
1925 Highway Developments

With Particular Reference to the Southern States

By

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*Motor Vehicle Payments Approach Highway
Expenditures*

*Road Building Not Yet Keeping Pace With
Growth in Number of Vehicles*

*Progress in Road Improvement Has Been Greater
Than in Preceding Years*

*Much of Federal Aid Highway System Lies in
Agricultural Districts of South and Middle West*

*Large Increase in Bus Lines Throughout Country
and Especially in South*

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1925 HIGHWAY DEVELOPMENTS*

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WHILE the past year has been one of record-making progress in the construction of new highways, the mere increase in the improved road mileage is not the most important development of the year. The construction operations which have resulted in the unprecedented addition to highway facilities represent the product of a program previously outlined and provided for rather than a new departure. There were, however, a number of developments, outposts of the future, some of which carry confidence and others which indicate probability of conflict. Some of the more important of these newer phases are:

- (1) The crystallizing of the public mind as to the fields which highway transport may profitably occupy.
- (2) The beginning of recognizable uniformity in some of the principles of taxation of the motor vehicle operating as a common carrier.
- (3) The overtaking of the annual highway bill by the income obtained directly from the motor vehicle.
- (4) Decisions of the United States Supreme Court having reference to the use of the motor vehicle in interstate commerce.
- (5) The continuation of the supremacy of the rate of increase in the registration and utilization of the motor vehicle over the rate of increase of improved roads.
- (6) The progress in road improvement which has been greater than in preceding years.

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- (7) New developments in highway research tending to stabilize theory and practice in highway engineering and administration.
- (8) The segregation of critical points in the highway system through highway transport surveys.
- (9) The rapid absorption of available Federal-aid funds for road improvement.

What Is the Field of Highway Transport?

Considerable uncertainty has existed as to the place that the motor vehicle and the improved highway may take in the transportation scheme. The uncertainty has not yet been entirely eliminated. But certainly the several fields in which highway transport will be most useful as well as the limitations which it must recognize have, to a large extent, been established by definite experience and the results of careful research. The most significant feature of the year has been the number of bus lines put into operation. Only less remarkable is the number of trucks placed in regular service. But it is to be noted the motor truck and motor bus do not appear to be developing along parallel lines, contrary to the apparent general opinion. While there is an increase in the number of common carrier trucks, the percentage of common carrier trucks of the total number in use is very small and the ratio appears to be decreasing rather than increasing. But the increase of total trucks in use is very large.

The extent and rapidity of the growth in the number and mileage of bus routes is not appreciated since there is not available a statement of the now existing totals. However, a careful study of the motor bus routes in the eight States of Connecticut, New Hampshire, West Virginia, Kentucky, Arizona, Oregon, Washington and Maryland, develops the information shown in the following table:

RELATION OF MOTOR-BUS ROUTES TO HIGHWAY MILEAGE

States	Motor-bus routes	Rural highways	Ratio of bus mileage to rural highway mileage	State highway system	Ratio of bus mileage to State highway system
	Miles	Miles	Per cent	Miles	Per cent
Connecticut	822*	12,152	6.8	1,821	45
New Hampshire	311	13,841	2.2	1,367	23
West Virginia	987	35,173	2.8	3,594	27
Kentucky	3,876	68,704	5.6	8,000	48
Arizona	2,358	21,227	11.1	1,984	119
Oregon	3,739	45,475	8.2	4,484	84
Washington	4,379	45,816	9.6	3,133	140
Maryland	1,622	14,772	11.0	2,247	72
Total	18,094	257,160	7.0	26,610	68

*This is the net mileage of highways used by motor buses; lines having a total length of 102 miles use highways used by other lines.

5,000 Miles of Bus Service in Neglected Territories

Naturally the question of competition of bus lines with existing rail lines comes inevitably into the picture. In the above eight States in which 18,094 miles of the highways are used, there are 22,094 miles of railroad, showing that the bus operation is almost as extensive as the rail operation. There cannot fail to be a certain amount of competition between the two transportation agencies, yet these bus lines have been established under the laws of the Eight States, each one requiring a certificate of public convenience and necessity. A careful study of the situation shows that in this group of states, about one-third of the number of routes and 41 per cent of the mileage come into competition with parallel rail lines, and those which compete directly or indirectly with rail lines include 62 per cent of the total number and 69 per cent of the total mileage. Thirty-eight per cent of the number of routes and 31 per cent of the total mileage are non-competitive. The more than 5,000 miles of non-competitive bus lines bring common-carrier service to big areas not heretofore served. For example, 15 counties in Kentucky, which have no rail line, are served by 19 motor bus routes, over which 31 buses are operated.

