

PROVIDING AND MANAGING AIRPORT LANDSIDE CAPACITY

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OBJECTIVES

1. Examine the criteria that have been used for determining whether new landside capacity is required and consider whether they are sufficient to support judgments concerning physical, institutional, financial, and timing needs.
2. Determine whether additional or changed criteria can be developed to improve the judgmental process and recommend areas for research and development.
3. Consider the methods that can be used to provide and support new landside capacity when improved use of existing facilities will not suffice.
4. Examine the role of airport management in achieving the required levels of landside capacity in the most cost-effective manner.
5. Recommend data, practices, education, and training to assist management in the performance of its role.
6. Recommend research and development programs that will be useful to airport management confronted with problems of landside capacity.

PARTICIPANTS

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This workshop focused on all problems involved in providing and managing landside capacity. More specifically, the workshop tried to evaluate the usefulness of various criteria to providing new or additional landside capacity. Participants viewed these

problems as airport management tends to see them. The major conclusions of the workshop were that purely technical criteria have been overemphasized and that increased emphasis must be given to economic guidelines, particularly since reliable long-term air traffic forecasts do not exist.

Forecasts beyond 5 years are unreliable although airline companies, manufacturers, and airport operators have traditionally attempted to make 10- to 15-year forecasts. The manufacturers can develop and produce both new and derivative aircraft in 3 to 5 years, and the airlines need approximately the same length of time to plan for the operation of these aircraft; but commitments for new airports and minor facilities must frequently be made 5 to 10 years before operation. This coupled with the need for municipalities or airport authorities to enter into long-term financing commitments with debt service write-offs during a 20- to 30-year period dictates that forecasts for facility planning be adopted years before operating data are available.

Because of the unreliability of long-term forecasts, landside development costs should be developed for a range of possible forecast values so that planners and decision makers can weigh the alternate costs associated with each level of projected demand before making final decisions. Such a practice would provide an indication of the cost of error in overestimating or underestimating and would help to ensure that the courses of least versus highest risk are given economic visibility. The workshop recommended that FAA system and master planning grants require that alternate planning strategies for different levels of forecasts be developed by the sponsors and that the grants include adequate funds for this purpose.

CRITERIA FOR DETERMINING LANDSIDE CAPACITY

Purely technical criteria have been overemphasized in planning landside capacity. Escalating costs and curtailed traffic growth give new emphasis to economic guidelines and the need to control capital and operating expenses.

The cost of airline gates provided varies from \$200,000 to \$3 million per gate, and the cost of terminal space has similar disparities. Better management and control in the planning process could narrow those differences.

Terminal building design also varies from the spartan to the luxurious. Many factors and many parties have been responsible for providing passengers with more than they may need in many cases. At the same time, passenger comfort and convenience and aesthetics have played an important part in the acceptance and growth of air travel. But cost considerations have now become critical, and airline and airport management should share the responsibility for exercising sound principles of cost control.

Can there be precise economic criteria devised for terminal building development? The answer seems to be that there cannot because there are too many variables: Land availability, nature of the air traffic, integration with existing structures and roadways, climate, and local governmental policy are some of them. But general cost guidelines can and should be used as aids in the decision-making process.

Suggestions have been made from time to time for the FAA to require a uniform system of airport and airline accounts so that it can evaluate the need and cost effectiveness of proposed programs eligible for ADAP funding. This, however, seems to be in opposition to the intent of the proposed administration legislation that would return ADAP funds to the municipalities and airport authorities to use at their discretion for airport development. The proposed law, therefore, recognizes the desirability of local control and, conversely, the undesirability of too much control at the federal level.

EVALUATING THE NEED FOR ADDITIONAL LANDSIDE CAPACITY

Each airport terminal is unique, and to compare them or to establish common standards for all of them is difficult. However, to establish guidelines for types of airport

terminals may be possible. The guidelines must be broad enough to include the nature of the terminal operation (shuttle, international, domestic operation), the size of the airport, and the characteristics of some passengers (elderly, handicapped). The following guidelines are suggested for evaluating the need for additional landside capacity.

