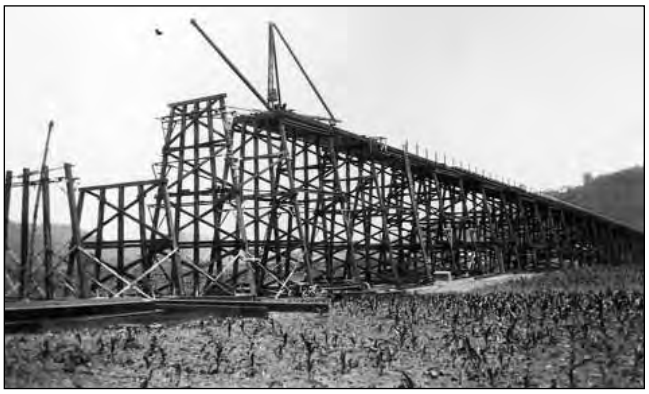
2

A HISTORY OF BRIDGE BUILDING IN TENNESSEE

Austin Peay Bridge: Three of these historic photographs show construction scenes from 1926 of the Austin Peay Bridge (top and right). The bridge spans the Cumberland River in Gainesboro in Jackson County. The state built this rare K truss between 1926 and 1928 as part of the state's extensive 1920s road-building program. The state named the bridge the Austin Peay Bridge in honor of the popular Progressive-era Tennessee governor, known as the "Good Roads Governor" who died suddenly in October 1927. The fourth photograph (bottom) is from 1941, after the 39-span timber approach viaduct burned (Photographs from the Tennessee Technological University Archives, Cookeville).



A HISTORY OF BRIDGE BUILDING IN TENNESSEE

Tennessee is a long and narrow state bordered on the east by the Appalachian Mountains and on the west by the Mississippi River. It is divided into three distinct geographic regions known as the Grand Divisions: East Tennessee, Middle Tennessee, and West Tennessee. East Tennessee contains the Unaka Range of the Appalachian Mountains. The Cumberland Plateau divides East and Middle Tennessee. The Tennessee River divides Middle and West Tennessee, except for Perry and Hardin counties that lie partially or totally east of the river but that are generally considered to be in West Tennessee (see Figure II-01).

While present day Tennessee was still part of North Carolina, the first permanent European settlers began to migrate over the mountains into the eastern part of the state in the late 1760s and in the next decade moved further westward to Middle Tennessee. In 1796 the federal government established the State of Tennessee. Due to Tennessee's geographic proximity to North Carolina and Virginia, settlers entered the state through East Tennessee, with that area developing more quickly than the rest of the state. East Tennessee is primarily hilly or mountainous and settlements were scattered along narrow valley floors. Territorial Governor William Blount designated Knoxville, the largest city in East Tennessee, as the capital, which it remained until 1812 except for one day in 1807 when the state legislature designated Kingston as the capital. During the antebellum period, as Middle Tennessee became more densely settled, it emerged as the economical and political center of the state, in part, due to the agrarian economy supported by large farming areas and access to river markets. As a reflection of this changing power structure, the legislature moved the capital to Nashville in Middle Tennessee from 1812 until 1817. The legislature then moved the capital back to Knoxville for a year before moving it to Murfreesboro in Middle Tennessee until 1826. In 1826 the legislature again designated Nashville as the capital. In 1834 members of the constitutional convention commanded the state legislature to select a permanent location in 1843. After substantial debate, the legislature chose Nashville as the permanent capital and, in an effort to close the debate, immediately initiated construction of the Tennessee State Capitol (a National Historic Landmark) by appointing a building commission and hiring William Strickland as the architect.

Most of West Tennessee was not available for settlement until the government acquired the area from the Chickasaw Indians through the Jackson Purchase in 1818. As a speculative venture, several prominent citizens from Middle Tennessee established the town of Memphis in the extreme southwest corner of the state on the Mississippi River in Shelby County, the first county the state legislature created in West Tennessee (Folmsbee et al. 1969:150). Unlike the hilly or mountainous East and Middle Tennessee where settlement usually occurred in the valley areas, West Tennessee is generally flatter. West Tennessee developed more slowly than the rest of the state and, apart from the cotton plantation areas of Fayette, Hardeman and Shelby Counties, did not flourish until the railroad industry provided transportation and access to markets in the post Civil War period.

Figure II-01: Map of Tennessee showing the grand divisions.

With 19,200 miles of streams, Tennessee contains a variety of small rivers and creeks as well as several major rivers with 1,062 miles of navigable waterways. The Holston River and the French Broad River merge in East Tennessee to form the Tennessee River that flows south into Alabama and then swings north to flow through West Tennessee. The Cumberland River flows in a U-shape through eleven counties in northern Middle Tennessee. The Mississippi River runs along the edges of the five counties that form the western border of Tennessee. Many smaller rivers crisscross the state such as the Obed, Calfkiller, Forked Deer, Duck, Elk, and Nolichucky. During the early settlement periods, these streams served as a major means of transportation that allowed access to various areas of Tennessee. Cities that became major urban centers such as Knoxville, Chattanooga, Nashville, and Memphis developed alongside larger rivers. Other communities of various sizes adjacent to streams also grew and some even flourished only to die as overland transportation became more accessible and reliable. Residents located nearly all the county seats, especially those in early settled areas, near relatively substantial streams. Builders often oriented eighteenth century homes towards streams or designed them with dual facades facing both the stream and the road. Yet, paradoxically, these same streams that brought many people to Tennessee eventually became barriers to growth and transportation. Ultimately, they came to be seen as obstacles to be spanned.

BUILDING LOCAL ROADS

In the late eighteenth and early nineteenth centuries, many parts of the country were too involved with basic settlement issues and local matters to attempt the development of road networks. Settlers in areas such as Tennessee were too busy trying to survive in the wilderness to expend much effort on roads. They used old, animal and Indian trails as their roads and undoubtedly forded most streams or possibly built crude rafts to cross larger streams. As a result, roads generally followed landscape features that resulted in an irregular configuration. These first routes were crude dirt trails fit only for travel by foot or horseback and were inaccessible to wagon traffic.

Although roads were needed during this period, individuals or land companies rarely built them. Through the 1820s, the federal government built most of the larger roads, however, they were few in number. Between the 1830s and 1850s, turnpikes built by individuals or companies as profit making ventures dominated the road building effort, and many turnpike companies flourished. During this period, people viewed turnpikes as a fair business since only users paid to travel on them. Immediately before and after the Civil War, road building languished, especially in the South, as a result of the emphasis placed on the development of rail lines. However, by the 1880s, as stable local governments at the city and county level emerged, they became responsible for most road projects within their jurisdiction. Beginning about 1880, a national movement to improve roads emerged, the Good Roads Movement. Although this movement at first did not advocate the federal government being the lead agency, the movement eventually led full circle to the federal government assuming responsibility for the nation's transportation system through the Federal-Aid Act of 1916.

During the settlement period on the frontier in Tennessee, the first pioneers blazed their own trails to reach their property. These early trails (or traces or paths) were crudely cleared areas over which people walked or rode horses. True "roads" that were suitable for wagon traffic came later. By the early nineteenth century, road builders began to use artificial paving materials, even in rural frontier areas. The best road surface during the nineteenth century was "macadam" pavement, a system John Loudon MacAdam (1756-1836), a Scottish builder and engineer, developed in 1816. After amassing a fortune in New York, he returned to his native Scotland where he served as a road trustee for his district. After numerous experiments, he developed an inexpensive but durable road-surfacing material. The road base consisted of layers of clean, broken, or crushed stone mechanically locked into place by rolling and bonded by small stone particles worked into the voids and then set with water, tar, or asphalt (Schlereth 1985:28). The roadbed became firmer as traffic passed over it, revolutionizing road construction. In 1831 the first macadam road was built in Tennessee. Another early road type was plank roads, formed with sawn boards, such as the Pigeon Roost Road in Memphis or the Hales Point Turnpike. Builders formed "corduroy roads," such as the "W" Road (Anderson Pike) in Hamilton County, by placing logs cut in half crosswise with the flat side up. Builders frequently used this road covering in swampy or wet areas. Urban streets were often paved with bricks or cobblestones. Early rural roads were typically eight to ten feet wide.

Early trails allowed other settlers to follow, resulting in a certain degree of stability and safety to all the settlers. During the settlement period, private land companies often built road systems to attract settlers for economic reasons. An example is the Wilderness Road along the southern border of Virginia from Sullivan County west to Claiborne County (Tennessee) and north through the Cumberland Gap into Kentucky. This corridor is one of the most well known routes taken by early settlers "and one of the most important routes of migration in our national history" (Folmsbee et al. 1969:241). Dr. Thomas Walker traveled this corridor and crossed the Cumberland Gap in 1750 as he entered Kentucky as did Daniel Boone in 1760. After the Treaty of Sycamore Shoals in 1775 through which land speculators bought land from the Cherokee Indians in present-day Kentucky and Tennessee, the Transylvania Company hired Boone and 36 men to cut a road along the old path through the Gap. However, the road was not suitable for wagon traffic until the state of Kentucky hired contractors to rebuild it in 1796 (Johnson 1978b:9-10).

Many of the early trails in the state connected East Tennessee with North Carolina, but as settlers expanded into Middle Tennessee, the need for routes between East and Middle

Figure II-02: Photograph of a commemorative plaque erected by the Old Walton Road Chapter of the Daughters of the American Revolution (DAR) in 1936. The momument provides background on William Quarles and a stand he operated on the Walton Road in the early 1800s. Commemorative markers such as these became common in the 1920s and 1930s as automobile traffic increased and were often erected by groups such as the DAR.

Tennessee became obvious. In 1780 citizens in Nashborough (Nashville) ordered a path ten feet wide to be cleared from Watauga to Nashborough. While this entire road was not built, it is assumed that some portions were completed. In 1787 the state of North Carolina made provisions for a new road from Knox County to Nashville that came to be known as the North Carolina Road or Avery's Trace (after Peter Avery who guided the expedition). The road was not adequate for wagon travel, and although settlers traveled by foot or horseback on it, the road conditions forced them to continue shipping their goods by river (Boniol 1971:403-404). In 1799 the Tennessee state legislature appropriated $1000 to build a road suitable for wagon travel from Southwest Point (near present day Kingston in Roane County) to Middle Tennessee. Built between 1799 and 1802, the road was over one hundred miles long and twelve to fifteen feet wide. Captain William Walton, an important settler in Smith County, surveyed the road. Due to his extensive involvement with its construction, the road came to be known as Walton's Road or the Walton Road (Boniol 1971:406-407). The 1799 act stipulated that the collection of tolls would refund the state's original contribution. Thus, in 1801 the state appointed five men to form the Cumberland Turnpike Company to collect the tolls. A traveler wrote the following description of the roadway in 1802: "It 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" (Tennessee 1959:9). The corridor of the Walton Road evolved into State Route 24/U.S. 70-North and only a few remnants of the original road remain. In 1931, in response to a request by the Old Walton Road Association, the state legislature officially named U.S. 70-North from Carthage (in Smith County and home of William Walton) to Kingston the Old Walton Road (Boniol 1971:412). In 1804 the state appropriated $750 to cut a fifteen-foot wide road, known as the Federal Road, from Kingston south through present day McMinn and Polk Counties into Georgia (Folmsbee 1939:24; Folmsbee et al. 1969:242-242; Johnson 1978b:11-13). Portions of this road also remain visible, although local roads overlay much of the original route.

Although many people opposed federal involvement in road construction, except for narrowly defined "post roads" that the Constitution specifically mentioned, the federal government recognized the need for internal improvements such as roads, in large part, due to the British naval blockade during the War of 1812. During the early 1800s, the federal government initiated several road building efforts in the country and was the lead road building agency, however limited its efforts were (Hilles 1958:4). An example is the 1811-1818 Cumberland

Figure II-03: Bridge at Old Town spanning Brown's Creek on the Natchez Trace, Williamson County (Courtesy of the Tennessee State Library and Archives, Conservation Collection, Bridges, Highways & Roads, Box 10, File 116).

Road that extended 131 miles between Cumberland, Maryland, and Wheeling, West Virginia, which the U.S. Corps of Engineers built between 1811 and 1818. The government later extended this roadway, renamed the National Road, and by the time the Corps had completed it in 1838, the 815-mile road connected Baltimore, Maryland, and Vandalia, Illinois. During these years, the government at both a federal and state level had limited funds and resources. The government usually limited its participation in road construction to specific road projects rather than an overall network of roads.

The federal government undertook several early road building projects in Tennessee. The old animal trace that early settlers used between Natchez (Mississippi) and Nashville (Tennessee) proved inadequate for reliable mail delivery, and in 1802 the Chickasaw Indians consented to a road through their territory. Consequently, the United States Army in 1801-1803 developed (primarily on new alignment) the Natchez Trace Road or Government Road from Natchez to Nashville. The National Register listed bridge at Old Town in Williamson County (Crutchfield

1985:99-103), which is one of the oldest remaining man-made bridges in Tennessee, is located on this route. This structure consisted of massive masonry abutments with a short pole bridge suspended between them. Pole bridges were probably the most common type of bridge erected in frontier days and are still used today for simple county bridges. These bridges consist merely of poles (trees or logs) extending from one abutment to another with a deck of saplings or planks laid across these poles. Obviously these could be quite primitive with the ground or a natural feature such as a rock shelf serving as the abutments, but they could only be used for short spans. Some pole bridges used log cribs filled with rock and dirt as abutments.

In the late eighteenth century and nineteenth century, many people questioned the constitutionality of the federal government building roads. Although the federal government participated to a limited degree in road construction throughout the eighteenth and nineteenth centuries, by the mid-nineteenth century, the federal government ceased to actively promote road construction and instead supported the construction of private railroads, which were faster and cheaper to build than roads…One reason for the lack of a concerted road building program on the part of the federal government

> …was that, ever since the 1820s, southerners had adamantly opposed federal aid for internal improvements of any kind, and their strength in Congress during the first half of the [nineteenth] century limited the amount of money spent on the construction of roads, as well as on canals and bridges. Southerners feared that increased federal spending would eventually lead to a higher tariff which would be detrimental to southern interests. But more importantly, advocates for the South, who called for a traditional reading of the Constitution when it came to the question of slavery, applied the same reasoning to the issue of internal improvements. Any effort on the part of Washington to appropriate money for internal improvements, they held, usurped the rights of the states and violated the Constitution (Preston 1991:19).

As more permanent settlers with their belongings arrived in the Tennessee wilderness in the late 1700s and early 1800s, the need for more reliable river crossings became evident. Since the construction of substantial bridges was not feasible at that time on the frontier, settlers, as private individuals or corporations, established ferry boat operations. Builders typically

Figure II-04: Ferry at Gainesboro, circa 1926, during the construction for the Austin Peay Bridge (#119 44-SR056-10.96) (Courtesy, Tennessee Technological University Archives).

designed the ferries to use the river as their motive force. The ferries charged a fee to cross the river that was often based on the number of persons or livestock in the party and sometimes the number of wheels on the vehicles. Communities developed around ferry crossings, and many of the crossings became integral units of overland transportation routes while others faded into obscurity.

Nashville with its strategic location on the Cumberland River and its central location in the state was the site of some of the state's early ferry operations. Six different ferries at Nashville were licensed in the 1780s (Crouch and Claybrook 1976:15). More rural areas also developed ferry systems quite early such as Nance's Ferry over the Holston River between Grainger and Jefferson Counties that began operating in the 1780s (Knoxville Journal, 8 August 1975). Prior to 1805 Roane County had at least three Clinch River ferries: the Clark Ferry, the Glasgow Ferry, and the Center Ferry (Roberts 1981). By 1810 both the Washington Ferry and Blythe Ferry were operating on the Tennessee River in Meigs County (Toplovich and Rogers 1981). Even in the more slowly developed western part of the state, the Ross Ferry over the Tennessee River in Benton County was in operation by 1822 (Smith 1975:113). However, as the construction of bridges spread, the counties or the state built bridges to replace ferries and other ferry crossings became obsolete as traffic patterns changed. Although perhaps 800 to 1000 ferries operated in the state in the nineteenth century, by the 1980s, only six ferries operated in Tennessee (Holmes 1987a; 1987b), and bridge projects in the 1990s replaced four of them.

From the 1830s until the 1850s, toll roads or turnpikes were common throughout the country including Tennessee. Under this system, private individuals or companies built roads and then charged a fee or toll to travel on them. Toll company employees, who often lived in houses along the road at the toll gate, collected the tolls or fees at specific sites along the road. The traveler paid his fee, the toll-keeper then moved the gate, and the traveler proceeded.

In 1834, the state's constitutional convention directed the state legislature in 1836 to pass legislation to encourage internal improvements. As a result, the legislature passed an act allowing the state to subscribe to one-third of the stock of all companies engaged in the construction of railroads or macadamized turnpikes. Railroad supporters in West and East Tennessee passed the legislation over the objections of Middle Tennessee representatives. A good steamboat system provided transportation in Middle Tennessee and it had little interest in railroads. However some members of the Middle Tennessee delegation managed to include turnpikes, which they saw as useful in providing access to shipping points, in the legislation. Although the railroad interests had been the primary supporters for the legislation, due to the Panic of 1837, the legislation resulted in the construction of few railroads (Folmsbee 1937; Folmsbee 1939). However, twenty-four turnpike companies succeeded in qualifying for state subscriptions and received a total of $1.2 million from the state. Nineteen of these turnpikes were in Middle Tennessee and five were in West Tennessee. Several of the Middle Tennessee turnpikes, such as the Nashville to Franklin Turnpike, the Louisville (Kentucky) to Nashville Turnpike, or the Nashville and Gallatin Turnpike, radiated from Nashville to neighboring towns. These turnpikes "contributed greatly to the rise of the capital city, with its steamboat facilities, to a dominant economic position and to the blooming prosperity of the whole Nashville Basin" (Folmsbee et al. 1969:255). Opposition to the state subsidies soon arose in West and East Tennessee where little tangible benefits had resulted from the subsidy program.

Figure II-05: Toll house and wood and iron through truss bridge at Rugby, built circa 1880; (Courtesy, Tennessee State Library and Archives, MG149, B18,F5). Today, the abutments from this bridge hold a 1920s truss bridge, (#7, 65 NonHighway 1) which TDOT has bypassed and left in a small pull-off.

Turnpikes became increasingly unpopular throughout the 1800s, especially after the 1850s, in large part due to the development of a cohesive network of rail lines that dominated the field of internal improvements from the 1850s until the 1880s when renewed interest in roads emerged. Opposition continued in the late nineteenth and early twentieth centuries. Groups who opposed toll roads ranged from farmers trying to reach markets who said that toll roads placed an unfair burden on them to the automobile industry that said toll roads had a detrimental effect on tourism, a major issue in road development. This opposition led to efforts to ban construction of new toll roads and to free existing ones. Consequently, the state passed laws prohibiting some counties from building turnpikes (Tennessee 1959:24). An 1899 state law authorized counties to buy turnpikes from private companies and to free the pikes from tolls once expenses and debts were paid. However, the stipulation of the Federal-Aid Act of 1916, prohibiting the use of Federal-aid for highway construction on roads that had toll gates, was the final blow to the toll gate/turnpike system (Tennessee Department of Highways *Tennessee Highways* [*Tennessee Highways*] April 1922:3). As a result, the Tennessee

State Highway Commission authorized county courts to remove the tolls, and if not, the Commission would institute condemnation proceedings. Reputedly, the last toll road in Tennessee was the Nashville to Franklin Turnpike (present day State Route 6) which was freed in 1926 after much litigation (Tennessee 1959:24).

Three masonry arch bridges from the Louisville to Nashville Turnpike remain in Davidson, Robertson and Sumner Counties (#1, 19-E0224-00.07; #2, 74-NonHighway-1; and #3, 83-A0884-00.35). As was typical of many road systems, this turnpike followed a much traveled trail first used by Indians and later by early settlers. However, its importance as a major route decreased with the construction of the Louisville and Nashville Railroad in 1858. Even so, it continued as a major overland transportation route, and portions of it evolved into the Dixie Highway and U.S. 31W. Since records for this (and most other) turnpike companies no longer exist, it is unclear when these three bridges were built, but several historians speculate they were built between 1828 and 1845 (Dorsey 1935; Henderson 1982:219; Tretter 1986:7). The bridges appear similar in construction, and the same mason probably built them. The transition by the 1830s into more substantial, permanent, and better designed bridges reflected the growth of Middle Tennessee and indicated that improved bridge building techniques were available even in rural areas.

By the ante-bellum era, bridge building had progressed to a point where major structures were being erected in the larger towns in Tennessee such as in Nashville. Because of its strategic location on the Cumberland River in Middle Tennessee and its designation as the permanent State Capital in 1843, Nashville was a major commercial and political center with a growing population throughout the nineteenth century. Its reliance and proximity to the Cumberland River played a role in Nashville becoming a state leader in bridge construction.

A private company built the first wagon bridge, a toll bridge, across the Cumberland River in Nashville in 1823, at the approximate location of the present Victory Memorial Bridge. Philadelphia engineer-architect Joseph Johnson designed this initial bridge while Philadelphia contractor and ironmaster Samuel Stacker constructed it. Known as the "Stone Bridge" because of its massive stone substructure, the 560-foot bridge actually contained three wooden arch spans. As was common for wooden bridges, this first Nashville bridge was covered but with windows to provide light. Reputedly, while a Captain Bass of Goodlettsville was driving a herd of sheep across the bridge, the "bellwether" or leader of his herd jumped through one of the windows. Except for one sheep too lame to jump, the entire flock followed their leader and all drowned. Bass was so angry that he then threw the lame sheep through the window (Creighton 1969:74). As steamboat traffic on the Cumberland River increased, it became apparent that a major design flaw of the bridge was that it did not provide adequate clearance during high water periods. By 1850 a major drive to replace this bridge emerged that resulted in it being removed in October 1851 after the construction of Nashville's second river bridge.

This 1850 structure was a 700-foot suspension bridge designed by Nashville architect-engineer Adolphus Heiman at the site of the present Woodland Street Bridge. As was often true, the specific location of a new bridge was a controversial issue dividing Whigs and Democrats in the city. In this case rival newspaper editors Felix Zollicoffer of the Republican Banner (Whig) and John Marlin of the Nashville Union (Democrat) hotly defended different locations. After Marlin in an editorial accused Zollicoffer of having selfish motivations in his choice, Zollicoffer confronted Marlin in his office where a pistol duel followed. Allegedly,

Zollicoffer's gun failed to fire and Marlin waited for him to reload before he fired. The exchange wounded both men but both recovered. The city chose Zollicoffer's preferred site as the location for the new bridge.

The construction of this bridge was also controversial. Although Heiman designed the bridge and was in charge of building the towers and anchors for the cables and the deck supports, the wire work was contracted to M. D. Field, the brother of Cyrus Field who had been responsible for laying the first Atlantic cable. Over Heiman's protests, Field made several changes in the design. Heiman then resigned, denying any responsibility for the safety of the bridge. On 16 July 1855 the floor of the bridge collapsed throwing several people, horses and mules, and wagons into the river and killing seven animals and one boy. After the bridge was repaired, it stood until February 1862 when the retreating Confederate army cut the cables. Troops also set fire to the only other river bridge in Nashville, the nearby 1859 four-span McCullum truss railroad bridge, but the fire caused little structural damage. During the Union occupation of Nashville, the United States Corps of Engineers repaired the railroad bridge and planked the tracks over allowing residents to use it for pedestrian and vehicular traffic. After the war the city rebuilt the 1850 suspension bridge with Colonel Albert Fink, a prominent bridge engineer known for the Fink truss, as the consulting engineer. Major Wilbur F. Foster from Nashville, later of the Foster-Creighton Company, designed and supervised the work. The tolls for the bridge were as follows: fifteen cents for a four-horse carriage, a nickel for a man on horseback, ten cents per one hundred chickens, a penny per hog, and no charge for pedestrians. The bridge continued in use until the 1880s when the Woodland Street Bridge replaced it.

During the post-war years, Nashville experienced considerable urban expansion. Consequently, in the late 1860s and 1870s local citizens debated the issue of annexing the city of Edgefield, a community located east of Nashville on the opposite bank of the Cumberland River. During this period, interested citizens in Nashville promised Edgefield citizens a new toll-free bridge if they would vote in favor of being annexed to Nashville. After voters approved the referendum in 1879, Foster, as Nashville City Engineer, began the preliminary design work. Construction on the new bridge began in 1884 and the new bridge opened 10 April 1886. The Louisville Bridge and Iron Company erected the new "Woodland Street Bridge," as it was officially named. It was 639 feet long and contained four iron truss spans over the river; three of these spans were Double Intersection Pratt or Whipple trusses. This bridge remained open until 1965 when a new structure replaced it, and the abutments of the new bridge contain stones from the old abutments (Creighton 1969:74-75; 1972:261-275; Crouch and Claybrook 1976:15-16).

Bridge building in the other major cities on navigable rivers in Tennessee occurred later than in Nashville. In both Knoxville and Chattanooga, Federal Army troops occupying these cities during the Civil War erected the first bridges. The army built the Knoxville bridge that spanned the Tennessee River as a temporary structure. After the war, in 1866, the county acquired the bridge but a flood in 1867 destroyed it. In 1871 Knox County residents, in a county-wide election, approved an appropriation of $75,000 to build a river bridge. Finished in 1874 at the site of the present Gay Street Bridge, the bridge featured a Howe truss and cost over $163,000. It was 1,404 feet in length with a curb-to-curb width of eighteen feet and two five-foot sidewalks. A storm in May 1875 blew away this massive and expensive wooden superstructure. The county built another bridge in 1880 that utilized the old piers. This bridge remained in use until the Gay Street Bridge (#27, 47-03775-00.26) opened in 1898. The 1892 Cherokee Bridge, located about a mile west of the present Buck Karnes Bridge (47-SR073-

01.12), was another Tennessee River bridge in Knoxville. The Groton Bridge Company erected this bridge for $69,352 for the Cherokee Land Company. This bridge contained three main steel truss spans, a 260-foot Parker and two 150-foot Pratts.

Chattanooga's first bridge across the Tennessee River was a temporary military pontoon bridge. The Federal Army built this bridge in the fall of 1863 but it washed out in November of that year. The Union Army under the Union Army's Quartermaster, General Montgomery C. Meigs, also built Chattanooga's first permanent bridge. This bridge, located near the foot of Market Street, took about six months to build and opened in the late spring or early summer of 1864. This wooden bridge contained eleven spans that included a drawbridge. The bridge did not last long as one of Chattanooga's worst floods washed it away in March of 1867. During the flood many local citizens gathered on the bridge to view the rising waters, and as it began to wash away, they safely fled to the shore. Chattanooga's next downtown river bridge was the Walnut Street Bridge (#20, 33-03544-00.12) on which construction began in 1889.

The Mississippi River, which forms the western boundary of the state, also forms the western boundary of the city of Memphis. Due to the major technological problems in spanning the Mississippi River, which is about one-half mile wide at Memphis, the city's first bridge across the Mississippi was not built until 1892. This bridge, the Frisco Bridge, (#14, 79-NonHighway-3) was a railroad bridge that allowed wagons to cross by special permit. However, due to the steep approach on the Arkansas side, wagon use was quite limited. The next bridge, the Harahan Bridge built between 1914 and 1917 (#77, 79-NonHighway-4), was also a railroad bridge but contained two cantilevered lanes for vehicular traffic. Until the 1930s, this was the

Figure II-06: Military Bridge from the Civil War era spanning the Tennessee River at Chattanooga, Hamilton County (Courtesy, Chattanooga Hamilton County Bicentennial Library Collection).

Figure II-07: Historic Postcard showing the Frisco and Harahan Bridges spanning the Mississippi River in Memphis (#14, 79-NonHighway-3 and #77, 79-NonHighway-4). Note the cantilevered roadways on the Harahan Bridge (Author's Collection).

only bridge that carried vehicular traffic across the Mississippi River south of the Ohio River. As a result, Memphis was a pivotal crossing point for vehicular traffic in the 1910s and 1920s. Highway associations and the state routed at least seven of the early interstate highways as well as U.S. 70 through Memphis to cross the Mississippi River on the Harahan Bridge. The first true vehicular bridge over the Mississippi River at Memphis was not built until 1949.

One of Tennessee's best known bridges from the nineteenth century was the Stone Arch Bridge over the Elk River in the small town of Fayetteville in Lincoln County. The county awarded the $30,000 contract for this bridge in 1858 to two local men, Patrick Flannery and John Markum. After building the three main or river masonry arch spans (from which there was no access to land), the contractors contended that they had finished the actual bridge and applied for a new contract to build the approaches to the bridge. After much debate, the county extended their contract to build the additional arch spans for $10,000. Although it has long been assumed that these men defrauded the county court, it was common practice for the main bridge structure to be contracted separately from the approaches--although this situation may have been an extreme example. As a part of General William Sherman's "March to the Sea," he ordered Major Byrd to demolish the bridge. However, Byrd convinced Sherman that the bridge was not strategically located and that the river was easily forded, and Sherman reversed his order. The bridge carried traffic until 1928 when the state built a new bridge nearby and bypassed the old bridge and a short road segment that the state closed to traffic but left as a historic ruin (Lincoln Quarterly Court Minutes Volume V:252). The bridge received substantial attention as a local landmark but collapsed in 1969.

On a national scale, metal truss bridges came into use by the 1840s, but it was not until the latter quarter of the nineteenth century that counties in Tennessee began to use metal truss bridges as the standard bridge type for spans over forty feet long. After the Civil War period, metal trusses and, beginning in the 1910s, concrete arches eventually rendered previously standard bridge types such as timber, masonry, and suspension bridges obsolete. Although counties continued to build these once common types, their use became increasingly infrequent.

Figure II-08: Old Stone Arch Bridge over the Elk River, Fayetteville, Lincoln County (Author's Collection).

For example, Grundy County continued to build masonry arch spans well into the twentieth century. The county court minutes reveal that representatives from bridge companies traveled to the county and proposed metal truss bridges, but the county primarily built masonry arch spans. Extant examples include the Scott Creek Bridge (#28, 31-NonHighway-3) built in 1898, the Ranger Creek Bridge (31-A0078-02.14) built in 1905, the Firescald Creek Bridge (#52, 31-NonHighway-2) built in 1906, the Hickory Creek Bridge (31-A0023-02.58) built in 1910, and the Hubbard Creek Bridge (#71, 31-A0022-02.49) built in 1912. Unfortunately, the minutes do not indicate why the county chose to build masonry rather than metal bridges. One can only speculate about possible factors such as the isolated nature of the county, the persistence of traditional building patterns, or a conservative lack of interest in pursuing more modern construction methods. On the other hand, the county may simply have had good experience with masonry arch bridges and saw no reason to change. Lincoln County, which used advanced metal truss designs, built two small masonry arch bridges as late as the 1920s (the McCullough Branch Bridge, 52-A0399-02.37, built in 1924 and the Lane Branch Bridge, #116, 52-A0147-03.89, built in 1926).

