Providing Ground Access to the Kansas City Airport

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•KANSAS CITY International Airport is scheduled to open in 1971, at which time all commercial operations will be transferred from the present Kansas City Municipal Airport. This will be one of the principal regional airports of the United States. It is now anticipated that more than 5 million air travelers will arrive, depart, and transfer at this airport during its first year of operation, and a rapid growth from this number is expected each year thereafter.

These passengers will be served by some 10,000 men and women who staff the numerous operations required by an international air center. In addition, thousands of other persons, only indirectly related to the airport, will be employed in the immediate area. For example, TWA's overhaul base, serving its own system and those of other U. S. and foreign airlines, is located at this airport. It employs 6,000 persons and is expected to grow to 10,000 in a year and a half. TWA is now constructing a 450,000 sq ft office facility just east of the new airport where 2,000 persons will be employed. In addition, the Platte Industrial Park just south of the airport and several other announced commercial developments elsewhere near the airport will accommodate an average daytime population of over 10,000 within 5 years.

At this point, a brief explanation of the geography of the area is necessary for an understanding of the problem and the planning in this project. The present airport, Kansas City Municipal, is 2 miles north of the Kansas City CBD. Studies made in connection with planning on this project showed us that approximately 30 percent of the air passengers at Kansas City were transients to the CBD and another 40 percent are residents living in the south and southwest parts of the metropolitan area. The new airport, Kansas City International, is located to the north and west of the CBD, 19 miles from the CBD.

Three years ago, the Kansas City Area Transportation Authority, shortly after its organization, realized that planning should be commenced on a public transportation system to serve this airport. Travel habits and travel patterns would be altered drastically by the airport relocation. It was thought that, because of the expected and rapid development in the airport area, the existing and committed highway and freeway systems would be overtaxed within a few years after the airport opens.

PLANNING PROCESS

With the aid of a technical study grant from the Urban Mass Transportation Administration, the Transportation Authority contracted with the engineering firm Howard, Needles, Tammen and Bergendoff to examine the problem and to make recommendations to the Authority. Specifically, the engineers were commissioned to (a) project to 1990 the traffic on the freeway system serving the airport and estimate the demand for and use of a public transportation system; and (b) examine the various systems that are or shortly will be available and recommend a system to the Authority.

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At the conclusion of several months' work, the engineers made the following recommendations:

1. The development of rapid transit to Kansas City International Airport is not only practical but also essential if the airport is to operate efficiently.
2. The present state of technology does not permit selection of an ultimate high-speed rail or monorail transit system. Several proposals, however, appear promising, and steps should be taken to select one of these for in-depth testing.
3. The problem of rapid transit to KCI cannot await completion of these tests, but must be resolved, at least in part, by 1970. A complete system must be operational before 1975.
4. Comprehensive traffic analysis clearly identifies the corridors that would serve the largest number of rapid transit users. Therefore, rights-of-way can be acquired now for the construction of the transit system.
5. Preliminary investigation shows that excellent rights-of-way are available within these traffic corridors. By and large they are unobstructed open land or consist of run-down property and land already in public ownership.
6. The initial step toward a rapid transit system should be the construction of a two-lane roadway within the rapid transit right-of-way to accommodate high-speed express buses.
7. As tests are completed, more advanced transit systems can be constructed within the same right-of-way.
8. The principal objective here is to secure without delay a multipurpose, completely limited-access, private right-of-way that will be capable of accommodating a transit freeway.
9. The transit system must be augmented by several terminal facilities. The first of these should be constructed in the vicinity of 12th and Wyandotte Streets. This terminal would accommodate airline ticket offices and check-in facilities.
10. As a further essential addition to the general transportation system, a major parking garage for some 1,500 vehicles could be constructed as an integral part of the downtown air terminal.

DESIGN AND LOCATION OF TRANSITWAY

In this planning study, a right-of-way was found within the corridor from the CBD to the airport that was practically open country or existing public right-of-way. There would be no relocation of people or enterprises, with the possible exception of four or five obsolete structures on the edge of the CBD.

After this report was accepted and studied by the Authority, it was determined that preliminary engineering of the system should commence. Again, with the aid of a technical study grant from the Urban Mass Transportation Administration, the Authority contracted with Howard, Needles, Tammen and Bergendoff to conduct the preliminary engineering and design of the recommended KCI rapid transitway. This transitway is designed as an exclusive roadway for high-speed buses with all crossings of streets, roads, and highways grade separated.

