

compare favorably or about the same in its advance or decrease with other comparable cities or counties, it could be assumed that it would continue to follow that trend, all things being equal.

Having arrived at this point and having decided that things were equal, the comparison was fitted to the other area. Thus, there was obtained not only an individual comparison before and after, but a comparison in relationship to another area to which it compared reasonably well through its past history.

In bringing this information to the public, certain problems arise. All of the studies will have a great mountain of information behind them. There are files and files on California areas affected by highway improvement. But when it comes to publication of the information, the data must be arranged and presented so that people understand them. Otherwise they are academic in nature and not usable. On the other hand, even despite the simplification that has been attempted in the California studies, the press has taken the studies and over-simplified them. In some cases it would be better to develop a simple approach and direct comparison that can be depicted in a chart. This is a plea for simplification.

The following is an example of how the information given to the public becomes misinterpreted. A certain magazine took all of the California studies and just combined percentages. In this case, the percentages come out fairly well, except that they failed to differentiate between the various types of bypasses, and there are all kinds of bypasses—some bypass towns at quite a distance, whereas others are only a block or so away from business districts.

There are many types of bypasses that should be studied. For example, in Oakland, where a bypass goes through a completely built-up area, the main concern is the resulting effect on a group of businesses that are just a block removed. But the traffic will be raised overhead and put down on both sides of these businesses just a few blocks away.

What effect will this have on these businesses? The area is completely built up and is largely self-supporting. It has a backing of residential area to support the business. This is just one type of bypass effect on which no information has so far been collected.

In conclusion, a plea is made for short studies produced in as concise and simple a form as possible for initial publication.

## **Indiana Bypass Research Combines Economic and Traffic Data**

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All of the studies by the Joint Highway Research Project actually are made in cooperation with the Indiana State Highway Department. Under this arrangement it was decided several years ago to undertake studies to determine what the effects of bypasses were on communities.

The case study approach was used; in other words, before-and-after studies were made in two Indiana cities. Not only were the two cities different in size, but the bypasses also were located differently in relation to the cities. One was a city of about 50,000, the other of about 10,000. In the case of the larger community location was very near the developed area; in the other, the location was some distance from the developed area.

Neither of the highways were of limited access type, and both were primary highways. One might say that they were, however, in areas that were going to be developed in the future, so they might be considered suburban.

Among the types of surveys made were origin-destination studies, travel-time studies, accident studies, and other studies to give the traffic benefits, both before and after. In addition, land use surveys, land value studies, and business effect studies were made. The origin-destination studies were conducted both immediately before and six months after each bypass was opened. The other surveys extended over different periods of time.

Land use and the land value data were compiled for 1945 from records and aerial photographs, from interviews with real estate men, and from records of real estate sales for land value. They were also compiled for 1950, immediately before the improvements were completed, and for 1951, six months after the bypasses had been opened to traffic. Another review is now in progress, five to six years after the bypasses were opened to traffic. Initial findings were reported. It is planned, moreover, to issue additional reports covering the review studies now being conducted.

Obviously, there are traffic benefits, but for the current discussion interest is centered in the non-highway user benefits. Therefore, the following concentrates on the land value and land use studies. These were measured in 1945, 1950, and 1951, and are being measured again in 1957. They are based on sales made in the area, and on "asking prices" of people who have their property for sale or had their property for sale at the various times. There were, of course, very few sales in each area, but there were some. On this basis, a strip 0.3 miles wide on each side of the improvement was evaluated, and the total value for the initial three periods of time was obtained. The land use study was primarily evaluated from aerial photographs taken during each period.

It was found that the land value increased approximately 50 percent due to the presence of the bypass. It increased more than that from 1945 to 1951, but the additional amount merely represented inflation. This was measured through use of a control area on the other side of the city where no highway improvement existed.

The land use change was found to be accelerated by the bypass. However, the land value increase was variable, being dependent on distance from the highway improvement and closeness to intersections. It also was found to be dependent on the type of land use. In fact, land value and land use were almost directly correlated, the land value increase being due to a change in land use type (from agricultural to industrial, commercial, or residential purposes) or to an acceleration of development of a particular land use type (such as the development of an area for residential purposes that had already been designated as residential).

Another portion of the study was to determine the effect on business. An attempt was made to use gross sales of various types of businesses, as had been done in other areas. It was felt that this would give the best information, but it was not possible to come to an agreement with the state agencies that have this particular information, and the desired information could not be obtained.

As a consequence, the businessmen were interviewed directly, both before and after, to determine what effect they felt the bypass would

have and did have upon their retail sales. In this case the actual dollar value was not requested but they were requested to give the change in sales, percentage-wise, that had actually occurred. The businessmen were agreed that the bypass did not hurt their businesses.

The use made of these data is an important phase of any such study. These Indiana studies were made to determine the influences of the highway upon a particular area after the location had been selected. This material was used, or could be used, to combat objections of businessmen to highways bypassing their cities. It was also used to evaluate the traffic use of bypasses in Indiana. We are quite proud of the fact, for example, that at Lebanon the traffic predicted was within 1 percent of the actual amount that used the bypass after it was open for a six-month period.

These data also were used to point out that in right-of-way acquisition more thought should be given to benefits that accrue to the land directly affected, as well as to damages to that land. This material could also be used to evaluate the influence of a location on land development in that particular area, or on land use. As Mr. Richards suggested, perhaps highways should be located in urban, suburban, and rural areas to best serve the desired land use as well as to serve eventual traffic. We certainly found that highway improvement has an effect on types of land use.

This is not to say that the increases in value in a particular location, and other changes found, represent net benefits to the community. This particular problem was not studied. In fact, two problems are involved here. These are: (a) What change or influence does a highway improvement have on a particular area? And (b) Do these local benefits contribute to the net highway and community benefits, and to the national benefits?

As previously pointed out, these studies are being continued, with the research directed primarily to the influences in a particular location. But there also is a need to determine the net benefit to the entire community. Lack of men and lack of money are not necessarily the most important deterrents to research in this area. One of the most important problems involved is that of time. But as important, perhaps, as time is the need to define the problem. If the problem can be defined and broken down into "bite-size" chunks, so that many graduate researchers can attack the problem, something definite will be obtained. The men will be found, and the money will be found also.

## **TRAFFIC INTERRELATIONSHIPS**

### **Expressways, Mass Transit, and Other Traffic Interrelationships**

#### **D. Grant Mickle, Automotive Safety Foundation**

It is apparent that a lot of work is being done by the various departments and the various universities both in the field of bypass routes and in other economic impact studies. It would seem, however, that perhaps that information is not getting around to other highway departments and other universities for their guidance and stimulation and use.

The newly created Joint Committee of the American Municipal Association and the American Association of State Highway Officials might be a perfectly logical vehicle for the collection of information from the highway departments and universities. If it could summarize the worthwhile