

REPORT OF COMMITTEE ON HIGHWAY FINANCE

HARRY J KIRK, *Chairman*
Consulting Engineer

In the early nineties William McKinley, then Governor of Ohio, appointed a commission to investigate the feasibility of improving a state system of "wagon roads" The commission, after careful study, reported against the proposition. It must be remembered that those were the days of the "trolley car" boom Insignificant indeed was the town which could not boast of several such lines projected into it And the commission reflected this state of affairs as the principal reason for its adverse report. In substance it reasoned that inasmuch as there would soon be a net work of trolley lines to furnish ample transportation, there was no need for the improvement of "wagon-roads"

That was less than forty years ago The "trolley-car" and the wagon are almost curiosities on our highways today. The invention of a new machine, the motor vehicle, ushered in a new era in highway transportation, requiring new kinds of roads and these roads in such quantity as to make highway financing a greater problem than ever before in history.

The rapid development of this new vehicle has called for profound changes in road design and road building methods. Its further inevitable development will require further revision in road design and road building methods It is pointed out here with emphasis that the rapid development of the motor vehicle has aspects which have a vital bearing on highway finance policies

In keeping with the general plan of work for the year the Committee on Highway Finance has limited itself chiefly to the preparation of a program of research

SCOPE, LIMIT AND SYNOPSIS

The fundamental problem in highway finance is two-fold, pertaining first to the sources from which funds shall be collected and second, to how these funds shall be distributed

We have chosen as our scheme of attack in outlining this program of research to discuss this question from five separate aspects, namely

those of the road user, the abutting property owner, the community, the state and the nation. Some space is also given to the question of the use of credit in highway financing.

THE ASPECT OF THE ROAD USER

The road user is a comparatively new contributor toward road costs, but an increasingly important one. With the abolition of toll roads the road user ceased to pay anything directly toward the country's road bill. Today he is most important and is constantly increasing his contribution. The motor vehicle registration fee first put into effect a quarter of a century ago was for fifteen years the sole method of making a charge directly against the road user. Today it is superseded in importance by the gasoline tax.

The popular notion that road users should pay for roads and that the gas tax is an equitable road usage charge is the principal reason for its rapid development. The low cost of collection, the difficulty of evasion and the "painless method of extraction" have all aided in making it as popular as any tax can be.

The conflict in legislative halls has generally *not* been over the question as to whether there was or was not to be a gas tax, but rather as to how the proceeds were to be distributed.

The equitable distribution of user taxes is one of the most pressing problems of highway finance today.

Proposed generally as a means of building a state road system, the history of most gasoline tax measures will reveal that part of the proceeds have had to be allotted to local governmental units for road and street purposes in order to get enough votes to make the measure a law.

Benefits to the Road User Fundamental questions are, how much is the road user benefited, and how much of the highway bill should he pay?

There has been a great change in popular opinion on this subject. Fifteen years ago there was still a large school of thought which maintained that the road user should pay little, if anything, that the great bulk of highway revenues should come from general taxation. This stand was maintained on the broad principle that good roads were of wide spread benefit.

The next step was the idea that general taxation should build the roads and that the road user, through registration fees, should maintain them.

Since the advent of the gasoline tax in 1919 the share contributed by the road user has grown by leaps and bounds. In 1921 "user taxes" constituted 12.3 per cent of the total spent for rural highway purposes while in 1928 this figure was 44.6 per cent. Expenditures on municipal streets are not included in the figures just given.

Mr. Chas. H. Upham in the proceedings of the American Road Builders Association for 1929 says:

"The advent of the gasoline tax and registration taxes has solved the problems of state highway taxation to a large extent. Inasmuch as 75 per cent of the total expenditures on state systems is derived from gas tax and license fees at the present time, it would seem a possibility that these might become the absolute source of revenue in due time."

User Taxes and Municipal Streets The proponents of state highway improvement look with alarm on the growing demand, particularly on the part of municipalities for a share in gasoline tax funds as a menace to the early completion of state highway systems.

The principal argument brought forward by city proponents is that inasmuch as a large proportion of motor fuel is consumed on city streets, so too a large proportion of the gas tax should be returned to municipalities for street repair and improvement.

Let us digress a moment and examine into the validity of the argument.

Up to this time we have not seen any figures published purporting to show the proportion of gasoline consumed on city streets. The chairman of this committee did make such a calculation a few years back. Based on transport survey data and certain well taken assumptions the result indicated for the State of Ohio covering the year 1925 that about 43 per cent of the gasoline was consumed on municipal streets. Of course this figure would vary in various states depending on area and distribution of population as between cities and rural districts.

