

HISTORY  
*of the*  
Tennessee Highway Department

*Compiled by the*  
TENNESSEE STATE HIGHWAY DEPARTMENT  
HIGHWAY PLANNING SURVEY DIVISION

*In Cooperation With the*  
U. S. DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

NASHVILLE, TENNESSEE

1959

## FOREWORD

Transportation is a fundamental function in the welfare of any people. Whether the transporting is done over waterways, railways, highways or airways, and our complex economy is geared to all four, the social and economic progress of Tennessee is dependent upon transportation facilities.

Highways are acknowledged to be one of the world's greatest civilizing agencies. Over them commerce has expanded and social and civic intercourse between communities and states exists and thrives.

This was true of the primitive by-paths, overland trails, wagon roads and stage coach lines; the "ways" over which a hardy pioneering people traveled in quest of freedom, happiness and prosperity.

The Indian and wagon trails of the eighteenth century and the stage and toll roads of the nineteenth century have given way to a complex system of roads and highways designed to accomodate a staggering number of vehicles carrying a prodigious amount of weight.

The automobile came upon the scene bringing with it a "virus of unrest" and causing revolutionary changes in transportation facilities. The motor vehicle has had more influence on our way of life than any other device of this century. We have become, to a large degree, a mobile people demanding more and better roads over which to move in search of those things that add to fullness of life for a free people.

A joint resolution of the 1929 Legislature, authorizing a study commission, clearly indicates the attitude of the Lawmakers at that time when it stated: "Whereas the subject of the State Highway

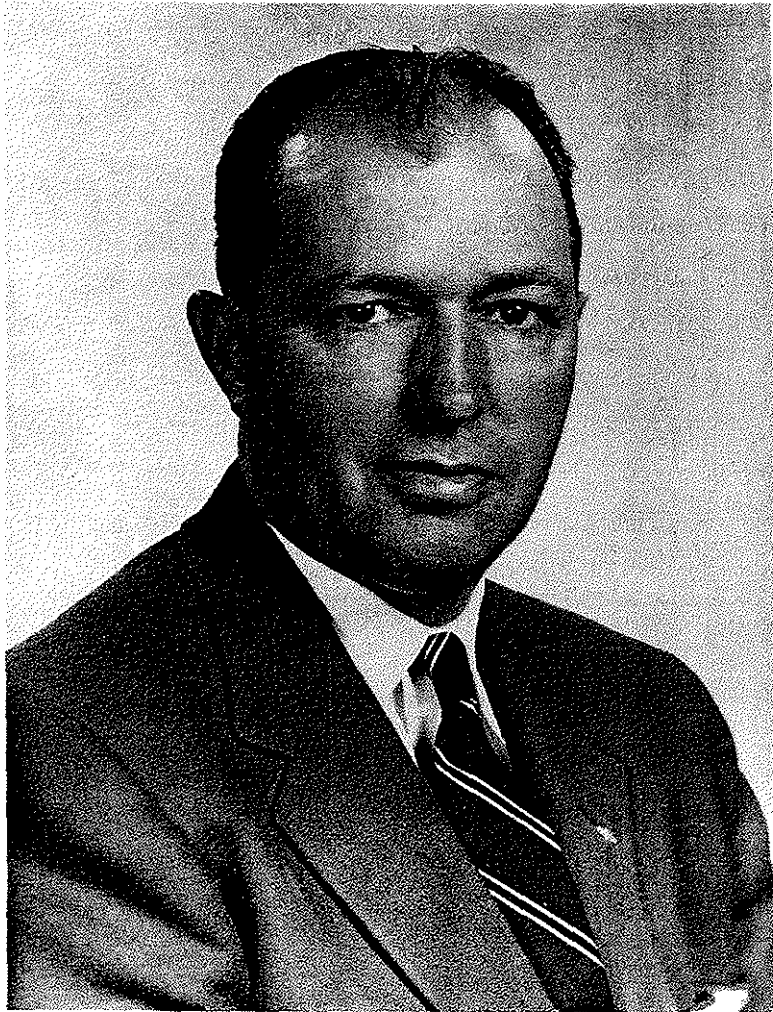
System is a question of paramount interest to the people of the State of Tennessee which in the beneficial results that would ensue from its completion, merits and demands the closest study and investigation."

Now, more than then, this "question is of paramount interest to the people of the State of Tennessee." Perhaps never before in history has there been such a broad interest in all matters concerning highways. The need of an adequate highway program is universally recognized and the potential benefits eagerly anticipated.

Tennessee is equipped to cope with the ever-increasing problems of administration, construction, maintenance, acquisition of rights-of-way, traffic channelization, safety and the many other phases of highway development and improvement.

Tennessee is meeting the demands of this modern civilization in affording highway transportation facilities for the benefit of all the people. Millions of dollars have been expended on highway construction, resulting in a system of roads that compares favorably with that of any state in the Union. It is to the Tennessee Highway Department that credit must be given for the development of the splendid system of highways and it is to this organization that the people of Tennessee must look for the completion of a road program which will fill the fondest dream for magnitude and utility.

It is hoped that this narrative will present the Highway Department in such a way that the reader will know more about its origin, development and character, and better appreciate its worth.



**BUFORD ELLINGTON**  
Governor of Tennessee



**D. W. MOULTON**  
Tennessee State Highway Commissioner

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## PART I—Prior to 1900

### INTRODUCTION

The very first roads to be built, the construction of which anything definite is known, are those military roads of ancient Rome. One of the oldest of these roads and the most celebrated for grandeur and significance—the Appian Way—was commenced in 312 B.C.

When not in use by the army, farmers and merchants could use this road to transport their produce and wares to market. We look into history and see this road used as an avenue for the spread of religion (Saint Paul walked on this “way”), law, government and all facets of Roman culture. Thus, safety, business and culture became, early in history, purposes for which the roads were used.

There could be no rewarding review of the Department of Highways in Tennessee without looking back and evaluating the times and circumstances that engendered the need for such an organization. If business, culture and safety may be considered as the historic stimulants for road building; and if business means trade, vocation, or simply the earning of a livelihood; and if culture may be accepted as meaning the development by education and social contact; and if safety means the absence of danger; then one should go all the way back to the beginning to find the need for roads, and consequently a need for a Department of Highways.

The animals that roamed the fields and woods in search of salt, food, water and safety made paths beside the placid rivers, over the majestic mountains and through the fertile plains.

The earliest residents of Tennessee were the “Mound Dwellers,” so called because of the large earth mounds they built for ceremonial and burial purposes. These early inhabitants made their paths so plain that the very first evidence of traveled ways in the State was furnished by these obscure people, who apparently had attained a

considerable cultural development. The Cherokees, Chickasaws and other Indans came and made paths, trails and traces as they sought salt, food, water, safety and association with their neighbors.

The history of those early people, from a remote and indistinct past, and the land on which they lived, is fragmentary at best. Yet, so unerringly did these people and the animals they hunted make their paths to the salt licks, later frontier communities, that some of these trails became the roads over which civilization moved westward. It would be impossible to evaluate the aboriginal influence on our present day Highway System; but we may be certain that many of our highways today follow the general location of trails made by Indians, buffalo and bear.

The white men came and made trails that led to the opening of this wonderful wilderness. De Soto must have made paths in 1540. In 1673, east and middle Tennessee were penetrated by explorers and fur traders. Early in the eighteenth century the French waged war against the Chickasaw Indians in West Tennessee and in their efforts to win the support of the East Tennessee Cherokees they made paths along the way.

It would be difficult to determine the location of the first road in Tennessee nor would it serve the purpose of this chronicle to attempt it. However, in establishing the need for an agency to construct and maintain the State's Highway System, it might be of interest to briefly look at a few of the early roads, some of which are a part of that System.

The road through Cumberland Gap is of uncertain origin but surely holds a secure place in the list of roads and antiquity. It was at one time known as part of the "Great War Path," and over it the early American Indians must have moved in waging their inter-tribal wars. Dr. Thomas Walker used it in 1750 when he gave Cumberland Gap its name. Daniel Boone traveled through this gap in 1760. He covered the same area again in 1775 when he and thirty-six axmen cut a road that took the name of "The Wilderness Road."

The first permanent white settler was William Bean who, in 1768, built a cabin near the Watauga River. He blazed a trail for others and they came in large numbers using many paths.

There was a wagon road constructed in 1778 from Burke County, North Carolina to "Jonesborough" the county seat of Washington County and Tennessee's oldest town. It was to serve as the capital of the State of Franklin (1784-1788). People needed roads over which they could travel to this important place. They opened them.

Roads were made in 1780 when those sturdy Wataugans and other settlers marched to do battle with the British at Kings Mountain. Traders like Jacques Timothe Baucher Sieur de Mont Brun (Timothy Demonbreun); long hunters and pioneers with names like Mansker, Bledsoe and Spencer; settlers like Robertson and Donelson; all of them were history makers forging inroads deep into the heart of a fertile wilderness. All of them were road makers, because wherever inroads are made, roads are built.

In 1780, the "Government of Nobles," a kind of court elected by the people of the new settlement at Nashborough, decreed that a path be cleared to a width of ten feet on each side showing others the way from Watauga to Nashborough. It is certain that the path was never cleared along the entire route but part of it was most surely opened.

The North Carolina Assembly made provisions in 1787 for a new road to be opened, by the militia, from Campbells Station in Knox County to Nashville. In October 1791 Sumner County authorized a road from Station Camp Creek to Mansker Creek be "viewed and laid off" and appointed a commission of 16 men to perform the duty. Kasper Mansker, pioneer citizen of that community, was on the committee.

In an old issue of the Tennessee Historical Magazine the following reference is made to an old road: "The route then traveled (1795) from Knoxville to Nashville was the old road which began at Leas Springs in Grainger County and ran through the present counties of Knox, Roane, Morgan, Fentress, Overton, Jackson, Smith, Trousdale, Sumner and Davidson."

The Rev. Green Hill and others made a trip from North Carolina to Nashville and returned in 1796. No serious effort has been made to determine whether they used the route above or the trail that later will be referred to as the "Walton Road." The incident is mentioned only to show that there was a road over which people could travel at that time.

In 1802, General James Wilkerson who was responsible for the defense of the southwestern frontier wrote that, as a result of the "compleation" of a road, the "Indians are at our feet." The road that was so important, in the opinion of the General, to the security of Tennessee was the trace over which John L. Swaney, a Sumner County post rider carried the mail to Natchez, making the round trip in three weeks.

Whether this road is called by its unabridged name, "The Highway from Nashville in the State of Tennessee to the Grindstone Ford of the

Bayou Pierre in the Mississippi Territory"; or by the colorful "Old Natchez Road"; or by the more folksy, "Notchy Trace"; it is the "Natchez Trace," the road that has enriched the history of Tennessee with its glamour and robust glory. Appreciation for the role of this road in our history is reflected in the fact that it did not fade into permanent obscurity. The Highway Department has spent \$280,-704.73 on this historic Trace in recent years with \$8,275.18 of this amount being spent in the fiscal year ending June 30, 1959.

Congress granted territorial status to the "Territory of the United States of America south of the River Ohio" (now Tennessee) in 1789. The need of, and desire for better roads was expressed by the session of the General Assembly in 1794 by authorizing the raising of a fund for cutting and clearing a wagon road from Southwest Point to the settlement on the Cumberland River in the Mero District, by lottery. The



Shown here is a portion of the Natchez Trace, a pioneer highway, that played a colorful, dramatic part in the making of our Nation.

The cry of a wounded animal, the whir of an arrow, the rattling of spur and sword, the creaking of a loaded wagon, the measured step of soldiers, the sounds of gaiety emanating from elegant carriages can almost be heard to re-echo along this primitive path.

entire Chapter is presented here because of its uniqueness and interest. The early road commission consisted of men whose names are familiar to all Tennesseans. The places are romantic places and the "scheme" of the lottery is intriguing. South West Point is now Kingston. Bledsoes Lick is now Castallian Springs.

## 1st Session, 1794

### Chapter XX

An Act to authorize the raising a fund for the purpose of discharging the cost of cutting and clearing a wagon road from southwest point to the settlements on Cumberland river, in Mero district, by lottery.

SECTION 1. Be it enacted by the Governor, Legislative Council and House of Representatives of the Territory of the United States of America south of the river Ohio, that in order that a sufficient fund may be raised for the purpose above mentioned, that a scheme be authorized for drawing a lottery to consist of three thousand one hundred tickets; three thousand of which shall be, by the managers hereafter named, put into the hands of such discreet persons as they may judge properly qualified for selling the same; or, if they chuse so to do, maybe kept in their own hands, and sold by them at five dollars each and the remaining one hundred shall be referred by the said managers as tickets belonging to the road, and the prizes drawn thereon to be considered as a part of the fund hereby intended to be raised.

SECTION 2. And be it enacted, that the prizes and blanks in the said scheme contained, shall be as follows to wit.

Prize	of	Dollars	is	Dollars
1		1,500		1,500
1		750		750
2		500		1,000
4		200		800
15		100		1,500
30		50		1,500
100		25		2,500
545		10		5,450
698 total prizes				15,000
2,402 blanks				



And that each and every prize be subjected to a deduction of one-fifth part, which part, so deducted, together with such prizes as may be drawn in favour of the road tickets, shall be by the said managers paid into the hands of the then treasurer of the Territory, there to remain as a fund for the purposes aforesaid until the same be drawn out of his hands in the manner hereafter directed.

SECTION 3. And be it enacted, that the managers of the said lottery shall (in case the whole of the said tickets are not sold previous to the commencement of the drawing the said lottery) have full power and authority to alter the above scheme, and apportion it as nearly as possible to the same; and the number of tickets sold, and the amount of cash received for the tickets sold, and proceed to draw the same in the same manner, and at the same place as they would have done had no such alteration been made.

SECTION 4. And be it enacted, that Colonel James White, Col. James Winchester, Col. Stockley Donelson, Captain David Campbell, Col. William Cocke, and Col. Robert Hayes or a majority of them, be, and they are hereby declared to be managers of the said lottery, with full and ample powers to carry the same into effect, agreeable to the intent and meaning of this act. Provided always, that previous to either of the said managers entering into the duties of his appointment, he or they shall enter into bond, with approved security to the Governor for the time being, in the sum of five thousand dollars, for the faithful execution of the trust reposed in him; and shall also take and subscribe an oath to the same effect before the said Governor and provided also that a majority of the said managers shall be competent, in the absence of the others to execute the trust hereby intended to be given.

SECTION 5. And be it enacted, that the said lottery shall be drawn in the town of Knoxville at such time as the said managers or a majority of them, shall appoint, and with equal justice to all parties concerned; at which time, or on application made to them by the holder or holders of the fortunate tickets, they shall make payment of the sum or sums to each and every such fortunate adventurer, without delay.

SECTION 6. And be it enacted, that the scheme for this lottery, with a just statement of its principles, be advertised in the Kentucky, North Carolina, Virginia and Territorial Gazettes, at least three months successively; and also publication, for one month, of the time and place of drawing the same previous to its commencement, and that separate bills, to the amount of three thousand be struck and put into the hands

of sundry citizens of the said States and territory, with a request from the managers to promote an object so interesting to the citizens of the United States.

SECTION 7. And be it enacted, that Col. James White, Col. James Winchester, Col. Stockley Donelson, Capt. David Campbell, Col. Wm. Cocke, and Col. Robert Hayes, or a majority of them, be, and they are hereby declared to be a board of Commissioners for the purpose of letting out, to the best advantage, the cutting and clearing out a good and sufficient waggon road from southwest point in Hamilton district to Bledsoes Lick in Mero district; and that they proceed in the execution of their trust as soon as a sufficient fund shall be raised for the purpose, by virtue of the plan herein before mentioned.

SECTION 8. And be it enacted, that the said board of Commissioners (which board may at any time be constituted the preference of a majority) shall have full power and authority, at any time during the prosecution of the duties hereby required of them, to draw out of the hands of the Treasurer by virtue of a warrant from the Governor, for the time being, such sum or sums, of money out of the fund aforesaid, as may from time to time become necessary for defraying the charges incident thereto; they giving good and sufficient security under the penalty of double the sum so received, for the faithful appropriation thereof for the purposes aforesaid.

SECTION 9. And be it enacted, That the Commissioners and managers aforesaid, shall be allowed for the said services, such sum or sums each, as a future session of this General Assembly may direct.

WILLIAM BLOUNT, *Governor*  
GRIFFITH RUTHERFORD, *P.L.C.*  
DAVID WILSON, *S.H.R.*

September 27, 1794

In Governor John Sevier's message to the Tennessee Legislature April 1, 1796, he submitted a letter from the Governor of South Carolina relative to making a wagon road over the western mountains and recommended some action by the Legislature. This request by the first Governor to the first Legislature regarding the first road program was denied. Surely these Freshmen in State Government were as aware of the condition of the roads as the one who wrote: "There were no real roads connecting Tennessee with older states or the settlements with each other. Along a few trails the trees had been cut out and rocks thrown into the deepest mud holes. Wagons bumping along on

these roads often got hung on high stumps or overturned in deep ruts. Most travelers went on foot or horse back, or by boat."

Perhaps the absence of enthusiasm on the part of the Legislators was due more to the lack of funds than to indifference to the project. The State Treasury contained only \$3,145.64 and it would hardly seem fair to ask Governor Sevier to accept 1,000 deer skins per annum as compensation for his services, as he did while governor of the State of Franklin. Besides, there were many other expenses incident to the meeting of the Legislature and salaries of officials to be considered.

As in the case of the "Territory of the United States south of the River Ohio," this new, vigorous State of Tennessee was interested in a road connecting the Washington District with the Mero District passing through Indian Territory.

The situation confronting the new State, regarding this road, was unusual. One stipulation in the treaty between the United States and the Cherokee Nation was that the citizens of the United States should have "free and unmolested" use of a road from the Washington District to the Mero District. The atrocities committed by the lawless Indians along the trail were unmistakable violations of this treaty; as were the exorbitant changes made by the unscrupulous "Red Skins" who preyed on the wagon trains as well as on the travelers who dared to ride alone.

The State Legislature was powerless to do anything about this condition. It was the business of the United States Government. An optimistic Legislature meeting in 1799 passed a law "respecting the road as stipulated by the Treaty of Holston." The preamble to the Act insisted that the Government had not marked the road but that it had come into use by one traveler first picking his way for himself through the wilderness and others following in his tracks. This Act appropriated one thousand (\$1,000.00) dollars for cutting and clearing the road, as soon as the President of the United States had the road marked out.

Perhaps the first "State Highway Commission," consisting of three men, William Walton and William Martin of Smith County and Robert Kyle of Hawkins County was appointed to supervise the building and maintenance of the road and administer the expenditure of probably the first appropriation for road purposes. The law specified various toll charges to be collected for the purpose of repaying to the State the sum expended in clearing and completing the road and for raising a fund for keeping it in repair:

"For the purpose of repaying to the State the sum expended in clearing and completing it, and after for the purpose of raising a fund

for keeping it in repair, namely, upon every waggon, team and load, seventy cents; upon a four wheeled carriage for the conveyance of people, and the people and the horses, one dollar and fifty cents; upon every chair, horse and rider, seventy cents; upon every man and horse twelve and one-half cents; upon every slave between the age of twelve and fifty years, six and one-fourth cents; upon every led or loose horse, six and one-fourth cents; upon every cart, team and load, thirty-seven and one-half cents."

This elaborate bluff did not work. All efforts failed. The Federal Government refused to take any favorable action concerning the much desired road from the Washington District to the Mero District.

The "Faithless Savages" still collected fees at certain river crossings and continued attacks upon travelers on a road, that by treaty, they were to travel "free and unmolested." Thomas Jefferson appointed a commission of three to hold conferences with the Indians asking for right-of-way of all lands that lie northward of the road from Knoxville to the Nashville settlements, or failing in that, from one to five miles in width including the road. This bold request was, of course, denied.

At last in 1801 the Legislature enacted a law authorizing Governor Roane to appoint a group of five under the name of the "Cumberland Turnpike Company." Power was given the company to "mile mark" the road, build bridges, level the sides of mountains and hills and set a schedule of tolls. The road began near Southwest Point (now Kingston), passed over the mountains and near the present town of Carthage. The road was called "Walton Road" because of the interest and activity of one of the Commissioners, Captain Walton. The company was granted a ten year franchise during which time the proceeds from the toll went to the company.

Apparently the job was well done because in 1802, a naturalist by name of Michaux made a journey through the Indian territory and wrote that, "It (the road) is as broad and commodious as those in the environs of Philadelphia - - -. Little boards, painted black and nailed upon the trees indicate to travelers the distance they have to go."

In 1801, Sevier County was authorized to open a road and fix a turnpike thereon. This idea of a turnpike arrived with the early settlers from England where toll gates were constructed with long spears or pikes directed toward the vehicles. When the toll was paid, the gate turned parallel to the road allowing the vehicle or animal to pass. From this device came the name "turnpike" which, almost immediately, became to mean a road on which toll gates or turnpikes were erected.

No fewer than eighteen roads were authorized to be cut from 1801 to 1811. Most of these were to have turnpikes erected on them.

The Legislature, in extra session, enacted a law authorizing Governor Sevier to appoint commissioners to supervise the opening of a road between the States of Georgia and Tennessee. Sealed bids were to be received by the Governor from the bidders, the successful one being required to execute an indemnity bond for four thousand dollars. Seven bids were filed and the contract awarded to Adam Peck although Andrew Kennedy bid "one dollar less than any other person." Since this is the first "highway letting," it may be of interest to show the bidding as it appears in volume one of "Messages of the Governors of Tennessee" by Dr. Robert H. White:

William Davis	1,477 dollars
Samuel Johnson	1,999 ditto
Abner White	1,200 ditto
William Lane	1,500 ditto
Adam Peck	1,499.95 cents
Ephraim Walker	2,000 dollars

Andrew Kennedy "one dollar less than any other person."

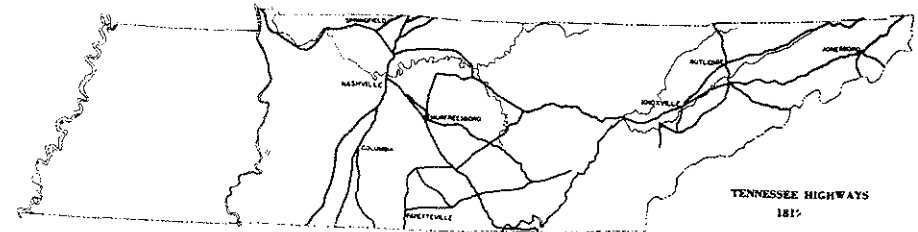
Approved 1st day of November 1804

The only specifications concerning the road were that it must be fifteen feet wide and "so cleared as to admit of loaded wagons running with convenience." One year later Mr. Peck petitioned the Legislature for an extension of three months in which to complete the road. He was faced with the possibility of forfeiting his four thousand dollar bond, while the total appropriation for cutting and clearing out the road was only seven hundred and fifty dollars. His petition was granted.

In 1811, attention was called to the bad order of the road from Tennessee to Natchez, a road designed by the United States Government, suggesting a turnpike as a certain means of keeping it in better repair and protesting as "troublesome, expensive and vexatious," the need of a passport to travel the road. The complaint insisted that "roads kept in bad order and unsafe, instead of proving beneficial would be evils."

In 1815, a Committee of the House of Representatives in Washington was appointed to "inquire into the expediency" of repairing and keeping in repair the road from Natchez to Nashville. It is believed that some favorable action was taken by the Federal Government regarding this road.

The need of improving transportation facilities was emphasized by Governor McMinn in 1815. A Commissioner was named for the road from Kingston to Carthage with authority to mark out the route over which the road could be better laid out. A suitable person was to be elected to a ten year term to keep the road in repair. Two roads, one from Knoxville and one from Nashville both to Alabama were recommended. This recommendation fell on deaf ears. No adequate action was taken.



The map above shows the meager network of about 1,500 miles of roads in 1817 which had developed from Indian and buffalo trails. Many were still beaten paths which could be traveled only on foot or horseback. Others had been made passable for wagons by removing trees and filling the worst mudholes. No roads existed to the west, which was still Indian territory. For generations Tennessee's road development, the responsibility of local governments and turnpike companies, was painfully slow and inadequate.

In 1818 West Tennessee was acquired by treaty and the great surge westward is indicated by the fact that two counties were formed in this area in 1819, four in 1821 and eight in 1823. Tennessee was developing and the general development of the State and the roads were each dependent on the other.

The 1821 Legislature did not appropriate any money for the improvement of roads but they were classified in a very interesting way. Roads of first class were to be twelve feet wide, mile marked, and bridged where necessary. Marginal trees were to bear notches so the traveler would know upon what type road he was traveling. Third class roads were to be of "sufficient width for the passage of a single horse and rider, and for the purpose of milling on single horse." These roads were indicated by one notch on marginal trees. Apparently, the reason behind this marking was that the third class roads were predominant and the cost of cutting three notches on marginal trees for all third class roads was prohibitive.

About this time the "Great National Road" from Washington to

New Orleans claimed the attention of the Lawmakers of Tennessee. They, by resolution, suggested a route through the center of the State to a point on the Mississippi River near Memphis. The road, according to the author of this resolution, should be discontinued at this point and the balance of the route to New Orleans should be performed by water. A Commission was appointed in 1826 to assist the engineers of the United States in making a survey through the State of a route for the "Great National Road."

The first concept of a highway transportation system in Tennessee developed in the first half of the nineteenth century. Private companies, sometimes assisted by the State, built a considerable mileage of turnpikes.

In 1829, the State Legislature passed an Act authorizing the State to pay one-third of the cost of construction of any railroad or highway between Nashville and Gallatin and limited the total funds to be expended to \$4 million. Construction was started on the turnpike about 1835 by "The Nashville and Gallatin Turnpike Company." About this time a charter was granted to the "Nashville-Franklin Turnpike Company." Many others followed in rapid succession until at one time, nine hundred such private companies were operating in Tennessee. Generally, the turnpikes were built on reasonably good grades to accommodate horse drawn vehicles but the alignment often left much to be desired.

The ambition for good roads had been aroused in the Legislature of 1830. By resolution it said: "The State of Tennessee has it in contemplation to make a State turnpike road on the Macadam plan from the Virginia line to the Mississippi River, provided she can obtain the adequate funds." It is an interesting fact that one hundred years were to pass before a paved road 537 miles long, with the necessary bridges, would be opened along this route fulfilling the desire expressed in this resolution.

The "Macadam plan" mentioned in the resolution was a type of road construction conceived by a Scottish engineer named John McAdam who, early in the nineteenth century, exerted a tremendous influence on road building, first abroad and later here in America. His small stone method had met with an enthusiastic reception in Europe; and even earlier, Telford's large stone method was widely acclaimed. Both arrived in America about the same time and although the "Telford Base" was extensively used, the method of McAdam became so popular that a "macadamized road" was almost synonymous with "a good road." The first macadam road in Tennessee was

built in 1831. The influence of McAdam was keenly felt from that time on and added needed impetus to the attempts to improve the transportation facilities in the State.

There were parts of Tennessee, however, where corduroy and plank roads were much in demand because of the nature of the terrain. Plank road construction companies were formed. The Pigeon Roost Road in Memphis was a plank road as was the Hales Point Turnpike which was sixteen feet wide at the top. The temptation to digress here is almost overwhelming, but since it would not serve the purpose of this narrative to delve further into these interesting road types, the subject will be reluctantly shunted.

The Legislatures that followed passed more acts intended to encourage private corporations to build turnpikes and railroads by giving them State aid. However, as early as 1840, it was realized that charters of incorporation involving State aid were being issued for projects of no general benefit to the State as a whole and State aid for highways was discontinued. More than seventy years were to pass before the State was again to take an active part in highway construction. The difficulties in the way of carrying into operation the general desire for good roads seemed almost insurmountable.

Perhaps one of the outstanding obstacles was the popularity of railroad transportation. Although the first railroad company in Tennessee was chartered in 1831, it was not until 1842 that the first train made an exhibition run over the LaGrange and Memphis Railroad. Within the next decade there were four other railroads in operation. There followed such rapid development and extension that the ensuing competition with the toll roads became so serious that by the middle of the century many turnpike companies, already unpopular, were bankrupt.

Many public roads, such as they were, were largely supplemental to the railroads and served principally as farm to market roads.

The State had begun to sell her shares in privately owned roads as buyers became available. The counties too were expressing much dissatisfaction concerning the location and management of the turnpikes. It was widely believed that the companies were more interested in profit than in plan and profile; and as a result of this loss of confidence, and after many years of complaining, the Legislature soon passed Acts prohibiting certain counties from participating in the building of turnpikes.

Plans for internal improvements were subordinated to plans for defense in 1861. Social unrest, seething political divisions, bitterness and strife are conditions not conducive to internal progress. Even in

meeting the demands of war, however, roads could not be completely ignored because one of the purposes of roads is defense. Roads and bridges, though many were destroyed, were built to accommodate the movements of troops and materials of war.

Of course the Reconstruction days were not productive years. From 1865 to almost the close of the century much thought and effort were expended on attempts to compile and clarify road laws and to "include all laws on this subject in one Act." In 1889 the General Assembly designated a system of public roads stating, "That all the roads now laid out according to law, or shall be laid out, shall be deemed Public Roads."

A popular wave of discontent at the bad condition of public roads was sweeping the country and Tennessee did not escape this "beneficial contagion." The "Highway Reform Committee" of the "Nashville Commercial Club" was in dead earnest and worked hard and successfully in getting a "State Road Congress," composed of men in every county, to meet in Nashville and make plans to bring this issue before the next meeting of the Legislature. They convened at noon August 26, 1890 and adjourned in the evening of the following day. As a result of this convention a carefully drawn instrument was prepared requesting immediate attention to this vital question. When the Law-makers met in 1891, they were confronted with this insistent demand for action on the public road question, and the "Tennessee Road Law" of 1891 resulted. This law received favorable attention when a Mr. Fred Stone, who was appointed by the Secretary of Agriculture of the United States to investigate public road conditions in the country, reported that, "The new road law of Tennessee (1891) is an admirable example of county control. Giving the county courts full power and direct control over roads should eliminate the evil influences of local politics and the easy methods that prevail."

