

Development of Highway Administration
and finance in New York.

DEVELOPMENT OF HIGHWAY ADMINISTRATION FINANCE IN NEW YORK¹

W. M. CURTISS

In terms of expenditures, the construction and maintenance of highways constitutes the most important function of rural counties and towns in New York. For the average of rural towns in New York more than one-half the town taxes are for highway purposes.² In 1930 approximately 63 per cent of the expenditures of a number of rural counties were for highway purposes.³

From the standpoint of use, highways are of increasing significance. It is certain that the maximum use of highways by automobiles and trucks has not yet been approached. Farmers are increasingly dependent upon all-weather roads for the transportation of farm products and for participation in educational and social activities. Approximately one-half of the farmers in New York still live on unimproved roads. Farmers estimate that the construction of a hard road increases the value of a farm on a dirt road by about 50 per cent.⁴ It is probable that intercity transportation by truck and automobile will continue to increase. It seems probable that the movement toward more rural residential developments for city workers will continue. An increased use of secondary roads as well as of state highways is to be expected.

There is every indication that from the standpoint of expenditures and use, the construction and maintenance of highways will continue to be one of the most important governmental functions. The significance of this factor to the people in both rural and urban areas justifies a careful consideration of the development of the present system of highway administration and finance.

NEW YORK HIGHWAYS IN THE COLONIAL PERIOD

Following the discovery of the Hudson River by Henry Hudson in 1609, the settlements at Albany and Manhattan provided the first highway history in New York. Highways were of minor importance; the settlements were close to water and most of the transportation was carried on with boats. The communities were sparsely settled, and trade among the American Colonies and with Europe was confined to water transportation. It was dangerous to penetrate far inland because of the tribes of Indians and the unexplored wilderness. There was an absence of modern transportation facilities. The few miles of highways were little more than paths through the forest.

THE DUTCH PERIOD

In 1647 the Honorable Director General Petrus Stuyvesandt and council appointed three street surveyors (Roymeesters). Among other duties they

¹This is an adaptation of a portion of a thesis entitled *Highways in Rural New York*, presented to the faculty of the Graduate School of Cornell University, February, 1936, in partial fulfillment of the requirements for the degree of doctor of philosophy.

²Receipts and expenditures of 876 New York towns in 1934. By M. P. Catherwood. Cornell Univ. Agr. p. Sta. Bul. 659. 1936.

³Cost of local government in New York. By M. P. Catherwood and H. M. Haug. Mimeographed report, Cornell Univ., Dept. Agr. Econ. and Farm Management. Aug. 1932.

⁴Use and value of highways in rural New York. By W. M. Curtiss. Cornell Univ. Agr. Exp. Sta. Bul. 1036.

were to condemn unsightly and irregular buildings, fences, palisades, posts, and rails within or near the city of New Amsterdam. They were especially charged with the control of the erection of houses, extending lots beyond the survey lines, and setting up hog pens and privies on highways and streets.⁵ In 1652 laws were passed prohibiting fast driving in New Amsterdam. No wagons, carts, or sleighs were to be driven at a gallop. The first laws relating to highways referred almost entirely to streets.

In 1658 the village of "Haerlem" was created, and a wagon road was built from the city of New Amsterdam to this new village. This road was built by negro slaves belonging to the West India Company, which started the colony. In this same year an ordinance was passed requiring that all streets, paths, and highways be properly constructed, maintained, cleaned, and kept passable. A survey of the city of New Amsterdam at this time laid out streets. Property owners whose property was damaged were paid indemnities.

In 1659 a ban was placed on playing golf along the streets, "which causes great damage to the windows of the houses and exposes the people to the danger of being wounded." Residents were allowed to leave firewood on the street not more than ten days. In setting up the town of New Utrecht the inhabitants were required to "clear and level the roads and fell the trees, in order that men shall be able to see to a far distance."

The following resolution passed in 1661 is rather typical of the highway problems of the day:

Whereas it is customary, both in the Fatherland and here, that highways be made regular and so maintained, even though passing over another man's land to the end that one neighbor as well as the other may have easy passage from and to his tillage land; and as, in the village of Wiltwyck, some differences have already arisen, and more are to be apprehended on this subject, unless timely provision be made therein; therefore, after divers debates respecting the survey and construction of a proper road from here to the new and still undivided lands, it is judged best and most proper that the road in said lands shall pass over the lands of Evert Pols, along the side of the Kill and over across the land where it is narrowest, over Jacob Jansen's land, unto the new bridge to be erected at Hulter's, and thence in a straight line through the Great Lot away unto the Dwars Kill. In order that the corn fields may not suffer any damage from cattle, whether horses, colts, cows or hogs running at large, said highway or wagon road shall be used or traveled only with wagons or horses under bridle and in traces, without anyone being permitted to drive loose cattle along the aforesaid road, or take along foals beside the mares, on pain of forfeiting one pound Flemish for every beast, horse, hog, or foal that is driven or taken loose along said road, besides repairing the damage which anyone may suffer by such cattle, horses, or foal running at large. In order the better to prevent such damage, a proper and swinging gate shall be erected at the commencement of the road at the cost of all interested parties, and always kept closed by a person to be appointed thereto expressly by the Schout and commissaries; which person shall, for the opening and shutting of the gate receive from each Bouwery according as he may agree with the proprietors or occupants, at the discretion of the commissaries, and from others who pass only now and then through the gate, and therefore do not agree with him, one stiver for each opening, two stivers for each freight or pleasure wagon, and one stiver for each person who sits therein.⁶

A warning was issued in 1663 to all persons using public roads to travel in parties of four or five and to be provided with arms. Those found acting otherwise were to be fined one pound Flemish. This was thought a necessary precaution to protect the colonists from the hostile Indians.

⁵Laws and ordinances of New Netherlands, 1638-1674.

⁶Laws and ordinances of New Netherlands, 1638-1674.

THE DUKE'S LAWS, 1664

After the English gained control of the colony in 1664 the Duke's Laws were promulgated (Hempstead, Long Island, March 1, 1665). It has been estimated that the population of the Colony was then 10,000. Under the Duke's Laws, the people, through their annual town meetings, were given considerable power. The town became the most important unit of local government.

The Duke's Laws authorized freeholders of the towns to get together in meeting and establish rules for improving the highways. They were empowered to nominate each year three "surveyors and orderers of the work for the laying out and the amendment of the highways and fences." All such highways were to be regulated and a record of them kept in the town book for that purpose.

Under the Duke's Laws, highway labor was conscripted from the citizenry. No one was compelled to work more than one week away from home on the highways. Exemptions were made for "age, defects in mind, failing of senses, or impotency of limbs."

An act of the colonial government in 1701, pertaining to Ulster County, provided that "because the highways and roads are overrun with creeks at floods of water in the spring, the justice of the peace of Ulster is empowered to appoint surveyors who are to report the condition of the roads to the justices." If new roads were to be laid out through private land, it was the duty of the sheriff to call in a jury of "twelve good and lawful men" to award compensation to the owners. This was to be paid by the towns. These roads were then to be recorded and established as public roads.⁷

Much of the highway legislation during the colonial period concerned the laying out of specific roads in and about Manhattan. For example, in 1703, it was provided "that there be laid out, preserved, and kept forever in good and sufficient repair, a public common and general highway from New York City through the Counties of New York and West Chester, four rods wide, to join New York and Connecticut."⁸ It was provided "that common highways be laid out, ascertained, repaired and preserved forever, four rods wide, from each town and village to the next contiguous town and village."

A penalty of ten shillings each was charged for girdling the bark of, or for cutting down, a living tree on the highways. Such fines were divided so that one-half went to the person who complained and one half to the poor in the town where the trees were cut. The owners of township manors were expected to repair roads running through their lands.

The highway commissioners were entitled to a salary of six shillings for each day worked and this was paid by the cities and towns served. The commissioners permitted good, easily swinging gates on the highways, to be set up and maintained by the individuals benefited. A heavy fine was provided for shoring open (staking) such gates. The commissioners were expected to report to the county clerk each year the condition and extent of every road under their supervision.⁹

In 1704 a special law provided that in Richmond County, because it was small and the landholdings were small, the width of the lesser roads could

⁷Colonial laws of New York, chap. 101.

⁸Colonial laws of New York, chap. 131.

⁹Colonial laws of New York, chap. 131.

be reduced to three rods. The width of roads through meadows or cornfields was left to the discretion of the commissioners.¹⁰

A law providing for the building of a bridge over "Kenderhooke Kill" in Albany County specified that it be built according to a prepared model and that it must be guaranteed for two years.

DUTCHESS COUNTY ACT, 1728

A law passed in 1728, with special reference to Dutchess County, provided:¹¹

That inhabitants along public roads clear and maintain the roads by cutting the brush and overhanging limbs of trees for a breadth of two rods and remove stones at least the breadth of one rod. The public was privileged to take timber from the road necessary to mend the highways or bridges.

That a man with team and cart or wagon working on the highways for a day could be substituted for three days of man labor. Laborers were obliged to furnish such tools as spades, axes, and picks, for use on the roads.

That inhabitants should be subject to call by road commissioners. Failure to respond resulted in a fine of six shillings for each default.

That the cost of taking land for public highways was to be a general county charge. If the roads were for the particular convenience of private individuals, townships, or neighborhoods, the cost was borne by the individuals benefited.

A number of rather complete highway laws were passed, each pertaining to a particular county, but all very much alike.

In 1742 provision was made in Albany County¹² for:

Clearing the roads of snow. Individuals along the road were subject to call by the justice of the peace to break the roads when deep with snow.

The width of highways through meadows or cornfields was left to the discretion of the commissioners, but should not exceed twenty feet.

At this time there was only one road between Schenectady and Albany, and this was used both for wagons and sleds. As a result it was often out of repair. It was at times impassable to sleds because of the deep ruts. Because of this, a second road was laid out for the use of sleds only. A penalty of twenty shillings was made for using wheel vehicles on this road.

Commissioners were given the power to remove or change the location of swinging gates across the highways.

A uniform tread of four feet, ten inches, was established for wagons used on public highways in order to help keep the roads in better repair.

In 1760 every male inhabitant, twenty-one years or older, was subject to call for work upon the highways.¹³

In 1764 a law was enacted affecting the county and city of New York which empowered the highway commissioners to build bridges and causeways where necessary to carry off the water and keep the roads dry. They were authorized to raise money each year to widen roads, plant trees along them, and provide other forms of ornamentation. This law also forbade anyone obstructing the highways by leaving dead horses, dogs, or other carcasses in the highways longer than a reasonable time to provide for their removal. A fine was imposed for erecting scarecrows near the roads which might scare horses or travelers.¹⁴

In order to avoid unnecessary duplication and expense, commissioners

¹⁰Colonial laws of New York, chap. 144.

¹¹Colonial laws of New York, chap. 517.

¹²Colonial laws of New York, chap. 735.

¹³Colonial laws of New York, chap. 1144.

¹⁴Colonial laws of New York, chap. 1268.

were authorized to lay out only one public way leading from a neighborhood to the nearest public way or landing place. This should be in the most convenient place.¹⁵

NEW DEVELOPMENTS

In 1766 a law provided for the construction of a bridge in Ulster County. In the township of Hurley a certain fording place was so deep that it was dangerous at times during the year. Since this bridge benefited the entire county and only a few of the inhabitants of the township, it was deemed advisable for the supervisors to levy a county tax not exceeding 150 pounds for its construction. Five commissioners were appointed to execute the act. A manager was to receive ten pounds for overseeing the construction and proper rendering of accounts.¹⁶

In 1768 the city of Albany was permitted to raise money for the repair of public highways by a tax.

In 1769 a law was repealed which had provided that any private road, laid out and left open for common use for a period of three months, was to be recorded as a public road.

In 1772 Albany County adopted a new system of levying the highway tax, somewhat in proportion to the wealth of the inhabitants. The county treasurer certified the amount of taxes paid by the inhabitants the preceding year and they were rated and assessed according to the following scale:

Tax paid preceding year	Days of labor on highway assessed	Additional sum of money assessed
5 pounds or less	3 days	
5 to 10 pounds	4 days	1 shilling 6 pence
10 to 20 pounds	5 days	3 shillings
20 to 30 pounds	6 days	5 shillings
30 to 40 pounds	7 days	7 shillings
40 to 50 pounds	8 days	9 shillings
More than 50 pounds	9 days	12 shillings

These ratings were posted at two places within the district. A fine of 6 shillings was imposed for each day of refusal to work. Only the master or mistress of each family was rated. If the money raised proved sufficient to do the highway work, the inhabitants were not called upon to perform the labor.

A more strict regulation of gates on highways was made. All gates were to be removed from the highways unless the owners received license from the commissioner to use them. Inhabitants were subject to work only in the district in which their dwelling house was situated. No person under 16 years of age was deemed a "sufficient laborer."¹⁷

During the closing years of the colonial period some thought was given to coordinating the highway system. A road "from a considerable settlement to the City of Albany which passed through several districts" was to be laid out at a meeting of all the commissioners concerned. They were expected to agree on a location which would be as straight and as direct as possible.

¹⁵Colonial laws of New York, chap. 1290.
¹⁶Colonial laws of New York, chap. 1317.
¹⁷Colonial laws of New York, chap. 1651.



COURTESY OF "BETTER ROADS" MAGAZINE

FIGURE 1. A TYPICAL VEHICLE OF COLONIAL TIMES

A disagreement among the commissioners was to be settled by any two justices of the peace in the county and twelve jurymen who had no direct interest in the highway.

In 1772 it was provided that in the county of Charlotte the county clerk was to furnish each highway surveyor in the county a copy of all of the acts and orders affecting his district. By so doing the county clerk was to be exempted from contributing to the laying out and repairing of highways in the county. Freeholders were required to work six days a year. Inhabitants over 18 years of age who were not sons or servants of freeholders were to work three days a year.¹⁸

A law passed in 1773 for the counties of Albany and Tryon provided that carpenters and masons should be allowed two days for every day they worked at their trade on bridges. If a deficiency of money for building bridges existed, a town-tax levy not to exceed 20 pounds in any one year might be imposed. If this were not sufficient, the question was raised in public meeting and voted upon. In no case could more than 200 pounds be raised.¹⁹

SUMMARY OF THE COLONIAL PERIOD

During the colonial period the highway problem was largely one of local and individual interest. The town was the important unit for highway administration. Three commissioners were elected in each town to regulate and lay out or to alter town highways. The highways of the towns were laid out into several road districts, in each of which there was elected an overseer of highways to superintend the work done on roads.

Practically all highway work was conscripted from the citizenry on the order of the overseer. This was commonly called the *labor system* or the

¹⁸Colonial laws of New York, chap. 1561.

¹⁹Colonial laws of New York, chap. 1584.

forced-labor system of highway construction and maintenance, which was to continue into the present century. All male inhabitants between 21 and 60 years of age, with a few exceptions, were expected to work on the roads. The number of days' work varied from two or three per person to as many more as were required. It was usually specified that the greater portion of the work be done between April 1 and July 1.

Little money was required for the highway program. The commissioners were paid in cash. This amount was raised as a general county tax. A relatively small amount of money was required for building bridges. The money for these was often raised by a tax spread over the property of the entire county or, in some instances, over the property of the town benefited by the bridge.

In laying out new roads, owners of property through which the road passed were compensated for damages. Owners of adjacent land were permitted to hang swinging gates across the highway. Inhabitants were subject to call from the overseers and justices to break open roads when they became drifted with snow.

One of the first instances of an attempt to tax the people for highways in accordance with their ability to pay occurred in Albany County in 1772. The assessment for highway labor, supplemented by a highway-tax levy, was determined by the amount of general-property tax paid the preceding year.

Some money was collected from inhabitants who chose to commute their highway labor in money. While the records do not clearly indicate the extent of this practice, it is likely that, under the labor system, a relatively small amount of the highway labor assessed was paid in money. A laborer was credited with an extra number of days if he furnished a team of horses or oxen. Skilled laborers who worked at their trade, as, for example, masons building bridges, received more than one day's credit for each day worked. All laborers were expected to furnish the small tools which they used.

Attempts were made at some coordination of the highways of the several counties. Where a highway was laid out through several towns or counties, all the commissioners involved met as a committee to plan the most logical location.

EARLY FEDERAL SUPPORT FOR HIGHWAYS

At present the Federal Government participates to a considerable extent in the administration and finance of highways. In the latter half of the nineteenth century the Federal Government participated in highway affairs to a very limited extent. Early in the history of the republic there was some federal support for highways. Although direct benefits to New York were very limited, a brief summary of the highway activities of the Federal Government prior to 1890 should facilitate an understanding of the development of highways.

Soon after the Revolutionary War, a great network of national highways was planned to connect the East and the West. The Cumberland Road was the most famous of these highways and the only one on which a considerable amount of work was done. This road, sometimes known as the National Pike, or the old National Trail, was originally laid out from Cumberland on the Potomac across the Appalachians to Wheeling, West Virginia, on the Ohio, and was extended through Ohio by way of Zanesville and Columbus.

In Indiana it passed through Indianapolis and Terra Haute. In Illinois it passed through Vandalia to Alton on the Mississippi. It was projected as far west as Jefferson City, Missouri, although it was never completed beyond Springfield, Ohio.

The first appropriation for the Cumberland Road was made by Congress in 1806.²⁰ From that time until 1844, appropriations totaling \$6,828,324.46 were made. Most of the money came from treasury funds not otherwise appropriated. It was proposed that the Federal Government advance funds for the construction of this road, but that the treasury be reimbursed by funds arising from the sale of public lands in the new State of Ohio, admitted into the Union in 1803, and from the sale of public land in Louisiana, Indiana, Missouri, Iowa, Mississippi, and Illinois. Only \$972,978.20, or about one-seventh of the money spent on the road, was actually repaid from the sale of public lands in these States.

The constitutionality of constructing internal improvements with federal appropriations has been a much-debated question.²¹ Young, in his *Political and Constitutional Study of the Cumberland Road*, stated that the attitude of the framers of the Constitution was clearly opposed to federal funds for internal improvements.

For a generation following the adoption of the American Constitution the question was controversial. The power "to regulate commerce with Foreign Nations and among the several States" and "to establish Post Offices and Post Roads" as provided in Article I, Section 8, of the Constitution has been argued by many statesmen to grant sufficient power to Congress to aid in the construction of highways.

The greater part of the controversy arose after construction on the Cumberland Road had started. The question seemed to concern maintenance of the Cumberland Road and the completion of the entire network of national roads. It was probably not accidental that the controversy occurred at the time railroads were developing.

The doctrine of implied powers as expressed by John Marshall in his famous decision of the case *McCulloch v. the State of Maryland* in 1819 has been accepted by many as final in giving the federal government power to aid in the construction and maintenance of highways. In his decision, Marshall stated:

Take, for example, the power "to establish post offices and post roads." This power is executed by the single act of making the establishment. But from this has been inferred the power and duty of carrying the mail along the post road from one post office to another. And, from this implied power, has again been inferred the right to punish those who steal letters from the post office, or rob the mail. It may be said, with some plausibility, that the right to carry the mail, and to punish those who rob it, is not indispensably necessary to the establishment of a post office and post road. This right is, indeed, essential to the beneficial exercise of the power, but not indispensably necessary to its existence.

