Highways  Highway Transportation

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FRANCIS C. TURNER *began his career with the U. S. Bureau of Public Roads in 1929, immediately after graduation from Texas A & M University with a degree in civil engineering. During World War II he was assigned to the War Department to supervise maintenance of the Alaska Highway, and thereafter was Phillipine rehabilitation coordinator for the State Department. In 1957 he became Deputy Commissioner and Chief Engineer of the Bureau of Public Roads. When the new Federal Department of Transportation was created in 1967, he was named Director of the Bureau of Public Roads.*

I was pleased to accept Tom Mann's invitation to join you tonight at your Annual Meeting Dinner. I hope that I can make some small contribution to this occasion by presenting a very informal situation report, as I see it, on the present and future of the auto-highway combination as a mode of transportation.

This is a highly popular mode with the American people, as everyone knows, but if any further proof were needed, it has been supplied recently and quite conclusively. I'm referring to two separate opinion surveys conducted for the National Academy of Sciences by unbiased professional poll-takers.

The two surveys together covered more than 5,000 homes, which number is about four times the size of the base sample normally used for national opinion polls in other fields. The great majority of respondents—88 percent to be exact—reported that they considered the automobile to be "much closer to the ideal mode of transportation" for all of their trips, except those business trips longer than 500 miles.

At the other end of the scale, public transportation of all kinds—air, train, bus, rail transit and taxi all combined—was considered closer to the ideal mode by only 12 percent of those polled. So the auto-highway mode was favored seven and one-half to one over all the other modes put together.

But if there is comfort in this for you as manufacturers of motor vehicles and for me as a planner and builder of

highways, there also is a reverse side of the coin for both of us.

I don't need to remind you, I'm sure, that this may be one of the most critical periods in the history of the auto-highway mode of travel since the early-day opposition which started from the horse and carriage owners and the manufacturers of carriages.

In my 39-plus years with the Bureau of Public Roads, I can't recall anything approaching the intensity of the campaign against the auto-highway combination such as we have today. True, the attack is generally based on erroneous information, and is directed mainly toward a few freeways in urban areas, involving only a very minor fraction of the total program—less than half of one percent of the total program mileage. But there is fallout from this on both your industry and the highway fraternity in general.

I am not contending—and neither are you—that the automobile industry and the highway people have always done everything right. That would be a little too much to expect of organizations made up of individual human beings, and functioning during a period of almost unbelievable expansion of our country. And a program that has 99½ percent acceptability—as does the highway program—is surely a pretty good one even with its faults.

Likewise, any minuses charged against the auto-highway combination should in fairness be weighed against one great and all-encompassing plus: that this combination has contributed certainly as much—perhaps more—than

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any other factor to the betterment of the average American's way of life and thus to the present social order in which we live.

I am not speaking now of the tremendous relationship of our whole economy to the automobile industry in a monetary vein because I'm not in the business of selling automobiles. Besides, you're all doing a very good job of that.

Rather, I'm referring to the new horizons which the auto-highway mode of travel has opened for the people in this country as individuals, particularly since World War II—in such things as employment opportunities, the choice of a place to live in relation to that employment, accessibility to recreation areas, the availability to education facilities, and in a hundred other beneficial effects which we constantly take for granted, almost like the air we breathe.

The auto and the highway have helped to make possible suburban living on a large scale. Present trends and the results of surveys suggest that the preference of families for their own private homes on a reasonably spacious plot of ground is deeply rooted. The metropolitan form of urban development has also allowed industries and businesses, together with their employees, a wider freedom of location choice.

The expectation is that in the future the growth of jobs will occur mostly in the suburban areas, while there will occur very little change, or at most only a moderate rate of increase, in the central city itself. Consequently, we

will need little increase in highway or rail transit capacity to and from the central city.

We frequently hear today from those who deplore the flight of people from the central city to the suburbs. I won't get into that argument except to touch upon a couple of related points. One is that it is not the practice in a democracy such as ours to dictate where people shall live or where industry shall locate, except of course within the fairly wide bounds of normal zoning laws. The other is that it has not been, to this date at least, a part of our tradition to impose arbitrary restrictions on any one means of transportation in order to compel people to use another means.

I make this point because there are proposals from time to time to arbitrarily ban, restrict or otherwise make it difficult or prohibitively expensive to drive private automobiles in downtown urban areas—even to the extent of imposing tolls, whose rates increase to virtual confiscation as one approaches downtown or drives during peak traffic hours.