There was a campaign for better roads being waged, on the National scene, by a group of bicycle enthusiasts who had organized "The League of American Wheelmen" and had begun what was perhaps the first organized good roads movement. This small but articulate group, with the interesting name, contributed much toward the establishment, in 1893, of the Office of Inquiry, the forerunner of the present U.S. Bureau of Public Roads, "to make inquiry into the best methods of road making and to disseminate information." The appropriation for this embryonic Bureau of Roads was ten thousand (\$10,000) dollars for the first year. It may be of interest to contrast that with the latest apportionment of \$3 billion 400 million Interstate

and ABC funds, not including the \$400 million emergency funds made available the same year.

The first Highway Department was established in Massachusetts in 1893 followed closely by New Jersey. Six states and the District of Columbia (1878) organized Highway Departments in the latter part of the nineteenth century, setting the stage for an irresistible movement for "State Aid" laws and organizations to administer that aid.

The first automobile was built in 1893 and by 1895 there were four registered in the United States. This new instrument of transportation which was to have such a profound influence on our economy and way of life, created a new and more persuasive demand for better roads.

In 1899 a law was enacted permitting the counties to buy the turnpikes, with county warrants, from the companies and stipulating that after all expenses and debts were paid, the road was to become a free public road and be maintained as such. Also an Act was passed to "make it the duty of the county court to make contracts for the employment on the public roads of prisoners confined in the county jail for the non-payment of fines and cost adjudged against them." Also an act to regulate the working and laying out of public roads in the State was passed.

The county courts were required to elect one road commissioner to have supervision over all the highways and bridges in his county. The Act also stipulated the months the roads were to be worked and made it possible for any one, subject to road duty, to commute by paying to the contractor or commissioner fifty-cents per day. The Act provided also that, "all highways in this State shall be worked hereafter by contract, sealed proposals to keep the roads in repair shall be submitted from each section of highway in the county to the road commissioners on or before the first Monday in January 1900, and every year thereafter and said contract shall be good for one year."

## PART II—1900-1914

### INCUBATION

What might be called the Incubation Period of the Highway Department began as the century turned and with it the wheels of an industry that was destined to change man's entire concept of highways. By 1900, motor vehicle registration in America had skyrocketed to the unbelievable number of eight thousand, with Tennessee proudly claiming approximately forty of them.

The influence of the "horseless carriage" became apparent in Tennessee as early as 1901, as evidenced by a remarkable resolution introduced in the Knox County Court urging the National Government to spend fifty million (\$50,000,000) dollars for a "highway from New York to New Orleans via Washington following the old National Road of 1824." This road was to be, according to the resolution, one hundred feet wide; 20 feet each way for automobiles; 20 feet each way for wagons and carriages; five feet each way for bicycles and five feet each way for footmen. It was to be paved with asphalt, lighted with electricity and was to have a water main along its full course. It was to run through the main valley of East Tennessee and pass within a mile of Knoxville but in no other instance to swerve from its line or direction in order to go through any other town.

To give as much consideration to automobiles as was given to wagons and carriages suggests that the framers of this amazing resolution were convinced that these "new fangled contraptions" were here to stay.

The advent of the automobile was, of course, met with firm resistance. There were many who doubted the sanity of anyone who drove the "thing" and scoffed at the idea of planning for it to take a significant place in human affairs. This came as no surprise, since opposition to change is the rule rather than the exception.

Even the arrival of the stage coach upon the scene was viewed with alarm by many skeptics. A classic example of one argument against the encroachment of the coach was that it was calculated to destroy a breed of horses and make men careless of good horsemanship. Horse-

back riding would vanish, leaving the people impoverished, less virile, weak and deluded. Furthermore, it was suggested that riding in the saddle and exposure to the weather caused the clothes to wear out more quickly thus stimulating the economy by helping the tailors, suppliers of cloth, etc. But the coach came, as did the automobile, in spite of the opposition.

In 1902 the "American Road Makers," to be incorporated in 1910 as the "American Road Builders Association," was organized and carried forward the movement started by the "League of American Wheelmen." Also in 1902 the American Automobile Association was organized to represent the ever growing number of automobile owners. These and other organizations added their voices to the individual voices in Tennessee, sowing the seeds of discontent which were to germinate and bring forth fruit in a few years.

By 1905 the legislature, convinced that the automobile was more than a plaything for playboys or a toy for the idle rich, proceeded to pass a law entitled, "An Act to require owners of automobiles to register and number the same; to regulate the operation thereof; to provide for the recovery of damages for injuries caused by the unlawful running thereof and to fix the penalty for the violation of the provisions of this Act." Section one of this Act provides that the "owner shall register such automobile with the Secretary of State giving the motive power—and shall upon the payment of a fee of two (\$2.00) dollars receive from the Secretary of State a certificate showing such registration, which certificate shall be numbered as issued in consecutive order, beginning with one hundred and shall thereafter upon the payment of a fee of one (\$1.00) dollar register said certificate with the county court clerk of the county in which such owner resides."

Section 2 made it mandatory to display the certificate number in arabic numerals of not less than three inches in height and one and one-half inches in width in a conspicuous manner at both front and rear of automobiles.

Section 3 prohibited the automobile from being run or driven upon any street, highway or other thoroughfare at a rate of speed in excess of twenty miles per hour.

April 8, 1907 the "Nashville American" regretfully reports that, "there has been nothing done in either house, as yet, looking to the creation of a State Good Roads Commission as recommended by Governor Patterson," but hopefully suggests that, "bills to this effect will be acted upon this week." Then on April 11, the same paper

reports that "practically without opposition the House of Representatives amended and passed the Tollett road bill which provides for a State Highway Commission and for a comprehensive system of State road construction. As amended by the House, all reference to the liquor tax as the source of revenue is eliminated, and instead an appropriation of \$500,000 per annum is made from the general revenues of the State."

"This bill carrying an appropriation of \$1,000,000 is probably the largest appropriation bill passed in Tennessee, except the usual general appropriation bill, since the erection of the State House."

Recognizing the need for an Authority for highway building the Legislature did pass a bill entitled, "An act to encourage, promote and provide for a system of internal improvements throughout the State, and to promote and provide for the construction of and building of a system of public highways in various counties in this State; and to create the office of State Highway Commissioner for the State, and that of two Assistant Highway Commissioners and to provide for their appointment and to define their powers and prescribe their duties and to create and provide a public highway fund to be used in the construction and building of public highways in the various counties of this State, by appropriations out of the treasury of the State the sum of five hundred thousand dollars annually, which shall constitute a State public highway fund, and to apportion the same among the various counties of the State in proportion to the number of square miles of territory in each county; and to provide that the portion of said fund apportioned to each county shall be used in construction and building highways under the provisions of this Act in such county." There follows eighteen sections dealing with the first Highway Department. This Act was approved reluctantly April 15, 1907 by Governor Malcom Patterson. The approval was accompanied by the following explanation: "I approve this bill with some hesitancy but as it appropriates from the surplus after paying the State's obligations including the ten percent sinking fund, I am willing to allow the bill to become a law, in the hope that it may result in a better system of public roads and be the beginning of a system of good road building so much needed by the people of Tennessee."

Signed, Malcom Patterson, Governor

It might well have been, according to the Governor's desires, "the beginning of a system of good road building," if so, it was a very timid beginning. If this law started the "ball to rolling" for a "better system of public roads" it was a feeble start indeed and hardly worthy of the

noble effort of the authors of the Bill. In the April 23rd edition of the Nashville American there appeared this discouraging announcement, "There will be no funds for good roads this year," and predicted that, "It is practically certain that not before January 1, 1909 will there be any funds for use on the State Highways."

In 1909, with no explanation, the Legislature repealed Chapter 560 of the Acts of 1907. It seems a bit unusual, but no law was passed by the 1909 General Assembly taking the place of the 1907 law. However, along with many acts authorizing bond issues for counties building turnpikes and prescribing powers, duties and compensations for superintendents and engineers, there emerged an act to create a "State Commission on Public Roads" to investigate Federal efforts and methods in public road work with relation to State road work; and to place the result of such investigation with recommendations before the General Assembly of the State of Tennessee, the Department of Agriculture, Board of Prison Commission; and to define how such commission should be created, conducted and maintained.

The three-man commission appointed by Governor Patterson were: Hon. E. C. Lewis of Nashville (Chairman); Hon. W. J. Oliver of Knoxville (Member); and Hon. H. W. Brennan of Memphis (Member). This Commission took its work seriously and performed a conspicuous service. It recommended legislation that would approve the following Public Road System and estimated cost of building:

	Miles	Est. Cost
State Highways . . . . .	826	at \$2,400,000
Inter-County Roads . . . . .	4,800	at \$2,400,000
County Roads . . . . .	4,800	at \$2,400,000
	10,426	\$7,200,000

It also recommended that:

1. Counties should issue bonds for road purposes.
2. Highway from Memphis to Bristol be built.
3. State convicts be used in highway construction.
4. The relation of the width of the tire and wheels to the heft of the load on public highways be given attention by the Lawmakers and recommended that only tires of standard width in proportion to the load, determined with consideration for the least wear on the surfaces of the State roads, be permitted the use of the roads.

The highway system was stressed, suggesting that, "The Federal Government will eventually take over and maintain as a National

Highway System all State Highways which are inter-state in character." The dividends ensuing from a State Highway System were enumerated as follows:

1. Relief to towns and counties and saving to road users through reducing wear and tear and losses.
2. Educational opportunities that alone justify the investment.
3. Agriculture products transported by truck swiftly, easily, safely, far; and rural life enriched financially and socially.
4. Factories avoid congested centers and labor needs no tenements in towns.
5. Magnificent resorts and mountains and National Parks made accessible to all.

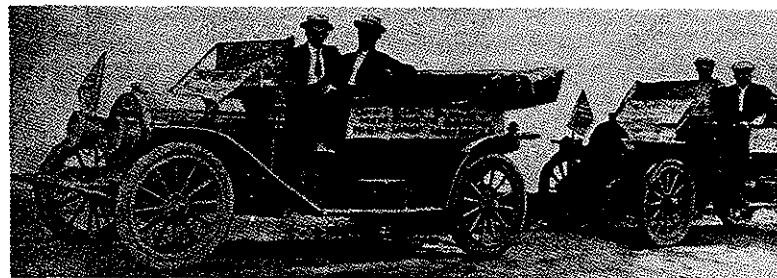
The above excerpt from the report of the Commission is presented here to show the far-sighted, intelligent approach the Commission made to the transportation problem.

The General Assembly of 1911 found much to be done about this pressing Public Road Problem. This county wanted a change in the road laws; this one wanted all the road work to be done by contract; another wanted to abolish the "three road commissioner" system. Marion County wanted the county court authorized to make and prescribe rules and regulations governing the width of wagon tires to be used on the pike or macadamized roads. In the very first chapter of the 1911 Acts, Sullivan County wanted to confer upon any contractor constructing macadamized county public roads the right of Eminent Domain.

Wilson County wanted to divide the public road system into classes by width—first class 30-60 ft., second class 25-45 ft., third class 18-25 ft., fourth class 14-25 ft. Section 3 required a ditch on each side of the road "capable of running the water off," and every road was to be graded with a slope of at least one inch per foot from the center outward.

Sullivan County introduced a bill entitled: "An Act to regulate the operation of automobiles, to prescribe some of the duties of chauffeurs, to provide for the recovery of damages for injuries caused by the unlawful running thereof, and to fix the penalty for the violations of the provisions of this Act and to provide a privilege tax on automobiles for road repairing purposes."

Section 6 reads as follows: "Be it further enacted that each automobile run for hire shall pay a privilege tax of twenty (\$20) dollars per annum and that each automobile owned by individual or indi-



Growing recognition of the need for state-wide highway service sparked the formation in 1911 of the Memphis-Bristol Highway Association. Shown here are two cars of a commission appointed to locate a feasible route for what was later to become State Highway No. 1.

viduals and used for private or domestic purposes shall pay an annual privilege tax of ten (\$10) dollars to be paid to the county court clerk, and shall be used exclusively for the purpose of repairing the pike roads of such counties. This tax shall be in lieu of all other privilege taxes." This is perhaps the first motor vehicle tax that was to be applied directly on roads.

Although there were only eight thousand motor vehicles in 1900 in the entire United States, by 1913 there were 14,830 in Tennessee alone. Fourteen thousand eight hundred thirty motor vehicles and an indeterminable number of horse-drawn vehicles proved to be more than the existing roads could accommodate. The Legislature passed a General Enabling Act authorizing counties in the State, through their quarterly courts, to issue bonds for highway purposes; to provide for retiring the indebtedness and to provide for the expenditure of the fund derived from the bond issue. This, no doubt, was one of the results of the report of the "State Highway Commission" authorized by the 1909 Legislature.



## PART III—1915-1923

### FORMATION

A startling number of motor vehicles in Tennessee sounded their "klaxons" and impatiently demanded open roads. They raucously announced the arrival of what is called here the Formation Period. The system of local control could no longer cope with the problem. The inter-county roads were inadequate and too often impassable. The motorists must have found conditions "troublesome, expensive and vexatious." More than ever the need for a State coordinating agency was apparent.

Realizing this need and anticipating favorable action by the Federal Congress providing Federal Aid for road construction, the State Legislature of 1915 passed a bill creating the first State Administrative Agency for the control of highway construction and maintenance. The bill provided for the establishment of a State Highway Department and a State Highway Commission. It prescribed the powers and duties of the State Highway Department and authorized the formulation of a highway plan for the State. This commission was composed of three ex-officio members and three members appointed by the Governor. The Commission was to organize by the selection of one of its members as chairman and by the selection of a full-time employee to act as secretary. The ex-officio members were: Tom C. Rye, Governor; Charles C. E. Ferris, Dean of Engineering, the University of Tennessee; Dr. A. H. Purdue, State Geologist. The appointive members were: Arthur Crownover of Winchester; William H. Crox of Bradley County and Charles W. Williams of Henry County. Mr. Crox was succeeded by C. E. Milburn of Chattanooga. To conduct the work of the Department, J. J. Murray was employed as secretary, A. M. Nelson as chief engineer, and O. M. West as chief clerk. The duties of this budding Highway Department were defined by the Legislature and could be classified under the following general headings:

1. To collect information for, and project a connected highway plan and make maps showing the plan.
2. To establish standards of road construction and maintenance to be used by the State and recommended to the counties.

3. To act in advisory capacity to county authorities on matters pertaining to highway construction and maintenance.
4. To execute contracts with the Federal Government for the expenditure of any Federal funds that might be apportioned to Tennessee.

The combined effort of the "Good Road Associations," including the "American Association of State Highway Officials" organized in 1914, culminated in 1916 in the passage by Congress of "The Federal Aid Road Act." This 1916 Act was indeed significant for it recognized the national importance of highways and launched, on a nationwide basis, a Federal Aid Highway Program. The pattern established in the 1916 Act and the Federal Highway Act of 1921 contained principles that have endured the test of time. Among the important principles established by these two Acts are the following:

1. Cooperation of the Federal Government with the states in a highway improvement program.
2. Each state required to have a highway department suitably organized and equipped to discharge its responsibilities.
3. Federal Aid funds to be spent on a selected system of highways.
4. Federal funds to be apportioned among the states under formulas set up in the law based on the factors of population, area, and mileage of post roads.
5. States required to match Federal Funds with state funds.
6. States have the initiative in the selection of routes to be included in systems and in the selection of projects for improvements.
7. The states make the surveys, prepare the plans, let the contracts, and supervise construction, all subject to review, inspection and approval of the Bureau of Public Roads.
8. State required to maintain highways built with Federal Aid at their own expense. Federal Aid may be withheld if any state fails to maintain the highways satisfactorily.

This Federal Aid Act was by far the most significant event to date. Under this act small sums were appropriated for highway design and construction. At first the monies could be expended upon "any roads over which the mails are carried or may be carried." In 1921 the funds were limited to a Federal Aid System. The first appropriation was a modest 5 million dollars for the first year and was to increase 5 million dollars each year to 25 million for the fifth year. This Act was so enthusiastically received and roads were so popular that after

the first year it was necessary to increase the appropriation by supplemental funds until federal aid soon reached 100 million and more per year.

The desire for public ownership of public roads was gaining momentum among Tennesseans. Encouraged by the interest being shown in good roads by the Federal Government and the State, the counties began to buy the privately owned turnpikes with public funds and free them for public use as exemplified in the minutes of the July term of the quarterly court of Maury County in 1916. Authority was granted for the purchase of the following mileage:

Columbia-Pulaski . . . . .	7.00 miles	\$ 7,000.00
Columbia-Big Bigby . . . . .	11.4965 miles	11,496.50
Columbia-Williamsport . . . . .	11.0162 miles	11,016.20
Columbia-Sante Fe . . . . .	10.5754 miles	10,575.40
Columbia-Little Bigby . . . . .	5.0170 miles	5,017.00

The turnpike era was drawing to a close in spite of the reluctance of some companies to sell. The Nashville-Franklin Turnpike Company, the first to be chartered, was the last to surrender. It was not until 1926, after many difficulties and much litigation, that this section of road became free.

The 1917 Legislature authorized the building of a road from Tip-tonville to Whites Landing. The road was to be located, surveyed, profiled, and estimated as to cost. It was to be constructed and supervised by and under the direction of the State Highway Department. The funds were to be appropriated through the Department of Game, Fish and Forestry.

Chapter 74 of the 1917 Acts of the Legislature provided "revenue for use in road building in this State by the Highway Department and in conjunction with the Secretary of Agriculture of the United States." There was to be levied on all taxable property in Tennessee in 1917 and annually thereafter, a road tax of one mill on each dollar. This was to be placed in a separate fund and was to be known as the "State Aid Road Fund." The Highway Department was given full power and authority, in conformity with the rules and regulations made by the Secretary of Agriculture.

Chapter 16 pledges the full faith of Tennessee to make available "matching funds" and to maintain the roads constructed.

Under the provisions of this Act the counties contracted to do maintenance work on new construction completed by the State Highway Department.

Chapter No. 73, 1917 requires each owner of any vehicle propelled

by steam, gasoline or electricity or any other mechanical power to register such vehicle with the State Department of Highways through the county court clerk in the county in which the owner resides and to pay the following fees: for motor trucks thirty cents per rated horse power and an additional fee of three dollars per ton for each ton carrying capacity; for automobiles, motorcycles or other vehicles of like character thirty cents per rated horse power of the motor. The owner was to receive from the State Department of Highways a certificate showing such registration. The county court clerk was given the right to collect a fee of twenty-five cents for registration and to distribute "number plates" provided by the State Department of Highways. These number plates were to be conspicuously displayed at both front and rear of the vehicle. All the highway and road funds were to be deposited daily in some State depository in the county in which the funds were collected. The State Treasurer was authorized to designate the depository and as often as required, the State Department of Highways could withdraw from each of such banks ten per cent of the funds deposited since the last withdrawal. This fund was to be placed in the State Treasury to the credit of the State Department of Highways for the maintenance of such Department and for the payment of all the costs to the Department for the collection of such fund. The remainder of the fund was to be expended in the county from which collected, under the supervision and direction of the State Highway Department in cooperation with the regular legally constituted road authorities of the county, in the maintenance of highways.

This fledgling Highway Department was well received and its program, in cooperation with the Federal Government, was enthusiastically endorsed as indicated by the following resolution passed by the County Court of Maury County in April 1918: "Therefore be it resolved by the County Court of Maury County, State of Tennessee, that the full faith and credit of the county is hereby irrevocably pledged to the State of Tennessee Department of Highways to defray the expense of maintenance on any road, bridge, or bridges, constructed or reconstructed in part or in whole with State or Federal funds."

At last it seems that the Highway Department with its Program is "underway." But, World War I interrupted the progress that would have been inevitable if the engineers could have remained and material could have been supplied. Federal Aid as we know it today was only two years old. The three year old Highway Department was a loosely organized authority courting the counties to get enough money to start some highway construction. The opportunity for growth was

momentarily gone but the plans and the dreams remained, although this inconspicuous beginning gave little substance to the dreams and added little toward the fruition of the plans.

The Federal Aid received thus far was not very much. The allotment for Tennessee in 1917 was \$114,153.48. However, in 1918 it had increased to \$228,306.96. Some few projects had been started, one of which was to be the first concrete road built in Tennessee, under the jurisdiction of the Highway Department, consisting of two miles in Hamilton and Marion Counties.

The year 1919 should stand out as an important year in the formation and development of the "Highway Department." The demand for better roads could not be ignored, the desire could not be suppressed. There were 79,189 motor vehicles in Tennessee demanding attention. They received consideration from the General Assembly. There was a "whopping" \$1,472,767.00 Federal Aid allotment and there was a little money available in the "One Mill Tax Fund," the "State Good Roads Account" and the "Ten Percent Fund."

A more closely knit and progressive organization was needed to push a vital highway program forward. Aware of this, the Legislature replaced the six-man Highway Commission with a three-man salaried Commission. This Commission was to organize by electing one of its members as chairman and one as secretary. The third member was given the title of "Chief Engineer." This Commission was charged with the responsibility given the first Commission and in addition was given the repeated charge of laying out a State Highway Plan. Authority was given the State Highway Commission to execute any highway work by means of the labor of State or county convicts, provided satisfactory arrangements could be made.

The men chosen, by the appointing board, consisting of the Secretary of State, the State Treasurer and the Comptroller, to conduct the affairs of the new Highway Department were: W. W. House, chairman; W. T. Testerman, Secretary and W. P. Moore, Commissioner of of Engineering. Lest we erroneously think of this Highway Department as only a weak Repository for Federal Funds with little or no capacity, let us look at its organization skeleton.

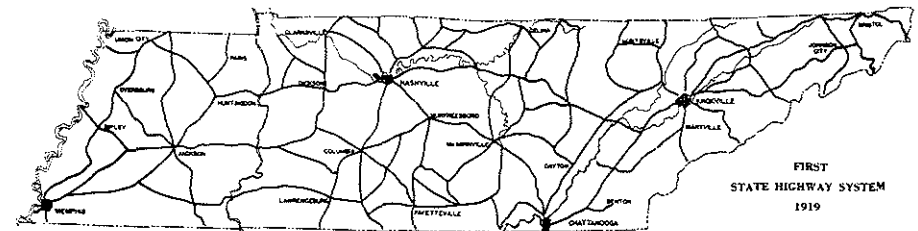
The Department was divided into two bureaus, the administrative, under direct control of the assistant secretary to whom all heads of divisions in that bureau reported direct, and the engineering bureau, under the direction of the chief engineer to whom all division heads in that bureau reported direct. The assistant secretary and the chief engineer reported independently direct to the Commission. The ad-

ministrative bureau was divided into three divisions—personal staff of the assistant secretary, consisting of purchasing agent, auditor, stenographers and clerks; automobile license division, in charge of the chief accountant, reporting direct to the assistant secretary; and the equipment division, in charge of the superintendent, under whom were the chauffeurs and mechanics.

The engineering bureau was sub-divided into nine divisions: (1) personal staff of the chief engineer, consisting of the secretary of the chief engineer and the assistant chief engineer, office engineer, assistant, and stenographers; (2) Bridge Division, in charge of the bridge engineer, under whom were the assistant bridge engineer, designers and draftsmen; (3) Plans Division, in charge of the engineer of plans, with assistant engineer of plans, checkers and draftsmen; (4) Maintenance Division, in charge of the maintenance engineer, with an assistant maintenance engineer in each of the four field divisions, with maintenance gangs and patrolmen; (5) Testing Division, in charge of the engineer of tests; (6) the four field divisions, with headquarters at Knoxville, Chattanooga, Nashville and Jackson, respectively.

The Division Engineer was made directly responsible for preliminary work of all surveys, preparation of plans, and all construction in his division. His organization was divided into two sub-divisions; office staff, consisting of assistant division engineer, office engineer, assistants, draftsmen and stenographer; and the field parties in charge of a resident engineer, reporting to the Division Engineer. It does not require a practiced eye to see that this progenitor of our present Organization possessed the essentials requisite for an effective "Highway Department."

This Act also provided for an increase in motor vehicle registration

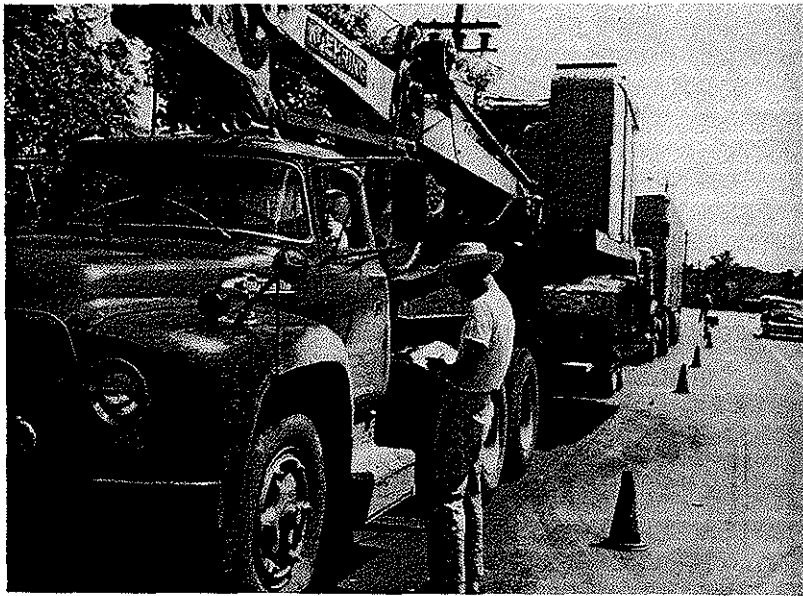


The map above shows the first State Highway System, consisting of a limited network of 4,000 miles of the most important routes of statewide interest. As this network improved, other important routes were added. The system for which the state is now responsible has grown to 8,400 miles, including connections into and through cities.

fees to: fifty cents per rated horse power of motor and an additional fee of five (\$5.00) dollars per ton for each ton carrying capacity for trucks; for automobiles, motorcycles, or other vehicles of like character, fifty cents per rated horse power of the motor. All money accruing



The picture above shows an overloaded truck which, in 1922, was considered a menace to the highways. In contrast, the recent picture below shows a truck weighing in excess of 90,000 pounds.



from the registration of automobiles in the State, and all penalties paid for the violation of motor vehicle laws were appropriated and set aside as highway funds. These funds were to be available for the purposes of the act and expended under the direction of the State Highway Commission for the construction and maintenance of public roads and bridges in the respective counties of the State, "provided, however, that half of the net funds derived by virtue of the auto tax should be distributed equally among all the counties of the state for maintenance, and remaining half shall be expended upon such State highway as may be designated by the State Highway Commission."

An interstate highway known as the Bristol to Ashville Highway was authorized by the 1919 Legislature. The highway was to be so located and constructed as to meet the requirements of the Federal and State laws, making it possible to receive State and Federal Aid in the construction and maintenance.

During the year 1919, the Highway Department spent \$474,236.58 on State Aid and Federal Aid construction and placed several projects under contract. Some waterbound macadam, some bituminous carpet treatment and some bituminous macadam surfaces were soon to be completed.

The 1921 Legislature showed its interest in public roads by passing sundry laws dealing with the appointment of commissioners for the supervision of turnpikes and toll roads; the elimination of grade crossings on State highways; and enabling those who were cut off from a public road by reason of intervening lands to obtain an easement of right-of-way across such intervening lands or property. One significant law passed by the 1921 General Assembly was an Act to protect the streets, roads, highways or other public thoroughfares in Tennessee, including bridges on such highways, from unnecessary injury or damage. The State Highway Department was empowered to make reasonable rules and regulations respecting the use of vehicles on public thoroughfares and to prescribe the manner in which the wheels of vehicles should be equipped in order to protect the surface and foundation.

The protection of highways has been of prime interest since that time. Much research and study go into determining the proper load limit, axle load and other features bearing directly and indirectly on highway preservation.

An Act to regulate and control the erection of signs on the rights-of-way of highways became law. Section 3 of this Act required the Highway Department to erect on all streets, roads or highways designated

as main traveled roads and included in the general highway plan of the State (called State Highways) wherever such ways cross a highway, a sign showing the direction or mileage to the next incorporated municipality. Whether it has been "blazing," "notching" or "mile marking," highway marking has always been a necessary operation of the Highway Department.

By the end of the year 1922 the Highway Department had accomplished much in the way of road building. They had built 271.33 miles of road. The mileage built showing the surface type may be shown as follows:

Type	Miles
Cement Concrete .....	26.24
Bituminous Concrete .....	7.43
Rock Asphalt .....	31.08
Bituminous Macadam .....	53.02
Water bound Macadam .....	81.88
Gravel or Chert .....	71.68
<b>Total Miles Completed</b>	<b>271.33</b>

Although only 271.33 miles of road had been completed there were 307.89 additional miles in the process of being built; some just placed under contract. The total contract price of roads and bridges completed and let to contract was \$15,692,622.12. The completed mileage represented \$6,744,621.68 of this cost. At this time there had been proposed a Federal Aid Primary System of 1,329.2 miles and a Federal-Aid Secondary System of 2,702.6 miles.

A number of forces, dedicated to the improvement of roads, were at work in Tennessee but the demanding force all the way has been the motor vehicle. The situation has been likened to a game of leap frog between the highway and the vehicle and it seems that the vehicle has always been one jump ahead. By the time that alignment and surface had reached the current demand, new vehicles, faster, heavier and more powerful were coming off the assembly line. At this time (1922) there were 174,248 motor vehicles in Tennessee and this figure was growing by leaps and bounds creating new problems, new demands.

