

NEW CHALLENGES TO THE FEDERAL-STATE PARTNERSHIP

Remarks by Francis C. Turner, Director of Public Roads, Federal Highway Administration, U. S. Department of Transportation, prepared for delivery at the 44th Annual Convention of the Association of Highway Officials of the North Atlantic States, Boston, March 8, 1968

As you know, the Committees of Congress are displaying a keen interest in the Federal-aid highway program right now, and so I appreciate the chance to talk over our mutual problems again in the meeting with you who are responsible for highways and their use in this important North Atlantic area.

Last year at Baltimore I opened with a statement that I want to repeat now because, frankly, I didn't realize how prophetic it was. I said: "I want to remind you that we are now into the second 50 years of the Federal-aid highway program and it appears likely that the challenges ahead will be greater and more diverse than those we have faced up to now."

That was less than a year ago. In the meantime there have been a number of significant developments that are bound to influence the future of the Federal-aid highway program as well as the future of the Federal-State partnership. I will refer first to the new estimate of cost of the Interstate System, which was presented to Congress in January. This, as you know, totals \$56.5 billion -- up \$9.7 billion from the 1965 estimate. The reasons are also known to you but let me say for the record that the cost figure is based on considerably expanded concepts of the System and what it should do in addition to just being a transportation facility. Most of the increase is due to significant improvements in the System itself, including upgraded safety standards and the more elaborate designs necessary to conform to the demands for compatibility with environmental factors, both rural and urban.

The second significant development is the 1968 National Highway Needs Report, the body of which was submitted to Congress last month, with recommendations to follow on or about April 1. But without considering recommendations, the report arrived at a preliminary figure for the annual cost of road and street needs for the years 1973-85. This comes to an average annual capital cost of \$17.4 billion, more than double the \$8.5 billion per year estimated annual capital accomplishments during the remainder of the current period, 1965-72.

As a group you are already generally familiar with both the new Interstate System cost estimate and the Highway Needs Report so I won't dwell on the details. The point I want to make by way of preface, though, is that the financial outlays proposed -- or estimated as needed -- in these two studies are tremendous, and realistic. And if past experience is any criterion, the estimates are likely to provide new ammunition for critics of the freeway program, especially in the urban areas.

The past year has been a particularly difficult one for urban freeway development and there has been an apparent swelling of the ranks of those who would have all urban dwellers walk or take a non-existent railway car. It has become increasingly fashionable to accuse highway engineers and officials of diabolical schemes to pave over entire downtown areas, while polluting the air with motor vehicle fumes and deliberately creating monumental traffic jams. Most of the critics offer instant rapid rail transit as the answer to all of these problems.

Anyone who has studied urban transportation objectively knows that rail transit, with its fixed routes and schedules, is no substitute for freeways. But to demonstrate this does not diminish the responsibility of highway officials to recognize that there is a growing urban transportation problem and then get in the forefront of the fight to meet it with practical solutions.

In outlining a few thoughts on how to do this, I want first to make my position clear. I'm in favor of all forms of transport because there is such a huge demand for this service that any and all modes must be utilized in the mix that will provide the desired level of service -- and this mix will require an overwhelming large proportion of highways for many years and many dollars. The broad objectives of the Department of Transportation, of which the Bureau of Public Roads' share is the largest part, are to unify national transport policy and to assure this desired transportation system for a population that will reach 300 million by the year 2000.

Such a system necessarily involves a total transportation facility, a complex conveyor belt which includes air, rail, highway, water pipeline, and pedestrian transport, so integrated that the various modes complement each other in the way that these 300 million customers individually and collectively demand.

Because a majority of our people already live in urban areas and gravitation to the cities continues, it is obviously these dense concentrations of population that demand a major share of that transportation and at the same time pose the most difficult problems and decisions. The movement of people and goods in these urban areas is largely dependent on privately-owned vehicles and mass transit, rail or rubber-tired or both. The principal

challenge of today and of the years ahead for which we are now planning is to determine which combination of modes will best serve the needs of the urban dwellers in each instance. The combination will not necessarily be the same in Boston that it is found to be in Portland, Maine, or in New York, or Washington.