In the same decision Marshall stated:

We admit, as all must admit, that the powers of the government are limited, and that its limits are not to be transcended. But we think the sound construction of the Constitution must allow to the national legislature that discretion with respect to the means by which the powers it confers are to be carried into execution which will enable that body to perform the high duties assigned to it in the manner most beneficial to the people.

²⁰Highway administration and finance, p. 8. By T. R. Agg, and J. E. Brindley. 1927.

²¹Highway administration and finance, p. 12. By T. R. Agg and J. E. Brindley. 1927.

Let the end be legitimate, let it be within the scope of the Constitution, and all means which are appropriate, which are plainly adapted to that end, which are not prohibited, but consist with the letter and spirit of the Constitution, are constitutional.

Although Marshall's decision seemed to uphold the Federal Government in aiding in the construction and maintenance of highways, three presidents vetoed bills pertaining to further highway appropriations. A bill introduced into Congress in 1816 by Calhoun provided that the bonus of \$1,500,000 paid by the Bank of the United States, and future dividends of the bank, be made available for the construction of roads and canals. Clay and Calhoun fought bitterly for this bill, but President Madison vetoed it and warned against too liberal an application of the doctrine of implied powers.

A bill passed by Congress in 1822 authorized the president to erect toll houses on the Cumberland Road and to enforce the collection of tolls. The veto of this bill by President Monroe led to the establishment of toll gates along the road by the various States involved, and to the maintenance of the road by the States.

A serious blow was dealt federal participation in highway improvement by President Jackson, who vetoed a bill authorizing the United States to subscribe for stock for one of the national roads extending south from Zanesville. He stated that his ground for veto was that the road was largely local rather than national in character.

The Cumberland Road was finally abandoned by Congress and ceded to the States through which it passed. Illinois was ceded the last remaining section in 1856. The last substantial appropriation was for \$459,000 in 1838.²² Several factors contributed to the decline of federal interest in this road. One was that the estimated cost of completing the construction of the road in 1840 was nearly \$8,000,000, a sum in excess of what had already been appropriated. The problem of maintenance was one which vexed Congress and tended to convince it that the project should be abandoned. Probably the most important reason for federal abandonment was the rising importance of railroads and canals. Highways were becoming of less significance for national traffic and were considered more of a local means of communication. The pressure of local and state politics in regard to location of the road in the various States was such that Congress was apparently glad to relinquish entirely its part in the project.

A relatively advanced type of construction was used in building the Cumberland Road. The general specifications were that it be a 30-foot roadbed on a 66-foot right-of-way. Grades were not to exceed $8\frac{1}{4}$ per cent, and 20 feet of the roadbed was to be macadamized with stone. It has been estimated that the road cost about \$10,000 per mile.

The peak of toll collection in Ohio occurred in 1839, when \$62,000 was collected. From 1831 to 1877 a total of \$1,139,795.30 was collected in Ohio.²³

The total amount actually appropriated for the great network of national highways was approximately \$14,000,000, of which about one-half was spent on the Cumberland Road. Most of the contemplated national highways were never constructed.

From 1823 to 1869 Congress made land grants amounting to more than 3,000,000 acres to a number of the Western States for opening wagon

²²Highway administration and finance, p. 8. By T. R. Agg and J. E. Brindley. 1927.

²³Historic highways of America, vol. 10, p. 114. By A. B. Hulbert. 1904.

roads.²⁴ They were similar, although on a much smaller scale, to grants made to railroads. Apparently New York received none of these land grants nor were any of the national highways constructed in New York. While its influence may have had a pronounced effect on the nation as a whole, New York was dependent on its own efforts through state and local legislation to solve its highway problems.

New York did benefit to a limited extent by the construction of military roads. It has been estimated that, from 1750 to 1935, 24,300 miles of military roads were built in the United States at a total cost of about \$13,000,000.²⁵ In New York, in 1805, a military road approximately 21 miles long was built from Buffalo to Fort Niagara. From 1817 to 1830 a military road was laid out from Plattsburg to Sacketts Harbor, near Watertown, at a cost of \$3500.

The Federal Government as a factor in highway administration and finance during the century preceding 1890 was of relatively minor importance. It assisted in the partial development of a system of national highways. It made land grants to a number of the Western States for the opening of wagon roads. The War Department built some roads, largely for military purposes. In New York State federal influence was negligible. During the last half of the century the influence of federal participation on highways was at a minimum.

PRIVATELY OWNED HIGHWAYS

The provision of roads as a free means of communication is one of the oldest forms of cooperative effort. While many other forms of communication and transportation have been provided through private enterprise, there has been a tendency for the public to expect the free use of roads.

The payment of fees, or tolls, for the privilege of passing over roads is now a rare occurrence. Of the total 3,000,000 miles of highways in the United States, probably not more than 150 miles are private toll roads. Numerous toll bridges still exist.

Not all toll roads have been private roads. The famous National Pike, or "Cumberland Road," extending from Cumberland, Maryland, to the Mississippi River, constructed by the Federal Government and opened in 1818, was a toll road. Other examples of toll roads constructed by governmental units are numerous.

The period of rapid growth of private toll roads in the United States comprised the last part of the eighteenth century and the first one-third of the nineteenth century. Among the economic conditions which appear to have promoted this development were:

1. Need for highway facilities for the westward expansion.
2. Nonexistence of adequate public roads.
3. Lack of funds to provide adequate public roads.
4. Lack of competition from other modes of transportation.

This combination of factors led to a spectacular development of private roads in the settled part of the United States. Turnpike companies literally sprang up over night. Stock offerings were often many times over-subscribed. An intense attitude of speculation accompanied the development, similar to that in the railroad expansion which followed.

²⁴A history of the public land policies, p. 236. By B. H. Hibbard. 1924.

²⁵Military roads. Mimeographed report of the National Highway Users Conference. 1935.



COURTESY OF UNITED STATES BUREAU OF PUBLIC ROADS

FIGURE 2. AN OLD-TIME TOLL HOUSE ON THE CUMBERLAND ROAD IN PENNSYLVANIA

The rapid growth of these companies had some economic foundations. Handsome profits were returned by some of the roads. It was not uncommon for them to have annual earnings of fifteen to twenty per cent on the capital invested. Many of these roads were corduroy, plank, broken stone, or gravel. The corduroy roads were built by laying limbs or trunks of trees across roads, especially in low, swampy places.

It was not uncommon for toll roads to cost from six to ten thousand dollars per mile. At intervals along these roads, gates were installed and at each gate a fee was collected, the amount depending on the type of vehicle and the number of livestock driven over the road. The width of tires on the vehicle affected the rate of toll charged. On one road, vehicles with six-inch tires were charged only one-half of the toll paid for narrower widths. Those with nine-inch tires paid one-fourth the regular toll, and if the tires were twelve inches wide no toll was charged.

One of the first and most important turnpikes in the United States was known as the Weldemers Turnpike, extending from the Shenandoah Valley in Virginia into Kentucky. Toll gates were placed every seventy miles on this road and a fee of \$2 per person was collected from travelers at each gate. The Weldemers Turnpike was at one time considered the finest highway in the United States.

The Secretary of the Treasury in 1808 reported 67 turnpike companies in New York, with a total capitalization of \$5,000,000. More than 900 miles of road had been completed. By 1811 more than 317 turnpike companies had been chartered in New York and New England. It was very easy for a company to obtain a charter.

The peak of turnpike development occurred about 1830. The financial distress in 1837, together with the rapidly rising importance of railroads was a turning point in private turnpike history. They were slow to pass completely out of the picture. Toll gates were not uncommon in certain sections of the country as late as 1900. However, highway companies which depended on toll for their support found such income insufficient to keep the roads in proper repair. This was especially true where railroads paralleled the highways.

A number of reasons for the failure of private roads to meet the demands of transportation might be summarized by the following:

1. The constant antagonism of a public which preferred to regard roads as free means of communication.
2. The impossibility of giving turnpike companies monopolistic guarantees. Free roads, railroads, and canals offered ruinous competition.
3. The expense of collecting tolls, estimated to have absorbed 15 to 27 per cent of the total collected.

Toll roads were generally considered a heavy burden upon the farming class. Free intercourse of the people was obstructed. It was said that school attendance was hindered. The trend for the last century has been toward free roads. When federal aid was obtained for highways in 1916, one of the requirements was that highways improved with federal aid must be free from tolls. Automobile associations have generally been vociferous in their statements that the free use of public highways is a fundamental principle of government.

Few private toll roads exist in the United States today. Most of these are of a scenic character, such as the Pike's Peak Auto Highway in Colorado. One of the best known toll roads in the United States is the Long Island Motor Parkway. This road, about 45 miles long, extends from near Flushing to Lake Ronkonkoma in the center of the Island. The road, which is hard-surfaced, was financed by capital stock to the extent of about \$800,000 and bonds of \$1,000,000. The right of way was purchased or leased by the company. One of the original stockholders now holds all of the bonds and about three-fourths of the outstanding stock. The stock has never paid a dividend, and interest on the bonds has long been in default. It is said that in recent years receipts have exceeded expenses of operation. The total estimated investment in the company is between six and seven million dollars. The rate of toll is \$1 for a one-way trip.

Suggestions have been made in recent years for the construction of toll superhighways. For the most part, the proposed location of these has been in metropolitan areas. In heavily congested areas, especially in the Northeast, it is claimed by some that there would be an active demand for these superhighways. The crossing of railroads at grade would be eliminated. There would be a minimum of intersections with other highways and a high-speed thoroughfare would be maintained. In general, public sentiment as reflected by the press has shown itself unfriendly to the toll feature of this type of highway.

Improved methods of road construction were introduced during the era of private-turnpike companies. John Loudon McAdam (1783-1815) is credited with the introduction into England of what were later called *macadamized roads*. McAdam and Telford were contemporary English road builders.

They introduced the first general use of broken stone for the construction of roads. McAdam believed that the stones should be uniform in size, not round, and none in excess of a 1½-inch cube in size. He laid no artificial foundation, but insisted on a layer of stone 12 to 18 inches thick.

Telford's method, although similar to McAdam's included an artificial foundation, preferably a stone base constructed with larger stone filled in with stone chips.²⁶ Such types of construction were expensive. Breaking the stone was a job for hand labor. Often the stone was not readily available. It is reported that such roads, built on a properly prepared roadbed, cost from \$2000 to \$10,000 per mile. Proper drainage was recognized then, as it is now, as one of the first essentials of a good road. Such road construction was practically out of the question for local units of government in New York.

The first plank road in the United States was built at Syracuse, New York, in 1857. It was believed by many that this was a solution to the highway problem. They were popularly called the *farmers' railroads*. They were usually constructed by laying 3-inch plank on wood stringers. During the time they were new or kept in good repair they were quite satisfactory. It is reported that they cost about \$3000 a mile to construct and about \$550 per mile per year to keep in repair. The life of a plank road was from five to eight years, and the cost for this length of life was usually prohibitive.

One of the principles of early road building was that a slightly undulating road was preferable to a level one, the theory being that a horse used one set of muscles pulling up hill and another going down. It was believed that for this reason an undulating road was more restful to a horse than a level one. Mr. French, in his report to the Department of Agriculture in 1866, discussed this subject at some length. He stated that studies of the horse's anatomy did not bear out this statement, and that there was little to support such a belief.

Turnpike companies were permitted to use public highways, provided that they obtained the consent of at least two-thirds of the adjoining property owners. They also were required to obtain an agreement with the supervisor and commissioner of highways in a town for the use of the highway and the amount of compensation to be paid to the town. If an agreement could not be reached, the turnpike corporation could acquire such rights by condemnation proceedings.

Rates of toll on private turnpikes varied considerably. In general, the rate for each road was fixed by state law. The most recent law applying to plank roads and turnpikes provided that the rates of toll should be one cent per mile for vehicles drawn by one animal, and one cent per mile for each additional animal. For passenger vehicles, the rate was three cents per mile, and one cent per mile for each additional animal. For each horse ridden, led, or driven, the rate was three-fourths of a cent per mile; for an even score of sheep or swine, one and one-half cents per mile; and for an even score of cattle, two cents per mile.

Exemptions from tolls were made for persons going to or from a church, funeral, school, town meeting, or court. A person living within one-half mile of a toll gate was exempt from toll except when transporting other persons or property. A penalty was provided for passing a gate with intent to avoid paying toll.

²⁶County Roads. By H. F. French. Report of the U. S. Agr. Dept. 1866.

A corporation, by vote of its stockholders, was permitted to abandon its road and let it revert to the towns, cities, or villages through which it passed. The road then became a public highway. Private-turnpike-and-bridge corporations were exempt from taxation, unless an amount equal to 7 per cent of the first cost of the road was received annually in tolls in excess of necessary repairs and reserve requirements.

If a turnpike company abandoned its property and threw the road open to the public for a period of five years, it automatically became a public highway. If a turnpike corporation should cease by limitation of time (50 years), and if the road reverted to the town, the town was to compensate the corporation for that portion of the road built over lands which had not previously been public highways.

Persons living on or owning property along a turnpike might be assessed their highway labor, to be worked out upon the line of the turnpike as a separate road district. The directors of the turnpike corporation had powers similar to those of the overseers in calling out such labor.

Turnpikes, during the first half of the nineteenth century, provided essentially the only through-highway facilities in New York. They were built largely for non-local travel. They provided the first important system of improved roads in New York. Local roads were maintained by adjacent property owners, but were not adequate for through travel. By the year 1811, 137 turnpike companies had been chartered in New York State, with authorization for 4500 miles of road, and with a total capital of \$7,500,000. About one-third of this mileage was eventually completed.²⁷

An example of one of the early toll roads in the State, and rather typical of many, was the Genesee Road.

The Great Genesee Road, as it was known, began at old Fort Schuyler (Utica) which was the western extremity of the Mohawk Valley Road and was laid out to the Genesee River in accordance with a law passed in 1794. In 1798 a law extended it to the western boundary of the State.

In 1800 the road passed into the hands of a turnpike company, the legal name of which was "The President and Directors of the Seneca Road Company." The law stated that the road should be six rods wide with four rods opened. Where the road passed through any enclosed or improved lands, the owners were to be compensated for damages.

Lotteries used to raise money in 1797 provided about \$14,000 to be used on the Genesee Road. The capital stock consisted of 2200 shares at \$50 each, or \$110,000. It was specified that the roadbed be covered with gravel or broken stone to a depth of 15 inches. Toll gates were to be established every 10 miles and the rates of toll designated by law.

The Genesee Road was used by the builders of the Erie Canal. The roads were generally so poor that the canal contractors did most of their hauling in the winter when the ground was frozen and sleds could be used. The completed canal offered severe competition to the turnpike. Water rates were at first only one-tenth as much as those charged by the old wagonners before the canals went through.

Another important toll road, and significant in the development of the southern-tier counties of New York State was the Catskill Turnpike.

Highways from the Hudson River to the Susquehanna River were opened

²⁷*Historic highways of America*, vol. 12, p. 109. By A. B. Hulbert. 1904.

before the close of the 18th century, because the rich agricultural land around Unadilla needed an overland outlet.

The Catskill and Susquehanna Turnpike supplanted the primitive state road to Wattle's Ferry (Unadilla) in 1802. The stock was limited to \$12,000. The road followed straight lines from point to point, regardless of hills. Ten toll gates were established along the line. Two stages were to be kept regularly on the road, the fare to be five cents per mile. A stage that left Catskill Wednesday morning reached Unadilla Friday night. The distance was probably less than 90 miles. The most prosperous period for this road was the ten years from 1820 to 1830.

A schedule of tolls charged on the Schenectady and Utica Turnpike was rather typical of the rates on other roads. Toll gates were erected every ten miles and the following tolls collected.²⁸

	<i>Cents</i>		<i>Cents</i>
Sheep, per score	8	4 tires less than 6 inches	75
Hogs, per score	8	5-horse wagons, tires less than 6 inches	87.5
Cattle, per score	18	6-horse wagons, tires less than 6 inches	100
Horses, per score	18	1-horse cart	6
Mules, per score	18	2-ox cart	6
Horse and rider	5	3-ox cart	8
Tied horses, each	5	4-ox cart	10
Sulkies	12.5	6-ox cart	14
Chairs	12.5	1-horse sleigh	6
Chariots	25	2-horse or 2-ox sleigh	6
Coaches	25	3-horse or 3-ox sleigh	8
Phaetons	25	4-horse or 4-ox sleigh	10
1-horse stage	9	5-horse or 5-ox sleigh	12
2-horse stage	12.5	6-horse or 6-ox sleigh	14
3-horse stage	15.5		
4-horse stage	18.5		

TOWN HIGHWAYS PRIOR TO 1890

With the change of New York from a colony to a State in 1777, little change occurred in highway administration. The Legislature continued to make special laws at each session for individual counties. These laws were renewed and revised at frequent intervals. One rather typical law was passed in 1784 for the counties of Ulster, Orange, Dutchess, Washington, Westchester, Albany, and Montgomery.²⁹ This law provided:

For the election of 3 to 5 commissioners to lay out and regulate the highways of the towns.

For the division of the town highways into road districts with an overseer for each district.

That compensation be given to persons whose lands were damaged by the laying out of highways.

That a penalty be imposed for obstructing the highways.

That the width of highways be 2 to 4 rods.

That the commissioners determine and assess the number of days' work for each person "in proportion to the estate and ability of each respective person."

That a fine of 20 shillings be imposed for refusal to work on the roads.

That a day's work of a man and team constitute three days' labor.

That every man furnish one spade, hoe, axe, crowbar, pickaxe, or other tool, as directed by the overseer.

²⁸History of transportation in the United States before 1860, p. 69. By B. H. Meyer. 1917.

²⁹Laws of New York, 1784, chap. 52.

That every freeholder, housekeeper, or person exercising any trade, business, or labor for himself, or receiving wages for such labor, be subjected to highway-labor assessment.

That trees on the highway were to be the property of the adjacent-property owners except as they might be needed for road purposes.

That a payment of 4 shillings per day might be paid in lieu of the assessed highway labor.

That a record of the road be filed with the town clerk.

That private roads might be laid out by the commissioners, at the expense of the persons benefited.

That gates might be hung across the highways by private individuals with the consent of the commissioners.

That staking or "shoring" open highway gates be prohibited.

That 6 hours of labor should constitute a day.

That money raised by the supervisors for highways in any one town could not exceed 100 pounds unless approved by a special vote.

That inhabitants should be required to work only in the town in which their dwellings were located.

That if two vehicles met on a public road, the one going toward the city of Albany had the right of way over the one going away from the city. On roads east of the Hudson River, vehicles going east were to give way to those going west. The opposite was true on roads west of the Hudson.

That highways leading from a settlement to a place of embarkation were to be continued as straight as the ground would permit.

That overseers should be charged with seeing that roads were opened after a deep snow.

That the salary of highway commissioners be six shillings for each day worked.

That the word *town* should mean manor, district, or precinct.