These overpowering problems and demands had to be dealt with as 1923 ushered in, what was for a long time, the greatest road building era in Tennessee. Realizing the inadequacy of the existing Departments to administer a stepped-up progressive program, the Legislature,

under the leadership of Governor Austin Peay, passed a sweeping reorganization Bill entitled: "An Act to reorganize the administration of the State in order to secure better service and through coordination and consolidation to promote economy and efficiency in the work of the Government; creating and establishing certain departments and offices, and prescribing their powers and duties; fixing certain salaries; abolishing certain offices, boards, commissions and other agencies, and repealing conflicting acts and parts of acts."

In section one of this Act, the Department of Highways and Public Works was created and established.

A chief executive officer of each administrative department was created including a Commissioner of Highways and Public Works, who was to be appointed by the Governor for terms to expire with the beginning of the term of the Governor next elected or whenever his successor should be appointed and qualified. The Commissioner was to hold office at the pleasure of the Governor.

The Department of Highways and Public Works was granted the authority to exercise all the rights, powers, and duties vested by law in the State Highway Commission and the Superintendent of the Capitol and was authorized to prescribe rules and regulations affecting State Highways. The Department was given the responsibility for all phases of highway work and the custodial care of all real property of the State.

For the benefit of those who would enjoy a closer inspection of the Reorganization Act that authorized the organization of the Department of Highways as we know it today, reference is made to Chapter No. 7 of the Public Acts of 1923. But, for the sake of brevity, those controlling sections and parts of sections in the Act are omitted and a brief discussion of the Organization that emerged is inserted here.

The State Highway Commissioner was made the chief executive officer of the Department. He was charged with the responsibility of prescribing all rules and regulations for the government of his Department, and was responsible for the proper functioning of it. He was to designate all roads to be built, authorize all appropriations and execute all contracts.

Assisting in the administration of the Department as it was organized were the First and Second Assistant Engineers. The First Assistant State Highway Engineer had general charge of the headquarters office, equipment purchases and the correlation of the several divisions of the Department. The Second Assistant State Highway

Engineer had general charge of the field personnel, contracts, supplies, and of the Division of Public Works.

The Auditor was in charge of the Division of Accounts. This Division, under his direction, was soon reorganized and expanded so as to properly clear the volume of work required of it in the checking and auditing of accounts, making disbursements, and the keeping of the necessary records.

The Department, for functional reasons, was divided into eight divisions. These were, the Division of Plans and Surveys, the Division of Tests and Investigations, the Division of Bridges, the Division of Equipment and four Construction Divisions. Each of these Divisions, with the exception of the Equipment Division, was in charge of a Division Engineer. The Division of Equipment was in charge of a Superintendent.

The Engineer of Plans and Surveys had supervision of all surveys and the preparation of all plans, specifications, and contracts for State highway work. Under him were the Chief Draftsman, who had charge of the drafting rooms, and three Assistant Engineers, one of whom had charge of preliminary surveys and reconnaissance work, and the other two had charge of the field parties on location and also assisted in the direction of the preparation of plans.

The Engineer of Tests and Investigations had charge of all matters pertaining to the making of proper tests of all materials for road and bridge construction. He had charge of the physical and chemical laboratories, and directed the making of the material surveys on projects contemplated for construction in order that all local material be investigated so as to determine its suitability for road construction. Under his direction also, research and experiments were to be carried on to develop more economical methods of construction and to improve the quality of work performed.

The Engineer of Bridges had charge of the design of all timber, steel and concrete structures built on the State Highway System.

The Superintendent of Equipment had jurisdiction over all construction and maintenance equipment. He directed the operation of the State garages located in Nashville, Knoxville and Jackson.

The Division Engineers of the four construction divisions were the field representatives of the Department. They were responsible for the construction and maintenance in their divisions. They also cooperated in the direction of surveys and, assisted by Division Construction Engineers, they directed all Resident Engineers. All work was subject to their orders and directions. Likewise, with the assistance of the Divi-

sion Maintenance Engineers, they directed all maintenance of roads on the State Highway System.

The Department of Highways and Public Works was so skillfully designed, that it has been necessary to make only a few changes in the Organization Plan since its inception.

The Highway System had not been clearly defined at this time. Such terms as "roads connecting county seats," "most traveled thoroughfares" and "main roads" were not selective enough for a new forward-looking program. There were many differences of opinion as to what road should be known as a "most traveled thoroughfare." Many misunderstandings arose.

By 1923 the Federal regulations had been changed to require each state to present a system of primary and secondary roads on which they proposed to spend Federal Aid. In addition to the Federal System, the Commissioner set up a State Highway System in 1923 which was to include the mileage of the Federal-Aid System. This State System consisted of 4,644.4 miles of which 1,537.2 miles were on the Primary Federal Aid System, 1,585.0 miles on the Secondary Federal Aid System and 1,522.2 miles on the State Aid System.

In selecting the routes for the Highway System after connecting the county seats, consideration was given to the following roads:

1. Those that attract other than local traffic.
2. Those connecting the roads of adjoining states.
3. Those that are necessary links in long distance travel.
4. Those that afford access to national or state parks.

Only seven percent of the total public road mileage could be considered for Federal Aid. The possible breakdown between primary and secondary mileage available for Federal Aid Systems was as follows: (At the beginning of 1923 there were 65,203.9 miles of public roads.)

7% of 65,203.9 = 4,564.3 Total Federal Aid miles

3% of 65,203.9 = 1,956.1 Primary miles

4% of 65,203.9 = 2,608.2 Secondary miles

The selected Federal Aid System did not contain all the mileage possible under the seven percent plan.

Much money was going to be needed to finance this stepped-up highway program. Federal funds must be matched, State aid construction financed and maintenance performed on this expanded Highway System.

The problem facing this very active 1923 General Assembly was not, should the funds be made available, but how should they be raised. The property tax was certainly not the proper method, so the

old 1917 law was repealed, clearing the way for a more acceptable plan.

Governor Andrew Johnson, in 1853, had succinctly stated a guiding principle for highway finance. In trying to cause a change to be made in the existing road laws, he presented the following concept: "He who derives the greatest benefit shall pay correspondingly for the benefits received."

In conformance with this simple principle, the Legislature enacted a law "requiring all persons, firms, associations, joint stock companies, syndicates and corporations engaged in or carrying on the business in this State of selling gasoline and distillate in this State, to pay the State Comptroller a privilege tax, for engaging in and carrying on such business in this State, equal to two cents per gallon for such gasoline and distillate, to be in addition to all other taxes, such fund to be used solely in the construction and maintenance of a highway system in the State."

In view of the concern for road preservation, the historic principle mentioned above may be amended and made to read:

1. Those who benefit should pay;
2. Those who do special damage should pay;
3. The payments should be proportional to the benefits, and those who damage should repair the damage.

The benefits ensuing from improved highways were so comprehensive that it would have been like looking for the proverbial needle in a haystack to have searched for a man who had not benefited from better transportation facilities. For example: In 1918, the cost of wagon hauling per ton mile for wheat was 30 cents, for corn 33 cents and for cotton 48 cents. In 1923 on the same routes but on hard surfaced roads and by means of motor trucks, the cost was 15 cents per ton mile for wheat and corn and 18 cents for cotton. That represented a savings of more than 50 percent to the farmer. This would inevitably mean some benefit to all.

The increase in social and recreational opportunities, and business and educational advantages are benefits that defy ledger treatment but without them, the people would be poor indeed.

The "imponderable" or intangible benefits derived from shorter, smoother, straighter and safer roads have been sufficient to justify the cost of building them.

Someone has said that "Dates are pegs on which events are hung." If this is true, the event of the Highway Department coming of age

hangs on the year 1923. The avalanche of demands, the accelerated highway program and the concentration of authority in road building dictated the terms by which the Department matured.

## PART IV—1924-1958

### OPERATION

With the formation of the Highway Department complete, a State Highway System established and a highway fund authorized, the years ahead may be, for convenience, called the Period of Operation.

On May 12, 1924 a zero milestone for all of Tennessee's highways was unveiled at its position in the "southeast corner of memorial park at Union Street and Sixth Avenue at Nashville."

This unveiling of the headstone of the State Highway System was a reminder of the erection, in Washington, D. C., October 4, 1923, of a zero milestone marking the beginning of a System of National Highways. The milestone idea was, of course, in keeping with an event in the early history of roads when in the old Roman Forum there was erected, in the days of Rome's greatness, a "Golden Milestone." From it was measured and marked the system of highways which gridironed the Roman world and bound the uttermost provinces to the heart and center of the Empire.

Many of the "main traveled roads" built by the counties of the State were included in the 1917 Highway Plan. When the Commission took over control of these roads, the maintenance operations were left in the hands of the county organizations because the State was not equipped to undertake such a volume of work. It was not until 1925 that the State assumed full control over the construction and maintenance of the highways included in the System.

In 1925 the State also assumed complete control of the motor vehicle registration fees and disbursed them through direct supervision of the Highway Department. This plan gave the Department more freedom of movement. Some of the counties turned over county funds to the State to be expended by State engineers on county roads and in many other cases accepted State supervision but retained control of available funds.

The finances received a boost by the 1925 Legislature, with the authorizing of the Funding Board, composed of the Governor, Comptroller of the Treasury, Treasurer of the State and Secretary of State, to borrow, in the name of the State, not exceeding five million dollars



Spanning the Tennessee River, the Alvin York Bridge, in the picture, represents the toll bridges built to facilitate the crossing of the major rivers in Tennessee.

to supplement the revenues and to be used by the Department of Highways and Public Works in the construction of highways and bridges.

Tennessee has many miles of navigable water ways and as the highways were improving and with traffic constantly increasing, the problem of furnishing the traveling public with adequate and economical means of crossing these streams became acute.

In 1927 the Legislature authorized the construction of sixteen special toll bridges and provided for the issuance of short-term notes in the amount of \$13,850,000 for this purpose, under the authority of the Legislature. The bridges were to be made free to the public as soon as the tolls collected had retired the cost thereof. A subsequent Legislature authorized the building of five more bridges and placed all the collections in one fund and the tolls were to remain on all bridges until all the outstanding cost had been retired. Sixteen of these bridges were built as toll bridges.

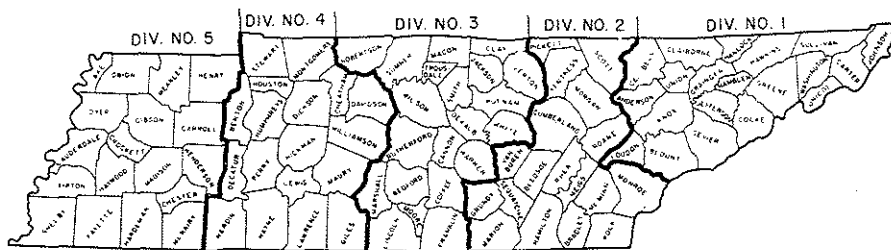
The receipts, as a whole, were insufficient to carry the investment, making it necessary to transfer funds from other accounts for this purpose. The effective competition offered by the toll ferries and the



unfavorable reaction of the traveling public, made it necessary to abandon the toll bridge idea. In 1939 eight bridges were freed and in 1947 the remaining eight became free to the public. The receipts through the years amounted to \$9,859,759.80.

In 1916 a policy was inaugurated requesting county participation on construction projects, and from 1917 to 1931 approximately \$30,000,000 was obtained from the counties for this purpose. The State could not possibly match the available Federal Aid funds and at the same time build and maintain the total System. The formula used was  $\frac{1}{2}$  Federal Aid, one-third county, and one-sixth State. The 1927 Legislature, in addition to authorizing a ten million dollar bond issue, set aside one cent of the gasoline privilege tax to pay the interest and reimburse the county for funds expended in county participation, it being provided that only such funds were to be reimbursed as were expended upon the State System. The 1931 Legislature added to this Act a provision including expenditures made by the counties on State routes before they became a part of the State System. This County Reimbursement Program became a very important phase in the fiscal structure of the Highway Department.

In 1927 the Highway Commissioner felt that more detailed supervision over construction and maintenance could be effected by dividing the State into five Field Divisions. It was believed that the additional overhead cost of the fifth Division would be offset by the savings resulting from closer supervision. The accompanying map defines the



FIVE FIELD DIVISIONS  
1927-1928

boundaries of the five divisions. Under this arrangement, the division headquarters were located as follows: First Division at Knoxville, Second Division at Chattanooga, Third and Fourth Divisions at Nashville and the Fifth Division at Jackson.

This plan was destined to become a short-lived experiment. With the appointment of a new Commissioner in 1929, the idea was abandoned and the original plan of four Divisions was again adopted.

In 1929 the Funding Board was authorized, by the Legislature, to borrow no more than twenty-five million dollars to be used in the construction of highways and bridges. Another ten million was authorized in extra session. An increase to a five cent tax on each gallon of gasoline or distillate was authorized by the 1929 Legislature. Of this five cent tax, one cent for each gallon was to be used as a "State Aid Fund" and distributed to the counties. Fifty percent was to be distributed by area and fifty percent by population, for the maintenance and construction of county roads. The Legislature further provided that counties desiring participation under the Act must have a county organization and equipment to properly spend funds so desired. If the county highway organizations were not qualified, the Department of Highways was directed to expend the funds in these counties. Roads were classified as secondary and district roads according to their importance and the maximum that could be spent on secondary roads was \$300.00 per mile and on district roads \$100.00 per mile was the limit.

The municipalities, within the State, whose streets were burdened with a tremendous volume of traffic became restless under the pressure, and demands for help could be heard throughout the State. The city planners in Tennessee could appreciate the following article that appeared in the Literary Digest December 24, 1927: "Above all things the most miraculous advent of twenty-two million (22,000,000) motor vehicles upon our streets within the last twenty years has greatly increased the demands of city government. They have necessitated new traffic police and mechanical systems of traffic control, public parking spaces, wider and stronger streets, new bridges and many additional safety measures such as the abolition of railroad grade crossings."

"Where once a \$50,000 pile bridge had borne horse-drawn traffic

a \$300,000 concrete one is now required for fast moving five and ten ton trucks."

"Now that virtually every family owns a car, hard surfaced paving is demanded on our streets. It is estimated that millions of dollars are spent without return, absolutely wasted every year, through delays and accidents in traffic that could be easily avoided by a much smaller expenditure in street and highway improvements."

The demand had become so great for the improvement of streets of the various municipalities over which the traffic from the State highways flowed that the General Assembly of 1929 passed a bill requiring the Highway Department to construct, maintain, or contribute to the construction or maintenance of all streets or roads within the municipalities over which the traffic from the State Highway was routed through the municipalities. The bill further provided that the streets or roads so constructed or maintained by the State were to be of a type at least as high as the type of highway that led to the city limit; provided however, that the State would not be responsible for any portion of the municipal thoroughfare other than the eighteen foot width. Now the State has curb to curb responsibility.

Where the municipalities were organized for the care of their own streets, the construction or maintenance would be done by the municipality and would be reimbursed by the State provided that all expenditures would be subject to the approval of the Department of Highway and Public Works. Where a municipality was not organized to care for its own streets and roads, the construction or maintenance would be done by the State, either by contract or by State forces; provided however, that the State would not undertake the construction or maintenance until the municipalities had at their own expense provided the State with an eighteen foot right-of-way through the corporate limits. The Department of Highways and Public Works would have sole jurisdiction over the selection of the streets through which traffic would be routed. Under this bill the streets selected would retain their identity as city streets and would be under the control and subject to the police power of the city.

During the extraordinary session of 1929, the Division of Aeronautics was created as part of the Department of Highways and Public Works and the Commissioner of Highways was named as head of the Division and authorized to cooperate with the Federal Government,

cities and counties of Tennessee in procuring and developing landing fields and airports and to promote the growth of aviation in the State.

In 1931 the gasoline tax was increased to seven cents and the counties share was increased to two cents per gallon. The formula for distribution was changed so that fifty percent was to be distributed equally among the ninety-five counties and fifty percent of the balance distributed among the counties on the basis of area and fifty percent on the basis of population. Under this Act the funds collected were paid monthly to the trustee of each county. The counties were privileged to direct the State Highway Department to expend the funds for them, provided proper arrangements were made. At first there were about one-half the counties taking advantage of this arrangement. Now, there are none.

At this point and until 1937 the distribution of the seven cent gasoline privilege tax was as follows:

County Aid Fund .....	2 cents
Retirement of County Bonds .....	1 cent
Retirement of State Road Bonds .....	2 cents
General State Deficit .....	1 cent
To Smoky Mt. Park .....	1/10 cent
Current General Highway Use .....	9/10 cent
Total	7 cents

The Department had made great strides since the reorganization in 1923. The mileage on the State System had increased to 7,226 miles. There had been 2,588 miles of road built, bringing the total miles built to 2,649. \$156,996,894.61 had been spent by the department for all purposes; \$112,256,194.80 was spent for construction alone. The Maintenance Division spent \$31,809,267.64 and \$12,931,432.17 was spent for general purposes.

The peak in highway work was reached in 1930 when the expenditures amounted to \$33,105,234.22. This was an increase of more than \$8 million over 1929. Many roads were built that year and the future looked bright indeed. Never before had the hopes of Tennesseans risen to such great heights. Never before had the fulfillment of dreams of good roads been so imminent. But prosperity was not here to stay. It disappeared "around the corner" leaving in

its wake blasted hopes, broken dreams and a brand new attitude giving rise to a new word, "Retrenchment." The Highway Department was forced to curtail activities and reduce spending to the very minimum.

It was necessary to dust off an old principle of highway improvement long recognized by highway engineers as desirable but not so popular with those people who demanded roads when and where they wanted them. This revived principle by which the Department was forced to abide was that, no highway should be improved by the expenditure of public funds in excess of its immediate or in special cases, its prospective earning capacity; that is to say, the economic return to the public in the form of needed transportation facilities is the sole measure of justification for the degree of improvement. This simply means that before a road can be improved in type the amount of traffic must be large enough to make the cost of maintenance and operation so great that the interest on the investment for improving the road, plus the cost of maintaining it, plus the cost of operating the entire amount of traffic, is less than the cost of maintaining and operating the traffic on the present type.

There truly was a policy of retrenchment throughout the Nation and the Tennessee Highway Department did not escape. In 1932 there was ample evidence that the Depression was here by the amount of money spent on the Highway System. The reduction in expenditures from \$33,105,234.22 in 1930 to \$10,435,881.55 in 1932 was retrenchment in its most drastic form. Not until after World War II was Tennessee able to spend \$30 million on her highways again.

During the depression years, the Federal Government attempted to aid the impoverished State, first in the emergency advance of funds, then in the Reconstruction Finance Corporation grants and the appropriations of the National Recovery Administration. The R.F.C. funds were expended in improving the existing roads while the N.R.A. funds were expended on contract work. Beginning in 1932 special grants of Federal funds were made and may be classified as follows:

1932 Emergency Construction Funds.

1933-34 Public Works Funds.

1935 National Recovery Funds (a) Highways (b) Grade Separations.

1938-39 Secondary Federal Aid—Grade Crossing Federal Aid.

Even with this Federal Aid transfusion the Highway Department could only hold the line through these trying depression times. A little

more was spent in 1933 and 1934 than was spent in 1932 but not enough to offer grounds for optimism. The Department spent in 1933 for all purposes \$11,499,719.37 and in 1934 \$17,088,485.73.

Since its inception, the Highway Department had been busy doing what it had to do. The essentials had to have attention. The ever-increasing traffic had to move. The roads were entirely inadequate for the weight and density of the traffic they were required to accommodate; so they had to be reworked. Motor vehicle designs would change and road features must be altered to conform. "Excuse our dust; but watch us grow! There ain't no stopping' us" seemed to be the message as the motor vehicle registration curve pointed relentlessly upward. There had to be a time for planning; so during this depression induced "leveling off" period the "Statewide Highway Planning Survey" was organized.

This fact-finding Division was made possible with the passage of the Hayden—Cartwright Act in 1934, and by provisions of subsequent acts, permitting 1½ percent of the amount of Federal Aid funds to be spent for purposes embodied in the Highway Planning Survey, which was organized June 1, 1936. The formation of this "Survey" supplied a very important view to the heart of the highway program and problems.

N. W. Dougherty, now Dean Emeritus of the Engineering College of the University of Tennessee, "the first State Highway employee," contributed immeasurably to the planning of the Highway Program from 1916. He collected much important data from traffic counts at strategic points in Tennessee and learned many facts concerning location, design, economics, etc. From these data much valuable information was transmitted to the Highway Department.

It might well be said that this program was the harbinger of the Statewide Highway Planning Survey that expanded the traffic counting schedule; intensified the fiscal studies; enlarged upon the investigation of road characteristics; engaged in a mapping program that produced maps of the counties and the incorporated towns of the State; analyzed and assimilated project construction information and recorded these data and, in cooperation with the Bureau of Roads, tabulated and reported many other facts that have proved to be indispensable in planning for the future. This new addition to the organizational family was an important step in the direction of progress.

At this time, a Re-financing Act proved to be a very definite boon to the total State Program by strengthening the fiscal structure.

Chapter 165 of the 1937 Acts of the Legislature, amended by Chapter 188 of the 1939 Acts, was an Act to provide for the payment of the bonded indebtedness and other obligations of the State of Tennessee; to amplify, consolidate and simplify pledges of special revenues heretofore made for the payment of such bonds and obligations and to authorize the issuance of sinking fund retirement certificates for such purposes; to authorize the issuance of consolidated bonds of the State for the funding and refunding of such indebtedness, and other purposes.

The State had outstanding bonds of various issues and other obligations aggregating approximately one hundred twenty-eight million nine hundred thousand dollars (\$128,900,000). For the retirement of this debt, certain pledges had been made of the proceeds of various taxes and other revenue in varying amounts and for various periods, resulting in ambiguity and confusion in the application of such revenues.

In order to protect the credit of the State and to re-assure the bond holders, the Legislature thought it desirable to "amplify and simplify" the pledges of revenues for the payment of the principal and interest of all obligations.

It pledged the annual net revenues of all toll bridges, the first \$307,500 of the annual receipts of any tobacco tax, the annual proceeds of five cents per gallon upon gasoline, the annual proceeds of all fees for the inspection of volatile substances, one-half of the annual proceeds of motor vehicles registration fees and the entire annual proceeds of franchise taxes. There was also pledged the full faith and credit of the State.

Constituting a charge upon these revenues was the amount shown by the records of the Board of Claims as having been paid by the counties to the Department of Highways and Public Works and heretofore adjudicated by the Highway Reimbursement Board as having been used by the Department in the construction of public highways and subject to reimbursement.

The State Funding Board was authorized to issue consolidated bonds sufficient to enable the State to reimburse the counties in the principal amounts together with any unpaid interest thereon from

July 1, 1937 to the date of payment. The bonds were to bear an interest rate not to exceed five per cent up to 1939 nor three and one-half percent on issues after 1939, and were to mature as the State Funding Board should determine, provided no maturity should extend beyond December 31, 1955.

The next few years proved only a continuation of the ones just past. There were no available funds for a real expansion program. The motor vehicle registration trend was still upward, bringing an increase in traffic and greater demands upon the local roads, as well as the State System. There was that ever-increasing need for construction and sufficient funds were not available. There was an investment of more than \$200,000,000 to be protected and so little money that could be used for maintenance.

These deplorable conditions did not improve. As a matter of fact, they soon became worse. War clouds were hanging ominously over us, as the world looked fearfully at each tomorrow. Mobilization of the National Guard soon began in Tennessee, depleting the man power of the Highway Department and at the same time causing additional strain on the already overburdened highways. Troop movements, convoys, maneuvers, all lent their weight to the load the highways were expected to carry.

World War II shattered the calm that December morning in 1941 and brought with it much devastation and many casualties. Among the near casualties was the Tennessee Department of Highways and Public Works. The vacuum caused by the exodus of men going to war and seeking higher wages was never filled. The shortage of material and equipment was felt in a paralyzing way.

It was only by superhuman effort, valiant service and heroic action that the Department survived to contribute, in a very real way, to the war effort. With apologies to Sir Winston Churchill, never did so many owe so much to so few who did so much with so little. The people of Tennessee should be eternally grateful to that small "Skeleton Force" that so determinedly kept the Department "on its feet."

Besides performing the hurculean task of keeping the highways

open and building a little here and there, the Department made plans for the future. The Highway Planning Survey was extremely busy with investigations that would give meaning to a post war program. As a result, the Highway Department was prepared to receive the returning engineers and fit them and new personnel into the postwar scheme in the most expeditious manner.

So completely and advantageously did the Department revamp its organization that in 1946 there was a construction expenditure of approximately \$7,000,000.00 out of a total disbursement of \$12,540,476.43.

Immediately the motor vehicles began pouring from the assembly lines in unprecedented numbers. In 1946, 537,210 motor vehicles were registered in Tennessee, 69,634 more than were registered in 1945, and 19,303 more than in 1941.

It was much harder to overcome the accumulated deficiencies in the Highway System than it was for the motor vehicle salesmen to overcome the sales resistance of the returning servicemen. An abundance of new needs combined with the backlog of old needs created what appeared to be an insurmountable problem.

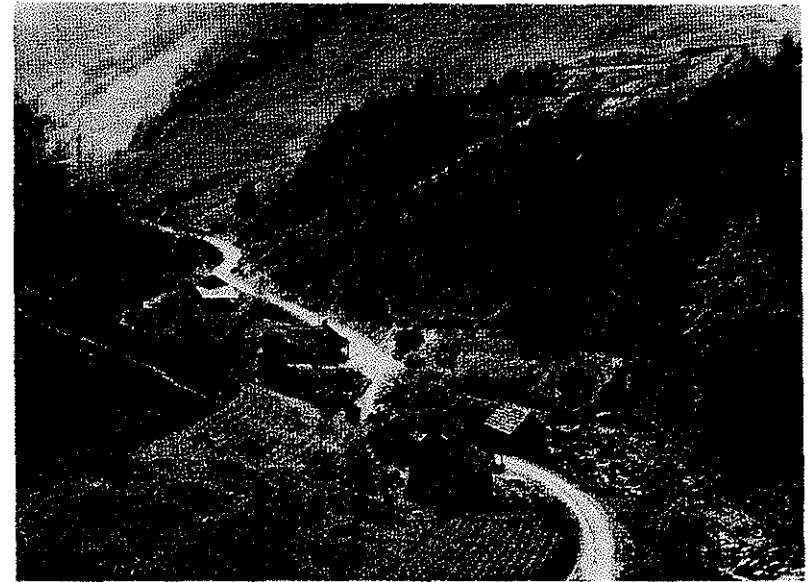
Not only were the State highways suffering from neglect and abuse but the county roads and city streets as well. A Federal-Aid Highway Act approved May 20, 1944 amended the old 1916 Act and had as its purpose the authorization of appropriations for the postwar construction of highways and bridges.

Beginning in 1944, Federal Aid Highway funds were divided into categories as follows:

- 45% for projects on the Primary System;
- 30% for projects on the Secondary System;
- 25% for projects on extensions in urban areas.

There was in the Act, an important provision for the designation of a National System of Interstate Highways. For the first time Federal Aid funds were provided exclusively for work in urban areas. Not only did this Act provide authorization to continue appropriations for the primary or regular Federal Aid System but wisely provided for Federal Aid in the construction of principal farm-to-market and feeder roads.

The funds available for projects on the secondary roads are apportioned among the states as follows: One third in the ratio which the area of each state bears to the total area of all the states; one-third in the ratio which the rural population of each state bears to the total population of all the states; and one-third in the ratio



This road in Unicoi County is typical of local feeder roads in mountainous East Tennessee. Eight families living in this valley depend on this road for daily communication with their neighbors, schools, stores and other essentials to their livelihood.

which the mileage of rural delivery and star routes in each state bears to the total mileage of rural delivery and star routes in all the states. Similarly the state distributes the Federal-Aid Secondary Fund to the several counties by the following formula: One-third by area, one-third by rural population, and one-third by county road mileage.

The total amount of Federal Funds apportioned to Tennessee for the first three post-war years for projects on the Federal-Aid Secondary System was \$10,968,179 or at the rate of approximately three and two-thirds million dollars per year.

Bids were received on the first Federal Aid Secondary projects on August 23, 1946. Contracts were immediately awarded on eight projects in six counties for 41.25 miles of construction on county roads. During the fiscal year ending June 30, 1947 much work was done on the county secondary roads, as reflected in an expenditure of \$1,396,488.66. The rapid growth of this program may be indicated in the expenditure of \$6,566,503.19 during the fiscal year ending June 30, 1948. For the first time since 1930, the Department spent 33 million dollars on the Highway Program.



These two photographs show typical conditions on the Rural Roads System which should be improved. The road in Carroll County carries 150 vehicles per day, is narrow and crooked, lacks proper drainage and needs an improved surface. Nearly 500 vehicles per day cross the bridge in Wilson County. The condition of guard rails shows the bridge is too narrow for safe driving. During storms water overflows both approaches.



It was common knowledge that the county roads were completely inadequate for the service they must render, even with the help supplied by the Federal-Aid Secondary Program. The Legislature of 1949, taking cognizance of this condition, passed a Rural Road Bill designed to ultimately place an all-weather road within reach of every farm home in the State. This Bill provided for a transfer from a surplus in the State General Fund of \$22,000,000.00 for the first two years for improvement and set up a Rural Road Division within the Highway Department to administer the provisions of the Act.

The Act further provided that before allocations are made to the counties a sufficient sum shall be deducted from the total to match Federal-Aid Secondary funds. The balance should then be distributed to the various counties on the basis of the following formula: 1. Fifty percent of the fund is divided equally among the ninety-five counties; 2. Twenty-five percent on the basis of the ratio that the population of the county bears to the population of the State; and 3. Twenty-five percent on the basis of the ratio that the area of the county bears to the area of the State. Table No. VIII, on Page No. 110 shows the financial transactions of the Rural Road Division since it started to function in 1949. The addition of this Rural Road unit to the Organization was certainly a progressive move.