Bus Rates Generally Higher Than Rail Rates

In a brief survey of this character it is not possible to dwell longer on this phase. All facts indicate that motor bus rates are in general higher than rail rates. If, therefore, the public are using and supporting these bus lines it is because they offer an enlarged service, more convenient or more luxurious service, or service where none existed before. The competition, where it exists, is not, generally speaking, in rates. Much of it is indirect in the sense that the motor buses connect by direct routes points connected by railroad only indirectly. That the bus service is primarily local is indicated by the average length of route, which is 25.8 miles.

Field of the Motor Truck Better Understood

Motor truck operation is likewise becoming better understood. Through the transport surveys of the Bureau of Public Roads it has been established that the principal movement of loaded trucks occurs within a zone of 29 miles. The portion of the total truck movement in such a zone in Connecticut has been found to be 79.5 per cent, in California 60.7 per cent, in Maine 80.5 per cent, in Cook County, Illinois, 75.8 per cent. The movement over 60 miles was found in these widely separated districts to be uniformly small and largely of specialized character. These transport surveys definitely indicate that the place of the truck is that of supplying transportation for three principal purposes: (1) The local distribution of commodities; (2) the supplementing of rail or water service; and, (3) on a small scale, the long-haul of special commodities, such as household effects. The year's studies have indicated that the motor truck and motor bus primarily fit into local service, and that the competition with the railroads in the long haul apparently will be very limited.

During the year there has been more or less discussion of the abandonment of rail lines. A careful study by Mr. Trumbower of the Bureau of Public Roads of the official records filed by the railroad companies with the public service commissions to sustain their requests to be allowed to abandon rail mileages, developed the following highly important information:

PRIMARY CAUSES OF LACK OF TRAFFIC*

Cause	Number of railroads	Percentage of number Per cent	Length Miles	Percentage of length Per cent
Exhaustion of natural resources.....	78	65.0	1,411.20	57.8
Competition of other railroads.....	14	11.7	713.34	29.3
Competition of motor vehicles.....	10	8.4	104.46	4.3
Rearrangement of lines of railroad.....	5	4.1	32.64	1.3
Miscellaneous	13	10.8	177.31	7.3
Total	120	100.0	2,438.95	100.0

*Filed as reasons to sustain proposed abandonment of rail mileages with the public service commissions.

It will be noted from the above that the reasons given for the abandonment of 2,438 miles of track show that practically 58 per cent of this entire length was caused by the exhaustion of natural resources on which the railroads were formerly dependent for revenue and that for only 4.3 per cent was competition of the motor vehicle the cause assigned.

Based upon the logical conclusions to be drawn from the recent facts disclosed both as to the ability to function and as to the actuality of functioning on a big scale of both the motor bus and the motor truck, there is little reason to doubt the seriousness of the entrance of the steam railways and the electric railways into both the truck and bus fields which have been notable developments of the year. In recording this fact, however, the really notable item is that this particular development has been so long delayed. It will always remain incomprehensible why the adaptability and flexibility of the motor vehicle, particularly for the pickup and distribution of commodities for consumption, for the extension of transport into new areas, for the short haul of both persons and commodities, were not earlier recognized and quickly adopted as auxiliaries by other transportation agencies.

Tendency to Recognize Difference Between Common Carrier and Other Motor Vehicles

The motor vehicle brought with it the strong demand for high-way construction and the consequent expenditure of large sums of money. But unlike many other enterprises requiring large expenditures it brought with it a capacity to pay. The attitude toward expendi-

tures has been to regard them too much as items of current expense and too little as capital investments capable of producing new income or wealth. The equitable taxation of the motor vehicle is still a puzzling problem. There are indications that principles are being slowly developed but that wide differences will remain between the States is as inevitable as has been the development of inequalities in other tax laws of the 48 different State jurisdictions and the Federal Government.

