

trarily by means of traffic charges which fall alike on all users of highway space, regardless of whether that space is congested or not. To suppress traffic which does not contribute to traffic congestion is at least as uneconomic, measure for measure, as to permit traffic congestion to suppress traffic below the traffic capacity of the highways.

DISCUSSION OF REPORT OF INVESTIGATION OF URBAN ASPECTS OF THE HIGHWAY FINANCE PROBLEM

Led by J. ROWLAND BIBBINS
Consulting Engineer, Washington, D. C.

There are certain outstanding points which seem to me to be extremely pertinent to this whole discussion of finance, traffic, and congestion.

First, I was impressed, at the outset, by the recognition in this report of the problem of what I term "twilight zones" around the city borders, which is merely a repetition of the blighted zone around the central districts of our cities, but on a larger scale. Traffic surveys are developing rapidly a body of data which gives us actual numerical quantities rather than notions. Our cities are expanding their vision into their future suburbs, and our States and counties are looking inward into the problems of the city which they render more difficult. This twilight zone heretofore has rarely been given adequate study as part of the urban transportation area.

The second point is that State aid to the cities on through routes appears to be receiving increasing recognition. Apparently the counties, however, are much less willing to extend this aid. This may be even more serious in the regional plan. I can cite definitely one needful case which recently came under observation—that of a city of 70,000 people in Western Pennsylvania. It was on the line of the traffic profile shown for the Lincoln Highway, and I was impressed by the fact that the local bump or peak due to purely suburban traffic from that center of population was quite small as compared to the through State traffic, yet here the county practically refuses cooperative aid in adequate development even outside the city's borders. The Lincoln Highway runs straight through the center of the city and runs into a jam at the axis. There is no reason for that route to go there. There are alternative routes nearby. The one question is the location of a new bridge and approach perfecting the county connection just outside the city. The city can't do it and the county won't do it. This situation favors the conclusion that, in cities, especially smaller communities, which have not yet had the vision or the ability to finance proper through highways, it may be entirely proper to give to those cities certain aid from the county and State highway funds to perfect at least the *through* traffic routes, especially detour routes so badly needed. (I may

say here that only two or three years ago I took a trip by auto from Washington to the White Mountains, north through central Pennsylvania and New York through the New England States and back, by the coast route. In not a single town or city of the dozens traversed did I find a sign on the highway at the entrance to this twilight zone or city proper reading "Through traffic will find a better route this way," indicated by a detour street parallel to "Main Street."

The third point is that congestion—so-called "congestion"—like the term we have so often used—"saturation"—is relative only. Neither is or can be a fixed or positive quantity. Both are a delusion. The capacity that we need in handling traffic of our cities must come, in my opinion, from higher efficiency, i. e., more experienced planning of inter-related street, transit, freight and traffic facilities (better organization, routing and control rather than repression by fiat). We need, not alone safety but safety, order, and speed. Personally, my mind reacts negatively against the usual lazy shifting program of traffic repression. It is not scientific, not according to engineering laws or good transportation technique. It represents a standard of policy so far beneath what we ought to and are able to put before the public that it is a reflection upon our intelligence as engineers and citizens. A traffic—transit—street system must be designed, not copied.

The fourth point is taxation apportionment. To be on an equitable basis it must properly reflect use, wear, and benefit. It seems to me that more study and effort should be devoted towards locating the real origin of traffic—the user. The high percentage of "urban" origin is impressive, but it does not prove the justice of a small city bearing the expense of an overwhelming foreign through traffic from its big neighbor. Our recent transportation survey in Washington revealed passing through the traffic cordon (from the Capitol on the east to Rock Creek Park on the west), 250,000 vehicle movements in one day. At the district boundaries of this city 5 miles out about 60,000 vehicles came into and out of this city on the roads that enter this district. Now that is only 25 per cent of the inner cordon traffic. But that does not tell the whole story. And it seems to me that if any program is to be developed from such data that this analysis of user-origin needs refinement.

This whole question of finance was raised concretely several years ago when a city in central Pennsylvania, quite a large industrial city, laid before us in the United States Chamber of Commerce the fact that they paid 85 per cent of the county road taxes and were not getting back a cent of it. Why should they participate in State and even Federal aid? Of course this question has many important aspects, political and economic. Some recent data show that there are about 1,000 miles of city pavement per million people on the average, and 2,000 miles per million in Portland, Oregon. This represents a capital investment of

three to four billions of dollars, and as near as one can compute it, perhaps 50,000 miles of paved highway

Now the planning of adequate traffic-thoroughfare systems for these cities with this mileage runs into tremendous money. And the cost is so appalling that those of us who are called upon to plan out these systems for cities are actually put to it to find out what are the practical horse sense things to do. In the case of Indianapolis we examined and redesigned some 100 streets, finding that a considerable part of them were less than 6-line traffic streets. Further we found that with 90-foot streets down town, a traffic efficiency of only 25 per cent was being realized from there, 36 outlet streets from the downtown business district and assuming solid parking on every street. Here is the real source of "congestion"

This brings to your mind the appalling inefficiency of the traffic movement in our downtown areas. Another case comes to mind. In Philadelphia the installation of a district synchronous traffic block signal system actually added three minutes to the trip time of every route running into central Philadelphia. This naturally resulted from imposing a 2-minute signal cycle on trunk lines operating 20 seconds headway. It shows the very great need of efficiency studies in the signaling system.

Professor Viner asked why cities have not expended capital for streets in proportion to their population. The answer is probably obvious. In the first place because they have not understood the need. They have thought that repressive laws would accomplish the purpose. They will, in my opinion, only palliate but not provide for the future.

Professor Viner very properly brought out the relation of the traffic peak to congestion. The ratio on our important thoroughfares here, such as 16th Street, averages 5 to 1 between rush and non-rush hours. One street in Indianapolis had a peak ratio of 10 to 1. Yet we are using our city thoroughfares on the same old plan of a double-track railway with a roadway wide enough to use a reversible center line. We have not got very far yet in the use of the movable center line morning and evening so as to have the maximum capacity with the flow of traffic, but I believe it can be done where the streets are wide enough. This suggests a 5-line 2-way city roadway corresponding to the 3-line 2-way rural roadway which was commented upon yesterday. What will make this possible is the use of guide lines in the street preferably by white paving blocks so that in the morning we will have double the capacity downtown and in the evening double the capacity outbound.

On the last point as to allocation of cost and benefits I can only return to my illustration of the three-legged stool that I proposed two years ago at a conference at the University of Maryland. The responsibility lies between the user, the abutting property owner, and the general

public There is some practicable proportion of advantage to be assigned to each I do not think any one party should carry all the load It should be a distributed burden as each participates in the benefit

And in conclusion, how shall we keep up with the geometric progression of traffic There is only one way, as in industry, banking, utilities—intelligent organization, planning, and engineering—horse sense There has been too much copying and economic wastage from delay “Verboten” regulations do not reflect the true American spirit of enterprise which has been equal to every emergency