Scientific research is one facet of engineering that had experienced expansion just prior to and during World War II. This is especially true of highway research. Experiences during the war directed the attention of engineers to the highways under the pressure of large volumes of traffic, heavy loads, neglect etc. What they saw convinced them that a Highway Research Program was needed.

The established Divisions within the Highway Department were immersed in the work for which they were created. The efficient Testing laboratory, in the Division of Tests, staffed by capable men was far too busy in routine work and research of their own to engage in expanded research activities.

The answer seemed to lie in a cooperative effort by the Tennessee Highway Department and the University of Tennessee. The "Tennessee Highway Research Program" is the culmination of plans dating back to 1948. It is in essence, a program established and financed cooperatively by the Tennessee Department of Highways and the University of Tennessee for the purpose of studying problems concerning the design, materials and construction of highways.

The ready access to the services of skilled chemists, physicists, metallurgists, geologists, petrographers, agricultural engineers, advanced

mathematicians, economists and others has facilitated the research work done in this "Program" since it began to function October 1, 1951.

The opinion, held by many, that the streets in the municipalities of Tennessee were adequate for the purpose for which they were built was being questioned, and surveys proved that if such an opinion had ever been valid, it was certainly obsolete in this post war period.

The very first chapter of the Public Acts of 1953 was an "Act to provide State funds to municipalities for street rights-of-way, street improvements, street maintenance and the manner of distributing such funds, keeping, expending and accounting for such funds and penalties for the violation of this Act." Section 2 of this Act is presented here—"Be IT FURTHER ENACTED, That there is appropriated to the eligible municipalities within the State of Tennessee from the proceeds of the State gasoline tax and motor fuel tax imposed by Section 1126, et seq., SUPPLEMENT TO THE TENNESSEE CODE, 1950 and Section 1148.5 of said Code supplement, respectively, in excess of the amounts required to be paid into the Sinking Fund of the State of Tennessee under the provisions of Chapter No. 165, Public Acts of 1937, and subsequent Acts, and after payment of the two (2c) cents per gallon share of said tax to counties, as provided by Sections 1148.6 and 3291.2 of Tennessee Code Supplement, 1950, a sum equal to the proceeds of one (1c) cent of said State gasoline tax and motor vehicle fuel tax, which shall be deposited monthly in a municipal street aid fund to be distributed to the municipalities as provided in Section 3 hereof."

"Provided, however, that before any distribution is made to municipalities under this Act there shall be deducted one percent (1%) for the cost of collection and administration — — —."

Section 3 provides that the fund be allocated in proportion as the population of each municipality bears to the aggregate population of all municipalities.

The street system is the fundamental element of the city plan and the skeleton of the city structure. The street system was benefited immeasurably by this law, thus the structure of every town was made stronger.

In compliance with a joint resolution in the acts of 1953 a Tennessee Highway Study Commission was appointed and directed to obtain all facts pertaining to a program of construction, improvement and maintenance of the highways, roads, streets and bridges of

the State, the maximum utilization of existing road facilities and the efficient administration and sound financing of these facilities.

The program of construction was, according to the authors of the resolution, "necessary and indispensable to the National Defense and to the social and economic development of the State" and the systematic improvement of the Highway System was deemed of "transcending importance" to the life and economy of Tennessee.

The Commission obtained the services of the Automotive Safety Foundation of Washington, D. C., to supervise and coordinate an objective engineering study and to prepare long-range programs of improvement for the State's highways, roads and streets.

In 1954, much good was accomplished when congress called for a complete inventory of our highway needs and in June of that year President Eisenhower's urgent message to the Governor's conference focused attention on the critical need for a greatly enlarged and accelerated highway program. Tennessee, of course, cooperated in this study.

In 1955 an Act to establish a System of Rural Roads under the control of the County Rural Roads Division of the Department of Highways was passed by the Legislature.

This General Assembly also made available to the Highway Department one-third of the proceeds from the collection of inspection fees on volatile substances.

Then in 1956 there came the most important event of all when congress enacted the "Federal Aid Highway Act of 1956." It authorized funds for the completion of the National System of Interstate and Defense Highways. It increased the Federal share from the traditional fifty to ninety percent for Interstate projects. It required the Interstate System to be built to high standards adequate for the anticipated traffic of 1975.

The passage of this Act initiated the most colossal highway construction program in history. Fortunately the Highway Department was forearmed with information obtained from the Highway Needs Study and was geared to meet the requirements of this gigantic program with the minimum of change in the organizational structure. It was necessary to enlarge the Right-of-Way Division, since the procurement of rights-of-way is the first phase in highway construction. It was also necessary to secure the services of some independent engineering companies in order to expedite the preliminary investigations and surveys.

The people of Tennessee may well be proud of the conduct and the





### INTERSTATE HIGHWAYS

Tennessee is a key state in the network of the National System of Interstate Highways as shown by this map.

These routes are vital not only to the defense of the nation but form the backbone of peacetime motor transportation. Early completion of Tennessee's portion of the System is as important to travel within the state as it is to interstate travel.

achievements of their Highway Department over the period so sketchily discussed here. The State has, as a result of the efforts of the Department, a fine System of Highways, bought at a reasonable price. Table No. 1 on Page No. 96 shows that in the forty years there has been expended by the Highway Department, more than one billion dollars. Of this total expense \$255.7 million or 23.39% represents Federal Aid.

An examination of the table would reveal that the expenditures in the last six years amounted to \$454.1 million or 41.53% of the total disbursements. This indicates the rapid growth the Highway Program has experienced in the last few years.

The citizens of Tennessee should pledge their support as the Department constructs and dedicates the highway transportation facilities to a more efficient, safe and economical use.

The facilities so dedicated are the routes within the network of the State Highway System over which 75% of the traffic moves. This System has been in a continual state of development since the beginning of the Highway Department and it will never know completion until there no longer exists a demand for improved highways over which people may travel in Tennessee.

Authority for establishing the State Highway System is given to the Department of Highways under the provisions of Chapter 74, Public Acts of 1917. All highways are designated by route numbers for the convenience of those who travel. The State Route Numbers appearing along the highways also appear on all maps published by the Department. There follows a description of the Routes on the State System as of June 30, 1958. In addition the U.S. numbered Routes, included in the State System, are described.

ROUTE NO. 1. From the Arkansas State Line at Memphis, via Mason, Brownsville, Jackson, Huntingdon, Camden, Waverly, Dickson, Nashville, Murfreesboro, Woodbury, McMinnville, Sparta, Crossville, Rockwood, Kingston, Knoxville, Rutledge, Rogersville, Kingsport and Blountville to the Virginia State Line at Bristol.

ROUTE NO. 2. From Murfreesboro, via Manchester, Monteagle, Jasper, Chattanooga, Ridgedale, Cleveland, Athens, Sweetwater, Loudon and Lenoir City, to a point west of Campbell on Route No. 1.

ROUTE NO. 2-Loop. From Route No. 2 at Dodds Ave. Interchange in Chattanooga via McCallie and Georgia Ave. to Route No. 2 at 9th and Georgia Ave.

ROUTE NO. 2-A. From Route No. 58 south of Harrison to Route No. 2 southwest of Ooltewah.

ROUTE NO. 3-Bypass. From Route No. 3 south of Dyersburg west and north around Dyersburg to Route No. 3 north of Dyersburg.

ROUTE NO. 3-Bypass. From Route No. 3 near the southwest city limits of Union City east and north to Route No. 3 near the northeast city limits of Union City.

ROUTE NO. 3. From the Mississippi State Line near Hernando, Mississippi, via Memphis, Millington, Covington, Ripley, Dyersburg, Troy, and Union City, to the Kentucky State Line at South Fulton, Kentucky.

ROUTE NO. 4. From Memphis to the Mississippi State Line near Olive Branch, Mississippi.

ROUTE NO. 5. From Kentucky State Line, near Woodland Mills, via Union City, Kenton, Dyer, Trenton, Humboldt, Jackson, Henderson, and Selmer, to the Mississippi State Line north of Corinth, Mississippi.

ROUTE NO. 6. From the Kentucky State Line near Adolphus, Kentucky, via Westmoreland, Gallatin, Nashville, Franklin, Columbia, Mt. Pleasant, a point near Summertown, and Lawrenceburg, to the Alabama State Line near St. Joseph.

ROUTE NO. 7. From New Flys Village via Santa Fe, Columbia and Pulaski to the Alabama State Line at Ardmore.

ROUTE NO. 8. From Route No. 56 in McMinnville via Dunlap, Signal Mountain, Glendale, Chattanooga, and East Ridge to the Georgia State Line enroute to Ringgold, Georgia.

ROUTE NO. 9. From the Kentucky State Line at Jellico via LaFollette, Jacksboro, Lake City, Clinton, Knoxville, Dandridge, and Newport, to the North Carolina State Line near Paint Rock, North Carolina.

ROUTE NO. 10. From the Kentucky State Line, north of Lafayette, via Lafayette, Hartsville, Lebanon, Murfreesboro, Shelbyville, and Fayetteville to the Alabama State Line near Fisk, Alabama.



ROUTE NO. 10-A. From junction of Route No. 10 and 25 near Hartsville to Route No. 6 at Bransford.

ROUTE NO. 11. From the Kentucky State Line near Guthrie, Kentucky, via Springfield, Nashville, Nolensville, Triune, Chapel Hill, Farmington, Lewisburg and Pulaski, to Alabama State Line.

ROUTE NO. 12. From Nashville, via Ashland City and Clarksville, to the Kentucky State Line near Edgote, Kentucky.

ROUTE NO. 13. From the Kentucky State Line near Guthrie, Kentucky, via Clarksville, Lone Oak, Erin, Waverly, Linden, Waynesboro, and Collinwood, to the Alabama State Line enroute to Florence, Alabama.

ROUTE NO. 14. From Mississippi State Line near Walls, Mississippi, via Memphis and Rosemark to junction with Route No. 54 East of Covington.

ROUTE NO. 14-A. From Mississippi State Line to a point on Route No. 14 south of Memphis.

ROUTE NO. 15. From a point on Route No. 1 near Bartlett, via Somerville, Whiteville, Bolivar, Selmer, Savannah, Waynesboro, Lawrenceburg, Pulaski, Fayetteville, Belvidere, Winchester, Cowan, and Sewanee, to Monteagle at Junction of Route No. 2.

ROUTE NO. 16. From a point on Route No. 11 north of Eagleville, via Shelbyville and Tullahoma, to Winchester.

ROUTE NO. 18. From a point on Route No. 5, three miles south of Jackson, via Bolivar and Grand Junction, to the Mississippi State Line enroute to Ashland, Mississippi.

ROUTE NO. 18-A. From Route No. 57 at Grand Junction to Route No. 18 north of Grand Junction.

ROUTE NO. 19. From Brownsville, via Ripley, to the Mississippi River near Ashport.

ROUTE NO. 20. From the Mississippi River at Heloise via Dyersburg, Fowlkes, Alamo, Bells, Jackson, Lexington, Parsons, Linden, and Hohenwald, to a point on Route No. 6 near Summertown.

ROUTE NO. 21. From Mississippi River via Tiptonville, Reelfoot Lake, Troy, Union City, to the Kentucky State Line at Jordan.

ROUTE NO. 22. From the Kentucky-Tennessee State Line near Bessie via Tiptonville, Samburg, Union City, Martin, Dresden, McKenzie, Huntingdon, Lexington, Milledgeville, Adamsville, Crump, and Shiloh National Park to the Tennessee-Mississippi State Line enroute to Corinth, Mississippi.

ROUTE NO. 22-A. From Route No. 22 south of Lexington via Jack's Creek to Route No. 22 at Milledgeville.

ROUTE NO. 24. From the junction with State Route No. 1, west of Nashville, via Charlotte pike through Nashville, Lebanon, South Carthage, Cookeville and Monterey to Crossville at Junction Route No. 1.

ROUTE NO. 25. From the junction of Route No. 49 approximately six miles northeast of Springfield, via Cross Plains, Gallatin and Hartsville, to Junction Route No. 24 at Carthage.

ROUTE NO. 26. From Lebanon, via Watertown and Smithville, to Sparta.

ROUTE NO. 27. From the Alabama State Line via South Pittsburg, Jasper, a point near Whitwell, Valdeau and Chattanooga, to the Georgia State Line.

ROUTE NO. 28. From the Kentucky State Line near Huntersville, Kentucky, via Jamestown, Crossville, Pikeville, Dunlap and Powell's Crossroads to a point on State Route No. 2 at Anderson's Hill.

ROUTE NO. 29. From a point on Route No. 27 near Valdeau, via Dayton, Spring City, Rockwood, Harriman, Wartburg, Helenwood, and Oneida, to the Kentucky State Line near Isham, Tennessee.

ROUTE NO. 29-A. From a point on Route No. 29 to Oakdale.

ROUTE NO. 30. From a point on Route No. 1 between McMinnville and Rock Island via Spencer, Pikeville, Dayton, Decatur, Athens, and Etowah, to Route No. 40 east of Parksville.

ROUTE NO. 32. From the Virginia State Line near Cumberland Gap, via Cumberland Gap, Tazewell, Bean Station, Morristown, Newport, and Cosby to the North Carolina State Line.

ROUTE NO. 33. From junction with Route No. 70 at Kyle's Ford via Sneedville, Tazewell, Manardsville, Knoxville, Maryville, Madisonville, Englewood, Etowah, and Benton, to the Georgia State Line near Tennega.

ROUTE NO. 34. From a point on Route No. 9 near Trentville, via Jefferson City, Morristown, Greeneville, Jonesboro, Johnson City, a point near Bluff City, Bristol, and Mountain City, to the North Carolina State Line near Zionville, North Carolina.

ROUTE NO. 35. From Greeneville via Newport and Sevierville to Maryville.

ROUTE NO. 36. From the Virginia State Line, via Kingsport, Johnson City, and Erwin, to the North Carolina State Line near Ramsey Ridge, North Carolina.

ROUTE NO. 37. From junction with Route No. 36, via Tri-City Airport, Blountville, a point near Bluff City, Elizabethton, and Roan Mountain, to the North Carolina State Line near Elk Park, North Carolina.

ROUTE NO. 38. From a point on Route No. 2 near St. Elmo to the Georgia State Line west of Lookout Mountain enroute to Trenton, Georgia.

ROUTE NO. 39. From a point on Route No. 30 near Athens to Englewood.

ROUTE NO. 40. From Cleveland, via Parksville and Ducktown to the North Carolina State Line near Isabella.

ROUTE NO. 41. From a point on Route No. 11 near Goodlettsville via White House to the Kentucky State Line near Mitchellville enroute to Franklin, Kentucky.

ROUTE NO. 42. From Sparta, via Cookeville, Livingston, and Byrdstown, to the junction with Route No. 28 near the Kentucky State Line.

ROUTE NO. 43. From a point on Route No. 5 north of Jackson via Milan, Greenfield, and Martin, to the Kentucky State Line at South Fulton.

ROUTE NO. 44. From the junction with Route No. 34, east of Bristol to the Virginia State Line.

ROUTE NO. 45. From Route No. 5 at Madison via Old Hickory to Route No. 24 east of Donelson.

ROUTE NO. 46. From a point on Route No. 1 near Dickson via Colesburg, Bon Aqua to the junction of Route No. 100.

ROUTE NO. 47. From Charlotte via White Bluff and Burns to Junction with Route No. 46.

ROUTE NO. 48. From State Route No. 13 north of Waynesboro via Hohenwald, Centerville, Dickson, and Charlotte to State Route No. 13 south of Clarksville and from State Route No. 13 north of Clarksville to the Kentucky State Line.

ROUTE NO. 49. From the Kentucky State Line, via Model, Tharpe, Dover, Erin, Charlotte, Ashland City, Pleasant View, Springfield, and Orlinda, to the Kentucky State Line enroute to Franklin, Kentucky.

ROUTE NO. 50. From a point on Route No. 13 near Beardstown, via Centerville, Columbia, Lewisburg, Fayetteville, Lynchburg, Winchester, and Decherd to Pelham at Junction of Route No. 2.

ROUTE NO. 50-A. From a point on Route No. 50, south of Columbia, via Culleoka to Lewisburg.

ROUTE NO. 51. From a point on Route No. 52 near Moss to the Kentucky State Line in the direction of Tompkinsville, Kentucky.

ROUTE NO. 52. From Orlinda on Route No. 49, via Portland, Westmoreland, Lafayette, Red Boiling Springs, Celina, Livingston, Jamestown, and Allardt, to Rugby Road at Junction of Route No. 29.

ROUTE NO. 53. From Manchester, via Woodbury, a point near Liberty, Alexandria, New Middleton, South Carthage, Chestnut Mound, Granville, Gainesboro, and Celina to the Kentucky State Line.

ROUTE NO. 54. From Covington, via Brownsville, Alamo, Trenton, Bradford, Greenfield, Dresden, and Paris, to the Kentucky State Line near Hazel, Kentucky.

ROUTE NO. 55. From a point on Route No. 50 near Lynchburg via Tullahoma and Manchester to McMinnville.

ROUTE NO. 56. From a point on the Alabama State Line near Anderson, Tennessee, via Sherwood, Sewanee, Monteagle, Altamont, Tarlton, McMinnville, Smithville, Double Springs, Gainesboro, and Red Boiling Springs, to the Kentucky State Line near Gamaliel, Kentucky.

ROUTE NO. 56-A. From Route No. 24 at Double Springs to Route No. 56 at Bloomington Springs.

ROUTE NO. 57. From Memphis, via Collierville, Moscow, LaGrange, Grand Junction, Saulsbury, Ramer, Stantonville, and Shiloh National Park, to the Mississippi State Line.

ROUTE NO. 58. From Georgia State Line, via Chattanooga and Decatur to Kingston.

ROUTE NO. 59. From the Mississippi River at a point near Randolph, via Covington and Mason to Somerville.

ROUTE NO. 60. From Dayton, via Georgetown and Cleveland to the Georgia State Line enroute to Dalton, Georgia.

ROUTE NO. 61. From Rockwood via South Harriman, Harriman, Oliver Springs, Clinton, and Maynardville to a point on Route No. 1 near the Knox County Line.

ROUTE NO. 62. From Route No. 29 near Wartburg via Oliver Springs and Oak Ridge to Route No. 1 in Knoxville.

ROUTE NO. 63. From a point on Route No. 32 near Harrogate via Lafollette, Jacksboro, a point near Pioneer, and Huntsville, to a point on Route No. 29 north of New River.

ROUTE NO. 64. From a point on Route No. 11 north of Lewisburg, via Farmington, Shelbyville, and Wartrace, to a point on Route No. 2 at Beechgrove.

ROUTE NO. 65. From a point on State Route No. 11 in Nashville via Springfield to the Kentucky State Line enroute to Adairville, Kentucky.

ROUTE NO. 66. From a point on Route No. 33 near Sneedville via Rogersville, Bulls Gap, Morristown, White Pine, and Dandridge to Sevierville.

ROUTE NO. 66-A. From a point on Route No. 9 east of Dandridge to White Pine and from Whitesburg to a point on Route 66 six miles south of Rogersville.

ROUTE NO. 67. From a point on Route No. 36 near Johnson City via Elizabethton, Hampton, Mountain City, and a point near Trade to the North Carolina State Line, enroute to Jefferson, North Carolina.

ROUTE NO. 67-A. From a point on Route No. 36 via Milligan College to a point on Route No. 67.

ROUTE NO. 68. From a point on Route No. 28 south of Crossville via Spring City, Sweetwater, Madisonville, Tellico Plains, Harbuck and Ducktown to the Georgia State Line at Copperhill.

ROUTE NO. 69. From the Kentucky State Line enroute to Mayfield, Kentucky, via Paris, Big Sandy, Camden, Holladay, Parsons, Decaturville, Saltillo, Milledgeville, Crump, Savannah to the Alabama State Line in Wayne County.

ROUTE NO. 69-A. From a point on Route No. 69 in Camden via the railroad station to a point on Route No. 69 in Camden.

ROUTE NO. 70. From Virginia State Line near Kyle's Ford via Rogersville, Greeneville, to the North Carolina State Line in the direction of Marshall, North Carolina.

ROUTE NO. 71. From Lake City, junction with Route No. 9, via Norris Dam, Halls Crossroads, Knoxville, Sevierville, Pigeon Forge, and Gatlinburg, to the North Carolina State Line near Mount LeConte.

ROUTE NO. 72. From the North Carolina State Line near Tapoco, North Carolina, via Calderwood, Vonore, and Loudon, to the junction with State Route No. 58 south of Kingston.

ROUTE NO. 73. From Knoxville, via Alcoa, Maryville, Townsend and Elkmont to a point on Route No. 71, via Gatlinburg to the Intersection of State Highway No. 32 south of Cosby.

ROUTE NO. 74. From the junction of State Highway No. 60, via Conasauga Bridge to the Georgia State Line.

ROUTE NO. 76. From Route No. 41 at Whitehouse via Springfield, Adams, Clarksville, Dover, Paris, McKenzie, Atwood, Milan, Humboldt, Bells, Brownsville and Somerville to a point on Route No. 57 near Moscow.

ROUTE NO. 77. From a point on State Route No. 3 near Newbern via Dyer, Trenton, Milan, Atwood, and Huntingdon to a point on State Route No. 69 near Paris.

ROUTE NO. 78. From the Kentucky State Line near Hickman, Kentucky, via Tiptonville, to Dyersburg.

ROUTE NO. 79. From a point on Route No. 78 near Tank Two to the Mississippi River.

ROUTE NO. 80. From a point on Route No. 25 near Carthage to a point on Route No. 56 near Gibbs Cross Roads.

ROUTE NO. 81. From a point on Route No. 36 south of Kingsport, via Fall Branch, Jonesboro, and Erwin, to the North Carolina State Line enroute to English, North Carolina.

ROUTE NO. 81-A. From Route No. 1 west of Kingsport to Route No. 81 in Kingsport.

ROUTE NO. 82. From Junction Route 64 via Bell Buckle to Junction Route 10 via Route 10 to Shelbyville via Flat Creek, to Junction with Route No. 55 north of Lynchburg.

ROUTE NO. 84. From a point on State Route No. 42 north of Sparta via Monterey to a point on State Route No. 42 south of Livingston.

ROUTE NO. 85. From a point on Route No. 25 north of Carthage, via Defeated, Difficult, Gainesboro, Livingston, and Wilder, to Grimsley, on Route No. 28.

ROUTE NO. 86. From Collierville to the Mississippi State Line.

ROUTE NO. 87. From a point on Route No. 3 near Henning to the Mississippi River near Fulton.

ROUTE NO. 87-A. From a point on Route No. 87 at Cherry to a point on Route No. 87 east of Glimp.

ROUTE NO. 88. From Maury City on Route No. 20 via Gates and Halls to Hales Point at the Mississippi River.

ROUTE NO. 89. From Sharon via Dresden and Palmersville to the Kentucky State Line enroute to Mayfield, Kentucky.

ROUTE NO. 90. From Morley, on Route No. 9 to the Kentucky State Line near Pruden, Tennessee.

ROUTE NO. 91. From Johnson City via Elizabethton and Mountain City to the Virginia State Line in the direction of Damascus, Virginia.

ROUTE NO. 92. From Rutledge via Jefferson City and Dandridge to a point on State Route No. 35 at Chestnut Hill.

ROUTE NO. 93. From Greeneville to Hall's Cross Roads at the junction of Route No. 81.

ROUTE NO. 94. From a point on Route No. 70, via Pressman's Home, to a point on Route No. 66.

ROUTE NO. 95. From Route No. 61 south of Clinton via Oak Ridge, White Wing Ferry and Eaton's Crossroads to Route No. 2 in Lenoir City.

ROUTE NO. 96. From Junction Route No. 47 at Burns, via East Side, Ferndale, Leipers Fork, Franklin, Triune and Murefreesboro to a point on Route No. 26 near Liberty.

ROUTE NO. 97. From the Alabama State Line via Huntland to the junction with Route No. 15 near Belvidere.

ROUTE NO. 98. From a point on Route No. 6 near Leoma to the Alabama State Line.

ROUTE NO. 99. From Hohenwald via Gordonsburg, Hampshire, Cross Bridges, Columbia, Pottsville, Caney Spring, Chapel Hill, Allisona, and Eagleville to Murefreesboro.

ROUTE NO. 100. From a point on Route No. 1 near Nashville, via Wrigley, Centerville, Linden, Parsons, Decaturville, Jacks Creek, and Henderson to Junction with Route No. 18 nine miles north of Bolivar.

ROUTE NO. 101. From a point on Route No. 30 west of Pikeville to the Herbert Domain.

ROUTE NO. 102. From Route No. 1 via Smyrna to Sam Davis Home.

ROUTE NO. 103. From Route No. 78, via Miston, to the Mississippi River.

ROUTE NO. 104. From Dyersburg via Trenton, Milan, Atwood, Lexington, and Sardis to Junction with Route No. 69.

ROUTE NO. 105. From Junction of Route 76 at Trezevant to Junction of Route 77 at McLemoresville.

ROUTE NO. 106. From Nashville via Hillsboro Pike and Franklin, Pottsville and Berlin to Intersection Route No. 11 in Lewisburg.

ROUTE NO. 107. From the North Carolina State Line via Unicoi, Erwin, Embreeville, Tusculum, Greeneville, and Del Rio to the North Carolina State Line at Lemon Gap.

ROUTE NO. 108. From McMinnville, via Viola, Altamont, Gruetli, Palmer, and Whitwell, to junction with Route No. 27 south of Whitwell.

ROUTE NO. 109. From a point on State Route No. 24 at Martha via Gallatin, Fountain Head and Portland to Mitchellville near the Kentucky State Line.

ROUTE NO. 110. From a point on Route No. 10 south of Fayetteville to the Alabama State Line at Ardmore.

ROUTE NO. 111. From a junction with Route No. 8 ten miles north of Dunlap via Spencer to a junction with Route No. 1 at Doyle.

ROUTE NO. 112. From Bordeaux, north of Nashville, via Pleasant View, to the Junction of State Route No. 12 near Clarksville.

ROUTE NO. 114. From a point on Route No. 15 west of Waynesboro, via Clifton to Route No. 69 west of the Tennessee River.

ROUTE NO. 115. From Junction of Route No. 33, five miles south of Maryville, to Junction Route No. 72, at Williams Springs.

ROUTE NO. 116. From Lake City on Route No. 9, via Briceville, Fork Mountain, and Petros, to a point on Route No. 62 south of Petros.

ROUTE NO. 118. From Dresden to Kentucky State Line (at Dukedom, Kentucky).

ROUTE NO. 119. Junction State Route No. 76 (Tennessee River) to Kentucky State Line.

ROUTE NO. 120. From Kentucky State Line via Bumpus Mills to Route No. 76.

ROUTE NO. 121. From Alabama State Line via Elora to Route No. 15.

ROUTE NO. 122. From Huntland to Elora.

ROUTE NO. 123. From Route No. 68 near Turtletown to North Carolina State Line.

ROUTE NO. 124. From Greenfield (Route 54) to McKenzie Route No. 22).

ROUTE NO. 125. From a point east of Bolivar on Route No. 15, via Middleton, to the Mississippi State Line enroute to Walnut.

ROUTE NO. 128. From Tennessee River at Pickwick Dam to Junction with Route 15 at Savannah.

ROUTE NO. 129. From Junction Route No. 11 at Cornersville, via Lynnville to Junction State Route No. 7 at Waco.

ROUTE NO. 130. From State Route No. 50 South of Petersburg via Petersburg to State Route No. 64 and from Shelbyville via Tullahoma to Winchester.

ROUTE NO. 131. From Junction State Route No. 33 at Halls Cross Roads to Junction Route No. 32 at Thornhill.

ROUTE NO. 132. From Sterling, via Fork Ridge to Kentucky State Line.

ROUTE NO. 133. From Routes No. 34 and 91, via Shady Valley to the Virginia State Line.

ROUTE NO. 134. From State Route No. 2 east of the Tennessee River, via Whiteside to the Georgia State Line.

ROUTE NO. 135. From State Route No. 53, two and one-half miles north of Gainesboro, via Dotson Branch and Mt. Union to Cookeville.

ROUTE NO. 136. From State Highway No. 42 east of Cookeville, via Post Oak to Hilham.

ROUTE NO. 138. From State Route No. 1 via Mercer and Toone to State Route No. 18.

ROUTE NO. 139. From Junction Route No. 9 east of the Knox-Sevier County Line to Junction Route No. 66 west of the Sevier-Jefferson County Line.

ROUTE NO. 140. From Junction Route No. 54 at Puryear, via Buchanan to Nobles at Junction Route No. 76.

ROUTE NO. 141. From a point on State Route No. 52 east of Westmoreland via Hartsville, Lebanon, Tucker's Crossroad, New Middleton, Gordonsville, Carthage Junction, Lancaster and Center Hill Dam to a point on State Route No. 56 at Silver Point.

ROUTE NO. 142. From State Route No. 5 south of Selmer via Stantonville and Shiloh National Park to State Route No. 57 three miles west of Counce.

ROUTE NO. 143. From Route No. 37 at Roan Mountain to North Carolina Line at Carver's Gap.

ROUTE NO. 144. From State Route No. 131 northeast of Knox-Union County Line to State Route No. 33 southwest of Maynardsville.

ROUTE NO. 145. From Woodbury to Auburntown.

ROUTE NO. 146. From a point on State Route No. 1 east of Woodbury to Smithville.

ROUTE NO. 147. From State Route No. 49 via Tennessee Ridge, Stewart, McKinnon and Danville to the Tennessee River.

ROUTE NO. 148. From Route No. 2 near Chattanooga via Lookout Mountain to the Georgia State Line.