1. Forecasts of the needs should be derived from the best available data of the individual function. To measure capacity or project future needs, airport managers must divide airport landside capacity into its components and consider each one individually. This process parallels that used in solving the choke-point problems. For example, the curbside may be the major restriction to vehicular flow. After this problem is corrected, a problem may arise in the intersection leading into the airport or in the ticketing lobby, or in the baggage claim area. Although the problems are treated separately, the components are interrelated and may impinge on one another.

Each component is impacted by the aircraft schedule, i.e., arrival and departure times by airline, aircraft types and capacity, load factor, and origin and destination. Because aircraft schedules are so important to effective decisions with regard to airport capacity, reliably forecasting schedules seems to be a logical choice for future study grants.

There are methods for forecasting many expansion needs. The workshop recommends that a catalog be made of the tools for forecasting expansion needs and the need for new terminal or airport construction. Such tools can only be general guides subject to all local circumstances and airport management subjective evaluations.

2. General indicators should warn that a component is heading for trouble. Although given an agreed-on schedule forecast, planners still require considerable information to effectively plan. Valid activity indicators are required to convert the schedule into sizing needs for each component and subsystem of the landside complex. Some of the activity indicators discussed and recommended for possible study projects are local point of passenger origin and destination, trip origin and destination, ratio of "meeters and greeters," average bag per passenger, oversize bag mix and dimensions, group travel, times between arrival at airport and departure, modes of arrival and departure at airport, trip purposes, and behavior patterns that influence demand on components, for example, drivers that drop off passengers at the door before parking the car.

Those elements that the workshop expects to reach capacity at many airports in the next few years are airport access, baggage handling, and aircraft gates. Airport access is generally viewed as the single major problem. It is compounded because access facilities are partly outside airport boundaries (and thus beyond its jurisdiction), are subject to political and environmental considerations, and sometimes require enormous resources to improve. Studies under way of various solutions to access problems should be helpful. In addition, consideration should be given to establishing exclusive lanes on airport access roads for buses, limousines, and other high-occupancy vehicles and to undertaking demonstration projects to determine the effectiveness of these measures.

3. Criteria to establish desired or achievable levels of service should be based on public policy, experience, funding capabilities, technical and physical constraints, and environmental considerations. Some criteria, such as level of service or acceptable delays, will indicate achievable goals while other criteria, such as environmental ceilings, will act as constraints. Adequate criteria exist to determine capacity, and a number of models exist that provide indications of airport landside needs. The major problem is to obtain resources to solve the problem of capacity limitations. From a technical standpoint, considerable progress has been made in planning more effective terminals. If the resources are available to implement the plans, future capacity problems can be considerably lessened or eliminated altogether.

4. Alternatives to resolve problems should be based on available local options. Timely action on airport projects to improve capacity is sometimes prevented by the involvement of federal, state, and local governments in airport affairs. Results of studies already made should be examined to document the types of problems, their causes, and means for improving the planning and plan implementation process.

MANAGEMENT AND TRAINING

Ultimately, the airport management must rely on subjective evaluation. Each landside element must be examined to establish optimum traffic flow. This could result in an ongoing program of attacking the choke points.

Airport management must also plan and keep the total operation functioning. Therefore, planning must be a continual, ongoing process based on day-to-day circumstances, many of which cannot be anticipated (governmental decisions including new security rules, promotional fare regulations) and unexpected airline business decisions (cancelling or adding new flights, bunching flight arrivals).

Airport managers and their staffs need to improve their managerial skills as distinguished from their technical skills. Airport managers are responsible for revenues and expenses that range from several hundred thousand to more than \$20 million per year. They must have the same broad managerial skills as are needed to manage a major corporation with thousands of employees. Trade associations and seminars conducted within the industry meet only a part of this need. Continuing education programs at the university level are needed to assist airport managers to broaden their management skills. The workshop recommends that this be given further study and that grants be considered for a training program that may be proposed.