

HIGHWAYS AS PART OF THE TOTAL TRANSPORTATION SYSTEM

Remarks by Francis C. Turner, Director of Public Roads, Federal Highway Administration, U.S. Department of Transportation, prepared for delivery at a dinner in connection with CONEXPO '69, Construction Equipment Exposition and Road Show, Chicago, February 19, 1969.

I am pleased and honored to be with you at this World Highways Dinner sponsored by the International Road Federation. Many of you are from outside the United States and it is always interesting to me to get together with highway and transportation officials of other countries and discuss our mutual problems, which vary only in degree.

There seems to be no foreseeable slackening in the proliferation of vehicles using our highways. The growth in the number and use of motor vehicles in the United States has consistently outpaced the boldest predictions of the best forecasters in the transportation field. This was just brought home to me again when I reread a speech made 12 years ago by the then Federal Highway Administrator, and now the new Secretary of Transportation, John A. Volpe, who assumed this office only about 4 weeks ago.

In a 1956 address to the American Roadbuilders' Association, Mr. Volpe referred to the traffic demands "20 years from now -- when more than 90 million motor vehicles are anticipated." He was using the best forecasting information available at the time. But at the end of 1968 only 12 years later, we had more than 100 million motor vehicles registered in this country. So that instead of 90 million vehicles in 1976, we already have upwards of 100 million at the start of 1969.

The popularity of the motor vehicle and the reasons for that popularity are so well known that it is unnecessary to cite them in a talk to such a knowledgeable group as this. Many people who recognize the reality of this overwhelming public acceptance of the motor vehicle are charged in the public press with being blind to any other mode of transport. This despite the fact that we invariably say in the same context that our economy will need all the kinds of transportation we have or can develop to meet the constantly mounting demands for the safe and efficient movement of both people and goods.

Being so closely identified with one kind of transportation because it is my statutorily assigned responsibility and because it at the same time has tremendous appeal to the public doesn't mean that I am against the other kinds. What we all are trying to do - or at least should be trying to do - is to fashion a total transportation system, a complex conveyor belt for people and goods, which includes air, rail, highway, water, pipeline, sidewalk and elevator transport. To unify our national transportation policy and to meld and connect the various modes into one integrated, efficient, and safe transport system are the two broad goals of the Department of Transportation. There is such a huge and growing demand for transportation that any and all modes must be utilized and fostered to make a mix that will provide the level of service needed now for our 200 million people and much more so for the 300 million population anticipated in this country in the year 2000.

What we must be careful to avoid is the fallacy that any mode is automatically interchangeable with any of the other modes - a delusion that

leads some to advocate too frequently a form of transportation that won't do the job in a specific situation for one that will. As an illustration, we can't send people through pipelines - at least as we know them today - any more than we can practicably send manufactured goods by subway; and so the choice of each mode must be made to fit each specific instance and each specific need. In any definition, this is precisely what transportation planning is all about.

Transportation planning in this country is involved primarily with the private automobile and the highway because this combination forms the backbone of our whole mobility network. It is also the overwhelming preference of the American people, as has been demonstrated time and again both in public opinion surveys and in situations where a reasonable option has been offered. For example, some studies of domestic preference made by the University of Michigan, for the Bureau of Public Roads revealed some interesting findings. Among these was the fact that a significant number of people always went to and from their jobs by car, even though there was no car in the household and transit service was available. The same studies showed that about 72 percent of drivers had not estimated the cost of driving to work, obviously considering cost to be of lesser importance than convenience.

Many of you are familiar with the surveys made last year by private opinion pollers for the Highway Research Board, of the National Academy of Sciences. The results showed that 88 percent of our people consider the automobile to be "much closer to the ideal mode of transportation" for all trips, except business trips longer than 500 miles. Likewise, the Interstate Commerce Commission found that 87 percent of the traffic between cities takes place in private passenger cars. Buses account for another two percent.

