

studies and disseminate the findings to all the other departments it would serve a great need.

Every limited access highway in an urban area is, in effect, a bypass; it bypasses something because of the fact that it is either an elevated or depressed expressway for at least a certain distance, and whatever distance that is, it is bypassing something. Such a highway should bring about certain collateral benefits beyond those that are immediately apparent. For instance, not enough attention is being given to the benefits that may accrue to transit operation, for example, in the city areas. Certainly some of these expressways are going to aid transit service by making it possible to provide some kind of express service.

In the areas that have been relieved of the traffic from existing streets, truck deliveries and pickups certainly will be improved. That is a benefit to business that may be difficult to measure, but in the long run it would have some relationship to the cost of doing business, and therefore should be reflected in the level of business activity.

Safety has been mentioned in one or two of the preceding reports as being a collateral or fringe benefit. Ridding the existing streets of unnecessary traffic ought to have very definite and measurable safety benefits. What have been the results of the improved traffic operational conditions on the surfaced streets after the expressway has been built? Obviously, the remaining streets should operate more efficiently and more as they were originally designed to operate, when the unwanted or the unnecessary traffic is removed from them.

Finally, if business benefits are to be achieved in the downtown areas of cities by the construction of expressways, off-street parking must be provided along with the expressway or highway program.

Traffic Studies and Economic Impact Research

Roy T. Messer, Bureau of Public Roads

Although traffic studies are necessary to determine the economic benefits to the highway user, many of those benefits can be translated into economic benefits accruing to the land or the use to which that land is being put.

Often, one of the reasons for building a bypass and determining its location is the industry located in the area. What is the influence of the availability of additional traffic capacity in attracting new industry along limited access highway improvements that are really basically in the nature of bypasses?

To what extent does availability of a bypass motivate industry to locate there? Is this new industry or is it industry moving from a present location to a more favored location?

The traffic problem has not always been fully investigated, but it seems like a logical aspect to include. Traffic is one thing that can often be measured relatively easily, although origin-destination studies sometimes involve considerable effort. Any economic study might well include an origin-destination analysis of the traffic that is using the route, to determine the amount of traffic that is generated by use of the land directly served, as against that which is diverted from other areas.

Mr. Bone mentioned that on Route 128 it has been necessary to build an additional interchange to serve some industrial plants. It is presumed that considerations leading to establishing the interchange at that location included, at least, consideration of the possibility of building a service road between the two existing interchanges serving that area. This would also reopen the subject as to the economic benefits of adding a service road.

Relating Highway Improvement to People Gordon Sharpe, Bureau of Public Roads

Our main concern or interest is the method of relating the influence of traffic to people, in all of their activities.

When bypasses are built or when any highway improvement is undertaken, planners ought to know what effect to expect, not only in terms of the economic impact, but in all activities related to the improvement. In these improvements, traffic is being diverted and generated. In addition, the movement of industries, people, and goods is being stimulated and the whole complexion of urban areas and rural areas is being changed.

Bertram Tallamy, Federal Highway Administrator, pointed out in one of his articles that the New York Thruway at each of its interchanges will have a new urban or industrial complex. This type of information is important. These changes will certainly have a measurable quantity in dollars and also in their effect on traffic.

These are some of the basic things that we are interested in: relating highway improvement to people; to where they live, where they work, and where they shop; and to their business.

Some pilot studies were inaugurated by the Bureau in the Washington area to find out the effect of highway improvement on the number of trips to the central business district and to suburban centers. As cities grow in size, does the central business district retain its same degree of attraction as distance from downtown increases? We have studied employment centers and residential land uses to determine the relationships between land uses and traffic. Mr. Carroll has done somewhat the same thing, although in more detail, as to the effect of distance and time on travel patterns.

Highway improvement does have a very serious economic impact on the whole nation. How can some of these things be measured? The effect on traffic and on improvement of land might be very small in the case of an expressway located in an already highly developed area as compared with one built in a completely undeveloped area close to the central business district. The rapidity of the rate of growth in the latter instance probably would be extremely high in comparison to the first instance.

Such information is needed for forecasting traffic, which has been, outside of Mr. Michael's case, almost uniformly underestimated. It would aid study of the impact of a highway improvement in the general trend of city growth versus one built to an area that is more or less blighted or dead.

There was case in Puerto Rico back in 1948, where the planning board wanted to give priority to the building of a highway from the proposed airport to the central business district through a congested blighted area. From a traffic standpoint, a reliable forecast based on current traffic