User Taxes and Rural Highways It would seem, however, in considering the subject of financing rural highways, whether state or local, that the relative amount of gasoline consumed on city streets and rural highways is not of primary significance. Rather the thing of fundamental importance as regards rural highways is the relative proportion of usage of these highways by city owned and farm owned vehicles. We present, herewith, data on this point gathered in transport surveys conducted jointly by certain states and the U. S. Bureau

of Public Roads. The figures are for the State Highway System in Ohio which constitutes 13 per cent of the total rural mileage of that state, New Hampshire where the corresponding figure is 11.3 per cent and for Vermont where the figure is 30.6 per cent. The data given show the per cent of total vehicle miles on the State Highway Systems of these states as divided between city-owned and farm-owned vehicles

PER CENT OF VEHICLE MILES

State	Autos		Trucks	
	City Owned	Farm Owned	City Owned	Farm-Owned
Ohio	87.6	12.4	84.5	15.5
New Hampshire	93.9	6.1	88.6	11.4
Vermont	89.9	10.1	81.1	18.9

In commenting on these figures at the July, 1929, meeting of the American Society of Civil Engineers, Prof. H. R. Trumbower said.

"These figures and the results of other traffic surveys show that the high type improvement and maintenance of state highway systems is, therefore, primarily the result of the demand for highway service by city motor vehicle owners. It should also be borne in mind that on these state highway systems of the country, which constitute approximately ten per cent of the total rural mileage, about one-half of the total rural highway expenditures are made."

The Road User and State Highways Data on rural highway usage indicate that the quickest and largest return for the funds expended can be made to the road user by the improvement of the state trunk highways which, considering their mileage, carry an overwhelming proportion of the traffic.

For example the Ohio Transport Survey indicated that the state system, comprising but 13 per cent of the total rural highway mileage, was carrying 57.7 per cent of the traffic measured in vehicle miles. Contrasted with this are the local or township roads, 59.9 per cent of the total rural mileage carrying only 12.9 per cent of the total vehicle mileage. These figures showed that mile for mile state roads were used four times as much as those on the county systems and twenty times as much as on the township systems.

Amounts, Methods and Distribution of "User Taxes." A careful study of the methods of imposing gasoline taxes and registration fees and the provisions for the distribution of the revenues derived therefrom throughout the various states indicates no agreement as to the one or the other.

It should be comparatively simple, however, to point out the more efficient methods of collection.

In spite of the maze of differences apparent in state laws there certainly must be some underlying principles which should govern the amount of these "user taxes" and the way the proceeds should be distributed among the different classes of roads

NEEDED RESEARCH

1. What principles should govern the distribution of revenues from the gas tax and registration fees?
 - (a) What proportion if any should municipalities receive and what limitations should be placed on municipal use, such as, restricting expenditures to maintenance, or requiring a certain minimum proportion to be expended on through arteries?
 - (b) How much should be allotted to county roads? To purely local roads? And should the state exercise supervision over the expenditures of funds so assigned?
 - (c) To what extent should state highway programs be financed by "User Taxes"?
 - (d) What is the relation, if any, between the percentage of city-owned cars and farm-owned vehicles and the corresponding proportion of highway usage by these classes?
2. What principles should govern the amount of funds raised by gasoline taxes and registration fees?
 - (a) Should the collection of all motor vehicle taxes be reserved to the states exclusively?
3. To what extent is it advisable to enlarge state control over rural highways? (This is also noted under "State-wide Aspect".)
4. Are there circumstances under which the repeal of property taxes on motor vehicles is justified?
5. What are the best methods of administering the collection of registration fees? Of gasoline taxes?

THE ASPECT OF THE BENEFITED PROPERTY OWNER

As a general rule abutting and adjacent property is always benefited by street or highway improvement, be it a purely local road or a main artery. The benefit, however, is not necessarily in proportion to

the cost of the improvement, particularly in the case of trunk routes which have to be built heavy and wide. Studies reported by the U. S. Bureau of Public Roads covering farm property located on mud roads in strictly rural areas indicate that such property is considerably increased in value by the provision of a road improved to the minimum of furnishing an all-weather surface. However, the increment in value is very little for higher type improvements under the same conditions.

There was a time when the adjacent property owners paid almost the full bill for road and street improvement, but, just as with the growth of motor vehicle traffic state and federal participation has been made necessary, so there is a growing demand that community participation be correspondingly increased on local road and street work to still further take over the burdens carried by abutting property.

In cities and built-up communities the value of property will continue to far overshadow the cost of street improvement as compared with farm values, and the expense of rural highways. Hence, regardless of "benefits" the "ability to pay" will mean that, property assessments will still continue to be a principal factor in financing municipal street improvements.

In rural areas the problem is a difficult one. The slump in farm values, beginning about 1920, and the apparent low level of profits from agricultural pursuits has made a great change in the attitude of rural residents toward property assessments. Here again "ability to pay" must be given consideration along with the estimated "benefits."

