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THE EIGHTEENTH ANNUAL SALZBERG MEMORIAL LECTURE

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Transportation in an Evolving Context

Most of us who work in the field of transportation find it a fascinating and rewarding field of endeavor. Few of us would not add that on many occasions it is also extremely frustrating, but certainly the rewards far exceed the frustrations. I am sure recognition of the contribution which transportation makes to a better life for all our citizens must rank as the most important reason for the challenges and the opportunities as well as the rewards.

Unfortunately extended time for reflective thinking is not one of the normal fringe benefits associated with the life of a practicing Government bureaucrat. I sometimes think that reflection for some of us has come to be limited to that brief period between the time the airplane takes off and the time the hostess serves a meal as we move about the country at an increasingly rapid pace making what I hope is good use of the world's best transportation system.

This is one of the reasons why conferences such as this are an important part of the contemporary scene. They afford businessmen and Government officials a chance to consider a few of the major issues in their area of responsibility at a somewhat different pace and in a broader perspective than is possible in our usual daily routines. They also provide an interchange of ideas and stimulate the kind of dialogue which is absolutely essential to the effective conduct of business and Government. Nowhere is this more important than in transportation.

In a society as complex and interrelated as ours, the participants in the dialogue must know and understand each other's ideas and must

also be able to rely upon the integrity and good faith of the parties involved. This becomes even more important with the increasing Government involvement in the problems of its citizens, the growth and stability of the economy, the general well-being of our society and our Nation's security.

Transportation has played an important part in man's life since he first fashioned a wheel or first floated down a stream holding on to a log. Even at these primitive stages of development I think it is fair to say transportation was characterized by technological breakthrough and revolution. In more recent history such revolutionary developments as the successful application of the steam engine to navigation, the invention of the steam locomotive and man's first successful flight have continued to capture the imagination of man and change his entire way of life. While the appearance on the transportation scene of the automobile was not marked by the same dramatic impact that took place in other areas of transportation, the ultimate result has been no less a revolution.

As individual achievements, the inventions and discoveries which have been so important to transportation probably differ little from the individual discoveries or inventions in other fields. The visions, the hopes and the motivations were undoubtedly as varied as the individuals who had them. In a broader sense, however, the objectives of transportation development are more easily identified and classified.

I suspect that individual man has always had sufficient curiosity about the world around him to serve as a motivation for travel. This inquisitiveness and desire to know has, I am sure, been an eternal stimulus to the kind of activity we would now dignify with the term "passenger travel for pleasure." But efficient transportation -- and particularly the movement of goods -- serves other objectives as well. It opens new markets, extends the range of profitable production for specific markets and increases land values. In short, in addition to broadening personal horizons, an efficient transportation system reduces the cost of goods and makes it possible for consumers to enjoy a wider choice of products. Both of these are important elements in achieving higher standards of living for more people. And the entire operation facilitates the conduct of business at a profit.

At the beginning of the 19th century there was little that could be dignified with the name "transportation system" in the United States. Many of our towns were isolated and as a result had to be self-supporting. The cost of moving freight was high and there was little passenger movement of any kind. In large parts of the country transportation came to a virtual standstill during the winter months or the rainy season. In the terms of the economist, we had little of the social overhead capital which is vital to economic growth.



Transportation development in the early years had a number of false starts but was also marked by some notable achievements. At virtually every step of the way, however, there was Federal involvement in the developmental process. This involvement has taken different forms for different modes of transportation and has changed significantly to meet the needs of technology and the times. Throughout the course of our economic history, however, its purposes and objectives have been reasonably consistent--fostering transportation facilities which provided economic efficiency with reasonable safety. As one would expect, the means of achieving these objectives have been tempered by the diverse political forces which necessarily exist in a country such as ours.

Much credit is due those responsible for these governmental programs, which have stimulated and encouraged continued private ownership and operation of our transportation system.

This country's accomplishments in the field of transportation are impressive. We have built a network of waterways, highways, railroads and airways which tie our entire Nation together. We have virtually ended economic, social, political and cultural isolation. Our transportation system has transformed the United States from a narrow coastal economy to a continental whole.

Today we have 3 million miles of paved streets and roads and 90 million motor vehicles which use them. We have more than 200,000 miles of railroads serving all sections of the country, approximately 25,000 miles of commercially navigable waterways and a system of commercial airways serving 660 cities over which our airlines fly more than one billion miles a year.

Last year we moved more than  $1\frac{1}{2}$  trillion ton miles of freight and our citizens traveled more than 940 billion intercity passenger miles. More than  $2\frac{1}{2}$  million people make their living as a result of work directly involved in moving people and goods.

This vast transportation complex provides great benefit to all sectors of our economy and has made us the most mobile nation in history. By any standards we have a modern, efficient, safe and a very extensive transportation system. The demands levied upon it by our expanding economy are great, but in most areas the system is performing adequately today. Unfortunately there are some glaring inadequacies, and I think it is fair to say that in recent years our problems have been growing at a faster rate than our ability to solve them. This is particularly true with regard to urban congestion and airport access, and it is probably a safe bet that in both areas things are going to get worse before they get better. Certainly all the economic indicators which are relevant for transportation demand support this view.

