HIGHWAY TRANSPORTATION NEEDS AFTER THE INTERSTATE

Remarks by F. C. Turner, Director of Public Roads, Federal Highway Administration, U.S. Department of Transportation, prepared for delivery at the National Transportation Engineering Conference sponsored by the American Society of Civil Engineers, San Diego, Calif., February 19, 1968, 2:00 p.m.

It must be a source of wonder to the general public that highway officials and engineers spend so much time talking about "the next highway program" when such a great volume of work remains to be done on the National System of Interstate and Defense Highways. This work includes not only completing the authorized mileage, but bringing substantial portions of the System now in use up to higher design standards.

However, you who are familiar with the many steps that go into the making of a highway or a highway network know that the quality of the final result is likely to be in direct proportion to the amount, scope, and thoroughness of the thinking and planning that precede by many years the engineering design and the acquisition of right-of-way. Thus the Interstate System, for which a practical financing plan was not enacted until 1956, had its roots in ideas, studies and reports going back to the 1930's and even earlier.

By the same token, no Federally-aided highway or highway program can be considered in isolation, separate and apart from other highways or other transportation facilities, and their place in the total pattern of living and making a living in our changing society.

We are planning and working toward an adequate highway network that will be safe and esthetically pleasing as well as serviceable, and which will be

closely integrated with other modes of transportation. These modes are -- or properly should be -- complementary, rather than competitive, and highway planning must be considered in that light. At the same time, it is essential to recognize that highways can also serve important purposes other than the movement of people and goods, and we are encouraging the fulfillment of this potential to the maximum extent consistent with the basic purposes of all transportation.

All of these considerations underscore the need for long range planning, a need recognized by Congress in Federal-aid highway legislation as far back as 1934, and in many subsequent actions, most recently in the Federal-aid Highway Act of 1965. That legislation required a report to be submitted in January 1968, and every second year thereafter, on the highway needs of the Nation. The first of these reports was presented to Congress very recently and I propose to discuss it in some detail along with other observations on the so-called "After 1975 Program."

The 1968 National Highway Needs Report is the logical outgrowth of what may now be considered preliminary steps dating all the way back to 1916, when the original Federal-aid Road Act was enacted; and because an understanding of the growth and development of the Federal-aid program helps to understand the reasoning in the latest report, I commend such historical reading to you. Let me just say in this connection that the Federal-State program had its birth and grew up as a rural program, aimed originally at getting the farmer out of the mud and making possible reasonably convenient motor travel from one city or town line to another. Use of Federal-aid funds for highways in built-up areas was prohibited in the 1916 legislation. Cities had been taking care of their own highway needs and continued to do so until the 1944 Federal-aid Act

broadened the program to allow the use of Federal funds on extensions of State highways into and through urban areas.

In recent years the urbanization of our country has been recognized increasingly by Congress in successive Federal-aid Highway Acts, especially in the Act of 1962. That legislation required that urban highway plans be developed in cities of 50,000 or more population as part of a cooperative, comprehensive, and continuing urban transportation planning process, including coordination with plans for other modes of transportation (and alternative variations and combinations thereof), for local land development, and with full participation in planningby local government.

The 1968 needs report deals with the period 1973-85 and it takes full cognizance of the continuing gravitation of our people to the urban areas, both existing and potential. Before going into its major points, I want to emphasize that it is more in the nature of a fact-finding and analytical study, rather than a detailed blueprint for action. The report just submitted to Congress contains no specific recommendations; these are expected to be submitted separately on or about April 1. But it does suggest broad areas for further exploration and charts some logical approaches to meeting the Nation's highway needs during the 1973-1985 period.

The report suggests that the most important key to meeting these needs lies in an objective nationwide highway classification study for use in redefining the Federal-aid highway systems -- as well as all other roads and streets -- in each State. Such a study would be undertaken in cooperation with the State highway departments and with local government participation under careful guidelines that would first have to be established. It would

classify all roads and streets by their functional use - for example, the Interstate System routes, the most important major arterials, the minor arterials, the collectors, and the local residential and business access roads and streets.

The suggested classification study might consider an expansion of the Federal-aid systems in urban areas to include all major arterial streets and highways with these being divided into two categories. One would be the urban penetrations of the rural intercity routes and their major distributors, which are generally State highways and for which the State would have the primary responsibility to insure their integration into Statewide highway plans, as well as to integrate them into the local urban transportation planning process. The second category of the urban arterial system could comprise the routes of local areawide importance, which collectively might be called the Federal-aid metropolitan system or some similarly descriptive term. Routes of this system also would be the responsibility of the State highway departments and would also be included in the Federal-aid system.

