

An Analysis of Certain Highway Administrative Problems

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I. INTRODUCTION

The provision of extensive improved highways and streets in the past thirty years is both a cause and a result of the general acceptance of the motor vehicle as a mode of passenger and freight transportation. These facilities have brought many changes in our daily economic and social activities. Nearly every phase of our life has been affected.

This progress has been achieved, however, only by assigning a substantial portion of the nation's wealth and by pledging much of its current and future income to the construction and maintenance of highway and street facilities, and to the purchase and operation of motor vehicles. There is some question as to whether we can reasonably continue to maintain the rate of public expenditure set forth since 1920. Others believe that highway construction and highway transportation have only begun. The proposed interstate highway system of 40,000 miles, which is a part of the 632-000-mile Federal-Aid system (January 1, 1950), supplemented by the task of bringing nearly 2,500,000 miles of local roads up to passable standards proposes a gigantic undertaking in engineering, administrative, and financial procedures. Many challenging problems are involved.

Nearly 600,000 persons are employed in the activities related to the construction and maintenance of the three and one-third million miles of highways, roads, and streets in the United States. The highway administrative and financial practices for the states, counties, and other local units of government vary considerably. Certain practices in many of our states and in a limited number of counties and local units have been examined prior to this presentation. The purpose of this paper is to present a preliminary and brief analysis of certain administrative and financial practices affecting the secondary and local road problem and to review briefly proposed federal legislation.

Before discussing some of the current road problems, it seems desirable to glance briefly at the road problems of the past. Examples of participation in the building and administering of public highways by the federal government, the several states, and the local communities are found in the early history of the United States.

A. *First Legislation.*

In the year 1636, on order of the authorities of Plymouth colony, all creeks and rivulets were bridged by felling trees across them, and canoe ferries were established for the passage of larger streams (1, p. 27).

"The Massachusetts General Court, in 1639, declared there should be a road between Plymouth and Boston, and work on it was soon commenced" (ibid, p. 29). "By 1683 the towns of New York and Boston and the new settlement of Philadelphia had become so bristling and important that travel from one to another was a common thing, and necessity began to urge the making of such land highways between them as would permit of regular traffic" (ibid, p. 42).

Painless highway financing was sought even in the colonial period. For instance, in 1760, the Court ordered a lottery as a means of raising revenue for highway maintenance.

George Washington recognized the social and political importance of a sound highway system when in 1785 he wrote, "The great time saving and convenience of this country all require that a great road leading from one public place to another should be straightened and established by law." "To me," he added, "these things seem indispensably necessary."

B. *The Federal Government Enters Transportation.*

The federal government's formal entrance into the field of highway construction occurred in 1802 when Congress passed an act authorizing creation of the Cumberland Road. Westward construction of the Old National Road, as it was later called, was delayed by the slowness with which that part of the highway east of the Ohio River was completed, and by the political struggle arising from a contention that the Constitution did not confer upon the central government the power to undertake public improvements (ibid, p. 691). The 1802 Act was considered an "An Act to Enable the People of the Eastern Division of the Territory Northwest of the Ohio River to form a Constitution and State Government, and for other Purposes." Section 7, Article III, of the Act read:

"That one-twentieth part of the net proceeds of the land lying within the State (Ohio) sold by Congress, from and after the thirtieth

of June next, after deducting all expenses incident to the same, shall be applied to the laying out and making public roads, leading from the navigable waters emptying into the Atlantic, to the Ohio, to the said State, and through the same, such roads to be laid out under the authority of Congress, with the consent of the several states through which the road shall pass."

The Act of 1802 was the response to Ohio's request for entry into the Union. It contained one provision which placed the territory in a peculiar and unprecedented position, for the paragraph quoted above represents one of the several offers made to the State of Ohio in these words:

"That the following proposition be, and the same are hereby offered to the convention of the eastern State of said territory, when found, for their free acceptance or rejection, which, if accepted by the convention, shall be obligatory to the United States" (*ibid*, p. 696).

Thus, it appears that on the first occasion when real need for interstate roads and transportation facilities arose under the Constitution, the federal government, through Congress, declared its power to appropriate public money for the purpose of creating such interstate routes, enunciated the principles that these routes be laid out under the authority of Congress, and seemingly assumed the consent of any affected states. Ohio accepted the right of the central government to build a transportation route through her jurisdiction (*ibid*, p. 696).

A bill providing for the building of this federal interstate highway was passed by Congress, and approved by President Jefferson on March 29, 1806. The states of Maryland, Virginia, Pennsylvania, and Ohio gave consent to the passing of the road through their respective areas (*ibid*, p. 697).

