A Combined Quantitative and Qualitative Approach to Planning for Improved Intermodal Connectivity at California Airports

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Project Team: Dr. Xiao-Yun Lu, Dr. Steven Shladover, Ms. Jing Xiong (PATH); Dr. Geoffrey Gosling (Aviation System Consulting, LLC); Prof. Avishai Ceder (Israel Institute of Technology)

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The effective functioning of the airport ground access system is a critical component of the successful development of major airports. As increased attention is being given to improving the interface between the air and surface transportation systems, there is a growing need to develop better coordination between the wide range of stakeholders involved. The recent emphasis on intermodal transportation in the United States and elsewhere has created new opportunities for funding airport ground access projects. However, the identification of appropriate projects that are worth funding and can generate the necessary institutional support, particularly in a climate of competing priorities and budgetary constraints, has proved more difficult. Although there is a considerable body of literature on airport ground transportation issues, much of this is primarily descriptive and there is a notable lack of widely accepted analytical tools to evaluate proposed projects or strategies to enhance intermodal transportation. The proposed research will address this deficiency by developing a prototype Intermodal Airport Ground Access Planning Tool for use in evaluating potential projects to improve intermodal connectivity at airports, and developing a set of policy recommendations and planning guidelines to facilitate the implementation of such projects.

The proposed research will use a combined qualitative and quantitative approach to analyze the effectiveness of alternative strategies for improving intermodal connectivity at airports. The qualitative approach will involve a case study analysis of a selection of representative airports to identify and evaluate the potential effectiveness of alternative projects to improve the connectivity between the airports and the rest of the intermodal transportation system. This will be supplemented by a more detailed quantitative analysis of selected case study airports utilizing a mathematical model, termed the Intermodal Airport Ground Access Planning Tool (IAPT), that will be developed in the course of the research. The IAPT will be designed to provide an analytical environment that integrates existing data sources and transportation network analysis software with improved models of air passenger and airport employee travel...
choice behavior to evaluate the costs and benefits of proposed projects to improve intermodal connectivity at airports. Based on the results of this case study analysis, policy recommendations and planning guidelines will be developed and reviewed with Caltrans and other stakeholders.

At the end of the project, two products will be delivered: (1) the prototype Intermodal Airport Ground Access Planning Tool (IAPT) software, together with relevant user documentation. The software structure is depicted as in Figure 1; (2) a set of policy recommendations and planning guidelines based on the analysis performed during the research. The IAPT software will be usable by Caltrans, regional planning agencies, and other relevant organizations to support advance planning for intermodal projects intended to enhance airport ground access and to undertake quantitative analysis of potential policy issues affecting intermodal connectivity at airports. The policy recommendations will include suggested implementation actions that Caltrans could pursue to support enhanced intermodal connectivity at airports. The planning guidelines will complement the recommendations of a previous study of airport ground access for Caltrans by a team led by Landrum & Brown by providing guidance on the design and planning of specific projects.

Figure 1 Software Structure for the Intermodal Airport Ground Access Planning Tool