

## **STUDENT-RUN FREE BUS SERVICE EASES PARKING, CUTS POLLUTION**

A unique demonstration project carried out by the University of Massachusetts and funded by the Urban Mass Transportation Administration has reduced congestion on the university's Amherst campus and in the neighboring town, has eased the chaotic parking situation on the campus, and has reduced air pollution in the area. A fleet of free buses, manned by students, provides transportation around the campus, through the town of Amherst, and to outlying facilities and residential areas.

The University, through the auspices of the Student Senate, initiated bus service on the campus in 1969. The Student Senate Transit Service is managed and operated by students, from drivers up through top management. The system was originally supported by student fees (approximately \$1.50 per student per year) and by state budget allocations on a matching basis. A fleet of seven buses was gradually acquired, consisting of three school buses ranging in age from six to ten years, two 1956 45-passenger transit coaches, one 1972 33-passenger coach and one 1959 41-passenger highway coach.

It became obvious, however, that this small and mixed fleet of buses was not large enough to serve the needs of the large Amherst campus and to solve the community's transportation problems, which were many and varied. The university is by far the largest traffic generator in the Amherst area. Approximately 16,000 automobiles are registered for the 8,000 or so parking spaces available on campus. With the exception of an existing parking garage and some 250 parking meters installed in the fall of 1972, parking is paid for on an annual basis at a rate of \$5.00 per year. As a consequence, as 1973 opened, auto use was unconstrained by virtue of price, and extensive use of autos in and around the campus was a well-entrenched habit. Congestion during the morning and evening peaks and during class change periods was heavy for a community the size of Amherst and affected ease of circulation in the town center, which lies a half mile to the south of the university. Numerous hitch-hikers interfered with the orderly flow of traffic, adding to the congestion and creating serious problems of personal safety. During the warmer months bicycles added to the general confusion.

To alleviate this situation, and to collect information that would be valuable to other colleges and institutions with the same problems, the university entered into an agreement with the Urban Mass Transportation Administration, U.S. Department of Transportation, to upgrade and expand the free bus service, effective in February 1973. The purposes of the demonstration project were:

- To measure the effect of free bus service, increased parking fees, and associated restrictions on the use of automobiles on the campus on the shift of users away from private autos to the public transit mode.
- To estimate the benefits and costs of these modal shifts to users, to non-users, to the university, and to the Town of Amherst.
- To measure how changes in transportation services affect community attitudes toward public transportation.

The two ideas central to this project were the institution of an attractive no-fare bus service and a carefully delineated, supportive parking policy. The university's ability to adjust parking policy to encourage, balance, or discourage mass transit use forms an important aspect of the demonstration.

Existing on-campus bus service, which consists of three routes each approximately three miles in extent, has been doubled in frequency and has been established to the many apartment complexes along the two high-density res-



Students board one of the no-fare buses heading for the stadium at the University of Massachusetts.



One of ten new 31-passenger buses stands in front of one of the University of Massachusetts campus buildings.

idental arteries (State Route 116 to the north,  $6\frac{1}{2}$  miles, and State Route 9 to the east,  $3\frac{1}{2}$  miles) leading to the campus. More frequent service is provided on one of the commuter routes than on the other to test the impact of this variable.

Ten 31-passenger transit coaches were bought for the demonstration project. They are powered by propane gas, resulting in less air and noise pollution than would be generated by conventional diesel or gasoline power plants and thus helping to enhance the overall appeal of the new bus system to the university community.

These buses, in addition to the three existing diesel-powered transit coaches, are used to provide an 11-bus operation (the 1965 transit coaches are used for backup and peak-demand service). Five of the 11 buses are used on intracampus circulation routes serving dormitories housing approximately 12,000 students, commuter parking lots, and student, faculty, and staff housing adjacent to campus. The remaining six buses are used on the off-campus routes, one north of campus serving high-density apartments, the other southeast of campus serving the center of Amherst and several high-density apartment areas.

A program (separate from the demonstration) was scheduled in 1973 to retrofit all three of the diesel-powered buses with air and noise pollution reduction devices. Parking fees on the university campus were held constant at the existing \$5.00 per year rate during the four-month school semester that began in February 1973.

The bus services introduced initially in February were again offered to the university community in September 1973. However, at that time significantly increased fees for parking in the central campus area went



The 28-story Library Building dominates the Amherst campus of the university. The 17-story Graduate Research Center tower can be seen at the far left of the photograph.

into effect. Parking fees were differentiated by location of the lot.

The primary impacts on travel behavior of the scheduled changes in transportation services and parking fees are determined by means of questionnaires administered periodically to a sample of dwelling units and aboard the buses. These questionnaires are used to assess changes in attitudes toward the new bus service as the demonstration continues.

Patronage of the free bus service has been higher than expected, reaching capacity at the end of the fall semester. Ridership has been above seated capacity on all routes and above maximum capacity on two routes. Spare buses have been put in service to avoid having to leave potential passengers standing at bus stops.

Almost 32,000 passengers are carried weekly over 1,500 miles by ten buses, making UMASS the second largest daily public carrier in western Massachusetts. In addition to the regular 7:30 a.m. to 6:30 p.m. service, 600 evening trips are made daily, terminating at 11:30 p.m.

Preliminary surveys show that about 40 percent of the bus riders are former automobile drivers and 35 percent are former hitch-hikers; 14 percent of the passengers say that they would be presently hitch-hiking if free bus service was not available. In effect, the service is taking 1,000 hitch-hikers off the road every day.

Taking into account the former automobile drivers now riding the bus, university authorities calculate that per capita use of fuel has dropped from 138 gallons to 20 gallons per year.

The demonstration project is supported by a grant of \$475,441 from the Urban Mass Transportation Administration, supplemented by \$157,728 in money, labor, and services from the university and \$30,000 in money and leased vehicles from the University of Massachusetts Student Senate. Although UMTA support provides for the operation of the no-fare bus service only during the spring and fall 1973 semesters, the university is committed to continue providing free bus service and restricting parking on the Amherst campus beyond that period.

#### THE UNIVERSITY OF MASSACHUSETTS

Founded in 1863 under the provisions of the Morrill Land Grant Act, the University at Amherst together with campuses at Boston (1965) and Worcester (1970) now comprise the statewide University of Massachusetts system. The Amherst campus is by far the largest of these three units and is, indeed, the largest state university campus in New England. The student population reached approximately 23,000 in the fall of 1972. Only about half of the student body lives on campus; the remainder of the students commute to campus, many from apartment complexes in the Town of Amherst. Of the more than 5,000 graduate students attending the university, over 85 percent commute. The 1,400 faculty and 3,100 staff who make up the rest of the university community all commute to campus, primarily from Amherst and Hadley, its neighbor to the west.

The university's Amherst campus covers some 1,100 acres and contains 110 buildings. Much of the daily activity of the university is concentrated in a core area of approximately 300 acres. Within this area are situated five 22-story dormitories, a 28-story library, a 17-story Graduate Research Center tower (with two more planned), an 11-story Campus Center, and 22 other buildings in the five- to ten-story class. On a typical day as many as 30,000 students, faculty, staff, and visitors make use of these facilities. With a daytime population density approaching 64,000 persons per square mile, the university assumes many of the features and certain of the problems of a medium-sized urban area.