As the westward expansion continued, similar laws were passed by Congress to amend the original Act to make it applicable to the new regions. Thus, Indiana and Illinois were confronted with an experience similar to Ohio's prior to their admission as states in 1816 and 1818, respectively. On April 18, 1818, Illinois was authorized to erect a state government and Section 6 of Article III read:

"Two-fifths (of the proceeds of the land sold) to be disbursed, under the direction of Congress, in making roads leading to the state, the residue to be appropriated by legislature of the State, for the encouragement of learning" (*ibid*, p. 698).

These events were the first leading to the establishment and maintenance of a continuous federal policy of building a transportation route (for the general welfare) with public funds (*ibid*, p. 700).

Two other features contained in this series of laws seem to indicate that Congress, (1) considered the possibility of building more than one road if it so chose, and (2) did not consider the government limited to turnpikes as the only constituent parts of the federal transportation system, but believed it able to create other traffic routes—canals, and later railroads (*ibid*, p. 701).

President Monroe in 1822 vetoed an act "for the preservation and repair of the Cumberland Road" and indicated that Congress "did not possess the power, under the Constitution, to pass such a law" (*ibid*, p. 702). However, in 1825, Monroe approved a bill appropriating \$150,000 for further work on the extension of the Cumberland Road through Ohio, Indiana and Illinois (*ibid*, p. 710).

By 1830, bills had appeared in Congress for the proposed construction of isolated and disconnected turnpikes, canals, railroads, and similar enterprises. In that year President Jackson wrote a strong veto message on the Maysville (Kentucky) Road bill. He pointed out that the government had no right to use its money for the creation of any enterprises confined wholly to individual states. This opinion did not deter his approval of another act which appropriated \$215,000 additional for the further extension and improvement of the National Road (*ibid*, p. 714).

It is interesting to note that the Cumberland Road from Cumberland to Wheeling, a distance of 130 miles, cost \$1,750,000. More than thirty acts of Congress appropriating nearly \$7,000,000 were necessary to complete the road to Vandalia, Illinois by 1852 (*ibid*, p. 715).

The latter turnpike had a roadway of 80-foot width with a central section 30 feet wide covered with broken stone a foot deep and topped with a surface layer of gravel. Such construction continued westward to Terre Haute, Indiana, and then lapsed into a dirt road across Illinois (*ibid*, p. 715). In fact, for nearly 100 years the development of our highways was represented by roadways of gravel, crushed stone, brick, and macadam (2). Of the 150,000 miles of surfaced rural road in 1900, 72 per cent was gravel, 24 per cent was water-bound macadam, with 4 per cent of miscellaneous materials (2).

C. Coming of the Automobile.

Modern highway transportation began with the development of the "horseless-carriages". In 1905, only about 79,000 automobiles and 1,400 trucks were registered in the United States (3). In 1900 a total of only 4,192 vehicles were built by 57 motor vehicle firms. Since 1900 over 1,500 firms have tried their hand at building motor

vehicles. Today 53 firms remain—four less than at the turn of the century. By 1949, the automobile industry had produced 100 million vehicles; the output in 1949 exceeding the 6 million mark (4). More than 44-million motor vehicles were registered in 1949 (41). More than 800,000 employees are in the automotive industry alone. In all, the people who sell, service, or work as paid operators of motor vehicles, and those who provide highways, highway transportation employment in the United States reaches about 9 million (4).

D. *Traffic and Highways of Today.*

With the development of the automobile, traffic volumes have naturally risen sharply. Rural traffic in 1948 exceeded 197 billion miles, while urban traffic exceeded 203 billion miles. The Bureau of Public Roads has unofficially estimated that a new high of 425 billion vehicles miles of travel (51 per cent rural, 49 per cent urban) on all roads of the United States was reached in 1949 (41, p. 488).

Table I shows the urban and rural mileage in the United States by the end of 1947. More than 3 million miles of roads are in the rural systems. Under state control are 554,000 miles; local control, 2,384,000 miles; federal control, 72,000 miles.

About 51.7 per cent of the local rural roads in the United States are unsurfaced. Only 14 per cent of the local rural roads in Indiana are unsurfaced (42, p. 300). This represents about 10,320 miles in Indiana.

II. FEDERAL LEGISLATION IN THE 20th CENTURY

A. *Pre-War Federal Aid Acts.*

Between 1900 and 1920 there were marked changes in the types of roads built, in machinery for building them, and in governmental organization for the work (2). The Federal government again entered the highway field in a small way as early as 1893, when it established the Office of Road Inquiry which by 1919 became the Bureau of Public Roads. In 1916, Congress passed the Federal Aid Road Act. This law not only created the Bureau of Public Roads, but also made available \$75,000,000 of Federal-aid money to those states able to properly administer and coordinate the work through an adequately constituted state highway department.

