

We have an opening for a Student Assistant on a new project for the Mineta Transportation Institute that is just getting under way to study collaborative funding for airport ground access projects. If you are a graduate student looking for a part-time position and might be interested in the project, see below. The total budget for this student assistant position is about \$6,225, and the pay rate is \$15 per hour.

The project proposal is below and has more details about the project. Interested students can contact Dr. Geoff Gosling or Dr. Wenbin Wei.

Dr. Geoff Gosling can be reached at: [510-528-8741](tel:510-528-8741) or Gdgosling@aol.com

Dr. Wenbin Wei can be reached at: [408-924-3206](tel:408-924-3206) or Wenbin.Wei@sjsu.edu



Mineta Transportation Institute

RESEARCH PROPOSAL SUBMITTAL FORM

- Please fill out form as completely as possible in eight pages or less.
- Sign and date the form. (Electronic signature is valid.)
- Include resumes, requested documentation, and completed budget form.
- Submit by e-mail to johnson@mti.sjsu.edu, or on a floppy disk or CD to:

Trixie Johnson
Mineta Transportation Institute
San José State University
San Jose, CA 95192-0219

Note: Please send any RA Applications, if required, in hardcopy to above address.

Approved (Insert date)

Budget Number: 21-110- 3377-2503; 22-1100-3340-2503

Final Completion Date: June 2009

Total Budget: \$56,162

Proposed Project Title: Collaborative Funding to Facilitate Airport Ground Access		CT #:
Contact Person:		
Name:	Dr. Geoffrey D. Gosling	
Title:	Principal	
Organization:	Aviation System Consulting, LLC	
Mailing Address:	805 Colusa Avenue Berkeley, CA 94707-1838	
Email Address:	gdgosling@aol.com	
Phone Number:	(510) 528-8741	
FAX Number:	(510) 528-8745	
Proposed Project Team:		
Principal Investigators:	Dr. Geoffrey D. Gosling Principal, Aviation System Consulting, LLC Dr. Wenbin Wei, Assistant Professor, Department of Aviation and Technology, San José State University	
Team Member:	Student Research Assistant (to be identified later)	
<i>Note:</i>	Resumes attached. All named are Mineta Transportation Institute Research Associates.	
Total estimated project cost:	MTI funds requested:	
\$56,162	\$56,162	
(Include \$6,450 for MTI's costs in both above amounts)		
Proposed completion date of final draft for peer review: March 31, 2009		
Provide a brief description of the proposed research project:		
<u>Background</u>		
Airports are the principal interchange nodes in the passenger transportation system where local and regional transportation systems interface with those for national and international travel. Airports also play a vital role in facilitating the transfer of air cargo between the surface transportation system and the air transportation system, as well as sometimes serving as major sorting and distribution center for freight that may be moved entirely by surface transportation. In particular, as the integrated air cargo carriers have increased their role in handling second and third-day freight shipments, an increasing proportion of their freight traffic is moved by truck, although it may be consolidated and sorted at airport facilities.		
However, all too often projects to improve the connectivity between the surface transportation system (including private vehicles, buses, and light and heavy rail		

systems) and the airport circulation and terminal facilities are hampered by the fact that project funding regulations limit the type and location of projects eligible for funding from the various funding programs administered by the Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA).

Policies regarding the use and allocation of these funds are often so restrictive that projects are unable to be implemented or are rendered much less effective at improving intermodal connectivity. In particular, FAA rules on the use of airport funding sources generally restrict the ability to use these funds for airport access improvements off the airport property. Similarly, restrictions on other sources of surface transportation funds may have the reverse effect and prevent their use for projects on the airport.

These limitations and restrictions constrain the ability of both airport authorities and state and regional transportation agencies to respond to airport ground access needs by planning and implementing effective intermodal alternatives to the private vehicle or improved facilities for handling freight traffic moving to and from the airport. At the same time, the nature of such projects typically involves multiple agencies and presents opportunities to develop collaborative planning and funding strategies that can overcome many of the limitations of existing funding programs and sources.

