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AN INNOVATIVE APPROACH TO AIRPORT PLANNING†

HENRY L. NEWMAN*

In September, 1973, the Dallas-Fort Worth Regional Airport was officially dedicated. In the following presentation given at the 1973 Air Law Symposium, Mr. Henry L. Newman describes the spirit of foresight and cooperation that made this mammoth undertaking possible. The diverse considerations that went into the planning of this airport and the experiences of the people who worked on this project that Mr. Newman relates will be valuable to those who undertake similar tasks in the future, as indeed they will be to all friends of aviation.

A WONDERFUL monument to cooperation, imagination, and innovation in planning will be displayed this January to the world right here in Dallas-Fort Worth when the regional airport is commissioned. The opening of this airport—the world's largest and most innovative—will be an event which may not be repeated in the Twentieth Century, if ever again because of land limitations and public opposition. This rewarding experience in building this airport began in 1965 when the leaders of these two North Central Texas cities realized cooperation would lead to success. What has been realized is no ordinary airport—its 2001 symbol reminds us it has been designed for the future as well as for the present. There is more than a great amount of real estate in this airport—its imagination and innovations in planning are incorporated into this facility in the same manner a flying machine is planned and constructed.

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And like a fine-tooled machine, the planning of design, architecture, transportation facilities—its total land use planning—is the key to its success. In this discussion today, I would like to cover principally land use planning. The federal government, through its various agencies, has made a commitment to improve the quality of American life; the FAA's pledge is to make the airport a good neighbor. I believe that I can show you how we, with many other governmental bodies, have accomplished this at the Dallas-Fort Worth Regional Airport.

Much has been said and written about land use planning. Today, however, I am in the very fortunate position of being able to talk about some things which actually have been done to assure compatibility of the Dallas-Fort Worth Regional Airport and its neighbors. We think the actions are significant, not because they should affect the future of this tremendous project, but because this airport has the potential for being a model from which the entire aviation world can benefit. Admittedly, the results will not and cannot be perfect; we are all practical enough to recognize that this is no utopia.

Let me review with you some of the history of Dallas-Fort Worth planning, with specific reference to land use, since what has been done here can be repeated elsewhere. The first decision to be made by the sponsoring cities of Dallas and Fort Worth obviously was that a new major scheduled aviation airport should be constructed. I won't go into the background of that decision of May 1965 since much of it is well-known. In June 1965 the sponsors employed a consultant to select a site. One acceptable to both Dallas and Fort Worth was identified on 25 September of that year. You will recognize that I am hitting the high spots, as a great deal of study, naturally, had to go into feasibility, requirements, etc.

The FAA's first major involvement in the project came with our work with the consultant in airspace considerations. Various sites were reviewed before the present location was agreed upon. Environmental factors were very important in the airspace considerations. Fortunate wind factors facilitated agreement on the site: wind data analyses indicate that operations can be conducted in a north-south configuration 97.8% of the time, with a crosswind component no greater than fifteen miles per hour. While crosswind runways are necessary to satisfy service of smaller jet and general

aviation prop aircraft demands, they also greatly increase airport capacity. The ultimate plan calls for four principal north-south parallel runways, two crosswind diagonals, a north-south executive aircraft-general aviation runway, and two exclusive STOL runways. Since six of the nine runways are oriented north-south, airport impact upon land use is minimized as compared with Chicago O'Hare, for instance, where there are three sets of parallel major runways. The O'Hare configuration presents serious land use problems in the entire 360° area. At Dallas-Fort Worth the heavy jet traffic will largely use the north-south runways.

Confirmation of the validity of the site selection entailed a very comprehensive air traffic simulation study by the FAA's National Aviation Facilities Experimental Center at Atlantic City which has the capability of duplicating conditions as they were predicted to exist at the new airport. Noise factors, a prime consideration in the simulation study, resulted in some slight modification to runway alignment. While the cost of the project was somewhat in excess of two hundred fifty thousand dollars, it has paid major dividends in the development of firm guidance for subsequent airport planning.

