

Another example may be cited in agricultural trends, such as the coming of irrigation in eastern agriculture, particularly as far as the development of the Lower Mississippi Valley is concerned. Certain social considerations furnish one more example of forces that we have to think about. For instance, the shorter work week, the longer life span of most of the population, and the increasing demand for recreation will have effects on the needs for transportation. The role of highways in meeting recreational needs will be vastly greater in the future than it is at the present time.

Somewhere along the line I hope that we can have a study which looks at the nation with the objective of determining what the forces are that favor certain types of general traffic patterns for the country or for regions within it. One can forecast trends for some of these forces; for example, trends in the nature of resource exploitation (such as water, minerals, and others) and some of the basic social changes which are inherent within our society at the present time may be at least generally seen. To that might be added, of course, the fact that we are in a growth economy, and that through measures such as gross national product, it is possible to arrive at some idea of what that growth amounts to.

The highway system is now concerned with freight traffic as well as with passenger traffic. Up to this point no distinction has been made between the passenger and freight highway traffic in planning, although the two do not necessarily always go together.

This is mentioned because freight traffic is still largely handled by other parts of the national transportation system—the waterways, insofar as they have been developed, and, of course, the railroads. It is important, in planning for the highway system and in understanding the economic impact of that planning, to understand what is happening in other parts of the transportation system of the country.

An obvious example is the development of the St. Lawrence Seaway. Chicago has been trying to discover what the impact of that will be. But it goes much beyond Chicago and the lake cities. Another is the proposed development of a navigation channel on the Arkansas River as far as Oklahoma. This will have an impact, not only an impact on the rail system, but also a general effect on the economy of the area.

In these economic studies of the future, it will be necessary to start with a larger view and a consciousness that there is a national and regional traffic pattern that must be considered, as well as these numerous more local patterns that have been discussed so much in this meeting.

Three Decades of Experience Along Westchester County Expressway Frank L. Dieter, Office of Planning, Arlington County, Va. *

The Westchester County Planning Department made a study on the effect of expressways and parkways on surrounding land uses under a grant of \$14,000 from David Rockefeller, a member of the Westchester County Planning Commission. The investigation began with a study of the impact of land uses on one another; for instance, commercial on residential. Then the effect of the various types of highways on surrounding land uses, particularly residential land uses, was investigated.

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Two sections of divided parkway, well landscaped and with wide rights-of-way, were selected, together with two ordinary major thoroughfares or undivided state roads through Westchester County.

This was felt to be a good laboratory, in that some of the Westchester parkways were the forerunners of the divided highway and limited access parkway system, some of them being built around 1924 and 1925, and some of the newer projects around 1938.

This study resulted in publication of a popular report, followed by a technical report entitled "Traffic Impact." One thing that considerably influenced the thinking in the planning field is that the location and the right-of-way widths of these major thoroughfares through developed communities, as differing from the farm or rural type of location, may have an impact on the development and the economy of the area far greater than the damages which might accrue in the way of right-of-way cost and property damage.

In other words, an attempt was made to answer the ever-present question of what influence this major thoroughfare will have on the neighborhood in which people have built their homes and invested their life savings. That was the idea of the study. It was found that the wider the right-of-way, and the more care taken with the roadside (such as landscaping, and so on), the least amount of impact there is on the surrounding property. At the same time, it improves and enhances roadside development, to the extent that those values are now stable and are increasing, whereas in a control area (that is, a similar area elsewhere in the same city) these effects are not felt as much.

Where these roads are placed through rural districts and where there is a need for industrial expansion, that is where the industrial expansion is going to take place. When they are built through existing cities and existing neighborhoods, a different set of problems arises. The effect on land values depends on the convenience of the road.

Arlington County, Va., is the corridor through which most of the westbound and southbound traffic must pass from the Washington metropolitan area. The trans-Potomac traffic is in the neighborhood of 225,000 or 230,000 vehicles a day.

In the regional plan of the area, Fairfax County, which adjoins Arlington, is planning for three or four expressways.

Those expressways will be extended through Arlington whether Arlington wants them or not, so the idea is to locate them in such a way as to take full advantage of them and at the same time not split up existing residential and commercial districts to disadvantage.

Operations Research: The Multi-Discipline Technique

Robert H. Roy, Dean, School of Engineering
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Some of the methodology and techniques of the mixed-team approach to the study of operations can have desirable effects on complex systems such as are under discussion.

Such problems might well be attacked by putting together a multi-discipline team of economists, demographers, statisticians, mathema-