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SOME ASPECTS OF PLANNING FOR NEW SOURCES OF AIRPORT REVENUES

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WITH the sustained high growth rate in the volume and importance of air transportation in the United States, there has been a concomitant change in the nature of and enlargement of the functions of the airfield. No longer is it a patch of level ground in a very sparsely settled locality, providing room for airplanes to arrive and depart, service facilities for the equipment, and some minimal conveniences for the passengers. We shall be concerned here with some of the aspects of this change which relate to the service of *persons on the ground*.

There have been three distinct sets of forces at work bringing about this change. First and most important, of course, has been the growth in air traffic and in the services provided to air travelers. This is reflected largely in the immense increase in the size, complexity and refinement of the terminal buildings.

Second, the airport has, in many communities, become an important locus for recreation, employment, dining, and shopping for the citizenry. There are many reasons for this, among which is probably the circumstance that the high quality of the services provided initially for airline passengers has served to attract others. Not the least important of the reasons is the general interest and excitement which aviation and airplane operations hold for Americans of all ages and backgrounds. This non-transportation use of airport facilities has grown in some areas to the extent that some airport restaurants (i.e., Denver, Newark) find that more than 80% of their dinner meals are served to persons who come to the airport for the specific purpose of dining, and who enjoy, in addition to the food, the exciting environment and the view of the landing area with its comings and goings. This experience has doubtless been shared by other concessionaires in other areas. Related to this is the heavy utilization of observation deck facilities, not only by passengers and their escorts but also by townfolk who come to the airfield for the purpose of observing the activities.

The third factor in the change has been the phenomenal growth in the suburbs of American cities in the past fifteen years. In some cities this has resulted in the growth of populated areas up to and even around the airport area. These suburban populations, consisting largely of homeowners, are typically of relatively high average income.

These three forces; i.e., the growth in air traffic, the increasing

non-transportation use of airport facilities, and the growth of the suburbs, have helped to bring about the vast changes in the nature and scope of the functions of the airfield establishment. However, the growth is not at an end. New ideas and new approaches are always coming forward. Even the most highly developed airports are undergoing constant change. Among the newer facilities which are being added or contemplated are: bank branches, public garages, hotels, and retail shopping facilities. The first two may be regarded as the extension and enlargement of facilities of the same general nature as those that have become common throughout the country. Some airport banks for example, report the bulk of their business to consist of personal loans to airport employees.

The latter two, hotels and retail shopping facilities, and especially the last, represent new and perhaps more daring departures as sources of airport revenue.

This paper will explore some aspects of the planning for these two kinds of services.

AIRPORT HOTELS

The airport hotel, while only a few years old, has had a great deal of publicity and has enjoyed a large measure of success. Experience seems to indicate that, in general, the demand for hotel rooms at airports has been greater than had been anticipated, and that very high occupancy rates have resulted. The result is that the more newly planned airport hotels are typically larger in relation to the traffic at the airport than were the early experimental ventures.

The market for airport hotel rooms has many bases. In addition to its position as another commercial hotel competing with the other downtown hotels and enjoying the various competitive advantages and disadvantages of its peculiar location, it offers attractions that could not be provided by competing hotels in the other areas of the community. Some of the important sources of airport hotel patrons are the following:

1. Visitors to the airport and its business establishments. This is particularly important at those airports where one or more of the airlines maintain extensive office, maintenance, or training establishments. Such visitors are, of course, most conveniently served by hotel facilities on the airport site, particularly if their itinerary includes arrival and departure by airplane.
2. Airline personnel. In general, flight personnel seem to prefer to spend their one-night stopovers in town where there is more activity. However, when the schedule is tight, and there is little time for amusement, the convenience and time savings can be telling factors in favor of the airport hotel. This seems to be particularly applicable in the case of international crews at gateway terminals.

