ACRP Problem No. 12-03-08

Development of a Prototype Air Passenger Survey Database

ACRP Staff Comments: The proposed research should consider ACRP Project 01-13, Developing a Database-Driven Web Application for Benchmarking Airport Performance, as the proposed survey database product may have similar issues regarding database development and maintenance.

TRB Aviation Group Committees Comments: AVIATION SYSTEM PLANNING CMTE - Very clear statement of problem, objective, and proposed research. The potential benefits from the project were readily apparent to reviewers. The only concern is that maintaining the database after its development will be costly and it isn’t clear who would undertake the ongoing work; however, part of the proposed research is to address that issue, having proven the concept and value of the combined database. The funding and time estimates appear reasonable. Recommend funding.

Review Panel Comments: Recommended — The proposed research calls for keeping a database for all airports. The issue is maintaining the database. There are management and maintenance costs. Perhaps a subscription service to upkeep the database. Could this information be tied into the GIS data?

AOC Disposition: No funds allocated. The AOC questioned the utility of a national database, as each airport is unique. There was also concern for how the database would be updated and maintained. ACRP Report 26, Guidebook for Conducting Airport User Surveys, gives best practices for conducting airport surveys.
I. PROBLEM TITLE

Development of a Prototype Air Passenger Survey Database

(Resubmission of FY2011 Problem Statement 11-03-06)

II. RESEARCH PROBLEM STATEMENT

Air passenger surveys are performed periodically by airport authorities, regional planning agencies, state aviation agencies, and other organizations. These surveys provide detailed information on a wide range of air traveler characteristics that can be obtained in no other way, including trip purpose, ground origins and final destinations, demographics, and airport ground access and egress modes. The resulting information can be of great value in better understanding the demand for air travel and factors that influence travel choices, including airport choice and decisions to use alternate travel modes to air. The results of such surveys are also widely used by airports for planning terminal facilities and by airports and regional and state transportation planning agencies for airport ground access planning and regional transportation planning, including efforts to reduce greenhouse gas and other air quality emissions, and multimodal transportation studies.

However, unlike the air passenger statistics reported to the U.S. Department of Transportation by the airlines, there is currently no centralized database that integrates the information obtained from the many air passenger surveys performed each year. Indeed, there is no database that tracks which surveys have been performed and what information they have collected. While each survey sponsor has access to the data collected in the surveys that it has performed, it is difficult to correlate this information with that collected by other agencies. This reduces the value of the data for airport benchmarking, as well as limiting the ability to study the effectiveness of different survey techniques, question wording, and use of the resulting survey data.

Previous research into the information available from air passenger surveys has identified the need to develop a centralized, web-based database that will track which surveys have been performed, provide key information about those surveys, and appropriate contact information to enable interested agencies and researchers to obtain more information about each survey. To the extent that survey sponsors are willing to make the survey findings more widely available (some already post survey reports on their websites), the proposed database could include the survey results. Prior research for the Federal Aviation Administration (FAA) has defined a proposed structure for such a database. However, further research is required to assemble information to populate such a database, implement a prototype database to validate the proposed structure and identify practical issues involved in maintaining the database, and develop an estimate of the resources required to extend and maintain the database on an ongoing basis.

III. OBJECTIVE

The proposed research would achieve two objectives. The first would be the development of a national resource of information on air traveler characteristics that is available from air passenger surveys undertaken by a wide range of organizations. The second would be to establish a prototype web-based database to facilitate access to this information and identify the resources required to maintain a national database of air passenger survey information on an ongoing basis.

IV. RESEARCH PROPOSED

The proposed project will develop a prototype web-based database to provide a centralized resource of information on air passenger surveys, and assemble an initial set of information on recent air passenger surveys to populate the database, together with as much information on the findings of those surveys as the sponsors are willing to make available.
As part of this research, a review will be undertaken to determine whether there are any existing databases that are relevant to the proposed research, and the scope and contents of any such databases will be documented.

In addition, the research will undertake analysis of the data within the prototype database to demonstrate the value of easy access to data from multiple surveys, as well as develop techniques to effectively combine information from multiple surveys. The research will also examine alternative options for maintaining and funding the database on an on-going basis after the end of the project and develop a business plan to operate and maintain the database.

V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

**Recommended Funding:** It is anticipated that the proposed research can be completed within a budget of about $200,000. This budget would cover the development and implementation of a prototype website on an appropriate server and the assembly of a reasonably comprehensive database of recent air passenger surveys based on the information gathered in the course of prior research.

**Research Period:** It is envisaged that the research would be completed within one year. The first three months would be spent researching available data, designing the prototype database and website and assembling the initial information to populate the database. The following six months would be spent implementing the prototype database, assembling additional information on air passenger surveys and adding this to the database, and preparing a draft final report documenting the project. The final three months would be spent in reviewing the final report and prototype database by the Project Panel and making any necessary revisions.