Counties also built timber truss bridges, but since most county court minutes would have simply referred to them as "timber" bridges, it is difficult to differentiate between them and other types of timber structures. One such bypassed and abandoned bridge stood in Montgomery County until about 1980 when it collapsed, the Big McAdoo Creek Bridge, an uncovered modified Queenpost truss (Tennessee State Historic Preservation Office 1976:MT-

58). Extant examples are limited to covered bridges that include the 1876 Harrisburg Bridge in Sevier County (#4, 78-A0324-00.58), the 1882 Elizabethton Bridge in Carter County (#8, 10-A0398-00.01), the 1910-1912 Parks Bridge in Obion County (#67, 66-NonHighway-1), and the 1923 Bible Bridge in Greene County (#108, 30-A0906-00.01).

The railroads built most of the state's timber truss bridges remaining from the early twentieth century. During this period, various railroads built and maintained many small wooden truss spans or trestles on county roads to provide a separated grade crossing with the railroad tracks. The survey identified about two dozen of these truss bridges (ranging in date from the 1910s through the 1940s). These bridges primarily featured the Queenpost design such as the Ridge Road Bridge in Monroe County (#82, 62-A0520-02.45) or the Power House Road Bridge in White County (#96, 93-A0425-00.19). However, a few bridges featured the Kingpost truss such as the Marlow Road Bridge in Anderson County (#97, 01-02444-06.74) or the Old Coghill Road Bridge in McMinn County (#69, 54-A0214-00.10).

Counties also rarely built vehicular suspension bridges. An example would be Montgomery County which built an eighty foot suspension bridge with red cedar towers in 1889 (Montgomery County Court Minutes Volume 32:476). Pedestrian suspension bridges are more common, such as an abandoned 1880s pedestrian bridge over Hickory Creek at Lawson's Mill in Warren County (as well as the ruins of an earlier suspension bridge nearby) and an abandoned pedestrian bridge near the Old Taylor's Factory site in Doyle in White County. The only extant vehicular suspension bridge in Tennessee is the 1891 Sycamore Mills Bridge in Cheatham County (#22, 11-NonHighway-1).

Figure II-09: 1982 view of the Big McAdoo Creek Bridge in Montgomery County (Tennessee Historical Commission).

In the early 1910s, concrete arch bridges began to compete at a local level with metal trusses as the "bridge of choice" for county governments. The reinforced concrete arch was first built in the United States in 1889 and slowly gained acceptance over the next ten to twenty years experiencing its peak period from about 1910 to 1930. Railroad companies probably first introduced concrete arch spans in Tennessee. Railroad bridges carried much heavier loads than highway bridges, and consequently, the railroads led in bridge design and construction. The 1903 Evergreen Cemetery Bridge in Memphis (#44, 79-E0578-00.21), which spans railroad tracks, is the oldest vehicular concrete arch bridge known to exist in Tennessee. The 1905 Clinch Avenue Viaduct in Knoxville (#48, 47-A0135-01.42), the 1906 Belle Meade Bridge in Nashville (#51, 19-B0983-01.61), the 1905-1906 Cumberland Avenue Bridge in Richard City in Marion County (#53, 58-A0443-00.50), and the 1910 Centennial Park Bridge in Nashville (#66, 19-NonHighway-4) are other early examples. However, county governments generally did not use concrete arches for vehicular bridges in Tennessee until the 1910s.

The use of concrete arches gained wider acceptance in Tennessee in the 1910s after the Luten Bridge Company opened a branch office in the state about 1912. Another firm specializing in concrete arches, run by John Steel with first Otto Roehl and later Thomas Lebby, opened in Knoxville about 1919-1920. Many counties were quite receptive to concrete arch bridges, seemingly for two basic reasons. Although their cost was comparable to steel trusses, county governments perceived these bridges as maintenance free compared to truss bridges that needed to be refloored and painted frequently. Secondly, county governments felt that these bridges were much stronger than truss bridges. There are comments in some county court minutes claiming that concrete bridges would last a hundred years. This assumption was basically correct; even though the twelve-foot widths of many of Tennessee's concrete bridges are functionally deficient, most are quite capable of meeting modern load limits.

Although other companies or organizations built bridges in the nineteenth century, county governments, through their county courts, or less often through their quarterly courts, gradually became the most dominant force in road and bridge construction until the creation of the Tennessee State Highway Department in 1915. In each county, the road system typically followed the same pattern, "roads radiating out from the county seat like spokes from the hub of a wheel" (Macpherson 1969:195). Such an arrangement suited county officials who wanted to maintain the county seat's status as a market town, and it suited local residents who needed access to the courthouse and local businesses. However, such an arrangement did not necessarily promote county-to-county travel.

Regardless of the type of bridge built, and even though each county had its own procedures and policies for road and bridge construction, similarities existed from county to county. Each county's quarterly or county court minutes contain details of these activities. For bridges erected prior to 1900, these minutes often contain very detailed information. However, the counties usually recorded less information as they became more accustomed to the process. Later minutes are generally much briefer, although they may still include details about major bridges.

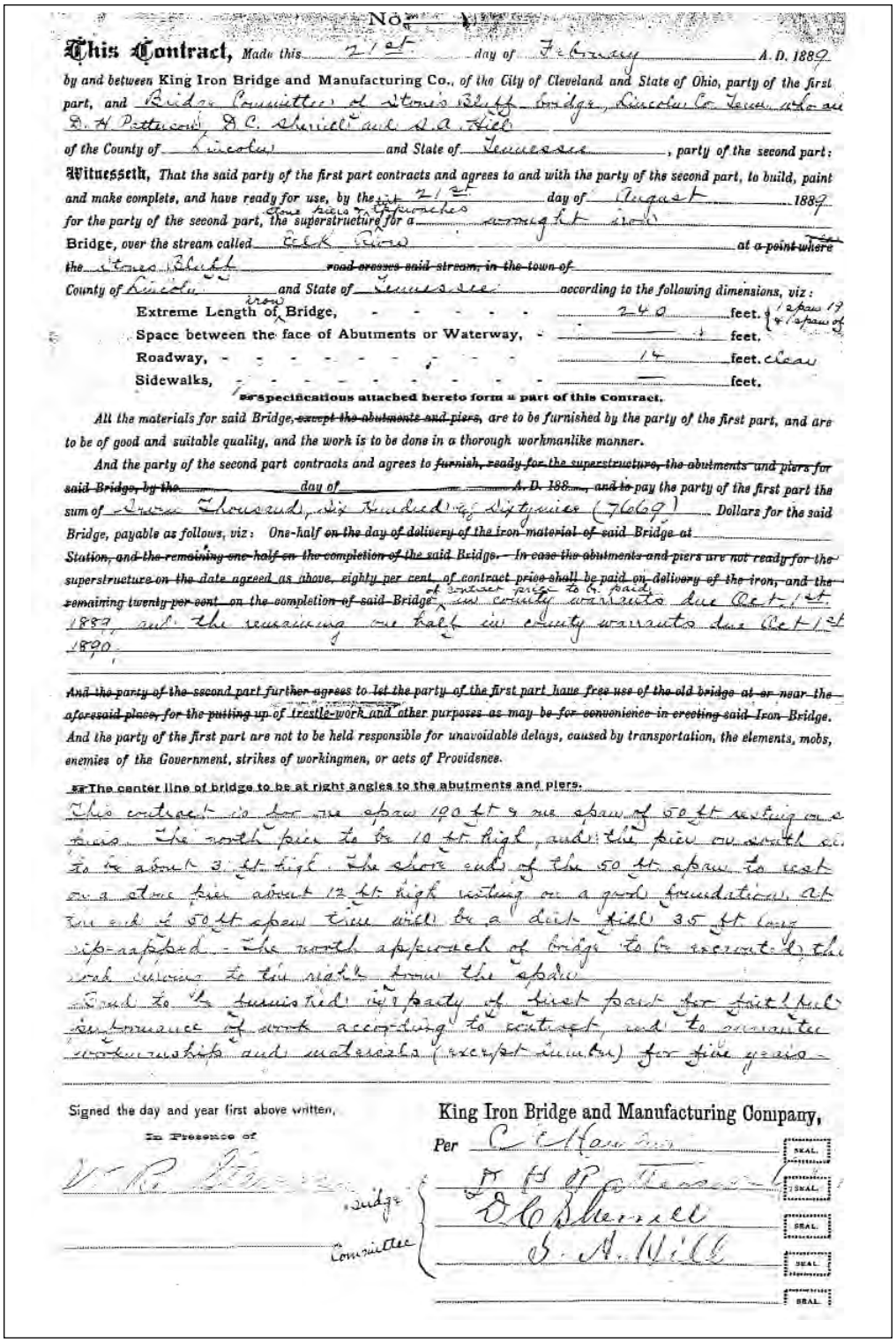
The counties typically funded the projects through general revenue that was sometimes supplemented with a one to fifteen cent per $100 bridge tax levied on its citizens. Frequently, the county court approved the construction of a certain bridge but deferred its erection until funds became available. In the early years of the twentieth century, many counties began going into debt to build bridges, usually financing such programs through bond issues. For many counties the transition in their funding approach occurred in the 1903-1905 period. Major

floods in 1901 and 1902 caused substantial damage to many bridges across the state and resulted in the immediate need for several bridges.

By the late 1800s, state laws directed the county courts to divide the county into road districts and to elect a road commissioner for each district to oversee all roads and bridges in that district. State laws also delineated a road classification system, designating classes of road widths. As was typical in the South, Tennessee laws stipulated that all males between eighteen and forty-five must work a set number of days per year as determined by the court, known as the courvee system. However, Tennessee was one of the few states that allowed substitutes. In Tennessee, a man could furnish a substitute or pay seventy-five cents a day to the county and avoid serving on the road crews. This proved to be somewhat of a poor system as many men evaded their share by hiring substitutes or by using it as a social gathering (Preston 1991:20-22). State laws also provided manpower by authorizing the use of all persons in county jails or workhouses for use as laborers to do road work. Convict labor for road work was common in many areas of the country and especially in the Southeast. Many people opposed it for economic reasons because it competed with local labor, and eventually, the issue of convict labor for road construction became one of the most controversial aspects of the Good Roads Movement (Hilles 1958:133, 178).

Road construction in the late nineteenth and early twentieth centuries remained haphazard, and as late as the 1920s, many counties still lacked a county highway department (Keith 1995:187). Even in counties with road commissioners, individual county courts retained substantial power and involvement in the actual process of building roads and bridges. It was rare for counties to hire a full time engineer to supervise this work. An exception is Davidson County (Nashville) which in 1913 hired an engineer to draw plans and specifications and

Figure II-10: Undated photo of prisoners working the "crusher" on a road project in Meigs County (TDOT Photo Collection).



No. [illegible]

This Contract, Made this 21st day of February A. D. 1889

by and between King Iron Bridge and Manufacturing Co., of the City of Cleveland and State of Ohio, party of the first part, and Bridge Committee of Stone's Bluff Bridge, Lincoln Co. Tenn. viz: D. H. Patterson, D. C. Shirrell and S. A. Hill

of the County of Lincoln and State of Tennessee, party of the second part:

Witnesseth, That the said party of the first part contracts and agrees to and with the party of the second part, to build, paint and make complete, and have ready for use, by the 21st day of August 1889 for the party of the second part, the superstructure for a one span 190 ft. 6 panches iron Bridge, over the stream called Elk River at ~~a point where~~ the Stones Bluff ~~road crosses said stream, in the town of~~ County of Lincoln and State of Tennessee according to the following dimensions, viz:

Extreme Length of iron Bridge,	240 feet. (1 span 190 ft & 1 span of 50 ft)
Space between the face of Abutments or Waterway,	[illegible] feet.
Roadway,	14 feet. Clear
Sidewalks,	— feet.

~~as~~specifications attached hereto form a part of this Contract.

All the materials for said Bridge, ~~except the abutments and piers,~~ are to be furnished by the party of the first part, and are to be of good and suitable quality, and the work is to be done in a thorough workmanlike manner.

And the party of the second part contracts and agrees to ~~furnish, ready for the superstructure, the abutments and piers for said Bridge, by the day of A. D. 188..., and to~~ pay the party of the first part the sum of Seven Thousand, Six Hundred & Sixty nine (7669) Dollars for the said Bridge, payable as follows, viz: One-half ~~on the day of delivery of the iron material of said Bridge at Station, and the remaining one-half on the completion of the said Bridge. In case the abutments and piers are not ready for the superstructure on the date agreed as above, eighty per cent of contract price shall be paid on delivery of the iron, and the remaining twenty per cent on the completion of said Bridge~~ of contract price to be paid and county warrants due Oct 1st 1889, and the remaining one half in county warrants due Oct 1st 1890.

~~And the party of the second part further agrees to let the party of the first part have free use of the old bridge at or near the aforesaid place, for the putting up of trestle-work and other purposes as may be for convenience in erecting said Iron Bridge.~~

And the party of the first part are not to be held responsible for unavoidable delays, caused by transportation, the elements, mobs, enemies of the Government, strikes of workingmen, or acts of Providence.

~~as~~The center line of bridge to be at right angles to the abutments and piers.

This contract is for one span 190 ft & one span of 50 ft resting on a pier. The north pier to be 10 ft high, and the pier on south side to be about 3 ft. high. The shore end of the 50 ft span to rest on a stone pier about 12 ft high resting on a good foundation. At the end of 50 ft span there will be a dirt fill 35 ft long rip-rapped. The north approach of bridge to be covered by the roof reaching to the right from the span.

Said to be furnished ready for putting in place and in workmanlike manner according to contract, and to guarantee workmanship and materials (except lumber) for five years.

Signed the day and year first above written,

In Presence of

V. R. [illegible]

[illegible]

Bridge Committee

King Iron Bridge and Manufacturing Company,

Per C. E. Hewitt

D. H. Patterson SEAL

D. C. Shirrell SEAL

S. A. Hill SEAL

SEAL

SEAL

Figure II-11: Contract between the King Iron Bridge Company and Lincoln County to build the Stone Bluff Bridge (#17, 52 A0487 04.85), a Double Intersection Pratt.

supervise the construction of all bridges in the county. At the same time, the court appointed a permanent bridge committee (Davidson Quarterly Court Minutes Volume I:367). On rare occasions, even for smaller scale bridges, some counties hired a local engineer to develop plans for a specific bridge, and bridge companies made bids based on these plans rather than on their own designs.

However, the most common approach was for the county court to appoint a committee to investigate the advisability of constructing a bridge at a certain site. Membership on these committees rotated among the members of the court. The committee usually contained three to five court members of which one or more lived near the proposed bridge site. After its investigation, the committee reported back to the court at its next meeting. (County Courts normally met the first week in January, April, July, and October with special sessions added as needed.) Sometimes the court appointed a committee on its own initiative, and sometimes it appointed a committee in direct response to a member (or magistrate or squire) of the court making a motion that requested that a bridge be built at a specific location. Sometimes, citizens submitted a petition for a bridge.

Sometimes the court gave the bridge committee several sites to evaluate in comparison to each other, either within one general corridor or over a larger area. In evaluating sites, the committee normally considered the traffic needs of an area, and generally selected bridge sites on the more traveled routes (or those that most needed the bridges due to flooding problems or other factors). Once the committee selected a general corridor, the committee normally chose the specific site that offered the greatest ease and least expense of construction. Key factors in such decisions usually involved finding the narrowest point of the river and the most

Figure II-12: Nashville Bridge Company plaque listing the committee members.

favorable topographic features of the embankments. Since these features did not necessarily conform to the factors that influenced the locations of ferry sites or ford crossings, builders often located new bridges near rather than at earlier crossings. Builders normally constructed the bridge straight across the river with curves in the road compensating for any directional change. It was normally cheaper, even including the cost of additional road work, to erect a bridge built on a straight line than to build one on a skew. A skew both increased the length of the bridge and made it more difficult to design and erect than other bridges. Even when a road alignment made a straight bridge appear to be impossible, rather than skew the span, the builder sometimes added a curve between bridge spans. Examples include the Shelby Street Bridge in Nashville (#58, 19-03245-01.41) and the Smith Bridge in Washington County (#36, 90-A0900-00.97). From the standpoint of modern engineering and traffic requirements, these criteria resulted in many bridges being built on very poor alignments. Often the road ran alongside the stream and then made a sharp eighty to ninety degree turn to cross the river, and then on the other side of the river, perhaps made another sharp eighty to ninety degree turn. To the slow moving and intermittent vehicular traffic of the nineteenth and early twentieth centuries, such alignments presented no particular problems.

The degree of cooperation offered by local citizens was another important consideration that influenced the selection of a bridge location. A bridge in any community, especially in the nineteenth century when substantial bridges in rural areas were comparatively rare, was a highly desired advantage. Citizen groups with their magistrates lobbied extensively to get the next bridge. Accompanying a group's petition for a bridge might be a subscription pledging a specific amount of money toward its erection. Some of these petitions contained each person's name in the community and his specific pledge that might range from $1 to $500. Some counties required the citizens to pay a set percentage of the bridge cost, ranging from one-fourth to one-third although it could be as high as one-half (Rutherford County Court Minutes Volume 4:127). Some counties paid for right-of-way, but typically, local landowners donated the right-of-way. Local citizens often undertook any work needed to realign the road and to build the approaches.

For example, in 1917 Franklin County awarded a contract to the Nashville Bridge Company to erect a 100-foot Warren truss over the Elk River at the Elders Bridge site with the understanding that local citizens would build the approaches. In October of 1917, the county warned local citizens that if they did not build the approaches, the county would move the bridge elsewhere (Franklin County Court Minutes Volume S:252; Nashville Bridge Company Contract #3811). In 1905 the Lincoln County Court advised local citizens that it would not build a bridge to span Cane Creek until they had rechanneled the creek to avoid cutting behind the abutments (Lincoln County Court Minutes Book 1903-1907:175-176). In 1918 Maury County required local citizens to do all the hauling and to provide all the fill for a new concrete bridge across Knob Creek (Maury County Quarterly Court Minutes Volume 1:221-222). In 1915 Sumner County required local citizens to perform preparation work that included moving truss bridges from the railroad depot to the bridge site (Sumner County Court Minutes Volume 23:197). However, since most communities were eager to obtain a bridge, it was quite rare for a group to refuse to agree to the county's conditions.

Bridge committees also typically provided the court with a cost estimate for the proposed bridge. Sometimes they developed an estimate based on previously built bridges and sometimes they would contact a bridge company for an estimate. In some counties, the committee returned to the court with specific bids from bridge companies, while in other

counties, the committee used general estimates until the court formally approved construction of the proposed bridge.

To acquire an estimate or bid, the committee usually dealt with an agent from a bridge company. Bridge companies rather than local contractors built most of the metal truss and concrete arch bridges in Tennessee. However, local contractors built all of the extant masonry-arch bridges in the state as well as the extant timber truss bridges (except for the timber bridges built by the railroads). Several large bridge companies retained agents who operated out of the state's larger cities and represented the companies before the county courts. These agents attended county court sessions during which they presented estimates and photographs or drawings of their work in an effort to secure a contract (Breeden 1975). Although some contracts were all-inclusive it was also common for the superstructure and substructure to be let separately. In these cases, the bridge company was responsible only for erecting the iron or steel truss superstructures. The flooring might or might not be in the contract.

After examining the proposed bridge site, the bridge committee returned to the county court and submitted a report with its findings. Sometimes the committee indicated that no need existed for a bridge at the site in question or that a need existed but lacked adequate funding. The county court then voted on whether to construct the bridge, basing its decision on the committee's report. If approved, the court appointed a new committee that usually consisted of the same members. A few counties delegated to the committee the authority to receive bids, choose the contractor, supervise construction, and accept the finished bridge. In such situations, the committee reported back to the court only to confirm completion of the bridge. However, it was more common for the county courts to retain overall authority and work with the committee during the construction of the bridge. The court normally evaluated the bids, selected the bridge company, and signed the contract.

Once the county or committee awarded a contract, the committee then supervised (or probably more accurately, monitored) the work of the bridge company. After the builder finished the bridge, the committee inspected it and reported to the county court. Although some reports were very brief, other reports were more detailed and contained such information as if the bridge met specifications, if the company had met any stipulated deadline, and included a recommendation regarding payment. If appropriate, the committee reported on any extenuating circumstances that might have affected the bridge company's ability to meet contract stipulations. These might have included unseasonable weather that delayed work or unforeseen foundation problems encountered in laying the substructure. Sometimes the committee even recommended that additional money (over the contract price) be paid due to such unexpected problems.

The court then voted whether to accept the finished bridge, basing its decision on the committee's report. If the court was not fully satisfied with the bridge, it might offer only partial payment of the original contract price. If dissatisfied, the only recourse for the bridge company was to sue. The time span from when the court appointed the committee until the committee reported the bridge finished usually ranged from six to fifteen months but was normally about a year.

The construction of small rural bridges often involved the court members in lengthy debates and disputes that usually centered on the general location of the next bridge under

consideration and then its specific site within that corridor. Although controversial, these wranglings in no way compared to the bitter and acrimonious disputes that surrounded major urban bridges. In urban areas, local businesses or neighborhood groups aggressively fought over the location for the new bridge even if all of the sites under consideration were only a few blocks apart. Most city and county officials had only limited expertise in bridge building and that experience usually concerned the construction of small rural spans. Often to their misfortune, local officials found that bidding and engineering practices for small rural bridges differed substantially from those that professionals deemed as appropriate for large urban bridges.

For instance, when Nashville tried to build a bridge in 1907, disputes over its location led to the compromise solution to construct both the Shelby Street Bridge (#58, 19-03245-01.47) and the Jefferson Street Bridge (19-03268-00.40). Cost overruns on the Market Street Bridge in Chattanooga (#85, 33-SR008-09.53) led to a lawsuit against the engineer and were a major reason for the defeat of County Judge Will Cummings at the next election. Bitter disputes on the Henley Street Bridge in Knox County (#132, 47-SR033-06.72) led to the indictment of a councilman in 1931 on charges that he tried to bribe another councilman concerning the awarding of contracts.

While small town newspapers sometimes included stories about local bridges, elaborate dedication ceremonies and attendant newspaper coverage were apparently not common for rural bridges—even quite large ones. However, numerous newspaper articles about large urban bridges often began when they were first proposed and continued through their completion. The cities commonly hosted dedication ceremonies for these bridges when they officially opened. These dedications often involved a range of activities including speeches, prayers, bands, parades, and the ceremonial finishing touches to the bridge and first crossing. Hundreds and even thousands often attended these events.

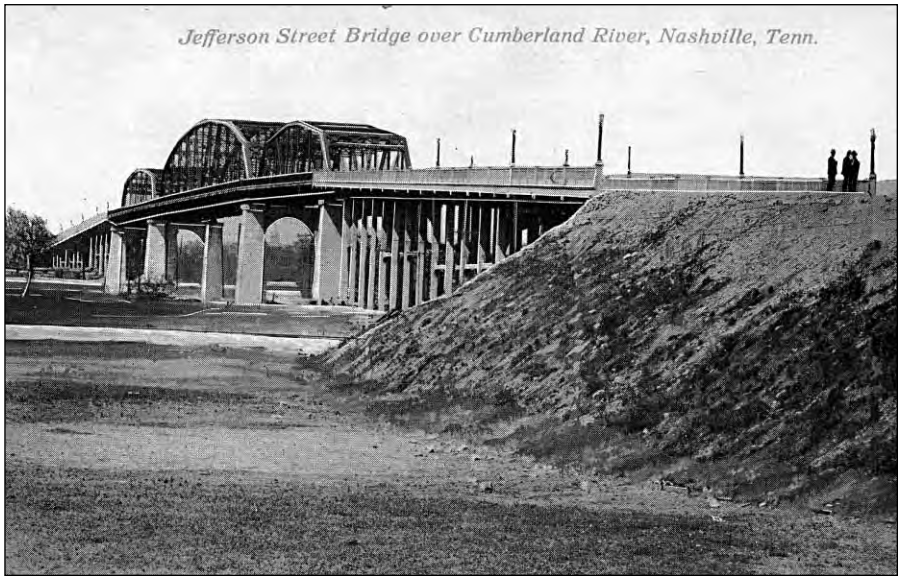


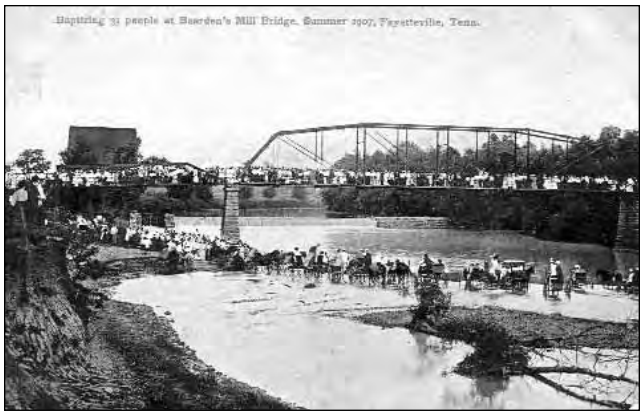
Figure II-13: Historic Postcard View of the Jefferson Street Bridge (built 1907-1910) spanning the Cumberland River, Nashville, Davidson County. The state demolished this bridge in the 1990s (Author's Collection).

Figure II-14: Letterhead from the Harahan Bridge (#079-NonHighway-4) Celebration Committee (Memphis Public Library).

About two years before this bridge was completed, the Memphis Chamber of Commerce organized a board to raise funds and plan a celebration to mark the bridge's completion. This board appointed 34 committees, including a souvenir committee, and raised over $100,000. Plans were virtually complete when the United States entered World War I, causing the celebration to be canceled.

Bridges were well-known local sites and were often recognized as place names. They frequently appeared on mementos and souvenir items such as postcards. Some bridges became well-known local landmarks. For instance, the now collapsed Fayetteville masonry arch bridge gave rise to the Stone Arch Bridge Motel, the Stone Arch Bridge Restaurant, and the county high school's yearbook being named *The Bridge*. Area residents also used bridges as meeting places for events such as baptisms. The Bearden Mill Bridge in Lincoln County (52-NonHighway-2) and the Easley Ford Bridge in Polk County (#110, 70-02268-01.51) were well-known sites for baptisms. An interesting entrepreneur in the Bedford County area made a living during the World War I period jumping from the top chord of a bridge into the water and then asking for donations. Local citizens later heard he died jumping from a bridge in another county (Cook 1983). Bridges have also been the site of tragic events such as suicides or lynchings. For instance, two lynchings occurred on the Walnut Street Bridge in Chattanooga (#20, 33-03544-00.12) in 1893 and 1906.

For the counties, bridges were an important financial investment and they tried with varying degrees of success to protect them. Signs on bridges instructing drivers not to travel at a faster pace than a walk were common. The 1882 Elizabethton Covered Bridge in Carter County (#8, 10-A0398-00.01) still has signs instructing drivers to go no faster than 5 m.p.h. In 1903 the Bedford County Court passed a resolution stating that it would be a misdemeanor to ride or drive faster than a walk over any bridge in the county (Bedford County Court Minutes Volume O:452). Counties also regulated the weight load on bridges. For instance,



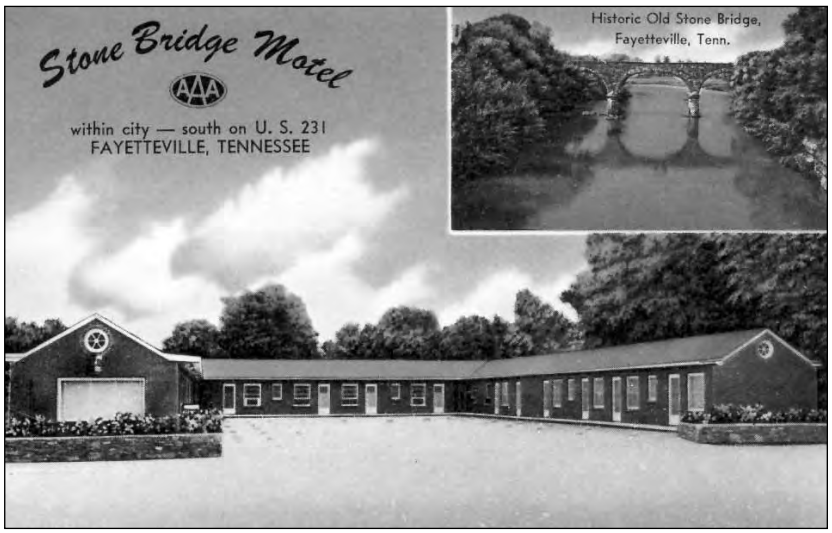


Figure II-15: Bridges as focal points of their communities; Historic postcards showing a baptizing at the Bearden Mill Bridge in Fayetteville (right) and a circa 1917 photograph at the Holston River Bridge in Jefferson County (bottom, collapsed under a cement truck that was being used to build a new bridge) and the Stone Bridge Motel (middle) which featured an inset of the bridge for which it was named (Jefferson County photo courtesy of Tennessee State Library and Archives, Looking Back at Tennessee, JF072; Others from Author's Collection).

Roane County in 1899 ordered that signs be placed on all its important bridges that farmers could not drive more than fifteen head of cattle across at one time (Roane County Court Minutes Volume E:202).

The Hyde's Ferry Bridge in Davidson County, which originally contained spans later relocated to rural Davidson (#16, 19-NonHighway-2) and Warren Counties (#112, 89-04261-11.60), represents an unusual degree of commitment by a county. Although it was not a toll bridge, the Davidson County Court hired a watchman/caretaker to take care of the bridge. His responsibilities included salting the bridge in the winter and enforcing the speed limit (not faster than a walk) which was punishable by a $5 to $50 fine. The county paid at least $400 to build a house for him. In 1894 his salary was $300 yearly (Davidson Quarterly Court Minutes Volume A:352; Volume B:70, 432, 468; Volume C:126; Graves 1975:106).

The 1901-1905 period was an important epoch in bridge building history in Tennessee primarily due to major floods that struck the state in 1901 and 1902. The 1901 storm that flooded upper East Tennessee from May 21 to May 23 was one of the most severe in the region's history. It especially affected the Watauga River and the lower portions of the South Fork of the Holston River and the French Broad River. The highest waters in historical times were recorded at Kingsport on the South Fork of the Holston River and at Elizabethton on the Watauga River and Doe River (Tennessee Valley Authority [TVA] 1961:32). The 1901 flood washed away all of the bridges on the major rivers in Carter County except for the Covered Bridge at Elizabethton (#8, 10-A0398-00.01). This bridge survived even though a barn smashed into it at one point during the flood.