Aside from the practical difficulty of collecting such levies, the probable effect of such a plan would be to accelerate even further the departure of industry from the core city to the suburbs, and so to create even larger problems than the current crop of so-called urban problems with which we are already struggling.

Such restrictive proposals have the objective, in effect, of forcing people to leave their cars at home in order to ride on something else, such as the bus or rail line.

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Of course, a logical question to ask in a majority of such situations is: *What* bus or *what* rail line am I supposed to ride? I must admit that there is some possible merit in the *objective* but I question the *method*, and in a few minutes I want to talk about what I believe to be a practical way to accomplish the same objective without the undesired compulsion feature.

First, though, I want to make a few general comments about motor vehicle travel in the United States, particularly in the urban areas, where our main problems lie.

I might say by way of background that, contrary to what some of our critics imply, we are not adding hundreds of thousands of miles to our highway plant every year in order to pave over entire cities as well as the countryside.

In 1916, when we had only 102 million people and 3.6 million motor vehicles in the country, we had about 3 million miles of roads and streets. In other words, about 1½ motor vehicles per mile of road. But now we have 200 million people driving nearly 100 million motor vehicles, while the total road and street mileage has risen only 700 thousand miles—to 3.7 million miles—in over a half-century. So we now have 27 vehicles per mile of road—or about 20 times the ratio in 1916.

Most of the investment by all levels of government during this period has been directed largely toward improving —in terms of capacity, utility and safety—the basic road network that we started with back in the horse-and-buggy days. Our new mileage has been built largely

to accommodate the phenomenal gravitation to the urban and suburban areas, particularly since World War II.

Looking ahead for a minute: In 1985, instead of 200 million people, we will have about 265 million. Instead of 100 million motor vehicles, we will have something like 144 million. And instead of about a trillion vehicle miles of travel per year, we are expected to have 1.5 trillion—trying to travel on about the same number of miles of road we have now, indicating therefore about one and one-half times the load we already wrestle with today—or 30 times the 1916 problem that I mentioned earlier.

These projections no doubt add up to good news for you in the automobile industry but they pose ulcer-producing problems for those of us in charge of providing facilities for moving these people and their goods about from one place to some other place in those vehicles you have built.

The thorniest part of this problem is going to be in the urban areas, just as it is now, where the majority of our people already live and where this majority further increases year by year. Today, slightly more than half of all motor vehicle travel in the United States takes place in urban areas. Urban travel, expressed in vehicle miles, is now increasing at a rate equivalent to doubling every 20 to 25 years, which is roughly twice the rate of urban population growth.

About half the yearly increase in vehicle miles is accounted for simply by the growth in urban population. The other half comes from changing travel habits brought

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about by the dispersal of homes and activities and by rising personal incomes, which cause these urban residents to travel more miles each year than they previously did.

The expected doubling of motor vehicle travel in urban areas by 1985 will require some new facilities, including freeways, in or to the downtown areas. But most of the new freeway mileage will be in present and future outlying areas, and thus will involve a minimum of dislocation. However, the need for even a small increment of freeway mileage in a built-up area is likely to be the cause for which the transportation planner will be run through a wringer.

Most of you are familiar, I'm sure, with the problems we are having in trying to complete the Interstate System and other urban freeways in some—but only some—of our large cities.

The extent of the problems is not nearly as great as you might gather from what you may hear. But where we do have problems, they are troublesome and frustrating, particularly in those cases where we are trying to build the pieces of an overall jig-saw plan that has served as the basis both for previously completed sections and those now under way, and where we find long-standing decisions suddenly reversed in the middle of the job just as the final portions of the overall project approach the construction stage.

However, all together, our problem cities add up to a total of only 15 out of 233, and only 154 miles out of 41,000—surely a remarkably small figure when compared

with the much larger number of cities and miles where there are no unusual problems.

At present, two-thirds of all urban miles on the Interstate System are completed and in use by traffic. Another 13 percent is under construction, and an additional 20 percent is being readied for construction.

This, then, leaves only 2½ percent of the 6,366 urban Interstate System miles not yet located or tied down—and not all of this mileage carries any problem. I feel sure that some present proposed routes will be adjusted to other locations to provide needed service, and that an acceptable Interstate network will be completed in approximately the currently planned construction period.

The opponents of new urban highways usually offer a simple single alternative solution—a rapid rail transit system which they say can do the same job without causing any of the physical, social and economic dislocation associated with freeways. But, sadly, the only major rail system now being built is having its own large share of these same types of problems as it moves from the planning to the reality stage.