It is the convenience and flexibility of the auto-highway combination which has made it our most used means of getting about from one place to another. It is the mode which is most adaptable to an infinite combination of individually selected times and routings. The only similarly flexible mode is to walk and although the walking mechanism is adaptable to just about any usual situation as a mode, it can't fit our normal time requirement for moving ourselves and goods over larger distances in a short span of time. All of our planning studies of transportation needs in urban areas, incidentally, include this form of transport as part of the total transportation planning package, even though it is small in amount. Our land use studies, also consider how locations of living areas might permit larger numbers of persons to walk to and from their daily work, in order to decrease the demand for both roads and rails.

In any case, movement by private automobile is deeply ingrained in our way of life; in fact it made possible our way of life, and we can't either ignore it or just wish it away. The auto and the highway have helped to make possible suburban living on a large scale. Presently, two-thirds of all American families in metropolitan areas live in single family houses, and the proportion is steadily rising. Present trends and the results of surveys suggest that the preference of most families is to have their own private homes with a little land around them and that this desire is deeply rooted. This is why there is the so-called urban sprawl; it is simply what the majority of our citizens prefer and are able and willing to pay for, despite the fact that the planner can show that it is inefficient in its use of both transportation and land area.

The expectation is that in the future the growth of jobs will occur mostly in these resulting suburban areas, with only a moderate and lesser rate of increase in the central cities. Consequently the present and future transportation needs in the large urban complexes will be not so much involved with movements to and from the city cores, but within suburban areas and between one outlying area and another, frequently crossing the downtown section en route if no other route is available. As much as 95 percent of all travel in large urban areas even now is concerned with trips which necessarily by their nature are of a type which neither bus nor rail transit can accommodate, because they are spread so thin over such an infinite number of routes and time schedules as to make concentrated rail services economically infeasible.

So we have two major factors pointing to a continuing and challenging increase in the number and use of private motor vehicles. One is their clamorous acceptance by the people; the other is their virtual necessity if Americans are going to continue to make the types of trips that they wish to make and run the types of errands that they have to run by virtue of the way of life they have chosen. And if - as some say - the automobile is an inefficient means of transportation, then the majority of our people have chosen inefficiency in their transportation as well as in their housing. The suburbanites in single family dwellings could be more efficiently - and certainly more cheaply - housed in military-type barracks with community type bathrooms and mess-halls, but who among us would deliberately choose this way of living if another choice were available?

Those charged with building and integrating a national transportation network are in a losing race with the growth and development of our country

and its needs. In 1985, instead of 200 million people, we can expect to have about 265 million. Instead of 100 million motor vehicles, we can expect to have something like 144 million. And instead of a little over a trillion vehicle miles of travel per year, we can then expect to have 1.5 trillion - and even though our forecasting methods have greatly improved, we cannot forget that every such forecast made in the past on these travel factors has been found to be on the low side.

We have made great strides in reconstructing our highway network in the years since 1956, when work on our Interstate Highway System began in earnest. Of the 42,500 miles of this System presently authorized, we now have 27,000 miles in operation, another 6,000 miles under construction and 8,000 miles under design and right-of-way acquisition. This work has been done through the traditional Federal-State partnership arrangement which is the basis of our highway program in this country. During the same period, work on the regular highway network - Federal-aid highways other than Interstate - has kept pace with Interstate progress but not with the growing needs thereon. Although we have come a long way we still have a long way to go toward meeting our total needs.

Obviously the toughest transportation problems will continue to lie in the urban areas, just as they do now, but to a greater degree. 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 years, which is twice the rate of 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 about by the dispersal of houses and activities and by rising family incomes. The expected doubling of motor vehicle travel in urban areas by 1985 will require some new freeways and other new highway facilities 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. There will be a need, however, for some freeway mileage in built-up areas and here the problem of fitting them into the environment with maximum benefit and minimum disruption is a difficult and time-consuming task. But the most urgent solution to increasing urban traffic demands seems to lie in increased highway usage, probably in substituting buses for cars in more cases.

What of rail transit? It has a very definite place in some of our largest urban areas, and particularly in the movement of people to and from the core city, and more particularly, to and from their jobs, generally because it already exists. Its efficiency dwindles rapidly however as it tries to adapt to other movements. I am not going to dwell on rail transit, not because of any prejudice against it, but because it is outside my particular field and because all available studies clearly show that it offers no real solution to the great bulk of our transportation problems. It cannot be blindly chosen as a substitute for urban freeways and other urban arterials because it can serve only a small fraction of the total needs, leaving the larger remainder still requiring an auto, bus, truck, highway solution.