VI. URGENCY AND PAYOFF POTENTIAL

The recently announced increase in Federal funding for high-speed rail projects has created an urgent need for a more detailed understanding of the factors influencing intercity travel demand, the potential diversion of air travel to high-speed rail, and the implications for airport system planning. In addition, as airline consolidation results in the loss of service to smaller communities, with many travelers making long ground access trips to more distant airports, development of effective strategies to address the intercity travel needs of smaller communities will require the ability to combine air passenger survey data from multiple airports. At the same time, projections of longer-term growth in air travel demand, as the economy recovers from the current recession, indicate that an increasing number of metropolitan areas will experience airport capacity constraints in the future and require a greater use of secondary airports. Airport system planning in such a context will require a better understanding of air traveler characteristics, not just locally but nationally.

These factors are likely to have a major effect on the challenges, shape, and condition of the air transportation industry. Better data on air traveler characteristics will lead to an improved understanding of challenges and trends within the context the broader and likely changed economy, as well as support research into future finance and business strategies in an uncertain future. Efforts to understand and prepare for these issues are critically dependent on good data on the underlying determinants of air travel demand. Yet currently most of the available data from air passenger surveys, that have been collected at significant cost, is largely restricted to the agencies sponsoring each survey and there has been almost no work to explore the transferability of the information obtained from these surveys. The urgency of the proposed project lies in the fact that it forms an essential first step in enabling future research efforts that can explore how best to make use of this information.

Improved understanding of air travel characteristics is not simply a matter of intellectual curiosity. Investments of billions of dollars in airport and high-speed rail projects will be shaped by assessments of likely future demand that in turn will be influenced by traveler characteristics.

The development of the proposed database will help address a significant institutional barrier to wider use of air passenger survey data, namely the difficulty in determining what surveys have been performed and what information has been obtained by those surveys. Air passenger surveys are expensive to perform, with typical air passenger surveys at major airports costing upwards of $250,000. Not every airport can afford to perform surveys or undertake them as frequently as they would like. Sharing information from such surveys may be a cost-effective way to obtain needed planning data or leverage the results of those surveys that have been performed.

This research topic falls within the Operations and Maintenance and Systems Development critical issues identified in ACRP Research Results Digest 5, specifically:

- Airport Operations Best Management Practices
- Changing Demand for Air Service
The ability to study changes in the characteristics of air passengers across multiple airports is critical to airport benchmarking and improving the quality of forecasts of air travel demand. Given the relatively infrequent nature of air passenger surveys at many airports, the ability to access recent data from other airports can allow airport management to place current trends in air travel at their own airport within a larger context. Facilitating access to survey data for multiple airports will also be of assistance to state and regional planning agencies in undertaking airport system planning studies and addressing such issues as potential diversion of air travel to improved intercity rail services.

VII. RELATED RESEARCH

A recent research project for the FAA by the National Center of Excellence for Aviation Operations Research1 collected information on air passenger surveys undertaken by a wide range of organizations and studied the feasibility of establishing a national database of air passenger survey information. The research developed a proposed structure for a prototype database and explored potential institutional arrangements for maintaining a national database on an ongoing basis. The design of the proposed structure for the database specifically addressed the issues involved in analyzing data from multiple surveys that used different survey questions and wording.

Subsequently, ACRP Project 03-04 Guidebook for Airport User Survey Methodology undertook a second survey of potential sponsors of air passenger surveys and assembled additional information on experience with air passenger surveys, including survey methodology and cost. The findings of these two research projects provide a valuable starting point for the proposed project. In turn, the availability of the information envisaged in the proposed database would enhance the value of the guidance available in the Guidebook prepared as part of ACRP 03-04, by allowing potential survey sponsors to compare the approaches undertaken in different surveys.

A number of other ACRP projects currently in progress or nearing completion demonstrate the need for the type of information envisaged for the proposed database, including ACRP Project 03-10 Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions and ACRP Project 10-02 Planning Guide for Offsite Terminals. Although of course the proposed database will not be operational in time to help those projects directly, the type of analysis likely to be recommended by both projects could make extensive use of more widely available data from air passenger surveys.

A new ACRP research project that is about to start, ACRP Project 01-13 will develop an airport performance benchmarking database. Although the focus of the benchmarking database is different from the proposed air passenger survey database, many of the issues involved in developing and maintaining the proposed database are similar. In addition, the data assembled by the proposed project could be of use in applying the information in the benchmarking database.

VIII. PERSON(S) DEVELOPING THE PROBLEM

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IX. PROCESS USED TO DEVELOP PROBLEM STATEMENT

This problem statement was developed on the basis of recommendations of the prior research described above and discussions between Dr. Gosling and FAA staff in the Planning and Environmental Division of the Office of Airport Planning and Programming and the Office of Aviation Policy and Plans.

This is a resubmission of a problem statement submitted in prior years but not selected for funding. A draft of the initial submission was reviewed by members of the TRB Committee on Intergovernmental Relations in Aviation and TRB Committee on Aviation System Planning and the final submission was revised to address comments received. The current problem statement has been revised to address the comments on the FY 2011 submission by the ACRP Review Panel, which recommended funding the research.

X. DATE AND SUBMITTED BY

Date of submission:  March 3, 2011

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