Such determinations involve research, study, analysis -- and delay. This delay, necessary as it may be in some instances, has encouraged an organized campaign against the automobile and the freeway -- even those planned for a decade or more under the Interstate and other Federal-aid highway programs. And too often the solution suggested by the opponents is to substitute a form of transportation that won't work in a specific case for one that will work. There is hardly ever an either/or situation in any urban area. Rail transit serves an urgent need in some instances but is totally unadaptable to others and this kind of conclusion is arrived at by our experienced highway planners from objective study of the whole transportation spectrum - and not from a pressurized sales promotion campaign.

The opposition to freeways comes from various interests, groups, segments of the population, and individuals. It is based on various motives -- commercial, esthetic, social, personal -- but the common rallying cry is that a rapid rail transit system can do the same job without causing the physical, social and economic dislocations involved in freeway construction. The argument is an appealing one if you just close your eyes and dream, but it won't stand up when you awaken to life's hard realities. First of all, it completely ignores the need to move products and essential public services as well as people. Subways and other high speed rail lines are ill adapted

to the distribution of farm produce and manufactured goods - or police and fire protection - or garbage pickups. It follows that even where rail rapid transit lines are already in use or projected as being feasible, freeways and other urban arterials must still be provided in large amounts to assure the efficient distribution of goods and services.

More basic is the fact that rail transit, even when only the movement of people is considered, is feasible in very few cities and only for very limited areas within these. In New York and other large cities where large segments of the population are concentrated along corridors and there are other conditions which are ideal for rapid rail transit, it obviously will continue to be essential. On the other hand, its function has become increasingly the single one of moving people to and from the downtown area, mainly going to and from work, during one or two hours morning and evening, five days a week.

Travel to the downtown area, essential though it is, represents but a minor part of the total trips that must be accommodated every day - even in New York with its large rail network. The great mass of urban area travel is wholly outside the station-to-downtown commuting route. It is made up (as much as 95 percent in the largest cities) of the countless trips to school, to visit friends and relatives, to go to work or to move about in earning a living, to go to the neighborhood theatre, restaurant, drive-in, bowling alley, or shopping center -- trips that neither rail nor bus transit can acceptably serve for the majority of our 300,000,000 customers and which are almost wholly dependent on the private vehicle or taxi.

A statement often made and recently repeated in a national magazine is that "one track of (rail) transit can carry as many people as 20 lanes of highway." This is carefully worded to be misleading. Assuming that a single rail line would have a capacity of 40,000 persons per hour, 20 lanes of highway would need have only 2,000 persons per hour in each lane to equal this volume. Actually, a single traffic lane devoted to buses exclusively, can carry 50,000 persons per hour. One mixed traffic lane in the Lincoln Tunnel carries well over 20,000 passengers an hour right now and no rail transit line anywhere is actually carrying the 40,000 persons per hour for an hour over any distances comparable to highway trip lengths.

Rail transit cannot be justified and successfully operated except in densely populated service areas. Five cities in the United States now have rail rapid transit systems in operation, a sixth has one under construction, and five others are seriously considering such systems for the future. Thus the question applies now only to eleven urbanized areas, and might in future extend to a dozen more if the experience with the others proves satisfactory. But even in these areas, the proposed rail system cannot do away with the needed additional streets and highways, but can serve only as a complementary and supplementing facility to carry a portion of the total peak hour load.

For example, in four of the five urban areas considering rail rapid transit systems, it should be remembered that such systems would serve only about five percent of the urban area's total daily person trips and only about ten percent of the area's peak hour trips. The five percent which would be carried by rail transit in these estimates is just about the amount of the annual traffic growth now being experienced in these same cities. Even where

rail transit is already available, another form of transportation must also be provided to collect the riders from their homes in the morning and then to redistribute many of them, almost entirely by highways and streets, to their ultimate downtown destinations; back to the rail stations at night, and then to their places of residence.