After finalization of the airspace and site selection work, our next concern was a program for compatible land use planning. One of the principal thrusts in initiating this program was our desire to benefit from the very costly experience in instances where major airports were constructed well out in the country. In most cases they promptly became hemmed in and subject to severe constraints because of the rapid urban growth immediately surrounding the airport. With early development of commercial and industrial areas came residential, construction, and support facilities, such as churches, schools, and hospitals. Most of this was not compatible with the airports because due regard was not given to avoiding critical aircraft noise impact zones: that is, the approach and egress flight paths. We are all well aware of the airport-neighbor compatibility problems at such places as Atlanta, Chicago, Los Angeles, St. Louis, and San Diego where the expansion of an existing airport to accommodate increased demands was found to be almost impossible because of physical limitations, land costs, or environmental factors that usually did not exist when the airport was originally planned. The lesson to be learned from

this experience was a very practical one; obviously, implementation would be very difficult to accomplish.

By past experience, we were also reminded that airports lacking adequate surface access could not be fully effective; in simplest terms, an airport is a transition point between surface and air modes of transportation. Since airport planning is in fact an integral element of overall planning for comprehensive regionwide surface transportation development, all concerned worked closely with the two involved district offices of the Texas Highway Department to assure recognition of surface access needs of Dallas-Fort Worth. At that point in time, there was no formal intermodal transportation coordination mechanism such as DOT's Intermodal Planning Group.

It should be recognized here that all of this concern was being expressed early in 1966. At that time the Airport Board, with its excellent executive leadership, did not exist. Further, the North Central Texas Council of Governments, a most effective planning coordination agency, had not yet been fully implemented. The FAA served to fill the vacuum until other responsible bodies could organize to develop land use plans. Able assistance came from North Texas State University of nearby Denton, which sponsored several clinics for land planners of all the potentially impacted communities in the airport environs. Additional presentations were made to officials of individual communities and independent school districts; in effect, every possible means was taken to publicize the absolute need for avoiding incompatible land use development in projected areas of severe aircraft noise exposure. The first such forecast of aircraft noise for the Dallas-Fort Worth environs was prepared late in 1965. As runway configurations evolved and the state of the art of predicting noise exposure was refined, new maps were publicized and explained to the concerned communities. You may judge for yourself the success of this effort in these following five examples.

(i) FAA representatives met with the School Board of the Irving Independent School District concerning proposed school development. Very obviously the airport would change residential development patterns. Certain lands required for the airport would eliminate them as future residential areas; other lands, those in severe noise zones, would ultimately be required to satisfy commercial and industrial

requirements for land near Dallas-Fort Worth. The Irving School Board was very cooperative and changed its long-range plans, eliminating planned schools in projected non-residential areas and adding them in others where residential use was favorable.

(ii) Upon request of the City of Irving, which had received reports of the Irving Independent School District briefing, FAA and the principal consultants of the airport sponsors briefed the Irving City Council concerning probable impact of the regional airport. It was explained that the extended centerline of the eastmost NW/SE runway, which lies across the Irving central business district, could not feasibly be substantially reoriented. It was, however, agreed that aircraft departing to the southeast would make a ten-degree turn to the left as soon as feasible after take-off. Thus, overflight of downtown Irving would be avoided in favor of a natural departure corridor along a riverbottom area. The question of potential revenue tax losses due to inclusion within regional airport boundaries of certain lands within the city limits of Irving was asked. We were able to cite numerous instances where major airport development had greatly enhanced land values in the vicinity and substantially increased the tax base due to rapid commercial and industrial development in areas that might otherwise have remained farmland or been developed for residential purposes.

(iii) The City of Grapevine was in the process of determining the location of a new high school. FAA personnel, at the request of the Grapevine Independent School District, briefed the District's architect-engineers on available aircraft noise study data and identified areas where residential construction would not be desirable. This information helped the contracting firm to locate and design the new three and one half million dollar Grapevine High School where it would best serve its patrons, in an area where residential development would be compatible with airport operations.