In 1785 a special law provided that the commissioners of the town of Philipsburg in Westchester County need not be freeholders.³⁰

In 1787 it was provided that the commissioners in Albany, Montgomery, and Columbia Counties be appointed by the justices rather than elected.³¹

In 1792 the State was divided into four highway districts: the western, eastern, southern, and middle. Each district had two commissioners, and for all districts a state appropriation of 20,000 pounds was made for laying out highways in the State. Later, from time to time special appropriations were made for specific state roads. These moneys were largely to finance surveys in opening new roads.³²

A law passed in 1796 provided that money arising from the sale of public land in Onondaga County was to be used for highway purposes.³³

A law passed in 1797 provided that each county should have three superintendents of highways appointed by the Governor for a term of three years. Their duties were to direct the making and repairing of roads and bridges within the county. They were to apportion all the moneys granted by the State among the commissioners of respective towns in such proportion as they saw fit.³⁴

No person was to be assessed more than 30 days, nor less than one day, of labor. The aggregate number of days of labor assessed in a district was to be not less than four times the number of persons liable for assessment.

In 1797, work on the roads could be commuted (paid in money) at the rate of 40 cents per day. Commissioners were paid \$1 for each day worked. Guide posts and boards were to be erected by the county superintendents. The width of wagon treads was established at five feet outside of the fellows.

³⁰Laws of New York, 1785, chap. 38.

³¹Laws of New York, 1787, chap. 95.

³²Laws of New York, 1792, chap. 60.

³³Laws of New York, 1796, chap. 62.

³⁴Laws of New York, 1797, chap. 43.

In 1798 lotteries were permitted and were used for the raising of revenue for state roads.³⁵

A highway law passed in 1801 provided that at least one-half of the days assessed an individual must be worked before July 1 each year. Labor could be commuted at the rate of 62½ cents per day. Boards of supervisors might raise money over the entire county for bridges, not to exceed \$1000 in any one year. The office of county superintendent was omitted from this act.³⁶

A law in 1807 permitted overseers to purchase iron- or steel-shod scrapers for use on the highways.³⁷ Up to this time highway equipment was furnished entirely by the laborers. Overseers were paid at the rate of \$1 per day for each day worked in excess of their assessment. They were not permitted to commute their assessment in money.

Apparently the first instance of an optional money system in place of the labor system was provided for the towns in Livingston County in 1838. The electors were permitted to choose between the two in town meeting. If they elected to have a money system, they were to raise an amount equal to 40 cents per day for the former amount of labor assessed.³⁸

The choice of electing one or three highway commissioners in a town was provided in 1845.³⁹

In 1857 it was provided that the highway commissioners might apply in open town meeting for additional funds for highway purposes, not to exceed \$750.⁴⁰ In 1865 the overseers, who had previously been elected in town meeting⁴¹ were to be appointed by the commissioners. In 1868 a law provided that labor might be commuted at the rate of \$1 per day. Any unpaid road labor was to be reassessed by the supervisors against the land at the rate of \$1.50 per day.⁴²

In 1873 the highway commissioners were required to act as inspectors of plank roads and turnpikes. They were to inspect the roads once each month, and if any portion was found out of repair, they notified the company. If the road was not repaired within 48 hours, the toll gate nearest the damaged road was ordered thrown open.⁴³

In the same year any town might change over to the money system, provided that 25 per cent of the taxpayers petitioned to do so. Then the question was voted upon in town meeting. If the money system was adopted, a sum at least as great as the commuted rate of the labor assessed under the labor system was to be raised. A maximum of \$5000 could be raised.

The commissioners of each town were organized into what was called a *board of highway commissioners*. Commissioners were empowered to divide or consolidate existing road districts. They were also empowered to contract for the highway work to be done or to hire an overseer to do it.⁴⁴

In 1875 any inhabitant might be allowed, in abatement of his highway tax, the time he expended in removing and replacing fences along highways to prevent snow drifting.⁴⁵ Some towns were experimenting with the money system and some apparently found it unsatisfactory. A law in 1879 pro-

³⁵Laws of New York, 1798, chap. 26.

³⁶Laws of New York, 1801, chap. 186.

³⁷Laws of New York, 1807, chap. 50.

³⁸Laws of New York, 1838, chap. 326.

³⁹Laws of New York, 1845, chap. 180.

⁴⁰Laws of New York, 1857, chap. 615.

⁴¹Laws of New York, 1865, chap. 522.

⁴²Laws of New York, 1868, chap. 791.

⁴³Laws of New York, 1873, chap. 440.

⁴⁴Laws of New York, 1873, chap. 395.

⁴⁵Laws of New York, 1875, chap. 196.

vided that by a vote of the town people a town might return to the labor system.⁴⁶

A law in 1880 provided that in the appointment of overseers the commissioners should preferably appoint freeholders, if available. Otherwise they were to appoint a nominee of three-fifths of the taxpayers.⁴⁷

In 1886 all persons between the ages of 21 and 70 were to be taxed at least one day a year for highway labor. Exceptions were made for injured soldiers and sailors, ministers, priests, paupers, idiots, and lunatics.⁴⁸

In 1887 a town which had purchased a stone crusher might, by a vote of the people, raise not to exceed \$2000 a year with which to build stone roads.⁴⁹

When the highways of New York were laid out, bridging a river was often a difficult task and, in many instances, bridges were not built until long after the highway. Ferries were more common than bridges, and many of the shallow streams were forded. Often such bridges as were built were crudely fashioned of floating logs tied together and anchored to either shore.

The Cayuga bridge was a noted one in its day. It was built in 1799 and 1800 by the Manhattan Company, at a cost of \$150,000. It was 1¼ miles long and could accommodate three wagons abreast.⁵⁰ Most bridges were either built by private corporations or by towns or counties. In either instance it was common to charge toll for crossing.

A bridge across the Hudson River at Albany was not authorized until 1856. It was often argued that bridges over navigable streams would interfere with navigation. It appears that about 1810 the ferries along the Mohawk and the so-called western streams of New York were being replaced by bridges. DeWitt Clinton stated that about that time "an excellent bridge of uncommon strength was being erected at a ford of the Genesee River about 12 miles from Great Falls, and 7½ miles from Lake Ontario."⁵¹

The following table lists the toll bridges in New York in 1808, together with the capital stock of each:⁵²

	<i>Capital stock</i>
Schoharie-Kill bridge.....	\$10,000
Catskill.....	5,000
Cayuga.....	25,000
Canajoharie and Palatine.....	10,000
Jericho.....	10,000
Troy.....	150,000
Fort Miller.....	40,000
Union.....	50,000
Newtown and Bushwick.....	7,500
Montgomery.....	13,500
Schoharie and Cobleskill.....	6,000
Fort Hunter.....	7,500
Schoharie Creek, north.....	5,000
Wallabout and Brooklyn.....	15,000
Delaware.....	20,000
Susquehanna.....	20,000
Canton.....	6,000
Farmer's.....	3,000
Cohoes.....	7,000
Jefferson.....	4,000
Mohawk (stock included in Mohawk Turnpike).....	.....
	\$415,000

⁴⁶Laws of New York, 1879, chap. 31.

⁴⁷Laws of New York, 1880, chap. 603.

⁴⁸Laws of New York, 1886, chap. 422.

⁴⁹Laws of New York, 1887, chap. 471.

⁵⁰History of transportation in the United States before 1860, p. 42. By B. H. Meyer. 1917.

⁵¹History of transportation in the United States before 1860, p. 44. By B. H. Meyer. 1917.

⁵²History of transportation in the United States before 1860, p. 45. By B. H. Meyer. 1917.

A bridge at Rochester was built in 1810-1812 at a cost of \$1200, the expense of which was defrayed by taxation in Ontario and Genesee Counties. The early bridges were often washed out by floods and ice in the spring.⁵³

The Montezuma bridge, three miles long, built over the marshes and the Seneca River at the outlet of Cayuga Lake, was built in 1819 and was said to have been the longest bridge in the world.

By 1813, 36 charters for toll bridges had been granted in New York. The first bridge that crossed the Hudson was at Waterford and the second at Fort Miller. A toll bridge across the Mohawk was completed one mile below Cohoes in 1795 at a cost of \$12,000. It was 1100 feet long, 24 feet wide, and rested on 13 stone pillars. There were toll bridges at Schenectady and Utica. It was reported that the Cayuga bridge was destroyed in 1807 and not rebuilt.⁵⁴

The State came into the highway picture in a rather limited way in the nineteenth century. As early as 1792 an act of the Legislature divided the State into four highway districts with two commissioners for each district. The act recommended the building of certain bridges and the macadamizing of certain roads. The western district of the State comprised the territory west of Albany to Cherry Valley. The eastern district included Columbia and Rensselaer Counties. The southern district included Westchester and the counties near New York City, while in the middle district was Dutchess County.

From time to time special acts of the Legislature created state roads with commissioners for each, and relatively small appropriations to survey and lay out these roads, but no separate state system of highways was developed. The State raised \$45,000 by three lotteries in 1797 for the purpose of opening and improving a road north of Albany to Fort Ann, for opening one from Cooperstown to intersect the Genesee Road near the outlet of Skaneateles Lake, and for opening one from Catskill Landing in Albany County to Catherine in Tioga County, and from Owego to the south end of Cayuga Lake where Ithaca is now located.

Counties had a relatively minor place in highway administration in the nineteenth century. An act of 1797 provided that three county-highway superintendents be appointed by the Governor for a period of three years in all counties except New York, Suffolk, Queens, and Kings. This act was superseded by an act in 1801 which failed to continue the office of county superintendents. Apparently county-highway superintendents did not reappear until 1893, when a county-road system was made optional for all counties.

For more than a century following the establishment of New York as one of the States of the Union, comparatively little change took place in rural-highway administration. Towns continued to elect three to five highway commissioners and to divide the town into road districts which were in charge of overseers, or, as they were called in some sections, *pathmasters*. The labor system for maintenance of roads prevailed. Little money was raised for highway purposes except for bridges and the salaries of the commissioners.

During the century prior to 1890 there was a gradual trend away from the

⁵³History of transportation in the United States before 1860, p. 48. By B. H. Meyer. 1917.

⁵⁴History of transportation in the United States before 1860, p. 46. By B. H. Meyer. 1917.

labor system toward the money system. As early as 1838 the money system was made optional for the towns of Livingston County. It was not until some 70 years later that the labor system passed completely out of the picture. In 1859 the town of Haverstraw in Rockland County, adopted the money system, and in 1862 the town of Clarkson in the same county adopted it. In 1873 the Legislature provided that any town might adopt the money system. Apparently some towns which tried the money system were not wholly satisfied, because the Legislature provided in 1879 that towns which had adopted the money system might return to the labor system.

Some minor but progressive changes were made in town-highway administration during this period. For example, persons were assessed highway labor, in some degree at least, in accordance with their ability to pay. The need for highway equipment was recognized. Whereas all equipment had been provided by the workers, now the overseers were authorized to purchase steel-shod scrapers. Still later, stone crushers came into use, and towns were permitted to purchase them, and to levy taxes for building stone roads. Towns might elect one rather than three or five commissioners. The commissioners were to appoint the overseers.

The railroads and canals were the dominant means of transportation of this period. Motor vehicles had not yet appeared. The close of the century marked the beginning of the greatest expansion of highway construction in history, due largely to the introduction of motor vehicles.

DEVELOPMENT OF THE STATE HIGHWAY SYSTEM

The expenditures of the State of New York for administration, maintenance, and construction, of highways before 1890 were relatively small (table 1).

TABLE 1. EXPENDITURES OF THE STATE OF NEW YORK FOR ADMINISTRATION, MAINTENANCE, AND CONSTRUCTION OF HIGHWAYS, BY 10-YEAR INTERVALS, 1800 TO 1890*

1800.....	
1810.....	\$8,667
1820.....	6,428
1830.....	7,836
1840.....	.....
1850.....	3,870
1860.....	2,000
1870.....	6,700
1880.....	.....
1890.....	.....

*Report of the Special Joint Committee on Taxation and Retrenchment, p. 140-143, Legislative Document No. 68, New York, 1926.

These expenditures were largely for the laying out of roads in newer sections of the State. It is probable that the roads thus laid out were taken into the town-highway system and maintained as other town roads.

New York, as did a number of other States, made its first important entry into highway administration in the decade prior to 1900. Until 1890, highways had been largely local. Their support depended almost entirely upon the conscription of labor from the adjacent land owners. The labor system was not providing adequate roads to meet the demands of the time.

Probably an important reason for state participation was the inequitable plan of taxation then in force. Approximately one-half of the people in the

Northeastern States were classified as *rural*. In New York, 30 per cent of the population was classified as living outside of incorporated places, in 1890, and 22 per cent, in 1900 (table 2). For the most part, persons in the cities and villages were not contributing to the support of intercity highways. It was largely in recognition of this fact and because of the need for better roads that the State came into the picture. Even at this early date it was recognized that traffic on highways was not entirely local.

TABLE 2. TOTAL AND RURAL POPULATION IN THE UNITED STATES AND IN NEW YORK STATE, 1890 AND 1900*

	United States	New York State
Population, 1890:		
Total	63,037,704	6,003,174
Outside of incorporated places	38,957,876	1,834,119
Per cent rural	58.6	30.6
Population, 1900:		
Total	76,148,576	7,268,894
Outside of incorporated places	40,299,060	1,825,895
Per cent rural	52.9	22.4

*Twelfth United States Census, 1900.

Highway officials were pointing to the defects of the labor system. Some, who remember the labor system, say that the days for working the roads under the labor system were considered holidays in most towns. It was a time when old men and young boys gathered with a few hand tools and "pecked away" at the road. Some go so far as to say that the roads were injured more than benefited. It appears that an important reason for state participation was to provide some incentive for towns to abolish the labor system.

THE HIGBEE-ARMSTRONG ACT, 1898

In 1891, New Jersey was the first State to abolish the labor system and to establish a system of state aid. In 1893, the New York Legislature appointed a commission to study and investigate the desirability of state participation in highway affairs. Five years later, in 1898, significant legislation with respect to a state highway system was passed. Provision was also made for state aid for town highways to towns adopting the money system.

The state highway commissioner, in his report to the Legislature in 1909, stated that "prior to 1898 not a single act had been passed by the Legislature, nor one dollar of State money appropriated for the permanent improvement or maintenance of its 81,000 miles of public highways."

The 1898 legislation relating to the creation of a system of state highways, and known as the "Higbee-Armstrong Act," provided that:⁵⁵

A board of supervisors might pass a resolution to the effect that public interest demanded the improvement of certain roads in the county not within cities or incorporated villages. This resolution was to be presented to the state engineer.

The owners of a majority of the lineal feet fronting on any public highway in the county might present a petition to the board of supervisors to have their road improved under the provisions of this act.

The situation was then to be investigated by the state engineer to determine whether there was sufficient public interest in such a road.

If the engineer approved the project, the road was to be mapped and specifications drawn.

⁵⁵Laws of New York, 1898, chap. 115.

An estimate of the cost of the project was to be made by the engineer and presented to the board of supervisors for final approval.

A resolution of the board of supervisors that the highway be improved was to be sent to the state engineer.

The board of supervisors was to secure the necessary rights of way before work started.

The contract could not exceed the estimate of the engineer. If necessary, new estimates were to be prepared. The award of the contract could be made to the county or town in which the road was located. If the county had an engineer, he was to be in charge of the construction. Otherwise, the state engineer designated a man to be in charge.

The expense of the improvement was to be borne:

50 per cent by the State

35 per cent by the county

15 per cent by the town, or by the adjacent-property owners if they had petitioned for the improvement.⁴⁶

In the event that the adjacent-property owners were to pay 15 per cent of the cost, the assessors of the towns were to assess each property its proportionate share.

The roads were to be improved in the order finally designated.

After the acceptance of the improved road by the board of supervisors, it was to be maintained at the expense of the county.

If a town in which a highway was improved under this act should be operating under the labor system, owners of all property adjoining the improved highway were required to pay the highway tax in money.

The state engineer might require the improvement of roads, under this act, which were connecting links, not exceeding one mile in length, between highways already improved.

The state engineer was empowered to compile certain highway statistics and investigate improved methods of highway construction. He was to act as an adviser to local highway officials.

An amendment to the original law was passed in 1900⁴⁷ and provided that when a board of supervisors accepted a road, improved under this act, it was the duty of the several town commissioners of highways to maintain it under the supervision of the state engineer.

The state-highway program did not develop as rapidly as state officials had hoped. Many local units were unable to finance their relatively heavy share of the expense of building highways under the 1898 plan. A senate investigation committee reported in 1905:

The annual revenues of the State to meet the demand for road improvement are so small that nine counties out of the fifty-seven have so far got nearly all the road improvement.⁴⁸ This system (1898) is so burdensome that but few miles of road are built and these only in the towns having the highest assessment.

Only 456 miles had been completed in 1904.⁴⁹

THE FIRST HIGHWAY BOND ISSUE, 1905

In November, 1905, a constitutional amendment authorized a \$50,000,000 bond issue. A limit of \$50,000,000 was set for the amount to be outstanding at any given time. The bonds were issued for a term of fifty years and were expected to serve as a revolving fund. It was contemplated that under this plan the highway program would be completed.

⁴⁶A provision of law in 1906 eliminated the payment of adjacent-property owners and, in 1912, the payment of the town's 15 per cent was eliminated.

⁴⁷Laws of New York, 1900, chap. 203.

⁴⁸Apparently the nine counties referred to were: Albany, Erie, Monroe, Montgomery, Ontario, Orange, Rensselaer, Westchester, and Ulster.

⁴⁹Report of the Special Joint Committee on Taxation and Retrenchment, p. 68. New York, 1926.

AMENDMENTS OF 1906 AND 1907

The act of 1898 was further amended in 1906, and among the important changes were:⁶⁰

The state engineer, in approving the construction of a certain road, should determine whether or not the road would become part of a properly developed system of improved market roads.

The boards of supervisors were to procure the necessary rights of way, but the expense was included in the cost of improving the road.

No provision was made for private petition for improvement of a road. The sharing of the expense became: 50 per cent by the State, 35 per cent by the county, and 15 per cent by the town.

The State might, if the county wished, pay the entire cost in the first instance, and make an annual charge to the county and town for the local half of the cost. The taxes levied by the local units for this purpose were to be paid into a redemption fund to retire the bonds issued by the State to cover the county's and town's share of the cost.

The highway, when completed, was to be accepted by the state engineer in behalf of the State and county. It was then to be maintained by the state engineer. He might contract with the county or town for its maintenance. The annual cost to the towns for such maintenance was to be \$50 for each mile or fraction thereof within the town. This amount was to be levied by the supervisors as a general town tax. It was to be deposited to the credit of a state maintenance fund to which had also been credited a like amount by the Legislature. Any additional amount needed for maintenance was to be supplied by the State. The cost of maintenance and repairs of bridges with a span of five feet or more was to continue to be a town charge.

The state engineer could require the improvement of connecting links not in excess of one mile in length between highways constructed under this act. If these passed through an incorporated village, the cost should be shared the same as elsewhere (15 per cent by the town), but the maintenance of the highway in the village was to be provided by the village under the direction of the state engineer.

The preparation of a map of the State, showing proposed improvements of the roads of each county under this act, was provided. Improvements thereafter were to be in accordance with this map. In no county should the map include more than 1/50 of the entire road mileage within the county.

The law was further amended in 1907 and the important changes then were:⁶¹

If a road had been proposed under the original act of 1898, and 15 per cent of the cost was to be borne by the abutting-property owners, this expense, if properly presented at a town meeting, could be changed to a general town charge.

The necessary rights of way were to be obtained and paid for by the county.

If grade crossings were eliminated in the improvement of the road, the one-half of the cost chargeable under the railroad law to the state and the town was to be included as a part of the improvement.