3. Connecting passengers. The airport hotel has been used not only as a convenience for those passengers who are of necessity faced with a connection of several hours, but it has also made feasible certain otherwise inconvenient late evening-early morning connections. In these cases, the cost to the traveler of the flight with hotel room at the connecting point is no greater than would be a through flight since, in that event, there would be a hotel room required at the destination. In general, the use of hotel facilities by connecting passengers may be expected to be most intensive in the case of international passengers connecting with domestic flights.
4. Private flyers. The airport hotel can be very convenient to the private flyer, who might like to change clothes and freshen up before going into town. It also makes it more convenient for him to arrive and depart at any time of the day or night.
5. Other travelers. For many travelers, the airport may be more convenient than a downtown location, particularly if the visitor cannot be certain when his business will be completed and he will be free to leave. In that case, if he is anxious to leave as soon as he is free, the airport is, of course, the convenient base from which he may act as "stand-by" on flights departing earlier than that on which he holds space.
6. Guests of persons and businesses in the local suburban areas.

The airport hotel is here to stay, and we can expect to see more and more of them erected. However, there are serious problems created by the hotel and its needs, especially if the hotel rooms are not to be in the terminal building itself. These problems are concerned largely with the desirability and consequences of providing the usual hotel dining, wining and service facilities which may be directly competitive with similar facilities already established in the terminal building. If the rooms are in the terminal building, the regular facilities will probably suffice, but, if the hotel is to be a separate building, the hotel operator is hampered if he cannot provide these services in the hotel premises, and the terminal building concessionaires are likely to take a dim view of the prospect of such nearby competitive facilities.

In any event, there is considerable interest and activity in the planning and construction of airport hotel and motel facilities. A very recent survey conducted by the Airport Operators' Council indicates¹ that, while there are such facilities now in operation at six airports, there are bids out or contracts pending for four others, and airport hotel facilities fit into the future plans at seventeen other cities. Present facilities reported in that survey include hotel facilities at Houston, Pittsburgh, and San Juan, roomettes at Baltimore, and motels

¹ The author is indebted to Mr. Thomas Burnard of the Airport Operators' Council for making available and permitting the publication of these results of that survey.

at Philadelphia and Jacksonville. Firm intent was reported in connection with hotels at San Francisco within one year and at New York's Idlewild Airport within two years, and motels at Louisville and Tampa within one year.

Hotel facilities were reported to fit into the future plans at Cincinnati, Cleveland and New Orleans for possible action within one year; Birmingham, Denver, Minneapolis-St. Paul, Nashville, and San Antonio for possible action within two years; Atlanta, Columbus, Dallas, Oakland, Oklahoma City, Portland, St. Louis, and San Diego within five years, and Boston for action at some less clearly defined future date.

RETAIL SHOPPING FACILITIES

The large amount of activity at airports, the increasing high and middle income populations in the vicinity of airports, the large amounts of buffer land held unproductive on the airport site, the increasing importance of the suburban shopping center, the shortage of suitable sites for the erection of shopping facilities, and the architectural and merchandising custom of providing suburban shopping facilities in low one- or at most two-story buildings, all suggest that perhaps, in many areas, the airport location might well be considered as a possible site for the location of new retail shopping facilities. These facilities should be regarded as primarily serving the needs of the residents of the surrounding areas, rather than those of persons who, for other reasons, come to the airport.

In analyzing the airport site to ascertain whether shopping facilities might be appropriate, there are several important considerations involving economic, legal, zoning, and public relations aspects. Here we will be concerned primarily with the economic problem of analyzing the potential market to determine whether it is sufficient to warrant the erection of retail shopping facilities.

It must be borne in mind that one of the most important merchandising aspects of suburban shopping centers is that they represent *integrated* shopping facilities permitting the customer to select among and purchase a more or less wide variety of items. For this reason, there is a minimum market potential below which the project is not feasible. However, the range of possible store-mixes and total sizes is quite large, varying from the small neighborhood type shopping center to the large regional center. The former may require as little as 5 acres and serve the needs of 1,000 to 3,000 families with respect to "convenience" goods such as food, drugs, automobile service station, and personal services such as laundry, barber, and beauty parlor. The latter, the regional shopping center, is a small-scale approximation of a downtown retail shopping district. It may contain one or more department stores, and it will also provide competing specialty stores. The center as a whole will thereby offer a full line of "shopping"

goods, such as fashion items and house furnishings. Regional shopping centers may utilize as much as 50 or 60 acres and may have 250,000 people in their trading area.