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. In looking for ways to move the urban population and to ease urban congestion, therefore, we have to look mainly at bus transit. And so I want to tell you about a few of the steps being taken by the Bureau of Public Roads and other agencies of the Department of Transportation to make bus transit more popular and workable.

On the surface this would seem to be a discouraging project. Just recently a consultant conducted a study for the Department of Transportation to determine whether free bus rides would provide enough incentive to induce urban residents to make more of their trips by bus. This was a preliminary study and not intended to provide the final word. But the consultant reported:

"The principal conclusion of the study is that while free transit does, in general, contribute to the goals that its supporters seek to achieve, improved transit service is generally a more efficient means of promoting these objectives. The evidence indicates that transit ridership is more responsive to improvements in service than reductions in fares; and reductions in access times to and from the transit station, as well as transfer and waiting times, are likely to be particularly important in this regard. The available evidence suggests, however, that even substantial improvements in transit services are not likely to reduce greatly the demand for automobile travel."

The fact remains, however, that we must at the Federal, State and local levels, do everything within reason to develop additional highway and street capacity by increasing use of busses in substitution for rush hour trips by passenger cars where such a switch can appropriately be made by the individual.

The switch of 50 persons from their own cars to bus transit brings a reduction of 30 automobiles in the traffic streams and this in turn means a 2 percent reduction in traffic volume. If only 5% of the capacity of a lane is used for busses instead of passenger cars, it is the equivalent in persons moved to an entire additional lane. That is why we are making a special and continuing effort to encourage the greater use of mass transit by bus through the provision of better service, both on freeways as well as on regular city streets or a combination of both. There is great potential in the use of reserved lanes, or even reserved streets, for buses during peak hours. We are presently allowing the States to use Federal-aid funds for this purpose since revenues flowing into the Federal Highway Trust Fund come from buses as well as from automobiles and trucks.

Where the volume of bus service would not justify the exclusive set-aside of special lanes during rush hours, buses might be given priority, with an additional number of private cars also allowed in the lane. At least 14 cities have established some kind of 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.

Many studies are under way to determine the feasibility of the exclusive bus lane concept. I will mention only a couple as representative. A major freeway, the Shirley Highway or Interstate 95, is a very heavily-traveled commuting route linking Northern Virginia with Washington, D. C. The facility is now being reconstructed and provision has been made in the design for two reversible lanes flanked on either side by three northbound and three southbound lanes. These reversible lanes could be used either for busses or mixed

traffic, but a study is being made which will consider the effect of making the reversible lanes exclusively or preferentially bus lanes, during peak hours of morning and evening commuter use.

Another step is a greater departure from tradition. The Bureau of Public Roads, with other Federal, State and local agencies, is financing a two-year study of a four-mile highway in Milwaukee County, Wisconsin, to be used exclusively by buses as part of a rapid transit system. This will be the first time a highway has been constructed solely for bus transportation. It should provide the best information to date on the potentialities of bus transit when good, fast service is provided on modern buses.

The Department of Transportation, through its ^{Mass Transportation} Urban/Highway Administration, is also exploring a relatively new idea which could provide a transportation system combining the convenience of the taxi with the lower fare of the bus. This project is known as "CARS" (Computer Aiding Routing System) and it will be conducted by the Massachusetts Institute of Technology.

In oversimplified terms, the project will study linking incoming calls for passenger service to computers which would then assign small-capacity vehicles to pick up the passengers and deliver them individually to their destinations in a form of group-riding taxi type of service. The vehicle would arrive within a guaranteed time and would make only minor detours en route to pick up and drop off the other passengers.

These studies, surveys and experiments have the common purpose of stretching to the fullest extent the people-carrying capacity of the highway facilities that we now have or are building. Another effort along the same line is being made through what we call our TOPICS program (Traffic Operations Program to Improve Capacity and Safety). This involves traffic engineering

improvements to improve the capacity and safety of urban streets and arterial routes without major construction or dislocation. While all of these items will help, they will not by themselves, eliminate the pressing need for more new highway capacity.

