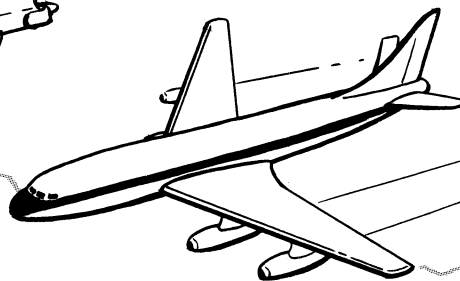
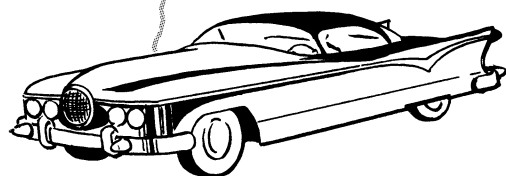


THE TRAFFIC ENGINEER AND URBAN TRANSPORTATION



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The Traffic Engineer and Urban Transportation

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MY GEOLOGIST FRIENDS tell me that man has been living in this world of ours for about 500,000 years. During about 475,000 of those years he was a "savage" existing only as long as his ability to hunt, fish, and gather provided the nourishment to sustain life. His total efforts were devoted to providing his meager needs for food, clothing, and shelter. About 25,000 years ago there developed, probably in the fertile Tigris and Euphrates valleys, a group of people who could produce more than they needed, and they began to develop an urban, specialized system of living. It became good business to preserve the lives of their captives in wars because, as slaves, these men and women could produce more than they required to sustain them. The first great specialists served the religious needs of the people, and these earliest "temple cities" were organized with administration by the priesthood. Man had made his first step toward civilization, the development of the concept that an "abundant production is good for the people." This goal required an expansion of lands for food production and new sources of raw materials for the artisans. With expansion came the need for development of methods for transporting materials and laborers from the points of supply to the points of need. In my thinking the development of the "means of transport" was man's second great step toward civilization.

With the need for expansion there developed two significant political trends. The first was the combination of several of the temple cities into an integrated, cooperating unit with central direction. Thus the early empires began as loose federations held together by slim bonds. As these empires conflicted over needed lands for expansion and the limited supplies of raw materials, organized warfare replaced the tribal conflicts of earlier

years. And so, politically, men learned the necessity and fruits of cooperation on a broad scale in national entities and at the same time developed the means for destruction of such entities in the cauldron of war.

Our civilization began with the problems of the development of cities and today, 25,000 years later, we are still primarily concerned with the problems of the development of our cities. The traffic engineer is concerned with the efficient transportation of people and commodities within the confines of the city and, while transportation is one of man's oldest problems, it is still one of the most important and one of the most difficult to solve. Furthermore the problems of transportation are constantly changing so that the solutions which hold today may be of little use to us in the year 1980. The only real constant which we have is the knowledge that the efficient movement of people and goods is one of the major elements of our way of life.

Over the past 30 years three major factors have been operating and influencing the development of our cities. These three are (1) the very large increase in total numbers of people commonly referred to as the "population explosion," (2) the migration of people from rural areas into the cities stimulated by advances in farming techniques, and (3) the tremendous expansion in the use of the motor vehicle for transporting people and goods. Beginning in the United States and Canada this latter trend is now spreading to Western Europe and other parts of the world. These three factors operating together have caused the populations of our cities to rise very rapidly and the numbers of motor vehicles to rise even more rapidly. Providing travel ways for these motor vehicles is probably the major problem in most of the world's cities today, and for the solution of this problem the

public looks to the traffic engineering profession.

Because the traffic engineer has become the key figure in providing for "circulation" or transportation in our cities today, it is my belief that the profession will be called on to assume greater responsibilities in the years immediately ahead. We hear a great deal today about urban planning, and I believe that urban planning is good, and that it is here to stay. The traffic engineer, however, must also take a more active part in the planning process if we are going to solve our transport problems in urban areas. Our planning must be more of a cooperative undertaking than it has been up to now. It is of little value for the "city planner" trained in our schools of architecture to berate the engineer for his lack of aesthetic sense and for the engineer to berate the planner for his lack of practicality. What is needed is a combined approach to the solution of our problems which will involve all of the interests. From such cooperative planning will come the best answers to our problems. Again let me emphasize my belief that the traffic engineers and the highway engineers who deal with our urban transportation problems must play an important part in the planning process, a much larger part than they have played before. On the other hand let us not forget that the aesthetic point of view is also important because man does not live by bread alone. A maze of concrete in front of the Ferry Building in San Francisco may aid in solving the traffic problem, but when it offends the community one must always ask, "Wasn't there a better answer?" "Did we really consider the honest desires of the people?"

In short, my view is that planning is important. All of the people's interests must be considered in developing urban plans. The traffic engineer must

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bring his practical point of view on transportation needs to bear on the total urban planning problem.