ROUTE NO. 148-A. From Route No. 2 near Chattanooga to Route No. 148.

ROUTE NO. 149. From a point on State Route No. 13 at Hilltop Junction via Palmyra and Cumberland City to Erin.

ROUTE NO. 150. From Tracy City to Jasper.

ROUTE NO. 151. From a point on State Route No. 56 at North Springs to Red Boiling Springs.

ROUTE NO. 152. From State Route No. 5 at Humboldt via Humboldt Lake to a point on State Route No. 54 northeast of Alamo.

ROUTE NO. 153. From a point on State Route No. 8 at the Georgia State Line via Chickamauga Dam to a point on State Route No. 29, north of Redbank.

ROUTE NO. 154. From a junction with Route No. 28 at Hugarth via Pickett State Forest to the Kentucky State Line enroute to Monticello, Kentucky.

ROUTE NO. 155. From a junction with Route No. 6 south of Nashville to a junction with Route No. 1 southeast of Nashville.

ROUTE NO. 156. From Route No. 27 at South Pittsburg via Shellmound and Ladds Route No. 134 at Guild.

ROUTE NO. 156-A. From Route No. 156 west of Shellmound to the Alabama State Line.

ROUTE NO. 157. From Route No. 22 near Walnut Log via Walnut Log to the Kentucky State Line.

ROUTE NO. 158. From Route No. 1 near First Creek in Knoxville south, east and north to Interstate Route No. 40.

ROUTE NO. 159. From Route No. 67 via Elks Mills to the North Carolina State Line.

#### U. S. (INTERSTATE) ROUTES

ROUTE NO. 11. From Georgia line, via Chattanooga, Cleveland, Athens, and Loudon to alternate routes from Knoxville.

ROUTE NO. 11-E. From Knoxville, via Morristown, Greeneville, and Johnson City to Bristol, Tennessee-Virginia.

ROUTE NO. 11-W. From Knoxville, via Rutledge, Tate, Rogersville, and Kingsport, to Bristol, Tennessee-Virginia.

ROUTE NO. 19. From Bristol, Tennessee-Virginia, to Alternate Routes 19-E and 19-W at Bluff City.

ROUTE NO. 19-E. From Bluff City, via Elizabethton, to North Carolina State Line.

ROUTE NO. 19-W. From Bluff City, via Johnson City, and Erwin, to North Carolina Line.

ROUTE NO. 23. From North Carolina line near Erwin, via Erwin, Johnson City, Kingsport, to Virginia Line.

ROUTE NO. 25. From North Carolina Line to alternate routes from Newport.

ROUTE NO. 25-E. From Newport, via Morristown, Tate, and Tazewell, to Cumberland Gap.

ROUTE NO. 25-W. From Newport, via Dandridge, Knoxville, Clinton, Jacksboro, and LaFollette to Kentucky Line.

ROUTE NO. 27. From Georgia Line, via Chattanooga, Dayton, Rockwood, Harriman, Wartburg, Sunbright, and Oneida, to Kentucky Line.

ROUTE NO. 31. From Ardmore on Alabama Line, via Pulaski, and Columbia, to alternate routes from Nashville.

ROUTE NO. 31-A. From Nashville via Lewisburg to Pulaski.

ROUTE NO. 31-E. From Nashville, via Gallatin, to Kentucky Line.

ROUTE NO. 31-W. From Nashville, via Goodlettsville, and Whitehouse to Kentucky Line.

ROUTE NO. 41. From Georgia Line, via Chattanooga, Jasper, Monteagle, Manchester, Murfreesboro, Nashville, Goodlettsville, and Springfield, to Kentucky Line.

ROUTE NO. 41-A. From Monteagle via Sewanee, Cowan, Winchester, Tullahoma, Shelbyville, Eagleville, Triune, Nashville, Pleasant View and Clarksville, to Kentucky Line.

ROUTE NO. 43. From Alabama Line near St. Joseph, via Lawrenceburg, Mt. Pleasant, Columbia, Nashville, and Clarksville to Kentucky State Line.

ROUTE NO. 45. From Mississippi Line, via Selmer, Henderson, and Jackson, to alternate Routes 45-E and 45-W north of Jackson.

ROUTE NO. 45-E. From Junction of Routes 45 and 45-W north of Jackson, via Milan, to Fulton, Kentucky.

ROUTE NO. 45-W. From junction of Routes 45 and 45-E north of Jackson, via Trenton, and Union City, to Fulton, Kentucky.

ROUTE NO. 51. From the Mississippi Line, via Memphis, Covington, Ripley, Dyersburg, and Union City, to Fulton, Kentucky.

ROUTE NO. 61. From Mississippi Line, via Memphis, to Arkansas.

ROUTE NO. 64. From Arkansas, via Memphis, Somerville, Bolivar, Selmer, Savannah, Waynesboro, Lawrenceburg, Pulaski, Fayetteville, Winchester, Monteagle, Jasper, Chattanooga, Cleveland, and Ducktown, to North Carolina Line.

ROUTE NO. 70. From Arkansas line, via Memphis, Brownsville, via alternate Routes 70 and 70-A, to Huntington, Camden, Dickson, Nashville, via alternate Route 70-N and 70-S, to Crossville, and from Crossville, via Rockwood, Knoxville, and Newport, to North Carolina Line.

ROUTE NO. 70-A. From Junction Route 70, Brownsville via Humboldt, and Milan to Huntingdon.

ROUTE NO. 70-N. From Junction Route 70, 13 miles west of Nashville, via Nashville, Lebanon, Carthage, Cookeville, and Monterey, to Crossville.

ROUTE NO. 70-S. From Junction Route No. 70, 13 miles west of Nashville, via Murfreesboro, McMinnville, and Sparta, to Crossville.

ROUTE NO. 72. From Memphis, via Collierville, to Mississippi line and from Alabama Line, via Jasper, to Chattanooga.

ROUTE NO. 76. From Chattanooga to Georgia Line.

ROUTE NO. 78. From Mississippi Line via Capleville to Memphis.

ROUTE NO. 79. From Arkansas Line via Memphis, Brownsville, Bells, Humboldt, Milan, McKenzie, Paris, Dover and Clarksville to the Kentucky Line.

ROUTE NO. 129. From Henley and Main Streets in Knoxville, via Maryville, and Williams Springs, to North Carolina Line toward Tapoco, North Carolina.

ROUTE NO. 231. From Alabama Line via Fayetteville, Shelbyville, Murfreesboro, and Lebanon, to Junction with State Route 6, U. S. Route 31-E at Bransford.

ROUTE NO. 411. From Georgia Line, near Conasauga, via Benton, Etowah and Madisonville to Maryville.

ROUTE NO. 421. From North Carolina Line, via Mountain City, to Bristol, Tennessee-Virginia.

ROUTE NO. 431. From U. S. Route No. 231 in Fayetteville via Petersburg, Lewisburg, Franklin, Nashville and Springfield to the Kentucky State Line.

ROUTE NO. 441. From North Carolina Line via Gatlinburg, Sevierville, Knoxville, Halls X-Roads, and Norris to Lake City.

ROUTE NO. 641. From Paris via Puryear to Kentucky State Line.



## ORGANIZATION

The Organization responsible for the development of the Highway System is shown on the accompanying chart approved November 10, 1959. This chart is essentially the same as it has been throughout the history of the Highway Department.

Attention is called to the change in the name of the Organization from the "Department of Highways and Public Works" under which it has operated since 1923, to the "Tennessee State Highway Department." This was accomplished simply by the removal of the Division of Public Works from the jurisdiction of the Highway Department by the 1959 General Assembly.

Another change, by the same Legislature, is the addition of a Chief Urban and a Chief Rural Engineer.

A brief description of the several Divisions is presented here to introduce, more effectively, the functional body that has given Tennessee her admirable Highway System and must continue to serve to improve the transportation facilities, not only of a local and intra-state nature but those of an interstate character as well.

The Governor, of course, is the Chief Executive of the State and it is under him that all Departments must serve.

The Commissioner, whose duties are mentioned elsewhere in this record, is the Chief Executive of the Department of Highways. He is the administrator and the policy maker; and all Divisions are responsible to him for the proper execution of the duties assigned them.

The State Highway Engineer must be, by law, a competent civil engineer with experience in the construction of highways, and is head of the Engineering Bureau. He is in charge of the operation of the Highway Department, answerable to the Commissioner.

The Chief Urban and Rural Engineers are Assistant State Highway Engineers who are responsible for the urban and rural phases of highway operations. This recent expansion of the organization will, no doubt, be of tremendous value in the development of our transportation system.

## AERONAUTICS

Tennessee was one of first states to recognize the rapid development of aviation. In 1929 the Legislature passed an Act creating a Division of Aeronautics within the framework of the State Highway Department. This Division was composed of an Advisory Board, of which the Highway Commissioner was chairman. This Board was authorized to make all rules and regulations for the operation of airways and landing fields.

In 1930 the Board adopted the rules and regulations formulated by the United States Department of Commerce, Aviation Branch. In 1935 the Legislature placed all aviation activities of the State under an Aeronautics Commission composed of five members appointed by the Governor.

In 1937, the law was amended to set up a separate Commission but all expenditures are still approved by the Commissioner of Highways, and accounts handled by the Accounting Division of the Department. The Aeronautics Commission is charged with supervision of aeronautical activities and facilities which include all airports, landing fields, emergency landing strips, air instruction, air marking, air beacons, and all other air navigation facilities, and the registration of pilots and aircraft.

In addition to these promotional and regulatory duties, the Commission supervises the construction of airports in Tennessee when funds are made available by the State Legislature.

## ADMINISTRATION

The Administration Division, as it appears on the Organization Chart, is under the direction of the State Office Engineer who, with his staff, is responsible for numerous operations correlated with all the other Divisions within the Highway Department.

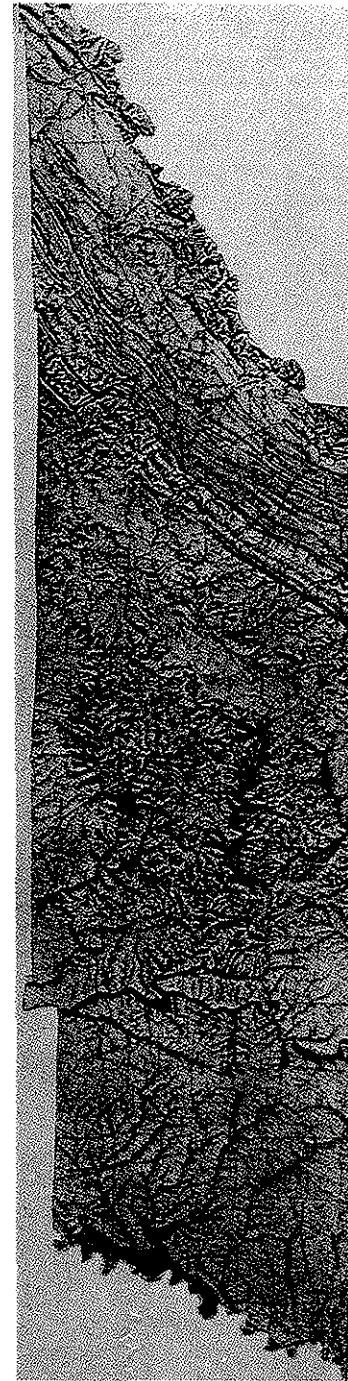
In 1929 a Personnel Division, with an Assistant Engineer in charge, was created for the purpose of planning, supervising and coordinating the activities of the personnel employed in the Highway Department.

After about two years, the Division ceased to function as an independent unit and the records and duties were transferred to the State Office Engineer.

Although the Personnel Division regained much of its independence in 1958, it continues to operate within the Administration Division.

Lettings are conducted, details concerning the awarding and execution of contracts are supervised, and work orders are issued by this Division. In addition, final estimates are processed, permanent files on all construction projects are kept, and engineering construction records and field notes are preserved here.

Appropriations for all projects are set up in this Division. The main stock room is operated here and all engineering and office supplies are kept and dispensed, not only locally but to the Field Divisions also. Permits for over-weight and over-dimension use of the highways are granted, biennial reports are compiled, highway maps printed and distributed, and many other duties and responsibilities are assumed by this Division.



**HOW TENNESSEE'S TERRAIN AFFECTS HIGHWAY DEVELOPMENT**  
As may be observed on the map, Tennessee has three natural "grain" geographic divisions—West, Middle and East. However, within each division there are varying terrain and soil conditions. Mountains, rock, rolling country, flatlands, rivers, lakes and the soil itself, all are factors in determining Tennessee's highway needs, highway location and construction. Other factors are differing land usages and population densities.



## SURVEYS DIVISION

This Division is under the direction of the State Location Engineer and his staff. The location of the highway is the primary phase of its construction and the serviceability of the completed facility largely depends upon the character of the location. In making locations for highways there are numerous phases of highway construction which must be considered, among them are: the maximum amount of service which may be obtained upon the section being located with the minimum amount of cost for construction and maintenance; the Location Engineer has to consider the terrain of the country, its topography, such as the improvements along the present highway and how they will be affected by any changes in location; the type and kind of vehicles which will use the particular highway; and the service as to convenience and safety the road will provide.

This Division has done an outstanding job on the new Interstate System, in addition to its regular duties, and much is yet to be done. Working harmoniously with the other Divisions and with the Bureau of Public Roads, county organizations, city engineering groups and the public at large, the State may be assured of the same laudable service that has been rendered by this Division in the past.

## HIGHWAY DESIGN

Highway design is one of the most technical phases of highway building. It comprises the design of alignment, grades, the roadway, and the structures needed to carry the roadway over railways, streams, and other obstructions. The work is so specialized that the activities are usually grouped in two coordinate Divisions; namely, Plans and Bridge. The Engineer of Design has general supervision of these divisions, which are directed by the Bridge Engineer and the Plans Engineer.

### The Division of Plans or Roadway Design

Standards are constantly changing to meet the requirements of an ever changing transportation pattern. Since the beginning of highways, the designer of the vehicle and the designer of the road have played a game of parallel development. As one improved the vehicle the other had to modify his design of the highway to keep pace with the vehicle. The progressiveness of a State Highway Department may be accurately gauged by the work of its Plans Division. This Division, must work in complete harmony with the Division of Surveys, the Construction Division, the Bridge Division, and all engineers. The Plans Division is responsible for the making of plans which affect every project constructed under the direction of the Highway Department.

The investment which follows the permanent location of a highway makes it essential that the highway be properly constructed along the standards of grade and alignment which will obviate the necessity for future changes. The only permanent thing in road construction, which may be handed to posterity, are proper width of right-of-way, proper alignment, proper grades and drainage.

In the April 1922 issue of the "Tennessee Highway and Public Works," a magazine published by the Highway Department beginning in October 1921 under the name of the "Tennessee Highway," there appeared an interesting parody with proper apologies to Longfellow:

Hordes of autos now remind us  
We should build our roads to stay;  
And departing leave behind us  
The kind that rains don't wash away.

So when our children pay the the mortgage  
We fathers made to haul our load,  
They'll not have to ask the question,  
"Here's the bond but where's the road?"

The Plans Department plays an important part in providing high-ways for the future.



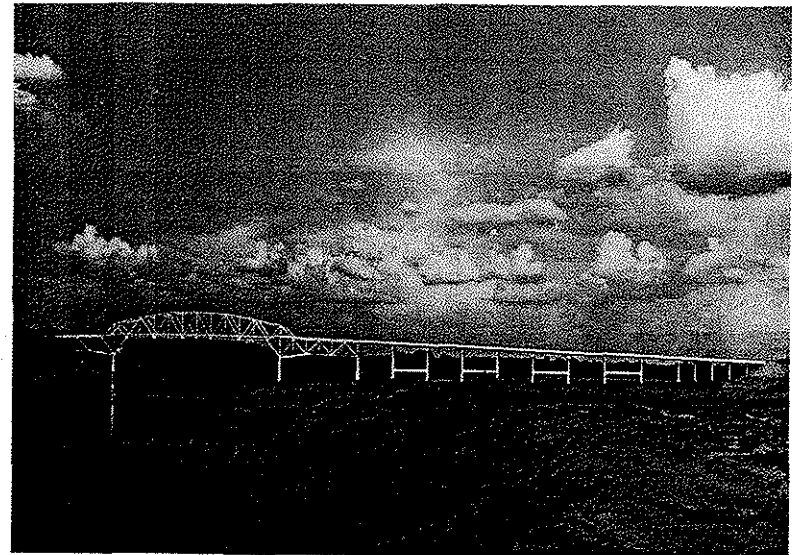
This photograph shows a portion of Tennessee's first freeway. Constructed in Knoxville in 1956, this section carries traffic east and west across Knoxville's downtown district.

### Bridge Division

Under the supervision of the Bridge Engineer and the Assistant Bridge Engineer, a staff of designers and draftsmen are employed to handle the large volume of work necessary in the preparation of plans for bridges, culverts, retaining walls, and other structures. What has been said about the desirability of adequate plans and standards in the Plans Division will apply, with equal emphasis, to the Bridge Division. A review of the accomplishments of this Division would inspire confidence in its ability to make a distinct and lasting contribution to the program of the Highway Department.



The old romantic covered bridges, like this one in Montgomery County, have given way to more adequate spans such as the one on State Route 109 in Wilson and Sumner Counties.



## RIGHT-OF-WAY DIVISION

Chapter 57 of the Public Acts of 1932 (Code of Tennessee, 1932, Section 3252 (1) et. seq.) governs the liability for rights-of-way. Department and the various counties of the State for rights-of-way. This Act provides that the Department may submit to the quarterly court of a county, in which the highway is located, a proposal setting forth in detail the proposed improvement, the location and routing, the names of the landowners, and a description of the right-of-way required from each; and, if such proposal is accepted by the court, the county becomes responsible for the acquisition of the property.

This Division is responsible for the preparation of proposals, deeds and other papers in connection with the procurement of the rights-of-way along the proposed highways. The legality of transactions involving rights-of-way must be approved by this Division. In the expanded program, each field division has a Right-of-Way Engineer who works with the local authorities in the solution of problems arising from efforts to acquire the property needed.

Land acquisition has assumed phenomenal proportions in the present Highway Program. Building cannot progress without the possession of the land necessary to accommodate the structure. Tennessee must procure the rights-of-way if her highway problems are to be solved.

There can be no doubt as to the efficiency of this Division nor can there be any question as to the effectiveness of its operation in the future.

## DIVISION OF ACCOUNTING

The Division of Accounting, under the direction of a Fiscal Engineer, keeps a systematic, permanent record of all business transactions of the Highway Department with reference to revenues and expenditures. The revenues are collected through the Revenue Department and credited to the Highway Department. This Division is responsible for keeping records of these receipts by sources such as: motor vehicle fees, gasoline tax, motor fuel tax, inspection fees, etc. Receipts from the Federal Government for construction projects on the basis of Federal-Aid allotments are also kept. The expenditures are handled under three general headings: general, maintenance and construction. Current records furnish an accurate control of all operations and reflect the status of each account at any time.

Each month a detailed financial statement is prepared and furnished to the Commissioner and other department heads. The report shows, in detail, all construction appropriations, expenditures and balances of appropriation. In addition to this monthly financial statement a detailed statement is furnished the Division Engineers and the District Maintenance Engineers showing the status of all maintenance projects. With this information the Commissioner and other administrative officers have before them detailed information showing the status of all receipts and expenditures.

By following the budget method of control and by breaking each account down into its component parts, the records show the cost of various types of work. This is not only important from the standpoint of accounts but it is of great value to engineers in charge of the various Departmental activities. This Division is a vital link in the chain that binds all the Divisions into an effective, competent, vigorous unit.

## FEDERAL CONTACT

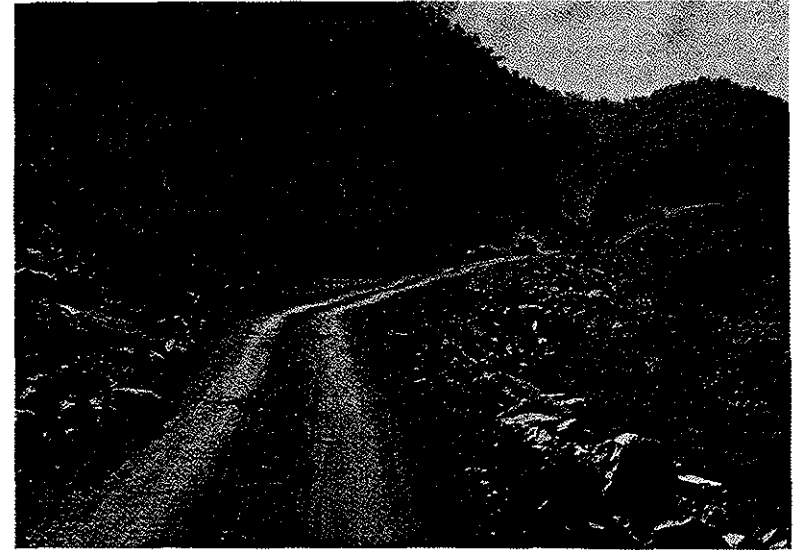
Federal Aid may be defined as a National Policy of road building to insure connected systems and open highways for interstate travel. Each state contributes to the cost and is in turn eligible to receive her prorata part of the total funds available.

In order to expedite the work involving Federal Aid, an engineer in the Highway Department was appointed to head the Federal Aid Contact Division. He and his staff are responsible for keeping records of allotments, appropriations, project records, and all other data concerning the Federal Aid program.

The Department of Highways has cooperated with the United States Bureau of Public Roads to the fullest extent and has in return received the heartiest cooperation from the Bureau. In addition to the financial assistance obtained by Federal Aid, the Department has received much benefit from the cooperative assistance of the representatives and engineers of the Bureau. They have assisted the Department in improving steadily the standards of location and design and the quality of construction work performed.

At this time, we salute the personnel of the Bureau and predict for the future the same pleasant, advantageous relationship that has existed from the very beginning.

## CONSTRUCTION

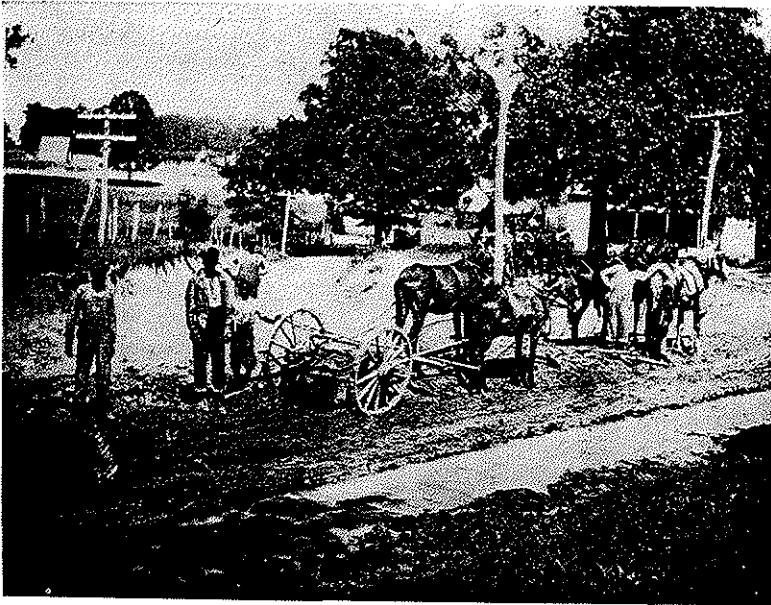


Mountain construction adds much to the cost and problems of making the State Highway System adequate for traffic now and in the future. Did the "long-rifles" who hacked open the Wilderness Trail to Cumberland Gap before the Revolution envision that in one day hundreds would follow their path in rubber-tired, self-propelled vehicles?

The organization of the Construction Division consists of the State Construction Engineer, Assistant State Construction Engineer, four Division Construction Engineers and a group of Senior Resident, Resident and Junior Engineers in each Division. Each engineer assigned to construction projects has under his supervision personnel to form the field party, namely, Instrumentmen, Inspectors, Field Office Computers and Rodmen.

The Construction Division has supervision of all high type road and bridge construction on Primary, Rural, Urban and Secondary Federal-Aid projects, Interstate projects, State Aid projects built by contract on the State Highway System, and all Rural Road projects built by contract.

The engineering and inspection services of the Construction Division are also utilized on Major Improvement Projects of the Maintenance Division; and on Rural Road Projects when the type of improvement on these projects requires staking of alignment and grade elevations; together with on the job inspection, and the computing of



It is comforting to know that in accomplishing the construction task, the Division is not compelled to rely on the method of construction used during the first decade of the existence of the Highway Department and shown in the picture above.



This picture above shows an earth moving effort that, compared with the earlier method, should cause the Division to proceed with confidence.

pay quantities if the work has been let to contract on a unit price basis.

This Division cooperates fully with the Divisions of Surveys and Design in the construction of projects according to plans and specification. This Division enforces the provisions of the standard roadway and bridge specifications as well as special provisions written into contracts and cooperates with all Divisions of the Highway Department and the U.S. Bureau of Public Roads in a concerted effort to build our system of highways to modern standards of safety and usability.

The headquarters office of this Division determines the qualification of bidders, and issues proposals to qualified contractors for bidding in contract lettings. This office also handles claims from creditors, who have supplied materials or services in connection with contracts. Payments of all current estimates and all final estimates which constitute full payment for the completion of contracts are cleared through this office.

The accomplishments of the Construction Division have been noteworthy from the beginning and it is to this Division that we look for a successful completion of the great construction program that has been proposed.

## SECONDARY AND RURAL ROAD DIVISION

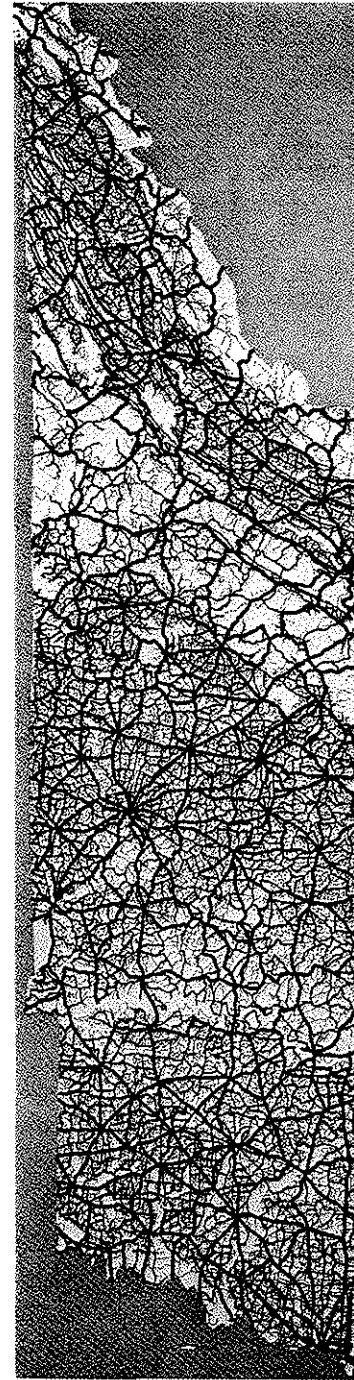
In 1949 the Legislature inaugurated the State Rural Roads Program with an Act providing for the creation of a Rural Road Division within the State Highway Department for the purpose of administering the provisions of the Act.

The Rural Road Program proceeded under the original Act until the Legislature of 1955 enacted legislation establishing a System of Rural Roads. In the selection and designation of the county roads to be included in the State System of Rural Roads the Commissioner was to, in the first designation, use and establish the County Arterial System established by the studies and findings of the Automotive Safety Foundation.

After the establishment of the Rural Road System, the county officials, having authority over the county roads, submit to the Department of Highways an annual program of improvements to be made on roads within the counties upon the designated Rural Road System. Such programs must be within the funds allocated to each county, and are subject to the approval of the Commissioner.

On the Rural Road System there have been improvements of 8,633 miles as of June 30, 1958. Of this mileage, 5,006 miles have been surfaced with bituminous materials and 3,628 miles have been surfaced with crushed stone, gravel or chert.

The Federal Aid Secondary Program authorized by the Federal Aid Highway Act of 1944 has been placed under the supervision of this Division which is under the direction of a Chief Rural Roads Engineer, a Rural Road Division Engineer, a Federal-Aid Secondary Road Engineer and a sufficient number of engineers in each Division to insure competent administration of this very vital program.

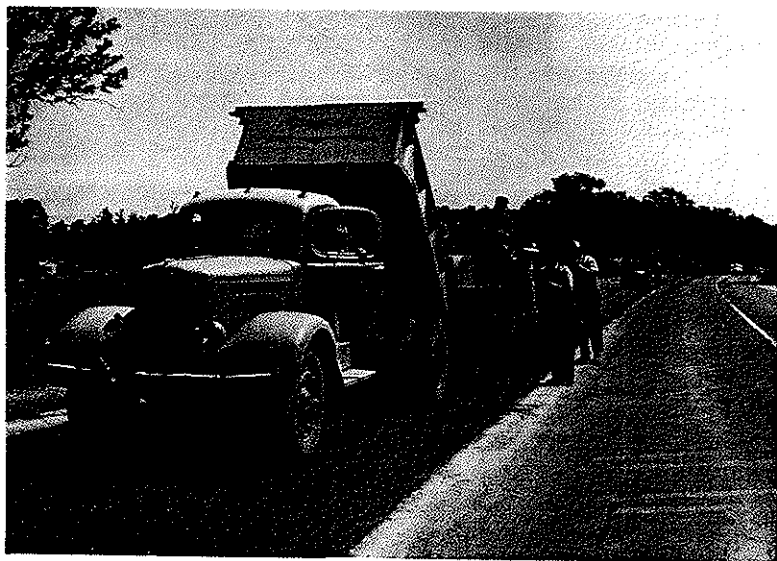


This map shows how the selected County Arterial System, recently designated as the State System of Rural Roads, supplements the State Highway System in providing State-wide arterial service to the rural area of Tennessee.