Generally the state highway department was first established with but little authority as to location or construction, and functioned merely to administer state grants-in-aid to local units for road improvement. Next the department was made responsible for highway construction with state funds, sometimes supplemented by local funds, and often

TABLE I
 EXISTING RURAL AND URBAN MILEAGE IN THE UNITED STATES AT THE END OF 1947,¹ CLASSIFIED BY SYSTEM AND TYPE OF SURFACE⁵.
 (In thousands of miles)

System	Nonsurfaced mileage		Surfaced mileage				
	Total	Primitive and unimproved	Graded and drained	Total	Low type ²	Intermediate type ²	High type ⁴
Rural mileage:							
Under State control:							
State primary systems	337	15	5	10	49	140	133
State secondary systems.....	92	16	9	7	35	29	12
County roads under State control ⁵	120	51	26	25	69	16	2
State parks, forests, reservations, etc. ⁶	5	3	1	2	2	1
Total	554	85	41	44	469	186	147
Under local control:							
County roads	1,659	915	540	375	744	111	42
Town and township roads.....	686	369	163	206	317	280	7
Other local roads.....	39	39	39
Total	2,384	1,323	742	581	1,061	871	49

Table II shows the mileages of the various rural road systems in the United States as of June 30, 1949.

TABLE II
MILEAGES OF RURAL ROAD SYSTEMS (JUNE 30, 1949).*

System	Miles	Percentage
Primary and secondary roads under State control	440,000	15
National forest highways, Indian reservation roads, etc.	72,000	2
Local roads under State Jurisdiction.....	121,000	4
Local roads under local jurisdiction:		
On the Federal-aid secondary system.....	202,000	7
Not on the Federal-aid secondary system.....	2,177,000	72
Total	3,012,000	100

* (42) Federal-Aid Highway Act of 1950, No. 81-12. Hearings before the Committee on Public Works. House of Representatives, 81st Congress, Second Session, HR 7398 and HR 7941.

subject to local influence. Completed roads were maintained by local units. Experience with local maintenance of main routes soon led to raising the state highway department to a fuller stature by making it responsible for all operations with state funds. From the time when New Jersey initiated state-aid to counties in 1891, until 1917, when every state had some form of state participation in highways, the citizenry turned first to their state governments for assistance in their highway problems. Later the federal policy was patterned to aid state highway organizations rather than supplant them (2, 6).

The Federal-Aid Road Act of 1916 provided for the improvement of any rural road over which mails were carried, and definitely prohibited improvements in towns of more than 2,500 population (Public Law No. 156—64th Congress, 39 Stat. 355). The aforementioned sum of \$75 million was to be spent within five years, and federal participation in payment for the roads constructed was permitted up to 50 per cent of the total cost, but not exceeding \$10,000 a mile. Subsequently, the limit on federal participation per mile was increased to \$20,000 per mile (Public Law No. 299—65th Congress) and eventually it was removed in 1936 (2, 6).

The Federal Highway Act of 1921 was passed to strengthen the earlier law by requiring each state to designate, subject to federal approval, a system of primary or interstate and secondary or inter-

county roads. This system was limited in amount to 7 per cent of the total rural road mileage then existing, and the expenditure of all federal-aid appropriations was restricted to it (24 Stat. 212). Maintenance and safety on the highways continued as state responsibility. No more than 60 per cent of the federal contribution could be used for primary highways (2, 6).

The next federal legislation directly affecting the rural road problem was the National Industrial Recovery Act of 1933. Section 204 of this Act authorized an appropriation of \$400 million under Public Law No. 67 and \$200 million under Public Law No. 393, both of the 73rd Congress, to be granted to the state highway departments for use on the related projects of the federal-aid highway system, on highway extension through municipalities, and on secondary or feeder roads.

"Secondary or feeder roads" were defined by the Act as "those roads which are not now included in the approved system of federal-aid highways, but which may be either part of the state highway system or are important local highways leading to shipping points, or which will permit the coordination or extension of existing transportation facilities including highway, rail, air, and water" (7, 47 Stat 709). Not more than 25 per cent of the apportionment under this act (Public Law 393, 73rd Congress) could be applied to secondary and feeder roads until at least 90 per cent of the limiting federal-aid highway system of the state had been satisfactorily provided for (*ibid*). Thus, the state highway departments were required to expend federal-aid funds on the secondary system for the first time.

The Hayden-Cartwright Act of 1934 assumed that "Secondary or feeder roads shall mean roads outside of municipalities, except as hereafter provided, which are not included in the federal-aid highway system, and shall include farm-to-market roads, mine-to-market roads, rural free delivery mail roads, public school bus routes, and other rural roads of community value which connect with important highways or which extend reasonably adequate highway service from such highways, or which lead to rail or water shipping points or local settlements. The limitation with respect to roads within municipalities shall not be construed to prevent improvements into or through small municipalities when such improvements are necessary for continuity of service" (8).