Route of Transitway

The south end of the transitway is in the heart of the CBD and is within two blocks of the major downtown hotels and a block from the Municipal Auditorium and Exhibition Hall. At this point would be constructed the downtown terminal where the airline passenger would buy his ticket, check in with the airline, and check his luggage. From the downtown terminal the line proceeds north through an open alley for two blocks and then on an industrial-type street to the Missouri River on the north edge of the CBD.

The engineers propose that in this area the transitway be elevated. Figure 1 shows that this design is clean and does not detract from the surrounding area. In fact, the area through which the transitway is located is a light industrial and warehousing area. From the CBD, the transitway crosses the Missouri River (Fig. 2) and heads north to the new airport.

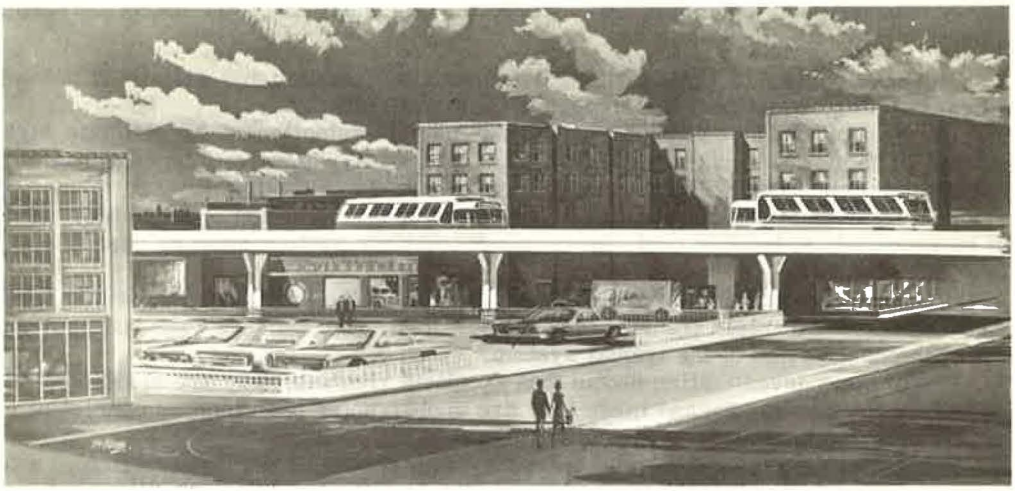

Figure 1. Proposed design of transitway structure in alley.

Figure 2. Proposed transitway bridge over Missouri River.

Just west of the bridge proposed for the transitway, the Missouri River makes its great bend to the north. Along the east bank of the river there is located a levee for flood control. At this point there is a very narrow corridor available between the river and existing railroad yards. One of the primary north streets out of Kansas City is now located at this point and an additional two lanes of this street are proposed. Engineers, working with representatives of the U.S. Army Corps of Engineers, solved the problem. It is proposed that along this section the transitway be constructed on single piers sunk through the levee, as shown in Figure 3.

This levee system is the last real right-of-way problem; and from this point on for the additional 14 or 15 miles to the airport, the transitway goes through open country. At one point, it will be located within the right-of-way of US-169 from which point it will cross Interstate 29 and proceed for about 11 miles on its own right-of-way until it crosses I-29 again and goes onto the airport property.

For about the last 9 miles to the airport, it is planned that the transitway will be located along an abandoned interurban right-of-way. This land has reverted and will have