On the basis of preliminary State estimates, it would appear that we will need another 50,000 or so miles of new access-controlled freeways to accommodate the traffic of 1985. The majority of this mileage, of course, will be outside the cities but the transportation needs of the urban areas will increase at a rate at least equal to and very likely much larger than the growth in population. And this in turn means constantly increasing demands for mobility, demands which must be met largely as they have been met in the past, through the provision of new highways and the greater utilization of those now existing or developing.

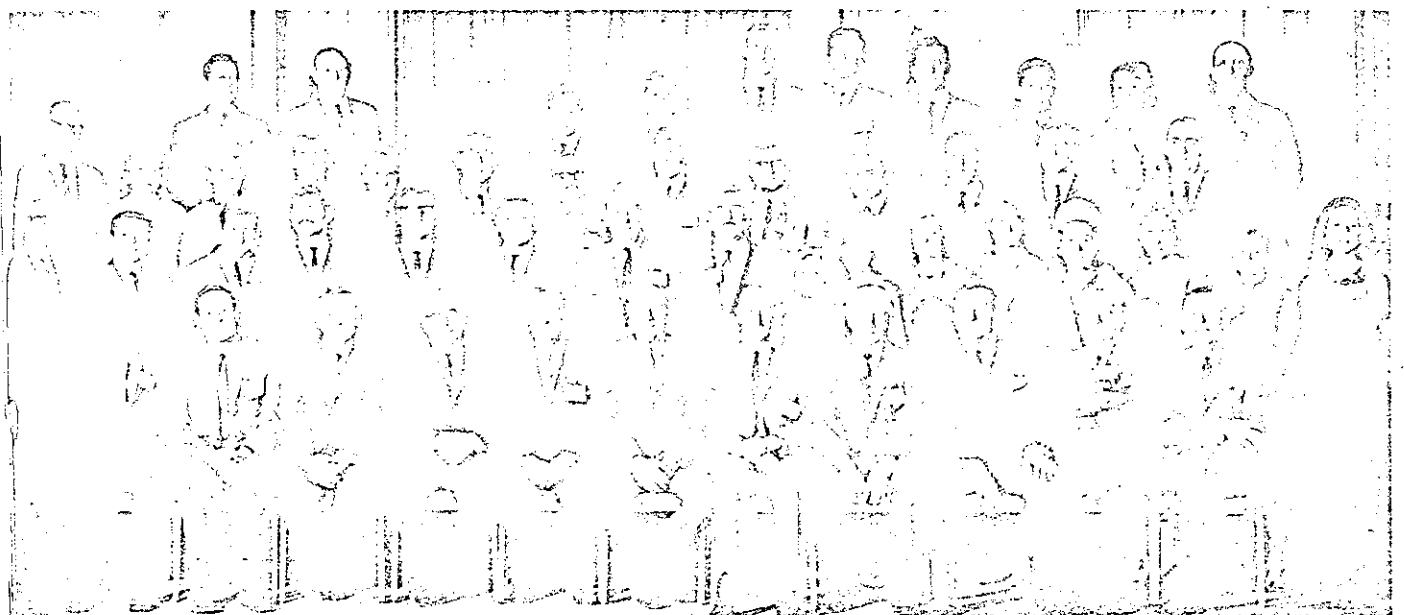
In 1968, in accordance with law, the Department of Transportation submitted to Congress the first of a series of biennial reports on the Highway Needs of the Nation. A year has passed and another report is not due until 1970, but I see no reason at this point to change the main finding of last year's report, which was expressed in these terms:

"The conclusion from this general analysis is that future urban highway needs in urban areas will be great, even though urban areas undertake extensive programs to improve mass transit, whether bus or rail, or both."

There are many things about this country that make us utterly dependent on the highway - our geography, our economic structure, and the many elements that make up what we call our way of life. We are very definitely a Nation on wheels - principally rubber-tired wheels. In the past 12 years we have

provided about 10 trillion miles of transportation over our highway system, or the equivalent of more than 20 million round trips to the moon. Transportation by highways accounts for more than 8 out of every 10 dollars of the total investment in all types of transportation in the United States. Of the outlay for the movement of intercity freight, more than 7 of every 10 dollars goes to the movement by highway vehicles. Likewise, 9 out of every 10 dollars spent for intercity passenger movements goes for highway travel by cars and buses.