The Emergency Relief Appropriation Act of 1935 granted \$400 million to the states without the matching requirement (Public Law No. 11, 74th Congress). One-half of this amount was earmarked for grade-crossing elimination. Resumption of the previous 50-50 basis

was effected in 1936. In 1938, provision was made for federal-aid to secondary and feeder roads on a permanent basis, thus departing from the original policy of limiting federal-aid to primary highways (Public Law No. 584—75th Congress, 9, 52 Stat L 633). The secondary system was confined to 10 per cent of the total rural mileage within a state (*ibid*).

B. *Post War Federal Aid Acts.*

In 1944, Congress approved a "National System of Interstate Highways" not exceeding 40,000 miles "so located as to connect by routes, as direct as practicable, the principal metropolitan areas, cities and industrial centers, to serve the national defense, and to connect suitable border points with routes of continental importance in the Dominion of Canada and the Republic of Mexico" (10).

Section 3 of the Federal-Aid Highway Act of 1944 authorized an expenditure of \$500 million for each of the first three post-war years, and contained provisions for the selection of a system of principal secondary and feeder roads (\$150 million per year) by the state highway departments acting in cooperation with local authorities. Two principal regulations governed the selection of this secondary system: First, the principal secondary roads had to constitute, with primary roads of the state, an integrated system; and, second, the extent of the system was required to be consistent with the anticipated finances available for its improvement. No specific mileage limitations were imposed (10, 11).

Subsequent legislation has followed this concept. The Federal-Aid Highway Act of 1948 allowed up to 30 per cent of the yearly federal-aid appropriation to be used on secondary and feeder roads (12). The 1948 Act authorized a total expenditure of \$900 million for highways in 1950 and 1951.

The Federal-Aid Highway Act of 1950 may provide for an increase in federal funds available through the fiscal years of 1950-52. The Whittington Bill, as presented to the House of Representative (HR 7941) would provide for annual authorization of \$646 million. The Chavez Bill (S 3424) would provide for an annual authorization of \$961 million (41, 42). In general, these bills represent an attempt to increase federal aid in terms of money expended and in terms of the per cent of contribution by the federal government.

C. *Investment in Roads and Streets.*

The Subcommittee on Domestic Land and Water Transportation of the Senate Interstate and Foreign Commerce Committee has reported that \$56 billion has been expended for highways and streets, \$52 billion

since 1920. Of the \$52 billion available since 1920 about \$9 billion represented federal funds, \$22 billion state funds, and \$21 billion local funds. The highway users have paid about \$39 billion (since 1900) in special vehicle taxes of various types.

Thus, we have a summary of the legislation affecting our highway transportation. This presentation should now move into the general picture of administrative problems in the field of secondary and local roads.

III. CURRENT LOCAL ROAD PROBLEMS

What Type of Administration Is Best for the Rural Road Problems?

The question of what type of administrative set-up in the 18,700 local units (2,800 counties, 15,000 towns and townships, and 900 special districts) is best adapted to carrying out the road function in specific cases is not subject to positive answer. These administrative units vary in size, miles of roads, funds available, and in number of personnel. In some states, complete state centralization of the road function may be an acceptable solution; in others, the county or some other rural unit may be desirable for the provision of local roads (14). Many contend that the county should be the minimum administrative unit. The county administrative unit prevails in over 1900 of more than 2,800 counties (42). Whatever the form of political administration, provision of efficient, safe, and economical highways requires that highway funds be spent by economical units of government that are inherently capable of providing adequate facilities.

Who Assumes Responsibility for Maintenance of Roads?

In Virginia, West Virginia, Delaware, and North Carolina, the state authority maintains all, or nearly all, of the rural roads in the state. In the remaining 44 states, the state highway authorities maintain about 14 per cent of the total rural road mileage. This means that over 2 million miles of roads and trails are maintained by the local rural authorities. In some states this responsibility is centered in the counties or parishes. There may be as many as 250 or as few as 20 county highway authorities in any one state. In other states, all local rural roads are maintained by the townships or towns or special road districts. In many cases this level of government is not an economical or efficient unit. In some states, the responsibility for these local rural roads is divided between the county and the town or township. This means that three separate organizations may be responsible for the local roads in one particular area—state, county, town or township. Oftentimes, their operations overlap to a certain extent (5).

The 1949 Oklahoma legislature was asked to abolish a law which permitted the division of counties into three separate units for road construction and maintenance. In requesting the change, the committee advocated:

The solution of the problem is equally clear. It requires legislation making the entire county the unit for highway purposes, requiring the employment of a qualified engineer who shall have complete charge of all road construction and maintenance, the supervision of highway personnel, control of road machinery, and the maintenance of adequate records of highway expenditures and inventory of machinery, supplies and equipment for the entire county (15).