In simplest terms, the choice of a transportation system must take into account the known habits and travel wishes of its customers. Most of them won't walk more than a few blocks to ride any form of transportation and they won't wait more than a few minutes for that ride. Therefore the width of the band that can be serviced by a fixed rail track is about 8-10 blocks wide unless and until the service has been supplemented by feeder buses or individual passenger cars. This raises the quite logical question in many instances: Why not go all the way to or near the final destination by bus or passenger car instead of getting off and changing trains?

There is another significant aspect to this whole problem. It is not entirely certain that rail service will have any considerable effect on traffic congestion. In Philadelphia, traffic on the Schuylkill Expressway rose from 89,392 vehicles per day in 1960 to 134,654 in 1965, which is about 175 percent of the planned capacity. This steady increase occurred despite the municipally-supported expansion of suburban rail service. Chicago's Eisenhower Expressway, which has a rail line in the median, carries over 150,000 vehicles per day and several times as many customers as does the rail line. So does the Long Island Expressway, serving an area with many electric railway facilities. Both these express highways also move large freight

tonnages every day and provide additional public services which cannot be provided by the rail lines.

The Bay Area Rapid Transit System in San Francisco is expected to increase the percentage of persons crossing the Bay on public transportation from 43 on existing buses to 60 on its trains by 1975-80. But the ultimate story is quite different, according to a transportation specialist, George W. Hilton, Professor of Economics at the University of California, Los Angeles. He wrote in the July 1967 issue of TRAFFIC QUARTERLY:

"This implies a reduction of 15 to 20 percent of automobile traffic, but whatever is diverted is certain to be replaced by vehicles in a queue of drivers currently unable to get on the bridge in rush hours because it is utilized to capacity. The District recognizes this explicitly, and estimates that the Bay Bridge will have returned to its theoretical capacity by 1978.

"Accordingly, from the point of view of its effect on traffic congestion, the best that can be said for this project is that it involves the expenditure of over a billion dollars to postpone for somewhat under a decade the building of a second bridge for perhaps \$280 million -- possibly the highest purchase price for time in history."

Since most of this talk to this point has been on the negative side, what then is the answer to the mounting traffic problem in urban areas? New freeways are needed but these alone are not the total answer to all traffic problems in every city, nor is the answer to be found in the mere addition of more lanes to existing facilities. It seems obvious that we haven't yet exploited to the fullest the potentialities of the streets and highways that we now have and those which we are developing. We have to think more about measuring highway capacity in persons moved rather than vehicles and this,

of course, means the active encouragement of mass bus transit over our road and street networks which can be utilized as "bus quickways."

Buses presently carry 70 percent of all transit passengers in urban areas. Bus transit is and probably will continue to be the only form of mass transit in at least 95 percent of our urban areas of 50,000 or more population, and in all smaller communities. It will be increasingly important in the years ahead to entice as many urban dwellers as possible out of their personal cars and onto bus transit for their routine, everyday repetitive movements. This is no easy task for there are those in great numbers who still prefer to use their own cars regardless of the availability and quality of transit. Some idea of the extent of the problem is illustrated by studies conducted by the University of Michigan under contract with the Bureau of Public Roads. These 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 to them. Another finding was that some 72 percent of drivers had not estimated the cost of driving to work, obviously considering cost of lesser importance than convenience. Theoretical economic investment approaches to public transportation programs therefore are not an acceptable concept to the customers - nor is efficiency by itself.

There will always be an irreducible minimum of passenger car traffic, made up of trips that cannot be accommodated by any other means of transportation. But I think we can, with the full cooperation of the bus transit industry, lure the average urban dweller out of so much dependence on his car as a daily commuting vehicle. Some fairly dramatic proof of this is available right here in the Boston area. The Massachusetts Bay Transit Authority

invested in some modern, air-conditioned buses and put them into service last September on the Massachusetts Turnpike extension into downtown Boston. During the pre-Christmas rush the line carried 3,000 persons per day in each direction and the service has now leveled off to about 2,000. But the important point is that more than 30 percent of these riders came from automobiles. They were enticed by modern buses and a "bus quickway," and the 2,000 persons represent a reduction of about 1300 passenger cars - almost the capacity of an expressway lane for one hour.

