understanding of how their technical knowledge relates to that of other areas. Hence, there has been a limitation on the degree to which information in a topic area is used to enhance information in other topic areas. This lack of comprehensive information correlation and analysis has led to differences in the level of overall understanding of airport and airspace system operating conditions and development needs.

Summary Comment

Despite the extent of the analyses and data collections that have been accomplished, there is a concern that the capacity and delay information is insufficient in the sense that various data appear to be incomplete and semi-accurate. This situation results from data gaps, various degrees of lack of confidence in the accuracy of available performance measurements, a divergence of opinions on analysis methods, and a constrained flow of research information. This situation may prove to be particularly critical if it complicates efforts to develop consensus views on congestion problems and appropriate system improvements.

EFFECTS OF AIRPORT ACCESS/EGRESS AND LANDSIDE PROCESSING

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As described in Dr. Eisner's summary paper, "inefficient airport access/egress/processing" was ranked tenth (last) as a problem and action area by committee members. Although such inefficiencies are important landside issues, they were not considered critical to airfield and airspace capacity and delay problems and solutions by committee members.

In this paper, "inefficient airport access/egress/processing" is assumed to refer to inefficiencies in processing vehicles, people, baggage, and air freight in the airport landside elements such as the access roadways, curbside, parking facilities, and the passenger terminal building.

Inefficient access/egress/processing can be important to airside capacity and delay because it can result in:

- Underuse of airports in major metropolitan areas
- Deferral of needed airside improvements
- Competition for limited resources.

Underuse of Airports in Major Metropolitan Areas

Airport access/egress/processing may be a significant factor in determining which of several airports in a major metropolitan area air travelers choose to use. The access/egress time or distance to a particular airport may be perceived as a problem by air travelers and the airlines (whether or not it actually is a problem). Such perceptions probably explain at least in part why there are several major metropolitan areas where one airport (or airports) is saturated while another airport is underused.

Newark International Airport. For example, consider Newark International Airport, one of three air carrier airports in the New York metropolitan area. The other two airports, John F. Kennedy International and La Guardia, probably have experienced the greatest air traffic congestion of any United States airports; Newark's capacity has been underused.

The Port Authority of New York and New Jersey, which operates all three airports, has attempted to encourage air travelers to make greater use of Newark so that Newark would accommodate a larger share of regional air traffic in the future. It has established programs for Newark that include improvements in ground access, public education, and creation of incentives for increasing service.

Dulles International Airport. In the Washington, D. C. area, many air travelers prefer to use Washington National Airport rather than Dulles International Airport because the distance to Dulles from downtown Washington is much greater, which partially explains why the airside at Washington National is saturated while Dulles airside capacity is underused.

Improvements are currently underway to reduce access/egress times to Dulles. For example, the extension of the Dulles access highway to Interstate Highway 66 is expected to reduce driving time between Dulles and downtown Washington, D.C., by about ten to twenty minutes, depending on the time of day.

Deferral of Needed Airside Improvements

Inefficient access/egress/processing is sometimes used to justify the deferral or rejection of needed airfield and airspace capacity improvements. For example, it might be judged that because an existing passenger terminal or access/egress roadway and parking system is congested, no airfield or airspace capacity improvements can be justified. Such improvements are sometimes believed to generate (or attract) more air traffic activity that, in turn, would further aggravate the landside congestion problem.

Although it is desirable to strive for a reasonable balance between airside and landside capacities and use, there are unique interactions between the airport airside and landside in terms of the consequences of congestion that must be considered. Congestion on the landside should not necessarily preclude the implementation of needed improvements in the airside (or vice versa).

In reality, congestion on the airside has much greater effect on landside capacity and delay than congestion on the landside has on airside capacity and delay. For example, delays to scheduled aircraft arrivals and departures caused by airside congestion can create major overloading and congestion in the landside facilities, particularly at the airport curbside.

Passengers have more flexibility in moving through the landside system than aircraft have in moving through the airside system, and the responses of passengers to congestion differ from the responses of aircraft operators. The "units" processed on the landside (e.g., passengers) do not operate according to a fixed time schedule or a strict set of rules and procedures such as those that apply to the movement of aircraft. If a particular landside process is known to be congested, passengers can adjust when they arrive at the airport to allow sufficient time for processing before they can board their flight with little or no effect on airside capacity.

Therefore, particular airfield improvements may be justified even if severe congestion exists in the landside area. In such cases, the savings or reduction in aircraft delays or travel times alone may warrant the particular improvement, even if no change results in the landside situation.

Competition for Limited Resources

Inefficiencies in access/egress/processing on the landside can also have important indirect effects on airside capacity and aircraft delay. To the extent that all airport improvements must compete for the limited financial resources and land available to the airport operator, the implementation of improvements needed to reduce landside inefficiencies may preclude the implementation of airside improvements needed to increase airside capacity and reduce aircraft delay.

Suggested Improvements to Airport Access/Egress/Processing

Members of the committee suggested four types of improvements to airport access/egress/processing:

- Improve passenger processing to/at airport
- Process passengers at a city terminal
- Provide rail connections to airport
- Institute remote airport parking with people movers.

These and other types of access/egress/processing improvements merit consideration to the extent that they may enhance the perceived accessibility of the underused airport in a major metropolitan area. Otherwise, their effect on airside capacity and delay is probably minimal.

Summary and Conclusions

Inefficient access/egress/processing (whether actual or perceived) may be a primary reason why people choose not to use certain airports in a metropolitan area, such as Newark International Airport and Dulles International Airport. Thus, inefficiencies in access/egress/processing can affect overall effective airside use and delay.

Such inefficiencies can also result in the deferral of needed airside improvements, although such deferral may not be justified. In addition, all airport improvements must compete for limited financial resources and land. Passengers have more flexibility to adapt to congestion on the landside, compared with the flexibility aircraft operators have to adapt to congestion on the airside. Therefore, one can usually assume that landside congestion has little effect on the capacity of the airside system.

The committee members have ranked the subject of efficient airport access/egress/processing as the least important of the ten problem and action areas they considered. The potential effects of landside congestion on airside capacity and delay, as described in this paper, are such that they should remain a low-priority concern of the Transportation Research Board Committee on Airfield and Airspace Capacity and Delay.