NEEDED RESEARCH

1. Studies in various localities to determine the effect of road improvement on property values
2. Studies to determine the type of road adequate for local needs and the point at which further improvement ceases to proportionately benefit land values.
3. Studies to determine the effect on land values of distance from markets.
4. An analysis of the above studies to evaluate the amount of assessment that may be justly made against (1) farm property in rural areas, and against (2) property located in or adjacent to centers of population when (a) on state trunk highways, (b) on county or community roads and (c) on local roads

THE COMMUNITY ASPECT

Trunk Routes Benefits to a community from road improvement will vary widely. In thickly populated areas community benefit may so far overshadow the combined state and national benefits, even on trunk routes, as to constitute the major part

For example, a trunk line route through a rural area may carry twenty-five per cent of foreign or out of state traffic. As one approaches centers of population the total traffic rapidly increases due to the added increment of community transport. Hence, it is that the percentage of through traffic diminishes in urban areas so that in the larger municipalities it is but a fraction of one per cent

If taxes are to be paid according to benefits, and the benefits in such cases parallel usage, the community contribution toward trunk line highway costs will increase as the population density increases. On this theory municipalities, particularly the larger cities, should continue to pay practically the whole bill for city streets, even where these carry the through traffic. A contribution by the state might be justified on trunk routes in smaller communities

Local Roads and Streets Under local roads and streets we might classify all those routes of travel not a part of the state or federal systems. These local highways can logically be placed in two divisions, namely, those which chiefly serve the residents living thereon and secondly, those which play a larger part in carrying community traffic, such as a county highway system or the principal streets of a municipality. In all such cases the benefit to the community and to adjacent property contingent on highway improvement is proportionately large and the state-wide or national benefits are negligible

It is a certainty, however, that in areas of low wealth, unless financial aid is received from some outside source, local roads cannot be improved. That is a condition of fact and no amount of theory about benefits is going to change it. "Ability to pay" will have to be considered here. And the outside help will have to come from a source more "able to pay" than the poor areas.

The Local Road Problem. The magnitude of this problem as it affects rural highways may be realized from the following figures:

Local governmental units have responsibility for 90 per cent of our rural highways, or 2,700,000 miles. Of this vast mileage only 15 per cent is surfaced, and the present annual rate of improvement is about one and one-half per cent

Of course many miles of such roads will likely never be surfaced in any period we can estimate; but, nevertheless, it is a very serious problem where vast areas are deprived at least for many months in the year of what in this swift moving age and in these United States has already become the only efficient means of highway transportation, the motor vehicle. It is an outstanding bit of evidence to note that in the decade preceding 1920 the rural population in eighteen states actually decreased. For the country as a whole during this same period urban population increased 20 per cent and rural population increased only 3 per cent. At this rate the coming census may show an actual decrease in rural population for the present decade. This would indicate that traffic on local rural highways will increase very slowly, if at all. It might suggest the advisability of the abandonment of many such back roads.

NEEDED RESEARCH

1. Studies of economic changes in typical communities to show the benefit to the community of
 - (a) Trunk line highway improvements
 - (b) County highway facilities and arterial streets
 - (c) Purely local roads or streets
2. A study of the forms of road administration in local governmental units, together with the methods of raising and spending road monies, and an analysis to point out the most efficient forms and methods in local road administration
3. An analysis of the problem of financing improvements on local roads in areas of low wealth with suggestions for its solution.

THE STATE-WIDE ASPECT

The principle is well established that there should be a state system of highways financed mostly, if not wholly, out of state funds. There was a time when tax levies on real property were used to a large extent to provide funds for state highway construction, but such levies have largely given place to motor vehicles or "user taxes." It would seem logical, however, that as federal appropriations for highway purposes are made out of the general funds used to maintain the United States Government, by the same token and to a larger degree state funds might be appropriated for state roads from the same sources used to support the other branches of state government.

Extension of State Control There is a school of thought gaining rapidly in influence which advocates the extension of state control over rural highways. In some states this takes the form of a state-aid system in addition to the state trunk highways.

A share of state "user taxes" is often allotted to local governmental units with no provision for state supervision of its expenditure. Some very solid arguments are advanced for the exercise of some sort of state control, particularly where efficient supervision and management cannot be provided locally.

NEEDED RESEARCH

- 1 On the theory of benefits what proportion of state highway revenues should come from state general funds?
 - (a) A study of actual cases where state general revenue funds have been used for highway improvement both on state roads and local roads, bringing out the circumstances under which the method was adopted, the amount of the appropriations, and if finally abandoned, the causes therefor.
 - (b) The arguments pro and con on "user taxes" as a fair measure of state-wide benefits, with data from those states confining the state's contribution exclusively to "user taxes."
- 2 A study of what constitutes a state road in various parts of the country, and an outline of those principles or conditions which should qualify a road to be a part of a state system. Such a study should include the question of state-aid on local roads and the advisability of extension of state control.