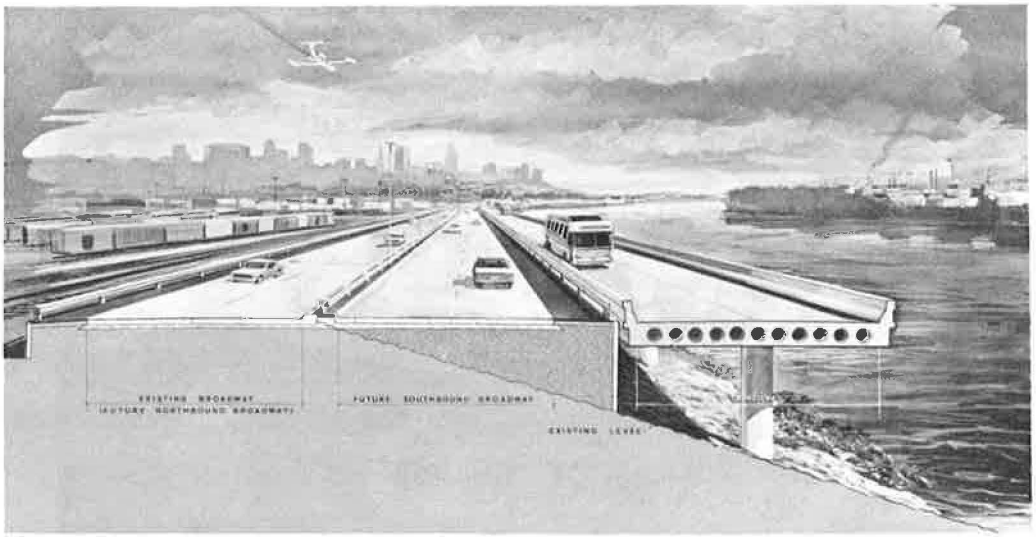

Figure 3. Transitway along levee.

to be reacquired. However, it is still open and no structures have been constructed on the right-of-way. It is fortunate that such an open right-of-way still exists and can be utilized for this project.

Design of Transitway at Airport

Fortunately, in designing the entrance road to the airport, a sufficiently wide median strip was left for the transitway, and grade separation structures across the entrance road are sufficient so that the transitway can occupy this median strip. Therefore, we encountered no problem in the approach to the air terminals.

At the airport terminal there will be four separate buildings, circular shaped with the center open. For the transitway to operate efficiently, it was considered essential that, even at the terminal buildings themselves, the buses be on a road separate from the general vehicular traffic. This is done by elevating the transitway to the second level above the other traffic.

Figure 4 shows a view of the transitway structure within one of the terminal satellites. As can be seen, the vehicular traffic is on the ground level, and the transitway is elevated to the second level. Persons using the transitway vehicles will enter the terminal building on the mezzanine level. The central open space at each satellite is for parking. The plans for the air terminal call for eventual construction of multilevel parking facilities in this central area. When those are constructed, the transitway will be incorporated within the parking structure.

We are of the opinion that the distribution system at the airport will serve another purpose. Frequently, persons transferring from one airline to the other will be required to go to another terminal building. Transportation for such purpose will be required. Therefore, the Transportation Authority would also be able to operate a separate system of smaller buses (possibly minibuses or similar vehicles) on the transitway structure at the airport to serve those persons transferring.

TRANSITWAY LEVELS OF SERVICE

We believe that this proposed KCI rapid transitway is a practical, workable solution to our airport access problem in Kansas City. On it, we would operate two levels of service. The high-speed, luxury-type, over-the-road bus would be available for the airline passenger. This would be a nonstop express trip between downtown and the

Figure 4. Transitway within Kansas City International Airport satellite terminal.

airport. Once the buses were out of the CBD and north of the river, they would operate at speeds of 75 to 80 mph, and the trip could be made in 15 minutes at rush hour. This compares to an estimated time of 45 minutes to an hour on the Interstate at rush-hour periods.

In addition, on the transitway would be operated regular transit-type buses, with running speeds of 50 to 60 mph, for the person commuting to work in the area of the airport. Also, park-and-ride facilities could be constructed at points along the transitway for the use of the residents north of the river commuting to work in the CBD. In effect, on this system we will be able to offer both express and local rapid transit service. All vehicles would be radio-equipped, and, by proper scheduling and operating instructions, the local buses would not delay the airport express vehicles. Furthermore, this system has other potential uses. For example, it could be utilized for handling all the mail between the downtown post office and the airport.

We, in Kansas City, believe that this is the proper airport access system for us at the present time. Our demand is not now great enough for rail rapid transit. If in the future a new system, for instance the tracked air-cushion vehicle, becomes feasible, the transitway can be readily converted to that system. The right-of-way will be there, the grading will be completed, and all bridges and structures will be in place. It is a system in which the total investment is not lost through obsolescence.

PROJECT FINANCING

The engineers have estimated that the total cost of this system, including right-of-way, is now $30 million. On December 16, a general obligation bond issue of $8 million was presented to the voters of Kansas City. This bond issue together with the value of the right-of-way being furnished by the city would make up the local share, which is a third of the cost. Unfortunately, this proposal, together with about 20 others presented to the voters that day, was voted down. We are now giving thought to other possible ways of financing this project, as well as consideration of if and when to resubmit the bond proposal. However, we are convinced that within a few years this transitway system will be essential if the airport is to operate efficiently.