There are frequent references made in the press these days to a highway lobby which is supporting a highway improvement program for its own selfish enrichment or personal aggrandizement, and that anyone who is supporting the highway program is acting against the public interest. Such comments are so far from the truth that one must wonder as to the reasons for their being made. There is indeed a highway lobby - a truly peoples lobby however - in their own best interests, because of the substantial majority of our citizens who directly or indirectly benefit from the vital highway development program which I have been describing. If I am identified with that so-called "lobby" then I say that I am proud to be so identified for it surely is the overwhelming will of the people of this country to continue to improve their vitally needed highway transportation network. The same kind of support is being developed in other countries of the world that you represent, and IRF is an important factor in this support, for which I compliment them tonight. We who are engaged in highway development can rightly be proud of the contribution we are making to a better world.



FELLOWSHIP STUDENTS, PAST AND PRESENT, WERE HONOR GUESTS at a luncheon on February 20 in the LaSalle Hotel, Chicago, during the Conexpo '69 show. Those attending included top IRF officials from both Geneva and Washington, and members of the Canadian Good Roads Association (CGRA) and the Steering Committee in charge of the 1970 IRF World Meeting in Montreal. Those on the front row, left to right, are Ferdinand Edouard (Haiti 1960-64); Robert N. Hayes (Ireland, 1963-64); Civil Engineering Professor W. H. Goetz of Purdue University; Robert E. Meskill of Standard Oil Co. (NJ), IRF-Washington Board Member; President Robert O. Swain of IRF; Board Chairman A. Raafaub of IRF-Geneva; Gerald I. McCarthy of Tippetts-Abbett-McCarthy-Stratton consulting engineering firm and IRF-Washington Board Member; Keith H. MacDonald, Chairman of the General Committee for the Sixth World Meeting; Managing Director C. W. Gilchrist of CGRA, and Vice President Arthur Nagle of IRF-Washington.

CONEXPO...

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- 300 gallons of cleaner and tire paint and 300 pounds of rags to do the job.
 - A 250-ton capacity crane costing \$20,000, that could lift a prefabricated bedroom apartment and put it into place on a 20-story apartment building.
 - A 125th fully operational scale model of the largest crane in the world.
 - A compact roller bearing jaw crusher pulverize stone and ore.
 - A combination front-end loader, crane, piler, backhoe and forklift.
 - A heavy-duty gas turbine engine for heavy construction.
- Summing up Conexpo '69, CIMA Executive Director John Benson called it "educational exhibit" and a "showcase" surpassing anything in this line that has ever been done before.

Autos, Roads Key to USA Transportation

The automobile and the highway are the backbone of the U. S. transportation system and a major consideration in national transportation planning. Francis C. Turner, U. S. Director of Public Roads, delivered this message on January 19 in Chicago, Illinois at a luncheon in connection with CONEXPO '69, the Construction Equipment Exposition and Road Show.

Part of Mr. Turner's remarks follow: "I am pleased and honored to be with you at this World Highways Dinner sponsored by the International Road Federation. Many of you are from outside the United States and it is always a pleasure to me to get together with highway and transportation officials of other countries and discuss our mutual interests, which vary only in degree. It seems to be no foreseeable slackening in the proliferation of vehicles on our highways. The growth in the

number and use of motor vehicles in the United States has consistently outpaced the boldest predictions of the best forecasters in the transportation field. This was just brought home to me again when I reread a speech made 12 years ago by the then Federal Highway Administrator, and now the new Secretary of Transportation, John A. Volpe, who assumed this office only about 4 weeks ago.

Traffic Exceeds Forecasts

In a 1956 address to the American Roadbuilders' Association, Mr. Volpe referred to the traffic demands "20 years from now—when more than 90 million motor vehicles are anticipated." He was using the best forecasting information available at the time. But at the end of 1968 only 12 years later, we had more than 100 million motor vehicles registered in this country. So that instead of 90 million vehicles in 1976, we already have upwards of 100 million at the start of 1969.

