

The urban transportation crisis has been thoroughly described and duly documented. We will not waste your time extending this documentation but are concerned primarily with plans that will lead to a resolution of this crisis and a return to healthy transportation conditions in our cities.

In solving a transportation problem the question is not, Can it be solved? There are many possible solutions. We have them every day. The real question is, What is the best solution? Time and expense are critical parameters that guide one to effective planning and the prudent use of human and material resources.

An urban center can be viewed as a large, complex system composed of many subsystems such as communications, water supply, recreation, housing, sanitation, etc. Transportation is one very important such subsystem. Here then is our first real need—the systematic research and development of new concepts in the analysis of complex systems for application to transportation problems. Systems engineering—so little understood by the general public and by a great number of technologists—is the optimization of decisionmaking and, as such, distinguishes really creative engineering from routine operations. Great strides have been made in recent years in the development of such techniques in defense, aerospace and industrial systems. We must now modify and adapt these new techniques to obtain the best solutions to problems in the physical, social, and economic development of transit systems.

The second need is extensive research in transportation technology to develop entirely new, imaginative and better urban transit techniques. No significant—I emphasize “significant”—research has been done since the conversion of horsecars to electric power a hundred years ago. We need a breakthrough—not only the technological breakthrough understood by many, but also a mental breakthrough in attitudes and viewpoints. Herculean technological feats in aerospace and defense fields are taken for granted. Certainly, yesterday was not the least of these. Yet, engineers and planners hesitate to make modest changes in urban transit systems.

There are many reasons for this lethargy. The traditional diversity of local interests—particularly center city and suburban differences—hobble effective planning and action. Furthermore, the automobile is formidable and extremely popular competition. It has most of the desired features of good mass transit: convenience, flexibility, and public acceptance. It is the only mode of mass transit for which the individual will knowingly, willfully and gladly go into debt. In the face of this obstacle, it is not surprising that private or local government capital has not ventured into experimental alternates that require large planning and construction expenditures. Yet alternates must clearly be found. For all of its apparent attractiveness, the automobile can never adequately serve all urban transit needs. One lane of a modern expressway will move about 2,000 cars per hour under optimum conditions. With the current occupancy average less than 2 persons per vehicle, this represents less than 4,000 persons per hour—this is per lane of traffic per hour. As these 4,000 persons pour into the city, they move in 6 million pounds of metal that must be stored for the day in 7 acres of parking space. In contrast, one rapid