Together, the two systems carry 96 percent of all rural travel. Only eight percent of the rural establishment are more than one mile from one of these roads. The light lines show the remaining 41,000 miles of local feeder roads.



These pictures show the Maintenance Department patching and resurfacing with bituminous material. These are only two phases of the operation of this many-faceted organization.



## MAINTENANCE

The historic concept of maintenance is in keeping with the following meaning of the word: "To preserve in a state of efficiency, to support, sustain, or keep up." Therefore, the primary responsibility of the Maintenance Department is to keep, as near as possible, the Highway System in its original condition. This becomes very difficult indeed when faced with the ravages of time and the weather, the abuse by traffic, and the ever present spectre of obsolescence.

Some years ago a maintenance engineer opened his remarks at a highway meeting with this lugubrious statement: "It is a melancholy fact that the day we are born we begin to die." A bit of the doleful significance of that remark is registered in the fact that from the moment a highway is opened to traffic it begins to deteriorate and obsolescence moves in.

The Maintenance Division has supervision of all highway maintenance and repair work, Highway Marking, Roadside Development, Safety Division, Radio Division, Civil Defense and Equipment Division.

This Division is under the direction of a State Maintenance Engineer, four Division Maintenance Engineers, twenty-three district Maintenance Engineers and Superintendents and varying numbers of men responsible for protecting the State's tremendous investment in highways.

Including 729.03 miles of city streets over which State highways are routed, this Division is maintaining 8,434.15 miles of road. In addition to the regular maintenance many miles of roads and bridges have been built with State forces.

Gratefully examining the past performances of this Division we confidently look to the future as it assumes the formidable responsibilities thrust upon it by the construction of so much new mileage.

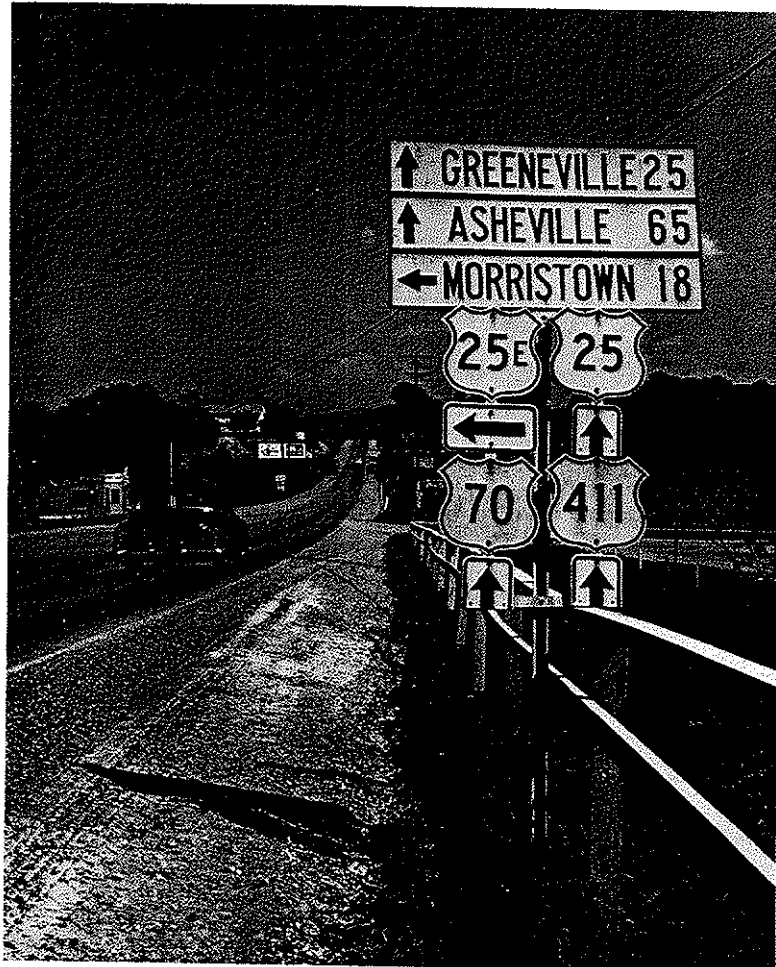
### Highway Marking

The Highway Marking Division is under the general supervision of the State Traffic Engineer assisted by superintendents and marking crews in each Division. Center lines are drawn, no passing zones defined, dangerous places marked, and routes are numbered. Curves, sideroads and excessive grades are designated. Safe speeds, slippery roads, distances and directions are shown, and many other helpful services are performed by this Division. From the time when "little boards painted black" helped travelers along the way, highway

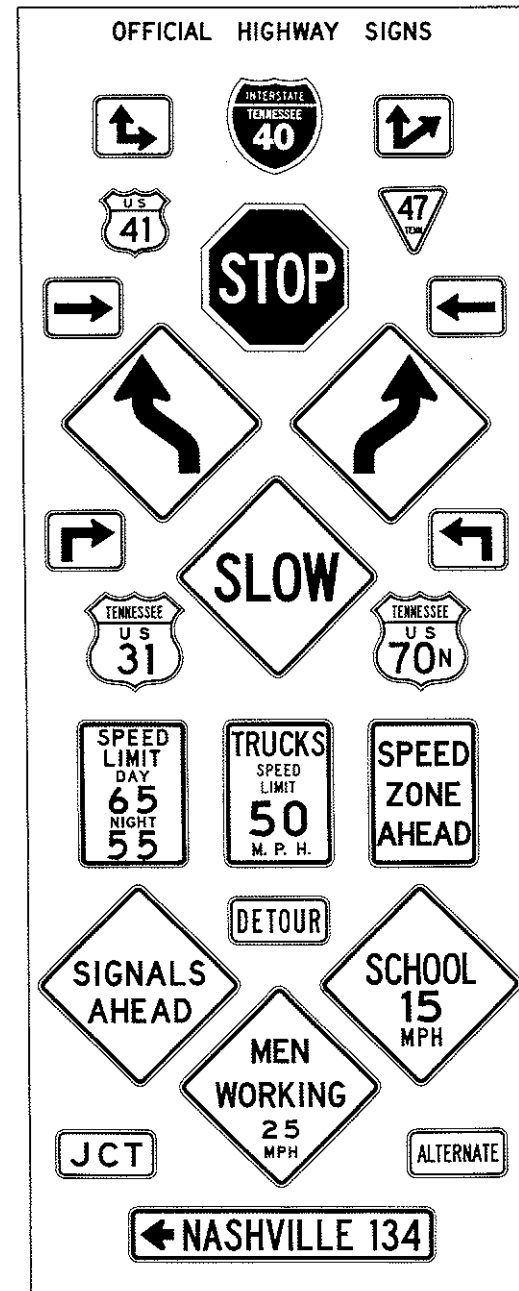
marking has contributed incalculably to the safety and convenience of those who travel.

### Roadside Development

The Road Side Development Division, under the supervision of a Road Side Development Engineer, constructs and maintains road-

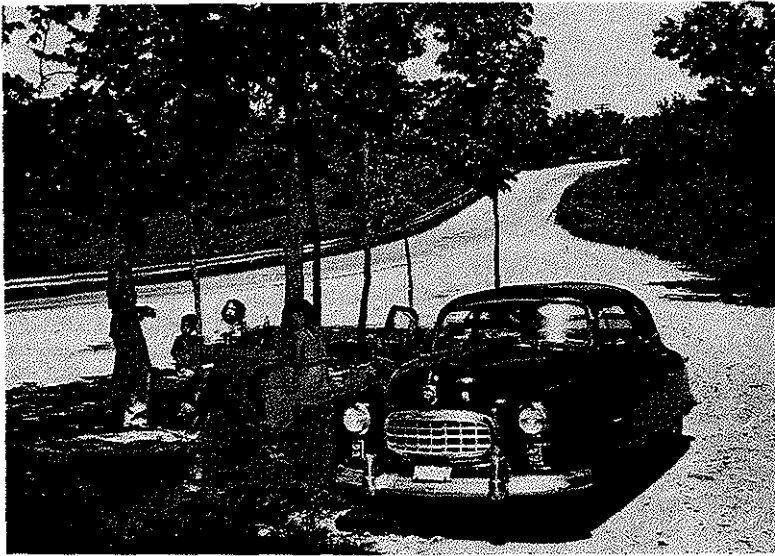


The signs in the picture, constructed and erected by the Highway Marking Division, give motorists information that is indispensable in safe, comfortable and enjoyable travel.



The official highway signs are displayed here for the benefit of those who may not be familiar with them.





A stimulus to the growing touring business is the roadside picnic area which makes friends of out-of-staters and wins appreciation of home folks as well.

side parks, turnouts, etc., and aids in erosion control, landscaping and beautification. Too much cannot be said in favor of the roadside parks and tables where many a weary traveler has rested and then resumed his travel, refreshed, and better able to enjoy the journey.

### Safety

In 1931 the Department instituted a Division of Safety with a Safety Engineer in charge. Large sums of money had been paid in claims resulting from various types of accidents and it was felt by the Department that with the exercise of safety rules and detailed supervision, many accidents could be prevented. This Division has directed its efforts largely to safety education, and conducts an intensive continuous safety education program among all employees of the Department. Motor equipment is inspected, accident reports are made and recorded, the causation of accidents studied, safety conferences conducted and numerous other exercises to promote safety are sponsored by this Division. The Highway Department has been in a better position to cope with the accident problems since the Division was inaugurated and its safety campaign instituted. The Division functions in cooperation with the National Safety Council,

the National Conference on Streets and Highway Safety, the American National Red Cross and all local safety organizations.

### Radio

The Radio Division, under the direction of a Director of Radio installs and maintains a State wide FM two-way radio system to further amplify and expedite the communication facilities. Priority in the use of this system belongs to Civil Defense and emergencies in case of natural or man-made disasters. The two-way feature of this communication system has proved invaluable by facilitating the functions of the Highway Department.

### Equipment

The very nature of maintenance work is such that it requires a large amount of machinery. Many miles of road must be patrolled daily. Trucks, graders, tractors, cars, and many other items must be kept in good order if proper maintenance is to be performed. The demand for service of equipment, made it necessary to establish headquarters in the four divisions at Knoxville, Chattanooga, Nashville and Jackson, with district garages in the twenty-three maintenance districts. This Division is under the direction of an Equipment Engineer, four Division Superintendents, twenty-three District Superintendents and a sufficient number of clerical and technical personnel to keep the Highway Department on wheels and rolling.



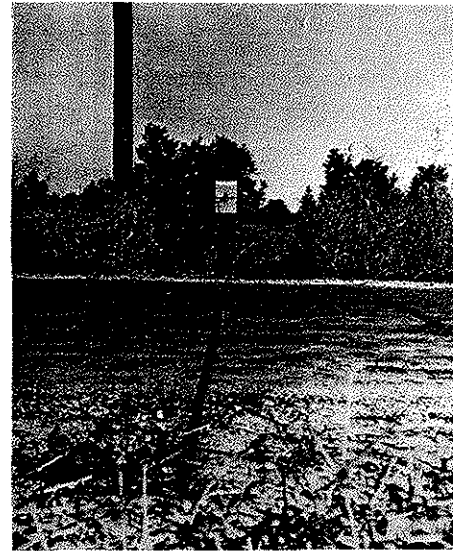
Origin and Destination studies are made to determine the travel desire of motorists in order to better plan for facilities to satisfy this desire.

### HIGHWAY PLANNING SURVEY DIVISION

The Highway Planning Survey Division of the Highway Department is a Division with diversified responsibilities. Planning, of course, is no new idea but in 1936, under the provisions of the original Hayden Cartwright Act of 1934, the State-wide Highway Planning Survey was inaugurated. This Act provided that 1.5 per-



Calculating the weight of traffic is an important factor in highway planning.



Traffic counters such as the one shown in this picture help in establishing the traffic density on Tennessee's travelways.

cent of apportioned Federal Aid Funds were to be used for "surveys, planning and engineering investigations."

Planning for public roads necessitates traffic counts on primary, secondary and tertiary roads to determine traffic density and weight; production of transportation maps; detailed vehicle classification studies on the various road systems in the State and many other aspects of transportation engineering.

Studies must be made to determine the character and condition of the roads. County lines, city limits and all culture along the routes are shown and recorded. Permanent records must be kept of these and all other characteristics of all the roads.

These data must be analyzed and transcribed to county and city maps, thus permanently recording and conveniently presenting the information for use and distribution.

In order to adequately plan for the future, the ability of the State and local governments to build, own and operate their roads must be determined. The financial structure of such governmental units must be studied with respect, not only to highway income and expenditures, but to all financial transactions affecting the ability of the authorities to make and fulfill their obligations.

Data must be obtained from the various governmental units by personal, on the spot, investigations of the fiscal problems in the

public road program. These data must be carefully gathered, assimilated, analyzed, tabulated and recorded for use in long range highway, county road and city street planning.

Trends in gasoline and motor fuel consumption and motor vehicle registration must be established and forecast, if plans are to be intelligently made, and many other allied areas must be explored by the Fiscal Studies Section.

It is also necessary to study the highway construction project records to determine the cost of the Highway System, the longevity of the several road types and the investment in the various types. In addition, State and local mileage data are necessary if meaningful analyses are to be made of past accomplishments of the State and local governments in order to better forecast future performances.

The objective of the Highway Planning Survey is to obtain, analyze, and present factual data relating to the various elements that enter into the field of highway engineering. This Division operates in cooperation with the Bureau of Public Roads. Each year a project agreement is entered into between the State Highway Department and the Bureau of Public Roads covering the financing, programming and conduct of the work that is to be done by this Division.

The factual information developed by the comprehensive planning studies conducted by this Division has had, and will continue to have, a most significant bearing on the development of highways in Tennessee.

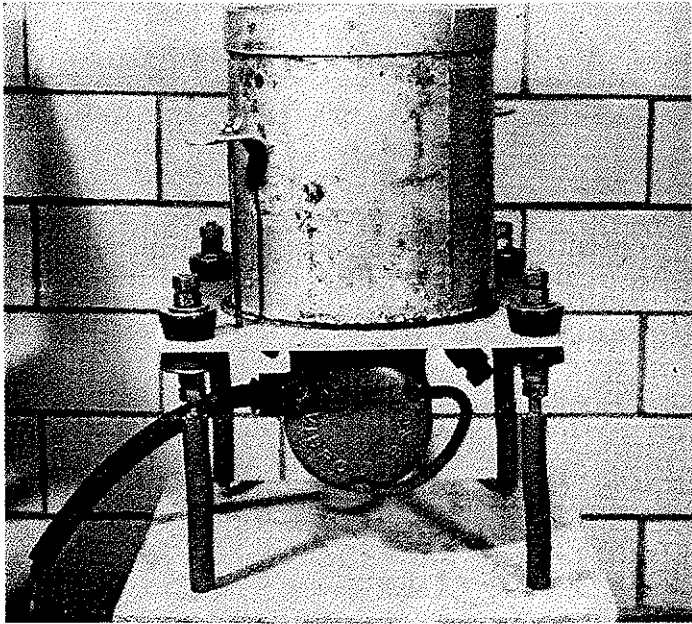
## DIVISION OF MATERIALS AND TESTS

The Division of Materials and Tests is the agency of the Highway Department which performs all chemical and physical testing of materials used in highway construction and maintenance. Materials represent a large portion of every dollar expended by the Department. Therefore it is of utmost importance that suitable materials, from the standpoint of economy and serviceability, be selected for the various phases of highway work.

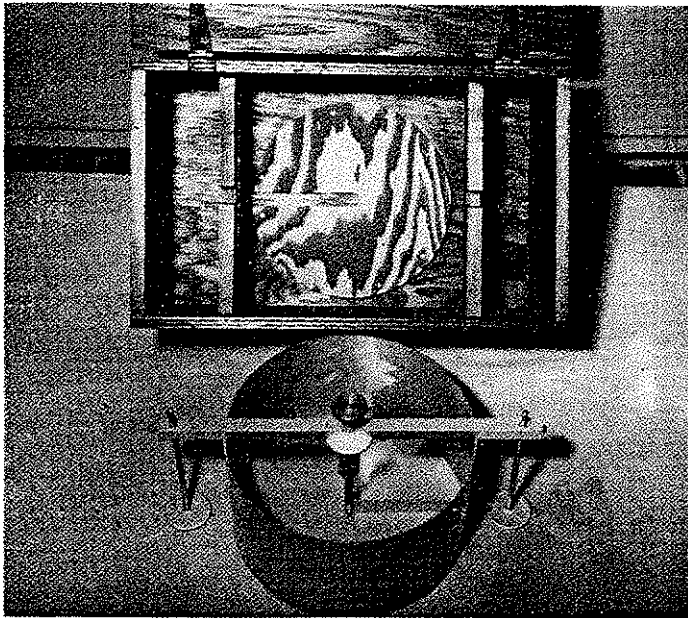
Testing for quality, durability, etc., in order that only the materials satisfactorily conforming to the specifications be permitted for use, is routine in this Division.

Research activities designed to develop new material, to improve the common materials involved in construction and to define more closely the important properties of materials are carried on within this Division.

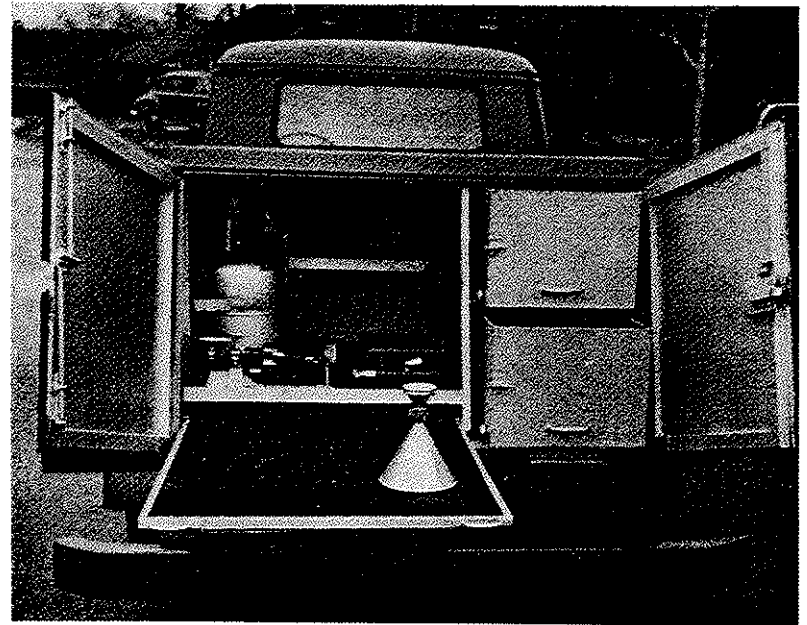
This Division, headed by the Engineer of Materials and Tests operates under these major sub-divisions: Chemical Laboratory headed by Chief Chemist; Physical Laboratory headed by the Physical Testing Engineer; Field Inspection Department headed by the Senior Engineer of tests; Laboratory office headed by the Senior Materials Engineer; and the Soils Laboratory headed by the Soils Engineer. Operating since 1920, this Division has compiled an enviable record of achievement and its contribution to the development of the Highway Department has been immeasurable.



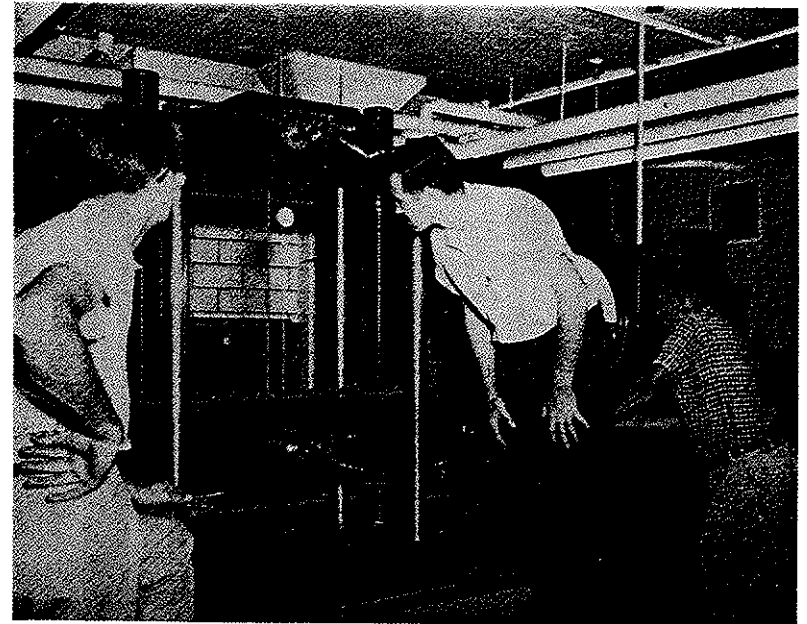
Vibrator table used in determination of the maximum theoretical density of aggregates.



Density ring used in the determination of in-place density.



Traveling Field Laboratory.

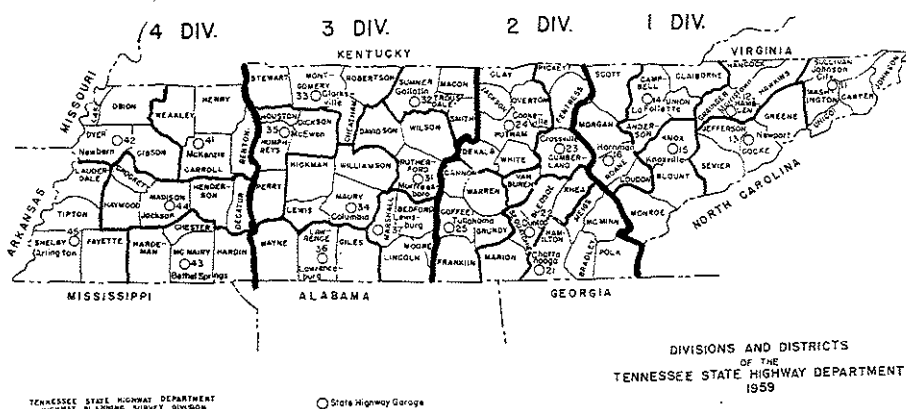


Determination of the modulus of elasticity of a prestressed steel cable.

## DIVISION FIELD ADMINISTRATION AND CONTROL

The "Field Divisions" were, of necessity, mentioned in briefly describing the Divisions of the Organization. The responsibility for the meticulous execution of the duties assigned to the Divisions of Construction, Right-of-Way, Secondary and Rural Roads, Surveys and Maintenance devolves on these four Field Divisions. The affairs of each Division are conducted by a Division Engineer, who is in charge; engineers who direct the various phases of work and an adequate number of professional, technical and clerical personnel to assure satisfactory performance in completing the appointed tasks.

An accompanying map shows the limits of the four Field Divisions. In addition, the limits of the twenty-three Maintenance Districts are shown with the location of the District garages.



## 10-YEAR OPERATION

Within the last ten years, so much has been accomplished by the Highway Department that it is deemed advisable to offer a more detailed report of its activities during this period. More than one-half the money spent by the Department since 1919 has been expended in the last decade. See Table No. II for receipts and expenditures. It follows that the period in which most of the money was spent is of particular interest to the spender.

It is believed that many who are interested in the most recent history of the operation of the Highway Department will also be interested in the development of the entire Public Road System over the same period of time. It is hoped that the entrance of the local systems into this narrative will in no way becloud the composition but will lend support to the effort to be faithful to the theme.

The material that follows presents in broad outline and basic statistical form the records of income for the last ten years. Shown too, are data on how the revenue is used to finance Tennessee's system of highways, roads and streets.

The population since 1949 has increased approximately ten percent; the motor vehicle registration climbed sixty-one percent and the motor fuel consumption advanced about seventy-five percent. This indicates that more people are making more use of more vehicles on the highways, roads and streets of Tennessee. Table No. III also shows interesting data prior to 1949. Chart No. 2 graphically reveals that there are more people, more vehicles and more travel than in 1949.

This increased demand upon the thoroughfares dictated more and better facilities. During the period being considered, there was no appreciable growth in public road mileage and the resulting increase in intensity of use per unit necessitated type improvement of existing facilities, see Chart No. 3. As a result of this accelerated type improvement effort, unpaved roads are essentially non-existent on the State Highway System and high type surfaces have increased seventy-three percent. There was a sharp decline in low-type surfaces.

Table No. I  
 STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS  
 HIGHWAY PLANNING SURVEY DIVISION  
 State Highway Expenditures from 6-1-1919 to June 30, 1959

Year	State	Federal	Total
1919-20	2,853,273.29	0	2,853,273.29
1921	2,954,794.92	1,685,453.15	4,640,248.07
1922	2,161,147.41	2,091,411.77	4,252,559.18
1923	2,279,196.01	1,511,638.90	3,790,834.91
1924	5,667,470.52	3,116,290.72	8,783,761.24
1925	6,353,348.03	1,144,518.62	7,497,866.65
1926	11,659,467.34	2,377,547.53	14,037,014.87
1927	13,190,142.88	1,812,485.57	15,002,628.45
1928	18,010,485.13	1,161,902.32	19,171,577.45
1929	22,835,345.54	2,245,874.99	25,081,220.53
1930	31,645,687.88	1,459,546.34	33,105,234.22
1931	25,951,118.54	4,506,822.46	30,457,941.00
1932	8,068,998.87	2,366,882.68	10,435,881.55
1933	7,481,499.79	4,018,219.58	11,499,719.37
1934	6,342,929.84	4,745,505.89	11,088,435.73
1935	5,985,093.14	6,548,041.29	12,533,134.43
1936	5,340,889.41	4,364,284.34	9,705,173.75
1937	6,059,330.97	4,840,252.11	10,899,583.08
1938	7,680,027.72	4,871,151.67	12,551,179.39
1939	9,495,061.07	3,960,514.82	13,455,575.89
1940	7,511,155.52	3,283,601.46	10,794,756.98
1941	9,135,568.36	2,099,538.88	11,235,107.24
1942	10,412,543.14	3,780,434.75	14,192,977.89
1943	4,934,386.63	2,456,347.71	7,390,734.34
1944	5,060,024.44	2,521,310.14	7,581,334.58
1945	6,550,524.17	3,517,125.69	10,067,649.86
1946	10,515,614.84	2,024,861.59	12,540,476.43
1947	17,447,808.18	5,164,530.02	22,612,338.20
1948	26,274,276.83	7,132,450.48	33,406,727.31
1949	35,767,068.13	10,421,594.34	46,188,662.47
1950	38,200,765.33	8,487,735.00	46,688,500.33
1951	40,631,520.31	7,189,245.00	47,820,765.31
1952	42,710,072.33	6,999,143.00	49,709,215.33
1953	47,595,301.29	10,698,863.12	58,294,164.41
1954	43,529,177.18	10,680,586.00	54,209,763.18
1955	40,008,202.21	11,717,051.00	51,725,253.21
1956	45,982,500.32	13,567,924.00	59,550,424.32
1957	54,127,014.49	15,176,328.00	69,303,342.49
1958	67,757,839.47	21,163,622.00	88,921,461.47
1959	81,572,417.06	48,823,054.00	130,395,471.06
Totals 40 yrs.	837,739,088.53 76.61%	255,732,880.93 23.39%	1,093,471,969.46 100%

Table No. II  
 STATE HIGHWAY DEPARTMENT RECEIPTS AND DISBURSEMENTS

From 1-1-19 through 12-31-58		
Property Taxes	0.51%	\$ 5,256,191.49
Motor Fuel Tax	35.13%	364,349,524.95
Gasoline & Oil Inspection Fees	0.84%	8,692,273.97
Motor Vehicle Registration Fees	22.70%	235,479,646.84
Federal Aid	22.26%	230,910,882.45
County & City Aid	2.50%	25,957,287.42
U. S. Maneuver Damage	0.21%	2,149,647.71
Tr. from Shiloh-Corinth		
Park Service	0.04%	414,750.00
Tr. from Other Projects	0.03%	341,939.25
Tr. from State General Fund	6.17%	64,000,000.00
Proceeds of Bond Sales	8.09%	83,935,508.30
Mileage Tax (Repealed in 1939)	0.10%	1,006,123.04
From Closed Banks & Toll		
Bridge Trust Funds	0.23%	2,396,316.93
Miscellaneous Receipts	1.19%	12,375,341.95
TOTAL	100 %	\$1,037,265,434.30
DISBURSEMENTS		
Construction	76.95%	\$797,661,489.52
Maintenance	17.04%	176,628,465.60
General Expenditures	5.80%	60,106,633.00
Tr. to State General Fund	0.21%	2,200,000.00
TOTAL	100 %	\$1,036,596,948.12
SPENT IN LAST 10 YEARS		
PERCENT OF TOTAL		
		613,323,242.00 59.17%

NOTE: The expenditures in Table No. I are calculated by fiscal years, causing a difference in the disbursements, based on calendar years, in Table No. II. The Property Tax item includes the State Good Roads Tax, the Ten Percent Fund and the One Mill Tax.