The map of the State to show the proposed improved highways under this act was to include no more than 1/25 of the total highway mileage of a county.

THE HIGHWAY ACT OF 1908

The New York State Department of Highways was established in 1908.⁶² Under the same act, the laws relating to highways and bridges were consolidated and provisions made for a state department and for the construction and maintenance of state highways and of county highways.

⁶⁰Laws of New York, 1906, chap. 468.

⁶¹Laws of New York, 1907, chap. 717.

⁶²Laws of New York, 1908, chap. 330.

Classification of highways

Under provisions of this act, highways were divided into three classes :

State highways improved at the sole expense of the State.

County highways improved at joint expense of State, county, and town (a continuation of the 1898 plan).

Town highways, including all other highways outside of incorporated villages.

The routes of thirty-seven proposed state highways were specified. These state highways were to include any highways previously constructed under the provisions of chapter 115 of the Laws of New York, 1898, included in the routes described, and such other highways as were to be constructed in accordance with the routes described.⁶³ These state highways were to be improved at the sole expense of the State. Contracts were first let for construction on these routes in 1910.

Some mileage of highway on these proposed state routes had been improved under the Laws of 1898 at the expense of the State, county, and towns.

All of the highways which had been constructed or were under contract pursuant to chapter 115 of the Laws of 1898 and which were not included in the state routes as designated in section 120 of the highway law became county highways under the act of 1908.

On January 1, 1909, 1787 miles of county highways in the State had been improved under the Laws of 1898, and 520 miles were under contract. Except for the mileage taken into the state routes, these highways became county highways. The entire county-highway system, as designated on an official map, adopted by the Legislature in 1907, contained about 7500 miles. The proposed state system included approximately 3000 miles.

Practically the entire mileage of highways that had been improved was water-bound macadam. Bituminous material had not been used to any great extent. Some of the new contracts let on state highways for the first time in 1910 included a portion of bituminous roads.

Financing state and county highways

The money to finance the State's share of the construction of state and of county highways was to be obtained from proceeds of the sale of the \$50,000,000 bond issue. Not more than one-half of the amount appropriated each year from the sale of such bonds was to be expended for state highways. The balance could be used for county highways.

With the exception of rights of way, state highways were to be constructed at the sole expense of the State.

The method of financing the construction of the county highways was to be similar to that provided by chapter 115 of the Laws of 1898. After a resolution of the board of supervisors and examination and approval by the state commission, the highways were improved by contract. These highways were constructed at the joint expense of the State, county, and town in the ratio of 50-35-15. Both state and county highways could be built through incorporated villages in the same manner as outside. If additional width was desired in villages, the extra cost was to be a village charge.

⁶³Apparently they did not become state highways until they were improved.

An optional provision made it possible for towns and counties to contribute less than 15 and 35 per cent, respectively, of the cost of county highways. Instead of paying 35 per cent of the cost of a county highway, a county could pay the equivalent of 2 per cent of the cost for each \$1000 of assessed valuation per mile of highway within the county. For example, if the total assessed valuation in the county was equal to \$12,000 per mile of highway, the county would be required to contribute only 24 per cent of the cost of the highway instead of 35 per cent.

Towns had the option of contributing 1 per cent of the cost of the highway for each \$1000 of assessed valuation per mile of highway within the town. If the assessed valuation of a town was equivalent to \$8000 per mile of highway, its contribution would be 8 per cent instead of 15 per cent. The State contributed the balance. Counties and towns could issue bonds to finance such contributions.

When requested to do so by a board of supervisors, the State would pay the entire cost in the first instance and charge annually to the county and town their share of the interest and sinking fund as provided in chapter 469 of the Laws of 1906.

The share of the cost of eliminating railroad grade crossings ordinarily chargeable to the State and the town or village was considered as one of the costs of constructing both state and county highways, and was paid for as the other costs of construction.

The board of supervisors was required to procure land necessary for rights of way for state and for county highways.

The maintenance of state and of county highways, except for bridges with a span of five feet or more, was to be under the direct supervision and control of the State Highway Commission. Maintenance of state and of county highways in villages was to be at the expense of the village, and under the supervision of the district or county superintendent.

The state comptroller was to deposit with the county treasurer each year an amount equal to the estimated maintenance costs for the year. This was to be credited to a fund for the maintenance of state and of county highways in the county.⁶⁴

Each town was required to contribute \$50 per mile of improved state and of county highways within its borders to the fund for maintenance. The county treasurer paid out these moneys on the order of the state commissioner. This \$50 per mile was levied by the board of supervisors as a general town charge.

The State Commissioners of Highways, in their report to the Legislature in 1909 and 1910, pointed out that one of the disappointments of the new law was that, instead of the expense of constructing county highways being apportioned on the basis of 50-35-15, the State was actually paying about 65 per cent of the cost of such construction. This was because 26 counties took advantage of the option of paying 2 per cent of the cost for each \$1000 of assessed value per mile of highways in the county, instead of 35 per cent of the total cost. This amounted to less than the contemplated 35 per cent. It ranged from 8 per cent in some counties to 32 per cent in others. The commissioners estimated that less than one-third of the towns paid the full 15 per cent, since they had the option of paying 1 per cent for each \$1000 of

⁶⁴This practice has recently been discontinued.

assessed value per mile of highway. This amounted to from 1 to 12 per cent in different towns. The State actually paid as high as 91 per cent of the cost of construction in certain of the county highways in the State.

Counties could request the State to pay the local cost of county highways in the first instance and repay the State at a later date. The State did this in a number of instances. The funds for grade-crossing elimination also came out of the money received from the sale of bonds. These three facts: first, that the State was paying 65 per cent of the cost of constructing county highways; second, that the State was advancing the local share of the cost; and third, that the State was paying part of the cost of grade-crossing elimination, depleted the highway fund more rapidly than had been anticipated. As a result, the highway program was about one-half completed in 1912 and the funds practically exhausted. To carry on the program, another \$50,000,000 bond issue was authorized by a constitutional amendment. The law provided that money raised from the sale of such bonds was to be apportioned to the counties on the basis of area, population, and mileage of improved highways. This apportionment was soon discovered to be unwise. Some counties received more than they could use, and others received little. A reapportionment was made at a later time.

CHANGES IN LAWS RELATING TO THE STATE SYSTEM

Changes in the highway law affecting both state and county highways since 1908 have been many.

Classification of highways

The county highways as described in section 122 of the highway law were, by chapter 362 of the Laws of 1929, to be constructed at the sole expense of the State, and the distinction between *state* and *county* highways was thus essentially eliminated. The classification *county highway* was formally abolished by chapter 763 of the Laws of 1933. There are now three classes of highways outside of incorporated places: state highways, county roads, and town highways. The *county road* classification was added by chapter 567 of the Laws of 1910 and included roads constructed and maintained by the county.

Section 122 of the highway law formerly designated certain highways in each county for improvement as *county highways*. Whereas the expense of construction of these highways was formerly shared by the State, county, and town, and later by the State and county, the entire cost of construction was assumed by the State in 1929. These highways were designated as *state highways* in 1933.

The State Department of Highways

The three state highway commissioners, as established in 1908, were replaced by one commissioner under provision of chapter 646 of the Laws of 1911. The single commissioner, appointed by the Governor, together with the state engineer and the superintendent of public works, constituted the State Commission of Highways. Chapter 80 of the Laws of 1913 provided that the State Commission of Highways should consist of one highway commissioner, who should be head of the Department of Highways.

As a result of the general reorganization of state government in 1927 the *Department of Highways* became the *Division of Highways* in the *Department of Public Works*.⁶⁵ The head of the Division of Highways was to continue to be the commissioner of highways, appointed by the superintendent of public works. There are now two deputy commissioners, one in charge of construction and one in charge of maintenance of state highways.

The Laws of 1908 provided that there be not more than six highway divisions in the State, with a division engineer in each. The Laws of 1913 increased the number of divisions to not more than nine. There are now ten district divisions in the State. Each of the ten divisions of the State is in charge of an engineer. Until recently an office was maintained by the State in each county. Such an office is maintained in most counties at present, although, in the interest of economy, some consolidation of these has taken place. In a number of the larger counties a division of the county is made and more than one man is in charge.

Financing state and county highways

Construction

With the exception of the acquiring of rights of way, the entire cost of constructing state highways has continued to be paid by the State. The distribution of the cost of county highways as provided in the original law of 1908 was: State 50 per cent, county 35 per cent, and town 15 per cent. Under chapter 831 of the Laws of 1912, the State and the county shared the expense in the ratio of 65-35.

Chapter 362 of the Laws of 1929 provided that thereafter highways which had been designated as county highways should be constructed and improved at the sole expense of the State. They thus became essentially state highways, but it was not until 1933 that the name was changed to state highways.⁶⁶ Counties continued to provide the rights of way needed in the improvement of state highways.

Maintenance

In the same way as for county highways from 1906 to 1908, towns continued to pay \$50 per mile for maintenance of state and of county highways until 1929.⁶⁷ Whereas the maintenance of state and of county highways in incorporated villages had been a village expense in 1908, chapter 551 of the Laws of 1915 provided that villages pay for such maintenance at the rate of 1½ cents per square yard of pavement within such villages. In 1929, the maintenance cost in towns and incorporated villages was assumed by the State. With some exceptions, the maintenance and repair of bridges with a span of five feet or more on state and on county highways remained a town charge.

Snow removal

Based on *Opinions of the Attorney General, 1912*, the removal of snow from and the sanding of, the state highways is not considered as part of maintenance and repair. This is the duty of the town superintendent.⁶⁸ He

⁶⁵Laws of New York, 1927, chap. 88.

⁶⁶Laws of New York, 1933, chap. 763.

⁶⁷Laws of New York, 1929, chap. 459.

⁶⁸Section 140 of the highway law.

is charged with keeping the highways free from obstructions. The town superintendent is also expected to see that ice and snow are removed from culverts and waterways on state highways during the time that state patrolmen are not employed thereon. In recent years this has been from November 1 to April 1, but in a number of counties the patrolmen are retained during the winter time, and little is expected of the town superintendent in such work.

A recent provision permits counties to remove snow from state highways at the joint expense of the State and the county.⁶⁹ The State will reimburse the county for one-half of its cost of removing snow on state highways, but not to exceed \$50 per mile of such highway. The State will share the cost of labor, rental of equipment, rental of snow fence, and of sanding or of applying cinders. A rather common procedure among the counties of New York is to employ town equipment and labor in the removal of snow on state highways.

Bridges

Under the Laws of 1908, the towns were required to pay for construction and repair of all bridges within their bounds. Not less than one-sixth of the cost of county-line bridges was paid by each county, and one-third by each town, involved.

The Laws of 1924⁷⁰ provided that after January 1, 1926, bridges constructed or reconstructed on state and on county highways were to be considered a part of the construction of the highways, and the expense was to be shared by the State and the county in the ratio of 65-35. They were to be maintained as a part of the highway. When the State assumed the entire cost of constructing county highways, including bridges, in 1929, towns still were required to maintain bridges with a span of five feet or more on state and on county highways, except those constructed as part of the highways after 1926.

Chapter 648 of the Laws of 1934 provided that the superintendent of public works might take over, for the purpose of repair, altering, or reconstructing, any bridge or culvert in the state highway system. It then becomes the duty of the State to maintain and repair such bridges.

Crossing elimination

Section 94 of the railroad law provided that when a state or a county highway was constructed above or below grade at an existing railroad crossing, one-half of the expense was to be borne by the railroad and the remainder by the State, county, or town in the same proportion as the cost of the highway.

An addition to Article VII of the State Constitution, adopted in 1925 and amended in 1927, made provision for the creation of a state debt for elimination of railroad grade crossings. It authorized a bond issue not to exceed \$300,000,000 for this purpose. It specified that 50 per cent of the cost of such eliminations should be borne by the railroad companies, and the remaining 50 per cent by the State and/or county or city as prescribed by law. Active grade-crossing elimination was not begun until 1928. Up to January 1, 1935, 590 projects had been ordered by the Public Service Commission,

⁶⁹Section 55 of the highway law.

⁷⁰Laws of New York, 1924, chap. 276.

at an estimated cost of \$144,000,000. Of these, 384 projects had either been constructed or placed under contract at a cost of approximately \$75,000,000.⁷¹

The new grade-crossing-elimination act, passed in 1926,⁷² at first provided that the expense of such elimination should be shared 50 per cent by the railroad, 25 per cent by the State, and 25 per cent by the county, city, town, or village. In 1928, a law changed the apportionment of the cost to 40 per cent to the State and 10 per cent to the county.⁷³ An amendment to the law in 1929⁷⁴ provided that the distribution of the cost should be at the ratio of 50 per cent by the railroad, 49 per cent by the State, and 1 per cent by the county. There were approximately 7000 railroad grade crossings on New York highways, January 1, 1935.

FEDERAL AID FOR HIGHWAYS

The early participation of the Federal Government in highway administration terminated in 1856 with the release of the last part of the Cumberland Road to the State of Illinois. From that time until 1893 the Federal Government participated little in highway administration, except for military roads.

The Office of Public Roads Inquiry was established in the Department of Agriculture in 1893. This office was established largely as a research organization and with the intention of establishing object-lesson roads in various States. Laboratories were set up to test various road materials. Considerable educational work was carried on.

Roy Stone was the first director of the Office of Public Roads Inquiry, and contributed much in this field. This was at the time that the *good roads* movement was receiving widespread attention. Many theories of road building were being tried. The Office cooperated with a number of the state agricultural experiment stations in conducting experiments. At Geneva, New York, a steel roadbed was built, one and one-half miles long, connecting the agricultural experiment station with the city. This was constructed by laying narrow strips of steel on concrete. Other object-lesson roads were built in other States. Local people cooperated in furnishing labor and materials, railroads cooperated in hauling machinery and materials, and machinery companies cooperated in supplying machinery. In some sections *good roads* trains were promoted. A crew of workers went through various sections of certain States and demonstrated what could be done to improve road conditions. The railroads were anxious to cooperate in order to improve the roads to their stations. They were desirous of developing the country tributary to their lines. Convict labor was often used on these projects.

Experiments in the use of oil for road building were performed. Public attention was first called to the use of mineral oil on roads in Los Angeles County, California, in 1898. It was first used as a dust layer and then its value as a binder was noticed.

Rural-free-delivery routes, first used in West Virginia in 1896, were an impetus to federal participation in road building. This, together with the increasing use of motor vehicles, was an important factor in the development of good roads in the early part of the present century.

⁷¹Railroads and highway crossings. E. C. Lawton. *American Highways* January 1936.

⁷²Laws of New York, 1926, chap. 233.

⁷³Laws of New York, 1928, chap. 678.

⁷⁴Laws of New York, 1929, chap. 461.

By 1905, the Office of Public Roads Inquiry had become the *Office of Public Roads*. Three objectives were established for the Office:

1. To investigate the various systems of highways in the United States.
2. To give expert advice on road construction.
3. To test road materials.

Whereas the appropriation for this Office was \$10,000 in 1893, in 1907 it was \$70,000. The year 1907 was the first year in which a census was made of road mileage and highway revenues and expenditures in the United States. The census covered the year 1904, and showed 2,152,000 miles of road in the United States, of which 7 per cent was improved. A total of \$80,000,000 was expended for road construction by all units of government during that year. Today there are more than 3,000,000 miles of highway in the United States, and in 1934 the state highway departments alone spent almost \$1,000,000,000 for highways.

By 1910, fast motor-vehicle traffic was giving rise to the need for surface protection of highways. Experiments were made with the use of calcium chloride and salt for treating the surface.

In 1912 Congress passed a law appropriating \$500,000 for the development and improvement of rural post roads. The Postmaster General and the Secretary of Agriculture were to cooperate in carrying out the provisions of this act. A provision stipulated that the States or localities which cooperated with the Federal Government under this act were to expend two dollars for every dollar expended by the Government.

A congressional committee, in reporting on *Federal Aid in the Construction of Post Roads* in 1914 stated, "Federal Aid to Good Roads will accomplish several of the objects indicated by the framers of the Constitution—establish post roads, regulate commerce, provide for the common defense, and promote the general welfare. Above all, it will promote the general welfare."⁷⁵

This statement apparently expressed the sentiments of many people in regard to federal aid for highways. The question of its constitutionality aroused little comment.

The federal-aid act of 1916⁷⁶ provided an appropriation of \$75,000,000 spread over a five-years period as follows:

1917.....	\$5,000,000
1918.....	\$10,000,000
1919.....	\$15,000,000
1920.....	\$20,000,000
1921.....	\$25,000,000

To receive federal aid, a State was to have a state highway department and was to submit a five-years program for the approval of the Secretary of Agriculture. The basis of apportioning the amount among the various States was:

- One-third on area of State
- One-third on population of State
- One-third on mileage of rural delivery
and Star routes in the State.

⁷⁵Highway administration and finance, p. 138. By T. R. Agg, and J. E. Brindley. 1927.

⁷⁶Approved by President Wilson, July 11, 1916.

The federal funds could be used only for construction. They should not exceed 50 per cent of the total estimated cost of the road. In no case should they be more than \$10,000 per mile of road exclusive of bridges with a span of more than 20 feet.

The movement hastened the development of the state highway systems in the various States. It was customary for many of the States to operate through their county or town highway administration, so no definite restrictions were made on the type of highways constructed. By January, 1918, about 2850 miles had been constructed. The percentage of the various types constructed was:

	<i>Per cent</i>
Brick.....	2.6
Concrete.....	8.9
Bituminous macadam.....	5.6
Water-bound macadam.....	3.0
Gravel.....	32.2
Sand-clay.....	15.6
Earth.....	32.1
	100.0

Under the provisions of the act of 1916, State Legislatures were required to assent to the provisions of the act before the State could participate in the aid. It was the duty of the Secretary of Agriculture and of the State Highway Department to agree on the roads to be constructed. The roads to be improved were to be rural post roads, defined as "those public roads on which United States mails are now or may hereafter be transported, excluding streets in villages or cities of more than 2500 population, unless the homes averaged more than 200 feet apart."

The maintenance of roads under this act was to be by the State or its civil subdivision.

An amendment to the federal-aid act of 1916, made in 1919, expanded the definition of rural post roads to include "any public road which is now used, or can be used, or forms a connecting link not to exceed 10 miles in length, of any road now or hereafter used for transportation of U. S. Mails."

The minimum amount of federal aid per mile was increased to \$20,000. Additional appropriations of \$50,000,000 for 1919, \$75,000,000 for 1920, and \$75,000,000 for 1921, were made. The type of road to be built was to be adapted to the needs of the locality where built.

Important changes in the federal act were made in 1921. Pursuant to these amendments, the so-called "7 per cent system" was established. Each State designed a system of highways comprising not to exceed 7 per cent of the total highway mileage of the State. This mileage was to be divided into two classes:

1. Primary, or interstate; not more than 3/7 of the total 7 per cent.
2. Secondary, or inter-county; constituting the remainder. Not more than 60 per cent of federal aid to any one State was to be expended upon the primary roads except on approval of the Secretary of Agriculture and the State Highway Department.

The "7 per cent system" as applied to New York, was based on the following mileage:

All highways outside of cities and incorporated villages.....	79,489 miles
Public streets in villages under 2500 population.....	2,384 miles
Total.....	81,873 miles

The 7-per-cent system, including both primary and secondary routes, was 5731 miles. The federal-aid system in New York has since been extended by 2455 miles.