Our population which is now about 197 million is increasing at a rate of 1.4 percent per year and should reach approximately 240 million by 1980. GNP, presently \$700 billion will reach a level of



\$1.2 trillion in the next 14 years. The rapid trend toward urbanization will continue and instead of the two-thirds of our population who live in cities today there will be more than three-quarters of the total by 1980. Motor vehicle ownership continues to grow at a fantastic rate and we can expect at least 120 million vehicles by 1975 and many more than that by 1980.

Not only are we becoming a more populous, more urbanized society with greater ownership of motor vehicles, we are also becoming a richer nation whose citizens have more free time in which to travel and a greater demand for products from all parts of our own country and throughout the world. As disposable personal incomes increase, average work weeks become shorter and vacations longer, we can expect the demands on our transportation system to increase even more rapidly.

Our sustained prosperity and better distribution of the products of affluence have produced significant changes in our value system. Many of the changes have great significance for transportation as we look ahead. As we view the transportation system in the broadest context of overall social, political and economic values rather than in the narrower context of achieving purely transportation objectives, we are confronted with numerous conflicts. In large measure, these are conflicts which have existed for a long time but which have simply had a lower priority than we now assign to them. Without a doubt the greatest single factor in changing our priority scale has been the rise in real income for the great majority of our population and the changing pattern of income distribution. While the problems I have reference to are far from new, the pressures for taking them into account in the future planning and development of our transportation have grown tremendously.

As we plan for the future, Government and the private sector of the transportation industry will have to relate transportation to the total environment and to the society which it must serve. We will also have to identify the ways that our transportation system can contribute to the achievement of the goals of society while minimizing the conflict inherent in such a process.

Let me cite just a few examples of the kind of problems I have in mind--problems where transportation must now be considered in a way which we have not normally considered it before.

First, I believe we must recognize transportation for the social force it has become and relate it in appropriate ways to the problems of civil rights. It is no longer acceptable for the transportation planner to ignore the human problems associated with dislocation as a result of highway construction in urban areas. These are not matters to be left for someone else to cope with and, hopefully, solve. They are an integral part of transportation planning.



In this same connection, you may recall that the report on the Watts riots in California cited the inadequacy of public transportation in Watts as one of the factors contributing to the overall problem. More specifically, the problem appeared to be a lack of available transportation to and from employment centers with a resulting impact on employment possibilities and a further isolation of this one segment of the total community. While individual planning efforts for both public and private transportation facilities may have taken such considerations into account in isolated cases, this had not been a general factor in transportation planning before the riots. Obviously this is the kind of problem which any metropolitan area transportation system must meet before it can be adjudged adequate.

At the other end of the spectrum is the whole question of aesthetics and transportation. While the subject of beauty has been the object of a great many jokes and even some derision, let me assure you that it is serious business. It is here to stay and properly so. The single most significant indication of the growing recognition of aesthetic value as a consideration in transportation planning is the Highway Beautification Act which became law last year. This legislation reflected the changing attitude on the part of the American people toward highways. It demonstrated that they would no longer be satisfied with highways that served utilitarian purposes only but instead would insist upon roads that are aesthetically attractive and pleasant to drive on. While it may seem readily apparent to the majority of our individual citizens that it is more pleasant to see the beauty of the countryside as one drives along the highway than it is to be confronted with an endless series of billboards and automobile junkyards, I can assure you that getting legislative recognition of this and an appropriation to do something about it was no simple matter. The American public is right in demanding attractive roads. There is no reason why they should put up with less.



It is equally clear that the planning of future transportation developments will have to take more and more account of the impact on the health of our citizens, their right to the peaceful enjoyment of their daily lives and the preservation of natural resources of all types. We recognize noise and pollution as major social problems, and there is constantly increasing concern with historic sites, recreation areas and wildlife and natural beauty.

Even within what might be thought of as more traditional transportation settings, we can see the necessity for new approaches because of the impact of changing social values and conflicting goals. Air transportation is a case in point.

The traditional concept of aviation as providing transportation between airports has long ceased to be satisfactory. The airport-to-airport segment is only one part of a total trip and must be dealt with in that context. Problems of airport location, airport access, aircraft noise and sonic boom are all part of the picture. So are such matters as the adequacy of terminal facilities for travelers, well-wishers, and tourists, and the question of safety of airways and approaches. Underlying all of this is the question of who will provide funds for each of the components of air transportation. Some of the candidates are the passenger or shipper, the carrier, the community served, and the Federal Government. No one of these aspects can be viewed in isolation.