One of the complications in the analysis of the market for prospective shopping facilities is the fact that the size of the potential market affects the size and scope of the shops that may be deemed appropriate. On the other hand, the size and scope of the shopping facilities determine the pulling power of the shopping center and therefore control the size of the potential market. Since it is necessary to cut into this circle somewhere, it might be found that the first tentative roster of stores was unduly optimistic or pessimistic. Analysis might indicate that a shopping center of the originally contemplated size or type could not expect to be successful, while another scheme on the same site would be promising. Indeed, the market analysis may result in the rejection of the site, while another site in the area might be well-adapted to the purpose. On the other hand, the physical nature of the site may place severe limitations upon the store-mix and therefore confine the trading area and decrease the scope of the market.

In the case of the analysis of an airport site, the problem of economic analysis is already somewhat limited because the site is a given factor. The analysis does not encompass the determination of the relative merits of several alternative sites. The purpose is merely to ascertain the feasibility of this kind of utilization of the fixed site, presumably for the purpose of making the heretofore unused or less profitably used acreage yield new or increased income.

Of course, the site must be examined to ascertain whether it is satisfactory from the point of view of: size, topography, costs of development, transportation and access, highway adequacy, and attractiveness. It is probably safe to generalize that airport sites are typically satisfactory in all or most of these respects. That being the case, all that remains is the economic analysis.

While a final market analysis for the actual decision about the number, kinds, and sizes of retail stores to be erected should be made by a person or persons experienced in these matters, it may be generally useful both for preliminary cursory examination of possible sites—and for general information—if a brief exposition of the techniques and enumeration of the important considerations involved in such market analysis is presented here.

The important matters to be considered in such a market analysis include: the physical size of the trading area (the area from which customers may be expected to come), the population of the trading area, the income distribution in the trading area, expenditure patterns in the trading area, existing competitive retail facilities, and possible competing sites for future development.

The size of the trading area is a function of the automobile driving time. Since suburban shopping centers may in general be interpreted

as an adaptation of retail land use to the automobile age, and since, therefore, one may assume that the bulk of the patrons will arrive and depart by private automobile, the boundaries of the trading area may be defined by the isochrons of driving time constructed about the site. The number of minutes of driving time which might be appropriate will, of course, vary, depending on the size and shape of the contiguous built-up areas, the relationship to competing (especially downtown) shopping areas, and local customs and attitudes about what constitutes a reasonable driving distance. Perhaps twenty to twenty-five minutes driving time may be suggested as a reasonable first approximation for the outer boundary. Of course, in those directions in which there are no competing shopping facilities, the trading area may well be extended for considerable distances beyond this figure.

The total area should be drawn on a map showing the census tracts or minor civil divisions as defined by the Bureau of the Census. The current population of each of these areas should be obtained. It must be emphasized that the 1950 census population figures may be seriously outdated in mid-decade, especially for suburban areas such as are under consideration here. A simple technique is to use the 1950 census figures for census tracts or minor civil divisions as a starting point and to bring them up to date by using data for housing permits, utility meters, school censuses, etc. In these ways highly useful current population figures may be obtained easily and inexpensively.

Income figures again are available from the 1950 census, but these may not be so easily brought up to date. However, there are some published figures which may be used to compute ratios to modify the decennial census figures and thereby provide estimates of current income levels. The figures for per capita income payments as compiled by the Department of Commerce or income data published by the Bureau of Internal Revenue may be found useful for this purpose.

The income figures for each minor civil division must be translated into expenditures, and this may be done by ascertaining the expenditure patterns for consuming units (or households) in the various income groups and multiplying the expenditures per household for various consumer items by the number of households in the appropriate area. This requires a knowledge of how consumers spend their incomes. Such information has recently become available from the Bureau of Labor Statistics as a result of extensive consumer surveys which that agency has conducted. A survey of ten cities² has been available since 1952, and, more recently, the coverage has been

² *Family Income, Expenditures and Savings in 10 Cities*, United States Department of Labor, Bureau of Labor Statistics, Bulletin No. 1065, 1952. The cities included were: Savannah, Ga., Scranton, Pa., Milwaukee, Wis., Manchester, N. H., Richmond, Va., Washington, D. C., Denver, Colo., Detroit, Mich., Houston, Tex., and Memphis, Tenn.

expanded to 91 cities.³ If the area under study is not one of these cities, perhaps a logical substitution may be made, whereby the expenditure pattern for a similar surveyed city may be used. Needless to say, such a substitution must be carefully considered.