The popularity of the motor vehicle and the reasons for that popularity are so well known that it is unnecessary to cite them in a talk to such a knowledgeable group as this. Many people who recognize the reality of this overwhelming public acceptance of the motor vehicle are charged in the public press with being blind to any other mode of transport. This despite the fact that we invariably say in the same context that our economy will need all the kinds of transportation we have or can develop to meet the constantly mounting demands for the safe and efficient movement of both people and goods.

Being so closely identified with one kind of transportation because it is my statutorily assigned responsibility and because it at the same time has tremendous appeal to the public doesn't mean that I am against the other kinds. What we all are trying to do—or at least should be trying to do—is to fashion a total transportation system, a complex conveyor belt for people and

goods, which includes air, rail, highway, water, pipeline, sidewalk and elevator transport.

Unified Transport Needed

To unify our national transportation policy and to meld and connect the various modes into one integrated, efficient, and safe transport system are the two broad goals of the Department of Transportation. There is such a huge and growing demand for transportation that any and all modes must be utilized and fostered to make a mix that will provide the level of service needed now for our 200 million people and much more so for the 300 million population anticipated in this country in the year 2000.

What we must be careful to avoid is the fallacy that any mode is automatically interchangeable with any of the other modes—a delusion that leads some to advocate too frequently a form of transportation that won't do the job in a specific situation for one that will. As an illustration, we can't send people through pipelines—at least as we know them today—any more than we can practically send manufactured goods by subway; and so the choice of each mode must be made to fit each specific instance and each specific need. In any definition, this is precisely what transportation planning is all about.

Transportation planning in this country is involved primarily with the private automobile and the highway because this combination forms the backbone of our mobility network. It is also the overwhelming preference of the American people, as has been demonstrated time and again both in public opinion surveys and in situations where a reasonable option has been offered. For example, some studies of domestic preference made by the University of Michigan, for the Bureau of Public Roads revealed some interesting findings. Among these was the fact that a significant number of people always went to and from their jobs by car,

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LECTURERS AND PARTICIPANTS IN IRF SEMINAR AT CONEXPO '69—Top photo, some of those attending one of the popular International Road Federation seminars at the Conexpo '69 program in Chicago; below, the major participants in one of the seminars, left to right, include: Professor Louis R. Shaffer of University of Illinois; Frank Schneller, Director of Research and Education of Associated General Contractors; Professor Emmett H. Karrer of Highway Engineering Department of Ohio State University; Professor Charles L. Miller, Head of Department of Civil Engineering of Massachusetts Institute of Technology; and Dr. James Douglas of Stanford University.

IMPORTANT ROAD TOPICS TAKEN UP AT IRF SEMINARS—Top group at IRF seminar in connection with Conexpo '69 at Chicago comprised, seated left to right: Albert A. Henry of Texas Highway Department; W. N. Carey, Jr., Executive Director of Highway Research Board; and David R. Levin of U.S. Bureau of Public Roads; standing: Prof. Harmer E. Davis, Director of Institute of Transportation and Traffic Engineering of University of California; and Prof. Emmett H. Karrer of Highway Engineering Department of Ohio State University. Bottom seminar group, seated left to right: Arven H. Saunders, Director of Bureau of National Capital Airport of Federal Aviation Administration; Arthur A. Carter, Jr. of U.S. Bureau of Public Roads; and D. W. Lutzenhoiser of U.S. Bureau of Public Roads; Standing left to right: Prof. Harmer E. Davis, Director of Institute of Transportation and Traffic Engineering of University of California; Prof. Donald S. Berry, Chairman of the Department of Civil Engineering of Northwestern University; Prof. Emmett H. Karrer, Highway Engineering Department of Ohio State University; and Dr. James Douglas of Stanford University.

WINDUP...

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even though there was no car in the household and transit service was available. The same studies showed that about 12 percent of drivers had not estimated the cost of driving to work, obviously considering cost to be of lesser importance than convenience.

Auto Trips Rated Ideal

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Suburban Life

In any case, movement by private automobile is deeply ingrained in our way of life; in fact it made possible our way of life, and we can't either ignore it or just wish it away. The auto and the highway have helped to make possible suburban living on a large scale. Presently, two-thirds of all American families in metropolitan areas live in single family houses, and the proportion is steadily rising.