No State was to receive less than $\frac{1}{2}$ per cent of each year's total allotment. States whose laws prevented their cooperation might have projects with local units, such as counties, if approved by the Secretary of Agriculture.

In 1922 new appropriations were made of \$50,000,000 for 1923, \$65,000,000 for 1924, and \$75,000,000 for 1925. The Federal Government's insistence on a maintenance program by the States was a move toward the general improvement of highways.

For the years 1926 through 1929, \$75,000,000 was appropriated each year for federal aid for highways. Approximately one-tenth as much has been appropriated for roads and trails in the national forests as has been appropriated for rural post roads.

A provision in 1928 made possible the use of federal-aid funds in the payment of one-half of the cost of large bridges. These might be toll bridges, but it was specified that after they were paid for they should become free bridges.

Emergency aid has been received by States in recent years for use on highways. In New York, a limited mileage of federal *farm-to-market* roads is being built. In general, these are good gravel or stone roads with a chloride binder. The contracts for the construction of these were let by the State. After completion they became a part of the county system.

A federal appropriation of \$400,000,000 was made in 1933 for:

(1) Emergency construction into and through municipalities, including the construction of highways, bridges, and grade separations.

(2) Emergency construction of "feeder" roads. The latter were to be maintained by the State or by a political subdivision of the State. With the exception of rights of way, the full cost of these projects was met by federal funds.

The regular appropriations for federal aid for highways for the years, 1932, 1933, 1934, and 1935, were \$125,000,000 each. The Federal Government does not directly share the federal one-cent gasoline tax nor the excise taxes on certain motor-vehicle accessories. The grants come from general treasury funds.

HIGHWAY ADMINISTRATION IN COUNTIES

DEVELOPMENT OF THE COUNTY ROAD SYSTEM

Before 1890, counties in New York were of relatively minor importance as units of highway administration. In 1797¹⁷ it was provided that the Governor appoint three highway superintendents in each county. These superintendents were to direct the making and repairing of roads and bridges within the county, and to apportion all the moneys granted by the State among the highway commissioners of respective towns in such proportion as they saw fit. As actual operating units the counties were of little importance. In 1801, in a law superseding the law of 1797, no provision was made for county superintendents.

¹⁷Laws of New York, 1797, chap. 43.

General provisions, 1893

In 1890 special provision was made for a county road system in certain counties.⁷⁸ Chapter 333 of the Laws of 1893 amended the general highway law and made possible the adoption of a county road system in any county in which the majority of the supervisors favored it. This act provided that:

The supervisors were to designate certain highways within the county outside of cities and incorporated villages as county roads.

The supervisors were to appoint a county engineer for a period of three years.

The maintenance of county roads was to be a county charge.

Bonds might be issued to pay for such roads.

The board of supervisors and the county engineer were to have complete jurisdiction over such county roads.

In counties with a county road system the money system of taxation was to be adopted by the towns therein.

The highway act of 1908

When the general highway laws were consolidated pursuant to chapter 330 of the Laws of 1908, the following were some of the changes affecting county roads:

Any county board of supervisors might appoint a county superintendent of highways for a period of four years.

Any county failing to appoint a county superintendent might be included with a group of counties to comprise a district. The State Highway Commission was to appoint a district superintendent over such a district.

Among the duties of the county or district superintendent were:

To have general charge of all highways and bridges in the county or district. He was to have general supervision of town highways.

To advise town superintendents in highway matters.

To act as an inspector for the State during the construction of county highways.

Under the miscellaneous provisions of this act, section 280 provided that the board of supervisors might construct highways in the county at the joint expense of the towns and the county. The law provided for construction only by contract. The board of supervisors apportioned the expense between the towns and the county. After such roads were accepted by the board of supervisors, the future repair and maintenance was to be at the sole expense of the towns unless a share of such expenses was accepted by the county. This became section 320 of the highway law as consolidated in 1909.

Section 320 of the highway law

Section 194 of the present highway law (old section 320) provides for the construction of roads in the county road system at the joint expense of the town and county. In general, this section does not apply to the construction or maintenance of roads with state moneys, as provided in section 110-128 of the highway law (old section 320-b). Roads constructed under section 194 are to be constructed by contract. The board of supervisors apportions the costs of such construction between the county and the towns involved. The costs for procuring rights of way are deemed a part of the cost of the construction of such highways. Towns or counties may raise money to pay for the construction of highways under this section by sale of bonds or by short-term borrowings.

⁷⁸Laws of New York, 1890, chap. 555. The counties included in this act were those not exceeding two hundred square miles in area.

The maintenance of county roads constructed pursuant to section 194 of the highway law is to be by the town, as are town highways, except that \$100 per mile shall be raised each year for maintenance. The tax to raise this \$100 per mile is to be apportioned between the county and the towns in such proportion as the board of supervisors decides. The board of supervisors is to determine whether this amount shall be expended under the direction of the town or the county superintendent. Few, if any, counties in New York now construct roads pursuant to section 194 of the highway law. County roads are now usually administered in accordance with section 110-128 of the highway law, under which funds received from the State for highway purposes are expended.

Section 320-a of the highway law

Section 195 (old section 320-a) of the highway law was added by chapter 61 of the Laws of 1914. Among the important provisions of this act were:

The board of supervisors might provide for a definite system of county roads to be constructed at the joint expense of the town and county.

Whereas under section 194 the work was to be let by contract, under section 195 the work might be done by the towns under the supervision of the county superintendent.

Before the present provisions of sections 110-128 became effective, considerable amounts of highway income from the State were apportioned by the county to towns to assist in the construction of roads under 320-a.

The construction of such roads was to be under the direction of a committee known as the highway officials. This committee was to include the county superintendent and three members of the board of supervisors appointed by the chairman. The town supervisor of a town in which such construction was being performed was to be a member of such committee on questions concerning his town.

The cost of the improvement of such a road was to be a county charge, except for that part apportioned to the town. The town or the county might borrow either by sale of bonds or by short-term loans to pay for such construction.

The maintenance of such roads was to be at the sole expense of the towns unless the board of supervisors should apportion a share of such maintenance cost to the county.

It has been suggested that the essential difference between 320 and 320-a was that roads constructed under section 320 of the highway law were built by contract and those under 320-a were built by county labor and equipment. It was under the latter system that much of the present county-road mileage was built, prior to 1930, by the towns of the State. Apparently, construction under section 320, by contract, was limited to relatively wealthy counties.

Section 320-b of the highway law

Section 110-128 (old section 320-b) was first inserted into the highway law by chapter 840 of the Laws of 1920. This act was largely to provide some state aid for county roads, and was known as the *Lowman Act*, named for Senator Seymour Lowman of Elmira. Under this act, counties were to receive annually an amount equal to the county levy the preceding year for county roads constructed and maintained under section 320 and 320-a, except that no county should receive an amount exceeding \$30 per mile of total highway outside of cities and incorporated villages in the county. The supervisors were to determine where such state aid was to be expended on highways constructed pursuant to section 320 and 320-a.

Chapter 163 of the Laws of 1922 amended the 320-b section to provide that a state-aid fund be set up in counties, to which was to be credited the



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FIGURE 3. GOOD ROADS INCREASE FARM-PROPERTY VALUES

state aid, together with the like amount appropriated by the county and any money appropriated by the towns. The share of motor-vehicle revenue and, later, the gasoline tax received by the counties were to be credited to the state-aid fund.

During the decade 1920 to 1930, when counties were receiving state aid under section 320-b of the highway law, and most of the roads in the county system were being constructed under section 320-a, there was a feeling among state officials that there was not a proper coordination of highways in the county system. Motor-vehicle revenue and "Lowman money" (320-b) received by the counties were apportioned to the towns therein as the supervisors saw fit. As a result, short lengths of highway were often built over the county with little coordination between them. In order to bring about a more unified and coordinated system of county roads, new provisions were placed in section 320-b of the highway law.

The original 320-b law was repealed and a new one substituted in 1929.⁷⁹ Under the provisions of the new 320-b act, which became effective January 1, 1930, it was provided that:

County-road construction, financed in part by state money, under provisions of section 320-b, was to be under the direct supervision of the county superintendent. Construction was to be done by contract or by county labor and equipment. The county could rent machinery from the towns if it so desired.

The mileage basis for the state contribution of \$30 per mile was to be highway mileage outside of cities and villages and exclusive of state and of county highways.

⁷⁹Laws of New York, 1929, chap. 362.

The county superintendent was to prepare a map showing the proposed county-road system. This map was to be approved by the board of supervisors and the superintendent of public works.

Bridges on county roads built pursuant to section 320-b were considered a part of the road and paid for out of the state-aid fund.

The county share of the gasoline tax, the motor-vehicle fees, and state aid ("Lowman money") were to be deposited to the credit of the state-aid fund.

When the new 320-b section of the highway law became effective it was not accepted with enthusiasm by many county superintendents or town supervisors. Many towns were opposed to it because they had built up a considerable inventory of equipment to build roads under section 320-a. After six years of operation it has apparently been an improvement in providing a more unified system of county roads throughout the State.

The term *state-aid fund* was changed to *county-road fund* in 1930.⁸⁰

The "Lowman money" to counties (\$30 per mile) was suspended during the year 1933.

Because of the financial stringency facing many counties as a result of the economic depression, it was provided that not more than one-half of the motor-vehicle fees and of the gasoline taxes received by counties might be used by the county for interest and retirement of highway debt for the years 1933, 1934, 1935, 1936, and until May 1, 1937.⁸¹ Another provision of law permitted counties to utilize temporarily a part of the county-road fund for any county purpose. Not all counties have diverted such funds for other than highway purposes.

The cost of obtaining rights of way for county roads constructed under section 110-128 and of compensation and liability insurance, are now considered a part of the cost of constructing county roads and are payable out of the county-road fund.

HIGHWAY FUNCTIONS PERFORMED BY COUNTIES

Administrative functions

The administrative officer of the highway affairs of the county is the county superintendent. He is appointed by the board of supervisors for a period of four years. He must qualify under civil-service specifications and generally has engineering training. The Division of Highways recommends that each should be a licensed engineer. Section 102 of the highway law specified that he shall "have general charge and supervision of the work of constructing, improving, repairing and maintaining all county roads, town highways and bridges within his county."

Another duty of the county superintendent is to approve the plans and estimates for the construction and maintenance of town highways and approve large expenditures for machinery. His direct control over town superintendents is limited to this and to the provision that only he or the town board may prefer charges against a town superintendent and ask his removal. For the most part, in New York the working relations between the town and county superintendents are satisfactory, the county superintendent acting as an adviser to the town superintendents.

⁸⁰Laws of New York, 1930, chap. 770.

⁸¹Highway law, sect. 114.

Construction on the county road system is in accordance with a map, prepared by counties when they began operating under section 320-b. This map was prepared by the county superintendents with the aid of various town and county officials. It was necessary for it to be then approved by the board of supervisors and by the superintendent of public works.

In general, a road which is not on this official map cannot be constructed, reconstructed, or maintained with county-road-fund money. The map may be amended by the county superintendent, by additions, and subtractions of roads from time to time, if approved by the board of supervisors and by the Department of Public Works.

Each year it is necessary for the county superintendent to prepare a statement of proposed construction or reconstruction for that year. This must also be approved by the board of supervisors and by the superintendent of public works.

The committee of highway officials of the board of supervisors, which functioned under section 320-a is not provided for by sections 110-128. In most counties, however, a highway committee of the board is appointed to work with the county superintendent in an advisory capacity.

Acquisition of rights of way

Counties are required to furnish necessary rights of way for construction or reconstruction of state highways. This is the one remaining sizable contribution of local units to state-highway construction. To facilitate the acquisition of rights of way, the board of supervisors appoints a committee of its members to perform this work. Where possible, rights of way are obtained without cost. This can often be done where a new hard-surfaced road is being constructed in place of a dirt road. If necessary, a reasonable amount of damages is allowed to the owners of the property. If the owner is not satisfied it is often necessary to condemn the property and fix the damages by legal procedure.

The cost of rights of way necessary for grade-crossing elimination has usually been included in the total cost of the project and distributed as the other costs of the projects.

Construction and maintenance of roads

As roads on the county map are designated for improvement, funds are appropriated out of the county-road fund to finance such improvement. This may be done by contract, or by county labor and equipment. Most rural counties apparently believe that they can accomplish more by maintaining their own equipment and labor and by doing the job themselves. A few counties hire the highway equipment and labor of their towns in the construction of county roads. Some apparently feel that because most town highway superintendents are elected, the uncertainty of a stable town organization is such as to make the practice of using the town organization unwise.

Bridges on county roads are considered a part of the road and are constructed, reconstructed, or repaired at the expense of the county. The county also is responsible for the maintenance and repair of bridges with a span of 25 feet or more on town highway.

Provision for a county machinery fund has been made whereby boards of supervisors may appropriate from the general fund an amount of money to

be used for highway-machinery purposes. This fund is credited with the rentals of equipment used on county roads. The maximum rates of such rentals are determined by the State. Moneys in the county-road fund are available for such rentals. The rates for such rentals are sufficiently high to make the machinery fund self-supporting in most counties. The only necessary appropriation by the county is to provide the initial capital to start such a fund revolving.

Snow removal

A county may provide for removal of snow from county roads and state highways in the county. The cost of removal of snow from state highways is



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FIGURE 4. YEAR-ROUND USE OF HIGHWAYS REQUIRES AN EFFICIENT SNOW-REMOVAL PROGRAM

shared by the State and the county equally up to \$100 per mile. Counties often hire town equipment and labor to aid them in removal of snow from state highways and county roads.

County aid to towns

Since the time counties began operating under section 320-b of the highway laws, towns have received a very limited amount of county aid in constructing town highways. Outside aid for towns has been limited in most instances to the state aid granted under section 279 (old section 101) of the highway law. A few counties have recognized that towns need further financial assistance in highway work and have granted a limited amount of county aid.

FINANCING HIGHWAY FUNCTIONS OF COUNTIES

The administration of the highway activities of counties is largely under the direction of the county superintendent and a committee of the board of supervisors. The expenses for special services of board members are paid out of general funds of the county. Likewise, the salary and expenses of the county superintendent and the expense of operating his office are met out of the general fund. Since no provision is made for paying these expenses out of the county-road fund, they must be met by property taxation.

The cost to the county of acquiring rights of way for state highways must be met by appropriations from the general fund. This amount varies considerably from year to year depending on the state-highway construction in the county. This expense is one which most county officials feel should be assumed by the State.

In addition to rights of way for state highways, counties provide the necessary rights of way for county roads, but this expense is considered a part of the cost of constructing the road and is financed out of the county-road fund.

The construction-and-maintenance program of counties has been supported, in large part, by revenues received from the State. Before 1930, a large portion of these revenues received by counties as motor-vehicle fees and "Lowman money" was apportioned to towns to aid in construction of county roads under section 320-a of the highway law.

Since 1916, New York counties have received a share of the motor-vehicle revenues collected by the State. From 1916 until 1919 they received 50 per cent of such fees. Since then they have received 25 per cent of the fees paid by the residents of the respective counties.

Since 1920, counties have received state aid for county roads. Under the original act passed in 1920,⁸² counties could receive an amount equal to the levy the preceding year, for roads constructed and maintained under section 320 and 320-a of the highway law, but the amount so received could not exceed \$30 per mile of total highways outside of cities and incorporated villages in the county. The supervisors could distribute this aid among towns as they saw fit. When the new 320-b section of the highway law was adopted in 1929 the "Lowman money" was continued. The mileage on which the State contribution was determined excluded highways in the state system. For a county to take advantage of this state aid it has been necessary for it to raise an equal amount to be placed in the county-road fund (320-b).

Counties have shared in the income derived by the State from the tax on motor fuel first levied in New York on May 1, 1929. The counties outside of New York City have received 20 per cent of the original levy of two cents a gallon, apportioned among counties on the basis of county-road and town-highway mileage. New York City has received 5 per cent of the original two-cent levy. These local units have thus received an equivalent of a levy of $\frac{1}{2}$ cent per gallon, which has amounted to approximately \$7,500,000 a year.

Most, if not all, counties share in the state aid for highways granted under section 279 (old section 101) of the highway law. This state aid originated in 1898 as a result of the Fuller-Plank Act. The entire amount was distributed to towns until 1931, when counties retained a portion, as directed by the

⁸²Laws of New York, 1920, chap. 840.

law providing a new allocation.⁸³ A discussion of the method of its apportionment will be found in the town-highway section.

Most of the counties in New York have assumed the responsibility of removing snow from the highways in the state system, under section 55 (old section 53-c) of the highway law. Under this provision, one-half of the cost of snow removal on state highways, up to \$50 per mile, is refunded to the county by the State. Counties often hire town labor and equipment to aid in such snow removal.

The expenditures for snow removal on state highways have been relatively small, and are variable in any given county. Counties remove snow from county roads as well as from state highways, but receive no refund of money spent for this purpose.

The cost of snow removal on state highways and on county roads is met from funds appropriated from the general fund of the county. This snow-removal fund is reimbursed by refunds from the State.

Appropriations are made from the general fund of counties to provide for certain bridges not on county roads. Bridges with a span of 25 feet or more on town highways are to be maintained by the county. Some counties also assume the maintenance cost of other bridges which would otherwise be a town charge.

The total state funds granted all counties in the State for highway purposes increased from \$359,673 to approximately \$20,000,000, from 1916 to 1934 (table 3). Until 1930, most of this was apportioned among towns to aid in construction of county roads under section 320 or 320-a of the highway law. Since that time these funds, with the exception of state aid for snow

TABLE 3. STATE FUNDS GRANTED COUNTIES FOR HIGHWAY PURPOSES, NEW YORK, 1916-1934

Year	Motor-vehicle fees	Gasoline tax	"Lowman money" (section 110-128)	State aid (section 279)	Snow removal on state highways	Total
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1916.....	359,673	.....	.....	.....	.....	359,673
1917.....	2,061,984	.....	.....	.....	.....	2,061,984
1918.....	2,381,761	.....	.....	.....	.....	2,381,761
1919.....	2,852,031	.....	.....	.....	.....	2,852,031
1920.....	2,142,076	.....	.....	.....	.....	2,142,076
1921.....	2,562,788	.....	1,934,676	.....	.....	4,497,464
1922.....	3,147,122	.....	2,221,160	.....	.....	5,368,282
1923.....	4,801,807	.....	2,356,190	.....	.....	7,157,997
1924.....	5,045,748	.....	2,358,886	.....	.....	8,004,634
1925.....	6,488,071	.....	2,301,244	.....	.....	8,889,315
1926.....	6,964,308	.....	2,377,170	.....	.....	9,341,478
1927.....	7,760,885	.....	2,380,070	.....	.....	10,140,955
1928.....	8,420,547	.....	2,376,300	.....	.....	10,796,847
1929.....	9,528,960	.....	2,392,200	.....	.....	11,921,160
1930.....	10,023,040	6,269,193	2,104,240	.....	.....	18,396,473
1931.....	10,161,027	7,690,270	2,100,147	670,000†	.....	20,527,444
1932.....	10,222,860	7,520,297	1,987,692	685,000†	332,072	20,748,821
1933.....	9,444,113	7,385,314	76,161*	670,000†	322,024	17,798,512
1934.....	10,166,375	7,217,881	1,692,720	600,000†	334,121	19,001,097
1935.....	10,477,820	7,285,367	3,467,926	500,000†	338,024	22,069,137

*No provision was made for the payment of "Lowman money" in 1933. The small amount paid was the balance of the amount payable in 1932.