Are Secondary Road Divisions to be Found in State Highway Departments?

Many states such as Kentucky, Minnesota, Alabama, Kansas, Tennessee, Michigan, California, Texas and Washington have set up secondary road divisions in the state highway departments to administer the program in close cooperation with county officials (16, 18, 20, 25, 27, 28, 30). In Indiana limited coordination exists. One man (Engineer of County Federal Aid) in the office of the state highway commission is assigned to liaison work between 92 counties of Indiana and the state highway commission. He is responsible for facilitating such work as may be done under the Federal-Aid Secondary Road program.

Can We Have State-County Coordination?

When the 1944 Federal Aid Highway Act became effective, California conceived the idea that the same federal principle which required the states to furnish a qualified state highway department could be applied to the counties. Because the state division of highways had no legal control over county road departments in California, it became, of necessity, a matter of cooperation and public relations. The counties accepted the idea and took advantage of the advisory assistance offered by the division of Highways, with the result that a rather close cooperative relationship has developed (19).

What About the Professional Engineer Requirement?

The establishment of county road departments upon an engineering basis has gained considerable ground. Nearly one-third (about 850) of the counties in the United States have engineers in charge of roadwork. Approximately 90 per cent of the total manage the programs in 12 states (41). It is to our economic interest and well-being that each county or political subdivision thereof efficiently administer its

road affairs. If this can be accomplished through cooperative means, then neither the state nor the federal government need direct local road management. Where cooperation exists, the state highway department should assist the counties in planning, establishing priorities of improvement, and the selection of road systems. However, where state funds are involved, it seems desirable to have the state approve plans and programs and to make certain that standards are maintained on a cooperative basis.

Where the counties are too small or poor to employ a county engineer, consideration could be given to a plan under which several counties or comparable political subdivisions of the state could cooperate in pooling their financial resources and form a highway region or district for the purpose of employing a qualified engineer and the purchasing and using of adequate equipment. In some states, this would require enabling legislation.

State aid is available to the counties in Minnesota and Alabama if the counties employ a full-time registered, professional county highway engineer. Thus a means for proper engineering and administration is provided on the local rural road level (20, 21, 22).

The practice of requiring the counties to employ a registered professional engineer to supervise the county highway program is worthy of further study. In Alabama, for example, each county engineer bears the same relationship to the state highway department as their residential engineers. Thus, coordination between the state and county is greatly facilitated and the use of standard stated design and specifications is made applicable (25).

What Are the Responsibilities of the County Engineer?

In Minnesota, with two local road systems, state-aid and county-aid, the county commissioners are the local governing bodies, but responsibility for all engineering and administrative functions on county roads is vested in the county engineer. Even Federal-Aid-Secondary projects are placed under the county engineer after the contracts and bonds have been completed by the Minnesota Department of Highways. He is responsible for all field control and reports until the project is completed (20, 21).

In general, the county engineer may be responsible for road construction and maintenance, supervision of highway personnel, control of road machinery, and the maintenance of adequate records of highway expenditures and inventory of machinery, supplies and equipment for the county. In some cases, he is responsible for the classification of roads and bridges and in the general planning of better highways.

What Personnel Practices Are Typical of States Having the Engineer Requirement?

The tenure, cooperation, and interchange of personnel, so necessary for efficient state and local highway management, is illustrated in Minnesota.

The rule of continuity of service which has generally characterized employment of engineers by the Minnesota State Highway Department has also extended to the county highway organizations. A great many of the county engineers have served the same county through a long period of years. There has been generally good cooperation between state and county authorities; and some engineers, although not serving continuously in the same county, have long continued service in highway engineering. Many of the county highway engineers have been chosen from the State Highway forces, and county highway engineers in turn have frequently been appointed to such positions as district maintenance engineers in the state highway department (21).

How May Equipment Be Used to Greater Advantage?

The State of Wisconsin has one solution to the complaint, sometimes given, that the counties do not have adequate equipment for highway construction and maintenance.

Wisconsin counties do all the maintenance work on the state trunk-highway system under contracts made with the state highway commission, which does not own roadbuilding or maintenance equipment. . . . Through state machinery-rental agreements, through work on its own roads and through frequent rentals to townships, a county's equipment and staff serve three road systems efficiently, tending to eliminate the need for separately owned and duplicating facilities. Some townships have their own equipment, but most of them depend on county machinery and crews for work on their roads (36).

In other states there is interchange of equipment at the state and local level. In some states the work is under private contract.

Are Plans Needed for More Effective Highway Development?