With the first registration of motor vehicles certain license or registration fees were required as fast as the States adopted registration laws. Some of these were in lieu of all property taxes and some in addition. In 1919 one State, Oregon, put into effect a one-cent gas tax. Since that time all but four of the States have made effective taxes on gas varying from one to five cents. The particular new development, however, has been the differential between the taxation of the privately owned motor vehicle and the common carrier motor vehicle. Twenty-seven States have laws requiring certificates of convenience and necessity applicable to common carrier motor trucks, and while there is, in general, no uniformity of basis, a higher rate is charged for the common carrier, both truck and bus, than for the privately owned motor vehicle.

The North Carolina law taxes the common carrier motor truck 6 per cent of its gross income, which though apparently the highest rate charged by any of the States, is probably not higher than the taxes paid on other bases in other States. That 27 of the States have already recognized the difference between the common carrier and the private motor vehicle simply means that before long all of the States will have laws, which also make a distinction between these two classes of motor vehicles.

Motor Vehicle Income Overtaking Highway Bill

The above discussion leads directly to the conclusion that with so many different types and kinds of taxation the question may well be raised whether the limit is not being approached as to the derivation of taxes from this source. Particularly is this true when current estimates indicate that the annual tax bill of the motor vehicle is rapidly overtaking the annual bill for highway improvement and maintenance. The best estimates which the Bureau of Public Roads has been able to secure show that the annual bill over several years for rural highway improvements has been approximately one billion dollars. A considerable percentage of this annual expenditure has been derived from bonds issued to mature over a period of from 20 to 30 years, so that while these bonds must in time be paid, they do not represent an actual outgo of tax money collected during the year. Thus it is apparent that the income from the motor vehicle very largely covers the actual amount of the funds collected

during the year. The estimate of income from the motor vehicle for the current year is as follows:

Federal excise taxes	\$131,872,000
Motor vehicle license fees	256,000,000
Gasoline taxes	164,463,000
Personal property taxes, 20 million cars (estimated)	100,000,000
Municipal and local license fees (estimated)	10,000,000
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	\$662,335,000

The above estimate does not take into account the increased valuations of real property which have been due to motor vehicle transportation, to motor business property and other new properties and new values now tax-producing at their present rate largely through the motor vehicle. These facts indicate the real seriousness of the question of whether we are not reaching the limit of taxation of the motor vehicle. While it is true that the motor user can well afford to pay a large part of the tax bill, it is just as true that the utilization and extension of motor transport through improved roads is a creator of property values which in fairness should contribute to the support of the annual highway costs. In all fairness there should be a proper balance between the direct assessments upon the motor user and the funds raised by the taxation of real property.

Supreme Court Decisions in Interstate Commerce

The decisions of the United States Supreme Court to the effect that the public service commissions of the States could not legally prohibit the operation of buses engaged exclusively in interstate commerce through a refusal or failure to issue a certificate of public convenience and necessity where these are required under the State laws, recognized the establishment of transportation over the highways on an interstate basis and placed the operation of such transport lines under the constitutional provisions governing interstate commerce.

The effect of these decisions was at once apparent. In Maryland alone, over twenty interstate bus routes have been established since the decision. It is true that the decisions of the Court held that these bus lines must comply with all State laws and regulations with reference to the operation of such motor vehicles, and must pay the fees required by the State. They must also comply with all requirements designed to promote the safety of the highways and their users. The regulation problems we face are still far distant from reasonable solution. As has been pointed out above, the distances covered by the motor bus routes, the utilization of these bus lines and the bulk of commodity hauling by truck are all local, or involve such short distances that the distances themselves are easily confined within the limits of the individual State. It is only the act of crossing the boundary line between States which places this traffic within the purview of the interstate

commerce laws. How this control of actual local traffic can be worked out without undue conflict between the Federal and State governments is a real problem that the future must meet.