†Estimated as approximately one-sixth of the total state aid under section 279.

⁸³Laws of New York, 1930, chap. 771.

removal, have been credited to the county-road fund, and, except for recent diversions, have been used in the construction and maintenance of county roads.

HIGHWAY ADMINISTRATION IN TOWNS SINCE 1890

Chapter 568 of the Laws of 1890, which consolidated the highway law, included the following provisions affecting town highways:

The highway commissioner or commissioners of a town were to have the supervision of highways and bridges within the town.

The commissioners were to divide the town into highway districts and to appoint a resident of each district as overseer of it.

A vote of the people was required if more than \$500 for the improvement of highways and bridges was to be raised in any one year.

Highway labor was to be apportioned by the commissioners as follows:

1. The whole number of days of highway work for the ensuing year was to be determined. This number should be at least three times the number of taxable inhabitants.

2. Men between the ages of 21 and 70 were to be assessed at least one day each. Certain exceptions were provided.

3. The remainder of the days to be worked were to be apportioned and assessed upon the real and personal property of all inhabitants in proportion to the amount of such property appearing on the last assessment roll.

Credit was allowed toward a person's highway labor or money tax for:

1. Work done on a private road on which he lived.
2. Setting out a limited number of shade trees on the highways.
3. Maintaining a watering trough on the highway.
4. Removal of a fence to prevent the drifting of snow.
5. Maintaining a street light.

Any town might change its system of highway taxation to either the money system or the labor system by a vote of the electors.

Any town adopting the money system was to raise an amount at least as large as one-half the value, at the commutation rates, of the highway labor which would have been assessable under the labor system. Commutation rates at this time were \$1 per day. A man with a team and certain implements could be substituted for three days' labor.

Any town in the county which was considered "unreasonably burdened" because of expenses for bridges might be aided by the county in an amount not to exceed \$2000 in any one year.

Chapter 412 of the Laws of 1893 provided that in any town adopting the money system, property within incorporated villages which had a separate highway district was to be exempt from the levy and collection of such money tax. Apparently this exemption applied only to the repair-and-improvement fund, later known as *item 1*.

In some of the early provisions of law affecting taxation for town-highway purposes, it is possible to see the origin of the present four tax levies for town highway purposes. These are now known as:

- Item 1. Repair and improvement of town highways
- Item 2. Repair and construction of bridges
- Item 3. Purchase, repair, and storage of machinery
- Item 4. Snow removal and miscellaneous.

Property in incorporated villages is now exempt from the levy for item 1, on which state aid is based. Prior to 1904, incorporated villages, while exempt from tax for repair and improvement of town highways, were not exempt from a tax necessary for laying out or altering any road or for erecting or

repairing any bridge in the town. By provision of chapter 478 of the Laws of 1904, snow removal was made one of the town highway functions, and property in incorporated villages was not exempt from the tax levy necessary for this purpose. Chapter 716 of the Laws of 1907 specified a levy for the purchase of machinery as one of the taxes from which village property was not exempt.

Chapter 468 of the Laws of 1893 provided an abatement of a person's highway tax, not to exceed \$4 or four days of labor in any one year, for using wagons or vehicles with wheels, the tires of which were not less than three inches in width.

STATE AID FOR TOWN HIGHWAYS, 1898

The first state aid for town highways resulted from chapter 351 of the Laws of 1898. This was the same year that provision was made for state participation in the construction of county highways. The former act was known as the Fuller-Plank act. Towns which adopted the money system of taxation were to receive state aid equal to 25 per cent of the money raised for the item-1 tax during the preceding year. The state aid was not to exceed 1/10 per cent of the taxable property of the town. The state aid was to be used for the repair and improvement (item 1) of town highways as the commissioner and town board might determine. Under chapter 156 of the Laws of 1902, state aid was to equal 50 per cent of the town-highway tax, but was still not to exceed 1/10 per cent of the taxable property.

Chapter 228 of the Laws of 1903 provided that towns which had adopted the money system were to raise at least one-half the value of commuted labor, and, except in Nassau and Oneida Counties, this should be not less than \$2 per \$1000 of assessed valuation. State aid for towns complying with these regulations was to be 50 per cent of the levy except that it should not exceed 1/10 per cent of the taxable property of such town.

Under chapter 183 of the Laws of 1904, state aid was to be 50 per cent of the tax levy for repair and improvement, but could not exceed 1/10 per cent of the assessed value in towns with an assessed value of more than one million dollars. The specification that towns must raise a tax of at least \$2 per \$1000 for highway purposes was omitted from the revised act.

State aid, under chapter 716 of the Laws of 1907, was to equal a specified percentage of the tax levied the previous year for the repair and improvement of town highways (item 1). No town was to receive an amount in excess of \$25 per mile of total highways outside of incorporated villages, except towns in which the assessed valuation was more than \$25,000 per mile of highway, in which case the state aid should not exceed 1/10 per cent of the assessed valuation. As the assessed value per mile of highway increased, the percentage of the levy to be paid as state aid decreased as follows:

Assessed value per mile of highway	Per cent of tax levy paid as state aid
Less than \$5,000	100
\$ 5,000 to 7,000	90
7,000 to 9,000	80
9,000 to 11,000	70
11,000 to 13,000	60
13,000 or more	50

THE END OF THE LABOR SYSTEM

Chapter 330 of the Laws of 1908, which established the State Department of Highways and consolidated the highway law, made no provision for towns to operate under the labor system of taxation. Towns were required to raise a tax for highway purposes under four items:

Item 1, repair and improvement of town highways. Such an amount should be not less than an amount which, when added to the state aid as provided by section 101 of the highway law, would equal \$30 per mile of highway within the town outside of incorporated villages. No town with an assessed valuation of \$3750 or less per mile of such highway was to be required to raise in excess of \$4 per thousand dollars of assessed valuation. The tax for this item was not to be assessed on property within incorporated villages.

Item 2, repair and construction of bridges with a span of five feet or more. This amount was limited to \$1500 unless increased by a vote of a town meeting.

Item 3, purchase and repair of machinery for highway purposes. This was limited to \$500 unless otherwise provided by a vote of a town meeting.

Item 4, removal of obstructions caused by snow, and for miscellaneous purposes. This was limited to \$1500 unless increased by a vote of a town meeting.

The last three items, 2, 3, and 4, were to be raised by a tax over all the assessed valuation within the town, including incorporated villages. The amount of state aid in 1908 was based on the amount of tax raised for item-1 purposes. The allocation of state aid was the same as in 1907. The assessed valuation of real property used in determining state aid was the valuation as equalized by the State Board of Equalization. The procedure used in obtaining state aid was for the town board and town superintendent to fix the amount of money to be raised in item 1 by the town, and to certify the same to the board of supervisors which levied the tax; the clerk of the board of supervisors then transmitted a certified statement thereof to the comptroller. The state aid was apportioned in accordance with this statement.⁸⁴

The allocation of state aid in accordance with the law of 1907 continued unchanged until 1930.⁸⁵ In order to obtain the maximum amount of state aid under the new provision of section 101, effective in 1930, a town was required to raise as an item-1 tax either an amount equivalent to \$50 per mile of town highways and county roads, or a tax of \$3 per \$1000 of full value of property outside of incorporated villages. To any town which would raise \$50 per mile, the State would allocate at least an equivalent amount. To any town which would raise a tax of \$3 per thousand, the State would allocate at least the amount by which \$100 per mile of highway exceeded the yield of such a tax. The state matched, dollar for dollar, any item-1 tax which was less than \$50 per mile and also less than \$3 per thousand of full value.

Chapter 221 of the Laws of 1933 reduced the amount of state aid to towns. For 1933, the state aid was based on amounts of \$43.75 and \$87.50 per mile in place of \$50 and \$100 per mile. Beginning with 1934, the amount of state aid has been based on an item-1 tax of \$2.25 per thousand and amounts of \$37.50 and \$75 per mile, in place of the \$50 and \$100 provided in the 1930 law.

⁸⁴From Opinions of the Attorney General, p. 350. 1903.

⁸⁵Laws of New York, 1930, chap. 771.

Another change in the 1930 allocation of state aid authorized counties to retain a portion of these funds. The allocation is made on the basis of both town-highway and county-road mileage, but the law authorizes counties to retain the portion applicable to the county-road mileage. Such funds become a part of the county-road fund.

The change in the allocation of state aid under section 101 in 1930 increased the amount of state aid. The total amount of state aid granted under this section in 1930 under the old law was \$3,448,146 (table 4). Under the new law in 1931 and 1932 this amount increased to more than \$4,000,000.

TABLE 4. STATE AID GRANTED LOCALITIES UNDER SECTION 101 OF THE HIGHWAY LAW, NEW YORK, 1930-1934*

Year	Total grants of state aid under section 101
	<i>Dollars</i>
1930.....	3,448,146
1931.....	4,021,699
1932.....	4,107,113
1933.....	3,425,282
1934.....	2,990,139

*Report of the New York State Tax Commission for each year.

The lower rates applicable in the ensuing years reduced the total allocation.

Probably the most significant effect of the change in allocation of state aid in 1930 was not the total increase, but the method of allocation. Whereas, under the old law, wealthy towns received more state aid per mile of highway than did the less wealthy towns, under the new provisions the opposite was true. A comparison of state aid received by 71 towns in 1930 and 1931 showed that the average amount received per mile of highway increased from \$34 to \$63 (table 5). This rate of increase was greater than for the average of all towns in the State. The wealthy towns in 1930 received considerably

TABLE 5. STATE AID FOR TOWN HIGHWAYS, 71 TOWNS, NEW YORK, 1930-1931*

Taxable property per mile of town highway	Towns	State aid per mile, 1930	State aid per mile, 1931
		<i>Dollars</i>	<i>Dollars</i>
Less than 10,000.....	<i>Number</i> 10	<i>Dollars</i> 29	<i>Dollars</i> 84
10,000 to 20,000.....	17	30	59
20,000 to 50,000.....	20	31	53
50,000 to 80,000.....	12	46	51
More than 80,000.....	3	85	50
All towns.....	71	34	63

*From unpublished data compiled by M. P. Catherwood.

more per mile than did the less wealthy. In 1931 there was less variation among towns in amount received, and the towns with least wealth received more dollars per mile than did those with greater wealth.

RELATION TO STATE HIGHWAYS

During the gradual evolution of certain phases of highway administration in New York, towns have given up some of their former functions. When the State first assisted in the construction of highways in 1898, the expense was shared by the State, county, and town, or by adjoining-property owners.

Later (1906), adjoining-property owners were relieved of their share of the cost. In 1912 the State assumed the towns' share of the cost of construction.

In the early history of these state-supported highways, the towns were responsible for their maintenance under the supervision of the state engineer. In 1906 the responsibility for maintenance was assumed by the State, but the towns continued to contribute to the maintenance fund. From 1906 until 1928 towns contributed \$50 per mile annually for maintenance of state-and-county highways within the town.

The responsibility of building and repairing bridges has been a considerable burden upon towns until recent years. Until 1926 towns were expected to construct and maintain all except county-line bridges. Provision was made for counties to relieve towns if it was deemed necessary. In 1926 the construction and reconstruction of bridges on state-and-county highways was assumed by the State and the counties. It is still the responsibility of the towns to maintain all bridges with a span of five feet or more on state highways unless such bridges have been taken over for repair and maintenance by the State.

Towns are responsible for removal of obstructions and snow on state highways, but since the adoption of section 53-c (now 55) of the highway law, whereby counties can perform this function and receive a refund from the State, towns have generally been relieved of this duty. Towns are responsible for removal of ice from culverts on state highways at times when the state patrolmen are off duty.

At present, towns have little responsibility in connection with state highways. Their responsibility is limited to a small amount of bridge maintenance and some winter maintenance.

RELATION TO COUNTY ROADS

Towns had an important part in the construction of county roads before 1930. An early provision of the highway law (1908) made possible the construction of county roads at the joint expense of the town and county (old section 320 of the highway law, now section 194). The most important period of the towns' activity in county-road construction was between 1915 and 1930, when towns constructed considerable mileage of county roads under section 320-a of the highway law. During this period a large amount of the cost was borne by county contributions to towns, but towns supplied the machinery and equipment and a portion of the funds. Maintenance was largely the responsibility of the towns.

With the adoption of the new county-road law (section 320-b) in 1929, counties have assumed the entire administrative responsibility of construction and maintenance of county roads. Towns no longer have any part in county-road administration.

ADMINISTRATION OF TOWN HIGHWAYS

Town highways are administered by the town highway superintendent who works in cooperation with the town board and, to a limited extent, with the county highway superintendent in determining the major question of highway policy. The town supervisor, as the chief fiscal officer for the town, receives and disburses town funds. The highway moneys are kept in a separate

account and are paid out by the supervisor upon the order of the town superintendent. The supervisor is required to give a bond or an undertaking to insure the safekeeping of such moneys. Town highway superintendents are usually elected for a period of two years. The town superintendent may be appointed by the town board, but few towns follow this practice. Except for special provisions in certain counties, the salary of the town superintendent is limited to not more than seven dollars per day.

Before October 31 of each year it is the duty of the town superintendent to make an estimate of the amount of money which should be raised for the ensuing year for each of the four items of highway expenditures.⁸⁶

For item 1 (repair and improvement of highways), the practical minimum amount which towns raise is an amount which will be sufficient to obtain the maximum amount of state aid. The levy for item 1 is not spread over property in incorporated villages. It is made irrespective of the balance in the fund from the previous year.

For item 2 (repair and construction of bridges), a town may raise a maximum of \$3000 unless authorized by unanimous consent of the town board. In no case can more than \$10,000 be levied unless authorized by a vote of the people. The original limitation on the item-2 levy was \$1500 unless a larger amount up to \$3000 was authorized by the voters. In 1921, the maximum levy was increased from \$3000 to \$6000, and in 1928, the maximum without a vote of the town was increased to \$10,000.

For item 3 (purchase and repair of machinery), all towns, with the exception of those in Nassau and Suffolk Counties, were limited to a levy of not more than \$10,000 unless authorized by a vote of the people. The maximum of the levy for this item in 1908 was \$500 unless authorized by a vote. The amount has been gradually increased since then.

For item 4 (snow removal and miscellaneous), apparently no limit is set for the amount of the money to be raised.

Provision is made whereby a town may raise not to exceed \$3000 in any one year for the extraordinary repair or construction of a highway or bridge which has been damaged or destroyed. By a unanimous vote of the town board this amount may be increased to \$6000. To raise more than \$6000 a vote of the people is required.

At its annual meeting in November each year, the town board considers the estimates of the superintendent. It may, by a majority vote, approve, increase, or decrease, the estimates within the limits prescribed by law. The statement is then presented by the town supervisor to the board of supervisors, whose duty it is to assess the taxes as approved.⁸⁷

The expenditure of money out of item 1, which includes the state-aid money, is in accordance with an agreement signed by the members of the town board, the town superintendent, and the county superintendent of highways.⁸⁸ In this agreement the amount of money to be expended and the number of miles designated for *general repairs* is included. The location and mileage of roads designated for *special improvement* of a permanent nature is included, together with the specifications for such improvement and the estimated cost thereof.

It is also specified in this agreement that a reserve fund of not less than

⁸⁶Highway law, sect. 141.

⁸⁷Highway law, sect. 207.

⁸⁸Highway law, sect. 284.

10 per cent of the item-1 funds be set aside as a contingent fund to be paid out upon the order of the town superintendent in accordance with written direction of the county superintendent. This fund is to meet deficiencies which may occur in the general repair or special improvements, as specified in the agreement.

After the agreement is drawn and signed, expenditures of item-1 funds must be in accordance with the agreement. Expenditures of money from the other three funds may be made by the order of the town superintendent, but must be in accordance with the estimate approved by the town board.

Road equipment may be purchased by the town superintendent, with the approval of the town board, subject to limitations of the tax levy for item-3 purposes.⁸⁰ An order for equipment costing in excess of \$500 must be approved by the county superintendent. Such equipment may be paid for from money collected as an item-3 tax levy or by certificates of indebtedness. Not more than four certificates of indebtedness may be issued, one to mature each year thereafter. The interest and principal to pay such certificates as they mature must be included in the town superintendent's estimate each year, and must not exceed the limitation set for item-3 tax levies.

The town board may appropriate from the unexpended balance of item 1 in any year or from any of the other funds based on the estimate of the town superintendent, a sum sufficient to pay part or all of such certificates and interest which become due. This amount may not exceed the amount earned by such a machine or equipment at a rate fixed by the state comptroller. Not more than half of the amount of interest and principal may be paid from item 1.

A town superintendent may, with the approval of the county superintendent, rent machinery or equipment at a rate approved by the town board, and which shall not exceed the daily rate fixed by the state comptroller. The expense for this may be paid out of item-1 funds.

A number of towns hire most of their machinery and equipment, thus requiring only a small item-3 fund to be raised. By so doing they utilize state-aid money in providing machinery for town highway purposes.

Towns may purchase gravel pits at a cost not to exceed \$1000. The purchase price of such land is a town charge and is not payable out of item-1 funds. Gravel for repair and improvement of town roads may be purchased with item-1 funds.

Town boards may provide that construction of highways and bridges in the town shall be by contract. If this is done, the expenses are met just as they are for work done by county labor and equipment. The county superintendent has supervision of all work done by contract. Few, if any, towns use the contract system.

The method of keeping town-highway accounts of moneys received and expended is prescribed by the state comptroller. Standard forms are used by the town superintendent for orders drawn upon the supervisor. A different-colored form is provided for each of the four items of expenditure. A special account book is kept by supervisors, with sections therein to segregate the receipts and expenditures from each of the four highway items. This book is known among supervisors as their "H.B. and M." book.

An annual report of the supervisors showing the receipts of state aid,

⁸⁰Highway law, sect. 142 and 266.

taxes collected, and other highway income, together with expenditures from each of the highway funds, is published in a newspaper. The expense of such publication is a town charge. This report is also published in the *Proceedings* of the board of supervisors.

The supervisor and the town clerk may receive compensation for work performed in connection with town highway administration. Some towns include these charges in item 4, and others pay them out of the general fund of the town.

HIGHWAY RECEIPTS AND EXPENDITURES IN 876 TOWNS, 1934⁹⁰

The average highway expenditures of 876 towns in New York in 1934 was \$15,190, or \$256 per mile of town highway (table 6). The largest expenditure was for repair and improvement (item 1), and was approximately \$7500 per town. Purchase and repair of machinery cost an average of \$3000 per town. The town superintendent's salary averaged approximately \$1350 per town.

TABLE 6. EXPENDITURES FOR HIGHWAY PURPOSES, 876 TOWNS, NEW YORK, 1934*

Classification	Expenditures—	
	Per town	Per mile of town highway
	<i>Dollars</i>	<i>Dollars</i>
Repair and improvement (1)	7,464	126
Bridges (2)	378	6
Machinery (3)	3,031	51
Salary of superintendent	1,340	23
Salary of supervisor	253	4
Salary of town clerk	46	1
Other	2,072	45
Total	15,190	256

*Data in tables 6, 7, 8, 9, 10, and 11 are taken from unpublished material compiled by M. P. Catherwood, Cornell University, 1936, from data made available by the Bureau of Municipal Accounts of the Department of Audit and Control, New York.