Much of the difficulty in developing an adequate highway system lies in the failure to make adequate plans. However, many states and counties are developing long range plans to properly administer and finance road development (42, p. 458). Bridge programs, road widening, resurfacing and other activities are often set up in a definite schedule with appropriate funds for completion of the work.

What Methods of Finance Should We Use?

Closely related to the problem of achieving effective highway operation is that of assessing and distributing motor-vehicle-tax reve-

nue and other sources of revenue among the claimants in a manner that will assure equity and effective results (14).

In the early days, property taxes and appropriations from general funds were rather important sources of highway income, but in recent years state taxes on highway users have become much more significant. Present-day constituents of highway users revenues include in the order of importance: (1) motor-fuel taxes, (2) vehicle registration taxes and related licenses and fees (3), and motor-carrier taxes and similar charges. The Bureau of Public Roads has estimated that of the \$3 billion in revenues available for highways in 1948, only 61.8 per cent came from highway user taxes, 12.1 per cent from federal funds, and 26.1 per cent from other sources. In 1921, the users paid only 12 per cent of the cost (*ibid*). The Bureau further states that, "In 1947, highway user revenue comprised 94 per cent of the funds from State sources used for county and local roads while property taxes amounted to 69 per cent of the funds from local sources (42, p. 324).

What Formula Should be Used in Finance?

How much taxation can be expected to provide local highway income must naturally be determined in each state. It was suggested in the study entitled "Public Aids to Transportation" that on a nationwide basis, financing of (1) state primary roads and their urban extensions should be met 83 per cent from highway-users taxes, and 17 per cent by general taxes; (2) county and local roads, 34 per cent from users taxes and 66 per cent from general taxes; (3) city streets, 30 per cent from highway users taxes and 70 per cent from general taxes. The foregoing allocation is based on the premise that while everybody benefits to some degree from strictly local and land service roads, those residing on or near the roads benefit most and therefore should pay a greater share for their improvement and maintenance.

Under current Indiana law the basic distribution of funds received from motor vehicle licenses and fees after certain deductions is, 53 per cent to the state highway commission, 32 per cent to county road systems, and 15 per cent to cities for streets.

The Bureau of Public Roads has pointed out that over the 20-year period from 1927 to 1947, the relative contribution made to the support of local rural roads by local units of government was cut more than half, from 81 down to 39 per cent. It reports that local governments have the capacity to make greater contributions than they now make of the financing of local road needs, and assesses this additional financing capacity at between \$100 million and \$250 million annually (42, p. 324).

Should We Have Diversion of Highway Funds?

A basic requirement of effective highway management is one in which formulas govern the distribution of state-collected motor vehicle revenues. They should reflect the needs of the several road systems and at the same time assure fairness to those who pay the bill (14). The National Highway Users Conference contends that the growing highway needs of the nation demand that all revenues derived from motor vehicle taxes be spent solely for highway purposes and should not be diverted for other uses. They further contend that the misuse of these taxes for non-highway purposes is contrary to sound public policy, and burdens the motor vehicle user with unfair multiple taxation.

The expenditure of motor vehicle use taxes on highway projects, not in accordance with traffic requirements, is uneconomic and deprives the public of facilities which are needed for maximum safety and economy of vehicle use. Nearly half (21 by December 1949) of the states now have laws or constitutional limitations prohibiting diversion of state income received from highway user imposts. There has been an increased tendency among the states for anti-diversion amendments. Legislation is now pending in New York, Mississippi, and New Jersey while the Virginia legislature has again expressed its intention, in a joint resolution, to see that highway taxes are used for highway purposes only (40). Tennessee, in its general election in 1950, provided for a vote on a constitutional amendment (Sec. 24, Art. 11). Connecticut will also consider such legislation in 1951.

Have the States Attempted to Increase Revenue?

During the past year there has been increased sharing in motor license fees reported in Indiana, Oklahoma, Oregon, and South Dakota. Iowa and Kansas have also set up new tax programs. Mississippi recently increased its gas tax from 6 to 7 cents per gallon. In addition, the sales tax on trucks, tractors and automobiles has been increased from one per cent to two per cent to provide additional funds for rural roads (43).

Kentucky has recently increased the state gas tax 2 cents per gallon. This additional revenue is to be used for a much-needed rural road building program; while in West Virginia, a bill authorizing a \$50 million bond issue for secondary road construction and improvement has been passed (16, 17).

Missouri, which has only a 2-cent gas tax, recently defeated a referendum for a 2-cent increase by an overwhelming majority (43). Illinois has proposed an increase from 3 to 5 cents to improve primary highways.

Is the Indiana Problem Like That Suggested by the "Indianapolis Star?"