Perhaps the single most pressing transportation problem and the one which illustrates more of the existing and potential conflicts between transportation and other social objectives is the problem of urban congestion. Twice each day, five days a week, in every city of the U.S. and, in fact, in every major city of the free world there is a clear demonstration of the extent of this problem. As transportation has become such an important ingredient in our lives, the picture of crowded city streets and highways packed with never-ending streams of cars, all bumper-to-bumper, has come to symbolize the problems of transportation. It serves as a continual reminder of the complexity of the problems which characterize our modern civilization with its extreme economic and social interdependence in an increasingly urban context. But urban congestion is coming to mean more than just a flood of commuters going to and from work each day in private automobiles. Urban congestion may soon cease to be a sometime thing and become a constant way of life. Its impact already extends far beyond the commonplace though by no means simple problems associated with traffic delays, smog, traffic accidents, personal inconvenience and economic waste. Ironically, we frequently hear warnings that our cities are in serious danger of being strangled by the traffic jam--a monster of our own creation.

While traffic congestion may very well be the most crucial, frustrating problem facing our cities today, we must remember as we search for solutions that the same forces which have created the



problems have also been responsible for many of the good things which we have come to take for granted and enjoy as a normal part of our way of life.

The same automobiles that crowd our city streets and highways at rush hour also give individual mobility never before known to man. The internal combustion engine which creates smog and noise with all their undesirable features also creates the market for our huge petroleum industry. The wide swaths of asphalt and concrete that now cover one-quarter to one-third of the total land area in our cities are our means of access to work and recreation. And while we are keenly aware of the 49,000 deaths a year in automobile accidents, we have little data on the number of lives that are saved each year by the automobile, nor do we know how many years may be added to our lives because of the existence of the automobile as a part of our way of life.

Let me make it quite clear that I am not speaking as an apologist for the automobile or for urban highways. We should not be willing to accept the harsh and unpleasant impact that so often accompanies expansion of our transportation system or the introduction of new technology. The problems are difficult and we must be aware of all facets of them. More important, we must beware of seemingly simple solutions to complex problems and we must be sure that in trying to arrive at an acceptable solution we do not create unnecessary dislocations in our social and economic systems only to find that we have produced a cure which is far worse than the disease.

Our transportation system has such a major impact on the urban society that any development of the system is bound to be in conflict with other national aims or public policies. The most to be hoped for and the target for which we must aim is a rational method of resolving these conflicts in a manner that will create the least disruption of our various policies.

With urban transportation, as with many of our other transportation problems, I suspect that any solution we find will have at least two very unpleasant characteristics. First, it will be very expensive. Second, it will involve restrictions or limitations on individual choice. If I am correct in this assessment, it means that solutions to our transportation problems will also involve major rearrangements in the institutional framework of our society.

In evaluating future transportation programs and arriving at possible solutions to transportation problems, it will be necessary to develop far better analytical techniques than we have available at present. It will also be necessary to coordinate fully all the research and development which is required to insure timely introduction of new technology for all modes of transportation and, equally important, for methods of coordinating the modes. There must be developed better



measures of the costs and benefits of the alternative programs for achieving our transportation objectives and for balancing our transportation expenditures with expenditures in other sectors of the economy.

It was recognition of problems such as these I have been discussing which led to the establishment of a Department of Transportation. The absence of major disagreement with the concept of a Department reflects the awareness throughout the Government, throughout the transportation industry and throughout the Nation as a whole that our transportation problems have outgrown a fragmented approach which we have relied upon in the past. While the program oriented organization which we have accepted for so long has provided us with remarkable accomplishments when viewed primarily from a modally oriented standpoint, it has clearly failed organizationally, administratively and from the program standpoint to develop the kind of systems approach to transportation that our future needs demand.

The Department of Transportation brings together in one place the Government's major promotional responsibilities in transportation. The Department will provide the focal point for developing a system suited to the accomplishment of our transportation objectives while at the same time recognizing the necessary relationship of transportation to other social and economic objectives.

The existence of a Department of Transportation in no way fore-shadows more extensive Government intervention in the affairs of private business nor is it an indication we are headed toward nationalization. Quite the contrary. The Department of Transportation will be a major bulwark in strengthening the private enterprise transportation system of which we are still justly proud. The Department of Transportation will make it possible to maintain the necessary dialogue between the Federal Government, State and local governments and private enterprise. It will insure that we continue to have the safest, most efficient transportation system in the world--one which is privately-owned and offers the user convenient service and competitive alternatives to the maximum extent possible.

I have been asked frequently what the Department of Transportation can be expected to accomplish. This is a legitimate question but unfortunately it is one to which no one can give a precise answer in terms of concrete accomplishments that can be expected six months after the Department comes into existence, one year after it has been in operation or five years in the future. The Department of Transportation represents a beginning rather than an end. It is the beginning of a new approach to transportation problems. It is a logical framework for coping with complex technical, economic and social relationships. It is an essential ingredient to the future prosperity we all look forward to.



Its accomplishments in the early years will be determined in large measure by the kind of leadership it is able to provide and by the kind of support it gets from the transportation industry and from the public. We all share this responsibility for making it a success.