

transit line running on exclusive right-of-way can move 40,000 persons per hour with little or no storage problem. The economic incentive to move to rapid mass transit is virtually irresistible yet such change is exasperatingly slow.

The second need—imaginative and innovative research—must be carefully coupled with the planning, development, and I emphasize, demonstration of new transit systems. The serious need for more research and development is clearly evident. Studies of propulsion, suspension, guideway and control will all provide fruitful results. The economics of mass transit—and the conservation of urban land—are closely related to developments in propulsion and guideway research.

A good rapid mass transit system must be clean and quiet. It must be attractive and available when needed. It must penetrate the population pockets of the urban and suburban community and discharge passengers at a multitude of convenient locations. We don't have this yet. In short, it must be skillfully woven into the fabric of a modern city with intelligent, comprehensive planning and research. This then is the third need.

Demonstration projects provide the final step in translating new knowledge in transportation systems and technology into reality.

For better urban rapid transit, there must be cooperation and organization on the local level because each local problem is unique. Planning groups must have competent personnel and assistance in the design and execution of public projects. Universities will play an active important role in these developments. Engineers must be trained to properly understand and control such new and complex systems, and universities provide the backbone of resources for both training and research.

Large expenditures of money will be required to attract and train the necessary brainpower in transportation technology.

We cannot emphasize too strongly how little research has been done in rapid mass transit and consequently, of the danger of rushing into premature construction.

Transport systems are expensive. Spending billions for obsolete systems would be tragic yet many are rushing to support this position of folly. The reason for this mistake is obvious. A balloon or airplane cannot take a man to the moon and everyone realizes that a new and different vehicle must be built to achieve a moon landing.

On the other hand, a horse and buggy will still move a man through a city if he is willing to risk life and limb, or better yet, people can always walk as they have for thousands of years. Thus, the urban transport problem has a different character from a moon landing. The problem is not one of feasibility, but of optimization.

The need for and payoff from well-planned research may be even greater in transportation, however, because the results intimately and directly affect such a large portion of our population.

The urban transportation crisis is a national issue whose resolution will require substantial resources that only the Federal Government can provide. Assistance in planning, research and the demonstration of new and better urban rapid transit must be substantial to be significant. This program can be viewed essentially as the breaking of