Present trends and the results of surveys suggest that the preference of most families is to have their own private homes with a little land around them and that this desire is deeply rooted. This is why there is the so-called urban sprawl; it is simply what the majority of our citizens prefer and are able and willing to pay for, despite the fact that the planner can show that it is inefficient in its use of both transportation and land area.

The expectation is that in the future the growth of jobs will occur mostly in these resulting suburban areas, with only a moderate and lesser rate of increase in the central cities. Consequently the present and future transportation needs in the large urban complexes will be not so much involved with movements

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TURNER ADDRESSES WORLD HIGHWAYS BANQUET—Francis C. Turner, U.S. Federal Highway Administrator, delivered a major speech on U.S. road policies at the World Highways Banquet in Chicago on February 19. At right at head table is Board Chairman A. Rcaflaub of IRF-Geneva.

TURNER . . .

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such an infinite number of routes and time schedules as to make concentrated rail services economically infeasible.

Challenge Continues

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And if—as some say—the automobile is an inefficient means of transportation, then the majority of our people have chosen inefficiency in their transportation as well as in their housing. The suburbanites in single family dwellings could be more efficiently—and certainly more cheaply—housed in military-type barracks with community type bath-rooms and mess-halls, but who among us would deliberately choose this way of living if another choice were available?

Those charged with building and integrating a national transportation network are in a losing race with the growth and development of our country and its needs. In 1985, instead of 200 million people, we can expect to have about 265 million. Instead of 100 million motor vehicles, we can expect to have something like 144 million. And instead of a little over a trillion vehicle miles of travel per year, we can then expect to have 1.5 trillion—and even though our forecasting methods have greatly improved, we cannot forget that every such forecast made in the past on these travel factors has been found to be on the low side.

Interstate System Progress Noted

We have made great strides in reconstructing our highway network in the years since 1956, when work on our Interstate Highway System began in earnest. Of the 12,500 miles of this Sys-

tem presently authorized, we now have 27,000 miles in operation, another 6,000 miles under construction and 8,000 miles under design and right-of-way acquisition. This work has been done through the traditional Federal-State partnership arrangement which is the basis of our highway program in this country. During the same period, work on the regular highway network—Federal-aid highways other than Interstate—has kept pace with Interstate progress but not with the growing needs thereon. Although we have come a long way we still have a long way to go toward meeting our total needs.

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Urban Freeways Needed

There will be a need, however, for some freeway mileage in built-up areas and here the problem of fitting them into the environment with maximum benefit and minimum disruption is a difficult and time-consuming task. But the most urgent solution to increasing urban traffic demands seems to lie in increased highway usage, probably in substituting buses for cars in more cases.

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Improved Bus Service Needed

On the surface this would seem to be a discouraging project. Just recently a consultant conducted a study for the Department of Transportation to determine whether free bus rides would provide enough incentive to induce urban residents to make more of their trips by bus. This was a preliminary study and not intended to provide the final word. But the consultant reported:

"The principal conclusion of the study is that while free transit does, in general, contribute to the goals that its supporters seek to achieve, improved transit service is generally a more efficient means of promoting these objectives. The evidence indicates that transit ridership is more responsive to improvements in service than reductions in fares; and reductions in access time to and from the transit station, as well as transfer and waiting times, are likely to be particularly important in this regard. The available evidence suggests, however, that even substantial improvements in transit services are not likely to reduce greatly the demand for automobile travel."

The fact remains, however, that we must at the Federal, State and local levels, do everything within reason to develop additional highway and street capacity by increasing use of busses in substitution for rush hour trips by passenger cars where such a switch can appropriately be made by the individual. The switch of 50 persons from their own cars to bus transit brings a reduction of 30 automobiles in the traffic streams and this in turn means a 2 percent reduction in traffic volume. If only 5 percent of the capacity of a lane is used for busses instead of passenger cars, it is the equivalent in persons moved to an entire additional lane. That is why we are making special and continuing effort to encourage the greater use of mass transit by bus through the provision of better service, both on transit ways as well as on regular city streets.

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