Registration Growing More Rapidly Than Road Improvement

The official figures are not available as yet for the year, ending December 31, but it is certain that the total registration of motor vehicles will run very near the 20 million mark. On the first of July last the total was 17,716,709. The interesting development is the increase of registrations for the first six months of 1925 over those of 1924. The average increase for the country was 13.9 per cent, but the increase in the southern States was much larger. For example, in Alabama the increase was 53.6 per cent, in Mississippi 32.6 per cent, in Tennessee 19.7 per cent. The average increase for the 12 States of Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Tennessee, West Virginia, Virginia and South Carolina, was 24 per cent. Only in the last two were the increases small. In the South also, the rapid increase of motor bus routes is providing transportation in new areas heretofore poorly served or not served by any form of common carrier, and these extensions must operate in many instances over roads inadequately improved since the progress of road improvement has not yet caught up with the motor vehicle. It would not be difficult to trace a direct connection between the 53.6 per cent increase in motor vehicles in Alabama and the expenditure of the bond issue under which the highway commission of that State has been operating. It has been demonstrated over and over in this country that the utilization of motor vehicles pushes far ahead of the growth of improved roads, but that the improvement of the roads does lead to a wider use of the motor vehicle than can otherwise exist.

Progress in Road Improvement Greater Than in Preceding Years

The Federal-aid program of highway construction is a fair index of total construction activities and during the fiscal year 1925 a larger mileage of Federal-aid roads was completed than in any preceding year. The total for the year was 11,328 miles. The largest mileage previously completed in any fiscal year was the 10,247 miles completed in 1922. This year's work brings the mileage of roads completed with Federal assistance to a total of 46,485 miles, and on July 1 last there were, under construction, in addition 12,462 miles. The Federal-aid highway system consists by law of not more than 7 per cent of the public road mileage in any State, and while this would legally permit a system of 200,000 miles, up to the present time the States have designated a total of only 178,797 miles. Of this total amount approximately 57,000 miles have been improved through at least one stage or have been definitely undertaken as Federal-aid projects either in course of construction or approved for construction. But the States without

Federal assistance have improved an estimated mileage of 65,000 lying on the Federal-aid system. Thus it will be seen that approximately two-thirds of the system, as designated, has been improved to some degree, and that it can be expected that in the course of the next five years, at the present rate, the entire system will have received some improvement. To understand this statement it is necessary to understand the progressive or stage construction type of improvement. Much of the Federal-aid highway system lies in the agricultural districts of the South and Middle West where, prior to the Federal Highway Legislation of 1916, there was little improvement except of the most elementary character. In large areas the funds have not sufficed to build the ultimate type of road nor would the traffic justify the building of short mileages of low-cost roads. Rather it has been necessary to build the graded and drained earth road with surfacings of local materials at the lowest possible cost. It has been necessary to get mileage which it is possible to maintain in reasonable condition in order to give traffic service through the communities of the larger part of the nation. These first-stage roads carry the existing traffic, but as soon as they are built traffic begins to multiply, as is evidenced by the very large increase in one year in the number of registered motor vehicles in the State of Alabama. As the traffic multiplies, other and more durable types of surfacings must be provided in order that the maintenance cost shall not rise above a reasonable figure. Thus, while it may be said that within the five-year period the first Federal-aid highway system, as designated, will have been improved to a degree, it must be borne in mind that this improvement for at least two-thirds of the mileage will be of the low-cost, local-surfacing types, which will not be adequate to carry the traffic for long. All investment of funds and all surfacings applied are largely built into the roads as new surfaces are added. If properly maintained there is no loss of the original investment. This is explanatory to the following table, which shows the mileage of Federal-aid roads completed during the fiscal year 1925, and which is also indicative of the types of construction built without Federal-aid funds:

Class and type of construction	Completed during fiscal year 1925		
	By types Miles	By classes Miles	Per cent
Low:			
Graded and drained	2,064.1		
Sand-clay	718.8	6,985.8	61.7
Gravel	4,202.9		
Intermediates:			
Water-bound macadam	129.2	1,041.1	9.2
Bituminous macadam	911.9		
High:			
Bituminous concrete	341.3		
Portland-cement concrete	2,806.4	3,255.0	28.7
Brick	107.3		
Bridges	46.7	46.7	.4
Total	11,328.6	11,328.6	100.0