The facts brought out in recent transport surveys will shed much light on these questions.

NATIONAL ASPECT

In these days of country wide travel there is a benefit from highway improvement more universal than ever before in the history of highway transportation. From this standpoint the use of federal funds in road work is amply justified.

NEEDED RESEARCH

1. A study bringing out to what extent the federal government should participate in the total cost of highways, and in the cost of individual highways.

It is suggested that an analysis of data available from traffic studies, such as length of trip, kind of business, status of ownership, etc , will be of material help in such a study.

An inquiry of various state highway departments and other sources throughout the country would bring out facts and experience very pertinent to the above questions bearing on federal participation in highway work.

THE USE OF CREDIT

We now come to a matter of policy in highway finance that is indeed a live question, the use of bonds for highway purposes Platt Young in Georgia Highways magazine puts it this way .

"To bond or not to bond? The query flies
From lip to lip, and brings its apt replies
Some reckon wisely, others frankly own
The problem has a weight that vies with stone,
If roads are commerce lanes for faring man,
Who rides must pay, still proves the commerce plan,
But, if the future sons shall pay the toll
'Twill make them glimpse a long-encumbered roll

"To, bond or not to bond? The question here
Bobs up and down throughout each passing year,
And while the tide of time still onward flows
Its shores are laden with men's ayes and noes "

Several important studies have been made in the last year or two analyzing the results of the use of bonds in state highway work ^{1, 2} They indicate, that, where large mileages of state trunk highways potentially of great general use are now unimproved, the use of bonds, thus quickly obtaining enlarged highway facilities, will return handsome dividends in reduced transportation costs. Under such conditions the use of credit is amply justified from an economic standpoint.

The studies of state systems here referred to justify the bond issue method principally on the estimated saving in transportation costs And this argument is irrefutable, particularly where mud roads on trunk lines are replaced by well located smooth highways adequate at all times of the year.

Term of Bonds. There is lack of agreement on the length of term for highway bonds. Twenty and thirty year terms are frequently

¹ A J Brosseau, "Highway Finance in U S " International Chamber of Commerce, Amsterdam, July 1929

² Chas H Upham, "Highway Finance " Proceedings of American Road Builders Assoc for 1929

justified on the ground that a large per cent of the original investment represents permanent value. The validity of this argument for long term road bonds is open to serious question.

The rapid development of the motor vehicles has called for a corresponding rapid development in road design. Many roads constructed to the best standards of ten years ago or more are today inadequate. This is due principally to the great increase in the speed of motor vehicles over that of a decade or more ago. Ten year old pavements are too narrow, road crowns are too high, curves are too sharp, bridges are not wide enough, and surfaces are entirely too rough for today's high speed vehicles. There are many miles of pavements and numerous bridges still capable of long service as far as the materials in them are concerned, located in states which started their road programs early, which today must be completely replaced and yet have little salvage value. Many examples of this kind, in age much less than the term of highway bonds used in many states, may be cited. In view of these lessons from the past it is most opportune to ask, "What of the future?"

Will the promotion and development of the motor vehicle as to numbers and speed, perhaps width and weight, continue to grow in the next ten years as it has in the past? If so, we are going to find before many years roll 'round that the highways of today have become as hopelessly out of date as those built during war times appear to us now. Their salvage value will be but a fraction of what we estimated and the bill for their cost will in a large part be yet unpaid.

NEEDED RESEARCH

1. Studies of economic changes in states that have used the bond issue plan and others that have used the so-called pay-as-you-go plan.

Similar studies might be made in communities financing local road programs.

2. Studies to determine the proper term of bonds in years for use on the several classes of routes and various types of construction.

CONCLUSION

In closing emphasis is again placed on the value of the facts brought out by recent comprehensive traffic surveys, especially those carried out cooperatively by the U. S. Bureau of Public Roads, the various state highway departments and other units.

Right conclusions on the problems of highway finance cannot be reached by any one sided view of the subject. Due to the preeminence of state road programs there has been a tendency on the one hand to neglect the local highway problem and on the other hand to ignore the traffic congestion prevalent in urban areas. No one will dispute the unwisdom of one sided development of road facilities.

It is well also to keep in mind that our highway budget is in competition with other much needed public expenditures. Many public improvements have been made, and highway improvements are no exception to the rule, not because they were the most needed, but because the people behind them were better politicians or more skillful at moulding public opinion.

It would be a wise step forward if our governmental units, federal, state and local would plan their capital expenditures, including highway expenditures, over a long period of years. Thus it would be found that the funds available would be spent more efficiently and to the very best interest of all the public.