The 1902 flood struck Middle Tennessee from March 25 to March 29. The crest stages for this flood on the Duck River at Shelbyville, on the Elk River at Prospect, and on Richland Creek at Pulaski are the highest known. During the crest stage, the Duck River reached its second known highest peak at both Centerville and Columbia (TVA 1961:32).

The damages from these two floods were especially devastating as they affected large areas in both East and Middle Tennessee. Many counties lost all or nearly all of their bridges. Obviously, the flood damage called for a major rebuilding program. To avoid debt, most counties up to this time had authorized new bridges one at a time and usually built only a few in any one year. Now local governments had to replace their bridges rapidly. Some counties let contracts for several bridges at once and issued bonds to pay for an overall bridge building program.

In 1901 the American Bridge Company of New Jersey absorbed many bridge companies across the country including some for which Nashvillian Arthur J. Dyer had worked. With the absence of many former competitors at a local level and due to the surge in bridge building after the floods, Dyer formed the Nashville Bridge Company about 1903 and used this period of concentrated bridge building to establish his own company. Specializing in metal truss bridges, it became Tennessee's most important native bridge company and one of the most influential bridge companies in the Southeast.

Cities or counties built most bridges in the 1900-1915 period, but railroad companies also built vehicular bridges. The involvement of railroads in building vehicular bridges related to two significant factors, the City Beautiful movement and safety considerations. The City Beautiful movement was a visual movement dating from the late nineteenth century that emphasized the improvement of the appearances of cities rather than attacking social

problems as both earlier and later movements did. By 1900, it was the dominant theory in urban planning, and many cities used principles from the movement as their design basis in rebuilding efforts. As part of this movement, cities began demanding that railroads provide grade separated crossings to eliminate the view of unsightly rail yards. In addition, during the nineteenth century numerous fatal accidents occurred at the intersections of roads and railroads. The railroad companies tried a wide variety of warning signals at crossings but to no avail (Stilgoe 1983:174). The combination of aesthetic issues and the desire to provide grade separated crossings to reduce the number of fatal accidents at highway and rail intersections resulted in the railroads increasingly constructing grade separated facilities in the twentieth century.

Some of these bridges were viaducts built in urban areas to carry vehicular traffic over railroad tracks such as the Evergreen Bridge in Memphis (#44, 79-E0578-00.21). The cities and railroads often built these bridges as joint projects. An example is the Clinch Avenue Viaduct in Knoxville (#48, 47-A0135-00.42) that was built in 1905 after the City of Knoxville had tried for fifteen years to get the railroads to provide a bridge crossing over their tracks. The result was a concrete arch bridge built by the city but largely funded by the Louisville and Nashville Railroad that paid $61,000. The Southern Railway paid $9,000 and the Knoxville Traction Company paid $10,000. The railroads were responsible for reviewing proposals, choosing the design, and providing engineering advice. The lead role of the railroad may have resulted in the choice of a concrete arch bridge, a relatively innovative design at that time. The city provided the right-of-way, paid property damages, and removed a nearby sewer.

The City Beautiful movement affected bridges other than just those built by railroads. The National Register-listed Memphis Parkway System, built between 1902 and 1910, resulted from this movement but does not contain any bridges inventoried in this survey (Carver and Bruner 1989). However, there are historic slab or girder bridges on the system and several grade separated crossings. Many engineers and designers within this movement considered truss bridges to be inherently unattractive and urged that only concrete bridges be built when aesthetics were a concern. Partly as a result of this movement, more towns and cities began to use concrete bridges. Even small scale bridges in towns and cities began to feature more decorative treatments such as elaborate urn railings and Ionic columns for lightposts. Examples include the 1917 Black Creek Bridge in Rockwood (73-03698-00.10), the 1921 Main Street Bridge in Watertown in Wilson County (#103, 95-02036-08.66), or the matching 1926 Elk Avenue Bridge (#115, 10-03939-00.10) and the 1929 Broad Street Bridge (10-SR037-22.33) in Elizabethton. The Emory River Bridge in Harriman in Roane County (#086, 73-01226-00.50), although not elaborately decorated, is an example of a bridge that area residents viewed as a visually important "portal" to the city. A sign of its perception as a visual landmark can be seen in 19 December 1918 *Harriman Record* article that stated:

> The writer has had occasion to make a long trip by auto from Harriman to Miami, Fla., a distance of over 1,000 miles, and can state that there is not a finer bridge between the two places, except those in the large cities, than that over the Emory River. A fine bridge at the approach of a town leads to the idea of the automobilist that he is getting to a town of some importance. The first impression the tourist will have of Harriman when he strikes the Emory River bridge will be that Harriman is something of a city worth while. This will especially be the case when he strikes Harriman at night and drives upon the magnificently lighted bridge (Pulliam 1978:477).

The City Beautiful movement perhaps peaked in its influence on bridge construction in Tennessee with the Henley Street Bridge in Knoxville (#132, 47-SR033-06.72). In the 1920s the City of Knoxville hired a city planning consultant to develop a comprehensive city plan. This plan included a street plan for Knoxville that the city council adopted in 1927. The plan recommended the widening and expansion of Henley Street. The construction of a 54-foot wide bridge at Henley Street to span the Tennessee River was a major component of this plan even though the street tied into an undeveloped area on the opposite bank. Although critics ridiculed the width as excessive, the city and county built the bridge between 1930 and 1932. The bridge's width, its role in the city's overall street system, and its spectacular open spandrel design embody many of the ideals of the City Beautiful movement.

The development of hydroelectric power was another factor that influenced bridge construction in the early twentieth century. Hydroelectric power first appeared in Tennessee about 1901. Various small companies operated in Middle and East Tennessee, but by the mid-1910s the Southern Cities Power Company in Middle Tennessee and the Tennessee Electric Power Company in East Tennessee had bought many of the smaller companies and were the primary hydroelectric providers. These two companies merged under the Tennessee Electric Power Company name in 1929 before being purchased by the Tennessee Valley Authority (TVA) in the 1930s (Woodruff 1978).

As dams were built to provide hydroelectric power, water levels on affected streams changed, forcing the height and length of bridges to be altered accordingly. Power companies generally handled effects to bridges in similar ways from county to county. Often, the power company paid the county a lump sum for damages assessed, and the county rebuilt its road system as it saw fit. Or, the power company paid the counties a specific amount of money targeted for each bridge. After paying damages, the power company's involvement ceased except in rare cases where the counties were able to transfer liability and maintenance for the bridge in perpetuity to the power company. One example is the Rock Island Bridge in Warren County (#112, 89-04261-11.60). The Tennessee Electric Power Company maintained a bridge at this site from the 1910s until the 1930s when TVA purchased the power company. TVA was responsible for the bridge until the state designated the road containing the bridge a state route about 1982 when the state assumed responsibility.

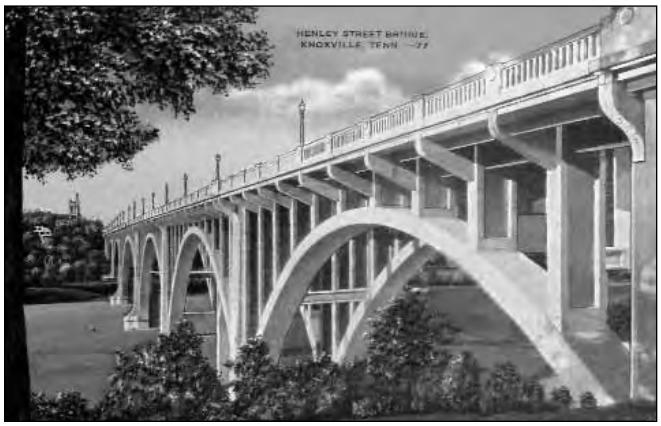


Figure II-16: Historic Postcard View of the Henley Street Bridge spanning the Tennessee River in Knoxville, Knox County (#132, 47-SR033-06.72) (Author's Collection).

One example from the pre-TVA period is the Bird's Mill Bridge on the Cocke-Greene County line spanning the Nolichucky River. In 1924 the Tennessee Eastern Electric Corporation raised a dam at a hydroelectric plant in Cocke County that resulted in the need to replace the Bird's Mill Bridge. The power company paid the counties damages, and the counties jointly funded a new bridge, which is a four span concrete arch (#113, 30-A0909-00.21). Greene County relocated the existing truss bridge to Easterly Ford (30-A0894-01.09). Also in 1924, the Tennessee Electric Power Company raised the Rock Island Dam in Warren County. At the dam, the power company removed the old bridge and built a new truss bridge (#112, 89-04261-11.60). As a result of the same project, the power company, in adjoining Van Buren County, raised the 1908 Double Bridge spanning Cane Creek and added a Warren pony truss to the original Pratt through truss span (#61, 88-NonHighway-1).

After its creation in 1933, TVA became the primary provider of hydroelectric services in Tennessee. TVA continued the same basic compensation policy for damages in its dealings with various municipalities and the state. However, a fundamental difference between the pre-TVA hydroelectric providers and TVA was that TVA took responsibility for restoring route continuity. TVA had its own design department that prepared plans for many of the road and bridge projects associated with its impoundment projects. Consequently, TVA often rebuilt the roads and bridges itself before turning them over to the municipality or state.

Railroad bridges sometimes played an indirect role in the development of vehicular road systems. Since railroads erected bridges intended to carry rail traffic, which was considerably heavier than vehicular traffic, they were often sufficiently sound for vehicular traffic long after they were no longer adequate as railroad bridges. Consequently, the railroads would often sell or transfer these surplus bridges to counties, either as an individual span or the entire railroad route in situ. For instance, the Nashville, Chattanooga, and St. Louis Railroad bypassed the Old Pinnacle Road Bridge in Cheatham County (#32, 11-01931-00.45) in 1922 due to a slight shift in the railroad's alignment. The county purchased the bridge and converted it to vehicular use. In Lincoln County, in 1929, the same railway abandoned a stretch of the old Decatur, Chesapeake and New Orleans Railroad that dated from 1889. This stretch with several bridges including the Coldwater Bridge (#18, 52-SR274-06.82) became a county road known

Figure II-17: Historic Postcard of the Clinch River Bridge on State Route 33. TVA built this bridge as part of the Norris Dam project in the 1930s (#140, 87-SR033-15.83) (Author's Collection).

Figure II-18: Historic Postcard view of the Bible Bridge in Greene County, now the focal point of a small county park, (#109, 30-A0906-00.01) (Author's Collection).

as Old Railroad Bed Road. In Carter County the Tweetsie Railroad abandoned part of its line in 1950. The county converted a portion of this route that contained an 1889 truss bridge (#15, 10-A0634-01.93) into a county road in 1967. Still another example is the old Duck River Narrow Gauge Railroad, which the Nashville, Chattanooga, and St. Louis Railway abandoned in 1945, which contained a 1912 through Warren truss (60-A0191-07.19). Maury County purchased this bridge for $1525 and converted the old line into a county road. Another example is the Oneida and Western Railroad in Scott County. The railroad built its line in 1914 and used several "second-hand" bridges including a Whipple truss (#11, 76-A0040-08.03). After the railroad abandoned the line in 1954, the county acquired it in 1956 and converted it to a local road. The road and bridge are now part of a trail system within the Big South Fork National Recreation Area.

Private citizens occasionally built bridges in Tennessee. These bridges often became a part of the county road system at a later date. An interesting example is the Stonewall Bridge in Smith County (#57, 80-NonHighway-3) that the Caney Fork Bridge Company, a privately formed subscription company headed by local property owners, erected. These local farmers hired a bridge company to erect it and operated it as a toll bridge until they sold it to the county for $12,000 in 1927. Another example in Smith County is the Carthage Bridge that two private citizens built in 1907-1908. Toll fees included the following: pedestrian 5¢, rider on horse 10¢, buggy and rider 15¢, and a wagon and team with driver 25¢. However, such enterprises were rare.

A more common form of private construction involved building small bridges for personal use. A few were for use on private driveways or roads, for example, a bridge on the main driveway into the Belle Meade Mansion property in Nashville (#33, 19-NonHighway-9). Another example is the Parks Covered Bridge near Trimble in Obion County (#67, 66-NonHighway-1) that the W. E. Parks family built in 1912 for use on their farm. This bridge is still in use on a farm road. Another example is the Bible Bridge in Greene County (#108, 30-A0906-00.01). The E.A. Bible family built this covered Queenpost truss bridge in 1923 for use on their farm. In 1940 the county court paid the Bibles $750, and the farm road with the bridge became a county road.

DEVELOPMENT OF THE GOOD ROADS MOVEMENT AND HIGHWAY ASSOCIATIONS

From the 1850s through the 1870s, the country placed little emphasis on developing a system or network of roads, in part, due to the emphasis that had been placed on the construction of railroads. This was especially true in the South during Reconstruction. Generally, by the late nineteenth century, the country's roads were in poor condition. Also, since so much emphasis had been placed on railroads as a major means of overland transportation for long distances, there were few cohesive road networks maintained in good condition. By the late 1800s, therefore, the timing was right for the emergence of a national movement that focused on the improvement of road conditions, first at a local level and later in a national program of transportation corridors. This effort, the Good Roads Movement, spanned the 1880 to 1925 period. As the most significant development affecting highway and bridge construction in the late 1800s and early 1900s, the Good Road Movement laid the groundwork that determined the future of road development in the twentieth century.

The origins of the Good Roads Movement had its roots in the growing popularity of the bicycle in the late nineteenth century. The establishment of the League of American Wheelmen, a bicycling organization formed in May 1880, is often viewed as the beginning of the Good Roads Movement. The League "did more than any other to foster good roads in the United States during the late nineteenth century" (Preston 1991:12). This organization promoted several programs beneficial to cyclists that included a program to draw attention to the country's poorly maintained and underdeveloped roads and the need for improvements. Early efforts of this and other Good Road proponents during this early period focused on education. For example, the League of American Wheelmen published the Good Roads Magazine as its official publication. Begun in 1891, this publication had a circulation of one million by 1894. Between 1880 and 1896 the League spent nearly $100,000 to publish and distribute periodicals and pamphlets promoting improved roads (Hilles 1958:32). However, this organization was largely based in New England. Only 2.3 percent of its membership in 1897 was from the South, and it rarely sponsored tours south of Pennsylvania (Preston 1991:12). Bicycling remained extremely popular through the 1880s and 1890s until the automobile and, to a lesser degree, the airplane eclipsed it as an American past time. Bicyclists were strong advocates for better roads, but many people viewed them with suspicion as a special interest group. As a result, their efforts were only partially successful, but they continued to work through and with other groups to achieve the goal of improved roads.

Efforts such as these led to a renewed interest in road improvements in Tennessee. In 1889 the state legislature designated a system of public roads. The next year, a group of citizens in Nashville formed the Highway Reform Committee and arranged a State Road Congress that met in Nashville in August 1890. This group drafted legislation and presented it to the Tennessee State Legislature, which in 1891 passed the Tennessee Road Law (Tennessee 1959:14). Its overall purpose was to regulate roadwork and to compile into one act, all of the laws pertaining to this issue.

In 1892 individuals formed the National League for Good Roads. This organization differed from the League of American Wheelmen in at least two key areas. First, this group represented a diverse membership and was not perceived as a single special interest group. Second, its sole focus was on road improvements, unlike the Wheelmen that worked on many issues related to bicycling. Enthusiasts held the first Good Roads Convention in Washington,

D.C. in 1893. (The group held its national convention in Nashville in 1897 to coincide with the Tennessee Centennial Exposition.)

Although some people had expressed an interest in having a new independent federal highway department established in the early 1880s (Hilles 1958:46), this effort was not successful until 1893. The formation of the National League for Good Roads in 1892 and its Good Roads Convention in 1893 led to the creation in 1893 of the federal Office of Road Inquiry, forerunner of the Bureau of Public Roads that the government formed in 1919. Rather than being an independent agency, the Office of Road Inquiry was located within the Department of Agriculture, somewhat an indication of the agency's perceived unimportance but also as a reflection of the role of farm groups in the early development of the Good Roads Movement. From 1893 to 1912, this agency primarily focused on research that included building short post-road segments to test various road materials and construction methods (Macpherson 1969:197). Another indication of its status is its very limited funding. Its annual allocation was $10,000 between 1893 and 1897, $8,000 between 1898 and 1900, $14,000 in fiscal year 1900-1901, $20,000 in 1902-1903, and $35,000 in 1904 (Hilles 1958:59-62).

The federal government's implementation of the Rural Free Delivery program of United States Mail in 1896 was another factor that drew attention to the poor condition of roads and provided a strong impetus for improved roads. In 1893, Congress appropriated money for an experimental program of rural mail delivery. A few years later the Post Office Department stipulated it would deliver mail only along reasonably good roads and only if the roads were in fit condition for travel. Critics of federal funding of road construction could not raise the issue of the constitutionality of federal involvement since the constitution mandated federal

What's in a name?

The official federal "highway department" has functioned under a variety of names within several agencies:

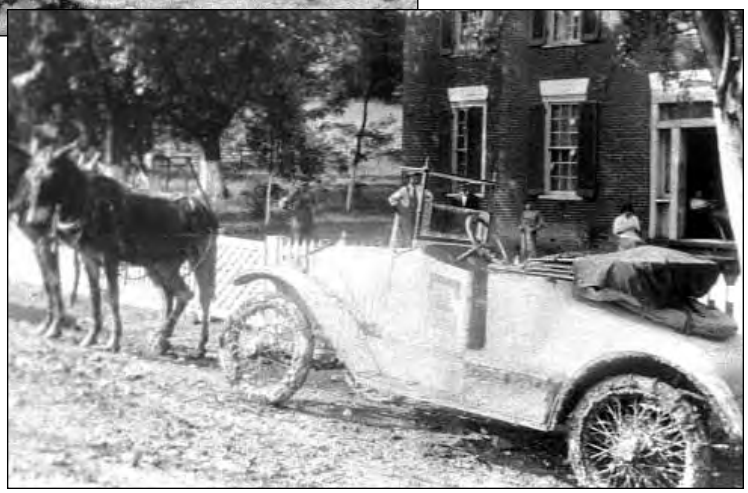
In the: Department of Agriculture
1893-1898 Office of Road Inquiry
1899-1905 Office of Public Road Inquiries
1905-1915 Office of Public Roads
1915-1918 Office of Public Roads and Rural Engineering
1918-1939 Bureau of Public Roads

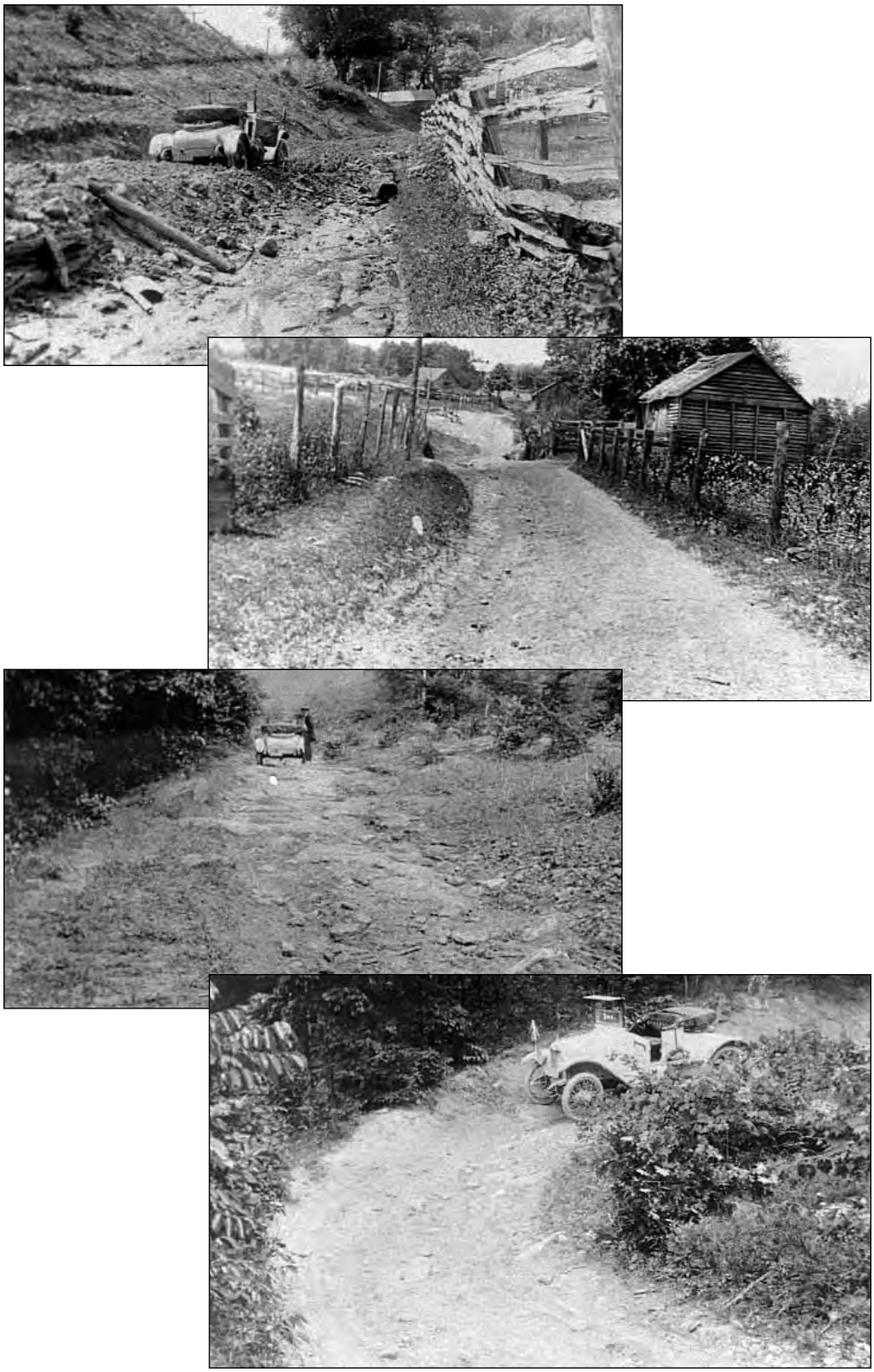
Federal Works Agency
1939-1949 Public Roads Administration (The FWA also included the Public Buildings Administration, the U.S. Housing Authority, the Public Works Administration, and the Work Projects Administration.)

Department of Commerce
1949-1967 Bureau of Public Roads

Department of Transportation
1967-1970 as the Bureau of Public Roads under the Federal Highway Administration until the Federal Highway Administration absorbed its functions
1970 to present Federal Highway Administration

Figure II-19: Photographs of rural roads in the 1910s. All photographs are from the Chattanooga Automobile Club Collection (Courtesy Chattanooga Hamilton County Bicentennial Library).





delivery of the mail. However, it still left the larger issue of the constitutionality of general road construction unresolved. The 1907 Supreme Court decision in *Wilson vs. Shaw*, which unanimously declared that the power to construct national highways was essential to the regulation of interstate commerce, a power allocated to the federal government under the Constitution, partially allayed these concerns (Hilles 1958:172).

Interested citizens formed the National Good Roads Association in 1900, the American Automobile Association in 1902, and the American Road Makers in 1902 that was reorganized as the American Road Builders Association in 1910. (The Tennessee Road Builders Association was formed in 1928 as an association of contractors.) The American Automobile Association was one of the most influential of these organizations, and in 1909 it began publication of the American Motorist, the movement's first national publication that addressed automobile concerns (Hilles 1958:97). The only national good roads association based in the South was the United States Good Roads Association that was formed in 1913 as an outgrowth of the Alabama Good Roads Association (Preston 1991:69, 76-77, 84). The *Dixie Manufacturer* was the primary booster publication in the South (Preston 1991:79). Specialized business interests formed other organizations in the early 1900s that also supported the movement. These business interests included the American Concrete Institute, the Association of American Portland Cement Manufacturers, the National Association of Sand and Gravel Producers, and the National Paving Brick Manufacturers Association (Hilles 1958:101).

Initially, many farmers opposed the Good Roads Movement because they felt that they would be forced to pay for roads that would primarily benefit urban residents such as bicyclists or pleasure drivers (Hilles 1958:30). However, farmers soon became some of the strongest supporters of the Good Roads Movement, and by the 1910s, the motto for the movement to secure federal funding for a road system was "Get the farmer out of the mud." Rural support was partly due to the improved post road program that showed farmers that good roads could be beneficial in getting their products to markets. Farmers' groups also saw improved roads as a possible alternative to shipping goods by rail and lobbied for "farm-to-market" roads. Prior to the automobile age, "the one group that stood to gain the most from good roads was farmers" (Preston 1991:14). At the same time, railroad companies supported the movement because they felt that better roads would result in more farmers being able to get their goods to railroads for long-distance shipping, i.e., "farm-to-depot" roads.

Various rail lines with assistance from groups such as the Office of Road Inquiry and the National Good Roads Association began sending "Good Road Trains" across the country in 1901. The trains carried modern equipment and officials to promote improved roads. When local officials were willing to supply construction materials, the trains stopped to build segments of improved roads with state-of-the-art road building equipment. These officials often used different types of pavement or variations in the projects to experiment with road building practices. The underlying premise of these roads was the belief that "seeing is believing" and the difference between the newly paved segment and the unimproved remainder would so impress the traveler that he would become convinced of the need for better roads. Typically, one to two thousand people came to watch these demonstrations in road construction (Hilles 1958:58).

In the Southeast, the Southern Railway Company sponsored the 1901 Good Roads. It traveled over four thousand miles in the states of Virginia, North Carolina, South Carolina, Georgia, Alabama, and Tennessee. During this tour, the officials built eighteen object lesson roads and

organized several local good roads associations. Officials on this tour built object lesson roadways at Greeneville, Chattanooga, Johnson City, and Jackson.

Of historical interest during this early Good Roads period is Sam Lancaster of Jackson. Born in Mississippi, his family moved to Jackson when he was a child. There he studied engineering at Union University until his father's death ended his formal education. He then went to work for the Illinois Central Railroad as a construction engineer. In 1888, the Illinois Central Railroad had provided Jackson leaders, and others, a free trip on its rail line to view improved road and sewer systems in other cities. As noted elsewhere, railroads were a leading component of the Good Roads movement and viewed good local roads and local prosperity as a means to bolster their own economic stability. Following this, in 1889, the city of Jackson hired Lancaster as the city engineer. Lancaster installed sewer, water and light systems, paved streets, and parks. However, the most far-reaching project was to replace muddy roads with a half-million-dollar model system of hard-surfaced roads in and around Jackson, which he implemented in 1903. The following year, Lancaster wrote an article about this project that was published in the Department of Agriculture's *Yearbook*, then the national department in charge of roads. This article enhanced Lancaster's career, pushing him onto the national stage. Tennessee's loss was the nation's gain: the Secretary of Agriculture James Wilson soon appointed him a consulting engineer with his office and sent him on a nationwide tour extolling the virtues of good roads. Lancaster soon left to work in the northwest, where he was the engineer for the Columbia River Highway, an extraordinary road system that was considered one of the greatest engineering feats of that era and now designated as a National Historic Landmark. For that project, Lancaster functioned as not only the engineer but also as a landscape architect, carefully developing a road system compatible with the existing idyllic setting. As one historian has noted, "Lancaster's single most important lifetime accomplishment — his master lifework — remained the Historic Columbia River Highway" (Hadlow 2000).

Between 1905 and 1910 officials with the Good Roads program built more segments in Jackson, Dyersburg, Greeneville, Knoxville, Winchester, and Cumberland Gap (Johnson 1978b:28-29). In 1912 the Office of Road Inquiry sponsored its own good roads train which, due to financial limitations, was the first time that it had taken a major role in these traveling exhibits (Hilles 1958:128). A by-product of these traveling demonstrations was the establishment of good roads associations in numerous communities. In November 1901 supporters formed the East Tennessee Good Roads Association in Greeneville and the Chattanooga District Good Roads Association. By 1912 thirteen Good Road Associations existed in Tennessee (Preston 1991:26-28).

An example of one of the Office of Road Inquiry's object lesson roads in Tennessee is the Tri-State Road project at Cumberland Gap in Claiborne County that was largely built as a result of the interest of citizens in Middlesboro, Kentucky. Community leaders from the Middlesboro area went to Washington, D.C. and requested that a section of the old Wilderness Road from Cumberland Gap in Tennessee to Middlesboro be included in the object lesson road program. Locally known as the "Devil's Stairway," this route over the mountain was extremely rugged as well as a favorite place for robbers to prey on travelers. For a short period in the 1890s, the conditions had been so bad that lone travelers had refused to use the Gap road and instead used a nearby railroad tunnel (Kincaid 1947:27-32). Two engineers with the Office of Public Roads visited Cumberland Gap in 1907 and approved the inclusion of this road section as an object-lesson road. The route chosen began in Tennessee, passed through Virginia, and

ended in Kentucky. Construction on the two-mile long, fourteen-foot wide macadam road began in July 1907. The $15,285 cost was split by Claiborne County, Tennessee ($1,130); Bell County, Kentucky ($6,315); Lee County, Virginia ($5,045); and the city of Middlesboro ($2,795) (Kincaid 1947:349-351). Upon the road's completion, local citizens held elaborate ceremonies in the pass on 3 October 1908. The Cumberland Gap Road was one of only eight object-lesson roads completed in 1908 when only 680 miles of paved road existed in the United States (Kincaid 1947:352). This road later became part of the Dixie Highway and, still later, U.S. 25E. In recent years, the National Park Service has built a tunnel on a different alignment and plans to eradicate this old roadway and recreate the 1700s Gap passage.

Though it failed to pass, Representative Walter Brownlow of Tennessee introduced in Congress in 1902 the first specific proposal for a federally supported highway program. Over the following years, other members of Congress introduced numerous bills. For instance, during the Fifty-ninth Congress (1905-1907), members of Congress introduced twenty-three bills that proposed either a national road commission or proposed direct federal highway appropriations (Hilles 1958:172). Tennessee's Kenneth McKellar, an influential politician who served as a U.S. Representative from 1912 to 1917 and as a Senator from 1917 to 1953, was deeply involved in the movement for a federal road system. McKellar introduced road proposals of his own as well as serving on several committees evaluating such proposals. Later, Congressman McKellar played a pivotal role in the passage of the Federal-Aid Highway Act of 1916 (Bridges 1973:66-69). Senator McKellar often told an anecdote that he felt proved his point that the federal government needed to pay for a national road network. It is also very revealing about standard road conditions of the period in Tennessee. In the summer of 1911, Kenneth McKellar, then a young lawyer, purchased a new car and with several friends began a trip from Memphis to Washington. Road conditions were so horrible that they never even reached the county line. They returned to Memphis and traveled to Washington by train (Pope 1976:47).