The final result of the part of the analysis described above is a list of the relevant minor civil divisions, the number of households in each of them and the expenditures per household in each of the consumer expenditure categories in which the analyst is interested. This yields the total consumer expenditures in the enumerated categories by residents of the trading area. Of course, as has been noted above, the number of expenditure categories which are of interest depends upon the tentative store-mix, which depends upon the extent of the market, which, in turn, depends upon the store-mix. For this reason, the number of expenditure categories tabulated in the first instance should be large, and include most retail store expenditure items so that the analysis can begin on the basis of a large scale operation and proceed downward if the facts so direct. This is to suggest that the analysis should cut into the circle of causality by assuming a large scale operation and then decrease its scope as the data dictate.

The remaining problem, and a very difficult one, is the determination of how much of this total expenditure may be expected to be made at the proposed retail stores on the airport site. This estimate may conveniently be made by applying discount factors to the data, either the number of households or the total expenditures in each category (the former is the less cumbersome procedure), for each of the minor civil divisions. These discount factors may conveniently be assigned on the basis of, first, distance and second, competitive retail facilities. The discount factors must, of necessity, be a matter of judgment, but the limits for the exercise of such judgment are far from indefinitely wide. For example, the distance discount factor varies from zero, for the very nearby areas, to 100 for, say, over 20 minutes, if the 20-minute isochron has been used as the outer boundary of the trading area. Intermediate values may be assigned to the intervening distances by, say, five-minute intervals.

The discounts for competition are somewhat more complex in that the effect of competitive facilities in the immediate vicinity of the consumer is different for different types of consumer goods. That is, for most food, drugs, cigarettes, gasoline, etc. (i.e., "convenience goods") the consumer is likely to shop at the most convenient location if his shopping trip is for those items only. On the other hand, for housefurnishings, fashion items, etc. (i.e., "shopping goods"), he is more likely to forsake the more conveniently located retail outlets in favor of others which may be more attractive for other reasons. Thus, the effect of competitive facilities in the vicinity of the con-

³ *Family Income, Expenditures and Savings in 1950*, United States Department of Labor, Bureau of Labor Statistics, Bulletin No. 1097 Revised, June 1953. This is a preliminary report on the 91 cities. The final report, scheduled for publication in May, 1956 is entitled, *Consumer Expenditure Study*.

sumer, or between the consumer and the airport site, is greater for the convenience goods than for the shopping goods, thereby requiring a higher discount factor. In any event, it is necessary to examine and consider all existing retail facilities that may be competitive with those proposed, and estimate their effect on the total expenditures to be anticipated at the site under study.

The final result may be that the originally contemplated large-scale shopping center could not draw adequate patronage to merit its establishment. In that case a scaled down version may be found to be economically feasible. It would, of course, draw less, but it would require less patronage to be feasible.

The possibility of alternative sites which might be developed later as competing facilities is one that cannot always be evaluated quantitatively, but one that should be given careful qualitative consideration.

The extent to which the airport site will continue to grow in importance as a recreational and shopping center as well as an employment center cannot now easily be assessed. There are conflicting indications in that the growth thus far has been steady, and in general, the new ideas such as the banks and the hotels have fared well; however, on the other hand, the interest and excitement which the airport seems to offer its visitors may be more than offset by an increase in aircraft noise with the advent of the newer types of equipment. While the soundproofing of buildings may well progress to the point that the hotel guest may rest quietly as the jets take off, perhaps the increased noise, if there really is an increase in noise, may make casual visiting or shopping less attractive.

In any event it is to be hoped that in the future more and more new ideas for the productive use of airport acreage will be developed, so that significant contributions to airport revenues may be made by offering more and more valuable services to the community.