In 35 of the 876 towns there were less than 20 miles of town highway (table 7). The average was approximately 60 miles. Relatively few towns had more than 100 miles of town highway.

TABLE 7. TOWN-HIGHWAY MILEAGE IN 876 TOWNS, NEW YORK, 1934

Town-highway mileage	Average mileage	Towns
	<i>Miles</i>	<i>Number</i>
Less than 20	12.4	35
20 to 40	31.0	160
40 to 60	49.8	313
60 to 80	67.0	211
80 to 100	80.1	80
100 to 120	108.2	30
120 to 140	128.0	21
140 to 160	140.3	6
160 to 180	160.9	8
180 to 200	188.7	3
All towns	60.3	876

⁹⁰The towns included were those outside of Nassau, Rockland, Suffolk, and Westchester Counties, and those towns with a population of less than 10,000.

The variation among New York towns in taxable wealth per mile of town highway is striking. Almost one-third of the towns had taxable property of less than \$20,000 per mile of town highway (table 8). A few had more than one-half million dollars of taxable wealth per mile of town highway.

TABLE 8. FULL VALUE PER MILE OF TOWN HIGHWAY IN 876 TOWNS, NEW YORK, 1934

Full value per mile of town highway	Average full value per mile	Towns
<i>Dollars</i>		<i>Number</i>
Less than 20,000.....	12,490	265
20,000 to 40,000.....	28,510	206
40,000 to 60,000.....	48,903	134
60,000 to 80,000.....	68,385	77
80,000 to 100,000.....	90,667	42
100,000 to 200,000.....	138,458	102
200,000 to 300,000.....	239,442	26
300,000 to 400,000.....	351,220	12
400,000 to 500,000.....	452,381	4
500,000 and more.....	761,429	8
All towns.....	49,119	876

The expenditures for various town-highway purposes within individual towns varied considerably. As population per town increased, the highway expenditures per mile of town highway increased (table 9). Towns with less than 1000 population spent approximately \$200 per mile of town highway whereas towns with a population of from 4000 to 5000 spent nearly double that amount.

TABLE 9. THE RELATION OF POPULATION PER TOWN TO EXPENDITURES FOR TOWN-HIGHWAY PURPOSES, 876 TOWNS, NEW YORK, 1934

Population per town	Average population	Towns	Expenditures per mile of town highway						
			Item 1	Item 2	Item 3	Salary of superintendent	Salary of supervisor	Other	Total
Less than 1,000	Number 670	Number 253	Dollars 106	Dollars 5	Dollars 37	Dollars 21	Dollars 3	Dollars 30	Dollars 202
1,000 to 2,000...	1,448	314	112	6	45	22	4	41	230
2,000 to 3,000...	2,425	136	122	7	57	22	4	47	259
3,000 to 4,000...	3,479	76	162	8	73	27	6	60	336
4,000 to 5,000...	4,465	36	181	10	84	30	8	83	396
5,000 and more...	6,745	61	188	9	69	25	7	75	373
All towns...	2,039	876	126	6	51	23	4	46	256

The town receipts to finance the above expenditures came from a variety of sources. With the exception of refunds, machinery-rental income, and other income from outside work, local property taxes form the only major source of funds for items 2, 3, and 4. Tax levies for these funds are spread over the property in the entire town, including that within villages. Funds for item-1 purposes come from taxes levied on property outside of incorporated villages, and from state aid.

State aid averaged \$2560 per town, or \$43 per mile of town highway (table 10). The property tax raised for all four items was approximately

\$9000 per town, or \$154 per mile of town highway. Highway earnings, including rentals and receipts for outside work, averaged \$1444 per town.

TABLE 10. MAJOR SOURCES OF REVENUE FOR TOWN-HIGHWAY PURPOSES, 876 TOWNS, NEW YORK, 1934

Source	Amount per town	Amount per mile of town highway
	<i>Dollars</i>	<i>Dollars</i>
State aid.....	2,560	43
Item 1 tax.....	4,064	68
Items 2, 3, and 4, tax.....	5,245	88
Highway earnings.....	1,444	25
Total.....	13,313	224

The average expenditures per town of \$15,190 exceeded the receipts from these major sources of income by about \$2000. This difference is accounted for by changes in the balances in the highway funds and by the payment of certain expenditures, such as the highway superintendents's salary, out of the town general fund.

As population per town increased, the state aid per mile of town highway decreased from \$50 to \$38 (table 11). This results from the method of allocation of state aid. The towns with small population are usually those of relatively low valuation and thus obtain increased state aid. Other sources of income increased with increasing population per town.

TABLE 11. THE RELATION OF POPULATION PER TOWN TO MAJOR RECEIPTS FOR TOWN-HIGHWAY PURPOSES, 876 TOWNS, NEW YORK, 1934

Population per town	Average population	Towns	Receipts per mile of town highway				
			State aid	Item 1 tax	Items 2, 3 and 4 tax	Highway earnings	Total
<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Less than 1,000.....	670	253	50	47	67	20	184
1,000 to 2,000.....	1,448	314	43	57	79	21	200
2,000 to 3,000.....	2,425	136	40	66	87	28	221
3,000 to 4,000.....	3,479	76	39	106	116	32	293
4,000 to 5,000.....	4,465	36	38	113	155	43	349
5,000 and more.....	6,745	61	38	124	137	29	328
All towns.....	2,039	876	43	68	88	25	224

REVENUE FOR HIGHWAY PURPOSES

A few taxes such as the motor-fuel tax, motor-vehicle-license fees, and the property tax, supply a large part of the funds for highway purposes. The highway expenditures of a given unit, however, are not necessarily financed exclusively through taxes levied or collected by that unit. Thus, from the standpoint of a given governmental unit, it is necessary to take into account such outside highway aid. These funds are not necessarily derived from specified taxes, but may come from the general fund of the unit concerned. Except for federal aid, discussed elsewhere in this report, highways in New York are financed by state and local taxes.

The state collects revenue from the registration of motor vehicles and from the licensing of operators. The revenues from these taxes are usually grouped under the heading *motor-vehicle revenues*. The year 1901 was the first year during which registration fees were collected in New York. The rate was \$1.00 per motor vehicle. From that time until 1935 the revenue from this source increased from \$954 to \$43,081,708 (table 12).

TABLE 12. RECEIPTS OF MOTOR VEHICLE REVENUE IN NEW YORK AND AMOUNTS RETURNED TO COUNTIES, 1901 TO 1935

Year	Total vehicles registered*	Motor-vehicle revenue	
		Total state receipts†	Returned to counties‡
	<i>Number</i>	<i>Dollars</i>	<i>Dollars</i>
1901.....	954	954	.....
1902.....	1,082	1,082	.....
1903.....	6,412	9,181	.....
1904.....	6,709	14,249	.....
1905.....	8,625	25,954	.....
1906.....	11,753	35,463	.....
1907.....	13,985	44,580	.....
1908.....	15,480	53,736	.....
1909.....	24,059	81,773	.....
1910.....	62,655	339,846	.....
1911.....	83,969	905,179	.....
1912.....	107,262	1,056,621	.....
1913.....	134,405	1,275,727	.....
1914.....	169,966	1,533,368	.....
1915.....	234,032	1,913,175	.....
1916.....	317,866	2,658,042	359,673
1917.....	411,587	4,284,114	2,061,984
1918.....	463,758	4,945,297	2,381,761
1919.....	571,662	5,984,659	2,852,031
1920.....	682,919	8,863,251	2,142,076
1921.....	819,223	10,464,698	2,562,788
1922.....	1,009,825	12,736,364	3,147,122
1923.....	1,223,176	19,862,228	4,801,807
1924.....	1,422,073	24,089,655	5,645,748
1925.....	1,635,337	25,506,245	6,488,971
1926.....	1,626,026	28,786,421	6,964,308
1927.....	1,961,107	31,757,889	7,760,885
1928.....	2,115,178	34,884,547	8,420,547
1929.....	2,298,985	39,013,076	9,528,960
1930.....	2,347,011	40,857,715	10,023,040
1931.....	2,341,287	41,877,611	10,161,027
1932.....	2,289,504	41,272,035	10,022,860
1933.....	2,264,220	42,318,408	9,444,113
1934.....	2,318,400	41,663,832	10,156,375
1935.....	2,383,669	43,081,708	10,430,507

*Report of The New York State Tax Commission, p. 152, 1935.

†Report of The New York State Tax Commission, p. 153, 1935.

‡Report of The New York State Tax Commission, p. 85-89, 1935.

The rates of motor-vehicle registration have been frequently changed. Chapter 374 of the Laws of 1910 provided that the registration fees should be based on horse-power, the lowest rate being \$5.00. In 1921 the registration rate for automobiles was based on horse-power and on the list price. The present schedule, basing the fee on the weight, was adopted by chapter 54 of the Laws of 1929.

Section 11 of the vehicle-and-traffic law of New York now provides that the registration fee for automobiles shall be 50 cents per 100 pounds (manufacturers' weight) if the automobile weighs less than 3500 pounds. If an

automobile weighs more than 3500 pounds, the fee is 50 cents per 100 pounds up to 3500, and 75 cents per 100 pounds in excess of 3500. A minimum of \$8 is charged.

The registration fee for motor trucks is 80 cents per 100 pounds, unladen weight. Provision is made for half and quarter-yearly registration for automobiles and trucks registered after July 1 and October 1 respectively. Registration fees for vehicles used as omnibuses for the transportation of passengers are based on seating capacity.

Until 1916 all of the registration fees collected were retained by the State. Chapter 577 of the Laws of 1916 provided that 50 per cent of such fees should be paid to the county of residence of those who paid the fees. The supervisors were permitted to divide these funds among the towns of the county for highway purposes.

Chapter 622 of the Laws of 1919 apportioned to the counties only 25 per cent of the fees collected. This apportionment has remained. The remainder of the fees as specified in paragraph four, section 73, of the vehicle-and-traffic law is available for the use of the State. Motor-vehicle fees are returned to counties on the basis of residence of the applicant. A person may purchase license plates in any county, but the county of his residence receives 25 per cent of the fee from the State. Any license fees collected from non-residents of the State are retained by the State.

New York was one of the last States to place a tax on motor fuel. Colorado, North Dakota, and Oregon were the first States to adopt a gasoline tax, in 1919 (table 13). The first gasoline tax in New York became effective May 1, 1929, at the rate of two cents per gallon. An emergency tax of one cent per gallon was added March 1, 1932. An additional emergency tax of one cent per gallon was added April 1, 1935. Both emergency taxes extended until July 1, 1936, when one was dropped. These taxes, together with the federal tax on gasoline, make a total of four cents per gallon in New York.

Article 12-a of the tax law provides that 20 per cent of the original two-cent tax shall be returned to the counties outside of New York City on the basis of town-highway and county-road mileage; 5 per cent is returned to New York City. The balance of the receipts from the gasoline tax is available for state purposes.

During the period the gasoline tax has been effective in New York, the revenue collected has amounted to approximately \$15,000,000 per year for each cent of tax (table 14).

In addition to the motor-vehicle fees and motor-fuel taxes, an important source of revenue for local highway purposes is the general-property tax. No part of the state revenue for highway purposes arises out of a tax on property, since the State levies no general-property tax.

Most, if not all, counties in the State raise, by a tax on property, an amount equal to at least \$30 per mile of town highways and county roads, in order to be eligible to receive the maximum amount of "Lowman money" for county-road purposes. In addition, counties raise funds for snow removal, machinery, rights of way on state highways, bridges, and highway administration.

Towns are dependent, to a greater extent than are counties, upon property taxes for highway purposes. In 876 towns in 1934, state aid constituted only

TABLE 13. GROWTH OF GASOLINE-TAX RATES BY STATES, 1920-1935*

State	1920	1925	1930	1935
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Alabama	2	4	6
Arizona	3	4	5
Arkansas	4	5	6½
California	2	3	3
Colorado	i	2	4	4
Connecticut	1 to 2	2	2 to 3
Delaware	2	3	3 to 4
Florida	3 to 4	9	7
Georgia	3 to 3½	6	6
Idaho	2 to 3	4 to 5	5
Illinois	3	3
Indiana	2 to 3	4	4
Iowa	2	3	3
Kansas	2	3	3
Kentucky	l	3	5	5
Louisiana	2	4 to 5	5
Maine	1 to 3	4	4
Maryland	2	4	4
Massachusetts	2	3
Michigan	2	3	3
Minnesota	2	3	3
Mississippi	3	5	6
Missouri	2	2	2
Montana	2	5	5
Nebraska	2	4	4 to 5
Nevada	4	4	4
New Hampshire	2	4	4
New Jersey	2 to 3	3
New Mexico	3	5	5
New York	2	3 to 4
North Carolina	3 to 4	5	6
North Dakota	l	1	3	3
Ohio	2	4	4
Oklahoma	2½ to 3	4	4
Oregon	l	3	4	5
Pennsylvania	2	4 to 3	3 to 4
Rhode Island	1	2	2
South Carolina	3 to 5	6	6
South Dakota	2 to 3	4	4
Tennessee	2 to 3	5	7
Texas	1	4	4
Utah	2½ to 3½	3½	4
Vermont	1 to 2	4	4
Virginia	3	5	5
Washington	2	3	5
West Virginia	2 to 3½	4	4
Wisconsin	2	2	4
Wyoming	1 to 2½	4	4
District of Columbia	2	2	2

*Federal, county, and municipal gasoline taxes are not included. Data obtained from *Automobile Facts and Figures*, 1932 and 1935.

20 per cent of the total income for highway purposes, whereas the property taxes for items 1, 2, 3, and 4 were 70 per cent of the total income.

With the exception of New York City, cities and villages have financed their street programs almost entirely out of property taxes or special assessments. New York City has received a portion of the state-collected motor-fuel tax and motor-vehicle fees.

The State received in 1935 nearly \$108,000,000 (table 15), from motor-vehicle fees, the gasoline tax, and federal aid. Since 1901, when motor-vehicle fees yielded \$954, there has been an increase in the receipts from

TABLE 14. RECEIPTS OF MOTOR-FUEL TAX, AND DISTRIBUTION TO LOCALITIES, NEW YORK, 1930 TO 1934*

Year	Motor-fuel tax	
	Collected by State	Distributed to local units†
	<i>Dollars</i>	<i>Dollars</i>
1930.....	25,076,772	6,269,193
1931.....	30,361,080	7,590,270
1932.....	31,735,091	7,520,297
1933.....	44,321,205	7,385,314
1934.....	43,306,134	7,217,881
1935.....	47,860,675	7,285,367

*Report of the New York State Tax Commission, p. 89, 1935.

†Report of the New York State Tax Commission, p. 99, 1935.

these sources each year. Part of the revenue from these sources is shared with local units. State aid for local units under the provisions of Sections 55, 279, and 110-128 of the highway law is paid from general funds of the State. The State has returned to local units, for highway purposes, amounts ranging from \$34,518 in 1899 to approximately \$24,000,000 in 1931 and 1932 (table 16).

TABLE 15. MOTOR-VEHICLE REVENUES, MOTOR-FUEL TAXES, AND FEDERAL AID FOR HIGHWAYS, NEW YORK, 1901-1935

Year	Motor-vehicle fees	Gasoline tax	Federal aid	Total
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1901.....	954	.....	.....	954
1902.....	1,082	.....	.....	1,082
1903.....	0,181	.....	.....	0,181
1904.....	14,249	.....	.....	14,249
1905.....	25,954	.....	.....	25,954
1906.....	35,463	.....	.....	35,463
1907.....	44,580	.....	.....	44,580
1908.....	53,736	.....	.....	53,736
1909.....	81,773	.....	.....	81,773
1910.....	339,846	.....	.....	339,846
1911.....	905,179	.....	.....	905,179
1912.....	1,056,621	.....	.....	1,056,621
1913.....	1,275,727	.....	.....	1,275,727
1914.....	1,533,368	.....	.....	1,533,368
1915.....	1,913,175	.....	.....	1,913,175
1916.....	2,658,042	.....	.....	2,658,042
1917.....	4,284,114	.....	250,720	4,534,834
1918.....	4,945,297	.....	501,441	5,446,738
1919.....	5,984,659	.....	3,237,631	9,222,290
1920.....	8,863,251	.....	4,727,117	13,590,368
1921.....	10,464,698	.....	4,971,893	15,436,591
1922.....	12,730,364	.....	2,862,591	15,592,955
1923.....	19,862,228	.....	3,834,249	23,696,477
1924.....	24,089,655	.....	3,928,345	28,018,000
1925.....	25,500,245	.....	4,814,044	30,320,289
1926.....	28,786,421	.....	4,604,044	33,451,065
1927.....	31,757,889	.....	4,367,135	36,125,024
1928.....	34,884,547	.....	5,055,527	39,940,074
1929.....	39,013,070	.....	3,767,270	42,780,346
1930.....	40,857,715	25,076,772	4,078,108	70,012,595
1931.....	41,877,611	30,361,080	3,536,766	75,775,457
1932.....	41,272,035	31,735,091	14,949,351	87,956,477
1933.....	42,318,408	44,321,205	7,845,673	94,485,186
1934.....	41,663,832	43,306,134	11,872,406	96,842,371
1935.....	43,081,708	47,860,675	10,745,036	107,687,419

TABLE 16. STATE FUNDS GRANTED LOCAL UNITS FOR HIGHWAY PURPOSES, NEW YORK, 1899-1935

Year	State aid for town highways* (section 279)*	State aid for counties (section 110-128)	Motor-vehicle fees to counties†	Gasoline tax to counties‡	Snow removal to counties	Total
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1899.....	34,518	.....	.....	.....	.....	34,518
1900.....	54,058	.....	.....	.....	.....	54,058
1901.....	67,658	.....	.....	.....	.....	67,658
1902.....	102,510	.....	.....	.....	.....	102,510
1903.....	276,249	.....	.....	.....	.....	276,249
1904.....	393,493	.....	.....	.....	.....	393,493
1905.....	477,911	.....	.....	.....	.....	477,911
1906.....	595,546	.....	.....	.....	.....	595,546
1907.....	721,999	.....	.....	.....	.....	721,999
1908.....	1,057,605	.....	.....	.....	.....	1,057,605
1909.....	1,488,486	.....	.....	.....	.....	1,488,486
1910.....	1,591,912	.....	.....	.....	.....	1,591,912
1911.....	1,623,708	.....	.....	.....	.....	1,623,708
1912.....	1,655,500	.....	.....	.....	.....	1,655,500
1913.....	1,721,696	.....	.....	.....	.....	1,721,696
1914.....	1,816,119	.....	.....	.....	.....	1,816,119
1915.....	1,877,055	.....	.....	.....	.....	1,877,055
1916.....	1,956,206	.....	359,673	.....	.....	2,315,879
1917.....	1,948,576	.....	2,061,984	.....	.....	4,010,560
1918.....	2,041,916	.....	2,381,761	.....	.....	4,423,677
1919.....	2,042,716	.....	2,852,031	.....	.....	4,894,747
1920.....	2,210,748	.....	2,142,076	.....	.....	4,352,824
1921.....	2,321,341	1,934,076	2,562,788	.....	.....	6,818,805
1922.....	2,392,947	2,221,160	3,147,122	.....	.....	7,761,229
1923.....	2,488,710	2,356,190	4,801,807	.....	.....	9,646,707
1924.....	2,547,044	2,358,886	5,645,748	.....	.....	10,551,678
1925.....	2,620,322	2,391,244	6,488,971	.....	.....	11,500,537
1926.....	2,711,260	2,377,170	6,964,308	.....	.....	12,052,738
1927.....	2,908,760	2,380,070	7,780,885	.....	.....	13,049,715
1928.....	3,098,077	2,376,390	8,420,547	.....	.....	13,895,014
1929.....	3,345,180	2,392,200	9,528,960	.....	.....	15,266,340
1930.....	3,448,146	2,104,240	10,023,040	6,209,193	.....	21,844,619
1931.....	4,021,599†	2,106,147	10,161,027	7,590,270	.....	23,879,043
1932.....	4,107,113†	1,987,692	10,022,860	7,520,297	332,972	23,970,934
1933.....	3,425,282†	76,161	9,444,113	7,385,314	322,924	20,653,794
1934.....	2,900,130†	1,602,720	10,156,375	7,217,881	334,121	22,391,236
1935.....	3,047,218†	1,852,803	10,477,820	7,285,367	338,024	23,001,232

*From Annual Report of the State Department of Audit and Control.