Another story from the same era that illustrates typical road conditions concerns the efforts of R. H. "Pathfinder" Johnson. Between 1908 and 1910 he traveled in the South in order to gain material for his *1910 Blue Book*, the first automobile guide for travel between the North and the South. Many of the areas he traveled, including those in Tennessee, were unmapped and he used Civil War records to determine routes. Johnson claimed that south of Nashville he asked some two hundred people how to get to Chattanooga, which led him to conclude that it was "a place nature had attempted to hide from the rest of the world." However, he unhesitatingly recommended the excursion to "all tourists who have good sturdy touring cars" (Preston 1991:100-101).

Although Congress did not pass a sweeping federal act until 1916, the federal government participated in road construction through smaller projects such as the above mentioned object lesson roads. The federal government undertook another program in 1912 when it ordered the Post Office to cooperate with the Department of Agriculture to develop postal roads and in 1913 appropriated $500,000 for improvements to post roads. Failing to get states to serve as co-sponsors, these agencies worked with individual counties on experimental programs from about 1912 until 1918. The Federal-aid program of 1916 eventually supplanted this post road program, the first of its type (Armstrong 1976:75-76).

These efforts reflected a general renewal of interest in good roads and undoubtedly produced results at a local level leading to improvements to both roads and bridges. For instance,

Figure II-20: Historic Postcard of the Cherokee Tourist Camp in Chattanooga: Note the large group touring together. The increasing number of motorists also required roadside facilities. This camp contained hot showers, rest rooms, a grocery store, lunch room, a campground, and furnished cottages (Author's Collection).

Dickson County approved a $100,000 bond issue for better roads in 1910, formed the Dickson County Good Roads Association in January 1911, built twenty miles of a sample "good road" in 1911, and approved a $250,000 road bond issue in 1913 (*Dickson County Herald* 8 April 1910, 13 January 1911, 27 January 1911, 8 August 1913). The message of DeKalb County Court Judge J. E. Drake, who successfully petitioned the county court in his yearly "State of the County" address in 1908 to levy a ten cent bridge tax to improve roads in the county, is typical of the sentiment found in many counties during this period:

> Under section of Code 1707 the Quarterly Court has power to build bridges and turnpikes by appropriating county funds for the payment of the same. We need good roads and bridges in our county and the time now is when the county should awaken to its duty along this line of business and begin to make appropriations for these purposes, thereby giving our citizens means of marketing the products of their farms at any time in the year (DeKalb County Court Minutes Volume I:183).

However, the most important impact on the need for new roads and bridges was the development of the automobile. The automobile first appeared in the early 1890s, and after Henry Ford refined the technique of mass production in the early 1900s, the automobile evolved from being primarily a play-thing for the rich into a necessity and way of life for most people. In 1895 only four motor vehicles were registered in the country but by 1900 the figure had jumped to 8,000; by 1910 to 468,000; by 1920 to 8 million; and by 1930 to 23 million (Fricker 1989:7; Liebs 1985:20). A parallel increase in the registration of motor vehicles can be seen in Tennessee: 40 registered in 1900; almost 15,000 registered in 1913; and a dramatic jump to 102,000 registered in 1920 (Holmes 1987a:69).

Corresponding to this increase in automobiles was an increase in Tennessee in road and bridge work beginning in the 1910s. Along with this increase came a growing emphasis on transportation corridors rather than concentrating on isolated projects. One such proposed highway corridor was a road that would span the width of the state from Memphis in the southwest corner of the state to Bristol in the northeast corner, a distance of over 500 miles. Talk about such a road corridor dated to at least 1830 when the state legislature discussed a

Figure II-21: 1911 Map of Memphis to Bristol Highway (Courtesy of Tennessee State Library and Archives, Map #2217).

macadam turnpike from the Virginia line to the Mississippi River (Volunteer 1929:13). Sufficient funding was never available, and the state never implemented a cohesive plan. Few efforts were made in the nineteenth century to build such a road, since road building was primarily based on internal county politics without an overall linkage plan. However, in about 1910, interested citizens formed the Memphis to Bristol Highway Association. This group appointed a commission to travel across the state and recommend a route (Keith 1990:152; Tennessee 1959:21).

In 1911 by Wilson, Ingram and Company, which sold road building equipment, produced an advertising promotional brochure that contained this map. The State Highway Department built this long proposed road between 1915 and 1930, designating it State Route 1. The route shown on this map is basically the one built except in upper east Tennessee where State Route 1 went through Hawkins County to Bristol rather than through Greene and Washington Counties as shown on this map (Tennessee State Library and Archives #2217).

The state made no overall financial commitment to the project, but in 1912 Governor Ben Hooper encouraged individual counties to issue bonds to finance the road. In the same year the Office of Road Inquiry sent an engineer to Nashville to provide survey and planning services to the state, reputedly the first time the federal government provided such assistance to a state. In 1913 the Tennessee Legislature passed a general enabling act intended to facilitate the construction of the Memphis to Bristol Highway on a county-by-county basis. This legislation authorized counties through their county or quarterly courts to issue bonds for highway construction subject to a favorable vote by the residents of the county (Johnson 1978b:30-31). However, the county approach was not effective, and it was not until the state highway department undertook the project that the road was completed about 1930.

Although the 1913 act did not result in a concerted effort to build the Memphis to Bristol Highway, it did have a significant effect on localized road building across the state. At least two dozen counties submitted proposals for bond issues that the state legislature approved in its 1915 session. Most of these counties planned general road building projects that ranged in cost

from $100,000 to $800,000. Although not specifically mentioned, these bond issues often funded the construction of bridges as well as roads. For instance, Unicoi County passed a $100,000 bond issue for a network of county roads (Pratt 1960:46). One of the bridges erected in Unicoi County as part of this program was the 1916 Chestoa Bridge (#89, 86-A0068-00.89). However, it should be noted that in many parts of the state, such as the Upper Cumberland region, voters repeatedly rejected bond issues for road improvements, symptomatic of the failure of the Progressive Movement in many rural areas (Keith 1990:157-163).

Only five counties passed bond issues specifically for bridges. Davidson, Hamilton, Hawkins and Roane Counties each passed a bond issue for a single bridge. These bridges were, respectively, Hyde's Ferry Bridge over the Cumberland River in Nashville, the Market Street Bridge over the Tennessee River in Chattanooga (#85, 33-SR008-09.53), the Chisolm Ford Bridge over the Holston River near Rogersville, and the Emory River Bridge in Harriman (#86, 73-01226-00.50). Anderson County developed a program to build four bridges to replace ferries at Clinton, at the Moore's Ferry, at the Edgemoor Ferry, and at the Massingill Ferry (#87, 01-A0088-03.53).

To a certain extent, this 1913-1916 bond issue for road and bridge programs was the last independent major action by individual county governments to direct local bridge building. After providing bridges at most or all key ferry crossings, many counties were substantially in debt. Also, in response to a shortage of materials caused by World War I, some county courts in 1917 or 1918 voted not to build any additional bridges until the war was over (Franklin County Court Minutes Volume S:416; Warren County Court Minutes Volume V-4:333). By the time these problems had been resolved, the Tennessee State Highway Department, which the state legislature had established in 1915, had assumed the direction of future major transportation routes. The state, with funding and guidance provided through the Federal-Aid Act of 1916, gradually assumed control over more and more major stream crossings while the counties continued to maintain and build secondary bridges.

The Good Roads Movement culminated in the passage of the Federal-Aid Act of 1916, an event often seen as the end of the movement. However, debates about road issues continued.

Figure II-22: The "Million Dollar Bridge" was a subtle reminder of the cost overruns on this bridge, an issue that played a pivotal role in the defeat of Judge Will Cummings in the next election (Author's Collection).

Various groups associated with the movement remained in existence, evolving as the issues surrounding better roads changed. Some of the organizations, such as the American Automobile Association, formed in 1902, continue to exist today. In Tennessee, interested citizens formed the Tennessee Automobile Association in 1919 and the Tennessee Good Roads Association in January 1922 whose motto was "Help Pull Tennessee Out of the Mud" (Keith 1995:189). It appears that the primary focus of the organization was a state route system that would connect county seats (*Tennessee Highways* March 1924:1). The primary publication in Tennessee associated with this movement was the quarterly magazine *Tennessee Highways* that the Department of Highways published, beginning in 1921. In 1924 the state changed the name to *Tennessee Highways and Public Works*. For a brief period in 1924, the Tennessee Good Roads Association published the magazine monthly. The Tennessee Road Builder's Association published the *Tennessee Road Builder Magazine* from 1928 to 1940.

Women's groups were active in a variety of Progressive reform movements of the 1910s and 1920s, and the Good Roads Movement was no exception. Several state-wide women's organizations endorsed the Tennessee Good Roads Association, which formed a Women's Division that by 1924 had a chapter in all but a few remote counties. The Women's Division extolled the social and moral benefits of good roads. It sponsored luncheons about bond issues to fund the state highway system in 1923 in Nashville and Knoxville where respectively 550 and 400 women attended. These local groups lobbied for support at county court meetings, entered parades, sponsored essay contests in the school systems, and even had "Good Road" booths at fairs (Keith 1995:189; *Tennessee Highways* March 1924:9).

This gender segregation is an interesting component of the Good Roads Movement. Although there are many images in print of the Flapper in her convertible and many automobile sales promotions included women, driving "in the 1920s, must thus be seen as a male-dominated activity, just as access to motorcars and ability to drive them appear to have been the privileges of a minority of women" (Scharff 1991:117). Various automobile clubs and highway associations refused membership to women or severely reduced their benefits as members (Scharff 1991:70; Dixie Highway Association Minutes [Dixie Minutes] 1916:31). However, women actively participated in the Good Roads Movement, in part, because they viewed better access to schools as a component of education reform, another cornerstone of the Progressive movement. A leader in the Good Roads Movement in Tennessee was Josephine Anderson Pearson from Gallatin who was an ardent opponent of women's suffrage and served as president from 1916 to 1920 of the Tennessee State Association Opposed to Woman's Suffrage and as president in 1920 of the Southern Woman's League for the Rejection of the Susan B. Anthony Amendment (Pearson Collection 1868-1944). Yet, Pearson was strongly committed to good roads as a means to free women "from isolation and mud! We women are worse than slaves, considering everything that the negroes were before the Civil War--slaves to the indifference of their men-folks" (Preston 1991:17).

Supporters of the Good Roads Movement agreed on the principles of road improvements and federal funding. However, in the early twentieth century, the movement splintered into two groups over the issue of what type of roads to build, namely, localized farm-to-market roads or interconnecting highway corridors such as transcontinental or interstate routes.

Farm and railroad interests tended to support localized farm to market (or "farm-to-depot") roads in the form of a network of local roads that provided access from all points of the county to the county seat or to railroad stations. As a result, they became the most vocal

opponents of transcontinental or interstate routes whose supporters focused on one high quality road through an area that connected to other towns, for instance, a linkage from county seat to county seat through states. In 1910, railroad interests organized the American Association for Highway Improvement, also known as the American Highway Association, in large part to support local road construction and to oppose transcontinental roads. However, many groups with diverse interests joined this organization, and it later supported road improvements in general (Hilles 1958:131-132).

Several members of Congress, led by Representative Dorsey W. Shackleford of Missouri, who was Chairman of the House Committee on Roads, supported the development of local road networks and opposed interstate routes. Shackleford characterized the argument as an economic or class difference pitting the rich touring class against the working class. He also argued that long distance roads were a poor economic investment since it was "an idle dream to imagine that auto trucks and automobiles will take the place of railways in the long distance movement of freight or passengers" (Hilles 1958:109). Although the idea of long-distance transportation systems would come to dominate the federal government's road program beginning with the Federal-Aid Highway Act of 1921, the initial Federal-Aid Act of 1916, co-sponsored by Shackleford, supported farm-to-market roads.

As early as 1892, supporters of the Good Roads Movement had advanced transcontinental routes, but there was little support for this concept until the turn of the century. Representative Burke Cochran of New York introduced the first congressional bill requesting federal funding for the construction of a transcontinental highway in 1908. A similar bill was introduced in 1911 (Hilles 1958:107). This shift in emphasis about 1908 was due in large part to the accessibility of automobiles which for the first time made longer trips possible for larger numbers of people (Preston 1991:38).

It should be no surprise that the original proponents of transcontinental routes tended to be people involved directly or indirectly in the automobile industry such as automobile manufacturers or companies that produced materials for automobiles. Perhaps less obviously, it also included hotel and restaurant owners who benefited from tourism, and the tourism industry formed the core of many of these transcontinental associations. The tourism industry promoted better roads to increase the number of their clients, and the automobile associations promoted the development of tourist sites as a way to increase the number of motorists and thus the need for better roads. The tourism industry and the highway associations enjoyed a somewhat symbiotic relationship, and the histories of these two movements are closely linked. By the late 1920s, when many of the transcontinental routes had been completed, a "booster" publication for east Tennessee made this statement concerning the relationship of the two:

> The tourist industry is now the largest industry in America, with a 'payroll' of three and half billion dollars this year, this payroll being the money spent by tourists. The 'plant' of this industry is the national systems of hard surfaced highways (*Appalachian Journal* September 1928:2).

Urban areas provided leadership and money to support these routes. Active automobile clubs existed in Nashville, Memphis, Chattanooga, and Knoxville as well as state-wide groups such as the Memphis to Bristol, Dixie and Lee highway associations. At first these groups often tended to be composed of the affluent members of the community and "resembled social registers" of the towns (Johnson 1987b:29-30).

Figure II-23: Historic Postcard, Sunrise Auto Club on Harding Road in Nashville (Author's Collection).

The American Automobile Association was a strong promoter of the transcontinental routes. During the 1910s, as automobiles became a part of the lives of the middle class rather than just the rich, increasingly, people began to support longer and more cohesive networks of roads such as transcontinental routes. Eventually, in the South, the Good Roads Movement, which had begun as a movement in support of local farm-to-market roads, became a movement that focused primarily on long-distance highways such as the transcontinental routes (Preston 1991:41). By the mid-1920s, there were twelve widely known interstate highways into the South with the two most traveled being the Bankhead Highway through the coastal states and the Dixie Highway along a more mid-western route that included Tennessee. These routes "opened the region for the first time to the outside world" and gave the South "the accessibility it never before had" (Preston 1991:109).

> In the five decades between the end of the Civil War and the beginning of World War I, the numerous writers, artists, and illustrators who depicted Florida as a recreational haven did not directly change it or the South. What did bring about change was the actual throng of automobile tourists attracted by the region's greater accessibility, which highway progressivism had made possible. As motorists drove through the South on their way to Florida, their annual assault on paradise also had a lasting and revolutionary cultural impact on the region

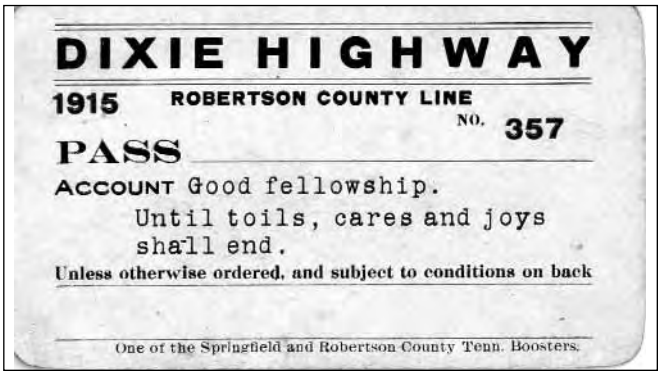


Figure II-24: A booster tool to promote better roads, a Dixie Highway "Pass" from Robertson County. The text on the back states, "NOT GOOD for passage on dirt roads. Limited to first class Macadam Pikes, where all steams are bridged and along whose length happy people live and prosperous towns thrive" (Author's Collection).

> and its people. Once southerners found automobile tourism to be of great economic importance, the South lost some of its regional distinctiveness and…began to conform to more national cultural standards (Preston 1991:127).

Local leaders considered these interstate highways a boon to local development, mostly due to the anticipated increase in tourism, and actively sought to have their county selected to be on their routes. Consequently, a plethora of these interstate highway organizations flourished between 1915 and 1925, and by 1926 hundreds such organizations existed (Kolwyck 1976:11).

> The named highway, as a promotional tool if not as a reality, caught the imagination of communities…Communities which were by-passed, or which lay in other regions, were inspired to promote highways of their own. In quick time the American map was crisscrossed in defiance of topography and in response to local interest or local vanity. A Dixie Highway, from the strait at Mackinaw to Miami, made its appearance, with a headquarters, an association, scout cars, and agents (Paxson 1946:241-242).

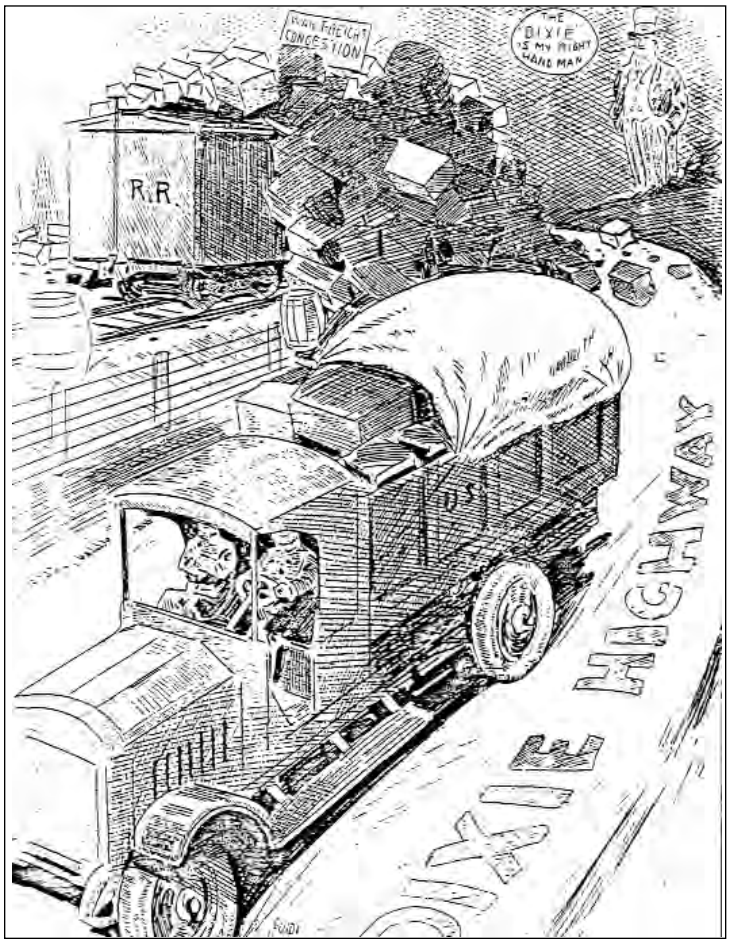


Figure II-25: An illustration from the March 1918 issue of The Dixie Highway magazine, with Uncle Sam commenting that "The 'Dixie' is my right hand man."

Even World War I, during which time many counties ceased road and bridge construction due to shortages in materials, did not prevent the highway associations from promoting their routes. Rather, the associations used the war to illustrate the need for better roads for the transportation of troops and materials throughout the country and stressed that their routes were essential for national defense. For instance in March 1918, the cover of the monthly magazine Dixie Highway graphically stressed that the Dixie Highway was "A National Necessity" and included a full page editorial cartoon showing supply trucks on the Dixie Highway whizzing by stalled railroad cars.

Rather than building a new road on a different alignment, the typical approach was for the highway association to designate which towns would be on the official route and a general route connecting them. If the existing road was not adequate, each county was individually responsible for improving and maintaining the road through its borders. Sometimes the counties had minimal improvement programs, and sometimes the counties sponsored extensive programs that included substantial road and bridge improvements. In the mid-1910s, paving surfaces would have typically been gravel or poor quality asphalt. By the early 1920s, the state highway department had begun to increasingly use concrete, the state's first widely used modern "high-quality" surface treatment on its main roads. During the 1910s, it was more common for the roads to follow the terrain, but by the mid-1920s the state had begun to alter the terrain by using cuts or fill to provide a more level driving surface.

Most of these associations marked their routes with their initials and specifically colored bands on utility poles, trees or even buildings along the roadway. Once the association designated the route, each county was individually responsible for improving that road. If the counties did not provide a road, that met certain standards by a certain date, the association would often reroute the trail. Sometimes the counties built new bridges as part of their highway improvement program, but they often simply retained existing structures. The counties and associations extensively lobbied state highway departments to include their routes on the state's system in order to acquire funds to finish the highways. Consequently, the histories of the highway associations and state highway departments tend to overlap greatly. Usually, state highway departments finished most of these interstate routes with federal or state funds rather than the counties or associations.

In the late 1910s, the development of these highway corridors encouraged county governments to issue highway bonds to pay for improvements. Prior to this, county bond issues had typically been for single bridges or perhaps for a cluster of bridges after a flood. However, after the passage of the Federal-Aid Act of 1916, which required a local fifty percent match for federal funds, some counties for the first time began to approve large scale bond issues for road systems that often included bridges of varying sizes and types. However, many of these bridges no longer remain. In addition, due to financial constraints, many of the bridges that the highway associations promoted were not built until technically after the associations ceased operation and probably have stronger ties to the development of the state highway system than to the highway associations. An example is the 1927-1929 Marion Memorial Bridge (#129, 58-SR002-21.19) on both the Lee Highway and Dixie Highway spanning the Tennessee River near Jasper on State Route 2/U.S. 41 that replaced the Rankin (or Kelly) Ferry.

It is often difficult to identify the original alignment of the early interstate routes because these designations were somewhat fluid and changed from time to time. The problem is compounded because few detailed maps from the 1910s exist. Beginning in the late 1910s as

Figure II- 26: Historic Postcard view of "Scene on Dixie Highway southeast of Shelbyville." A pony truss bridge is barely visible in the background (Author's Collection).

the state highway departments assumed more and more responsibility for the road networks, maps generally labeled roads only with their state route, and after 1925, U.S. route designations. As state highway departments in the late 1910s and early 1920s began to develop state highway systems and to improve those roads, the states often designated interstate highway corridors as part of the state system and they evolved into primary transportation routes. Consequently, the states repeatedly upgraded and widened these facilities, eliminating many original paving surfaces and bridges. Later improvements to the U.S. routes and state highways on other sections, such as bypasses or projects to straighten the roads, have even further hidden the original routes. By the late 1920s state highway departments had completed large road programs and had apparently already bypassed large stretches of the original routes. For instance, the state designated much, but far from all, of the Western Division of the Dixie Highway as U.S. 31W or U.S. 41 in the mid-1920s, and many people think of these routes as synonymous, and while some sections do essentially overlap, other sections are substantially different. For instance, U.S. 41 in Bedford and Coffee Counties in Tennessee is twelve to twenty miles east of the Dixie Highway, and in Robertson County U.S. 31 is roughly fifteen miles east of the Dixie Highway.

The best-known of the transcontinental or interstate organizations was the 1912 Lincoln Highway Association. Named for President Lincoln, this group proposed a route between New York and San Francisco through the Midwest. Reputedly, the first two organizations in the South were the National Highway and the Capital Highway associations, which provided rival routes through the eastern Seaboard states (Preston 1991:42-48). The intrastate Memphis to Bristol Highway Association, formed in 1911, was another early organization (Tennessee 1959:21). Though technically not an interstate route, it tied in with other highways and in essence functioned as one segment of an interstate route of that time. This association marked its route with a black "MB" on a white background.

[Various sources give conflicting termini for many named highways. The *Named Highways of the United States*, published by the Travel Bureau of the American Automobile Association in 1956, is the source for most of the termini cited in this report. The markers for these routes and their alignments within Tennessee are primarily based on the National Map *Company's Map of Tennessee* (#1900), the Rand McNally *Special Auto Trails Map of Kentucky and Tennessee* (#1678), and Clason's *Green Guide to Tennessee*, all undated but circa 1920. Unless otherwise

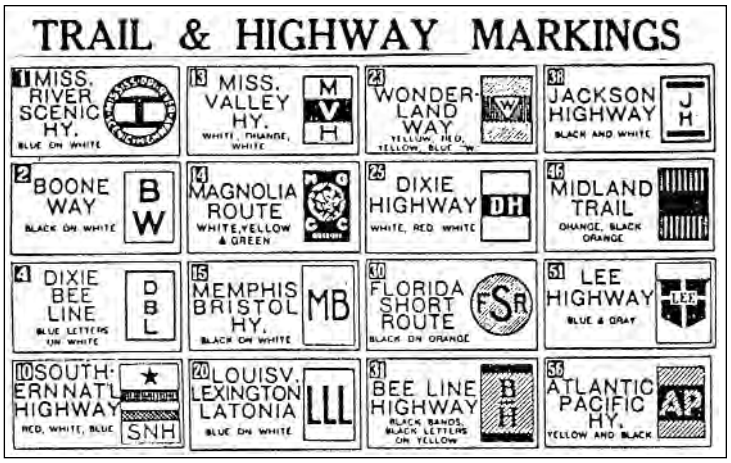


Figure II-27: Trail and highway markings common in the 1910s (Courtesy Tennessee State Library and Archives, Map #1678).

noted, all highway signs are rectangular in shape. Other maps showing routes and designations from the 1920s include Clason's circa 1920 *Mileage Maps of Transcontinental Trails*, the Joint Board on Interstate Highway's 1927 *Map of Tennessee Showing Interstate Routes*, and the Nashville Automobile Club's circa 1920 *Official Souvenir Map Showing Tennessee Division of Southern Appalachian Highways*.]

A large number of interstate highway systems came to exist in the South during this period, a factor that contributed to none of them being completed quickly even though many had overlapping lines. Four of the most publicized of these routes were the Andrew Jackson Highway, the John H. Bankhead National Highway, the Jefferson Davis National Highway, and the Dixie Overland Highway (Preston 1991:61). All of these except for the Dixie Overland Highway passed through Tennessee.

Named for one of Tennessee's three U.S. Presidents, the Andrew Jackson Highway marked its route with a black "J" on top of an "H" on a white background with a black band on the top and bottom. In an age when businessmen controlled most highway organizations, a woman, Miss Alma Rittenberry of Birmingham, Alabama, proposed the route in 1911 to link Chicago and New Orleans. In 1917, Miss Rittenberry resigned in protest when businessmen took over the association, routing the highway between Birmingham and Nashville via Gadsden and Huntsville instead of her route through Decatur. She quickly formed a rival association, originally called the North-South National Bee-Line Highway (Weingroff 2002, From Names to Numbers). The Andrew Jackson Highway extended from Chicago to New Orleans and passed through Sumner, Davidson, Williamson, Maury, and Lawrence Counties on the present day State Route 6/U.S. 41/U.S. 31.

Named for John Hollis Bankhead of Alabama, the Bankhead Highway from San Diego, California, to Washington, D.C., came across the Mississippi River on the 1917 Harahan Bridge (#77, 79-NonHighway-4) and followed Lamar Avenue/U.S. 78 southeast through Shelby County into Mississippi. Bankhead served as a captain during the Civil War. Afterwards, he served in public office until his death in 1920, first in the U.S. House and then in the Senate from 1907 to his death. At age 77, he was the oldest man in the Senate and the Senate's last

survivor of the Civil War. He was a passionate supporter of the Good Roads Movement and sponsored the Federal Aid Road Act of 1916. During his lifetime, the legislation was often called "the Bankhead Bill" and he was called "The Father of Good Roads." Two sons, Sen. John Bankhead Jr. and Rep. William B. Bankhead, had distinguished congressional careers with William serving as Speaker of the House from 1936 until his death in 1940; the actress Tallulah Bankhead was William's daughter.

The Jefferson Davis Highway is unique in that it is perhaps the only transcontinental highway developed and sponsored by a women's group, the United Daughters of the Confederacy (U.D.C.) which had been formed in Nashville in 1894. Mrs. Alexander B. White, a Tennessean and President-General of the U.D.C., proposed the highway as a memorial to the President of the Confederacy in 1913, after hearing of the proposed memorial to President Abraham Lincoln, the Lincoln Highway. The Jefferson Davis Memorial (or National) Highway began in Washington, D.C. at the Potomac River Bridge and extended south and west through Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Texas, Arizona, New Mexico, and California where it terminated in San Diego. [The U.D.C. erected a marker in the Horton Park in San Diego commemorating the western terminus of the highway, but in the 1920s, due to protests from Union veterans, the City removed the marker.] In the 1910s, the U.D.C. approved two official branches of the Jefferson Davis Highway. One branch, approved in 1914, extended from Fairview, Kentucky, his birthplace, through Tennessee to Beauvoir, Mississippi, where Davis lived at the time of his death, a distance of about 1,000 miles. The second branch route was within Georgia, tracing the route through Irwinsvile that ended in his capture in May 1865. In the 1930s, the U.D.C. succeeded in having U.S. 99 along the Pacific Coast designated as the Jefferson Davis Highway, ending at the Canadian border, as a means to commemorate Davis' role as U.S. Secretary of War in the 1850s when he authorized surveys in the Pacific Northwest. The association's standard marker consisted of three bands, six inches wide or red, white, and red, with the letters "J D H" four inches high, placed one below the other in the center of the stripes.

The Jefferson Davis Highway extended through Tennessee for a distance of about 142 miles. It traversed Obion, Dyer, Lauderdale, Tipton, and Shelby Counties along State Route 10 (now State Route 3/U.S. 51 or State Route 211), overlapping the route of the Hoosier Highway, also called the Paducah to Memphis Highway. An annual Road Day in 1916 dedicated to this highway, during which all businesses along the route were requested to close, reflected the keen interest for this highway in West Tennessee. During the event, the Memphis Motor Car Company awarded a loving cup to the group that most improved its section. Also, Memphis hosted a conference of the Jefferson Davis Highway Association in February 1916 (*Dyersburg State Gazette* 27 June 1916a:4).

Unlike many other highway associations, controlled by male businessmen who promoted good roads for economic reasons, commemorating Jefferson Davis was a key feature of this highway association. To that end, the group placed great emphasis on markers and monuments. The U.D.C. erected markers at each state line, typically stone, as well as markers at county lines and periodically along the route such as every ten or every fifty miles. The group had a standard text for many of its state markers. In Tennessee, the U.D.C. erected at least five markers along the highway: a five-foot granite boulder in Whitehaven on the Mississippi state line in 1929; a marker on the Kentucky line in 1930 at Fulton; a bronze marker in 1932 in Memphis; a five-foot granite marble stone at Union City placed in 1935 to hold the bronze marker; and a marker on the south pillar of the Wolf River Bridge in Memphis. In addition the

Figure II-28: Jefferson Davis Highway Marker on the Tennessee-Mississippi state line; originally erected by the United Daughters of the Confederacy in 1929 and reset in 1992.

group worked on many landscaping projects along the highway in Tennessee, and replaced many plantings after the devastating flood of 1937. The Tennessee Division spent the 1930s working on grade separated crossings and to secure the four-laning of the road from Memphis to Millington, which hosted a Naval Air Training Field. The group viewed both as critical safety measures. The U.D.C. also attempted to develop a Jefferson Davis Highway roadside park in Millington for the "Navy men for wiener roasts and picnics" but repeatedly delayed the project due to plans to widen the highway, and it was apparently never built.