The needs study considered in detail the question of extending the authorized length of the Interstate System. However, most of the routes considered for addition to this coast-to-coast and border-to-border network were found to be of lesser Federal interest than the presently authorized routes. The majority of those considered, for example, were contained within a single State or traversed only one or two States. The study therefore suggests the possibility of an intermediate system, comprising those routes next in importance to the Interstate System. As an incentive for priority construction of such an intermediate system, the State highway departments

have suggested a higher federal matching ratio than the normal 50 percent; or that special funds might be authorized exclusively for use on such an intermediate system. The construction standards could be less than those of the Interstate System although the control-of-access principle would seem appropriate for the whole of such an intermediate system.

The Federal-aid secondary system might be redefined as a network of collector roads (about 20 to 25 percent of the total mileage in each State), linking land access and arterial routes in both urban and rural areas. Such a definition and the system thus derived could focus the major secondary effort on a relatively important network of collector roads and avoid fragmentation of Federal-aid funds on unrelated individual projects in which the Federal interest is not great. Concentration of Federal-aid on such a system of collector roads would pay higher dividends in improved traffic service and highway safety.

The report is heavily oriented to the urban areas. In addition to the possible expansion of the Federal-aid system in these areas, it enumerates other programs and actions to aid the cities in developing adequate highway transportation.

These programs and actions are closely related and are evolutionary, rather than revolutionary. In some cases they comprise extensions or enlargements of ongoing programs and concepts; in others, they amount to refinements of prior studies, or reports or recommendations of the Bureau of Public Roads.

The current report also suggests that Congress should give its formal endorsement to the joint development concept in urban highway corridors, a

proposal which the Bureau has been promoting for several years. This involves the coordinated "package" development of desirable non-highway needs such as housing, business, parking, and recreational facilities either above, below or alongside the urban highway. One of the most important social aspects of the joint development concept is the opportunity which it frequently affords for replacement housing of better quality for those persons displaced by the highway project itself. It would also, of course, make the most efficient use of both funds and space in urban areas which are usually short of one or the other or both. It would put more muscle in the joint development program if Federal highway legislation and State acquisition powers were amended to authorize the use of Federal-aid highway funds by the States for limited acquisition of property beyond the minimum highway right-of-way lines where necessary. If legislation were so drawn it could permit the initial expenditure from highway funds needed for the additional land acquisition to be recouped later from the ultimate owner or land user.

As you all know, one of the knotty and continuing problems in any type of urban development is the present structure of many local governments, where one unit frequently acts independently of others. This problem is particularly acute in the transportation field where it is essential to plan and schedule projects from the perspective of the area as a whole rather than that of one or several communities acting individually. The continued strengthening of the planning requirement operations of the Federal-aid Highway Act of 1962 should go a long way toward solving this problem. There should be no change, however, in the present requirement that projects be submitted through and by the State highway departments to the Bureau of Public Roads. It is believed

that the best long-term gains can be achieved if the relationship between the State highway departments and the metropolitan areas is strengthened by this and other current procedures, rather than weakened.

The report also discusses the establishment of a substantial Federal revolving fund which would be available to the States for long-range advance acquisition of highway right-of-way, especially in the rapidly-expanding urban areas. Such a program could not only make possible substantial savings in land costs, but would also insure longer lead time for planning and coordination of other compatible land development and right-of-way acquisition and adjustments resulting therefrom. In the urban areas of over 50,000 population, the urban transportation planning process fosters the development of highway plans 20 years or more into the future. This permits the early identification of lands required for future highways and other planning purposes, including those of other transportation modes, as well as those not directly related to transportation, but based on land usage.

The report goes into the possible broadening of Federal-aid legislation to permit the use of Federal funds for parking facilities but adopts a cautious position in this field. It suggests that Federal funds for parking, if authorized for such purposes, be used experimentally at first, testing a variety of approaches. On the basis of such experiments, demonstration studies and research, recommendations may be made at some future time as to the type of continuing program that might be undertaken.

In this brief talk, I decided to touch only lightly on the financing problems involved in the "After '75 Program" for several reasons. An obvious one is that highway finance is a complex, highly technical subject that cannot

be dealt with meaningfully in a general presentation such as this. Also, we have just submitted a new estimate of the cost of completing the Interstate System, as required by law, and this new estimate totals $56.5 billion -- up $9.7 billion from the 1965 estimate. I'm not going into the reasons today, except to say that the major share of the increase is due to significant improvements in the System itself, including an extensive investment in upgrading the safety standards and meeting the considerably embellished designs needed to conform to the demands for compatibility with environmental factors, both rural and urban. The National Highway Needs Study, on the basis of State highway department estimates, has 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.

I believe it would be premature and tenuous to go any deeper into financing at this time when the ink is hardly dry on the 1968 highway needs report and Congress has not had a chance to study it in detail. Even if eventually it should form the outline of a "new" Federal-aid highway program, many key matters would have to be determined, such as the ratio of Federal-State contributions, the sources from which the Federal share would be derived, and the method of apportioning the annual amounts to the States.

We have studied possible changes in the methods of apportionment of Federal-aid funds, bringing into play such factors as motor vehicle registrations, vehicle miles of travel, and mileages related to functional classification. However, this question needs a great deal more study and there

is still adequate time for it; so therefore we are not making any suggestions now as to future apportionment formulas.