Issue to be Addressed

The proposed research will identify and explore the constraints that current funding program limitations place on developing and funding solutions to airport ground access problems and the potential role of collaborative strategies in addressing these limitations. The research will address the current lack of relevant guidance material on how to define and implement such strategies by developing guidance material targeted at planners developing airport ground access projects, as well as recommend potential changes to funding program rules and regulations that could facilitate the development of effective intermodal solutions to improving airport ground access.

Previous Research

In spite of the increasing recognition of the importance of intermodal planning for airport ground access (Vetrovski & Kanafani, 1994; Lacombe, 1994b; Gosling, 1997) and the magnitude of the investments being made in airport ground access projects around the world (Coogan, 1995), the development of information and techniques for airport ground access planning has only recently begun to receive attention from transportation research funding agencies. In an attempt to raise the awareness of these needs among policy makers, in 1994 the FAA sponsored a workshop to define a research agenda to support a national program of airport ground access development (Gosling, 1994). This identified some 15 studies or programs that are needed to ensure that both policy makers and planners have appropriate information and tools, including information on funding strategies (Coogan, 1994; Lacombe, 1994a).

Subsequently, the U.S. Federal Highway Administration and the FAA sponsored the preparation of a planning guide (Shapiro, *et al.*, 1996), which provided a brief discussion of funding sources, and the U.S. Transit Cooperative Research Program sponsored a two-phase study to examine strategies for improving public

transportation access to large airports. The first phase of this study (Leigh Fisher Associates, *et al.*, 2000) examined the current status of public transportation services to large airports in the U.S., presented case studies of successful intermodal airport access systems (primarily rail links) in other countries, and discussed the importance of a market research based approach to planning public transportation services to airports, the potential role of new and emerging technologies, and the institutional factors affecting the operation and funding of airport access services and facilities. The second phase of the study (Leigh Fisher Associates, *et al.*, 2002) addressed in more detail potential strategies for improving public transportation access to airports, including the identification of market conditions where improved public transportation services for airport access are likely to be successful, consideration of the needs of airport employees, improvement of the management of airport ground access services, issues involved in handling baggage, off-airport passenger processing and security, and the role of traveler information systems. However, the second report did not provide any significant information on funding strategies.

A recent study for the California Department of Transportation on ground access to California airports (Landrum & Brown, *et al.*, 2001) addressed a wide range of issues and problems at some 47 airports in the state and one in Mexico, including project selection and funding, and developed a set of associated policy recommendations, four of which specifically addressed project funding issues. The study also identified a set of recommendations for expanded or additional responsibilities for local, state and Federal agencies in the area of airport ground access, several of which involved funding.

More recently, an extensive study of airport intermodal transportation capabilities by the U.S. Government Accountability Office (GAO, 2005) included a review of Federal, state and local funding programs applicable to airport intermodal ground access projects as well as potential private sector funding, undertook a survey of existing and planned bus and rail connections at 72 U.S. airports, and presented the results of 14 case studies of intermodal projects at selected airports.

An on-going study for the California Department of Transportation by the Partnership for Advanced Transit and Highways (PATH) program at the University of California at Berkeley is developing a combined quantitative and qualitative approach to planning for improved intermodal connectivity at California airports. An initial working paper prepared as part of this study (Lu, Gosling & Xiong, 2006) reviewed potential opportunities for improving intermodal connectivity at 13 large and medium hub California airports. A subsequent report (Lu, Gosling, *et al.*, 2006) presented details of a proposed modeling framework for analyzing potential intermodal improvement strategies.

More recently, an Airport Cooperative Research Program report on ground access to major airports by public transportation (Coogan, MarketSense Consulting & Jacobs Consultancy, 2008) included a discussion of funding sources for airport ground access projects.

Research Objectives

The objectives of the research are to identify and document existing sources of funding for airport ground access projects and the associated constraints on how they can be used, together with guidance on how to develop collaborative funding arrangements for such projects within these constraints. The research

will also examine and document past experience on collaborative funding of airport ground access projects and develop recommendations for changes to policies and funding allocation procedures at the Federal and state levels in order to improve the ability to make use of different funding sources to facilitate interconnectivity between transportation modes, including projects to improve airport ground access.