The U.D.C. formed a trust fund in 1946 to provide for matters relating to the Jefferson Davis Highway, which seemed to end much of the work, with the exception of erecting an eastern terminus marker which it accomplished, after much congressional in-fighting, in 1947 with assistance from Thomas McDonald, the Director of the Bureau of Public Roads. However, the U.D.C. continued to have state committees who reported at annual conventions well into the 1950s when they were still selling Jefferson Davis Highway booklets, published as early as the 1920s. The committees noted that they needed to maintain "eternal vigilance" to preserve their markers as state highway departments removed them during road projects. Since the creation of the U.S. routing system in 1927 effectively ended most highway associations, the long-term efforts of the U.D.C are somewhat of an anomaly in transcontinental highway history, perhaps reflecting its commemorative focus which set it apart from the businessmen-driven associations (Amero 1998; Cody 1946:355-356; Poppenheim 1925:78-88; Tennessee Division U.D.C.; United Daughters of the Confederacy; Woodbury 1956:282+).

Other interstate routes also passed through Tennessee. One of these is the North-South Magnolia Route that entered Tennessee at Clarksville and then ran south on State Route 13/State Route 48 to Linden and then west on State Route 1 to Decaturville and then south along the general corridor of State Route 69 to its intersection with State Route 15 and then to the Mississippi line along the corridor of State Route 22 by Shiloh National Military Park. This association marked its route with a white, yellow, and green sign containing a magnolia in the center and the letters "M" "G" "C" and "C" in each corner. The 1922-1925 Cunningham Bridge near Clarksville (#108, 63-00973-03.88), the circa 1910 Buffalo River Bridge in Perry County (68-A0302-03.45), the 1921 Poole Lake Bridge in Perry County (68-A0302-03.85), and the 1912-1913 Mt. Olive Bridge in Perry County (68-A0177-01.15) were located along this route. The Dixie Bee Line shared a common alignment with the Magnolia Route through

Indiana and Kentucky but separated at Clarksville and apparently ended at Nashville. This association marked its route with the blue letters "D," "B," and "L" in a vertical line on a white background.

The Bee Line Highway ran from Nashville to Orlando, Florida, through Davidson, Williamson, Maury and Giles Counties on the present day State Route 6/State Route 7/U.S. 31 corridor. This association marked its route with the black letters "B" and "H" in a vertical line on a yellow background with black bands at the top and bottom of the sign. Giles County passed a $175,000 bond issue in 1920 to build this highway through the county. The county paid one-third and the state paid two-thirds of the cost (Giles County Court Minutes Book 6:536-542). As part of this bond issue, the county and state built a truss bridge at Elkton (#111, 28-NonHighway-1).

The Florida Short Route overlapped much of the Dixie Highway in Middle Tennessee before veering off in Shelbyville to proceed south along State Route 42 (now State Route 10/U.S. 231). The Florida Short Route marked its route with the black letters "FSR" within an orange circle. The Southern National Highway overlapped the route of the Memphis to Bristol Highway from Memphis to Knoxville on State Route 1 and then proceeded eastward on the Carolina route of the Dixie Highway, present day State Route 9. This entire route is now U.S. 70/U.S. 70S. This association marked its route with a red, white, and blue sign that contained

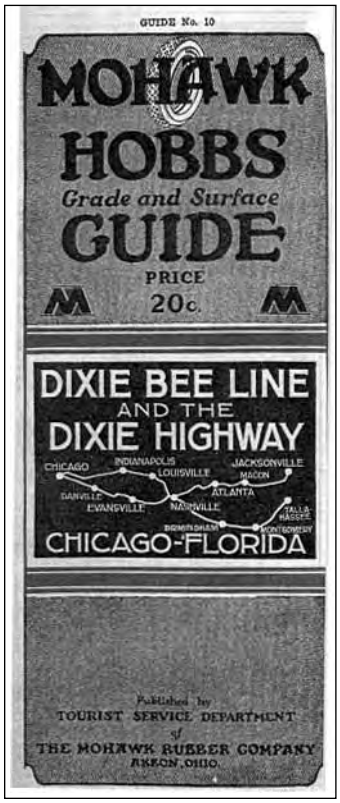


Figure II-29: Cover page from the Mohawk Hobbs Guide to the Dixie Bee Line and Dixie Highway, published by the Tourist Service Department of the Mohawk Rubber Company of Akron, Ohio. In the early 1900s, many automobile and tourism-related industries provided maps to motorists (Copy, Author's Collection).

Figure II-30: Historic Postcard, U.S. 27, "The Airline Route" near New River, Scott County (Author's Collection).

a single star, two horizontal bars, and the letters "SNH." The Trail of the Lonesome Pine, named for a 1908 novel by Virginian John Fox, Jr., cut through upper east Tennessee on its route from Blue Field, West Virginia, through Rogersville and Greeneville to Asheville along present day State Route 70.

In 1921, the Chattanooga Automobile Club organized the Cincinnati-Lookout Mountain Air Line Highway Association, also called the Dixie Air Line Highway. This route was one hundred miles shorter than the Western Division of the Dixie Highway, and its supporters approached the Dixie Highway Association in 1921 to request that the route be designated as part of the Dixie Highway, but the highway association refused (Dixie Minutes 1921:90; Chattanooga Automobile Club Minutes [Chattanooga Minutes] 21 September 1921). In Tennessee, the state legislature designated much of this route the Lon Foust Highway after the long-time president of the Chattanooga Automobile Club. This highway followed the corridor of State Route 29/U.S. 27 through Scott, Morgan, Roane, Rhea, and Hamilton Counties overlapping the Dixie Highway from Harriman to Chattanooga. The state highway department undertook numerous projects along this corridor in the 1920s that included three bridges inventoried in this survey built between 1926 and 1928 on State Route 29 (#120, 65-A0450-03.25; 76-A0063-00.84; and 76-SR029-08.98). This route also crossed the 1914-1917 Market Street Bridge in Chattanooga (#85, 33-SR008-09.53) and the 1916 Harriman Bridge in Roane County (#86, 73-01226-00.50).

The Taft Memorial Highway extended from Canada to Fort Myers, Florida. In Tennessee it ran parallel to and west of the Air Line Route (U.S. 27). The Taft Highway followed the corridor of State Route 28/U.S. 127 through Pickett, Fentress, Cumberland, Bledsoe, Sequatchie, and Hamilton Counties. This route crossed the circa 1893-1895 Hatfield Bridge near Dunlap (#25, 77-NonHighway-1), the Market Street Bridge in Chattanooga (#85, 33-SR008-09.53) and the Wolf River Bridge in Fentress County (#150, 25-SR028-29.24). In 1940 elaborate dedication ceremonies were held for the newly completed Wolf River Bridge, and individuals from several states along the Taft Highway attended and gave speeches. The bridge was adjacent to the home of nationally prominent Alvin C. York (National Historic Landmark), and due to his instrumental role in securing approval for the improvement of this corridor, Tennessee designated the Taft Highway the Alvin C. York Highway within its borders. Although neither the Air Line Highway nor the Taft Highway became major regional north-south corridors (Tennessee 1929: #574), they did become significant local corridors and remain as the primary north-south routes for the Cumberland Plateau.

The Mississippi Valley Highway ran north-south from Ely, Minnesota, to Gulf Port, Mississippi, through Tennessee on the State Route 9 corridor (now U.S. 45/45E) in Weakley, Gibson, Madison, Chester, and McNairy Counties. The Mississippi River Scenic Highway ran from Winnipeg, Canada, to Fort Myers, Florida, through Shelby County and presumably crossed the Mississippi River on the Harahan Bridge. For many of these routes, Memphis was a pivotal crossing because it contained the Harahan Bridge (#77, 79-NonHighway-4), the only highway bridge that spanned the Mississippi River south of the mouth of the Ohio River from 1917 until 1930. A booster publication from 1929 noted that "seven highway arteries of national

Figure II-31: Circa 1940 photo of the Harahan Bridge with cantilevered vehicular lanes (#77, 79-NonHighway-4) (TDOT Photo Collection).

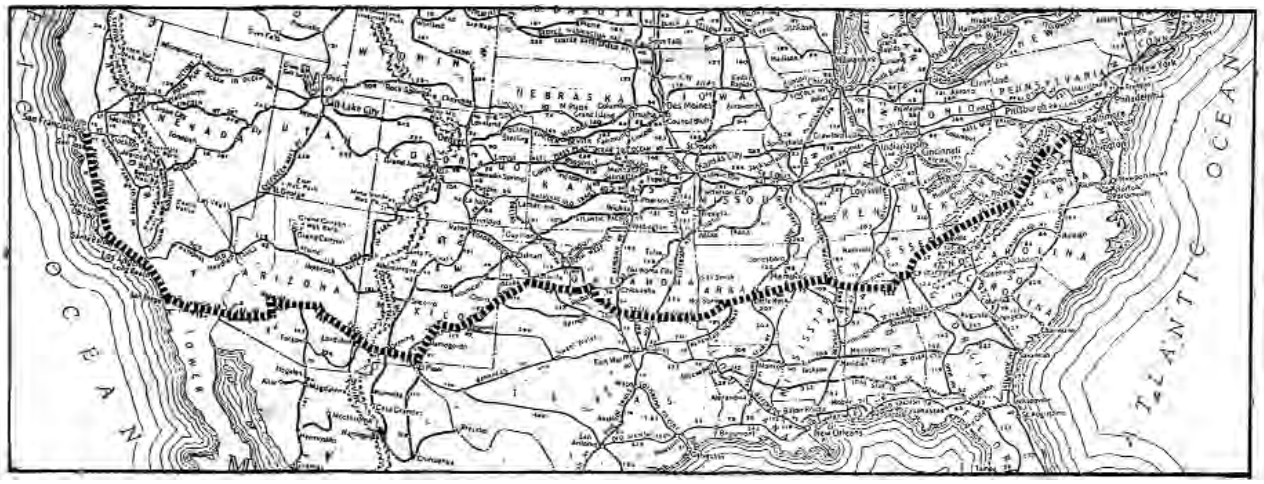
importance converge at Memphis to cross the Mississippi on the Harahan Bridge…the physical link that makes Memphis the gateway for all this tourist travel" (Volunteer 1929:63).

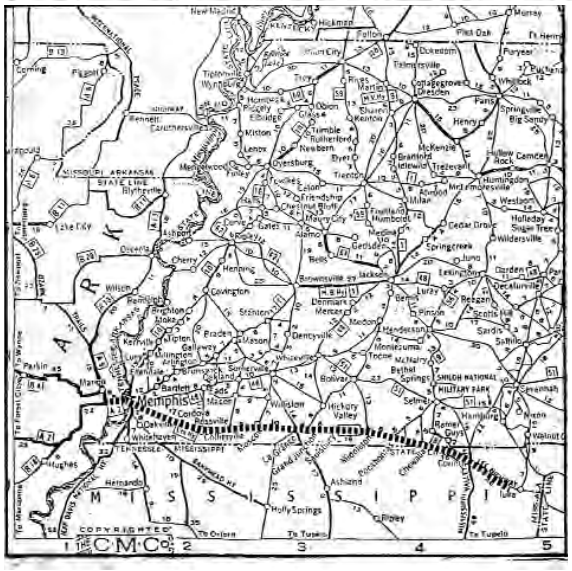
About 1910 the North Carolina State Daughters of the American Revolution began a project to erect memorial tablets along the original trail that Daniel Boone blazed through the Kentucky, Tennessee, and North Carolina wilderness in the late 1770s. Due to poor road conditions in western North Carolina, this project soon turned into an effort to build an improved road, the Boone Trail Highway. Concurrently, Joseph Hampton Rich of North Carolina formed the Boone Trail Highway and Memorial Association in 1913 to build an improved highway in northwest North Carolina. However, the groups worked together for better roads while primarily commemorating the legacy of Daniel Boone. In Tennessee, their efforts focused on the historic Wilderness Road in northeast Tennessee through Jonesborough, Harrogate, Kingsport and Cumberland Gap. Over time, Mr. Rich's efforts expanded into a project to erect commemorative markers across the United States in honor of Boone and his achievements, eventually erecting over 350 markers before 1938 when the group disbanded. In Tennessee, Rich's group erected about nine monuments, most of which remain. An excellent example is the arrowhead shaped Boone Memorial in the yard of the Washington County Courthouse in Jonesborough (Marshall 2003).

The Lee Highway was another influential interstate highway from this period in Tennessee. Dr. S. M. Johnson's concept was a road named for Robert E. Lee from Washington to Memphis, Tennessee, where it would merge with the Southern National Highway and proceed to San Diego, California. Johnson soon learned that Professor D. W. Humphreys, a professor of engineering at Washington and Lee University, was promoting a comparable road project. He suggested extending the Valley Turnpike, the Shenandoah Valley's main highway, north to Gettysburg, Pennsylvania, and south to Chattanooga, Tennessee. Interested parties met in February 1919 in Roanoke to discuss the proposed memorial highway. Later that year, on December 3rd, interested citizens formed the Lee Highway Association during another meeting at Roanoke,Virginia. The Board of Directors met in Bristol,Tennessee, 13 December 1919 to elect officers. The purpose of the Lee Highway Association was "to establish a national highway from Gettysburg through Winchester, Roanoke, Bristol, Chattanooga, and New Orleans where it will connect with an association leading to the coast" (Bristol Herald Courier, 12 December 1919). Professor Humphreys died soon afterward, and Dr. Johnson became the General Director. The Association intended to place "monuments and other markers…along the roads to commemorate the deeds of heroes of America's Wars" (Bristol Herald Courier, 13 December 1919).

Soon afterwards, the route of the association focused on a transcontinental highway from Washington through the Shenandoah Valley then south through Tennessee to New Orleans and then west to San Diego. The association adopted the nickname "The Backbone Road of the South." In the early 1920s, the group seems to have deleted the Gettysburg connection, or perhaps relegated it to a connector route. The Lee Highway began in Washington, originally crossing the Potomac River on the Georgetown Bridge (Francis Scott Key Bridge); however, Dr. Johnson would later work for a more impressive entrance, the Arlington Memorial Bridge. From Washington, the route went west to New Market,Virginia, and turned south to Bristol (Weingroff 2002, Johnson).

In 1920, the group set the route between Bristol and Knoxville through Kingsport, Rogersville, Tate Springs, and Rutledge. In a meeting held 20 January 1921, the association finalized the





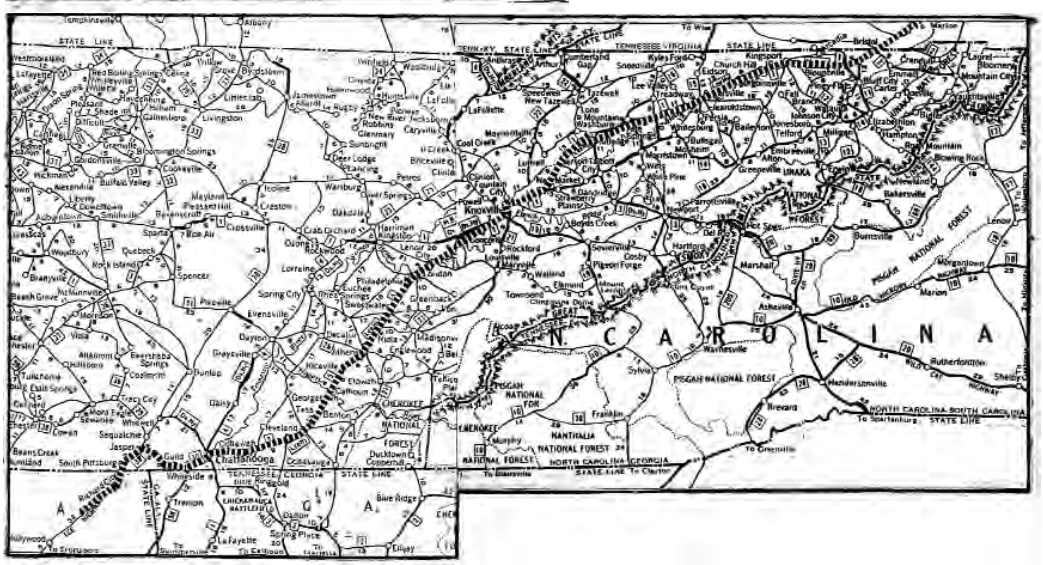


Figure II-32: The Lee Highway in Tennessee (Developed from maps #2823 and #2124, Tennessee State Library and Archives).

Above: National route from Washington to San Francisco

Left and below: Route through Tennessee

route to Chattanooga through Lenoir City, Loudon, Sweetwater, Athens, and Cleveland (Weingroff 2002, Johnson). Much of the route from Cleveland into Chattanooga still bears the name Lee Highway. In 1921 the Lee Highway Association decided to reroute the Lee Highway through Memphis to Arkansas and Texas and to omit the Chattanooga-New Orleans section. Over the next few years, the western routing was in limbo, but eventually the Lee Highway passed through New Mexico and Arizona before terminating at San Diego, where the group erected a zero mile marker monument in 1923 in Horton Park, commemorating the western terminus of the highway. [A monument denoting the terminus of the Jefferson Davis Highway was also placed here, but due to protests from Union veterans opposed to memorializing "the memory of a vile murderous traitor," it was removed in 1926 (Amero 1998).] This association marked its route with a blue and gray sign containing the word "LEE" within a shield.

The Chattanooga Automobile Club, as it did in the Dixie Highway Association, had members serving in leadership positions within the Lee Highway Association. This organization lobbied to have the national headquarters placed in Chattanooga but to no avail. However, East Tennessee was a focal point on the early Lee Highway route, and the association held its first annual convention in Knoxville 18-19 February 1921 and the second in Chattanooga 19-20 January 1922.

A 1922 publication of the Tennessee Department of Highways (Tennessee *Highways* January 1922:17-18) stated that the route had been set for the Lee Highway between Bristol and Chattanooga and that it was entirely on state routes. The Lee Highway Association delineated the Memphis to Bristol Highway (State Route 1) from Bristol to the Knox-Loudon County line as the Lee Highway. From this point, the Lee Highway ran east of and roughly parallel to the Tennessee River along State Route 5 (now State Route 2/U.S. 11/U.S. 64) through Loudon, Monroe, McMinn, Bradley and Hamilton Counties to Chattanooga.

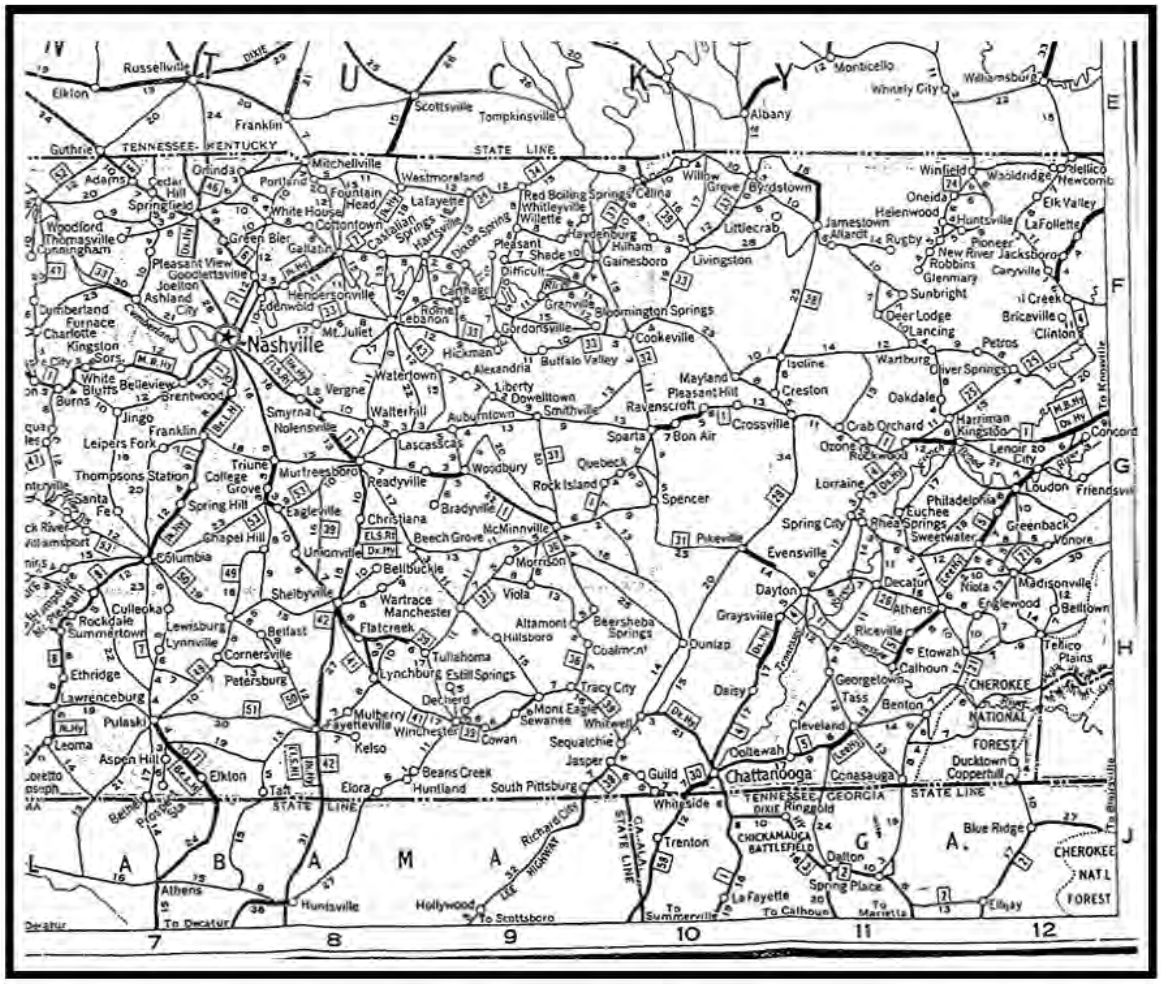
The Lee Highway Association considered two routes from Chattanooga to Memphis, the Nashville Route and the Muscle Shoals Route. Tennesseans favored the Nashville Route that would probably have overlapped the Dixie Highway from Chattanooga to Nashville and the Memphis to Bristol Highway from Nashville to Memphis. However, the Lee Highway Association chose the Muscle Shoals Route. From Chattanooga, this route passed through Hamilton and Marion Counties on the Suck Creek Road over the top of Walden's Ridge (present day State Route 27), overlapping the Dixie Highway until north of South Pittsburg where the roads split. At this wye, a community named Dixie-Lee developed (the present day town of Kimball). The Dixie Highway continued northwest to Monteagle, and the Lee Highway continued southwest on State Route 27 through South Pittsburg into Alabama. From the Alabama State line, the Lee Highway proceeded south and west through Alabama and Mississippi for about 230 miles before reentering Tennessee near Corinth, Mississippi, at the southwest corner of McNairy County near the Shiloh National Military Park. The Clason Company's *Green Guide to Tennessee* shows the road proceeding west from there through Hardeman, Fayette, and Shelby Counties. A 1921 map (National 1921:#86) shows this route as a proposed Federal-aid route, but it was not until 1927 that the state designated this corridor from McNairy County west to Collierville as State Route 57. However, the Rand McNally *Special Auto Trails Map* shows the Lee Highway proceeding northward from Corinth to Selmer on State Route 18 and then westward to Memphis on State Route 15. This survey inventoried only a few bridges along the original corridor of the Lee Highway. The bridges include one small (circa 1910s or 1920s) concrete arch on a segment later bypassed in Monroe County (62-A0081-01.20); the 1917 Harahan Bridge (#77, 79-NonHighway-4); and

some state highway bridges dating from the late 1920s and 1930s that appear to be associated more with the development of the state highway system than with the Lee Highway, for example, the 1929 Loudon Bridge (53-SR002-06.75).

The Dixie Highway Association, however, quickly became the most influential of the interstate organizations in Tennessee, and the only one that had its national headquarters in the state. Interested citizens formed the association in 1915 as an outgrowth of the Chattanooga Automobile Club. Throughout its existence, the Dixie Highway Association was closely associated with the Chattanooga Automobile Club that provided financial and moral support to it. However, much of the early impetus for a north-south route is credited to Carl Fisher who is often called "the Father of the Dixie Highway." An Indiana native, Fisher developed real estate holdings in Miami Beach, Florida, in the 1910s, in what was then little more than an isolated swamp on the southeast tip of the state. Fisher knew that an interstate highway from the North to the South through the mid-west was essential to the promotion of Florida and to the success of his development. Fisher persuaded William Gilbreath of Indiana to promote this highway, and in November 1914 Gilbreath attended the fourth annual American Road Congress in Atlanta where he presented the idea of the "Cotton Belt Route." Over the next four months Gilbreath traveled in Georgia, Tennessee, and Kentucky promoting the route.

In the spring of 1915, thirteen men "realizing the necessity for placing in the field an organization for the aggressive pushing of this great National project" each pledged $1,000 to become Founders of the Dixie Highway. These men were Thomas Taggart and Carl G. Fisher of Indiana; George N. Harris of Ohio; C. E. James, Richard Hardy, T. R. Preston, John A. Patten, C. H. Huston, and Colonel A. M. Shook of Tennessee; Coleman du Pont of Delaware; W. S. Speed of Kentucky; A. Y. Gowan with the Lehigh Portland Cement Company, and Charles Homer. This "membership carries with it life membership in the Dixie Highway Association and exemption for all further dues and assessments" (Dixie Minutes 1915:0).

Since this group had committed to "defray the expense of a permanent organization, secure surveys, maps, plans, etc" (Dixie Minutes 1915:1), Chattanooga businessman C. E. James asked Governor Samuel Ralston of Indiana to convene an organizational meeting. Governor Ralston agreed and arranged for a meeting, hosted by the Chattanooga Automobile Club and called the Governors Convention, to be held in Chattanooga on 3 April 1915 for the purpose of forming an association to promote the new road that was officially being referred to as the Dixie Highway (Dixie Minutes 1915:1; Foster 2000:122; Preston 1991:54). Over 5000 people attended this meeting, including the governor of each state through which the road was proposed to pass except the governors of Ohio and Florida who sent personal representatives with the authority to act for them (Dixie Minutes 1915:186) These men adopted a resolution creating an organization "for the purpose of constructing a permanent highway from a point on the Lincoln Highway, near Chicago, Ill. via Chattanooga, Tenn., to Miami, Fla" (Dixie Minutes 1915:1). The group adopted a resolution pledging that "the governors of the states of Ohio, Indiana, Illinois, Kentucky, Tennessee, Georgia and Florida…[would] appoint two impartial representatives from their respective states as Directors of the said Dixie Highway Association, who, with the seven incorporators of the association shall constitute its first Board of Directors" (Dixie Minutes 1915:1). These first Directors were Richard J. Finnegan of Chicago, Illinois; William W. Marr of Springfield, Illinois (Secretary); Carl G. Fisher of Indianapolis, Indiana; Thomas Taggart of French Lick, Indiana; Harry L. Gordon of Cincinnati, Ohio; George W. Harris of Cincinnati, Ohio; Harry B. Hanger of Richmond, Kentucky; Claude B. Mercer, of Hardinsburg, Kentucky; Colonel A. M. Shook of



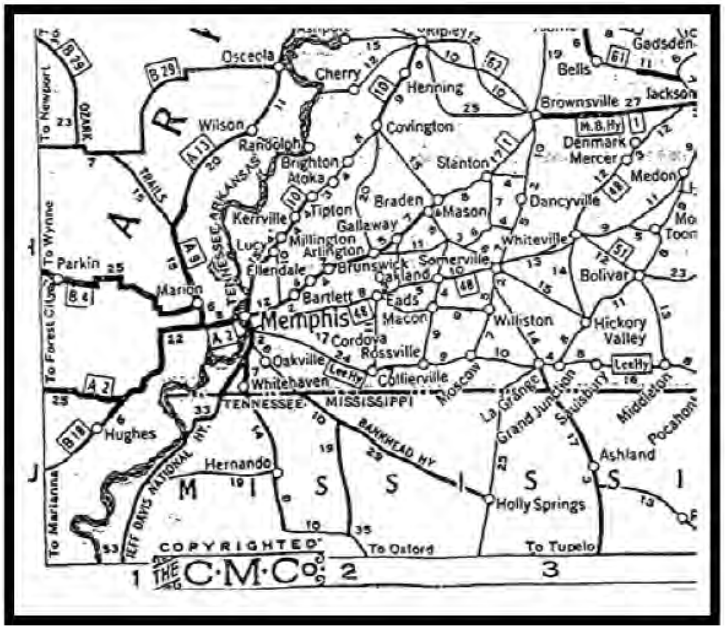


Figure II-33: Map showing some of the named highways, circa 1920. Note the Dixie Highway, the Florida Short Line Highway/Dixie Highway in Middle Tennessee, the Lee Highway and Dixie Highway in East Tennessee (top), and the Jefferson Davis Highway and the Bankhead Highway in Memphis (right) (Clason Map Company, Courtesy Tennessee State Library and Archives, #2824).

Nashville, Tennessee; Michael M. Allison of Chattanooga, Tennessee; Clark Howell of Atlanta, Georgia (Chairman); W. T. Anderson of Macon, Georgia; S. A. Belcher of Miami, Florida; and G. A. Saxon of Tallahassee, Florida (Dixie Minutes 1915:3, 5).

The Directors met in Chattanooga in May 1915 to formulate a permanent organization with officers and by-laws. At this meeting, the directors approved by-laws that designated Chattanooga as the site of the principal office of the association, which it remained throughout its existence (Dixie Minutes 1915:14). The directors voted to maintain a full time Executive Secretary and to publish a 24 to 48 page monthly magazine called *The Dixie Highway* and financed by advertising (Kolwyck 1976:5). The first President was C. E. James of Chattanooga who resigned three weeks later over a routing dispute (Ochs 1962:2; Dixie Minutes 1915:21). The directors then elected Judge M. M. Allison of Chattanooga, President, a position he held until the association ceased active operation in 1927. The original Vice-Presidents were H. L. Gordon of Ohio, Thomas Taggart of Indiana, W. T. Anderson of Georgia, G. W. Saxon of Florida, H. B. Hanger of Kentucky, and R. J. Finnegan of Illinois. The association elected W. R. Long, who was then president of the Chattanooga Automobile Club, as Secretary-Treasurer, a position he held until 1927 (Dixie Minutes 1915:20; Ochs 1962:1). Other staff included W. S. Gilbreath of Indianapolis who was the field secretary at a salary of $300 per month, T. E. Grafton of Rome to be an assistant to Mr. Allison at a salary of $200 per month, and V. D. L. Robinson of Chattanooga as Assistant Secretary at a salary of $150 per month (Dixie Minutes 1915:23).