What about mass transportation? A tremendous interest has developed in mass transportation schemes during the last five years. Does this interest arise out of a genuine demand from the people or does it stem from private commercial interests in transportation or even from some planners' firm conviction that they know what is best for the people? In examining this problem and arriving at a reasonable point of view all of these possibilities must be taken into account.

Unquestionably we have traffic congestion problems in most of our urban areas, and these problems are generally most severe in our older cities which were developed around mass transportation routes. In many cities our expressways and freeways have not solved our traffic problems to the extent that we had hoped they would, largely because of our inability to predict the traffic demands. These congestion problems suggest that there may be a better solution to urban transport than the private car and the private truck. One comes quickly to the conclusion that it is much more efficient to handle 40 people on a bus or 500 on a commuter train than it is to handle the same numbers in private automobiles. A strong case can thus be built up for the development of mass transportation systems as the answer to our problem of movement in urban areas. If you couple with this argument the point of view that our cities must be developed around a central core, and that the dispersion of the business and industrial activities is bad, then we can develop an almost irrefutable argument for spending our money for mass transportation.

On the other hand if one approaches the problem from the viewpoint of the people, he gets an entirely different picture. The urban dweller enjoys the freedom which his own automobile gives him and he is willing to endure substantial costs to maintain this freedom. The use of his own automobile permits him to carry on a wide range of activities, and many of his trips are not appropriately served with mass transit operations. To what extent is this man willing to give up the freedom he has for the possible lower costs of the mass transit system? Is he concerned over the central city or would

he prefer that the business and industrial activities be dispersed? It is my considered opinion that the answer to these questions can be found in a study of our newer cities which have developed in the automobile era. Houston is an excellent example. Most city people are going to continue to use their cars just as long as they can, and they would prefer that the city develop so as to give them the maximum possible benefits from the freedom which they have in the use of their cars.

It is in these two contrasting points of view that the question of mass transportation must be considered. The answers will be compromises in most cases, and furthermore they will be different for different cities. What is good for New York is not necessarily good for Houston, and what works in Houston may be a complete failure in Austin. The answers to transportation problems of our cities are not simple, they will not be found easily, and they are not going to be realistic unless they consider the wishes of most of the people.

The major question for the future of our cities and their transportation problems lies in the rate of growth of the population and the use of the motor vehicle. Some of the population prediction curves go almost vertically after about 1970, indicating astronomical population increases in the last 30 years of this century. If this happens we may have problems which will make those of today seem comparatively simple. The result of unrestrained population growth can be seen in several areas of the world today. Those of you who have traveled in India, Pakistan, and Ceylon have seen at first hand the results of these large increases in numbers of people occurring in short periods of time.

The difficulties seem to arise from the fact that the population increases at a rate in excess of the numbers which can be absorbed into the life and economy of the country. During the first 16-20 years of life, people take from the economy rather than contribute to it. Their food, clothing, shelter, and education are all costs which must be borne out of the productivity of the working group, and if the nation is to prosper there must be continuing opportunities for the young adult to take his place in the economy and to begin to produce more than he consumes. Rapid population increases have a ten-

dency to destroy the ability of a people to maintain this system; once a breakdown occurs and the number of non-productive persons increases, the economy begins to suffer and there is a tendency to reduce both production and consumption. Under such circumstances there would occur a decrease in the ownership of the automobile and a decrease in its use for other than business reasons.

On the other hand, if the population increases do occur, and if we are able to maintain an economy sufficiently productive to absorb the large numbers and maintain current standards of living, there will be an increase in both ownership of vehicles and in the total use of the automobile. Under such conditions the demands for vehicle ways, freeways, arterial streets, and country lanes will be very large and the problems occurring in our urban areas will be much more difficult to solve than those which we have today. Our ability to solve these problems in the urban areas will depend upon the genius of the traffic engineer and the urban planner and on the ability of the economy to furnish the necessary monies for construction.

It is my personal opinion that population increases will not be as great as have been predicted and that any appreciable failures to absorb our young into the economy will be balanced by a decrease in the rate of growth of our population. In other words, our people will have the good sense to maintain a healthy balance between our ability to produce and the demands of the nonproductive segment of the economy. Under such conditions there will occur substantial and steady increases in the number of people in our urban areas, in the number of private automobiles owned, and in the average mileage which these vehicles are driven. There will be a continuing challenge in solving the problems of satisfying the needs of the people for traffic ways upon which they may operate their vehicles. The traffic engineer has a most important place in the nation facing up to this challenge in the years immediately ahead. In doing so he will need to take a broader look at the whole of transportation in our urban areas. The traffic engineer will need to work closely with the planners and the public works officials so that the urban area may develop to serve more efficiently the needs of the people who live there.