I have given a capsule summary of the principal features of the 1968 highway needs report, necessarily touching only lightly on some very weighty matters and completely omitting others. I have not, for example, discussed the question of highway beautification or other human environmental considerations except in the sketchiest way. I have not gone into the difficult area of Federal policy on toll facilities generally and their integration into the Federal-aid systems.

I said earlier that there are serious questions as to the desirability of expanding the Interstate mileage. This may be misinterpreted, so let me say that there are very definitely freeways in the future. The State estimates include some 53,000 miles of needed freeway improvements on systems other than the Interstate. These are the miles needing improvement, but they may be considered as roughly indicating the total miles of freeways that will need to be in service in 1985. It appears, then, that to serve the traffic anticipated in 1985, additional freeway mileage at least equal to the 41,000-mile Interstate System will be needed. This includes a substantial mileage in urban areas because, to use the vernacular, that is where the action is -- where an ever-increasing majority of our people live, work, and do the major share of their travel -- and this need must be met, notwithstanding the frequent suggestions that the auto be eliminated and everybody either walk or ride the subway.

New freeways are not the total answer to urban traffic problems, however, nor is the answer to be found in the mere addition of more lanes to existing facilities. We must exploit to the fullest in the years ahead the highways

that we now have and those we are developing -- not in terms of moving great numbers of vehicles, but in moving greater numbers of people. This means, among other things, the active encouragement of mass bus transit. 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 nine-tenths of our urban areas of 50,000 or more population, and in all smaller communities.

It will be increasingly important in the future to entice as many urban dwellers as possible from their personal cars to bus transit for their routine, everyday movements. Every 50 persons so lured to mass transit represents a reduction of 30 automobiles in the traffic stream or the equivalent of a 2 percent reduction in volume, with a consequent easing of downtown traffic and parking congestion, a reduction in air pollution, and an increase in the people-carrying capacity of already existing streets and highways. Because of the large potential increase in capacity which can be achieved in this way, the Bureau of Public Roads is actively encouraging design features in the Federal-aid highway program to promote this trend.

In fact the existing 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 this can frequently be accomplished at minimum cost -- sometimes with just paint and signs.

Of great promise in this type of capacity-stretching effort is the TOPICS program, initiated by the Bureau of Public Roads about two years ago.

TOPICS (Traffic Operations Program to Increase Capacity and Safety) authorizes for the first time the use of Federal-aid funds for projects to increase the capacity and safety of existing urban arterials without major new construction, but rather by the systematic and comprehensive application of traffic operations combined with relatively minor construction improvements. These include channelization of intersections, judicious street widening at bottlenecks and intersection approaches, and a variety of other proven engineering techniques, plus such cooperative efforts with local police as parking restrictions and special rush-hour traffic limitations.

Such programs can produce an increase in the capacity of a city street network of from 10 to 15 percent, with a concurrent decrease in accidents and a further incentive to the transit industry to improve bus service.

As to rail transit, it is generally conceded that it cannot be justified and successfully operated except in areas having at least 1 million inhabitants. 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 11 urbanized areas, and may in future extend to a dozen more with populations of over a million, if the experience with the others proves satisfactory.

In four of the five urban areas considering rail rapid transit systems, it should be remembered however that such systems would serve only an estimated 5 percent of the urban area's total daily person trips and only 10 percent of the area's peak hour trips. The 5 percent carried by rail transit in these estimates is about the amount of annual traffic growth now being experienced. Even where rail transit is available, another form of transportation must also

be provided to distribute the majority of its patrons, almost entirely by highways and streets, to their downtown destinations in the morning and back to the rail station at night, as well as between their places of residence and the rail stations.

To sum it up, the Federal-aid highway program began and developed as a rurally-oriented program in accordance with the needs as they prevailed during the early years. Prior to 1944 only a token amount of Federal or State funds went for highway projects within urban areas of 5,000 or more population. From 1944, when 25 percent of the Federal funds was first legislatively earmarked for use inside urban areas, until 1956, less than a third of the Federal highway funds went for highway projects within urban areas.

The metropolitan areas thus accumulated a backlog of needed highway improvements while their populations increased at a pace that astounded the demographers and other experts in social trends. As a result the transportation needs of urban areas have received increasingly greater Federal and State attent in the past decade and undoubtedly will need more in the future. Federal highway legislation of the 1960's has been oriented more directly to the specific transportation needs of the urban areas, as well as to the many social and human values that are intimately bound up with the provision of new traffic facilities and improvements to those existing.

In brief, the Federal-aid highway program is turning full circle. Rather than building intercity routes with urban extensions, the program envisioned for the years ahead must necessarily concentrate on urban routes with "extensions" into rural areas. And any objective analysis must conclude that future highway needs in urban areas will continue to be great, even though extensive programs are undertaken to improve mass transit, whether by bus or rail, or both.