These examples may be compared with the criticisms of Indiana conditions made in March, 1950, by columnist Maurice Early of the *Indianapolis Star*.

In Indiana, no qualifications are required except that the road supervisor be right politically. This year, 42 of the 92 county road supervisors were fired for political reasons. New supervisors probably will be ousted before they have time to know the conditions on the average 790 miles of road they are to maintain. . . . In some counties the road supervisor is nothing more than a straw-man on the patronage list.

This year, the State government will turn over to these uncontrolled and frequently hopelessly inefficient county departments a total of \$18,000,000. . . . This does not mean that there are not some highly efficient county highway departments. They are usually in counties where one party is in power most of the time and supervisors serve long terms.

Illinois has a much better administrative framework for its county departments. Candidates for county superintendent must pass an examination given by the State Highway Commission. The three top men are certified to the county commissioners who must name one from the list.

In Minnesota, the job of county road superintendent is a profession. Some serve from 25 to 30 years. The county road superintendent in that state must be a registered professional engineer.

Indiana probably pays enough for what it gets from the administrator of the county road departments, but the salary is too small for a qualified engineer. In Minnesota, the average salary for the job is \$4,700. The top salary is \$9,000.

Claude Hodson of Greensburg, president of the Indiana County Commissioners' Association, says rural sentiment is for the re-establishment of local property tax to put the roads in shape. . . . He believes that there should be reforms in the administration of county roads. Personally, he believes that county road supervisors should be required to pass an examination given by the State Highway Commission. He sees no prospects of taking the county road system out of politics as long as the State Highway Highway Commission operates under the party patronage plan (26).

Are these criticisms by Mr. Early indicative of the situation in the State of Indiana? Further investigation seems to be desirable before making final conclusions.

What are the County Needs in Indiana?

The state highway commission of Indiana in cooperation with county officials made a report to the Bureau of Public Roads in which is estimated that it will require an expenditure of nearly \$93 million

to eliminate present local road deficiencies of 88 counties (no mention is made of the needs of the other four counties). If this program is spread over a period of several years, additional funds may be required to take care of the needs which would accumulate during this period (5).

The proposed expenditures in Indiana, when combined with an approximate yearly county maintenance bill of \$11 million (*ibid*), illustrate the fact that the county highway program is not one to be placed in the hands of unqualified organizations and personnel. Because about one-third of every dollar collected in taxes and fees on motor vehicles goes to the county, every citizen should be concerned that his money be used efficiently.

What Recommendations Have Been Suggested by the Bureau of Public Roads?

The Bureau of Public Roads has recently advocated that practically all (90,000 to 100,000) miles of local roads which serve 100 or more vehicles a day and are not now included in the present federal-aid secondary system could be placed in this system. The Bureau believes that state-aid would be adequate to assist the remaining rural mileage? New legislation would be required to guarantee equitable distribution of state-aid and to fix management and financial responsibility (31). The Bureau of Public Roads recommends that 400,000 miles of rural roads are necessary because 40 per cent of the current rural road mileage under local control (2,500,000) carries less than ten vehicles per day. The Bureau further recommends retaining rural roads with the following classifications: 600,000 miles with less than ten vehicles per day, 525,000 miles carrying 10-25 vehicles, 425,000 miles carrying 25-50 vehicles, 225,000 miles carrying 50-100 vehicles, and 25,000 carrying over 100 vehicles per day (39, 42, p. 317).

These classifications should not be the criteria for improvement and retention. The true importance of local roads to agricultural life may be out of proportion to the number of vehicles using the roads. The quality of traffic is very significant. The rural mail carrier may serve 100 or more families; the milk route serves dozens of farms; and, the school bus transports children of the rural area. Thus, the number of vehicles does not represent a composite index of the true value of local roads to the community.

Has the Bureau of Public Roads Recommended Local Support?

The Bureau of Public Roads has reported that,

The efforts on the part of many local units to be relieved completely of the financial burden and at the same time to exercise

complete local autonomy in the expenditure of road funds is not only incompatible with sound principles of government; it is an inordinate departure from any reasonable concepts of equity. Further, it is popular grassroots politics to promise relief from the local tax burden by promoting the shift of that burden to superior levels of government. This practice, which has been successful to a considerable degree, frequently generates a reluctance on the part of local units to continue their financial support. To better the job of improving and maintaining local roads, the first need is better laws.

A good law is one which fixes responsibility and accountability, establishes standards of performance, embraces broad guides for administrative bodies in determining procedures, provides for adequate financial support, and creates efficient administrative machinery.

The backbone of the state-local relations law should be a state-aid program managed by the counties or local units with state assistance in planning, establishing priorities of improvements, and selecting road systems. Mandatory and voluntary features should be embodied in the law; the former should be confined largely to reporting and accountability of the local units for funds received and expended, state approval of plans and programs, and adequate provisions to insure a minimum standard of performance" (31).