An interesting idea of possible significance for the future is now being investigated under a Federal research contract. The purpose is to find out whether free bus rides would substantially reduce the rush hour crush in cities across the country. There are many practical difficulties, of course, but without passing on its merit at this time, I believe the proposal embodies the kind of imaginative, uninhibited thinking needed to solve the traffic congestion problem.

Every 50 persons lured to mass transit by whatever means represents a reduction of 30 automobiles in the traffic stream, which is the equivalent of a 2 percent reduction in volume. This performs the desirable multi-function of helping to ease downtown traffic and parking congestion, to reduce air pollution, and to stretch the people-carrying capacity of already existing streets and highways. In fact the capacity in many communities is entirely adequate right now and will be for a number of years ahead if any considerable number of persons bound to and from the downtown areas can be induced to use bus transit. In other cases, very little expansion of existing capacity would be required and frequently this can be accomplished at minimum cost.

The TOPICS program, with which you are all familiar, is another important step toward the fuller utilization of our highway plant. Projects in this program can produce in some instances an increase in the capacity of a city street network of from 10 to 15 percent, with a decrease in accident rates and a further incentive and assist to the transit industry to improve bus service. The urban bus routes, whether freeways or traditional city streets or both, and the buses that ride them are the Siamese twins of mass transit: one cannot function without the other. And the efficiency of the functioning of each depends on the vitality of the other. Highway officials and engineers have very little control over the quality of the transit equipment except to encourage the acquisition of modern buses by the provision of good routes or "quick busways."

Combined transit service in all U. S. urban areas carried fewer passengers in 1965 than in 1924, a decrease occurring during a time when the urban population had doubled. The transit industry must cooperate and put new equipment into service if it is to compete with the private automobile and arrest the year-by-year decline in its operations.

This is not easy, either. One of the principal problems is that much of the new equipment would be needed only during the peak hours. But American ingenuity is almost without limit and it should be possible to design an all-purpose vehicle, to be used for carrying passengers during the peak hours and cargo during the rest of the day. As it is, we have the wheels and the routes, but neither is being used at anywhere near its capacity. The effect is like building a tremendous manufacturing plant and then running it for only a few hours a day.

We believe there is a great potential in the use of reserved lanes or reserved streets for buses and, as you know, we are allowing Federal-aid funds to be used for this purpose under certain conditions. Where bus service would not justify such exclusive use of special lanes during rush hours, buses could be given priority, with a limited but additional number of private cars also allowed. This program is so new that it still amounts mainly to a concept of blueprint for future action. At present there are no exclusive bus lanes in operation on freeways in the United States. However, we know of 14 cities which have established exclusive bus lanes on urban streets, with indications that both buses and other vehicles can save 10 to 30 percent in travel time as a result. In Seattle, two ramps from Interstate 5 into downtown will be used exclusively for buses for a two-year period beginning this spring.

Similar planning is in progress for other cities across the country, all in the direction of expanding the people-carrying capacity of highways in the urban areas. I urge you to keep in the leadership of this developing trend for here is another opportunity for the highway engineer to demonstrate again that he is interested in and doing something practical about the problem of providing improved transportation facilities to his millions of customers. Even though it is obvious that future highway needs in urban areas will be great, regardless of programs to improve mass transit, we must make certain that the highway plant we have is used to the fullest extent possible.

I believe the transportation problems of the cities can be largely met through a judicious mix of new facilities and the fuller use of those now

existing. I firmly believe also that these problems can be best handled under the traditional proven Federal Bureau of Public Roads-State highway department partnership, despite strong pressures to the contrary. We must continue to demonstrate by working example not only the effectivity and efficiency of the partnership but also its adaptability to the growing and changing needs of our customers.