Table III  
Change in Population, Gasoline Consumption, Motor Vehicle Registration and Persons per Vehicle

Year	Population	Gallons of Gas Consumed	Motor Vehicle Registration	Persons Per Vehicle
1923	2,421,480	18,561,022	173,366	14.0
1924	2,449,347	78,539,313	206,411	11.9
1925	2,477,215	130,704,422	246,146	10.1
1926	2,505,082	119,371,396	279,639	9.0
1927	2,532,949	137,534,064	297,581	8.5
1928	2,560,816	160,561,644	323,265	7.8
1929	2,588,683	215,169,207	366,808	7.1
1930	2,216,556	206,913,126	370,307	7.1
1931	2,646,485	217,536,367	356,340	7.4
1932	2,676,413	210,153,483	303,068	8.8
1933	2,706,342	191,683,653	315,463	8.6
1934	2,736,270	195,589,799	336,930	8.1
1935	2,766,199	202,409,970	355,694	7.8
1936	2,796,127	223,535,610	388,723	7.2
1937	2,826,056	261,689,149	403,337	7.0
1938	2,855,984	270,123,715	408,347	7.0
1939	2,885,913	271,562,427	430,380	6.7
1940	2,915,841	284,071,924	463,260	6.3
1941	2,953,429	327,610,697	505,747	5.8
1942	2,991,016	359,487,819	470,979	6.4
1943	3,028,604	300,382,215	452,612	6.7
1944	3,066,192	308,807,804	457,611	6.7
1945	3,103,779	296,276,254	464,859	6.7
1946	3,141,367	396,420,274	531,913	5.9
1947	3,178,955	476,697,682	607,410	5.2
1948	3,216,543	508,180,303	667,730	4.8
1949	3,254,130	567,497,609	745,772	4.4
1950	3,291,718	606,029,817	850,793	3.9
1951	3,329,306	665,608,204	896,558	3.6
1952	3,366,893	721,116,147	925,003	3.6
1953	3,404,481	768,471,213	992,341	3.4
1954	3,442,069	825,229,247	1,061,877	3.2
1955	3,479,657	893,685,234	1,104,650	3.2
1956	3,517,245	939,079,771	1,125,225	3.1
1957	3,554,833	964,904,306	1,153,863	3.1
1958	3,592,320	990,337,692	1,196,991	3.0

10% over 1949

75% over 1949

61% over 1949

CHART NO. 2

MORE PEOPLE, MORE VEHICLES, MORE TRAVEL  
IN TENNESSEE FROM 1949 THROUGH 1958

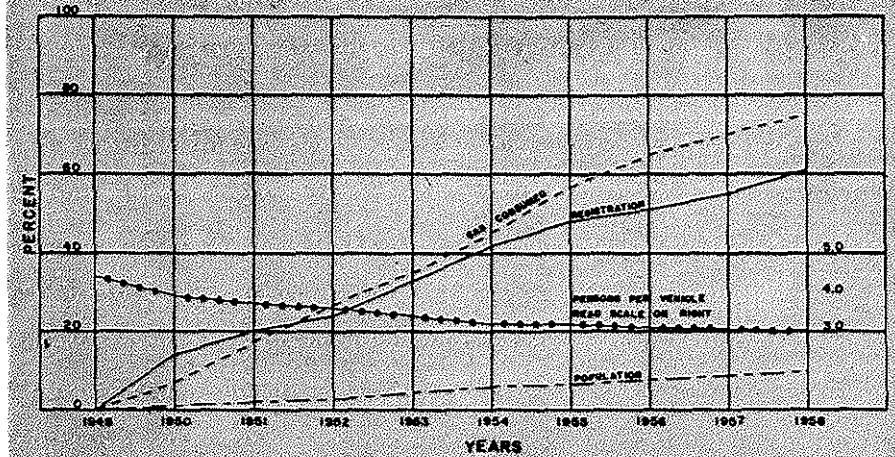
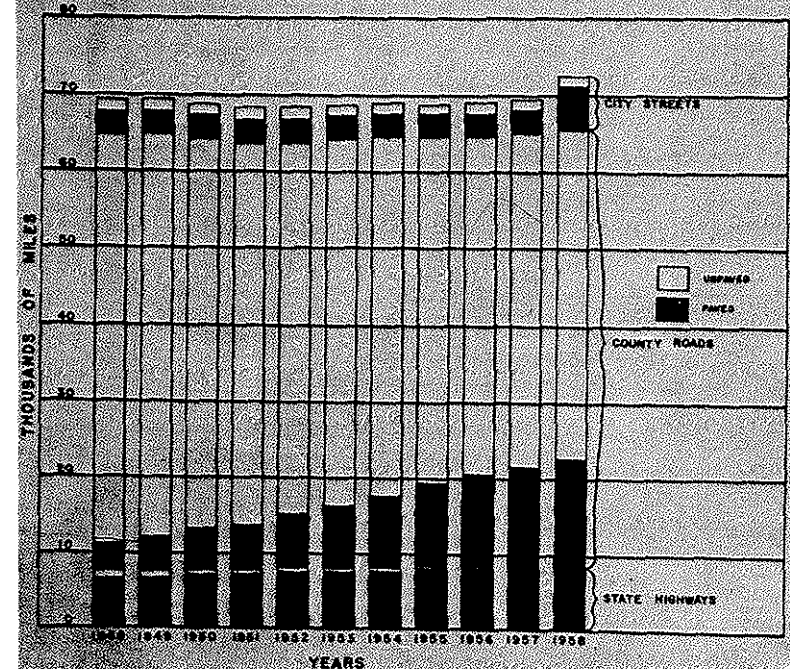


CHART NO. 3

TYPE IMPROVEMENTS OF THE HIGHWAYS, ROADS AND STREETS  
OF TENNESSEE IN THE DECADE ENDING WITH 1958



County roads experienced a steady increase in paved roads and, of course, a corresponding decline in unpaved roads.

The changes in street types are graphically negligible except in 1958 when all city streets were reinventoried and alleys were included in the mileage. This produced a substantial increase in paved mileage in the municipalities. The more than \$75 million spent for construction in this study period contributed greatly toward making the streets more adequate.

There appears in Table No. IV an interesting breakdown of the Public Road mileage by type. This summary includes 1,085.12 miles that are on State and Federal reservations and alleys were included in the mileage. This produced a substantial increase in paved mileage in the municipalities. The more than \$75 million spent for construction in this study period contributed greatly toward making the streets more adequate.

Motor Vehicle User Imposts are regarded as taxes, fees, licenses, etc., collected as a result of a motor vehicle having been used. The receipts, by the State, from these imposts during the last ten years and the distribution of this revenue may be examined by using Table No. V. It may be seen that the Highway Fund has received less than one-half of these receipts. In 5½ years, the cities have received 6.32% of the 10-year income while the counties share was 20.28%. The Sinking Fund gets 14.28% and the General Fund 12.41% of the total.

Funds in transit from the Department of Revenue to the Highway Department would account for a slight difference in the figures in overlapping tables. No effort has been made to reconcile these differences because they can in no way seriously affect the result of this presentation.

**Table IV**  
TENNESSEE HIGHWAY DEPARTMENT  
HIGHWAY PLANNING SURVEY DIVISION  
EXISTING MILEAGE OF ALL ROADS

For year ended Dec. 31, 1958

Type of Road	On State System			On Local Roads			Total State & Fed. Reser.	Total all Mileage
	Rural Mileage	Urban Mileage	Total	County Rural Mileage	City Mileage	Total Local Mileage		
Unimproved				2,221.85	134.31	2,356.16	80.43	2,436.59
Graded and Drained				2,017.24	46.53	2,063.77	98.73	2,162.50
Soil Surface, Gravel & Stone	67.58	0.35	67.93	38,353.14	1,193.03	39,546.17	705.17	40,319.27
Bit. Surface - Treated	2,383.30	104.75	2,488.05	10,979.20	2,811.86	13,791.06	145.29	16,424.40
Mixed Bit. (Non-rigid Base)				1,948.78	1,437.94	3,386.72	1.20	3,387.92
Mixed Bit. (Rigid Base)				698.93	159.74	858.67	4.69	863.36
Bit. Penetration (Non-rigid Base)				59.08		59.08		59.08
Bit. Penetration (Rigid Base)	4,596.82	495.94	5,092.76	757.73	960.13	1,717.86	45.59	6,856.21
Bit. Concrete & Sheet Asphalt	657.42	127.99	785.41	85.14	266.39	351.53	3.32	1,140.26
Portland Cement Concrete								
Brick or Block				11.13	11.13	11.13		11.13
<b>Total</b>	<b>7,705.12</b>	<b>729.03</b>	<b>8,434.15</b>	<b>57,121.09</b>	<b>7,021.06</b>	<b>64,142.15</b>	<b>1,085.12</b>	<b>73,661.42</b>



Table V

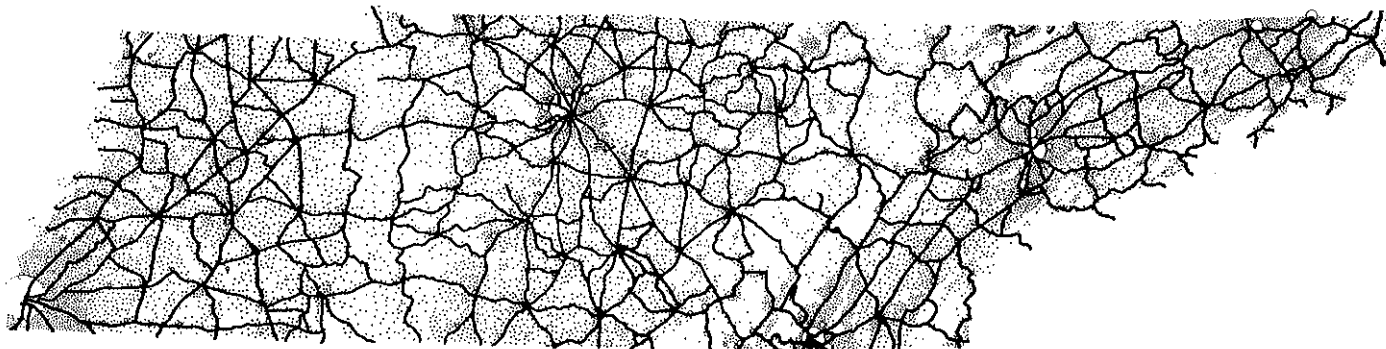
## RECEIPTS AND APPORTIONMENT OF HIGHWAY USER IMPOSTS BY YEARS FROM 1949-1958

RECEIPTS							
	Total	Gas Tax	Motor Fuel	Insp. Fees	Motor Veh. Reg. Fees	Drivers License	Certificate of Title
1949	53,168,206	38,691,049	216,376	3,192,053	10,251,732	816,996	
1950	59,422,299	43,942,058	300,812	3,668,486	11,393,887	117,056	
1951	64,957,323	46,982,952	385,021	3,980,358	11,627,607	1,981,385	
1952	67,492,428	50,422,391	460,432	4,215,686	11,518,372	254,586	620,961
1953	74,780,279	54,058,599	591,893	4,330,159	12,716,181	2,221,455	861,992
1954	77,382,751	57,345,559	711,418	4,647,875	13,515,337	249,600	912,962
1955	91,781,965	61,806,850	1,042,319	6,070,578	19,515,500	2,414,066	932,652
1956	95,136,033	64,393,946	1,625,762	7,533,985	20,387,005	252,435	942,900
1957	103,717,219	69,870,189	2,067,460	7,652,952	20,731,812	2,567,396	827,410
1958	99,396,918	67,122,037	2,461,855	7,935,661	20,821,184	247,344	808,837
TOTAL	787,235,421	554,635,630	9,863,348	53,227,793	152,478,617	11,122,319	5,907,714

APPORTIONMENT						
	To Gen. Fund	To Hwy. Fund	To Sinking Fund	To Counties	Aviation	To Cities Gas Tax
1949	6,529,556	26,576,009	9,000,000	10,981,890	80,751	3,863,618
1950	6,607,406	29,140,920	11,160,000	12,513,973		
1951	8,904,363	31,497,669	11,160,000	13,395,291		
1952	8,062,118	33,881,586	11,160,000	14,388,724		
1953	10,607,389	32,495,817	12,360,000	15,453,455	Unappor- tioned	3,863,618
1954	9,156,101	30,040,419	13,560,000	16,417,487		8,208,744
1955	12,652,624	39,952,767	12,360,000	17,696,777	271,409	8,848,388
1956	10,839,017	44,780,493	11,160,000	18,503,393	601,434	9,251,696
1957	13,280,955	49,841,923	11,160,000	20,593,858		9,713,326
1958	11,071,845	49,502,676	9,300,000	19,681,598		9,840,799
TOTAL	97,711,374 12.41%	367,710,279 46.71%	112,380,000 14.28%	159,626,446 20.28%	80,751 0.00%	49,726,571 6.32%

Note: The unapportioned amounts in 1955 and 1956 were apportioned in 1957 as was \$4,126,485.18 recovered from gasoline tax due in previous years.



This map shows the location of state highways in relation to population. Each small dot represents 100 rural residents. The size of the larger circles indicates the relative size of incorporated cities. Nearly all cities and towns of the state are served directly by the system and all areas of the state are traversed at reasonable intervals. Included in the system are roads to state parks and institutions.

## STATE HIGHWAYS

Although there has been relatively little recent change in the mileage of the State Highway System (12% over 1949), there was a crushing increase in demands. And in order to meet the growing highway needs, it has been necessary consistently to improve the quality of the highways. To accomplish this, there had to be a corresponding increase in revenue.

The revenue available for highway improvement and maintenance is shown by items on Chart No. 4 and in Table No. VI. This table also shows that there were only 83% more receipts in 1958 than in 1949. This is because a \$22,000,000 transfer from the State General Fund for Rural Roads is shown in 1949 and only \$10,000,000 in 1958. Omitting the transfers and the bond issue, the increase would be 122%. Including the \$15,000,000 bonds issue only, the increase would be 160% which is more nearly comparable to the increase in expenditures.

The relative importance of each type of revenue has fluctuated as a result of increased Federal Aid, bond issues and appropriations. The decline in Motor Fuel Tax resulting from the Act of the 1953 Legislature granting incorporated cities a share in the distribution, and the addition of one-third of the motor fuel inspection fees provided for by an Act of the 1955 Legislature are, of course, apparent. There was also an increase in registration fees granted by the 1955 Legislature which accounts for the growth in that type of revenue.



Highway use varies widely throughout the day, from the small hours of the morning to congested rush hour traffic, and throughout the days of the week and months of the year. Great variations also occur on the state's vast network of roads and streets, from the intermittent use of many miles of land access roads to the thousands of vehicles which daily use the arterials of large cities and the trunklines connecting them. Typical variations are illustrated by this traffic flow map of the State Highway System. An intimate knowledge of the varying use of every mile of road and street is necessary to develop economic standards of improvement and realistic programs adequate for present and future use.

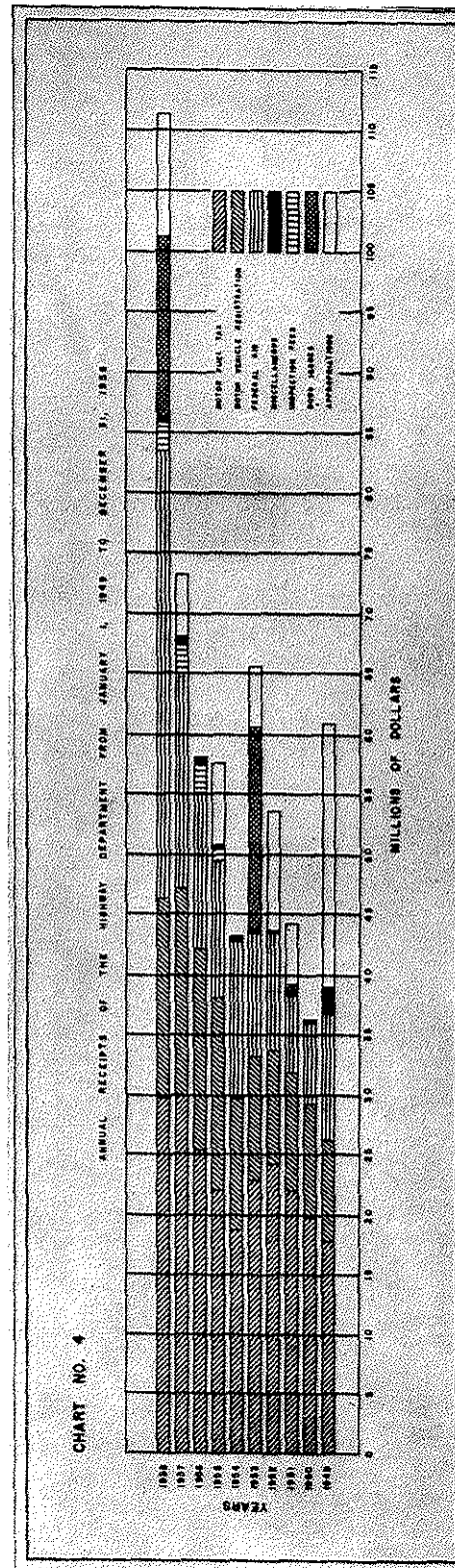
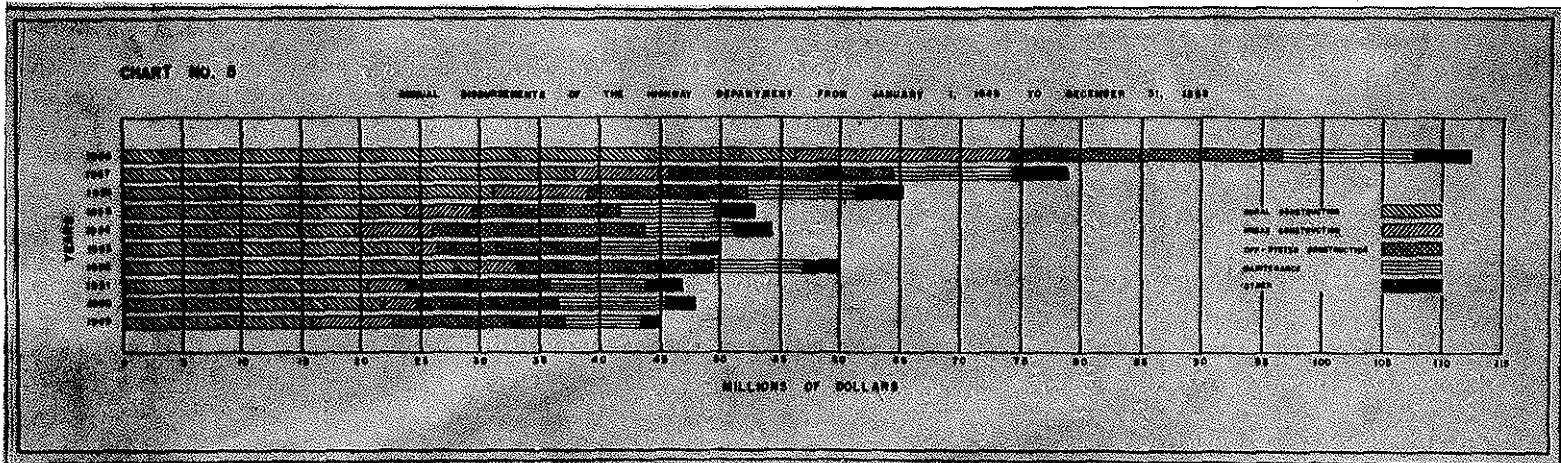


Table No. VI

RECEIPTS FOR THE HIGHWAY DEPARTMENT BY CALENDAR YEARS FROM 1949 THRU 1958

	1949	1950	1951	1952	1953	1954
Gasoline & Motor Fuel Tax . . . . .	17,762,063	19,900,588	22,132,904	24,159,170	22,778,303	18,718,444
Motor Vehicle Registration . . . . .	8,367,376	9,365,666	9,578,749	9,441,845	10,344,867	11,105,468
Federal Aid (on system) . . . . .	10,343,359	5,029,377	4,530,095	5,992,201	7,119,013	8,923,069
Federal Aid (off system) . . . . .	322,736	1,815,222	2,216,842	3,805,532	3,305,532	3,993,559
Bond Issues . . . . .			725,000		17,000,000	
Appr. fr. General Fund . . . . .	22,000,000		5,000,000	10,000,000	5,000,000	
Motor Fuel Inspection Fees . . . . .						
Miscellaneous . . . . .	2,193,469	72,796	118,253	127,398	80,492	524,121
<b>TOTALS . . . . .</b>	<b>60,989,003</b>	<b>36,183,649</b>	<b>44,301,843</b>	<b>53,526,146</b>	<b>65,627,852</b>	<b>43,264,661</b>
	10.09	5.98	7.33	8.85	10.86	7.16
	100%	59%	73%	88%	108%	71%
	<b>1955</b>	<b>1956</b>	<b>1957</b>	<b>1958</b>	<b>Total</b>	<b>%</b>
Gasoline & Motor Fuel Tax . . . . .	22,046,224	25,335,860	29,992,462	29,619,721	232,445,639	38.45%
Motor Vehicle Registration . . . . .	16,053,946	16,803,351	17,085,928	17,212,043	125,359,239	20.73%
Federal Aid (on system) . . . . .	8,388,835	9,493,335	12,282,317	29,490,904	101,592,505	16.80%
Federal Aid (off system) . . . . .	3,048,676	3,529,827	6,113,282	7,625,751	35,776,704	5.92%
Bond Issues . . . . .				15,000,000	32,725,000	5.41%
Appr. fr. General Fund . . . . .	7,000,000		5,000,000	10,000,000	64,000,000	10.59%
Motor Fuel Inspection Fees . . . . .	1,003,833	2,516,546	2,535,690	2,636,204	8,692,273	1.44%
Miscellaneous . . . . .	56,553	505,722	194,439	93,804	3,967,047	0.66%
<b>TOTALS . . . . .</b>	<b>57,598,067</b>	<b>58,184,641</b>	<b>73,204,118</b>	<b>111,678,427</b>	<b>604,558,407</b>	<b>100%</b>
	9.53	9.62	12.11	18.47	100%	100%
	94%	95%	120%	183%		

100



The Motor Fuel Tax and the Motor Vehicle Registration fees account for 59.18% of the total revenue. Since the Motor Fuel Inspection Fees will ultimately be paid by the vehicle user, it may well be said that Motor Vehicle User Imposts constitute 60.62% of the total revenue.

Federal Aid funds are allocated to the State for use on selected road systems. Their use, however, is restricted to projects meeting the standards of construction established by the State and accepted by the Bureau of Roads. For the purpose of this report, only a breakdown is shown between receipts for projects on the State Highway System and those not on the System. Together they make up 22.72% of the total revenue. Since Federal Aid is the distribution of the receipts from a three cent Federal Tax on gasoline, it can easily be said that it too, is an impost on motor vehicle users. As a matter of fact it may be seen that the State Highway System, in its entirety, is supported by those who use the highways.

According to Table No. VII and Chart No. 5 the expenditures during the last ten years have increased 151%. Construction, including the cost of right-of-way acquisition, constitutes 81.05% of the total cost. Although all of this money was spent by the Highway Department more than \$147 million or 24% of this total went to construct projects not on the State System. Immediately upon completion, these projects become the responsibility of the counties in which the work was performed. All of the maintenance or 13.9% of all expenditures was restricted to the State Highway System.

A report of the Rural Road Program from its beginning may be seen in Table No. VIII.

Table No. VII  
DISBURSEMENTS OF THE HIGHWAY DEPARTMENT BY CALENDAR YEARS FROM 1949 THROUGH 1958

	1949	1950	1951	1952	1953	1954
Rural Construction	15,822,996	22,004,393	20,571,434	30,008,489	24,389,483	19,538,218
Urban Construction	11,820,820	2,670,320	3,371,487	3,102,927	1,946,132	6,514,399
Off-System Construction	9,438,606	11,811,401	11,917,529	16,358,323	13,608,435	17,518,949
Total Construction	37,082,422	36,486,114	35,860,450	49,469,739	39,944,050	43,571,566
Maintenance	6,527,953	9,113,972	8,144,563	7,548,548	7,619,510	7,716,672
Other	1,292,618	2,251,349	2,862,686	2,844,642	2,483,247	2,911,968
Total Disbursements	44,902,993	47,851,435	46,837,699	59,862,929	50,046,807	54,200,206
	100%	107%	104%	133%	111%	121%

	1955	1956	1957	1958	Total	%
Rural Construction	23,843,376	31,154,074	37,928,810	56,225,390	281,486,663	45.90%
Urban Construction	5,529,265	7,766,792	7,773,831	17,900,955	68,396,928	11.15%
Off-System Construction	12,219,667	13,227,274	18,602,907	22,506,105	147,209,196	24.00%
Total Construction	41,592,308	52,148,140	64,305,548	96,632,450	497,092,787	81.05%
Maintenance	8,183,558	9,434,782	10,033,600	11,141,130	85,434,288	13.93%
Other	3,069,178	3,487,146	4,473,881	5,119,452	30,796,167	5.02%
Total Disbursements	52,845,044	65,070,068	78,813,029	112,893,032	613,323,242	100.00%
	118%	145%	176%	251%		

Table No. VIII  
STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS  
HIGHWAY PLANNING SURVEY DIVISION

RURAL ROAD PROGRAM

This account combined with General Highway Fund 6-1-55  
From 2-11-49 through December 31, 1958

BALANCE ON HAND 1-1-49

1949 Transfer from State General Fund .....	\$22,000,000.00		
1951 Transfer from State General Fund .....	5,000,000.00		
1952 Transfer from State General Fund .....	10,000,000.00		
1953 Transfer from State General Fund .....	5,000,000.00		
1954 Transfer from State General Fund .....	0		
1955 Transfer from State General Fund .....	7,000,000.00		
1957 Transfer from State General Fund .....	5,000,000.00		48.22%
1958 Transfer from State General Fund .....	10,000,000.00	64,000,000.00	48.22%
1949 Federal Aid .....	322,736.00		
1950 Federal Aid .....	1,815,222.00		
1951 Federal Aid .....	2,216,842.00		
1952 Federal Aid .....	3,805,532.00		
1953 Federal Aid .....	3,305,277.00		
1954 Federal Aid .....	3,993,559.00		
1955 Federal Aid .....	3,048,676.00		
1956 Federal Aid .....	3,472,407.00		
1957 Federal Aid .....	6,113,282.00		
1958 Federal Aid .....	7,625,751.00	35,719,284.00	26.91%
1953 Bond Sale .....	7,000,000.00	7,000,000.00	5.27%
1952 Transfer from General Highway Fund .....	373,131.63		
1953 Transfer (less Tr. to Gen. Hwy. Fund 53,356.00) .....	2,954,252.64		
1954 Transfer from General Highway Fund .....	3,005,490.78		
1955 Spent from General Highway Fund .....	72,772.71		
1956 Spent from General Highway Fund .....	9,053,229.51		
1957 Spent from General Highway Fund .....	6,463,375.37		
1958 Spent from General Highway Fund .....	4,048,696.85	25,970,949.49	19.57%

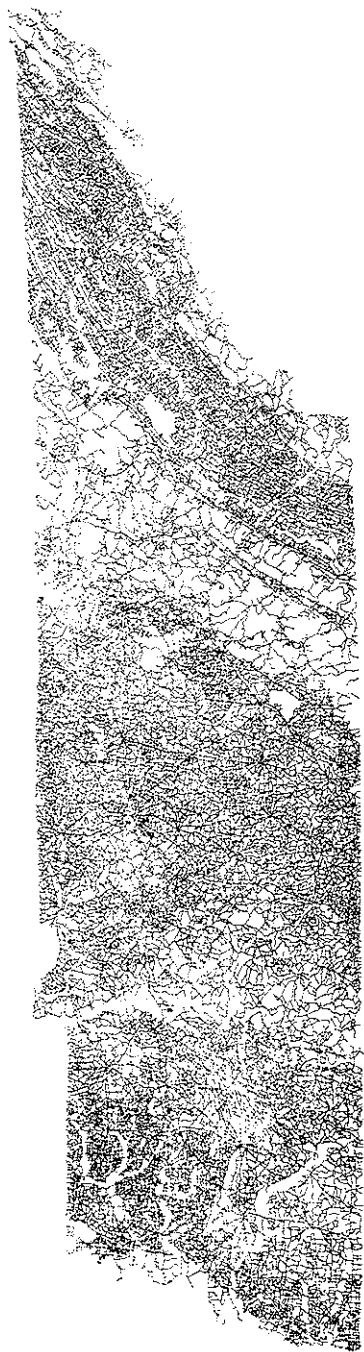
1952 County Aid .....	8,267.49		
1953 County Aid .....	13,500.00		
1954 County Aid .....	0		
1955 County Aid .....	21,818.00	43,085.49	0.03%

Expendable receipts not included in receipts & deducted  
from Disbursements total \$163,392.83

1949 .....	144,918.98		
1950 .....	405.80		
1951 .....	8,723.82		
1952 .....	7,465.95		
1953 .....	534.80		
1954 .....	709.98		
1955 .....	633.50	0	
<b>TOTAL RECEIPTS</b>		<b>\$132,733,318.98</b>	<b>100%</b>

DISBURSEMENTS

1949 Administrative expense .....	97,794.00		
1950 Administrative expense .....	122,899.28		
1951 Administrative expense .....	127,294.32		
1952 Administrative expense .....	127,191.01		
1953 Administrative expense .....	120,930.94		
1954 Administrative expense .....	132,646.05		
1955 Administrative expense .....	130,383.79		
1956 Administrative expense .....	130,088.95		
1957 Administrative expense .....	142,917.92		
1958 Administrative expense .....	146,641.96	1,278,788.22	0.96%
1949 Construction .....	4,923,923.99		
1950 Construction .....	10,322,266.55		
1951 Construction .....	11,263,910.87		
1952 Construction .....	15,784,996.27		
1953 Construction .....	11,735,882.32		
1954 Construction .....	14,666,551.93		
1955 Construction .....	11,399,905.93		
1956 Construction .....	12,395,547.56		
1957 Construction .....	17,433,739.45		
1958 Construction .....	21,527,805.89	131,454,530.76	99.04%
<b>TOTAL EXPENDITURES</b>		<b>\$132,733,318.98</b>	<b>100%</b>



There are 72,576 miles of roads and streets serving the 3,500,000 people of Tennessee. Shown on this map are all the rural roads in the state and their important extensions into and through the cities. These roads and their city counterparts sustain the daily activities of all Tennesseans who, through the years, have become solidly welded to the use of the motor vehicle.