†A portion of State Aid has been retained by counties since 1930.

‡The portion of motor-vehicle fees and gasoline tax for New York City is included.

The State and its counties, towns, cities, and villages have depended to some extent on borrowings to finance their highway programs. State bond issues of \$50,000,000 each were authorized in 1905 and 1912. The sinking fund to retire these has reduced the net highway bonded indebtedness of the State to approximately \$50,000,000 (table 17). Total highway bonded indebtedness of the State and the local units increased from \$162,000,000 in 1922 to \$557,000,000 in 1935. Most of this increase was accounted for by the increase in cities from \$53,000,000 in 1922 to \$376,000,000 in 1935.

The net highway debt of counties increased from \$19,000,000 in 1922 to \$80,000,000 in 1935. Town and village highway debts are relatively small as compared with those of other units.

Debt service for highway borrowings of local units is usually met by property taxation. Fiscal reports of local units are such that it is difficult, if not impossible, to determine accurately the debt service on highway debt, in any

one year, or the total tax levies for highway purposes. One method of obtaining the approximate property tax for highway purposes is to subtract the other revenues for highway purposes from the sum of the best available figures for highway expenditures plus interest on highway debt.

TABLE 17. TOTAL NET BONDED INDEBTEDNESS FOR STREETS, HIGHWAYS AND BRIDGES, NEW YORK, 1922-1935*

Year	Total	State	County	City	Town	Village
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1922.....	161,854,989	71,424,732	19,417,522	52,826,522	7,936,213	10,250,000
1923.....	174,927,018	70,186,218	22,193,708	61,712,497	8,684,595	12,150,000
1924.....	185,192,928	68,435,046	26,141,857	65,114,995	11,215,030	14,280,000
1925.....	209,591,248	66,923,308	29,104,850	81,427,004	15,244,086	16,892,000
1926.....	226,638,457	65,302,021	38,318,270	87,473,609	16,777,317	18,767,240
1927.....	371,229,856	63,685,075	40,399,269	221,486,562	24,782,634	20,876,316
1928.....	515,330,674	62,087,739	47,210,144	349,405,914	33,371,957	23,254,920
1929.....	477,980,172	60,395,252	60,283,817	303,276,438	30,271,683	23,752,982
1930.....	505,483,542	58,709,953	72,697,958	316,880,792	31,325,181	25,869,658
1931.....	583,686,019	56,966,141	77,001,451	384,689,699	35,475,063	20,553,665
1932.....	606,771,756	55,190,975	87,127,267	399,614,002	36,627,007	28,212,505
1933.....	580,331,527	52,924,162	74,409,497	393,224,035	35,026,024	24,747,809
1934.....	580,225,310	50,966,974	80,707,623	390,480,974	35,705,842	22,363,897
1935.....	559,651,067	48,898,519	79,960,441	375,916,635	30,204,317	21,071,155

*Report of the New York State Tax Commission, p. 344, 1935.

SUMMARY AND CONCLUSIONS

TOWN HIGHWAYS

Prior to 1890, the town was the only important governmental unit concerned with highway administration in New York. Relatively few changes were made in the town-highway law from the settlement of the Colony until 1890. The labor system was used almost exclusively for construction and maintenance of highways. A small amount of money was required for building bridges and, in later years, for the purchase of meagre equipment.

The labor system was recognized by many as an unsatisfactory means of maintaining highways. Many attempts were made to abolish it and substitute the money system. The first optional money system was provided for Livingston County in 1838. By 1873, a law permitting any town to adopt the money system was passed. It was not until 1908, however, that the labor system passed completely from existence.

In 1898, state aid for town highways was first granted. This was based on the previous year's levy for highway purposes. In 1907, state aid was based on a combination of the previous year's levy and the assessed value per mile of highway. Under this allocation, wealthy towns received more dollars per mile of highway than did the less wealthy towns. This allocation of state aid continued until 1930, when the present allocation of state aid was provided. Towns with low valuation per mile of highway now receive more state aid per mile of highway than do wealthy towns.

During the early development of the state highway system, towns contributed to the cost of construction and maintenance of state highways. Until 1912, towns were charged for approximately 15 per cent of the cost of constructing state highways. Until 1929, towns paid annually \$50 per mile of state highway for their maintenance.

Following the World War, and until 1929, towns assisted to a considerable extent in the construction and maintenance of county roads. At the present time, towns are concerned primarily with the maintenance of town highways, which constitute about 70 per cent of all highways outside of cities and villages. They spend an average of approximately \$250 per mile of highway annually. With these limited funds, little improvement can be made. Approximately 20 per cent of town receipts for highway purposes are from state aid and the remainder is largely from property taxes.

COUNTY ROADS

As a unit for highway administration, the county was relatively unimportant before 1890. Provisions were made for county road systems in 1893 and 1908, but little county-road mileage was built under these laws. In 1914, section 320-a of the highway law provided a workable system of county roads, and it was under this law that much of the present county-road mileage was built prior to 1930. Counties have received a portion of the motor-vehicle-license fees since 1916, and state aid since 1920.

In 1929, the present county road systems (320-b) were established and county roads are now constructed and maintained entirely by counties. Financial assistance from the State is received in the form of motor-vehicle fees, motor-fuel tax, and state aid. County-road mileage constitutes approximately 17 per cent of the total highway mileage outside of cities and villages.

STATE HIGHWAYS

The State first took an active part in highway administration about 1900, because of the need for improved roads and the pressure for a more equitable system of highway taxation. Prior to that time owners of property adjacent to highways were for the most part supporting them.

During the early development of state highways, local units of government contributed to the cost of construction and maintenance. In 1912, towns were relieved of their share of the construction cost, and in 1929, counties were relieved of their share. Towns continued to contribute \$50 per mile for maintenance until 1929.

At the present time, state highways are constructed and maintained solely by the State, with the exception of providing rights of way and a portion of snow-removal cost, which are still provided by counties.

The state finances its highway activities by receipts from motor-vehicle-license fees, motor-fuel taxes, and federal aid. Not all of the money received from these sources is used for highway purposes.

APPENDIX

TABLE 18. TOTAL EXPENDITURES FOR STREETS AND HIGHWAYS IN NEW YORK STATE, 1922-1935*

Year	Total	State†	Counties
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1922.....	100,179,763	24,062,838	6,501,477
1923.....	113,477,995	25,386,174	6,532,462
1924.....	128,442,590	31,477,026	8,283,330
1925.....	147,545,475	34,795,325	9,156,587
1926.....	159,904,839	35,857,468	14,907,278
1927.....	206,076,569	45,935,290	15,918,194
1928.....	217,538,030	47,453,682	20,579,897
1929.....	236,790,488	52,798,990	20,441,422
1930.....	245,210,539	59,994,636	34,366,650
1931.....	247,594,311	67,338,501	37,348,260
1932.....	187,622,447	38,753,539	26,217,147
1933.....	160,209,609	30,284,181	28,953,140
1934.....	140,758,861	37,684,110	15,674,042
1935.....	129,217,760	28,733,859	20,291,043

	Cities	Towns	Villages	Interest on bonded indebtedness
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1922.....	39,855,815	17,802,130	5,009,054	6,474,200
1923.....	46,704,974	22,081,484	5,775,821	6,997,080
1924.....	54,277,556	21,683,430	5,313,532	7,407,716
1925.....	65,137,684	24,115,822	5,956,407	3,383,050
1926.....	69,998,878	23,427,707	6,647,958	9,065,550
1927.....	82,739,374	35,845,682	10,788,835	14,849,194
1928.....	85,786,231	32,095,305	11,009,688	20,613,227
1929.....	95,324,444	34,061,323	15,045,881	19,119,207
1930.....	92,224,305	25,955,478	12,448,840	20,219,342
1931.....	81,321,746	25,937,347	12,315,613	23,347,441
1932.....	66,850,571	10,300,055	10,233,282	24,270,870
1933.....	50,719,898	16,587,795	10,471,334	23,213,261
1934.....	42,096,702	16,266,423	5,827,972	23,209,012
1935.....	34,449,975	16,908,720	6,568,120	22,266,043

*Report of the New York State Tax Commission, p. 343, 1935.

†The state aid granted under section 101 of the highway law is included in state expenditures and is deducted from town expenditures. This averaged \$3,000,000 per year for the period. The state aid granted counties as "Lowman money" is also included in state expenditures and is deducted from county expenditures. This has averaged approximately \$2,000,000 per year.

TABLE 19. MILEAGE OF STATE, COUNTY, AND TOWN HIGHWAY IN EACH COUNTY OF NEW YORK, JANUARY 1, 1937*

County	System			Total <i>Miles</i>
	State <i>Miles</i>	County <i>Miles</i>	Town <i>Miles</i>	
Albany.....	229.2	164.9	771.4	1,165.5
Allegany.....	207.1	207.4	1,537.6	1,952.1
Broome.....	197.6	265.6	1,084.0	1,547.2
Cattaraugus.....	188.1	271.5	1,666.2	2,125.8
Cayuga.....	244.7	428.9	853.8	1,507.4
Chautauqua.....	267.8	384.3	1,306.8	1,958.9
Chemung.....	106.8	138.6	655.4	900.8
Chenango.....	221.0	226.2	1,327.4	1,774.6
Clinton.....	207.5	222.3	985.9	1,415.7
Columbia.....	199.1	161.7	1,017.2	1,378.0
Cortland.....	140.0	183.1	725.9	1,049.0
Delaware.....	280.6	187.3	1,967.5	2,435.4
Dutchess.....	265.0	238.0	1,123.6	1,626.6
Eric.....	412.3	1,133.5	870.3	2,416.1
Essex.....	266.2	104.2	1,048.3	1,418.7
Franklin.....	226.9	167.7	958.7	1,353.3
Fulton.....	130.1	77.8	588.5	794.4
Genesee.....	157.6	143.1	613.0	913.7
Greene.....	161.3	173.0	753.1	1,087.4
Hamilton.....	152.5	39.0	249.2	440.7
Herkimer.....	211.4	417.9	879.8	1,509.1
Jefferson.....	308.5	717.0	1,194.6	2,220.1
Lewis.....	136.7	217.4	1,101.6	1,455.7
Livingston.....	201.5	191.6	903.0	1,296.1
Madison.....	153.7	287.5	1,009.5	1,450.7
Monroe.....	355.1	459.1	641.6	1,455.8
Montgomery.....	155.0	310.0	405.1	870.1
Nassau.....	75.2	221.6	1,611.7	1,908.5
Niagara.....	202.3	389.6	347.2	939.1
Oneida.....	367.9	391.5	1,584.2	2,343.6
Onondaga.....	296.3	692.9	687.7	1,676.9
Ontario.....	198.8	119.0	1,048.1	1,365.9
Orange.....	292.7	80.9	1,331.7	1,714.3
Orleans.....	142.6	153.9	444.8	741.3
Oswego.....	214.7	366.4	1,140.7	1,721.8
Otsego.....	224.6	300.1	1,681.0	2,205.7
Putnam.....	96.6	86.0	331.1	513.7
Rensselaer.....	245.6	214.2	980.2	1,440.0
Rockland.....	83.0	108.0	205.7	398.5
St. Lawrence.....	452.7	304.4	2,475.8	3,232.9
Saratoga.....	207.5	292.3	1,066.3	1,566.1
Schenectady.....	117.9	188.7	133.5	440.1
Schoharie.....	152.3	156.9	925.1	1,234.3
Schuyler.....	93.7	81.3	592.9	767.9
Seneca.....	127.3	114.7	485.1	727.1
Steuben.....	280.0	619.9	2,261.8	3,161.7
Suffolk.....	271.1	139.6	2,354.1	2,764.8
Sullivan.....	178.1	279.4	1,421.0	1,878.5
Tioga.....	108.4	147.5	819.1	1,075.0
Tompkins.....	150.4	296.4	650.9	1,097.7
Ulster.....	235.4	265.1	1,338.5	1,839.0
Warren.....	167.0	65.1	802.2	1,034.3
Washington.....	190.5	183.5	1,197.0	1,571.0
Wayne.....	150.2	218.3	1,016.3	1,384.8
Westchester.....	251.4	60.7	701.3	1,013.4
Wyoming.....	155.0	204.5	716.7	1,075.2
Yates.....	98.2	141.3	563.7	808.2
State.....	11,611.6	14,412.2	57,136.4	83,160.2

*Data from the New York State Division of Highways.

TABLE 20. IMPROVEMENT OF HIGHWAY MILEAGE IN EACH COUNTY, NEW YORK,
JANUARY 1, 1937*

County	Mileage			Per cent improved
	Total	Unimproved	Improved	
Albany.....	1,165.5	105	1,061	91.0
Allegany.....	1,952.1	1,035	917	47.0
Broome.....	1,547.2	899	648	41.9
Cattaraugus.....	2,125.8	1,555	571	26.9
Cayuga.....	1,507.4	439	1,068	70.9
Chautauqua.....	1,958.9	746	1,213	61.9
Chemung.....	900.8	410	491	54.5
Chenango.....	1,774.6	1,096	679	38.3
Clinton.....	1,415.7	648	768	54.2
Columbia.....	1,378.0	485	893	64.8
Cortland.....	1,049.0	618	431	41.1
Delaware.....	2,435.4	1,660	775	31.8
Dutchess.....	1,626.6	986	641	39.4
Erie.....	2,416.1	250	2,166	89.6
Essex.....	1,418.7	.....	1,419	100.0
Franklin.....	1,353.3	550	803	59.3
Fulton.....	794.4	586	208	26.2
Genesee.....	913.7	19	895	98.0
Greene.....	1,087.4	663	424	39.0
Hamilton.....	440.7	249	192	43.6
Herkimer.....	1,509.1	703	806	53.4
Jefferson.....	2,220.1	548	1,672	75.3
Lewis.....	1,455.7	791	665	45.7
Livingston.....	1,296.1	302	994	76.7
Madison.....	1,450.7	853	598	41.2
Monroe.....	1,455.8	33	1,423	97.7
Montgomery.....	870.1	184	686	78.8
Nassau.....	1,908.5	1	1,908	100.0
Niagara.....	939.1	91	848	90.3
Oneida.....	2,343.6	1,375	969	41.3
Onondaga.....	1,676.9	214	1,463	87.2
Ontario.....	1,365.9	169	1,197	87.6
Orange.....	1,714.3	261	1,453	84.8
Orleans.....	741.3	.....	741	100.0
Oswego.....	1,721.8	694	1,028	59.7
Otsego.....	2,205.7	1,244	962	43.6
Putnam.....	513.7	285	229	44.6
Rensselaer.....	1,440.0	980	460	31.9
Rockland.....	308.5	1	308	100.0
St. Lawrence.....	3,232.9	1,221	2,012	62.2
Saratoga.....	1,566.1	839	727	46.4
Schenectady.....	440.1	49	391	88.8
Schoharie.....	1,234.3	670	558	45.2
Schuyler.....	767.9	350	418	54.4
Seneca.....	727.1	94	633	87.1
Steuben.....	3,161.7	1,684	1,478	46.7
Suffolk.....	2,764.8	827	1,938	70.1
Sullivan.....	1,878.5	832	1,046	55.7
Tioga.....	1,075.0	664	411	38.2
Tompkins.....	1,067.7	428	670	61.0
Ulster.....	1,839.0	1,306	533	29.0
Warren.....	1,034.0	802	232	22.4
Washington.....	1,571.0	1,169	402	25.6
Wayne.....	1,384.8	132	1,253	90.5
Westchester.....	1,013.4	362	651	64.2
Wyoming.....	1,075.2	511	564	52.5
Yates.....	808.2	211	597	73.9
State.....	83,160.2	33,885	49,275	59.3

*Data obtained from New York Division of Highways.

TABLE 21. MILEAGE OF CITY AND VILLAGE STREETS, NEW YORK, 1935*

County	Street mileage		
	City	Village	Total
Albany.....	285	41	326
Allegany.....	.....	83	83
Broome.....	141	81	222
Cattaraugus.....	85	69	154
Cayuga.....	87	53	140
Chautauqua.....	167	164	335
Chemung.....	133	58	191
Chenango.....	19	41	60
Clinton.....	32	26	58
Columbia.....	18	35	53
Cortland.....	43	26	69
Delaware.....	.....	78	78
Dutchess.....	118	58	176
Erie.....	721	247	968
Essex.....	.....	64	64
Franklin.....	.....	76	76
Fulton.....	103	22	125
Genesee.....	60	33	93
Greene.....	.....	50	50
Hamilton.....	.....	14	14
Herkimer.....	25	113	138
Jefferson.....	79	116	195
Lewis.....	.....	43	43
Livingston.....	.....	95	95
Madison.....	80	02	142
Monroe.....	526	90	616
Montgomery.....	75	63	138
Nassau.....	88	1,027	1,115
New York City.....	5,368	.....	5,368
Niagara.....	340	43	383
Oneida.....	262	123	385
Onondaga.....	386	127	513
Ontario.....	80	36	116
Orange.....	140	135	275
Orleans.....	.....	68	68
Oswego.....	133	73	206
Otsego.....	34	66	100
Putnam.....	.....	15	15
Rensselaer.....	133	36	169
Rockland.....	.....	106	106
St. Lawrence.....	50	124	174
Saratoga.....	66	55	121
Schenectady.....	220	27	247
Schoharie.....	.....	35	35
Schuyler.....	.....	36	36
Seneca.....	.....	53	53
Steuben.....	84	118	202
Suffolk.....	.....	448	448
Sullivan.....	.....	46	46
Tioga.....	.....	07	67
Tompkins.....	60	42	102
Ulster.....	83	46	129
Warren.....	56	7	63
Washington.....	.....	98	98
Wayne.....	.....	90	90
Westchester.....	570	612	1,182
Wyoming.....	.....	69	69
Yates.....	.....	34	34
State.....	10,950	5,767	16,717

*From the Report of the New York State Tax Commission, p. 345, 1935.