(iv) The Dallas Junior College District had selected a site under the approach to the easterly crosswind runway. After a noise impact briefing, there was some reorientation of buildings, architectural designs were modified, and acoustical treatment specified to assure a campus compatible with airport operations.

(v) Housing developers were encouraged to consult the FAA; in several instances, they were advised of areas to avoid.

Fortunately, the North Central Texas Council of Governments, as it is now constituted, was established in January 1966. Right from the beginning, it had a large number of high visibility projects, but by mid-1967, it had assigned a very high priority to the Dallas-Fort Worth Regional Airport, beginning with an impact study, which was followed in January 1969 by an environs study. Since

that time, the COG has assumed responsible leadership in carrying out all aspects of land use planning. Working jointly with the Regional Airport Board, the FAA, and others, NCTCOG and its constituent communities developed a model uniform height zoning ordinance, which has since been adopted by three counties and ten of the thirteen concerned cities. Others had it under consideration at the time of preparation of this talk. With so many political subdivisions being involved, the development of a model joint airport zoning ordinance to regulate and restrict height of structures and objects of natural growth on and in the vicinity of the airport would have been an almost insurmountable task had the COG planning and coordination mechanism not existed. Currently in progress is development of a model compatible land use zoning ordinance based upon aircraft noise impact.

Continuous emphasis has been given in meeting with city councils, public and private bodies, and individual airport sponsors on an understanding of the need for an airport system plan in the area so that Dallas Love Field, Meacham Field in Fort Worth, and other municipal airports in the North Central Texas State Planning Region would be improved to provide service to general aviation. The new Regional Airport would thus be freed to serve scheduled aviation and that portion of the general aviation traffic which has a positive requirement to use the new airport. This effort had placed a high premium on providing enough concrete at various places in the area to avoid the saturation which now exists at airports like J. F. Kennedy, LaGuardia, Los Angeles, O'Hare, and Washington National. With a system of satellite airports in the planning region, there should be adequate distribution of airspace to provide ample service to all of the concerned communities. This, of course, requires early land use planning wherever possible for existing airports to avoid future limitations upon their capabilities, to assure a sufficient share of the gross regional air traffic, and to avoid saturation of the new airport. We expect the North Central Texas State Planning Region Airport System Plan, now being developed by the North Central Texas Council of Governments under a \$239,400 planning grant, will expand upon and complete our earlier efforts.

We in the FAA are endeavoring to make aviation a better provider for the commerce and economy of this country, as are members of the aviation community. Several of the nation's major air-

ports are operating at saturation during peak hours. By 1980, it is predicted by the Secretary's Air Traffic Control Advisory Committee that no less than twenty airports will be saturated unless present expansion plans are accelerated. This is in the face of increasing traffic which will triple by 1980 and then triple again by 1995.

Cooperation is coming from the federal government in this area in the form of the aid to sponsors to improve/construct airport facilities. Passage of the Airport-Airway Development Act of 1970 provided substantial financial aid for airport construction and modernization. The trust fund established under the Act and fed by air carrier and general aviation user taxes is growing. Planned federal funding for airport grants in this ten-year program have risen from two hundred ninety-five million dollars each of the first three years for matching funds and planning to a current three hundred twenty-five million dollars per year. The companion program to modernize and expand the nation's navigation and control system projects the spending of two and a half billion dollars during the ten-year period. In the spending of this money, we are guided by the rule that planning today is absolutely essential to effective improvement programs. We can't afford economically, nor will society tolerate any more hit-or-miss random action designed perhaps to benefit all of aviation or some segment of it which is unmindful of other transportation modes or of society as a whole.

The Dallas-Fort Worth Regional Airport is putting it all together. We have in the final stages of construction today the Dallas-Fort Worth Regional Airport, an example of good planning—planning that has built the world's greatest airport. It must be applied as the model for others to use.

