FEATURE ARTICLES

NEW JERSEY DIAL-A-RIDE SYSTEM BUILDING RIDERSHIP IN 2ND YEAR

On February 19, 1972, Secretary of Transportation John A. Volpe picked up a telephone at the Haddonfield, New Jersey, railroad station and summoned a 17-seater bus, which picked him up minutes later. The distinguished first rider of the first full-scale federally funded system of its kind was joined on that day by 240 other passengers. Now, with the demonstration project well into its second year, weekly ridership is approaching 5,000, contrasting favorably with the 1,600 who used it during its first week.

Dial-A-Ride is an advanced transportation concept. Although the concept has been known to transportation people for many years, only in recent years has adequate control technology been developed for demand-actuated, door-to-door personalized, shared-ride transportation. This control technology permits effective use of vehicles while minimizing customers' wait and travel times to give an overall acceptable level of service at a reasonable price. Haddonfield Dial-A-Ride is one of the largest, most complex demand-actuated transportation systems yet attempted. It uses twelve 17-passenger vehicles, which are dispatched by radio to any point in the service area.

The Haddonfield Dial-A-Ride Demonstration is sponsored by the New Jersey Department of Transportation under a research, development, and demonstration grant from the U. S. Department of Transportation's Urban Mass Transportation Administration (UMTA).

The Dial-A-Ride system is planned, designed, managed, and operated for the State of New Jersey by LEX Systems, Inc., as prime contractor and DAVE Systems, Inc., as associate contractor. The MITRE Corporation, under separate contract to UMTA, is responsible for measuring and analyzing Dial-A-Ride's cost and benefits.

The first progress report of the project, issued recently by the New Jersey Department of Transportation and UMTA, stresses that the prime objective of the demonstration is to provide accurate and reliable data for future use.

The data that are indicative of Dial-A-Ride benefits and its costs, when analyzed in conjunction with data emanating from similar systems and services and properly presented, will aid:

1. The Urban Mass Transportation Administration in evaluating Dial-A-Ride and its decision to continue development and to fund implementation through its capital grant program;

2. The New Jersey Department of Transportation and the local communities in their evaluation of Dial-A-Ride and in their decision to retain service after the demonstration is concluded; and
3. Other communities throughout the nation in evaluating Dial-A-Ride and in their decision to implement.

Toward that end, the demonstration is conducted as an experiment. A variety of services are offered. Fares and service area size will be changed. Similarly, control technology will be changed, starting with complete manual control and phasing gradually toward as much computerized control as possible.

The second phase of the Haddonfield project has now been funded. This will include an increase in the bus fleet to 18 vehicles and the inauguration of computer service to assign customers to vehicles. A third phase is tentatively planned in which the bus fleet will be increased to 35 and the area served will be enlarged. This fleet would be too large to handle any way but by computer, and the human dispatcher would be phased out.

Service began on February 19, 1972. Ridership increased rapidly from 240 on the first day to 418 just a week later. In the period from February 19, 1972, to March 1, 1972, Dial-A-Ride operated 10 days and carried a total of 3,326 passengers, averaging 333 per day.

Service was interrupted on March 1, 1972, when members of the Amalgamated Transit Union (ATU) went on strike throughout New Jersey. The strike by ATU drivers, which was in no way related to Dial-A-Ride, lasted until May 15. Advantage was taken of this time to practice control skills and implement "tune-up" refinements to the system in preparation for the resumption of service.

The primary causes of problems during the first 10 days of service were radio interference, extremely bad weather, less than 5 percent commuter ridership, and false calls and "no shows."

Seventeen-seat bus is typical of the 12 operating in the Haddonfield demand-actuated system. All buses are radio-equipped and were supplied by the Twin Coach Company of Kent, Ohio.

One of the buses is specially equipped with a ramp enabling wheelchairs to be accommodated.

Radio interference was caused by a trucking company based in New York City, about 90 miles away, but with the same base station frequency as Dial-A-Ride. The frequency was assigned by the Federal Communications Commission, with knowledge that the trucking company shared its use but with the expectation that interference would be tolerable. This was not the case when the first snowstorms of the year hit during startup. Radio communications between the Dial-A-Ride dispatcher and drivers were slowed and, at times, the trucking company completely obliterated Dial-A-Ride transmissions with its stronger base station signal. This problem was solved when Dial-A-Ride requested and was granted a new radio frequency by the Federal Communications Commission.

Because of the bad weather, variations in passenger wait times caused some individuals to be picked up 20 to 30 minutes later than expected. Experience and training has brought actual pick-up times to an average of 2 or 3 minutes earlier than the times promised to customers when they call for service. Apology calls were made to people who had been inconvenienced by service variations during this poor weather period; only one of these people said they would not use Dial-A-Ride again.

