

# How to move people in the cities

## A Space Age veneer covers traditional thinking in transportation circles

by Richard H. Gilluly

Urban transportation in the United States is chaotic and growing more so. Mass transit systems are antiquated and inadequate, and even where modern systems exist, they are little used. The automobile increasingly dominates urban transportation; the result is a growing glut of slow-moving traffic, increased air pollution, profligate use of land for freeways, parking lots and other facilities for the automobile, and rising numbers of deaths and injuries. The poor, the elderly and other minority groups are often left with no transportation at all.

So it seemed encouraging when Congress passed and the President signed the Administration's new urban mass transit bill this fall. The bill authorizes \$3.1 billion in Federal matching grants for urban transit systems over the next five years and envisions an average annual expenditure of \$1 billion a year over the next 12 years. This contrasts with approximately \$1 billion spent on urban transit by the Federal Government in the past decade.

**But the new money** will not guarantee that rational approaches will be taken to complex urban transit problems. As with many city-connected problems in the United States, there is no consensus on the kinds of systems needed; vehement disagreements exist between officials of the Urban Mass Transit Administration (UMTA) in the Transportation Department, members of Congress and private transportation experts. The disagreements will have to be resolved on a city-by-city basis as new systems are proposed. But some clear-cut national priorities, now conspicuously lacking, will also have to be established.

The approach taken over the past 10 years has been largely to shore up and extend existing systems and save financially strapped local transit authorities.

Carlos C. Villarreal, UMTA administrator—though recently he has spoken

more frequently of unconventional systems—seems to favor continuation of this approach for both old and new systems. Although he describes the new San Francisco Bay Area Rapid Transit (BART) System as using vehicles "built more like modern jet aircraft than conventional transit cars," the fact is that the BART system essentially is a conventional system with steel rails, steel wheels and all the limitations of rail travel from station to station. In addition, BART stations are so arranged that the system will serve mostly middle- and upper-income suburbanites and likely will have little effect on automobile traffic.

Some of the same objections hold true for the Washington, D.C., Metro system, on which construction began this year. These are the very kinds of systems that are getting decreasing use in the United States. American Transit Association figures show that the conventional commuter, subway and elevated rail systems revenue passengers declined from more than 3 billion in 1945 to 1.8 billion in 1965. Comparable declines also occurred for streetcars and motor buses.

The continued emphasis on conventional systems is not entirely due to UMTA; where unconventional new systems have been funded, they often have not been given a really adequate trial due to Congressional pressures. The transportation subcommittee of the House Appropriations Committee has been particularly critical of UMTA's demonstration projects for the Maxicab and the dial-a-bus. These two projects promised to compete with the automobile by providing door-to-door service, but funds for extensive demonstrations are hard to come by because short-term trials appeared to fail.

Significantly, the two projects involved no startling new technologies (although the dial-a-bus would use computerized dispatching). They would use more or less conventional vehicles

operating on city and suburban streets.

But UMTA, although it has sometimes supported these innovative new concepts that do not emphasize new technology, seems still to place most emphasis on application of a Space Age veneer to what are essentially the old systems.

**Ten new systems** proposals were recently selected by UMTA for more extensive testing. The systems were reviewed under an UMTA contract by the Johns Hopkins Applied Physics Laboratory. ". . . The human factors aspects of urban transportation are not discussed in this report . . .," says the Johns Hopkins study. There is little evidence that they have been discussed anywhere, although UMTA has funded one study on advertising and promotion of an existing system in Allegheny County, Pa.

"UMTA is still dominated by the American myth that technology will solve all problems," says a Transportation Department official. "They've scarcely looked at the demographic and human factors that are involved."

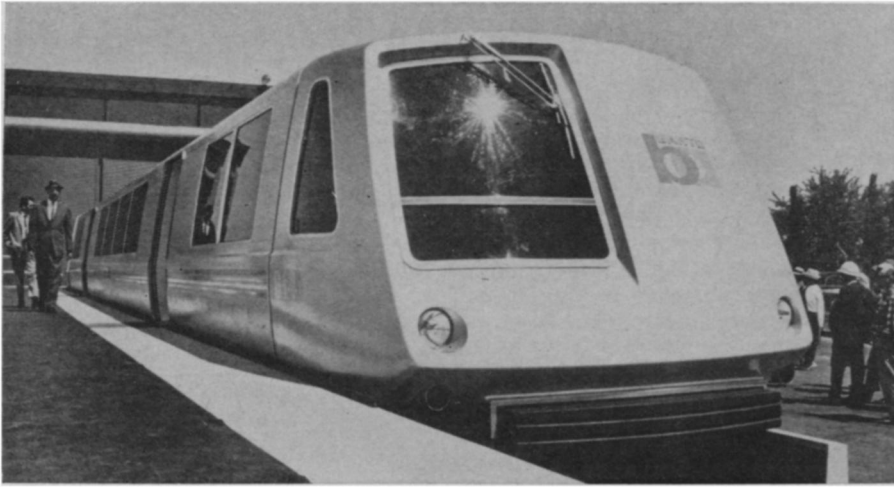
The Johns Hopkins study considered two basic kinds of systems: Collection and Distribution (C&D) systems, to serve dense, central-city areas with moderate speed vehicles and frequent stations, and Fast Transit Link (FTL) systems, similar to commuter railroads, to connect the high-density areas with suburbs and airports. All of the systems would involve cars operating on guideways of one kind or another. They would thus preserve the old rail concept of station-to-station travel along a fixed route—although the technological improvements would make them more attractive, efficient and comfortable.