The location of the route was a primary source of contention throughout the history of the Dixie Highway Association even resulting as noted in the resignation of the association's first president. Carl Fisher played a pivotal role in the routing process. Fisher had been an early leader in the Lincoln Highway Association, but after differences with Henry Joy, the group's president, Fisher gradually withdrew from active participation in that group. One key difference between the two men involved routing requirements. Joy envisioned a direct highway from one point to another with as little deviation as possible. Fisher believed in balancing directness and efficiency with maintaining proximity to large towns and scenic attractions on the route as well as on the degree of local support (Hokanson 1988:12).

In what was termed a "stormy" meeting in Chattanooga in May 1915, the Directors met to select specific routes in each state (Ochs 1962:2). Delegations from different parts of each state, beginning in Florida and moving northward, made presentations within a rigidly defined time frame extolling the virtues of their route (Dixie Minutes 1915:6-7). The following account describes this meeting:

> Business leaders and politicians from over one hundred communities throughout Illinois, Ohio, Indiana, Kentucky, Tennessee, Georgia, and Florida converged on the Tennessee city and waged a propaganda war later referred to as the "Second Battle of Chattanooga." Counties that for years had procrastinated in the improvement of their roads were presented at this meeting as progressive, forward-looking communities with magnificent public road systems…So eager were southerners to have their town or county on the Dixie Highway map that, when a delegate rose from his seat at the Chattanooga meeting to proclaim the merits of his community, representatives from rival communities hurled insults and taunting criticisms at him (Preston 1991:55).

Carl Fisher quickly clashed with Georgian Clark Howell over the routing approach on the Dixie Highway, in this case, over the timing of the selection of the route. Fisher wanted a specific route designated (which would be beneficial to his Miami Beach development). Howell wanted to postpone a decision until counties could build portions of the road and then the association would choose the best route. After a five-hour meeting, Howell and Fisher emerged from the meeting room of the Hamilton County Courthouse to make the startling announcement that the Dixie Highway would not be one continuous road as were the vast majority of the other interstate routes (Preston 1991:56-57). Rather, the directors agreed to have two north-south routes, named the Western Division and Eastern Division, run between the Lincoln Highway near Chicago and Miami, totaling 4,000 miles of roadway (Dixie Minutes 1915:9, 14). [Today's interstate level route from Sault Sainte Marie to Miami is about 1,850 miles.] The Western Division ran through Indianapolis, Louisville, Nashville, Chattanooga, Atlanta, and Tallahassee. The Eastern Division ran through Detroit, Dayton, Cincinnati, Lexington, Knoxville, Chattanooga, Atlanta, Savannah, and Jacksonville. The two routes merged to form a common alignment in Chattanooga and in the Atlanta area.

The Dixie Highway Association also approved the concept of Dixie Highway Branches that connected the two routes of the Dixie Highway or connected the Dixie Highway with other roads (Dixie Minutes 1915:8). Dixie Highway Branches connecting the East and West Divisions were located between Indianapolis and Dayton and between Macon and St. Augustine. The association also supported the designation of side roads to special attractions as "detour" routes (Dixie Minutes 1919:68-69).

At this May 1915 meeting the directors also decided to add a northern loop to Mackinaw, Michigan, to connect the Eastern and Western Divisions (Dixie Minutes 1915:11). In May 1917 the Dixie Highway Association provisionally extended the northern terminus to Sault Sainte Marie on the Canadian border (Dixie Minutes 1917:51). The directors officially approved this terminus in September 1921 (Dixie Minutes 1921:85-86). In May 1918 the Dixie Highway Association designated a third major route called the Carolina Division through East Tennessee, North Carolina, South Carolina, and Georgia (Dixie Minutes 1918:57-58). The Carolina Division began in Knoxville and passed through Dandridge, Newport, Asheville, Greenville, and Augusta before tying back into the Eastern Division route at Waynesboro, Georgia. Collectively, these routes passed through about 200 counties in eleven states.

The Eastern Division of the Dixie Highway in Tennessee ran north from Chattanooga along State Route 4 (now State Route 29)/U.S. 27 through Dayton, Evensville, Spring City and Rockwood. In 1916, Harriman successfully petitioned to be added to the route. The Dixie Highway crossed the 1915-1928 Emory River Bridge in Harriman (#86, 73-01226-00.50) on a local road and then followed State Route 1 (U.S. 70) into Knoxville. West of Knoxville, the Dixie Highway merged to form a common alignment with the Lee Highway, and a community named Dixie-Lee Junction developed at this wye. From Knoxville the Dixie Highway went through Maynardsville, Tazewell, and Cumberland Gap on then State Route 22 (present day State Route 33) to Tazewell and then into Corbin (Kentucky) via Middlesboro and Pineville (on present day State Route 32/U.S. 25E). However, because this section was not completed in a timely manner, the Dixie Highway Association revoked this designation in May 1918. The association then designated a route from Knoxville through Clinton, Coal Creek/Lake City, Jacksboro, Lafollette, and Jellico to Corbin via Williamsburg (on present day State Route 9/U.S. 25W) that crossed the 1921 Central Avenue Bridge in Lafollette (07-SR009-24.12). U.S.G.S. topographic maps from the 1940s show the Dixie Highway extending southeast on U.S. 25E

Figure II-34: Map showing the route of the Dixie Highway from the October 1921 issue of the Dixie Highway Association's magazine, *The Dixie Highway* (page 18).

from Tazewell through Bean Station and Morristown and then connecting with the Carolina Division Route. However, the minutes of the Dixie Highway Association do not contain a reference to this designation.

The Western Division ran north from Chattanooga on a common alignment with the Lee Highway along the Suck Creek Road (present day State Route 27) through Whitwell and then on State Route 28 to west of Jasper where the highways split. At this wye, a community named Dixie-Lee developed (the present town of Kimball). An official alternate route from Chattanooga to Jasper ran along Wauhatchie Pike (State Route 2/U.S. 41). From Dixie-Lee, the route went through Monteagle, Cowan, Winchester, Tullahoma, and Shelbyville on present day U.S. 41A. It then followed present day State Route 10/U.S. 231 into Murfreesboro and from there generally followed present day U.S. 41 through Nashville to Springfield and then north on State Route 65/U.S. 441 into Russellville, Kentucky.

The Carolina Division began in Knoxville and passed through Dandridge and Newport before entering North Carolina. This route seems to have followed then State Route 3, present day State Route 9/U.S. 25/U.S. 70. The Carolina Division crossed the French Broad River in Cocke County on the Wolf Creek Bridge (#118, 15-SR009-21.60), a spectacular concrete arch bridge built between 1926 and 1928 by the state highway department.

The route of the Dixie Highway reflected the views of Fisher who along with Allison, Hanger, and Marr served as the Dixie Highway Association's Route Committee (Dixie Minutes 1915:3). The Dixie Highway was a "wandering peavine" that contained:

> …several braided branches that began in northern Michigan and at Chicago, amid the grand homes of the very people [Fisher] hoped to draw south. The tendrils wound their way south and east through Ohio, Indiana, Kentucky, Tennessee, and Georgia, and finally ended at Fisher's door in Miami…The Dixie placed little value on directness, and with multiple routes it was diffuse, dilute, and subject to all manner of political pressures (Hokanson 1988:21).

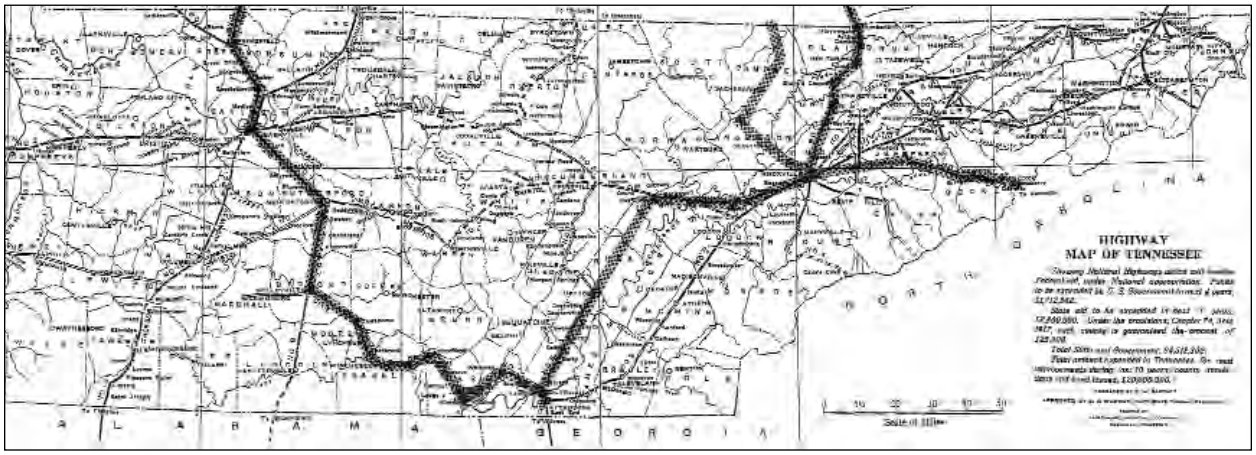


Figure II-35: Map showing the route of the Dixie Highway in Tennessee (Courtesy, Tennessee State Library and Archives, Map #2218).

Political considerations included the necessity of obtaining local support. The minutes of the Dixie Highway Association do not explicitly state that it gave routing priority to central locations through counties and through county seats to gain local support. However, such practical considerations can be inferred (see discussion, Dixie Minutes 1924:129-130, concerning the U.S. 31W routing designation for the Bowling Green to Nashville route). Prior to the availability of federal money, county governments were entirely responsible for building and maintaining the route, and even after Federal-aid funds became available, the county had to provide a match. Local support was essential, and a central route through a county helped to generate interest and support.

Surface treatments were a key issue in road construction during this period. The rallying call of "year-round roads" was a literal concept since many main roads were dirt, and after rainy periods became impassable for long periods of time. Nineteenth-century surfaces were usually dirt or macadam (layered and crushed rock) and less often brick. Concrete roads began to appear in the late nineteenth century. Since the construction of the road involved so many different government entities, the Dixie Highway was like a patchwork quilt of surfaces that included concrete, brick, bituminous macadam, macadam, asphalt, creosote block, granite block, graded gravel, graded earth, natural earth, and sand (Kolwyck 1976:5). However, the Dixie Highway Minutes most often take special note of concrete paving, not because it was the most prevalent material, but because it was probably considered the standard to emulate. For instance, Spalding County Georgia, was the first county on the Dixie Highway to completely pave its route in concrete, and organizers held dedication ceremonies in September 1920 in celebration (Georgia Historical Commission Marker "First Paving" 126-10, 1956). Although a "passable" route over the length of the Dixie Highway was established by 1921, the entire route was not paved until 1929 (Chattanooga Minutes 4 November 1929: Kolwyck 1976:5).

Like the road surface itself, bridges were a tangible and essential component of the Dixie Highway, and the association promoted, monitored, and noted their construction, or lack thereof. It would obviously have been wasteful for the Dixie Highway Association to attempt to build its own bridges even if it could have afforded to do so when it could route its alignment over pre-existing bridges, especially large and expensive crossings. Therefore, the association chose to route its alignment over existing bridges in many cities, such as the Covington-Cincinnati Suspension Bridge built in 1865 by John Roehling. Not only the Dixie Highway Association, but also many other associations typically chose alignments that would cross at a major bridge when possible even if it was not the most direct route.

In other areas, the Dixie Highway Association was less fortunate in finding existing bridges and had to take a direct role in promoting the construction of new bridges. For instance, the association threatened in May 1917 to revoke the Macon to Jacksonville route through Savannah unless road conditions and bridges across the Saltilla River and the St. Mary's River were not built soon (Dixie Minutes 1917:49-50). *The Dixie Highway* magazine noted the construction of bridges such as the Ocklocknee River bridge in Georgia and the St. Mary's River Bridge on the Georgia-Florida state line (*The Dixie Highway* 1921:21, 24). In addition to the many large-scale landmark bridges such as those mentioned above, there were scores of small slab and girder bridges built in the late 1910s and early 1920s as part of the Dixie Highway.

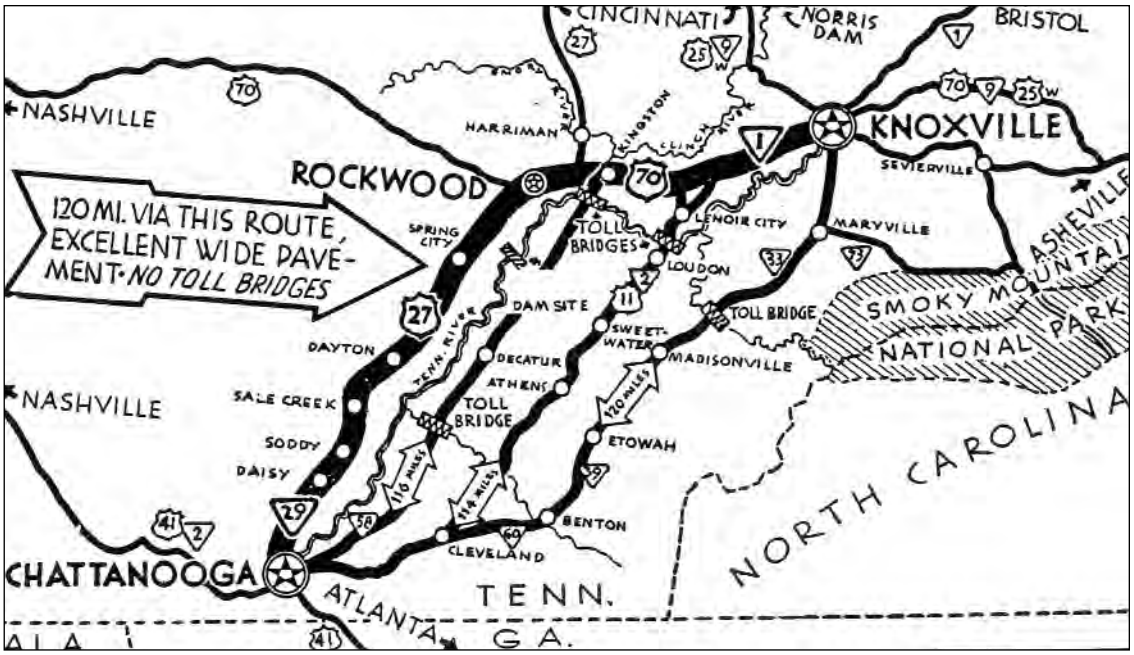


Figure II-36: Map from 1937 promotional brochure for Rockwood, Tennessee. Note the emphasis on "No Toll Bridges" along the Dixie Highway through Rockwood (Seward 1937).

Free roads were essential to the motoring public, either for pleasure or business. The Dixie Highway Association in its incipiency took a strong position supporting free roads and adopted a resolution stating, "That there shall be no toll gates or toll bridges on the Dixie Highway from Chicago to Miami, on the Eastern or Western division excepting the bridges across the Ohio River" (Dixie Minutes 1915:11). However, the reality seems to be that the association had little choice but to initially accept some roads or bridges with tolls and then to work to have them removed as quickly as possible. The provision in the Federal-Aid Road Act of 1916 that banned any toll roads from receiving Federal-aid greatly assisted the association in this effort. This stipulation was eventually effective in removing toll roads and bridges from the Dixie Highway, doubtless more so than the association's original resolution.

On 20 May 1915 the Dixie Highway Association agreed that "every county through which the highway passes will be required to construct uniform markers at all cross roads" (Dixie Minutes 1915:11). The Board of Directors of the Dixie Highway Association at its 25 August 1916 meeting defined "uniform markers" by the following description:

> …the highway be marked by painting a design, uniform throughout on the telegraph and telephone poles along the Dixie Highway and at all cross roads and at road intersections. On motion ...white bands, six inches wide at top and bottom, with the letters "D.H." in white on the red band of the same width in the middle, were adopted as the sign for marking the highway. [The signs were to be placed] on at least three telegraph or telephone poles on each side of all road or street intersections or turns, at a height of eight feet from the ground (Dixie Minutes 1916:41).

The desire by towns and cities to be located on a major interstate route, coupled with the ever-changing but often poor road conditions on the designated route, meant that the competition for the Dixie Highway route did not end with the official designation in 1915. The Dixie Highway Association contributed to this competition through its policy of revoking the designation if the counties did not improve their roads to a certain agreed upon level within a reasonable time. The Dixie Highway Association had a Committee on Road Specifications originally composed of Carl Fisher and W. W. Marr (Dixie Minutes 1915:20). The association allowed for road variations from county to county but stipulated that roads must meet certain specifications or lose the designation (Dixie Minutes 1915:22).

Controversies over routing alignments are found throughout the minutes of the Dixie Highway Association, and rival factions often attended the meetings of the Dixie Highway Association seeking changes in the Dixie Highway route. For instance, due to poor road conditions, the association revoked the Dixie Highway designation on the original Atlanta to Macon route through Indian Springs in July 1916 (Dixie Minutes 1916:36-37) and later substituted a more westerly route through Griffin. The association motivated local communities with the threat that they would lose the route if road conditions were not improved immediately. Local groups lobbied to have the Dixie Highway rerouted from the original Springfield, Tennessee, to Bowling Green, Kentucky, alignment through Russellville to a different alignment through Franklin (Dixie Minutes 1915:24-25; 1924:152). The minutes do not indicate that the effort was successful, but the state gave the coveted U.S. 31W designation to the more direct route through Franklin. In May 1923, the Dixie Highway Association changed its policy of designating sections based on verbal commitments. From then on, the association required that new sections must be built before it would officially designate them as part of the Dixie Highway (Dixie Minutes 1923:115).

The route between Knoxville and Corbin, Kentucky, was one of the most contested alignments in Tennessee. The initial route ran through the Cumberland Gap over an old "object lesson road" built as a result of the Good Road Trains that traveled through the South beginning in 1901. The Dixie Highway Association routed the Eastern Division alignment of the Dixie Highway from Knoxville to Corbin over the old object lesson road at Cumberland Gap and Middlesboro along present day U.S. 25E. Some of the Kentucky counties did not complete their improvements in a timely manner. The Dixie Highway Association revoked its designation in May 1918 (Dixie Minutes 1919:62-63, 66). It then routed a new alignment from Knoxville to Corbin through Clinton, Lafollette, and Williamsburg along present day U.S. 25W. The directors repeatedly discussed this section at meetings of the Dixie Highway Association. In November 1924 Mr. A. P. Lerbig of Middlesboro attended a meeting of the Directors in Rome, Georgia, and gave a presentation about the improved quality of the roads in the area and persuaded the association to reinstate the Cumberland Gap route on the Dixie Highway. Ultimately, the association compromised by designating the Williamsburg route as the Official Route and the Cumberland Gap route, which lies within the Cumberland Gap National Historical Park, as an Official Alternate Route (Dixie Minutes 1924:160). However, the Middlesboro route was shorter, and a 1925 Dixie Highway Association publication highlighted the Middlesboro route as being the preferred route (J. Newcomb 1925).

In addition to the all-pervasive funding issue, each state had its own difficulties in building its portion of the Dixie Highway, be it competing road interests, lack of support, swamps, or river crossings. For Tennessee, mountainous terrain was the most serious problem. The Eastern Division through Cocke County (present day State Route 15/U.S. 25/U.S. 70) was one of the

most difficult. The state designated this road State Route 3 in 1917, and the Dixie Highway Association designated it as the route of the Eastern Division in 1918. The State Highway Department found that "the unimproved route was a steep, narrow trail, a nightmare to travel" (Johnson 1978b:33) and in 1920 the State Highway Department made a location survey for an improved facility. However, Cocke County voted down its match for construction costs twice. At one point, the Dixie Highway Association threatened to bypass Cocke County and route the highway through Greene County, but Cocke County finally approved its share of the funding in 1922. Southern Railway and the state could not reach an agreement over the right-of-way on a section where the highway paralleled the railway for over a mile along the banks of the French Broad River, which further delayed construction. After a flood in 1920, the state's engineers relocated a five-mile stretch in an effort to minimize future flood damage. Concurrently, the state also decided to relocate the road so that it crossed the railway once perpendicularly rather than paralleling it. This resulted in the need for a major new bridge structure to span both the French Broad River and Southern Railway.

In December 1922 the state let a contract for Federal-aid project number 23, a sixteen foot macadam road ten miles in length from near Del Rio to the North Carolina state line. Rather than detour a hundred miles to avoid construction activities, motorists made their own roads through the area, which were often impassable due to mud. Many of the motorists were tourists, "most of whom were accustomed to smoother country, and better roads, and these were far from bashful in their caustic criticism." That year farmers along the way "harvested the automobile crop; one even charged motorists a dollar for crossing his land" (Johnson 1978b:34). The state completed the road project by the fall of 1924. However, Cocke County did not agree to provide its match for the bridge to span the French Broad River and Southern Railway until 1926, and the state did not complete it until February 1928. This magnificent open spandrel concrete arch bridge remains (#118, 15-SR009-21.60).

The route between Nashville and Chattanooga also proved difficult to construct. In the fall of 1916, a Dixie Highway tour group, including Carl Fisher, found how difficult the terrain was and experienced first hand the horrible road conditions of the area. While a reception committee in Chattanooga awaited, the group became lost. As time passed, the committee sent a trapper to find the group. He found them but he moved too quickly for them, and the group soon lost sight of him. Fisher and his group finally reached Chattanooga the next day as dawn broke (Foster 2000:127-128). In the 1920s, even as difficult to complete as the Cocke County route was, the area north of Chattanooga was probably the most difficult section to build in Tennessee. This included the route between Monteagle and Jasper that crossed the Cumberland Plateau at Monteagle Mountain and the route between Jasper and Chattanooga that crossed Walden's Ridge, on what came to be known as the Suck Creek Road section. Part of the problem was that both of these sections crossed steep mountains primarily located on the edge of Marion County. Not only were the roads difficult and expensive to construct, but local voters perceived those sections as primarily benefiting through travelers and as having little local value. Therefore, the project had limited support in Marion County that, prior to federal and state aid programs, would have had to pay all of the cost. Even later, with both the state and federal road programs offering assistance, the Dixie Highway Association had difficulty in persuading the voters of Marion County to approve matching funds.

Although an older road from Cowan provided access to Monteagle for southbound travelers, prior to the Dixie Highway, there was no road from Monteagle south to Jasper, a route that involved an extremely steep and rugged descent from Monteagle Mountain. The Dixie

Figure II-37: Early postcard view of the mountains in southeast Tennessee. The caption reads, "Approaching the Cumberlands on the Dixie Highway." Note the steep terrain and the clouds covering the mountain, which the motorist would have to traverse (Author's Collection).

Highway Association chose a route south from Monteagle to Jasper, which required a new road rather than the more typical overlay approach. It is unclear why the Dixie Highway Association chose this route rather than using the existing road that ran east from Monteagle to Tracy City and then south to Whitwell. A March 1915 Dixie Highway map shows the route from Monteagle to Jasper through Tracy City (Engineering 1915:#614). A local newspaper article in 1976 stated that the Grundy County Court refused to fund improving a road project along this route and therefore lost the Dixie Highway, and as a consequence, eventually lost U.S. 41. "This one decision by the court probably did more than any other in the county's history to determine the type of place it is today" (Matthews 1976:31-A). However, the county court minutes do not contain a specific reference to this.

The route from Monteagle to the head of Battle Creek was a distance of four and one-half miles and covered a difference in elevation of approximately 1,200 feet (*Tennessee Highway and Public Works* 1924:13). Since there were so few crossings through this mountain range, this section "made or broke" travel between Chattanooga and Nashville and was thus a pivotal component of the Western Division. In 1916 Marion County sold bonds and began road construction but soon ran out of money. In 1918 the state highway department graded the road.

> ...but rain soon washed deep ditches through the dirt lane and the Highway Department had no maintenance authority to repair it. The motorists who tried crossing the rutted, washed out path over the mountain warned their friends, and the mountain crossing became an obstacle dreaded by tourists days before they reached it (Johnson 1978b:37).

Some motorists stated that the expectations were worse than the road while others had "no words with which to express their horror of such a road." One of the State's highway engineers, in an effort to show that the route between Nashville and Chattanooga was reasonably passable, made the 160-mile trip in nine hours and thirty minutes that included one hour and thirty minutes for the fifteen mile section between Monteagle and Jasper, an average speed of eighteen miles per hour for the entire trip (*The Dixie Highway* 1924:20).

By the early 1920s, this section was the most widely known road problem in Tennessee (Tennessee *Highways* January 1925:7). Marion County at first declined to provide matching funds, even after the state assumed primary responsibility for the road. It finally approved a bond issue in 1923, and the state finished this section by 1925 (Tennessee *Highways* June 1924:12). A special committee from the state senate inspected the finished road in 1925 and reported that it had been able to drive from Nashville to Chattanooga in only five and one-half hours, an event so noteworthy that the WSM radio station in Nashville began to broadcast that the road was no longer "a dangerous mule trail" (Tennessee 1959:38-39). Today, the east-bound route of Interstate 24 overlays the Dixie Highway route on the east side of the mountain, from Monteagle to Battle Creek, but drivers still know Monteagle as a difficult and dangerous crossing.

At the foot of Monteagle Mountain in Jasper, the motorist still faced two possible routes to Chattanooga, the Suck Creek Gorge route or the Wauhatchie route. Each had significant problems. The Suck Creek Gorge route was longer and crossed the steep and rugged Walden Ridge. However, it did not cross the Tennessee River until downtown Chattanooga where the substantial Market Street Bridge (#85, 33-SR008-09.53) provided an easy crossing. The Wauhatchie route required the motorist to cross the Tennessee River on the Rankin (Kelly) Ferry. It also required access around and over Raccoon Mountain as well as access over or around Lookout Mountain.

The Dixie Highway Association selected the Suck Creek route through Whitwell and over Walden Ridge. This section seems to have been a special project of the Dixie Highway Association and the Chattanooga Automobile Club. The Dixie Highway Association labored very hard to build the Suck Creek Road section. The association even managed to secure a special state enabling act allowing Marion County to pass a bond issue to fund this section and to change the Hamilton-Marion county line to allow Hamilton County to provide additional funding. There had been no road at all over this section of Walden Ridge until the early twentieth century when the county built a road on the west side to Ketner's Gap, but there had been no funds to extend the road to the east toward Chattanooga through the extremely rough terrain of the Suck Creek Gorge. Marion County appropriated $25,000 for the Suck Creek Gorge section in a joint Hamilton County project that used 150 state convicts to build a narrow graded road. However, the road was still in poor condition, and in 1919 the Dixie Highway Association successfully lobbied to designate the Suck Creek Road as a federal-aid project. The state expanded the project in 1921 to include the improvement of the earlier road from Whitwell to Ketner's Gap (Tennessee Highways October 1922:39).

Figure II-38: Early postcard view of the Dixie Highway on the Suck Creek Route. The caption reads, "Dixie Highway Sequatchie Valley" (Author's Collection).

In 1923 the state assumed responsibility for this section's construction and completed it about 1925.

Since the Dixie Highway Association had struggled so long with this section and because the Suck Creek Road section was considered to be the highest point on the entire Dixie Highway route and roughly its mid-point as well, the association chose it to be the location for a park and monument commemorating President Allison's contributions to the Dixie Highway. In 1924 the Dixie Highway Association held elaborate dedication ceremonies at the unveiling of the monument and park. An editorial discussing the event in the Atlanta Constitution by editor Clark Howell, one of Georgia's two directors on the Dixie Highway Association, said, "No man in the south has contributed more to the development of the south--indeed the whole country for it is a national project--than Judge Allison in his faithful and untiring work in this one outstanding interstate highway project" (The Dixie Highway May 1924:4). The text of the marker, which still stands, states:

> This memorial is erected by the people of the United States to mark their appreciation of the great service rendered our country by Judge M. M. Allison, president of the Dixie Highway Association since its organization in 1915.
>
> The Dixie Highway was founded upon his faith, his hope and his far vision, his indefatigable labor throughout the states wherein it winds its useful way made possible its realization.

Figure II-39: Photograph of the Allison Monument in a roadside park, Marion County.

The Suck Creek section of the Dixie Highway was—and is—a steep, winding road with hairpin curves that hug rock outcroppings. It provides a bird's eye view of the Sequatchie Valley on the west side of the mountain and a spectacular view of Signal Mountain and the boulder strewn Suck Creek Gorge on the east side. Even after the exhaustive work of the Dixie Highway Association on this section, its rough topography guaranteed that motorists would continue to have problems traversing it. Consequently, the Dixie Highway Association designated the Wauhatchie route as an official alternate route. Between 1930 and 1932, the state designated the Wauhatchie route as U.S. 41, and the Suck Creek Road section with the Allison Monument lost its U.S. routing designation and was, in effect, bypassed.

Although the terrain was not quite as rough as that of the Suck Creek Gorge route, the alternate Wauhatchie route was also in poor condition and needed extensive improvements. Hamilton County Judge Will Cummings, an active member of both the Dixie Highway Association and the Chattanooga Automobile Club, lived near Wauhatchie. During his first term as County Judge (1912-1918), Cummings spearheaded a general road improvement program that included playing a pivotal role in the construction of this section of the Dixie Highway, known locally as Wauhatchie Pike, as well as being instrumental in the construction of the Market Street Bridge (#85, 33-SR008-09.53) over the Tennessee River in downtown Chattanooga. Cummings was an ally of State Highway Engineer Archie Nelson as well as an ally of Governor Thomas Rye and influenced Rye to appoint Chattanoogan C. F. Milburn to the three-man State Highway Commission. The friendship with Rye "was a factor in the completion of the Hamilton County—Chattanooga link in the Dixie Highway" as Cummings was repeatedly able to secure state and Federal-aid projects for the area (Hixson 1962:50-52).

