ACRP Problem No. 12-03-02

Guidebook for Implementing FAA’s Airports Geographic Information System (AGIS) Program

ACRP Staff Comments: Consideration would need to be given in developing a research objective to ensure no overlap with Problem Statement 12-03-03, Improving Standards-Based Collection and Verification of Airport Surveys, and ongoing research undertaken for ACRP Project 04-11, Integrating GIS in Emergency Management at Airports. A draft report of ACRP Synthesis Project S09-03, Locating Underground Utilities at Airports and Geographic Information Systems, should be available in the fall of 2011, and will most likely identify the need for further research to guide airports in implementing airport geographic information systems. Suggest reducing funding to $400,000.

TRB Aviation Group Committees Comments: AIRCRAFT/AIRPORT COMPATIBILITY CMTE - This research and the associated guidebook are needed, although the research may be premature due to expected revisions in FAA Advisory Circular 150/5300-18B that may end up fixing many of the concerns airports have raised to date. The consulting community has not been leading the charge with regard to implementation and seems to be looking for a prescriptive document, which this research would be expected to provide.

Review Panel Comments: Not recommended — The FAA is publishing a guidebook and new advisory circular on this topic. This effort may not be appropriate as an ACRP study. The problem statement could possibly be resubmitted after FAA’s implementation guidance is issued to determine if there are any gaps. The proposed research is therefore premature. This problem statement is linked to Problem Statement 12-03-03.

AOC Disposition: No funds allocated. No discussion.
Outline For Airport Cooperative Research Program Problem Statements

Problem Title:

Guidebook for Implementing FAA’s Airports Geographic Information System (AGIS) Program

Problem Statement: The Federal Aviation Administration’s (FAA) Airports Geographic Information System (AGIS) initiative—a focal point of the FAA’s NextGen program—offers new guidance and specifications for the preparation of aeronautical surveys in accordance with Advisory Circulars (AC) 150/5300-16A, -17B, and -18B. The Research Team will develop a guidebook to assist Airports and Consultants in understanding the complexities associated with the budgetary and technical constraints of the AGIS Program. The successful Research Team should have extensive experience preparing AGIS surveys and a thorough understanding of the two main program areas described above.

Objectives:

The proposed research will result in the production of a detailed reference guidebook to assist Airports and Consultants in their interpretation and application of each step of the AGIS process. The guidebook will provide the following products:

Budgetary:
- Scoping Guide
- Cost Estimate Template
- Recommended template to ensure new projects are compliant with and complement new AGIS data

Technical:
- Techniques for gathering data
- Define and educate the differences between AC 150/5300-18B obstruction surfaces and traditional Airport Layout Plan (ALP) surfaces
- List of non-AGIS items important for pending eALP guidance
- Matrix/flowchart for using and relating legacy data with AGIS

In addition, the Research Team will include a lessons learned section in the Appendix of the report that highlights time saving lessons that experienced consultants have compiled. The Research Team will include an Appendix for the case study of small, medium, and large hub airports that have gone through the AGIS process.
Research Proposed:

The research proposed would follow the objectives listed above. The research would include interviews with FAA (Headquarters and Regional offices), Airport Sponsors, and Consultants that are both familiar and unfamiliar with the AGIS program. Potential tasks for the objectives include:

**Budgetary:**

- **Scoping Guide** – The AGIS scoping process is a very complex and time consuming process. FAA Advisory Circulars 150/5300-16A, -17B, and -18B do not discuss the project scoping process. The Scoping Guide will present best practices for determining the requirements of AGIS by project type and present the minimum requirements for attribution and guidance on how to determine the required time to complete ancillary attribution. The scoping guide should also provide guidance for project schedule development.

- **Cost Estimate Template** – Conducting aeronautical surveys under the required AGIS program are considerably more expensive than conducting surveys prior to launching the program. Advisory Circular 150/5300-18B only generally discusses order of magnitude cost estimates for conducting AGIS surveys. To better prepare Airport Sponsors and Consultants, the Research Team shall prepare a more detailed cost estimate template that takes into account all relevant variables.

- **Recommended template to ensure new projects are compliant with and complement new AGIS data** – With any data management system, it is critical to maintain current data. The Research Team will develop a contractual template for Airport Sponsors to include in their relevant planning and design projects that will require consultants to complete an AC 150/5300-18B as-built survey at the conclusion of the project.

**Technical:**

- **Techniques for gathering data** – The Research Team will lead a discussion on techniques and best-practices for gathering data. The research will explore the benefits of using alternative techniques to photogrammetry and applications for data collection beyond the AGIS program.

- **Define and educate the differences between AC 150/5300-18B obstruction surfaces and traditional Airport Layout Plan (ALP) surfaces** – The obstructions analysis presented in AC 150/5300-18B defines different surfaces for analysis than what are traditionally analyzed for an ALP. The research will describe techniques for applying collected data to AGIS and traditional ALP applications.

- **List of non-AGIS items important for pending eALP guidance** – As the eALP continues to evolve, the Research Team will prepare a listing and description of non-surveyed data integral for inclusion in an eALP. The guidance will also describe how to transform that data into data that can be uploaded to AGIS.

- **Matrix/flowchart for using and relating legacy data with AGIS** – AC 150/5300-18B only generally describes the process for using legacy data in the AGIS program. This research will describe in greater detail how to translate legacy data for use with new survey planimetrics and how to evaluate whether legacy data can be uploaded to AGIS.

Estimate of the Problem Funding and Research Period:
The project will require 2.5 full time equivalent (FTE) staff at an hourly rate of approximately $100. Estimated cost would be:

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2.5 \text{ FTE} \times 2080 \text{ hours/year} \times $110/\text{hour} = $572,000
\]

The duration of the proposed research is 12 months. This includes approximately 3 months for review and development of the draft-final report.

**Urgency and Payoff Potential:**

The aviation community urgently needs this proposed guidebook. The national AGIS program is now required for any new federally funded survey. The process is not yet well understood by the consultant and airport communities, and this research program will help Airport Sponsors and Consultants better understand the complex requirements of the AGIS program. AGIS is a buzzword in the aviation community, and it is the principal goal of this project to educate the industry in how to apply the new standards to existing products.

**Related Research:**

This Research Problem follows up on the baseline knowledge in *ACRP Report 38: Understanding Airspace, Objects, and Their Effects on Airports*. This document provides the background about the significance of airspace penetrations, however it does not address in detail the surfaces described in -18B and how to apply data surveyed using the new standard to the existing surfaces presented in the ACRP report.

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Process Used to Develop Problem Statement:

This problem statement is the product of the new FAA guidance on aeronautical surveys.

Date and Submitted By:

Date: 2/28/2011

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