Scope of the Research

The research will explore the limitations on funding airport ground access projects imposed by the rules on eligible projects for funding allocations for the various programs administered by the FAA, FHWA, and FTA, as well as constraints from State and local statutes in California. The first goal of the research is to identify specific policies and regulations that limit collaborative or cross-jurisdictional funding and the reasons for these limitations. The second goal is to define proposed strategies to overcome these limitations and to develop recommendations for ways to amend the relevant statutes and regulations in a way that would facilitate intermodal connectivity without undermining the intent of the existing limitations.

The proposed research will address these goals by undertaking a review and analysis of pertinent literature and funding program regulations and guidelines, in conjunction with interviews with relevant agency officials. This will be supplemented by a case study analysis of recent or planned airport ground access projects that have been able to successfully overcome the limitations of current funding programs through developing collaborative funding arrangements.

Anticipated Results

It is anticipated that the research will result in two products:

1. A guide to collaborative funding of intermodal airport ground access projects, that will document the various funding programs available to support project planning and implementation, review their current limitations, and identify collaborative strategies to overcome these limitations, as well as present case studies of successful efforts to develop collaborative funding strategies for airport ground access projects.
2. A final report that will present an analysis of the past experience with collaborative funding of airport ground access projects and present recommendations for changes to policies and funding allocation procedures at the Federal and state levels

Briefly discuss the applicability/usefulness of the proposed research:

The results of the research will be of immediate use to agencies planning airport ground access projects, by providing a comprehensive source of information on potential funding programs and their associated limitations and restrictions, as well as guidance on developing collaborative funding strategies. The case study analysis will both help identify the issues that need to be addressed in order to overcome the constraints of existing funding programs, as well as document how these have been resolved in some situations, and provide an empirical basis for developing recommended changes to current rules and regulations governing various funding programs

Describe the general methodology, analytical techniques, data sources, etc. to be employed in conducting the research:

The proposed research will consist of a review and analysis of relevant literature and pertinent regulations and funding program guidance documents, supplemented by discussions with funding agency staff as well as appropriate staff of local, state and Federal agencies and consulting firms involved in airport ground access planning. Based on the findings of this review, a summary of the current funding programs and their associated restrictions and limitations will be prepared and distributed to selected agency personnel for review and comment.

This review will expand on the information presented in the recent Government Accountability Office (GAO) report on intermodal transportation at airports (GAO, 2005) by examining project eligibility limitations in more detail and giving particular focus to collaborative funding arrangements.

Following this review, a number of case studies will be undertaken to document how collaborative funding arrangements were developed for selected intermodal transportation and airport ground access projects. It is anticipated that about six suitable case studies can be undertaken within the requested research funding levels. These case studies will focus on California airport access projects, but could also include significant projects elsewhere that offer particularly useful experience. Potential case studies include the extension of the Bay Area Rapid Transit (BART) system to San Francisco International Airport, the planned automated people-mover link between Oakland International Airport and the Coliseum BART station, the AirTrain people-mover link between Newark International Airport and the adjacent railroad station, and the Logan Express system of off-airport terminals developed by the Massachusetts Port Authority. The case studies will be selected to illustrate successful collaborative funding initiatives by multiple agencies, as well as provide guidance on how the limitations of specific funding programs were overcome.

Preliminary information on potential case studies is available from the California Ground Access to Airport study (Landrum & Brown, 2001), the GAO study on intermodal transportation at airports (GAO, 2005), and the on-going PATH study on strategies for improving intermodal connectivity at California airports. This information will be supplemented by case-specific information gathered in the course of the current project from a review of relevant literature and discussions with planning staff at airport authorities and state and local transportation agencies.

On the basis of this information, a list of potential case study projects will be

developed and evaluated on the basis of the following criteria:

- a) extent of collaborative funding (multiple funding sources);
- b) type of project (bus or rail access vs. highway improvement; focus on air passenger access vs. air freight access or both);
- c) nature of the ground access problem being addressed (capacity vs. improved service alternatives; air quality issues);
- d) size of airport and urban environment (large metropolitan area vs. smaller community);
- e) number and type of agencies involved in the project;
- f) whether the project has been completed or is still in progress.

