

AIR TRANSPORT

As *Insight* puts it, when commercial aviation was in its infancy the airport consisted of a small car park facing a small terminal building. The terminal had a single ticket counter, and beyond it a single aircraft waiting to be boarded.

As passenger volume increased, air terminals became cramped. There was little room for lateral expansion and terminals extended outward into a network of "fingers." The passenger in turn became the long-distance walker.

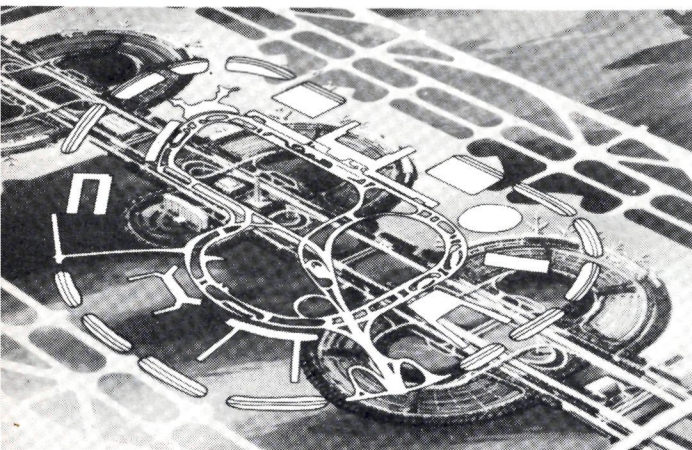
The Dallas-Fort Worth airport differs from the early airports only in that its small terminals will be joined together to form, in the first stage of the development, four vast semi-circular terminals, or half-loops. The unique half-loops will allow for orderly growth, because they are linked to a central highway and when more are required they will simply be built down the highway. Each of the half-loops is up to 3,000ft long and up to 120ft across.

The design eliminates the seemingly endless corridors through which passengers have to hike at many airports between the central terminal, where they check in, and the gate through which they board the aircraft.

When the airport opens there will be very little disruption to the "environment," it is claimed, and very little aircraft noise. Even when fully developed in 2001, the airport's northern and southern boundaries will be three miles from the end of its primary runways, and crosswind runways will be two miles from the airport limits, providing a buffer zone between the end of each runway and the "property line."

The economic impact of the new airport will be enormous. It is expected to generate 47,000 new jobs, spread over 40 different manufacturing and service industries. By 1975, something like \$635 million will have been injected into every sector of industry in and around the Dallas-Fort Worth area.

Computer simulation was used to design the airport. Planners first simulated an aircraft-saturated sky above north Texas, then the number and length of runways required to clear the sky were established, followed by turn-offs and taxiways needed to clear the runways. Finally,



Above left, a rapid-transit system, called Airtrans and built by LTV Aerospace, will link the four initial terminals and ultimately all 13 when they are built. Each people and baggage mover will carry 16 seated and 24 standing passengers. Above, convenience is the hallmark of the new Dallas-Fort Worth terminal complex. From car park to aircraft is only 600ft at most. Total walking distance within the terminal to reach an aircraft is less than half the cabin length of a 747. Bottom left, the outline of Kennedy International airport, New York, superimposed on that of Dallas-Fort Worth

a simulated composite-sized aircraft was used to determine the number of gates and terminals needed to off-load the passengers from the taxiways.

Even the planning for car parking was based on a computer simulation which indicated that 20,000 parking spaces would be needed at the airport by 1975.

Rapid-transit system

Once a passenger has parked his car and entered the terminal he can, if he wishes, move around within the airport on an internal transit system called Airtrans, linking terminals and car parks. The electrically powered vehicles will carry passengers and baggage from any of (eventually) 53 stations to any other in a matter of minutes. Eventually 51 vehicles will be used.

Mr Sullivan says that the wide-body revolution must be accompanied by a revolution in airport design. The airport operator is frequently only "one step ahead of the burgeoning flow" of passengers.

"What is the future for the airport operator? . . . His airport acts like a funnel as masses of people pour into its wide mouth and then squeeze through the spout to reach the aeroplane. For deplaning passengers, the process is reversed. This funnel concept is essentially restrictive, and the efficiency of some passenger handling services is self-limiting.

"For instance, the passenger handling facilities, such as baggage, customs, restaurants and shops, waiting rooms, hold areas, bus and taxi, and parking, are sadly over-worked. Another serious problem is travel time from city centre to airport; it will worsen as the number of passengers increases. . . .

Congestion defying management

"If the present system of passenger handling is continued, car parking, traffic congestion, baggage handling and other passenger services will be raised to a level defying efficient management. For the airport operator, this means that his terminal design will be obsolete before it is translated into bricks and mortar.

"What is needed are totally new concepts of passenger handling. Up to the present, all airport terminal areas have suffered from one glaring error: they have never been designed to accommodate the gate requirements for maximum runway capacity. . . .

"The ideal plan should provide the facilities that the carriers foresee in the immediate future—1975-80—and the concept should provide for the expansion of various areas economically and with the least inconvenience to the passengers, airlines and airport operations.