*How Have the States Attempted to Whip the Secondary
Road Problem?*

The Iowa Farm Bureau Federation has made three recommendations:

First, each county should tax the maximum amount on property allowed by law; *second*, each county should employ an approved county engineer; and *third*, each county should formulate a long-range program that will build and maintain roads, according to economical standard specifications that are actually needed and most used. After each county has proved its eligibility by complying with the above three-point program, we recommend that more federal and state aid be distributed, in a substantial part, on an equalization basis for construction, maintenance and rebuilding of these roads if real progress is to be made (15).

On the other hand, the county commissioners of Howard County, Maryland, not only refused federal-aid for rural roads because they said it was too expensive, but they cite the fact that the construction cost of one mile of the Halls Shop road was \$4,999.29, which included labor and material but not depreciation of equipment. If the estimated cost by the Maryland State Roads Commission had been used as a basis of federal-aid, the counties share of the bill (50 per cent) would have been \$16,150.00, or \$11,150.71 more than the actual cost (32).

There is not only opposition to the method of financing, but as to the amount to be spent for certain types of highways. For

example, Governor Talmadge of Georgia, who campaigned on a "get the farmer out of the mud" platform, says the farmers need roads which are passable in any weather, not four-lane speedways. Thus, he adds, they'll be willing to abide a few more curves and less speed. Talmadge claims that it is not necessary to spend \$16,000 per mile as reported by the Bureau of Public Roads and that satisfactory all-weather farm-to-market roads could be built for \$10,000 per mile or less (33).

North Carolina's Highway Commission, which has started the initial stages of work under a recently authorized \$200 million rural road bond issue has already been attacked by some critics who charge that the state is spending its new funds so fast that "we can hardly be assured of much over \$100 million worth of roads from the entire \$200 million bond program" (34, 35).

Has the Federal-Aid Secondary Program Been Active?

The size and extent of the present Federal-Aid Secondary program can be shown by the fact that improvement projects presently programmed include 51,783 miles of roads in 2,797 of the 3,070 counties in the United States. Of this total, 36,256 miles were completed or under construction at the close of the fiscal year 1949, while the remainder was in various stages of preparation. Twelve states have set up projects in all their counties while an equal number of states have programmed projects in every county but one (13).

Indiana has 23 of 92 counties in the Federal-Aid Secondary program. About two and one-half million dollars has been spent in the past three years for 48 projects: 27 bridges, 16 roads, and 5 railroad flashing light projects. The State of Indiana has an apportionment of \$2,874,078 for 1950 and 1951.

Only about \$212,000 of this money for secondary road work has been programmed. Costs per mile throughout the United States for the secondary road program clearly indicates the flexibility of construction standards as to the type of road being improved. The average cost on roads carrying less than 100 vehicles per day was \$7,700 per mile exclusive of bridges. For roads carrying between 100 and 400 vehicles per day, the average cost was \$12,165 without bridges, while in the 400 to 1,000 vehicle per day category, the cost per mile rose to \$30,200 excluding bridges, or \$41,000 per mile with bridges. Thus it can be observed that improvements are made consistent with traffic conditions (13).

Are There any Proposed Changes in Federal Aid?

In a special meeting on November 21, 1949, the American Association of State Highway Officials issued a statement of its 1950 policy

on federal-aid for highways. One recommendation is to spend federal funds on a 75-25 matching basis. Foes of this change point out that any increase in the federal government share above 50 per cent—even for a special system like the interstate network—will lead inevitably to broadened demand for more federal assistance. Gradually, they foresaw, the federal government would be induced to take over operation and maintenance of all the highways (37, 38).

The other pertinent authorization would permit the states, subject to Bureau of Public Roads' approval, to shift up to 25 per cent of primary or secondary system aid interchangeably between the systems. This is the first time such an option has been proposed (*ibid.*).

One of the conclusions in the recent Bureau of Public Roads report on local roads was: "Each state should establish a fund for financing engineering and research studies relating to local roads. The funds should be set aside by the state highway department, and the studies should be made by that department in cooperation with the local units" (39, 42).

Legislation centered around these proposals is included in the Highway Act of 1950 (41, 52).

What Conclusions May Be Drawn from This Discussion?

From this presentation, it may readily be observed that, at the present time, there is no definite answer to our rural road problem; but the way is clearly pointed that only through thorough research, instituted immediately to solve such questions as source of income and distribution of funds, means of administration, sound engineering and coordinated long-range planning as applied to rural roads, can we begin to provide an efficient and adequate rural road system which will contribute its full share to the local, state, and federal economy with an equitable distribution of the cost to the users and beneficiaries of the roads.

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