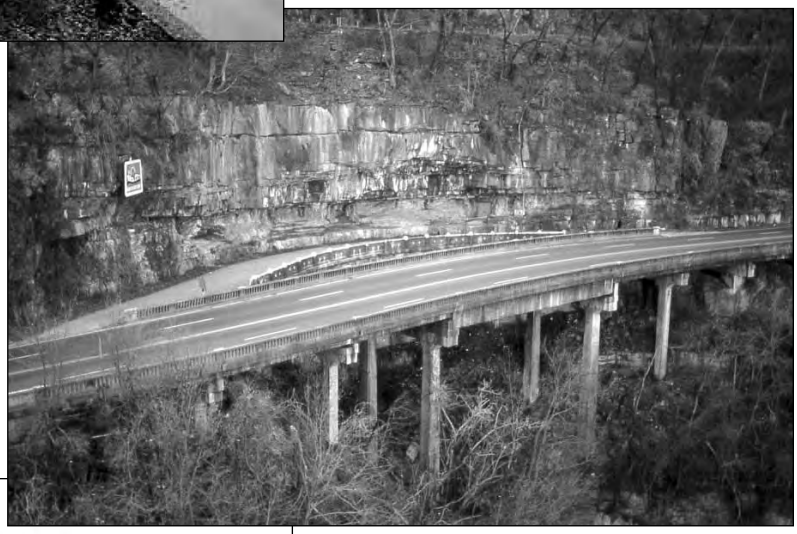
Cummings organized efforts to apply for federal moneys to build the Wauhatchie Pike, and when local bonds failed to raise Hamilton County's required portion, Cummings borrowed $5000 under his own name to secure the Federal-aid grant (Hixson 1962:50). At that time, local newspapers cited Wauhatchie Pike, one of the first concrete roads in Hamilton County, as the tenth federally financed road in the United States and as the first Federal-aid project in the South (*Chattanooga Times* 25 February 1918, 3 March 1969: Hixson 1962:50). However, the project was canceled around 1921 because it did not meet Federal standards (Johnson 1987b:32). Interestingly, Cummings lost the 1918 election for County Judge (by less than 100 votes) primarily due to voter dissatisfaction over his strong support for better roads, specifically the Suck Creek Road (lampooned as the road to "no man's land") and the $1.5 million spent to build the Market Street Bridge. However, Cummings won the 1924 election and served as County Judge until 1942 (Hixson 1962:65; Chattanooga Times 21 October 1937). After the state designated Wauhatchie Pike as U S. 41, it rebuilt the 24-mile route between Jasper and Chattanooga in 1935.

The state legislature designated the Wauhatchie Pike as the Will Cummings Highway, and private citizens erected paired, but not identical monuments, honoring Will Cummings and The Will Cummings Highway in Jasper and Chattanooga, which were dedicated in elaborate ceremonies 24 October 1937. President Roosevelt participated in the ceremonies by pushing a gold plated button from his office to transmit a signal (Hixson 1962:109). The monument in Jasper, a free-standing plaque with a lengthy text, is located in the courthouse yard along both the Wauhatchie and Suck Creek routes of the Dixie Highway. The monument in Chattanooga, a bronze plaque commemorating Cummings is imbedded above the roadway in the rock wall of Jonas Bluff above Wauhatchie Pike. The 1930s upgrading of the Wauhatchie Pike section of the Dixie Highway bypassed a substantial curve at Jonas Bluff, and the state converted the bypassed section with the monument into a small pull-off (which is now barricaded and somewhat vandalized). This pull-off provided a scenic view of the Tennessee River and downtown Chattanooga. It also retains a beautiful curved concrete parapet rail with diamond shaped cut-outs and concrete paving from the 1918 highway project.

Selecting the route of the Dixie Highway, though controversial and difficult, was simply the first step for the Dixie Highway Association. It also faced the enormous task of trying to build a 4,000 mile road through about two hundred counties in eleven states—and in 1915 virtually no federal money was available for road construction. The Federal-aid acts in 1916 and 1921 provided limited funding but still required a fifty percent local or state match. Therefore, throughout the existence of the association, many of its efforts focused on acquiring funds, either through private donations, cities or counties, the state, or the federal government. Due to the complex funding process, Allison "spent most of his time as fund-raiser and lobbyist for the highway" (Preston 1991:60).

Consequently, visible promotional efforts were necessary. For example the association sponsored the formation of Women's Auxiliary Clubs in each state under the National Dixie Highway Auxiliary. Apparently local women formed the first of these in Macon, Georgia, in 1916 (Dixie Minutes 1916:31; 1924:121). There were also local chapters of the Dixie Highway Association, for instance, the Louisville to Nashville Division (Dixie Minutes 1916:42). By 1924, there were twelve Dixie Highway chapters organized and seven more in the process of being organized (Dixie Minutes 1924:149-150). The Dixie Highway Association also sent letters to seventy-four Rotary Clubs along the Dixie Highway of which forty pledged "hearty cooperation" that included the publication of a special Rotary Club issue of *The Dixie Highway* magazine (Dixie Minutes 1924:126).

Figure II-40: Cummings Highway and the Pull-off at Jonas Bluff, Views of the road between Chattanooga and Jasper (top); Historic postcard view, pre-1930s (bottom).



Current view of pull-off (top); Current aerial view (middle); Marker in Jasper (bottom).

The association's members often arranged well-publicized tours of the Dixie Highway route to inspect it as well as to promote it. It is interesting that even though road conditions made travel difficult, for a week long tour between Cincinnati and Jacksonville in October 1916, the group procured a band to accompany them for the entire trip (Dixie Minutes 1916:35). The Tamiami Trail, which lay between Tampa and Miami, overlapped the Dixie Highway between Fort Myers and Miami. The Dixie Highway Association helped sponsor elaborate dedication ceremonies in March 1924 when this road, which included a one and one-half mile long bridge over the Caloosahatchee River at Fort Myers, and the West Coast Highway opened. The celebration included two cumulative motorcades as well as eight major and nine minor road meetings along the route of the motorcades (*The Dixie Highway* May 1924:5). Perhaps the most special celebration for the association was its Jubilee Motorcade. In May 1925, in honor of its tenth anniversary, the Dixie Highway Association sponsored the Jubilee Motorcade from Sault Sainte Marie to Miami (Dixie Minutes 1925:179). Each state participated in the motorcade and various celebrations, and the New York Times gave the motorcade detailed coverage.

Although the Federal-Aid Act of 1916 is generally seen as the culmination of the Good Roads Movement, it did not denote the end of the highway associations. However, federal funding and state-wide highway programs did change the associations. Once states formed highway departments, the counties and associations lobbied extensively for the state to include their routes on the state's system as a means to fund the completion of the highway. When the Tennessee State Highway Commission met in April 1917 to delineate the state's Federal-aid roads, the Dixie Highway Association was able to persuade the state to designate the Dixie Highway corridor as the state's number two road priority (Tennessee State Highway Commission Minutes [Tennessee Commission] 1917:97). According to the minutes of the Chattanooga Automobile Club, "The State Highway Engineer had been instructed to…push the work on the Dixie Highway, giving it preference on account of its military importance…"(Chattanooga Minutes 17 January 1918). In 1918 the State of Tennessee designated much of the Dixie Highway Corridor as State Route 2, which is the number it retained until 1923 when the state renumbered its routes.

By 1926 there were at least 250-300, and possibly as many as 600, highway associations in the country with roughly seventy percent of their routes overlapping (Dixie Minutes 1926:196; Kolwyck 1976:11). Also, the various state highway departments had designated many roads as state routes beginning about 1915 to 1918, but these designations usually had no continuity across state lines. When the American State Highway Officials (AASHO) recommended, and the United States Highway Board adopted in 1925, a program to designate official U.S. Highways with a numbering system instead of names, it partially resolved this very confusing situation. This plan was completed by the fall of 1925 and remains essentially intact today. Because there were so many overlapping named highways, the committee consciously chose to ignore the named road systems in their numbering plan. Consequently, a named highway such as the Dixie Highway might have several U.S. route designations in one state or be bypassed altogether. Although the interstate highway associations disbanded, the road appellation continued in use and many sections in Tennessee and elsewhere are still known as the Dixie or Lee Highway.

This routing system placed U.S. numbers on shield shaped signs with even numerals for highways running east-west and odd numbers for north-south routes (beginning on the east coast with U.S. 1 and going westward). The main highways were given numbers under 100

with the more important routes designated in tens such as U.S. 20 or U.S. 30 beginning with U.S. 10 across the northern part of the country. In Tennessee U.S. 70 (or 70S) overlapped the Memphis to Bristol Highway from Memphis to east of Knoxville where it then overlapped portions of the Eastern Division of the Dixie Highway (State Route 9) through Dandridge and Newport to Asheville, North Carolina. Key north-south U.S. routes ended in "1" such as U.S. 31 or U.S. 41. U.S. 11 followed the Lee Highway from Bristol through Knoxville to Chattanooga where it entered Georgia. U.S. 31 went through Nashville and Columbia and overlapped much of the Dixie Bee Line Highway (Bee Line Highway) (State Route 7). U.S. 41 went through Nashville and Chattanooga and overlapped portions of the Western Division of the Dixie Highway. U.S. 51 followed the Jefferson Davis Highway from the Kentucky state line through Dyersburg and Memphis to the Mississippi state line.

The numbering system, because it doomed the named highway associations and bypassed many communities, was often controversial. Some groups opposed the new system, and others lobbied extensively to have the routes placed through their communities. Governor Austin Peay threatened to refuse to accept the new system, in large part because the designation would bypass the Lee Highway between Knoxville and Bristol. After the initial designation routed U.S. 11 through Greeneville, bypassing the Lee Highway Route through

Figure 11-41: U.S. Shield Emblem on a Tennessee highway (left) and roadside marker giving directions to a historic site in Coffee County (below). The readily recognized form of the U.S. routing sign led to its shape being used in roadside markers and advertising logos.

Kingsport and Rogersville, the state highway department requested, successfully, a split designation of U.S. 11E and U.S. 11W from Knoxville to Bristol. In 1934, AASHO attempted to eliminate all split designations and officially deleted U.S. 11W. However, Tennessee refused to change the designation, and in 1952, the AASHO again recognized the U.S. 11E and W designations. In an effort to appease other groups, Tennessee still has multiple routing systems such as U.S. 45E and 45W, U.S. 41 and 41A, and U.S. 70S and 70N.

Although the Dixie Highway Association actively sought federal support to build the highway, it also strongly wished to preserve its identity. The Directors formally voted to seek "the preservation of Highway names such as the Dixie, Lincoln, Old Spanish Trails, etc. so that same may not be lost in the numbering system as now being carried out by the Government Highway Board" (Dixie Minutes 1926:194). From the minutes of the Dixie Highway Association, it appears that this organization was led to believe that it would be able to continue signing the Dixie Highway after the U.S. routing designation. In November 1925, the Highway Commissioner of Georgia told the Board of Directors that the association would be allowed to place Dixie Highway markers on the same post (standard) that held the state's road signs and that the Georgia Highway Department would maintain them (Dixie Minutes 1925:176). In September 1926 Frank Rogers, former President of the American State Highway Officials who had served on the federal routing committee and who was then Commissioner of Highways for the State of Michigan, stated that Michigan was continuing to use the name Dixie Highway:

> The point I want to bring out is that, so far as I know, there will be no attempt to prevent the continuance of the names of the Highways and I believe that permission can be secured through the different State Highway departments for the name of the Dixie Highway to appear either on the shield bearing the U.S. number or somewhere on the standard bearing the shield and that the different State Highway departments will erect such signs of the Dixie Highway if furnished them by the Association (Dixie Minutes 1926:196).

However, when the states implemented the U.S. routing system and state highway departments began erecting state and U.S. road signs, the need for the highway association signs ceased. Federal policy soon forced the Dixie Highway Association and the other highway associations to remove their signs from the U.S. routes. Also, various state legislatures passed laws in the 1920s that prohibited anyone from erecting signs within the right-of-ways of state highways without written permission from the state so the Dixie Highway signs would have also been banned from some state roads even if they were not federal routes (Tennessee Highways, January 1922:28).

The U.S. routing designation that fragmented most named highways essentially killed the highway associations (Hokanson 1988:108). The Dixie Highway Association was no exception. In July 1926 the association voted to discontinue the publication of its magazine because the advertising was insufficient to pay for its publication. At the same meeting, the Board discussed at length discontinuing its activities but voted to continue its work and to try to raise money to support the association (Dixie Minutes 1926:193). At the next annual Board of Directors meeting, which was held at Sault Sainte Marie 1 September 1926, the association made plans for its next annual meeting to be in Chicago (Dixie Minutes 1926:196). However, on 22 April 1927 the Executive Committee met in Chattanooga and adopted the following resolution, which appears as the last page of the minutes of the Dixie Highway Association,

> WHEREAS, the purpose for which the Dixie Highway Association was organized has been accomplished, and
>
> WHEREAS, the Dixie Highway Association is without funds with which to pay the salary of a Secretary, office rent and other incidental expenses, be it therefore,
>
> RESOLVED, that on May first (1st), 1927, all expense of the Association be stopped, but that the Association will not disband but will, for the present, be held intact for any future needs (Dixie Minutes 1927:198).

Reputedly, the Dixie Highway Association formally disbanded in 1930 (Ochs 1962:1). However, the Chattanooga Automobile Club essentially absorbed the Dixie Highway Association after the April 1927 actions of the Dixie Highway Association. The Chattanooga Automobile Club continued to be very active until the 1970s. At that time, the American Automobile Association threatened to cancel its membership because the required percentage of registered automobile owners as members was below the required levels. It was then common for many clubs to merge to form state wide organizations and such a merger became the only logical thing for the Chattanooga Automobile Club to do. On 1 April 1976 the Chattanooga Automobile Club ceased to exist after its merger with the Mid-South Club although it continued to operate as the Chattanooga branch office (Kolwyck 1976:5).

And what of Carl Fisher, the "father of the Dixie Highway"? Miami Beach was initially slow to develop, but:

> …if Carl Fisher was good at anything, it was that he could spot a good idea, a future trend, and be right there on the ground floor when it took off. Fisher had staked his substantial fortune on this mangrove-swamp-turned-sandpit, and by 1922 the whole project stood on the brink of ruin. The skeptics were ready to say I told you so when, all at once, land began to sell, the Dixie Highway began to bring snowbirds, and Fisher began to get very rich. He built golf courses, polo fields, yacht moorings, shops and office buildings. Fisher built four hotels in Miami Beach at the end of the Dixie Highway: the King Cole, the Flamingo, the Nautilus, and the Lincoln. Will Rogers once referred to Fisher as the "midwife of Florida. Had there been no Fisher, Florida would be known today as just 'The Turpentine State.' He rehearsed the mosquitoes till they wouldn't bite you until after you had bought." Some estimate Fisher was worth $100 million by 1925 (Hokanson 1988:114).

However, a mammoth hurricane in 1926 destroyed much of Miami Beach. The Florida land boom imploded in the late 1920s, which combined with the stock market crash of 1929 and the ensuing Great Depression and an ill-fated investment in Montauk, New York, wiped out Fisher's financial empire.

> He spent his last decade in Miami Beach, in the rebuilt city that was no longer his, not quite in poverty, but with none of the monied flamboyance that had characterized the earlier Fisher. He was often seen walking the beach in his Norfolk jacket, white flannel trousers, and floppy felt hat, talking of great plans for the Florida Keys. Carl Fisher died in July 1939 (Hokanson 1988:114).

Figure II-42: Scenes of Carl Fisher's empire in Miami Beach, Florida; Fisher's home (right); Nautilus Hotel (left); Bathing Casino (middle right); Casino (bottom left); Flamingo Hotel (bottom right); (Author's Collection).

The development of interstate and transcontinental highways in the 1910s, although largely completed by the state highway associations and later superseded by the U.S. routing system in the 1920s, were somewhat of a culmination of the Good Roads Movement. Many diverse groups with different motivations joined together to support the construction of roads and then competed with each other for very limited funds. Better roads encouraged people to buy automobiles, and more automobiles highlighted the need for improved roads. The very success of the Good Roads Movement, and the ever growing number of automobiles, emphasized the inadequacy of the country's road system. Clearly, local governments and private entrepreneurs could not provide an adequate road network for the country. Inevitably, motorists turned to the federal government for help. "Driven by the movement, rather than leading it, the government of necessity took charge" (Paxson 1946:238).

DEVELOPMENT OF THE STATE HIGHWAY DEPARTMENT 1915-1945

Up to 1915 in Tennessee, each county largely initiated road and bridge construction in a somewhat haphazard manner with little regard for how each project might fit into a larger transportation linkage system. In general, the state had shown little leadership in formulating a state-wide plan. However, in response to the overall Good Roads Movement, the state did pass a few laws in the early 1900s aimed at improving road conditions in Tennessee. In 1907 the state legislature passed a bill creating a three-person State Highway Commission and providing for a comprehensive system of state road construction. However, a lack of funds prevented any action by the State Highway Commission. In 1909, the legislature repealed this bill and passed another law that created a State Commission on Public Roads. The function of this commission was to study federal efforts in road construction. This three-man commission developed an extensive report and made several long-term recommendations, including the construction of the Memphis to Bristol Highway, but it had no funding to implement any work. However, the increasing number of automobiles made such road work essential. For instance, although there had been only 8,000 motor vehicles in the entire country in 1900, by 1913 there were 14,830 in Tennessee alone (Tennessee 1959:21). In response to this growing demand, the legislature approved an act in 1913 that authorized counties to issue bonds for road construction programs. These early efforts indicate the state's awareness of the need for a state-wide program.

The Good Roads Movement resulted in Congress appointing a joint committee in 1912 to study the country's road situation. In 1913 Congress appointed a new Committee on Roads that was chaired by Missouri Representative D. W. Shackleford. Alabama Senator John Bankhead led the fight in the Senate. Representative McKellar of Memphis was a strong supporter of federal funding for a national system of roads. He tells in his memoirs that he and Senator Bankhead arranged to meet with President Wilson to argue for his support. Representative McKellar stated that the President was "gloomy" about the law's constitutionality. Representative McKellar reminded him that a German submarine had recently surfaced at Baltimore and its crew had come ashore to dine, and he then asked him to think about a German invasion and the need for better roads for national defense. Representative McKellar's story continues:

> President Wilson thought it over and then said he had changed his mind--roads were needed for national defense, and that would make the bill constitutional. Senator Bankhead beamed. Then the President asked how much money was

> needed to build roads. Senator Bankhead was about to ask for the $5 million, but I spoke up first. "Well, Mr. President," I said. "This is a pretty big country. I should say $100 million would make a fair start." Senator Bankhead looked like he was going to collapse, but the president didn't seem so shocked. He compromised for $75 million then and more later (Pope 1976:68-69).

In response to the Good Roads Movement and lobbying by attendant groups such as farmers and the interstate road associations, Congress did pass the Federal-Aid Road Act in 1916, which is often called the Bankhead Act. This act provided for $75 million to be spent under the direction of the Secretary of Agriculture over five years but only through suitably equipped and organized state highway departments--thus compelling the few states without such agencies to organize them in order to receive Federal-aid funds. The state of New Jersey formed the first state highway department in the United States in 1891 and many states quickly followed. By 1915 only five states did not have state highway departments--Tennessee, Florida, Indiana, South Carolina, and Texas. In anticipation of federal action, Tennessee and Florida created departments in 1915. The remaining three states formed state highway departments in 1917 (MacDonald 1928:1196). However, in 1916, only California conformed to all the federal guidelines (Seely 1987:47).

The 1916 act reflected the position of the farm lobby as put forth by Representative Shackleford and was often promoted as the "Get the Farmer out of the Mud" movement. The act emphasized the improvement of local farm-to-market roads and rural post (mail) roads and that did not require coordination from state to state. This act and many components of the Office of Road Inquiry (renamed the Office of Public Roads Inquiry in 1899) would reflect principles of the Progressive Movement. A basic tenant was the ideology of reform through apolitical expertise, and the principle of experts—rather than politicians—making as many of the decisions as possible dominated the philosophy of the state highway departments for many years. The Progressive Movement would also influence the decision to develop nationwide standards in materials and designs. Engineers held many of the leadership positions at the state and federal level. For example, Logan Page, an engineer who had headed the Office of Public Roads Inquiry's testing laboratory became director of the agency in 1905 and "transformed it into a model of Progressive reform" (Seely 1987:24). Under Page, the early Federal-aid program basically ignored the automotive industry and its promotion of long distance routes. Instead, Page added "the Progressive assumptions about expertise to the traditional gospel of good roads" (Seely 1987:25), forming a program that reflected rural priorities and the ideal of "getting the farmer out of the mud."

The Federal-Aid Act of 1916 provided for funds to be spent on "any roads over which the mails are carried," and all roads constructed under the act were to be free from tolls. It also put a $10,000 per mile limit on spending, which effectively eliminated urban roads from consideration. The federal program required a fifty percent match, in Tennessee, typically one-third from each county and one-sixth from the state (Seely 1987:49; Tennessee 1959:38). A set formula based on population, size, and mileage of post roads determined the exact amount appropriated to each state. The states also had to choose which roads to include in the Federal-aid system, and from this list, which projects to fund. The states were also responsible for making surveys, developing plans, letting the contracts, and supervising construction. However, the Federal Bureau of Public Roads had review and approval authority over all of the state work. This federal review process, at least in part, led to the development of standard

procedures and plans. Once the roads were built, the states were responsible for maintaining them at the state's own expense; if they did not, Federal-aid funds could be denied for future projects.

In anticipation of such a federal act, the Tennessee State Legislature had passed legislation in 1915 to create the State Highway Department. The legislation stipulated that a six-member non-paid State Highway Commission would manage the State Highway Department. These six members included the governor, State Geologist A. H. Purdue, Dean Charles E. Ferris of the University of Tennessee Engineering School, all of who were ex-officio members, and three members appointed by the governor, one from each grand division, Arthur Crownover, Charles W. Williams, and William H. Crox who was succeeded by C. F. Milton (Johnson 1978b:31). The stated purpose of the State Highway Department was to control highway construction and maintenance as well as to formulate a state highway plan.

What's in a name? TDOT....

In 1915, the state legislature established a state highway department and the Tennessee Highway Commission, a three member non-paid commission. The state agency was called the Tennessee Department of Highways until 1923, although during this time, the name Tennessee State Highway Department appeared in many official documents. Under Governor Austin Peay, in 1923, the state restructured many departments, and the highway department became the Tennessee Department of Highways and Public Works. In 1972, the title was changed to its current name, the Tennessee Department of Transportation (TDOT).

In April 1917, the State Highway Commission met and delineated the Federal-aid roads. The Memphis to Bristol Highway and the Dixie Highway were foremost among these aid routes. The state considered these two routes a top priority in the state, and in November 1917, the Commission officially adopted a resolution stating that these two routes would "have preference of construction" over all other roads (Tennessee Commission 1917:97). A very large number of the Tennessee State Highway Department's early projects pertained to these two road networks.

World War I and the resulting shortage of materials curtailed much of the initial work by the State Highway Department and the Federal-aid program. Limited funding was also a major problem. For instance, federal funds in 1917 totaled $114,153 and in 1918 totaled only $228,307 (Tennessee 1959:26). During World War I, the state built only two miles of roadway on the state highway system (Macpherson 1969:198). The Commission's premise that the counties would build the roads and that the state would only advise the counties and funnel federal money to them further limited its effectiveness. Perhaps, the Commission's chief accomplishment was to distribute war surplus trucks, tanks, and tools to county commissions for road work (Johnson 1978b:32).

The Federal-aid program prohibited spending money on any road that contained a toll gate. Over the following years the state struggled with counties to free all the pikes. For instance, Rutherford County refused to free its roads until the State Highway Department in 1917 threatened to reroute the Dixie Highway around the county. In response, in January 1918 the Rutherford County Court passed a resolution freeing roads, and the State Highway Department agreed the road that Rutherford County freed and presented to the Commission on or before 15 February 1918 would be the route for both the Dixie and the Memphis to Bristol Highways (Tennessee Commission 1917:97). The last turnpike to be freed, and then only after substantial litigation, was the Nashville-Franklin Turnpike Company in 1926, ironically one of the first to be chartered in the state (Tennessee 1959:24).

By 1919, it had become apparent that the original organization at both the federal and state levels was inadequate for the scope of work it faced. In 1919 the federal government reorganized the Office of Road Inquiry as the Bureau of Public Roads, and it began to establish standard design specifications. Thomas H. McDonald, a no-nonsense product of the Progressive Movement and its doctrine of professionals making decisions based on professional criteria rather than political considerations, viewed road building as more than a job. He retained the Progressive ideals of incorporating morality into public jobs through service and viewed road building as second only to education as the "greatest public responsibility," believing good roads would improve living standards, especially for rural Americans. Under McDonald, the Bureau developed standard specifications and worked closely with the states to develop a "partnership" in road building. McDonald headed the Bureau from 1919 until 1953, when at the age of 72 he was asked to resign (Johnson 1987b:36; Lewis 1997:8, 92).

At the state level, the legislature felt that a voluntary commission could not manage the highway department's broad scope of work. Therefore, in 1919 the state legislature passed Public Act 1919 Chapter 149 that reorganized the Tennessee State Highway Commission as the Tennessee Department of Highways. This act replaced the six-man non-paid commission with a three-man salaried commission. The members, each representing one of the Grand Divisions, were W. W. House of Dresden, W. P. Moore of Columbia, and W. T. Testerman of Rogersville. The new legislation once again gave the new commission the directive to develop a State Highway Plan, and in 1919 the Department of Highways announced its designation of the State Highway System that contained 4000 miles of roads designated as State Routes. Initially, the primary selection criterion for state routes was that they connect county seats. However, this commission continued to rely heavily on county involvement with the intention being the county, state, and federal governments would share construction costs and the counties would maintain the roads after their construction. Under this system, projects proceeded very slowly because the counties usually had to pass bond issues to pay their share. Between 1919 and 1923, the state completed only 242 miles of the state highway system (Macpherson 1969:199).

During World War I, the need to transport troops and materials drew attention to the poor condition of roads around the country. As a result, the Council of National Defense created a Highways Transport Committee and the government established an umbrella group called the United States Highways Council to examine roads and their effect on military operations. After the war, in an effort to highlight road conditions, the Army Motor Transports Corps staged an elaborate cross-country transport of an army caravan of seventy-five vehicles and two hundred men on the Lincoln Highway from Washington to San Francisco took sixty-two

days. In 1920 a second convoy traveled from Washington to Los Angeles on a more southern route and crossed the Mississippi River in Shelby County on the Bankhead Highway (Paxson 1946:243-244) using the Harahan Bridge (#77, 79-NonHighway-4), the only vehicular bridge south of the Mississippi River's confluence with the Ohio River until 1930.

The need for better roads for military reasons and the increasing number of automobiles convinced many people that more funding was necessary and a network of major roads was essential. Thus, in 1921 Congress passed the Federal-Aid Highway Act that reflected the lobbying efforts of the interstate highway associations. Like the 1916 act, it required that the federal money be matched by an equal amount with state funds. However, while the 1916 act provided $75 million to be spent over five years, the 1921 act provided an average of $75 million each year. Another key difference was that the 1921 act stipulated the Federal-aid money should be concentrated upon "such projects as will expedite the completion of an adequate and connected system of highways, interstate in character" (Hokanson 1988:93). This act also required each state to identify up to seven percent of its roads as "Primary Roads" and stipulated Federal-aid funds could be spent only on these roads (as opposed to any road over which the mail was carried under the 1916 Act) (Hokanson 1988:93; Rae 1971:37-38; Tennessee 1959:23). The new Federal-aid act, as well as changes in Tennessee, significantly spurred highway development in the state during the next decade. The 1923-1931 period became a watershed for road and bridge construction in Tennessee. Actions at both the federal and state level combined to set in motion a major road building effort that dramatically altered Tennessee's highway system and provided the basis for an extensive bridge construction program in the late 1920s.

In addition, the election of Democrat Austin Peay as Tennessee's Governor in 1922 resulted in significant changes in state government and for the Department of Highways specifically. During the election, Governor Peay made the Department of Highways a major issue and campaigned, "Politics and roads don't mix." Once elected, Governor Peay's primary objective was to reorganize state government and his secondary objectives were highway construction and education reform. During his tenure as governor until his unexpected death in October 1927, Governor Peay's fulfillment of these objectives and his integrity earned him the recognition of being considered by many historians as one of Tennessee's six best governors (Folmsbee 1969:491).

Although earlier governors had tried to pass reform measures, the state legislature, which essentially controlled state government, had blocked each move. However, Governor Peay easily won the 1921 election with a mandate for change. Once elected, Governor Peay faced a state government largely composed of a myriad of small and overlapping offices. Governor Peay restructured this system by consolidating many offices and eliminating duplicate functions. This reorganization consolidated 64 offices, departments, boards, commissions, and agencies into eight departments "headed by a commissioner appointed by the governor, answerable to him alone, and removable by him alone" (Macpherson 1969:48). Governor Peay's reorganization resulted in a stronger central state government and stronger executive branch that, to some degree, diluted the power of local politicians and the power of the state legislature. Governor Peay's ethical leadership resulted in many reform measures that benefited the state, especially rural sections.

As part of this overall reorganization of state government, Governor Peay reorganized the Department of Highways in 1923 under a single Commissioner as the Department of Highways and Public Works thereby abolishing the old three man commission. Governor Peay

appointed J. G. Creveling, an independently wealthy engineer with Republican leanings, as Commissioner, with the direction to eliminate politics from the highway department. Commissioner Creveling had substantial formal training including engineering degrees from universities in both the United States and Germany. He had headed the Davidson County Road Commission from 1917 to 1923 where, serving without pay, he had greatly improved the county's road system. Commissioner Creveling appointed Neil Bass as first assistant and Bob Baker as second assistant, both of whom later became state highway department commissioners. Commissioner Creveling appointed L. W. Erickson to head bridge design. Although all of Governor Peay's cabinet members were well qualified, Commissioner Creveling's professional qualifications and honesty made him one of Governor Peay's strongest appointments (Macpherson 1969:111, 217).

Debates from the early 1900s concerning rural and urban interests continued to plague the efforts to improve roads in the 1920s. One controversy in the highway movement in this period was the disagreement between the "proponents of bond issues and of pay-as-you-go plans, and in most states the impatient advocates of deficit financing won out" (Tindall 1967:257). Governor Peay opposed funding highway construction through bond issues but instead, supported a two cent per gallon gas tax that was to be used solely for the construction and maintenance of a state highway system. Both of these elements were considered to be more favorable to rural interests than urban areas as were several other Governor Peay policies. The Tennessee Good Roads Association, formed in 1922 and largely composed of urban business people, led an active and, sometimes acrimonious, campaign against Governor Peay's funding approach. This group lobbied for a $75 million bond issue for a highway program that would link the county seats (Keith 1995:187-189). However, in a compromise measure that out-maneuvered his opponents on the bond issue, Governor Peay eventually approved the issue of $15 million worth of short term (five years) notes to supplement the gas tax. In addition, Governor Peay supported a state-wide distribution of auto license funds rather than returning them to the county of origin, a distribution system that resulted in more road construction in rural areas, thereby aiding the development of road networks. Governor Peay also refused to become involved in the selection of highway routes but rather allowed the Department of Highways and Public Works to choose the lines without political influence. However, even with Peay's support for rural interests, the state's road program of the 1920s resulted in a network of roads connecting county seats which rural interests had originally opposed. Also, by the end of the 1920s, Peay's expansive road program, in execution very similar to the program that the Tennessee Good Roads Association had proposed, had cost over $75 million but without incurring long-term debts for the state (Keith 1995:195).