Moreover, urban rail lines cannot provide solutions to the entire range of basic community needs—such as the movement of farm produce, food and manufactured goods, the dispatch of police, fire and ambulance services, the distribution of mail-order and phone-order commodities, the collection of garbage, and a thousand and one other services, both routine and emergency, which today are utterly dependent on roads and streets.

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Travel to the downtown area, essential though it is, represents but a minor part of the total trips that must be accommodated every day and it is only this type of trip that the rail transit line can generally service. The great mass of urban travel, both weekday and weekend, is entirely separate from this home-to-job commuting pattern.

As much as 95 percent of all travel in the largest urban areas is concerned with trips which necessarily by their nature are almost entirely dependent on the private automobile or taxi since they are of a type which neither bus nor rail transit can accommodate—now or under proposals contemplated for the future.

Whenever I mention any of these facts publicly, I get some fan mail accusing me of being anti-rail transit and narrowly highway-minded. I must plead guilty to being strongly in favor of highways and as the Director of Public Roads you would expect me to be.

But, as I have said on many occasions, I am in favor of all the help that other types of transportation can give to us in the highway field because those of us dealing with roads and streets are more aware than anyone else of the total transportation load—and that the total current resources available in our field cannot be made sufficient to meet all of the estimated needs.

Anyone who has studied urban transportation objectively knows that rail transit, with its fixed routes and schedules, cannot be a general substitute for highways and the autos, buses and trucks they carry. Of the most common

urban modes, the automotive vehicle is the only one which can offer the flexibility required by today's multitude of variable needs, and tomorrow's needs at unknown locations in new and yet-to-be-built cities and suburban developments.

It has often been said that we are losing ground in urban traffic movement, despite the provision of freeways and other new highway facilities. But again the hard facts dispute the glib phrase.

Our own studies indicate that vehicle speeds in urban areas have either *increased substantially or remained fairly constant* over the years despite the astounding increase in the number and use of motor vehicles.

As an example, while automobile registrations in the New York City area rose from 12 per 100 persons in 1930 to 30 per 100 persons now, travel speeds in Manhattan generally have remained almost without change during the same period, despite statements that today's travel is like that in the horse-and-buggy age.

True, there are some individual areas, at some periods of the day, where travel is maddeningly slow, but solutions are being provided and even here travel is faster than by the horse-and-buggy mode. And if we were still trying to use the horse and wagon we'd have even worse congestion than that which one complains about today.

Using New York again as an example, in those areas where new highways have been built, travel times have been substantially reduced. In 1959 for instance, it took

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45 minutes to drive between the George Washington Bridge and the Nassau-Queens County lines, while in 1966 the time for the same trip had been cut to 25 minutes. This example is repeated regularly across the country in every major city. It is the routine condition and not the exception.

Likewise, the often-expressed comment that it takes longer to get to and from an airport by car and highway than to fly across the continent is greatly exaggerated. Carefully timed runs during both peak and other travel hours, from airport to downtown at all the major airports of the nation, show such statements to be false. My own considerable travel experience is that I usually wait longer in the airport lounge to board the plane, and then wait again an equivalent amount of time in getting off the ground or circling in the "stack" to get down, than I use in travel getting to and from the airport by auto and highway.

Still, we cannot be complacent about our past and current achievements in the face of a prospective 50 percent further growth in our highway traffic loads during the next few years. We must find ways to get more persons moved—and also more freight and service vehicles—over what facilities we have already built and the few new ones we will be able to build in the future. And we know now that we will likely be unable to build these as rapidly as the vehicle and persons load will increase.

One answer that seems possible is to try to entice the average urban dweller out of so much dependence on his car as a daily commuting vehicle. Every 50 persons

lured to bus transit represents a reduction of 30 automobiles in the traffic stream during rush hours, and this in turn represents a 2 percent reduction in traffic volume.

We in the Bureau of Public Roads believe that there is a great potential in the use of reserved lanes, or perhaps even reserved streets, for buses. We are presently allowing Federal-aid funds to be used for this purpose under certain experimental conditions, since these buses are highway vehicles making user payments into the Federal Highway Trust Fund.

Where bus service would not justify such exclusive use of special lanes during rush hours, buses might however be given priority, with an additional number of private cars also allowed. Such an arrangement is now operative in a large number of instances. Still more can easily be provided, at very little added highway cost.

This program is a new one, so new that there are at present no exclusive bus lanes in operation on freeways in the United States. However, at least 14 cities have established exclusive bus lanes on urban streets, with indications that both buses and other vehicles can save as much as 10 to 30 percent in travel time as a result.