Commuter ridership to and from the Hi-Speed Line between Haddonfield and Philadelphia and to offices and other places of work in the service area was low in the first 10 days of operation, accounting for less than 5 percent of the total. After the strike, increased emphasis was placed on advertising aimed at the commuter. As a result, commuter ridership in the mornings increased to slightly over 10 percent of the total, or about 53 passengers per day on regular "work" trips, by July 1972.

Passengers taking Dial-A-Ride from the train station in the evening also increased and accounted for over 10 percent of daily ridership by the end of July. The train station, incidentally, is the pick-up or delivery point for over 100 passengers a day.

Initially, false calls for service plagued Dial-A-Ride; almost 20 percent of the requests received turned out to be non-existent addresses or resulted in "no shows." False calls and "no shows" have decreased significantly since service was resumed May 15, however, accounting for less than 2 percent of the calls to Dial-A-Ride each day. Apparently, youngsters in the service area no longer find Dial-A-Ride a novelty, and procedures that now call for a check on every suspected "prank" request are effective.

The problems noted were corrected when service resumed or shortly thereafter. Emphasis in operations was placed on improving service—cutting down on customer wait time and arriving as close to the promised pick-up time as possible.

There are three types or modes of service offered by the Dial-A-Ride system in Haddonfield: gather, or many-to-one (from any point to one specific point in the service area); scatter, or one-to-many (from a specific point to any other point in the service area); and many-to-many (from any point to any other point in the service area).

The gather mode of operation (many-to-one) collects customers from their individual homes and delivers them to a specific point in the service area, e.g., the Hi-Speed Line station. This type of service is dependent on a large number of people reserving trip time on a daily basis—i.e., being picked up at the same time each day and delivered to the same point each day. A schedule of stops for each bus can be pre-planned and given to a driver each morning so he can run his "route."

The scatter mode (one-to-many) distributes persons from one pickup point to many destinations within the service area, e.g., from station to home. This type of service operates in such a manner that when the customers board the vehicle, the driver records the delivery addresses, makes up his own schedule of stops, and delivers each passenger.

The many-to-many type of service is essentially similar to a limousine operation, except that the riders are shared and "closed loop" control is in effect. A person calls the control center and gives his pickup and delivery location. A bus is dispatched to the pickup location, and the driver reports to the control center by radio when pickup is made and when delivery is made.

The service was formally inaugurated on February 19, 1972, by U.S. Secretary of Transportation John A. Volpe.

Thus, the control center knows at all times where the bus is and where it is going next.

The flexibility of these modes or types of service is such that they can be mixed at any time through application of adaptive control techniques. The design of the Dial-A-Ride system in Haddonfield permits insertion of trips that are essentially many-to-many within the "tour" (scheduled stops) of a vehicle operating in a gather or scatter mode. This improves vehicle productivity and reduces passenger wait time.

HOW DIAL-A-RIDE WORKS

Dial-A-Ride is set into motion by a phone call. The customer's call is received by a telephone operator in the Dial-A-Ride control center. The operator prepares a request containing the customer's name, telephone number, pickup point, and delivery address. The request is passed to a scheduler at a large control map. By use of a special marker, he indicates that a small bus is assigned to pick up the customer. The assignment is then radioed by a dispatcher to the bus driver.

Dial-A-Ride also permits customer to place a permanent pickup request. For example, if a person wants to be picked up at the same time every morning to be taken to the Lindenwold Line rapid transit station, the request will automatically be repeated without the need to place a phone call each time.

Scheduling is the heart of the Dial-A-Ride system, since it is efficient bus routing that makes Dial-A-Ride effective. Potential problems are automatically spotted by the use of special indicators in the control center. This permits corrective action to be taken before customers are even aware that a problem is developing. A strong program of training for control room personnel along with trained, experienced drivers and close supervision is intended to assure that everything works properly.

After only a few months of service, it became obvious that demand-activated service must be constantly sold to the public. Merely having the vehicles on the street does not generate passengers or increase ridership after a certain point. Therefore, the Dial-A-Ride service has been actively sold to various businesses and organizations in the area.

For example, convenience of Dial-A-Ride has been emphasized to local auto dealerships, which now offer pre-paid transportation to customers who bring their cars in for servicing. For many customers, these dealerships have solved the problem of getting home or to work without a car.

To continue to increase ridership, experience has shown that Dial-A-Ride service and, more important, the concept of demand-actuated transportation must be constantly promoted to other groups, businesses, and organizations in the area.