Given the limitations of the project funding, it will not be possible to undertake a large enough number of case studies to cover all possible combinations of the above criteria, and of course some combinations may not yet have occurred. Rather, the approach is to ensure a reasonably wide range of projects that include at least some elements of each of the above criteria. The purpose of the case studies is to illustrate ways in which collaborative project funding has been undertaken in a range of different contexts and to identify issues and problems that have arisen in the course of those projects. While this does not of course guarantee that a particular approach would be successful in ensuring that funding for a project would be forthcoming in other, similar, situations, it does provide a basis for guidance on potential approaches to pursue.

It is anticipated that the initial list of potential case studies might include about ten projects in California and ten projects at airports elsewhere. This list will be reviewed with staff at the Caltrans Division of Aeronautics, together with six suggested case study projects.

Once the list of six selected case studies has been agreed, more detailed documentation of each of these will be assembled. Discussions will be held with appropriate agency staff, and field visits conducted as necessary to gather additional information. It is anticipated that this information would include technical reports, capital improvement plans, and funding request and approval documents, as well as minutes of relevant agency meetings. The case study analysis will pay particular attention to the time required to complete the process from initial planning to implementation, as well as interagency and funding eligibility issues that arose in the course of the project and the factors that appear to have contributed to the successful conclusion of a project (or successful progress to date in the case of projects that are still under way), where success is defined in terms of meeting the initial project objectives within the projected budget and anticipated time frame. While criteria for success of an airport ground access project should also involve cost-effectiveness considerations, determining this is considered to be beyond the scope of the current project, unless it happens to have been already addressed as part of the project planning and implementation. However, in practice there has been very little effort in the past to do post-implementation evaluation of project effectiveness.

This analysis will also attempt to identify factors that could influence the transferability of the findings of a particular case study to other similar situations. These include such aspects as the institutional relationships between the

agencies involved, the extent and level of development of existing regional transportation infrastructure, the composition of the air passenger or air freight market, and the scale of the proposed project in relationship to the overall transportation capital funding levels for both the airport itself and the entire region. While this analysis will necessarily involve a good deal of subjective interpretation, the case studies can at least assemble and present the relevant factual information in a structured way to allow others to form their own assessment of the likely transferability of the findings to any given situation.

Based on the findings of the literature review and analysis of the funding program regulations, as well as the results of the case studies, recommended changes to applicable program rules and regulations, or associated legislative requirements, that could better facilitate collaborative funding of airport ground access projects will be proposed and distributed to relevant agency staff for review and comment.

List and briefly describe in one paragraph the tasks to be undertaken and the timeline for those tasks:

- Task 1: Literature Review** **August 2008 - September 2008**
Review recent literature on funding airport ground access and intermodal projects. Assemble regulatory and guidance information on relevant funding programs for airport ground access and intermodal projects and summarize limitations and restrictions of each.
- Task 2: Agency Discussions** **September 2008 – October 2008**
Hold discussions with funding agency staff as well as appropriate staff of local, state and Federal agencies and consulting firms involved in airport ground access planning in order to clarify how limitations and restrictions of various funding programs are applied, and identify potential case study projects.
- Task 3: Summary of Funding Programs** **November 2008**
Prepare draft summary of the current funding programs and their associated restrictions and limitations and distribute to selected agency personnel for review and comment.
- Task 4: Select and Plan Case Studies** **November 2008**
Based on the literature review in Task 1 and agency discussions in Task 2, develop a list of potential case study projects. Contact relevant agencies and identify availability of information, extent of collaborative funding, and site-specific issues. Select six case studies in consultation with Caltrans staff and plan case study analysis
- Task 5: Perform Case Studies** **December 2008 - February 2009**
Assemble relevant information for each case study in conjunction with discussions with relevant agency staff. Conduct field visits to gather additional information as necessary. Review materials and prepare a summary for each case study project, identifying the extent of collaborative funding involved, the funding issues that arose in each case and how these were addressed.
- Task 6: Assemble Guidance Document** **February 2009**
Revise draft summary of current funding programs prepared in Task 3 to address agency comments and combine with case study summaries

to prepare a draft guidance document on funding strategies for intermodal airport ground access projects. Distribute to relevant Caltrans staff and funding agency personnel for review and comment and revise to address comments.

Task 7: Develop Recommendations February 2009

Based on the findings of the literature review, analysis of the funding program regulations, and the results of the case studies, develop recommended changes to applicable program rules and regulations, and associated legislative requirements, that could better facilitate collaborative funding of airport ground access projects. Distribute to relevant agency staff for review and comment.