The 10 systems use a variety of new technologies, including aerial suspension of vehicles, linear induction motors, monorails, gravity-vacuum propulsion within an underground tube and air-cushion suspension. A system using several such concepts is scheduled for



Photos: DOT

*Tracked air-cushion vehicle: One of several possibilities.*



*San Francisco's BART: Still basically a conventional rail transit system.*



*UMTA's Villarreal: Difficult choices.*

Los Angeles, where a 16.3-mile system will be built connecting the Los Angeles Airport with the University of California at Los Angeles and the Sepulveda Dam recreation area. The project, which will cost more than \$50 million, will use tracked air-cushion vehicles on guideways along the San Diego Freeway. The Los Angeles project has been criticized as essentially an interurban system (it will be capable of speeds up to 150 miles per hour) for what is really an in-city route, and because it emphasizes the needs of affluent air travelers rather than the far more pressing needs of the poor—such as the residents of Watts.

A proposal gaining favor in UMTA is for dual-mode systems, which would use vehicles that could be manually operated for short runs in less densely populated areas, but which could be placed on guideways for automatic guidance and clean electric power on runs into central cities. A proposal for a demonstration dual-mode system is pending for Milwaukee.

There is nothing intrinsically wrong with fixed route rail-car type systems that UMTA traditionally has supported.

They are highly efficient at carrying large numbers of people—about 20 times more efficient than the private automobile. The problem, says Dr. Martin Wohl of the Urban Institute in Washington, D.C., is that people simply will not use them on the scale required to realize the efficiencies.

“Nobody wants what they regard as poor service no matter how cheap it may be,” he says. And, he adds, people measure the quality of service by the convenience afforded by the automobile—whether this convenience is real or illusory.

Dr. Wohl suggests, therefore, that to be successful any mass transit scheme must compete with the automobile. Therefore he supports the dial-a-bus, dual-mode and other systems that in some fashion would allow the user to determine schedules and stops—just as the user does with his own automobile.

Dr. Robert A. Hemmes, UMTA's chief of research, development and demonstration, tends to agree with Dr. Wohl. But he intimates, at least, that pressures from the Appropriations Committee and other political sectors have squelched development and demonstrations of these kinds of systems and instead caused continued emphasis on the combination of traditional systems and new or ostensibly new technology—as in the case of BART.

But Dr. Hemmes is by no means opposed to the traditional systems, and suggests that a typical urban area may need a variety of systems, according to a mix of overall and more localized needs. A dense central city, he suggests, might be served by the “people mover” systems described as C&D systems in the Johns Hopkins study. Then the central city would be connected to suburban areas with the high-speed FTL commuter train systems; the denser parts of the suburbs might be served by a dial-a-bus system. The less dense suburban areas might continue to rely mainly on the private automobile, at

least to take commuters to the suburban area's FTL terminal.

Such a mixed system might provide a number of options and alternative mixes. Instead of, or in addition to, a high-speed train into a central city, there could be a dual-mode guideway. And perhaps the dial-a-buses that operate within the suburb could also operate over this guideway to the central city.

Apart from the Allegheny County study of advertising and promotion of a local transit system—which showed that no kind of advertising noticeably increased usage—there have been few behavioral studies of the reasons people select one form of transportation over another.

Dr. Hemmes says there probably is little doubt of the validity of theories such as the one which suggests the automobile is a definer of manhood to many male drivers. But he sees his role primarily as one of technology and systems analysis. If people are to be persuaded—after studies of what will persuade them—that it is more rational to take the train than to drive their automobiles, then that job is up to someone else.

And apart from more or less routine clearance of UMTA projects by the Departments of Labor and Housing and Urban Development, there is, according to one DOT official, little emphasis on the demography of transportation, in UMTA or anywhere else.

**Says this official:** “The automobile determined the shape of the modern urban area, and the growth was unplanned and often disastrous. It stands to reason that whatever transportation systems we adopt now, they will have the same kinds of far-reaching effects. There is a great need for broad-based, interdisciplinary studies in these areas.” The National Academy of Sciences plans a new comprehensive study, but indications are that it will be engineer-dominated.

Although both Drs. Wohl and Hemmes incline toward accepting present levels of automobile traffic as a necessary evil, others could change this quickly. An air pollution bill proposed by Sen. Edmund Muskie's (D-Me.) air and water pollution subcommittee (SN: 8/22, p. 163) could establish urban area ambient air standards at such a high level that cities would have no choice but to reduce the numbers of automobiles within urban areas—at least until both new and old cars had highly efficient emission control devices.

And the anti-automobile forces in the nation are growing. It may be only a matter of time, for example, before a group files a suit with the Federal Communications Commission asking for equal time with automobile commercials—to promote mass transit. □