

CONSTRAINTS AND THEIR INFLUENCE ON AIRPORT LANDSIDE CAPACITY

Gordon A. Miller, California Department of Transportation

OBJECTIVES

1. Identify the most serious constraints on airport landside capacity and group them in related categories.
2. Identify the various ways in which these constraints affect landside capacity.
3. Develop forecasts of the type and character of constraints that will likely influence airport landside capacity and capacity requirements during the next 20 years.
4. Recommend research and development projects that will extend knowledge of the effect of the various constraints on airport landside capacity and identify means of reducing the effect of those constraints.

PARTICIPANTS

Gordon A. Miller, chairman, W. Bruce Allen, Homer B. Anderson, Benoit Baribeau, Phil Bowes, J. M. Duggan, William R. Fromme, Walter E. Gillfillan, Thomas M. Johnston, Herbert Kahlert, Ruth L. Kleinfeld, W. L. Metzger, Harry A. Miller, Inez Sletta, and George Smith

The Workshop 3 participants represented a wide range of interests in airports. There were independent aviation planning consultants and members of consulting firms; representatives of the U.S. Department of Transportation, the Federal Aviation Administration, and the Canada Ministry of Transport; city, county, and state aviation personnel, including one representative of a Canadian city engaged in developing a major new airport; a faculty member of the regional science department of a university; and a manager of a company that provides bus service at several major airports. Not represented were the airline companies, and participants

recognized this shortcoming and attempted to compensate for it by considering in all of their discussions what was thought to be the airline point of view.

Preliminary discussions revealed the necessity for adopting a definition of constraint. The group agreed on the definition used by Kleinfeld in her resource paper: Constraint is . . . any influence that contributes to shaping the planning or implementation of a goal by narrowing in some fashion the decision maker's choice. This definition, agreed to at the outset, was used as a reference for items subsequently discussed.

Participants identified 9 categories of items relating to airport landside constraints, each with several subcategories. These are given in Table 1. Not all of the constraints apply at all airports, but some are common to all busy airports. The sharing of airline ground facilities is a factor that should be considered at all airports that experience landside capacity problems. Although many difficult problems must be resolved to put such sharing into effect, efforts should be made to do so because of the magnitude of the impact of providing separate facilities for each airline.

Other factors that involve problems difficult of solution are the multijurisdictional control of the airport, its ground access, and surrounding land use; environmental statutes and regulations; traffic peaking; and adequate funds for necessary development.

Table 1. Constraints to airport landside capacity.

Category	Subcategory	Research Needed
Sociopolitical	Community goals and attitudes Special interest groups Political structure (multiple jurisdictions) Characteristics of travelers	Influence of increased social awareness on the implementation of airport expansion programs Effect of type of ownership (city, county, authority) on landside capacity Problems of multiple-jurisdictional interests Characteristics of airport population
Regulatory and institutional	International (health, immunization, agriculture, customs) Federal State Local	International passenger processing Multijurisdictional problems in intermodal and multimodal planning Methodologies for assessing and evaluating economic, legal, and political implications to all interests of peaking air traffic
Physical characteristics	Airport plant and land Local vicinity Regional characteristics	None
Financial	Federal fiscal policy Existing debt structure Local debt limits Income generation Operating agreements Existing leases Inflation	Federal ADAP landside participation policy Evaluation of financial needs and capabilities of air carrier airports
Operational	Operating users (ground transportation, airlines, retail businesses, parking, valet parking, automobile rental, displays) Traffic characteristics (control of peaking) Security control Processing (baggage, cargo, ticketing) Airport population characteristics Gate sharing	Effect on system of making landside changes at one point Present and future impact of airport security regulations on airport landside capacity Requirements for landside facilities separated by airlines
Airport management	Information needs Labor relations Negotiation strategies Evaluating management	Information needs of airport management Evaluation of airport management
Technical	Energy Airline equipment Technological evolution	Constraining effects of policies to conserve energy
Economic	Modal competition Benefit cost analyses (limitations) Forecasting limitations General economic conditions Opportunity costs	Effect of modal competition on short-haul air traffic and airport design Benefit-cost analysis of capacity-increasing projects Airport service pricing options Impact of airline marketing practices on airport capacity requirements
Environmental	Noise Weather Pollution Ecology Environmental laws Lack of interjurisdictional cooperation Compliance with clean air act	Constraint of environmental statutes on landside capacity development

Participants differentiated between short- and long-term constraining influences as a device to assist with establishing priority recommendations for the research and development projects that are recommended. The attempts to assign priorities were unsuccessful, and the participants agreed that this must be done later by others who have the time to consider carefully all the recommendations of this workshop along with recommendations made by the other workshops at the conference. Participants also agreed that they should not develop 20-year forecasts of constraining influence because of time limitations. They acknowledged that the uncertainty of future trends of events affecting airports is a potent constraint on developments that would improve landside capacity. Much of the research recommended is needed to produce the information and the methodologies and techniques required before such long-range forecasts can be made.

Much of the discussion centered on subjects related to the creation of a social and political climate for stimulating development projects designed to increase landside capacity. The constraints on such development projects by a negative community attitude toward the airport have been powerful in recent years. However, in the midst of this trend, some airports have been able to continue normal development with little difficulty. Some efforts must be made to determine why these airports have been able to succeed and to find ways to apply this knowledge to other airports.

Multijurisdictional influence over many airports through control of ground access routes, control of land impacted by airport noise, taxing powers, police power, and other factors adds to and sometimes helps to create negative community attitudes toward the airport. These multijurisdictional problems have been recognized and discussed widely, but they have been difficult to resolve. We must begin to study them seriously if airports are to function effectively.

Another major area of discussion concerned ways to level out the peaks and valleys of landside traffic. To the extent this can be accomplished, the demand for capacity will be lowered even though the airport continues to serve the same or even a larger number of people. Another way to increase capacity of existing facilities is to streamline passenger-processing procedures.

Research and development projects proposed under the 9 general categories of constraints to airport landside capacity are also given in Table 1. Many of the proposals are not strictly research projects; they are more in the nature of investigations leading to changes of policy. They are, however, needed to help solve the problems of landside capacity constraints.

In summary, Workshop 3

1. Identified and categorized the most serious constraints on airport landside capacity;
2. Identified the various ways these constraints affect landside capacity in the various research and development project statements, which are part of this report;
3. Did not forecast the type and character of constraints likely to influence airport landside capacity and capacity requirements during the next 20 years (participants agreed it was not feasible to attempt such forecasts during the time available but recommended that such forecasts be made, using as the basis for them the information, techniques, and methodologies developed by research resulting from this conference); and
4. Prepared statements of research and development projects but did not arrange them in priority order because there was not enough time at the conference to give adequate consideration to the priorities of the proposed research (this work must be done by others who have more time and who can also consider the recommendations of the other workshops).

In reviewing their work at the conclusion of the conference, participants recognized that they had emphasized items that led to a lowering of demand for landside capacity through better use of existing facilities. This emphasis was not a conscious goal and was not so strong that it caused the need for additional facilities to be overlooked.

Participants agreed that the emphasis on better use of existing facilities was a natural result of their efforts and that it was a proper conclusion. Some participants, however, disagreed and thought that more emphasis should be given to development of facilities for additional landside capacity.