Task 8: Prepare Final Report March 2009

Revise the recommendations for changes to applicable program rules and regulation, including associated legislative requirements, to respond to agency comments on the proposed recommendations developed in Task 7, and incorporate in a final report documenting the findings and conclusions of the research.

Following submission of draft report, allow 3 months for peer review, author response, editing, proofreading, and printing. Final completion date: June 2009

Non-MTI funding sources and amounts, if any:

List graphics software to be used, if any, and describe any special publication requirements (CD, for example).

Appendix

References

- Coogan, Matthew, "Technical, Institutional and Funding Issues," *in* Gosling (*ed.*), Ground Access to Airports, (*op. cit.*), 1994.
- Coogan, Matthew A., "Comparing Airport Ground Access: A Transatlantic Look at an Intermodal Issue," TR News, No. 174, November-December 1995.
- Coogan, Mathew A., MarketSense Consulting LLC and Jacobs Consultancy, Ground Access to Major Airports by Public Transportation, ACRP Report 4, Airport Cooperative Research Program, Transportation Research Board, Washington, D.C., 2008.
- Gosling, Geoffrey D., (*ed.*), Ground Access to Airports, Proceedings of Two Workshops Sponsored by the Federal Aviation Administration, Proceedings UCB-ITS-P-94-1, Institute of Transportation Studies, University of California, Berkeley, December 1994.
- Gosling, Geoffrey D., "Airport Ground Access and Intermodal Interface", Transportation Research Record, No. 1600, September 1997.
- Lacombe, Annalynn, "Ground Access to Airports: Funding and Implementation Issues," *in* Gosling (*ed.*), Ground Access to Airports, (*op. cit.*), 1994.
- Lacombe, Annalyn, "Ground Access to Airports: Prospects for Intermodalism," Transportation Quarterly, Vol 48, No. 4, Autumn 1994.
- Landrum & Brown (with Booz Allen & Hamilton, Planning Company Associates, and Nelson/Nygaard), Ground Access to Airport Study, Prepared for the California Department of Transportation, Division of Aeronautics, Sacramento, August 2001. Executive Summary; Working Paper One: Roles and Responsibilities; Working Paper Two: Issues and Problems; Working Paper Three: Recommendations.
- Leigh Fisher Associates, in association with Matthew A. Coogan and MarketSense, Improving Public Transportation Access to Large Airports, Transit Cooperative Research Program Report 62, Transportation Research Board, National Academy Press, Washington, D.C., 2000.
- Leigh Fisher Associates, in association with Matthew A. Coogan and MarketSense, Strategies for Improving Public Transportation Access to Large Airports, Transit Cooperative Research Program Report 83, Transportation Research Board, National Academy Press, Washington, D.C., 2002.
- Lu, Xiao-Yun, Geoffrey D. Gosling and Jing Xiong, Opportunities for Improved Intermodal Connectivity at California Airports, California PATH Working Paper UCB-ITS-PWP-2006-1, California Partners for Advanced Transit and Highways, University of California, Berkeley, March 2006.

Lu, Xiao-Yun, Geoffrey D. Gosling, Steven E. Shladover, Jing Xiong and Avi Ceder, Development of a Modeling Framework for Analyzing Improvements in Intermodal Connectivity at California Airports, California PATH research Report UCB-ITS-PRR-2006-14, California Partners for Advanced Transit and Highways, University of California, Berkeley, July 2006.

Shapiro, Phillip S., *et al.*, Intermodal Ground Access to Airports: A Planning Guide, Prepared for the Federal Highway Administration and the Federal Aviation Administration, Report. No. DOT/FAA/PP/96-3, Bellomo-McGee, Inc., Vienna, Virginia, December 1996.

U.S. Government Accountability Office, Intermodal Transportation: Potential Strategies would Redefine Federal Role in Developing Airport Intermodal Capabilities, Report GAO-05-727, Washington, DC, July 2005.

Vetrovsky, Daniel L., and Adib Kanafani, The Potential Role of Airports as Intermodal Terminals: Lessons from International and Domestic Experience, Research Report UCB-ITS-RR-94-3, Institute of Transportation Studies, University of California, Berkeley, March 1994.