (UDDF)
e) Evaluate air carriers considerations for “best available obstacle data”
f) Develop workflow and comprehensive best practice for submitting and communicating updated obstruction data

V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

Recommended funding: The estimated project cost is $300,000  
Proposed period: The project will require 14 months following notice to proceed

VI. RELATED RESEARCH

ACRP Report 38: Understanding Airspace, Objects and Their Effects on Airports

VII. PROCESS USED TO DEVELOP PROBLEM STATEMENT

This problem statement is inspired by my experience in collaborating with our airline stakeholders and municipality (New York City), as the Port Authority of NY & NJ’s obstruction specialist. While exploring development in the vicinity of our airports, it became clear that the existing obstruction evaluation process, that is, the FAA’s Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) process, results in airports and airlines working independently to evaluate impacts of a proposed obstruction resulting in impacts which can, at times, be mutually exclusive. Airline stakeholders frequently raise these concerns at roundtable discussions and this is a recurring topic at airspace conferences. In essence, the existing structure lends itself to
identification of an individual impact (to an airport, an airline or municipality) rather than a net result. While working within the existing regulatory context, this proposal seeks to identify a near-term, best practices solution that encourages consistency, communication and has the highest return for airports. That is, this proposal would not recommend changes to policy or regulation at large.

VIII. PERSON SUBMITTING PROBLEM STATEMENT

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