The rate of progress in the southern States has been particularly notable during the past year, as is evidenced by the following table,

showing the Federal-aid mileage completed during the fiscal year 1925 compared with the mileage in the Federal-aid highway system by groups of States:

Group of States	Federal-aid roads completed	Federal-aid highway system	Portion of Federal aid system improved with Federal-aid
	Miles	Miles	Per cent
South Atlantic	1,272.7	21,155	6.0
East South Central.....	1,149.8	14,020	8.2
West South Central.....	2,096.1	24,282	8.6
Total	4,518.6	59,457	7.6

As stated, the Federal-aid program is an index of the total progress made in highway improvement. In the Southern States the ratio of the Federal-aid roads completed to the total State program, *i.e.*, the roads completed both with and without Federal aid under direction of the State highway departments, varies from 39.3 per cent in the South Atlantic States to 75.5 in the East South Central States. That the Federal-aid roads completed comprise 75.5 per cent, or three-fourths of the total mileage of roads built under the direction of the State highway departments indicates the large influence which the Federal-aid program exerts upon the total year's accomplishments. This table is not accurate in the sense that the figures for the total mileage of roads built under supervision of the State highway departments in 1925 are not available and the comparison is necessarily between the Federal-aid program for the fiscal year 1925 and the total State program for the calendar year 1924. It is assumed that practically the same total program has been carried on by the States during this year as in 1924.

Group of States	Federal-aid mileage completed fiscal year	Mileage completed by State highway departments	Ratio of Federal-aid to total State program
	1925 Miles	1924 Miles	Per cent
South Atlantic	1,272.7	3,240.7	39.3
East South Central.....	1,149.8	1,525.6	75.5
West South Central.....	2,096.1	3,187.1	65.7
Total	4,518.6	7,953.4	60.1

Correlated Road Administration Need in Metropolitan Areas

Highway transport surveys have been completed during the year by the Bureau of Public Roads in Pennsylvania, in Ohio and in Cook County, Illinois. The results of these definite studies will be of the utmost value, both in design of highways and in the administration of highway funds. **There has been no one principle developed during the year that stands out so plainly, perhaps, as the necessity for correlated administration in the vicinity of the large centers of population such as Chicago.** The result of the survey there showing congestion on main traffic lines into the city led to the formation of a regional board for planning highway improvements which will correlate the work done by State, county, city and other agencies into one com-

prehensive program, each contributing to the completion of the improvements undertaken under other jurisdictions. Our administration of different political units is so firmly established that in order to make progress quickly it must come through correlation of these activities and not through some chimerical scheme of changing jurisdictions however desirable that may be.

Rapid Absorption of Available Federal-aid Funds for Road Improvement

The utilization of the Federal-aid principle in highway improvement is evidenced by the absorption of Federal-aid funds. Immediately following the war there were large appropriations made by the Federal Government which could not be immediately absorbed by the States. This led to much criticism as to lack of progress and a considerable movement to change the Federal-aid plan. The law of 1921 retained the Federal-aid principle, but directed the expenditure of all Federal-aid funds to the definite system of main highways referred to in a previous paragraph. In 1922 at the beginning of the fiscal year there was available for new construction in the States more than one hundred and fifty-four millions. Since that time construction has been overtaking Federal authorization till, on the first of July, 1927, it is estimated that the funds available for new construction would amount to \$78,000,000 or approximately equal to the authorization of \$75,000,000 per annum, which is the program on which we are now operating.

These are some of the outstanding developments of the year in highway improvement and in the development of highway transportation. The extension of the utilization of the motor vehicle, which has come about during this year and particularly in the Southern States, is the best evidence of the integrity and value of the investment which is being made for highway improvement. Not less important is the better system of maintenance which has characterized the year's operations of the State highway departments. Through the greater diligence and the improved methods of maintenance which are characterizing the efforts of the State highway departments, the low-cost roads are being held up to a state of service which was not thought possible a few years ago. The outlook for the new year is encouraging, but there is still a great need for a considerable number of the Southern States to establish their highway departments on a firmer basis and to support these departments with State funds rather than to depend upon the counties to support the expenditures necessary for the improvement of the State road systems which, in general, are coincident with the Federal-aid highways in each State.