

## **CURRENT TRANSIT PRACTICES IN ANN ARBOR**

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Ann Arbor, located in southeastern Michigan approximately 45 miles from downtown Detroit, is a unique community that provides a fascinating blend of research-oriented industry and cultural and educational excellence for its 100,000 people. Because it is the home of the University of Michigan, with a student population of 38,000, Ann Arbor's major industry is education.

As in other cities across the nation, Ann Arbor's major mode of transportation is the private automobile, followed by motorcycles and bicycles (more than 30,000), and finally mass transportation. The mass transportation system is provided by the Ann Arbor Board of Education, with 53 buses transporting 9,600 passengers per day; the University of Michigan, with 30 buses transporting 14,000 passengers per day; and the municipal bus system operated by the Ann Arbor Transportation Authority (AATA), with 22 buses transporting 2,500 passengers daily.

What does this have to do with the research needs of the transportation industry?

Ann Arbor, despite its size, deals with the problems faced by major cities—the strangulation of major street systems, air pollution, location of suitable sites for parking structures, and meeting the needs for exclusive pedestrian and bicycle ways.

The city of Ann Arbor has expressed great interest in mass transportation systems and has spent \$715,000 during the past 3 years to establish and operate a bus system. Of this, \$500,000 has been in the form of operating subsidy. The fixed-route system has shown modest increases in passenger revenues during this period, with increases of up to 30 percent when compared with the same month of the previous year. Even with these increases, the operating costs are twice the revenues; the system operates at a deficit of 50 cents per transit mile.

This, of course, exposes only operating needs and not necessarily research needs.

What is needed for mass transportation research is money to develop a more efficient transportation system in an effort to reduce operating costs. With this in mind, the AATA, through the implementation of a dynamically dispatched personalized bus system, hopes to improve and expand present route service. Although the technical feasibility of personalized bus services has been documented, there have been no full-scale field tests of market response and the possible use of automated dispatching.

The personalized bus service concept offers great potential for the future development of a balanced transportation system in cities by offering an attractive alternative to the private automobile.

Under conditions of low-residential density and highly dispersed trip-making patterns, such as found in Ann Arbor, conventional public transportation is unable to compete with the private automobile. The consequences are then twofold:

1. Ridership on public transport declines to the point where only skeleton service can be maintained, usually at substantial costs to taxpayers; and
2. Those who are dependent on public transportation find service inadequate to meet all of their needs and are forced to rely on more expensive alternatives.

Both of these situations exist in Ann Arbor. Low-income and elderly residents find no evening or Saturday bus service, and many runs during weekdays are maintained only on an hourly schedule.

Personalized bus service is a form of mass transportation in that large numbers of people are carried in a given day. It is personalized transportation in that travelers are given doorstep service and are not crowded together in large groups on a single vehicle. The AATA was convinced that this kind of service offers the best way of discouraging total reliance on the automobile for future transportation needs in Ann Arbor and was anxious to launch a full-scale field evaluation. Because financial constraints made it impossible to carry out an evaluation with local funds, the AATA applied for and received assistance from the state of Michigan.

The city of Ann Arbor and the AATA, in cooperation with the Michigan Department of State Highways and the Ford Motor Company, have recently embarked on an experimental research project to determine the feasibility of a dynamically routed bus system. On September 22, 1971, the AATA began an experimental dial-a-ride bus service in a limited area of Ann Arbor.

The Ann Arbor dial-a-ride project serves a residential area of 3,300 homes by offering doorstep service from homes to a limited number of destinations in central Ann Arbor. The central locations include commercial, office, government, university, and hospital facilities.

The dial-a-ride system has three 10-passenger vehicles. Two vehicles are air-conditioned Econoline vans that were formerly used as minibuses in the AATA fleet. The third vehicle, donated for the experiment by the Ford Motor Company, is a courier vehicle with standup interior and bucket seats.

The communication system is built around a dispatch center. There are 5 incoming dial-a-ride lines: 3 public lines are for the dial-a-ride phone number, and 2 lines are private direct lines to 2 commercial shopping districts. These private lines provide free communication to the dispatcher.

The radio communications use existing equipment modified for the dial-a-ride service. Motorola Quick Call II units were added to 3 existing radios. The dispatcher can therefore selectively call any 1 of the 3 dial-a-ride vehicles. Unless paged, the dial-a-ride vehicles do not hear any other traffic on the AATA frequency.

The dispatching concept used, which was developed by the Ford Motor Company, is the vehicle tour. A tour begins as the dispatcher transmits an order list of inbound pickups to a vehicle. After all pickups are made, the vehicle heads for the appropriate central Ann Arbor destinations. The driver delivers passengers to their destinations and simultaneously picks up outbound passengers. After all inbound dropoffs and outbound pickups are made, the minibus returns to the service area to drop off outbound passengers and complete the tour.

The basic fare is 60 cents, exact change. Discount tickets are sold in strips of 10 for \$5, and monthly passes allow multiple rides for a single family traveling between the same 2 points. The passes were sold at an introductory rate of \$10 and will be sold for \$15 after the price freeze is lifted.

Ridership has steadily increased from an average of 67 passengers per day during the first week of operation to an average of 135 passengers per day in the sixth week of operation. The peak day, Friday of the sixth week, had 165 riders. The ridership has been steadily growing, and a recent expansion of the service area is expected to generate additional ridership. Additional funding is needed to finance capital improvements to put phase II into effect.

The city of Ann Arbor has also expressed considerable interest in developing a truly comprehensive transportation plan, a plan that considers the highway network, mass transportation, parking, pedestrians, and bikeways.

Past practices have generally consisted of separating studies of mass transportation systems from parking facilities studies. It is my feeling that these studies should be performed as a unit.

We need to know, in some detail, the interrelation among the demand for downtown parking, fringe area parking, and the provision of public transit facilities. We need to develop measures of the external costs generated by private automobile operation. By

external costs I mean those costs that are currently not charged, or not fully charged, to those who benefit from automobile operation. These external costs include the widening of streets, building and maintaining parking structures, and the adverse effects of air pollution and street congestion.

We need to learn the proper mix of prices, regulations, and subsidies that would induce a better balanced total transportation system. Such research could lead to another major area of transportation planning in the development of a comprehensive transit program. In the case of Ann Arbor, this type of system would involve the city of Ann Arbor, the University of Michigan, and the board of education. The system design would include a mix of feeder bus system (fixed-route), dial-a-ride service, line-haul bus service, and people-mover transit system.

The city of Ann Arbor, in conjunction with a local firm, is in the preliminary discussion stage of developing such a program. The people-mover system would cost approximately \$48 million for a proposed 15.2 passenger miles. This system would certainly require financial assistance from local, state, and federal sources.