Within the last few weeks we have taken a step which may have profound significance to the development of this whole program. The Bureau of Public Roads will help finance a two-year study of a four-mile highway to be constructed in Milwaukee County, Wisconsin, for the exclusive use of buses as part of a rapid transit system. The cost of the study is estimated at $550,000 and will be

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jointly financed by the Bureau, the U. S. Department of Housing and Urban Development, the Wisconsin Department of Transportation, and Milwaukee County.

It will be the first attempt to develop a bus rapid transit system that includes a highway constructed solely for bus transportation. The study—and bear in mind that this is a feasibility study, not an actual construction project—should provide the best information to date on the potentialities of bus transit when good, fast service is provided on modern buses.

In this particular situation, there is a great deal at stake for highway users who must pay for needed highways. Interstate 94, which is a principal route into Milwaukee, has a capacity of 85,000 vehicles per day. But indications are that the demand may reach a rate of 126,000 vehicles per day by 1990 if no alternative is provided.

We believe that the bus rapid-transit road being studied could relieve the Interstate route of 34,000 vehicles daily and obviate the need for building about four or six more lanes of freeway, at ever-increasing highway user tax costs—a large share of which costs would likely have to come from a tax on the products your industry builds.

We are looking forward with considerable interest, therefore, to the results of this study, not only in view of its local importance but also because of its national implications. From the skimpy information presently available on the prospect of getting commuters to leave their cars at home, there are reasons for both discouragement and encouragement.

On the negative side, one study showed that a significant number of people always went to and from work by car, even though there was no car in the household and transit service was available. The same study showed that some 72 percent of drivers had not even estimated the cost of driving to work, obviously considering cost to be of lesser importance than convenience.

On the other hand, we suspect that this large-scale disinterest in, or disenchantment with, bus transit is due largely to unsatisfactory personal experiences with a lack of good service, and there is ample evidence to support this suspicion.

To cite one example, the Massachusetts Bay Transit Authority invested in some modern, air-conditioned buses and put them into service last September on the Massachusetts Turnpike route into downtown Boston. During the pre-Christmas rush the line carried 3,000 persons per day in each direction. While the service has since leveled off to about 2,000, the important point is that more than 30 percent of these riders came from automobiles. They were attracted by modern buses and a bus "quickway." The 2,000 persons represent a reduction of about 1,300 passenger cars—almost the capacity of an expressway lane for one hour.

We are therefore pushing hard on this program of encouraging the development of modern bus rapid-transit systems, not to the exclusion of rail transit where that appears to be the correct answer. But the cases where new rail transit service is feasible are relatively few—perhaps in about a dozen cities. And even in these cases,

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substantial highway development will still be needed. In this effort, of course, we are actively soliciting the cooperation and support of the States and the bus transit industry.

I said earlier that in 20 years we can expect that you will have put at least half again as many vehicles to traveling our highways as today. Using my figure that one bus will reduce traffic volumes 2 percent, we could therefore theoretically put 20 percent of buses into the future traffic stream and still carry this increased number of persons in the same number of vehicles that move today.

These would, of course, be automotive vehicles which you would manufacture, and they would be operated on the roadbeds which we in the highway field are providing. It certainly seems desirable, then, that our dependent interests be joined in an endeavor for the benefit of the vast majority of Americans.

The Automobile Manufacturers Association has played a prominent role in various ways in the development of this country's highway network over a long period in the past, including an interest in and active support for both the regular Federal-aid highway program and the National System of Interstate and Defense Highways.

In these activities you and we have sometimes been accused of serving selfish interests. If so, it is difficult to condemn an organization for serving its selfish interests when these at the same time coincide with the interests and expressed desires of the great majority of Americans.

So in closing I thank you for your past support and ask you tonight to continue that support of the development of an adequate highway network—one that will be closely integrated with other transportation modes—and one completely attuned to the concept of carrying people, goods and services. We must have an adequate highway system on which your auto and truck customers can safely and satisfactorily drive, or you will no longer be manufacturing any very large numbers of automotive vehicles.

Summing up, then:

- ☐ The highway program is progressing very well.
- ☐ There is only an insignificantly small percentage of problem locations in cities.
- ☐ Urban travel speeds are increasing with freeway progress, even with many more vehicles.
- ☐ Future growth, however, requires ways to utilize buses as mass personnel carriers.

Again, my thanks for your industry's support of the highway program and for the chance to visit with you here tonight.

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