## COUNTY ROAD FINANCE

There exists between the State and Counties a spirit of cooperation comparable to that between the U.S. Government and the State. This intimate relationship makes it unthinkable to present a record of the accomplishments of the Department of Highways without mentioning the development of the local roads by the authorities responsible for this development.

### CHART NO. 6

COUNTY REVENUE FOR ROADS FOR 10  
YEAR PERIOD ENDING WITH 1958

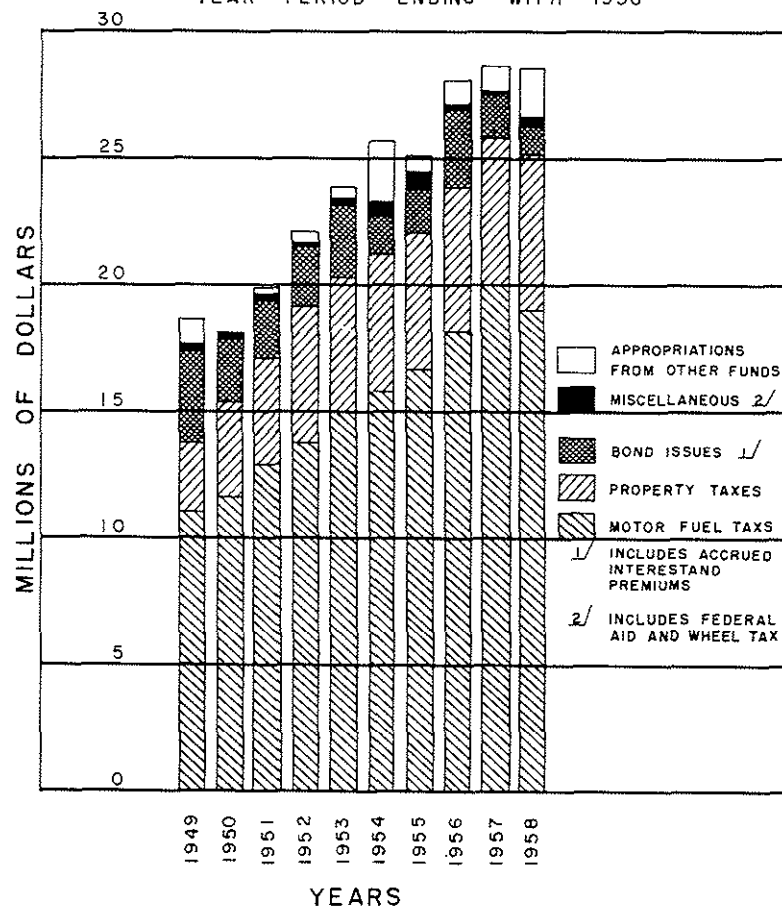


Table No. IX  
 COUNTY REVENUE FOR ROAD PURPOSES FOR 10 YEAR PERIOD ENDING WITH 1958

	1949	1950	1951	1952	1953	1954
Gas Tax	11,021,641	11,651,434	12,956,478	13,877,801	15,000,564	15,814,115
Accrued Interest	4,405	4,249	3,134			496
Wheel Tax	23,814	82,015	39,822	71,803	75,641	77,651
Premium on Bond Sales					400	
Federal Aid						373,591
Transfers	875,155		323,457	373,129	533,798	2,332,354
Taxes	2,748,459	3,803,815	4,208,792	5,281,922	5,290,792	5,408,082
Bonds and Notes	3,626,460	2,463,754	2,265,350	2,347,832	2,915,230	1,527,933
Miscellaneous	240,046	51,449	116,275	81,221	122,077	149,502
TOTAL	18,539,980 100%	18,056,716 97%	19,913,308 107%	22,033,708 119%	23,938,502 129%	25,683,724 139%

	1955	1956	1957	1958	Total	%
Gas Tax	16,638,384	18,196,675	20,035,581	19,116,977	154,309,650	64.39%
Accrued Interest	2,987	3,343	1,108		19,722	0.01%
Wheel Tax	82,799	46,044	34,111	58,230	591,930	0.24%
Premium on Bond Sales				236	636	0.00%
Federal Aid	423,306	65,975			862,872	0.36%
Transfers	588,332	949,376	1,126,865	1,907,027	9,009,493	3.77%
Taxes	5,382,980	5,740,900	5,790,620	6,005,359	49,661,721	20.79%
Bonds and Notes	1,813,987	2,983,500	1,705,679	1,574,043	23,223,768	9.72%
Miscellaneous	155,258	122,331	94,272	105,895	1,238,326	0.52%
TOTALS	25,088,033 135%	28,108,144 151%	28,788,236 155%	28,767,767 155%	238,918,118	100.00%

There exists in the County Road System, as is shown in Table No. IV, 57,121 miles or approximately seventy-nine percent of the total mileage. As in the case of the State Highway System the growth in mileage has been negligible making necessary a tremendous improvement program per mile of road.

The Federal-Aid Secondary funds and the Rural Road appropriations have served the counties well and were responsible for the improvement of many miles of road. But these funds were inadequate for the entire improvement task, making it necessary for the counties to construct, with county revenue, bridges and roads when possible.

The maintenance of all county roads is a local responsibility and one that requires the attention of competent county highway organizations. A brief analysis of the fiscal activities of the county highway departments during the last decade is presented here.

Only a cursory glance at Table No. IX reveals that the gasoline tax received by the counties composes the bulk of the revenue available for County Road purposes. The revenue from property taxes is next in importance, comprising 9.72% of the total receipts in the past ten years. For the purpose of this report, the transfer item may be considered as taxes, since the funds transferred were originally received from this source. This combination would bring the tax item of revenue to 24.56% of the total. This shows the complete dependency of the counties on property taxes and gasoline tax, amounting to over 89% of the revenue, for county road improvement and maintenance. No one can deny that there has been remarkable progress in highway transportation in the counties of Tennessee. It has been estimated that there is an all-weather road within two miles of ninety-eight percent of all homes.

There has been a healthy 55% increase in revenues for road purposes in the counties in the last decade.

Of the funds disbursed by the counties, as shown in Table X and Chart No. 7, in the last ten years, 67.87% was spent for maintenance and 26.72% was expended for construction including rights-of-way costs; leaving only 5.41% for administration, engineering and a few inconsequential miscellaneous objects.

With this brief look into the operation of the County Highway Departments, it may be readily seen that the counties are ready and willing to continue their superb performance in developing highway transportation.

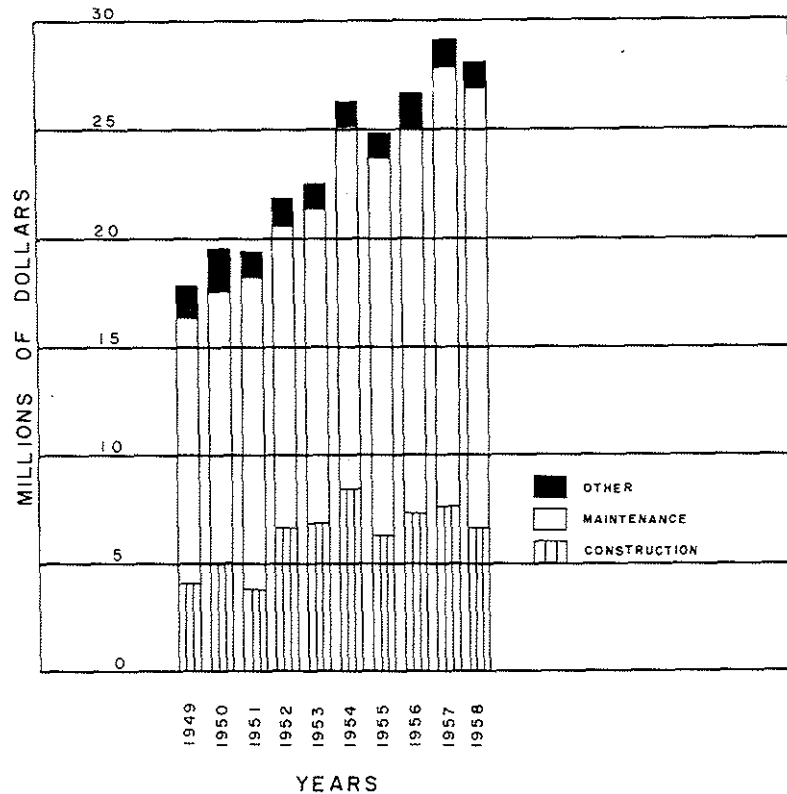
Table No. X

DISBURSEMENTS OF COUNTY FUNDS FOR ROAD PURPOSES FOR 10 YEAR PERIOD ENDING WITH 1958

	Construction	Maintenance	Other	Total
1949 .....	4,101,442	12,305,721	1,362,099	17,770,262
1950 .....	5,014,125	12,737,007	1,807,463	19,558,595
1951 .....	3,833,574	14,416,491	1,150,209	19,400,274
1952 .....	6,677,712	13,962,506	1,229,302	21,869,520
1953 .....	6,900,206	14,579,520	1,020,040	22,499,766
1954 .....	8,457,128	16,787,284	1,059,539	26,303,951
1955 .....	6,352,067	17,366,502	1,113,227	24,831,796
1956 .....	7,330,589	17,740,592	1,563,814	26,634,995
1957 .....	7,794,789	20,090,630	1,234,685	29,120,104
1958 .....	6,640,592	20,288,459	1,244,766	28,173,817
TOTALS .....	63,102,224 26.72%	160,275,712 67.87%	12,785,144 5.41%	236,163,080 100.00%

CHART NO. 7

EXPENDITURES ON THE ROADS OF THE COUNTIES OF TENNESSEE FOR 10-YEAR PERIOD ENDING WITH 1958



CITY STREET FINANCE

The increase in municipal revenue for street purposes, resulting from the legislative act of 1953 granting one cent of the motor fuel tax to the incorporated places of Tennessee, helped to make possible the booming 174% increase of expenditures over 1949. See Chart No. 9 and Table No. XII.

It may be seen that taxes and borrowed money are important sources of revenue for the municipalities. Receipts from the motor fuel tax, however, constitute approximately 29% of all revenue and exceeding all other items in importance even though allotments have been made for only five and one-half years of the ten year period. In 1958 this item accounted for over 40% of all the receipts. The receipts for street work are shown in Table No. XI and Chart No.8.

It is interesting to note that upon receipt of the gas tax allotment in 1953, the receipts from taxes immediately decreased, indicating that

CHART NO. 8

REVENUE OF THE MUNICIPALITIES OF TENNESSEE FOR STREET PURPOSES FOR THE 10-YEAR PERIOD ENDING WITH 1958

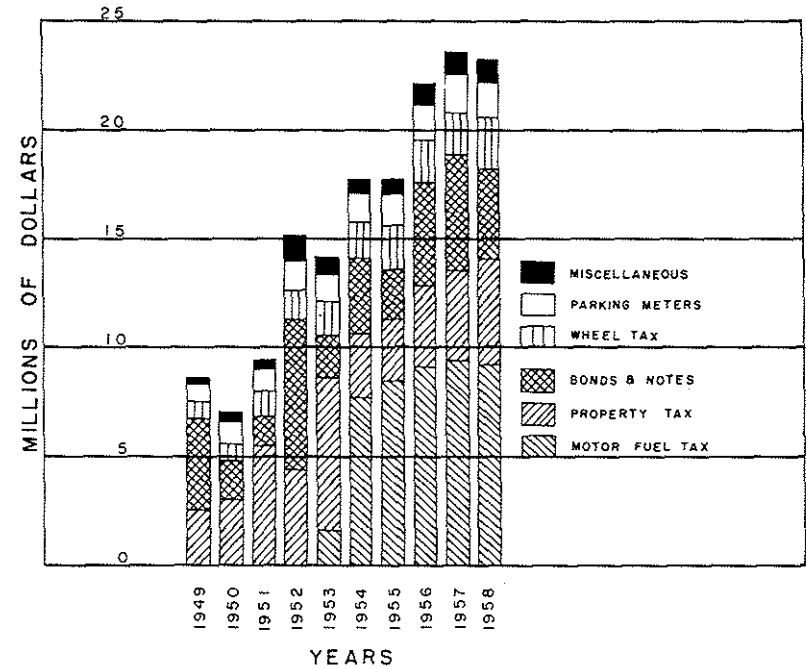




Table XI

REVENUES OF THE MUNICIPALITIES OF TENNESSEE FOR STREET PURPOSES FOR THE 10-YEAR PERIOD ENDING WITH 1958

	Motor Fuel Tax	Wheel Tax	Transfers From Other Funds	Property Taxes	Bonds and Notes	
1949 .....	—	769,340	166,006	2,661,318	4,232,409	
1950 .....	—	895,581	332,076	3,074,088	1,775,264	
1951 .....	—	1,114,455	168,536	5,518,223	1,428,700	
1952 .....	—	1,496,154	130,646	4,490,933	6,888,500	
1953 .....	1,779,487	1,674,899	137,346	6,939,145	1,795,553	
1954 .....	7,776,274	1,760,995	252,607	2,917,090	3,400,962	
1955 .....	8,500,353	1,888,372	149,308	2,895,182	2,328,500	
1956 .....	9,104,709	1,846,687	330,092	3,880,287	4,703,200	
1957 .....	9,491,418	1,841,954	212,394	4,044,365	5,455,694	
1958 .....	9,277,000	2,261,143	219,611	4,736,953	4,244,000	
TOTALS .....	45,915,241 28.87%	15,549,580 9.78%	2,098,622 1.32%	41,157,584 25.88%	36,252,782 22.80%	

	Accrued Int. on Bond Sale	Premiums on Bond Sales	Parking Meters	Miscellaneous	Total	Percent
1949 .....	—	168	758,717	37,469	8,625,427	100%
1950 .....	—	1,978	973,116	39,119	7,091,222	82%
1951 .....	164	—	964,828	184,042	9,378,948	109%
1952 .....	3,075	—	1,174,000	912,335	15,095,643	175%
1953 .....	—	430	1,251,176	688,602	14,266,638	165%
1954 .....	1,595	—	1,256,740	442,337	17,808,600	206%
1955 .....	2,257	—	1,552,637	492,058	17,808,667	206%
1956 .....	392	—	1,692,856	553,313	22,111,536	256%
1957 .....	2,804	410	1,753,233	730,307	23,532,579	273%
1958 .....	4,603	—	1,739,491	815,374	23,298,175	270%
TOTALS .....	14,890 0.01%	2,986 0.00%	13,116,794 8.25%	4,894,956 3.08%	159,017,435 100.00%	

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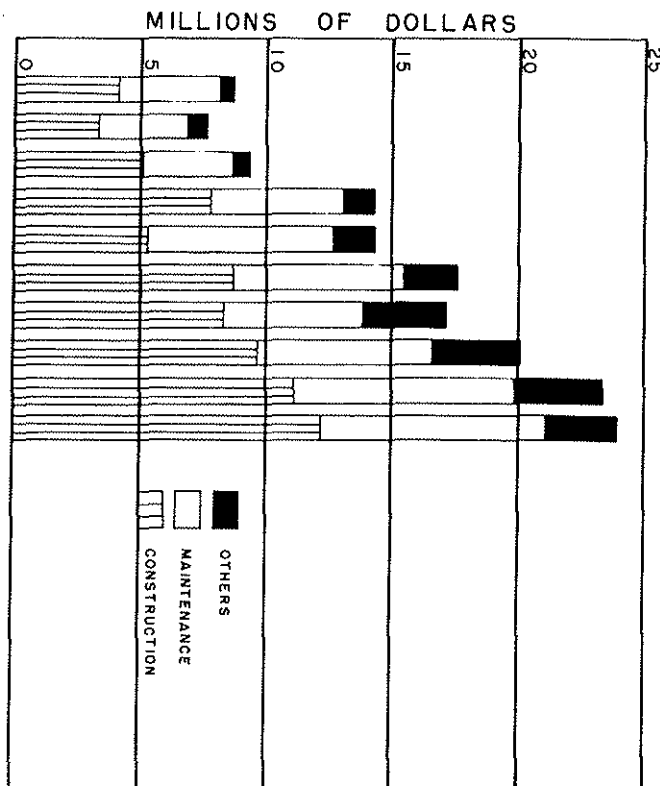


CHART NO. 9  
EXPENDITURES ON THE STREETS OF THE MUNICIPALITIES OF TENNESSEE FOR THE 10-YEAR PERIOD ENDING WITH 1958

The tax money formerly used for street improvement and maintenance is now being used for schools and other important purposes. The Legislative Act enabling the cities to participate in the motor fuel tax also permitted the payment of principal and interest of bonds and other indebtedness for street construction or repair incurred since the effective date of the act which was July 1, 1953. As a result of this, a construction project may be completed when it is needed, thus expediting the entire street program at a considerable savings to the taxpayers. The parking meter receipts are not necessarily directed to the street funds but since they are received from the motor vehicle user, they

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have been considered as revenue for streets for the purpose of this report.

Construction assumes an important place in the street program of the municipalities requiring 48.45% of the total expenditures. The ever-present and continuing maintenance costs follow closely demanding 38.65%. Miscellaneous costs including street lighting, by far the predominant miscellaneous expense, needs only 12.90%. Table No. XII and Chart No. 9 display the objects for which the expenditures were made.

Table XII

Expenditures on the streets of the municipalities of Tennessee for the 10-year period ending with 1958

	Construction	Maintenance	Other	Total
1949 .....	4,154,613	3,983,488	623,474	8,761,575
1950 .....	3,440,588	3,543,450	633,650	7,617,688
1951 .....	5,019,046	3,593,494	714,260	9,326,800
1952 .....	7,806,866	5,239,504	1,371,944	14,418,314
1953 .....	5,397,225	7,302,113	1,741,364	14,440,702
1954 .....	8,647,546	6,869,791	2,037,702	17,555,039
1955 .....	8,348,636	5,531,731	3,287,904	17,168,271
1956 .....	9,708,299	6,852,842	3,451,670	20,012,811
1957 .....	11,098,925	8,837,962	3,413,584	23,350,471
1958 .....	12,264,270	8,773,690	2,925,972	23,963,932
TOTAL .....	75,886,014 48.45%	60,528,065 38.65%	20,201,524 12.90%	156,615,603 100.00%

A summary of the receipts and disbursements for the three governing authorities for the last decade is presented below in Table XIII.

Table XIII

Receipts and Disbursements of the State, Counties and Cities for Highway, Roads and Streets during the Decade Ending with 1958

Receipts	State	Counties	Cities	Total
Motor Fuel Tax .....	232,445,639	154,309,650	45,929,241	432,684,530
Wheel Tax .....	125,359,239	591,930	15,549,580	141,500,749
Motor Fuel Insp. Fees ....	8,692,273			8,692,273
Federal-Aid (on-system) ...	101,592,505			101,592,505
Federal-Aid (off-system) ...	35,776,704	862,872		36,639,576
Bonds and notes .....	32,725,000	23,223,768	36,252,782	92,201,550
Appr. fr. other funds .....	64,000,000	9,009,493	2,098,622	75,108,115
Miscellaneous .....	3,967,047	1,238,326	4,894,956	10,100,329
Property Taxes .....		49,661,721	41,157,584	90,819,305
Parking Meters .....			13,116,794	13,116,794
Accrued Interest .....		19,722	14,890	34,612
Premium on Bond Sale ....		636	2,986	3,622

Total Receipts .....604,558,407 238,918,118 159,017,435 1,002,493,960

Disbursements

Rural Hwy. Const. ....	281,486,663			281,486,663
Urban Hwy. Const. ....	68,396,928			68,396,928
Off-System Const. ....	147,209,196	63,102,224	75,886,014	286,197,434
Maintenance .....	85,434,288	160,275,712	60,528,065	306,238,065
Other .....	30,796,167	12,785,144	20,201,524	63,782,835

Total Disbursements .....613,323,242 236,163,080 156,615,603 1,006,101,925

## DEBT SERVICE

A report on the activities on State Highways, County Roads and City Streets would be incomplete without a more detailed presentation of the transactions in the Debt Service Funds of the three reporting authorities. It is also believed that the condition of the debt that these funds serve will be of interest to the reader.

Table No. XIV summarizes the three funds so that their transactions may be seen together. The county and city columns only deal with road and street indebtedness. No effort has been made to tabulate the receipts for, or the payments of debts other than road and street obligations, since no visible purpose could be served by this inclusion. The State column includes non-highway as well as highway transactions for the past ten years.

In the schedule for the State we find \$112,380,000 received from the motor fuel tax. This represents 98.57% of all receipts. Highway bond principal paid was \$44,266,630, which includes \$30,476,630 of County Reimbursement Bonds and obligations. Interest on highway and reimbursement bonds was \$8,846,244 totaling \$53,112,874 or 43.72% of the disbursements.

It may be seen from the exhibits for the counties and cities that taxes are the chief source of revenue available for debt service, comprising 95.69% and 98.17% of the respective totals.

The bonded indebtedness, by years, may be seen in Table No. XV and Chart No. 10. In addition to the bonds outstanding, the counties and cities owe \$569,379 in the form of notes. It is difficult to place any significance on this type of indebtedness because these notes are tax anticipatory and other short term loans, many of which are paid from the operating funds. Therefore, a statistical presentation in this decennial report is considered to be of little value.

There has been a noticeable general decrease in the highway bonded indebtedness of the State, with the 1958 issues causing a sharp incline, and a decided decrease in the county indebtedness for roads. The city street debt has increased some while the total is a little less than at the beginning of the 10-year period.

A gigantic job of Public Road improvement and maintenance was accomplished in the last decade with an expenditure of more than one billion dollars. This was done while the bonded indebtedness was being lowered nearly \$5 million, reflecting a fiscal structure that is strong and healthy.

Table XIV

Summary of receipts and disbursements for debt service on county road and city street indebtedness and total debt service for the State of Tennessee for the 10-year period ending with 1958

Receipts	State	Counties	Cities	Total
Motor Fuel Tax .....	112,380,000	18,400	608,907	113,007,307
Trans. from other funds ....	922,805	598,542		1,521,347
Bonds and notes .....		928,550		928,550
Premium on Bond Sale .....	68,033			68,033
Earnings of Sinking Fund ..	635,558	274,048	3,105	912,711
Taxes .....		41,858,713	32,753,356	74,612,069
Miscellaneous .....	—	66,726		66,726
<b>Total Receipts .....</b>	<b>114,006,396</b>	<b>43,744,979</b>	<b>33,365,368</b>	<b>191,116,743</b>
Opening Balance .....	11,538,189	2,963,626	368,465	14,870,280
<b>Total Funds .....</b>	<b>125,544,585</b>	<b>46,708,605</b>	<b>33,733,833</b>	<b>205,987,023</b>
<b>Disbursements</b>				
Highway Bonds & Notes Pd. .	44,266,630	31,263,290	22,807,481	98,337,401
Highway Interest .....	8,846,244	12,232,261	10,738,101	31,816,606
Non-Hwy. Bonds Paid .....				55,267,000
Non-Hwy. Interest .....	12,842,882			12,842,882
Debt Service Expense .....	268,501			268,501
Trustees Commission .....		738,006		738,006
<b>Total Disbursements .....</b>	<b>121,491,257</b>	<b>44,233,557</b>	<b>33,545,582</b>	<b>199,270,396</b>
Closing Balance .....	4,053,328	2,475,048	188,251	6,716,627
<b>Total Funds .....</b>	<b>125,544,585</b>	<b>46,708,605</b>	<b>33,733,833</b>	<b>205,987,023</b>

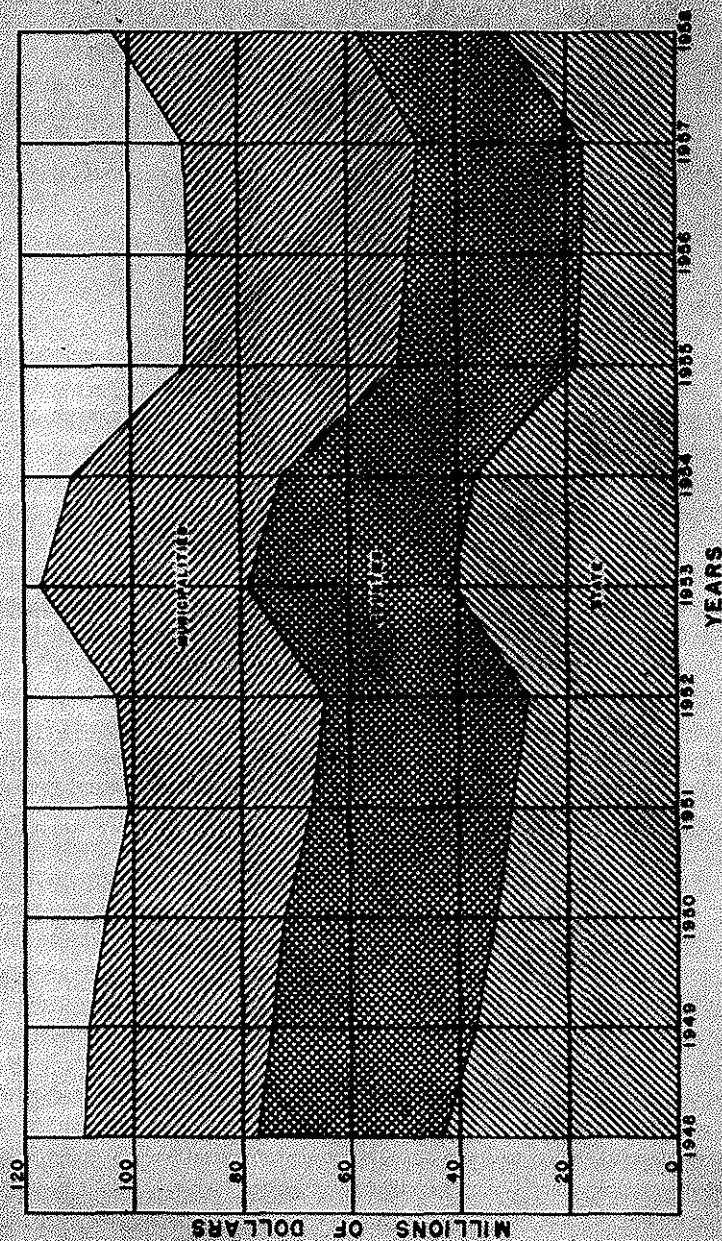
Table No. XV

Bonded Indebtedness at the end of each year for the State, Counties and Cities for the 10-year period ending with 1958

Year	State	Counties	Cities	Total
1949 .....	37,183,725	37,237,145	33,603,036	108,023,906
1950 .....	33,722,225	38,314,212	33,530,524	105,566,961
1951 .....	30,394,000	37,384,241	33,090,391	100,868,632
1952 .....	27,922,500	37,200,452	38,469,528	103,592,480
1953 .....	41,714,000	37,331,608	37,973,039	117,018,647
1954 .....	37,211,500	35,137,804	39,169,423	111,518,727
1955 .....	18,436,500	32,888,652	38,686,525	90,011,677
1956 .....	17,524,500	31,696,435	40,467,966	89,688,901
1957 .....	17,513,000	29,476,838	43,054,608	90,044,446
1958 .....	32,015,000	26,619,934	44,647,582	103,282,516

CHART NO. 10

BONDED INDEBTEDNESS OF THE STATE, COUNTIES AND CITIES AT THE END OF EACH YEAR IN THE DECADE ENDING WITH 1958 FOR HIGHWAYS, ROADS AND STREETS



## PART V

### CONCLUSION

The survey of the events in the life of the Highway Department, conducted on this brief excursion into the past, has brought into focus the experiences that have molded the character of this Organization. The overpowering needs were viewed. The abortive inception, the frail beginning, the nervous postnatal existence and the courageous fight for survival were noted and evaluated in terms of growth and development.

From the trials and difficulties that were seen in retrospect, there emerged a strong and virile organization capable of performing the strenuous tasks outlined in the accomplishments in the last ten years and competent to meet the challenge in prospect.

During the next fifteen years, Tennessee will need to spend a fabulous number of dollars to bring its roads and streets to satisfactory condition and maintain them. In order to catch up with the present backlog of needs within a reasonable time, a great deal more money will be required during the early years than will be needed in the later years of the program.

The urgency of "catching up" is accentuated by a look into the future. In 1950 the population of Tennessee was 3.3 million. All indications point to 4.1 million people by 1975. It is estimated that motor vehicle registrations, which have grown to 1,204,738 in 1958, can be reasonably expected to reach 1,710,000 by 1975. By that time ownership will have reached 2.4 persons per vehicle. The total vehicle miles can be expected to reach more than 17 billion by 1975 and annual gasoline consumption will reach 1.4 billion gallons.

These mountain-like figures should serve to point up the anticipated needs and the immensity of a program designed to meet those needs. In view of the importance of highway transportation to every component of the economy, the effects of reduced efficiency of highway facilities is obvious. Tennessee cannot afford to falter in her efforts nor slacken her pace toward the completion of this vital program.

We have the arteries of our Interstate and Primary System. We have metropolitan area and town counterparts of these arteries. We have our veins in town and country. We have our capillaries which serve only a few farms or rural suburban dwellings. These arteries, veins and capillaries compose our Public Road System and through them there flows the life blood of our economy.

It may be seen in this report, that the demand for highway service is steadily increasing; and it will continue to increase in future years.

It may be seen also, that in order to get what we demand we must provide the requisite funds. There is no escape from the payment for our highways whether or not we have them. Without them our loss would be greater than the cost.

Our goal can be no less than an adequate Highway System for all the people, all the time. In peace this means prosperity and happiness. In war, our Highway System is our first line of defense.

Along with the building of the new Interstate Highway System, we are carrying on at a more rapid rate than ever in the history of the State, the improvement of our existing primary, urban, secondary and rural roads; and in the foreseeable future, Tennessee will have an adequate System of Highways.