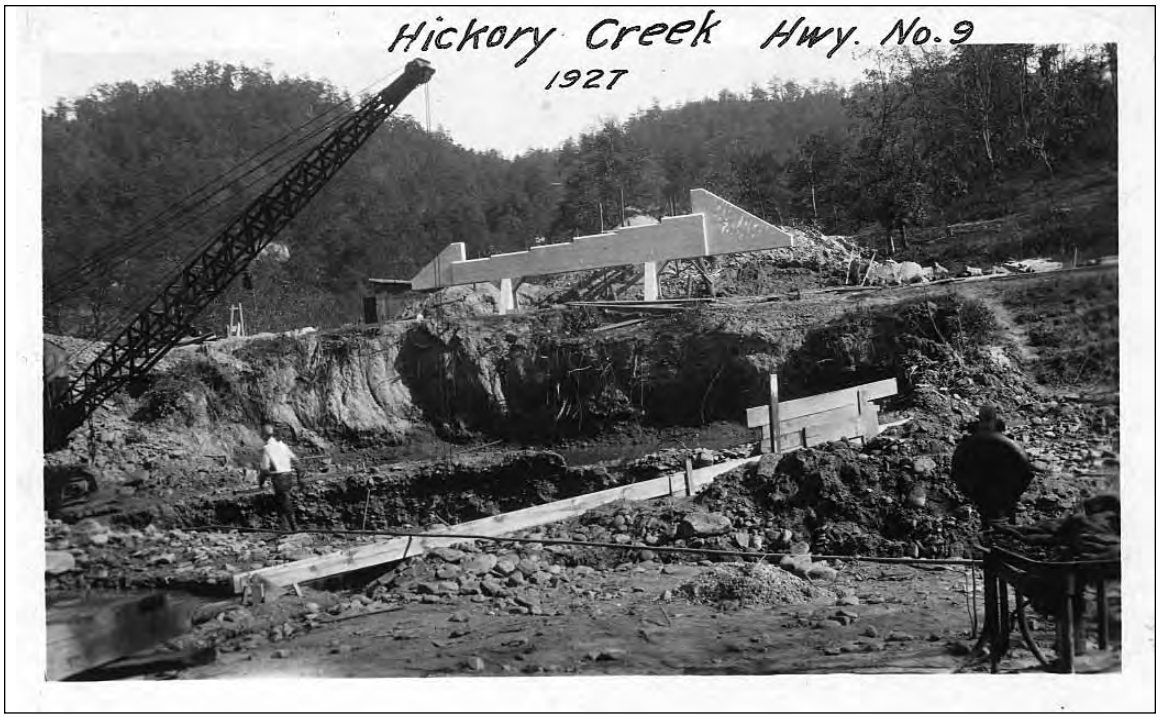
In May 1924, a zero milestone for Tennessee's highway system was dedicated in Nashville at the "southeast corner of memorial park at Union Street and Sixth Avenue" in imitation of the zero milestone dedicated in Washington in October 1923 denoting the system of National Highways (Tennessee 1959:36). Even though the state had designated some county roads on the State Highway Plan in earlier years, it was not until 1925 that the Department of Highways and Public Works assumed control over all of these roads. In 1925 the state began receiving the motor vehicle registration fees (first authorized in 1905 and paid to individual counties) thus providing more money for the Highway Department. In connection with this, some counties gave the Department of Highways and Public Works more authority over county roads. Also, the legislature in 1925 provided for the borrowing of $5 million to be used by the Department of Highways and Public Works for the construction of highways and bridges.

The state highway department also began developing roadside parks and pull-offs for the convenience of the motorist. In an era before fast food and service stations at most interstate exits, it was essential for motorists to have places to eat and take rest breaks. The state, or highway associations or local booster groups, provided these facilities along major state routes. They could be informal picnic areas with picnic tables, fireplaces, benches or more elaborate small parks. Ideally, they were situated along, but off the roadway to provide shade and privacy. Some states built turnouts which were long linear parking areas immediately adjacent to the roadway. These often did not have picnic facilities. When one of these types of pull-offs was placed somewhere with a commanding view or vista, they were called scenic overlooks (Gubbels 1938:55-58). Tennessee tended to build narrow, linear pull-offs or turnouts, with concrete picnic tables and trash cans, sometimes with grills. The spatial layout allowed motorists to get on and off the roadway easily. Examples of roadside pull-offs remain around the state and include the 1924 Allison Park in Marion County, which is a park with several picnic tables and a striking monument that the Dixie Highway Association erected. Another example is the 1928 triangular park in Rogersville at the junction of State Route 70 (Trail of the Lonesome Pine) and (old) State Route 1 (Memphis to Bristol Highway and Lee Highway, now State Route 347). This area contains picnic tables as well as a Lee Highway Milestone marker, reputedly one of five erected in Tennessee. The marker also commemorates early settlers, Benjamin Hawkins and John Carter as well as the East Tennessee Stagecoach Line. A third example is the linear turnout with picnic facilities at a scenic overlook developed with New Deal money in 1936 along State Route 15 near Monteagle.

As previously noted, up to the 1920s, roads were largely identified by name. When highway associations began to develop the interstate road systems such as the Lincoln Highway or Dixie Highway, they marked the roads with emblems such as color-coded initials. As the number of roads and the number of travelers using the roads increased, this random and often contradictory system became hopelessly confusing. In the early 1900s, map companies began trying to delineate roads by names and numbers, but it was not until 1920 that states began to assign official numbers to their roads (Finch 1992:83-84). The 1921-1922 report of the Department of Highways delineated Tennessee's proposed numbered Primary Road System (Tennessee Department of Highways and Public Works *Biennial Report* [Tennessee *Report*] 1921-1922). An indication of the importance of the early intrastate and interstate highway associations is their domination of Tennessee's routing system. The state allocated all of the initial state routes--numbers one through ten--to routes sponsored by these associations: Road No. 1 (State Route 1) Memphis to Bristol; No. 2 (State Route 2) Bristol to Trade in Sullivan and Johnson Counties (Tennessee's portion of the proposed Bristol to Asheville Highway); No. 3 (State Route 3) Knoxville to Asheville (Dixie Highway); No. 4 (State Route 4) Dixie No. 2 [Eastern Division] from Jellico to Chattanooga; No. 5 (State Route 5) Lee Highway from Bristol to Memphis via Muscle Shoals; No. 6 (State Route 6) Dixie No. 1 [Western Division] from Kentucky line to Chattanooga; No. 7 (State Route 7) Bee Line from Kentucky line to Alabama line; No. 8 (State Route 8) Jackson Highway from Kentucky line to Alabama line; No. 9 (State Route 9) Mississippi Valley Scenic Highway from Kentucky line to Mississippi line; and No. 10 (State Route 10) Jefferson Davis Highway from Kentucky line to Mississippi line.

The Memphis to Bristol Highway, a distance of about 550 miles, as indicated by the state's designation of it as State Route 1 in its first road plan, was a high priority of the State Highway Department during its formative years and over the ensuing decades. In addition to the state route designation, in 1925 the state designated about two-thirds of it as U.S. 70, the major east-west route in the region. Many of the state's early Federal-aid contracts were for this

Figure II-43: State Highway Road Crews; Road crew, concrete paving project, West Main Street in Gallatin, National Recovery Highway Project, 1934 (top); Road crew working horse drawn equipment on unidentified state route, 1920s (bottom); State Route 9, Hickory Creek Bridge, Campbell County, 1927 (top, next page); Rock Dump Carts in Lincoln County, 1921 (bottom, next page) (TDOT Photo Collection).


Hickory Creek Hwy. No. 9
1927


921 Rock Dump Carts

Figure II-44: State Highway Road Crews; Road crew with equipment (top); State Highway Department Survey Crew, 1920s (middle); and Road crew with steam shovel (bottom) (TDOT Photo Collection).

route, and in 1917 the State Highway Commission approved a motion that the state give the Memphis to Bristol Highway first preference in its highway program. However, even with the infusion of Federal-aid funds, the state did not complete the Memphis to Bristol Highway until about 1930. In the late 1920s, special interest groups sponsored the interstate Broadway of America Highway from California to New York. In Tennessee, the association used State Route 1 from Bristol to Memphis as the route for this highway (which was an outgrowth of the earlier Southern National Highway). State Route 1 remained the main east-west route through the state until the completion in the 1960s of Interstate 40 (I-40) which roughly parallels State Route 1 through much of the state. Even after I-40, State Route 1 continued to serve as an important local road in most counties. Many of the state's early highway projects focused on State Route 1, and the state's first Federal-aid contract exclusively for a bridge (#101, 57-01644-00.05, Madison County) in 1920-1921, federal project #15, was for a bridge on State Route 1. Other bridges built in the 1920s on State Route 1 that were inventoried in the survey include the Caney Fork River Bridge at Rock Island in Warren County (89-SR001-26.63), a through Parker truss built in 1924-1925; the Dog Creek Bridge in Cheatham County (11-SR001-04.76), a through Pratt truss erected in 1924-1926; and the Big Turnbull Creek Bridge in Cheatham County (11-01948-00.45), an open spandrel arch erected in 1926-1927.

The state changed many of its original route designations in 1923 due to a new Rules and Regulation policy issued 31 July 1922 by the Secretary of Agriculture. The 1923 regulations required the state to develop a system of primary and secondary roads on which they proposed to spend Federal-aid money. In November 1923, the U.S. Bureau of Public Roads approved Commissioner Creveling's selection of the Tennessee State Highway System as the roads for the Federal-aid routes (Macpherson 1969:22). As a result, the Department of Highways and Public Works's 1923-1924 Report designated a different system of roads as Tennessee's Primary Road System. The 1923 state route system is essentially the same as now (Tennessee Report 1923-24). For instance, the 1923 system redesignated the original State Route 10 as State Route 3, a designation it still holds. Routing ran from west to east (e.g., Memphis to Bristol) or south to north (e.g., Chattanooga to Nashville). Signs for state routes consisted of the numbers within triangular or circular shaped shields that were originally painted on trees and utility poles, but by the late 1920s, the state had issued metal signs attached to poles.

In the 1920s, pavement marking on state routes consisted of the centerline of the road containing a strip of dark paint on light pavements and light paint on dark pavements. In the late 1930s, the state initiated a new road marking system. The state added a second color strip if the sight distance was limited. A double line indicated when visibility was good in one direction but not the other. A triple line indicated visibility was bad in both directions (Division 1940:55-56).

The years between 1915 and 1927 were a transitional period for the state highway department in roadway and bridge design. By the late nineteenth century, as unpaved roads were unable to accommodate increased automobile traffic, road builders had begun experimenting with more permanent and durable road surfaces. Although brick was used on urban roads in the 1800s, reputedly, the first rural road to use bricks as a paving material was in Ohio in 1891 (Hilles 1958:100). Road builders used brick as a paving surface only occasionally for rural projects, and few examples remain. For example, in 1914, there were approximately 1,600 miles of brick pavement in the United States; in 1924, there were 4,319

miles (MacDonald 1928:1199). It is believed the first concrete road in the United States was in Ohio in 1893. However, due to its initial cost, the use of concrete as a paving material spread slowly. Only five miles existed in the United States in 1909 and only 2,348 miles in 1914. However, its excellent record under wartime conditions and low maintenance costs led to a substantial increase in its use in the 1920s. By 1924, there were 31,146 miles of concrete roads in the United States and construction was proceeding at the rate of more than 6,000 miles per year, the fasting growing rate of any paving material other than gravel (MacDonald 1928:1199).

It is possible that the first concrete road in Tennessee was a nine-foot road between Manchester and Tullahoma that a turnpike company built about 1910. The first documented concrete roadway in the state was a portion of Woodmont Boulevard in Davidson County. Real estate developers built this two mile stretch of 32-foot wide roadway in 1914. Their

Figure II-45: Views along the Memphis to Bristol Highway in White County include (top) a stone monument with a plaque that reads "Erected by Friends to Memory of James Palmer President of Memphis to Bristol Highway Commission 1912-1918 *The Broadway of America"* and (bottom), on a bypassed segment of the roadway, a boulder with the state route logo painted on it.

literature advertised it as the first concrete road built south of the Ohio River (Johnson 1978b:39). The State Highway Department's first projects to include pavement of "Cement Concrete" were apparently State Project No. 104 in Hamilton County from Chattanooga to the Georgia line that the state completed in May 1919 and Federal-aid project number 1 in Hamilton County built between 1917 and 1921 (which was later canceled as a federal project). The first federal projects that included surface treatments of "Cement Concrete" were apparently Federal-aid project number 28 in McMinn County and Federal-aid project number 35 in Hamilton County which were built between 1920 and 1922. In 1910 the Office of Road Inquiry experimented with asphalt paving materials and methods on a stretch of Rutledge Pike in Knox County. The first bitumen asphalt paved road by the Department of Highways and Public Works was a section of State Route 1 (the Memphis to Bristol Highway) near Rutledge paved about 1924. Standard surface treatments by the state in the 1910s and 1920s were Bituminous Carpet Treated Macadam or Waterbound Macadam (gravel). Other surface treatments included chert, rock asphalt, and Bituminous Concrete (Tennessee Report 1921-1922:70-100). In the 1920s it became common for the state to use asphalt or concrete for most state routes.

A 1940 state highway study provided the following statistics on pavement mileage on Tennessee state routes in the year 1926: bituminous macadam, 446 miles; bituminous concrete, 83 miles; cement concrete 305 miles; rock asphalt, 92 miles; and chert, gravel, or water-bound macadam, 559 miles. Of note is that earth and unimproved state routes totaled 2,438 miles. In comparison, by 1928, the figure had dropped to 1,050 miles and continued to drop through the 1930s. In 1938, the state had only 26 miles of unpaved state routes (Division of Research 1940:17).

In the early twentieth century, rural roads were typically twelve and sometimes sixteen feet wide. In the late 1910s and early 1920s, the state's first roads were typically sixteen feet wide although a few were as narrow as twelve feet (e.g., the Bristol to Trade route in Sullivan and Johnson Counties) or as wide as twenty-four feet (in urban areas such as Chattanooga or Nashville). However, by the mid-1920s, state-built roads were typically twenty-four feet wide. In the 1920s, state sponsored road construction projects increasingly reflected more conscious engineering elements such as straighter road alignments (sometimes called "shotgun" or "beeline" roads), deeper cuts and more fill to produce flatter grades, and the use of guardrails and shoulders. In 1928 the American Association of State Highway Officials established nationwide engineering standards which made ten-foot traffic lanes and eight-foot shoulders mandatory and required a minimum concrete-surface thickness of six inches and a one-inch crown on a two-lane concrete highway (Hugill 1982:344).

During the 1920s, a major, cohesive state-wide improvement of state routes emerged. Since individual counties had built most of these roads and contained bridges in differing states of repair and varying widths, the state replaced many of them as part of this road improvement program. While the funding and operational changes primarily occurred earlier, actual changes in bridges being built began to occur about 1927 (due to the time necessary for planning and design work). At this time the Department of Highways and Public Works began to standardize the types of bridges it built, including specific design elements such as the composition of members, the width, and railings. It was during this period that the Department of Highways and Public Works increased its two lane bridge curb-to-curb width to a standard 20 feet. By the late 1920s, Tennessee boasted thousands of miles of paved two-lane roads with hundreds of modern bridges and a standard speed limit in rural areas of 30 mph.

In addition to experimenting with paving materials and road widths in the 1920s, the state highway department seems to have also experimented with the type of bridges it built and with specific design elements. Two representative bridges from this period are the Goodbar Bridge in Warren County (#107, 89-A0278-00.31) and the Cunningham Bridge in Montgomery County (#108, 63-00973-03.88).

The Goodbar Bridge is located on old State Route 30 over the Rocky River on the Warren and Van Buren County lines. In 1917, each county court appointed a committee to work on building a new bridge, but the project was not finalized until 1920. At that time, the Department of Highways offered to pay two-thirds of the cost if the counties together would pay one-third. Construction on the project, designated as Federal-aid project number 79, began in August 1922 and finished one year later. The Department of Highways provided the engineering and plans for a 155-foot open spandrel concrete arch bridge with four approach spans. The state highway department ultimately built few such arches. Other examples include the 1922 Big Turnbull Bridge on old State Route 1 in Cheatham County (11-01948-00.62) and the 1928 Time Line Bridge in Cumberland County (18-SR001-34.20). Instead of these open spandrel arches or even ribbed filled arches, the state highway department concentrated its concrete arch work in culverts in the 1930s and used steel truss bridges for its longer spans. An interesting aspect of the Goodbar Bridge--and perhaps the strongest indication of its transitional nature--is its curb-to-curb width of 16.8 feet, a very narrow two lanes. The width was an improvement over one lane twelve-foot bridges and somewhat better than the sixteen-foot bridges from the mid-1910s, but it was still very narrow. Another transitional feature was that one-third of the funding was local. By the late 1920s, the Department of Highways and Public Works typically paid for all of the costs for state route bridges except right-of-way costs.

During this transitional phase, the state highway department built several steel truss bridges. An example is the 1920-1925 Cunningham Bridge on old State Route 13 in Montgomery County (#108, 63-00973-03.88), the second Federal-aid bridge project in the state and the first major Federal-aid bridge project (Johnson 1978b:32). One of the most unusual features of the bridge is the truss type used, a K-truss. Due to the uneconomical truss design, engineers rarely built the K-truss in the early twentieth century. The state highway department appears to have only used it for one other bridge in Tennessee, the 1925-1927 Gainesboro Bridge in Jackson County (#119, 44-SR056-10.96). Like the Goodbar Bridge, it is reflective of the state highway department's experimental stage. The Cunningham Bridge is a riveted transitional design, neither as light-weight as county built bridges of the 1920s nor as massive as the state built bridges of the late 1920s. The composition of some of the members and railing is also different from the later work of the Department of Highways and Public Works. The curb-to-curb width was only 18.0 feet (as opposed to the 20.0-foot width common in state built bridges in the late 1920s).

To a large degree, Governor Peay did not interfere with the Department of Highways and Public Works. However, he did become involved in the controversy over the Harahan Bridge vehicular viaduct in Shelby County (#77, 79-NonHighway-4). Although Commissioner Creveling had strong professional credentials, he had no previous political experience, and decisions such as highway routings invariably alienated some group who then criticized him and Governor Peay. While Governor Peay was philosophical about the situation, Commissioner Creveling became “prickly and intransigent” (Macpherson 1969:223). In general terms, many people in west Tennessee did not believe that Commissioner Creveling

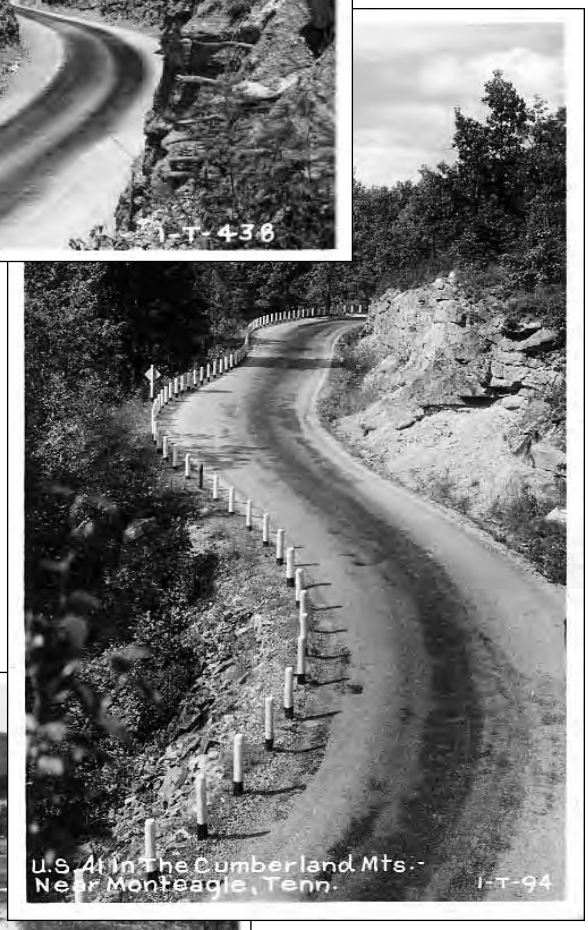
and the Department of Highways and Public Works were doing enough work in west Tennessee, and Commissioner Creveling's refusal to engage in political machinations came to a head over the Harahan Bridge. Three railroads had built the Harahan Bridge in 1916 for railroad traffic with the provision that local interests could build cantilevered roadways for vehicular traffic on the outside of the trusses. The railroads allowed a private company based in Arkansas to build wooden roadways and charge tolls for motor vehicles to cross the bridge. In 1923 the Memphis Chamber of Commerce and others began a campaign to build a toll-free concrete viaduct. The Bureau of Public Roads approved the project, and while Commissioner Creveling agreed for Tennessee to pay for its share of the bridge work, he refused to pay any share of the viaduct's cost since the viaduct was entirely in Arkansas. Interest groups in Shelby County, including the powerful Senator Hugh McKellar, requested that the Bureau of Public Roads review the project. That agency informed Commissioner Creveling in September of 1925 that unless he agreed to fund a portion of the viaduct, it would cut off Tennessee's Federal-aid highway funds. Shelby County also complained to Governor Peay, and on 20 October 1925 Governor Peay urged Commissioner Creveling to reconsider his position. However, Commissioner Creveling resigned the next day rather than implement a policy he believed was illegal. Neil Bass, who became the next Commissioner, designed a compromise measure to provide funding for the viaduct which was completed in 1930 (Johnson 1978b:42-43; Macpherson 1969:232-237).

By the 1926 election Governor Peay had developed a strong rural following, but several special interest groups opposed him. During the election Governor Peay stressed his benefits to the rural population. He particularly stressed his role as Tennessee's "good roads governor" and stated he would be willing to make roads the sole campaign issue. His campaign speeches reminded the voters that when he was first elected in 1922 the state had only 382 miles of state maintained roads but by 1926 it had 6,000 miles. To emphasize this point, the Austin Peay Campaign Committee published a brochure showing a large color-coded state map that delineated roads built prior to Governor Peay and the roads built during his terms. It stated, "The Peay administration has built more miles of hard-surface roads than all the other state administrations combined…We never had a highway system until Austin Peay became Governor of Tennessee!" (Austin Peay 1926:#2221).

Governor Peay's opposition in the primary was Hill McAlister who ran on a program to undo Governor Peay's major reforms, specifically the decentralization of state government. McAlister's proposal included giving the counties more control over road building and giving them money for use on local roads (as opposed to the Department of Highways and Public Works spending money on state routes). Governor Peay defeated McAlister in the Democratic primary and easily won the 1926 election. An indication of his strength is the fact that he was the first Democrat to ever win the Eastern Grand Division, a Republican stronghold (Macpherson 1969:79). During Governor Peay's administration, rural and urban factions became increasingly polarized and antagonistic, and his rural support played a pivotal role in his victory.

Under Governor Peay, the 1927 legislature approved two measures that directly affected the state highway program. The first was the authorization of $10 million in short-term notes for highway construction. The second measure was the funding of an $11.5 million bridge-building program with bonds serviced by tolls. This program included funds for seventeen bridges over major streams in the state, an essential measure to complete the state highway system. [The 1929 legislature added four bridges to the original program.] These bridges were on Federal-

Figure II-46: Changing Roadways of the 1920s: The 1920s saw dramatic changes in the road landscape. Previously, roads tended to fit the contours of the land, and topography dominated the alignment. With modern road construction, engineers and the roads began to dominate the topography. Road surfaces changed from dirt into solid paving surfaces such as concrete or asphalt. One-lane roads gave way to two lanes, usually 24 feet wide. Cuts and fills created flatter grades, and straighter alignments eliminated circuitous routes. Guardrails and shoulders provided a measure of safety. Previously impassable terrain became accessible through steep but passable roads, switchbacks, and tunnels. Wider and better bridges replaced old bridges and ferries. The postcards show: a 1920s bridge on U.S. 41 in the Cumberland Mountains near Walden's Ridge (right); A hair-pin or horseshoe shaped curve (also called a devil's elbow or come-over-darling curve) on U.S. 41 near Manchester (bottom) (Author's Collection).



U.S. 41 in a deep cut near Monteagle (top); A steep section of U.S. 41-64 near Monteagle with wooden guardrails (middle); and a two-lane concrete roadway with wooden guard rail on U.S. 41 in the Cumberland Mountains between Jasper and Chattanooga (bottom).

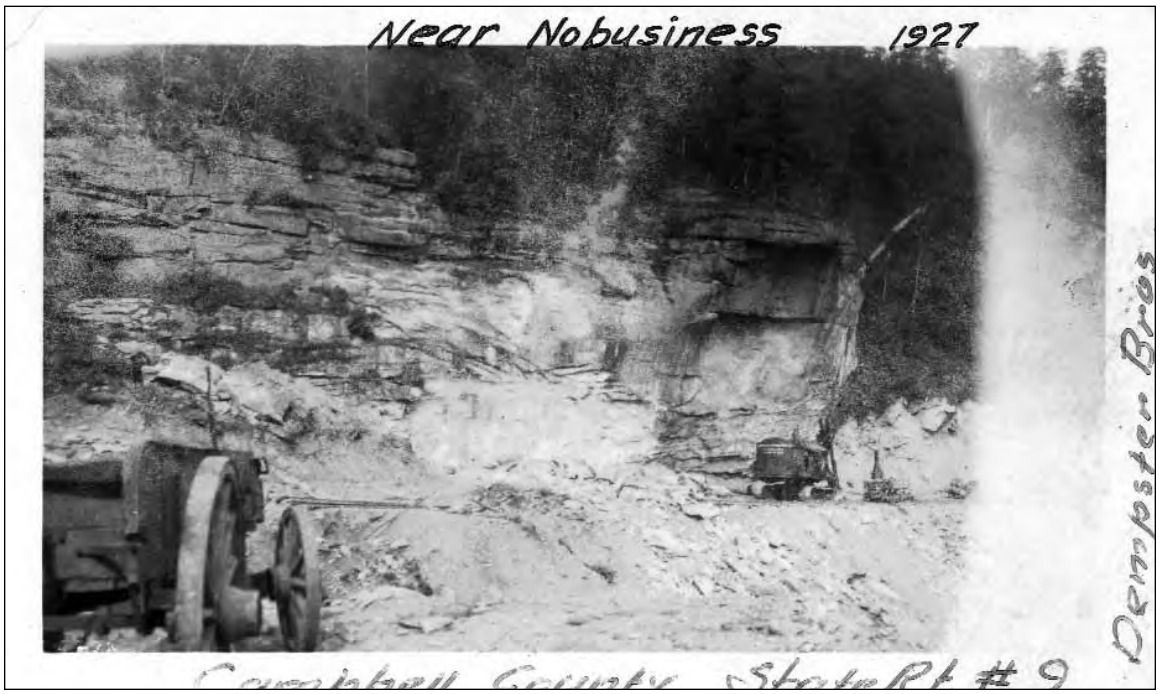


Figure II-47: Road and Bridge Construction Scenes in Tennessee. Construction crews working on a bridge spanning Beech River, State Route 69 between Decaturville and Parsons, Decatur County, 1929 (top right); Near Nobusiness, Campbell County, 1927 (bottom); a wheel scraper crew working in Haywood County in 1922 (top, next page); and road construction near Peabody, 1927 (bottom, next page) (TDOT Photo Collection).


1922 Wheel Scraper Gang


1927
Near Peabody

aid routes that spanned major rivers which ferries had previously serviced. The original Federal-aid program had prohibited federal funds from being used on roads with tolls. However, the Federal-aid act was somewhat reinterpreted in 1926, and in 1927 Congress amended the law to allow matching federal funds to be used if the toll bridges were state owned. Tennessee apparently used this legislation as a way to build state funded toll bridges on Federal-aid routes.

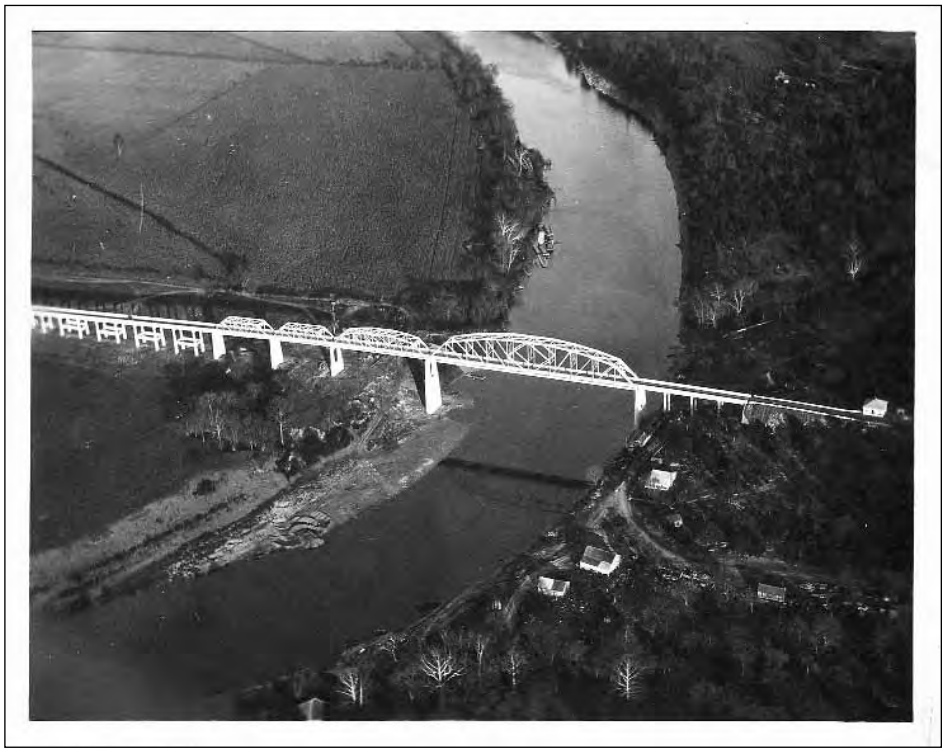


Figure II-48: 1930 aerial view of the Hunters Point Bridge on State Route 10 spanning the Cumberland River in Wilson County. Note the toll house on the far right side (TDOT Photo Collection).

This was an expensive and ambitious program for the state. The 1927 state act removed the tolls from each bridge when sufficient toll money had been collected to retire its cost. The 1929 state act placed all collections in one fund with the tolls to remain on all the bridges until the outstanding cost had been retired. A 1927 Department of Highways and Public Works publication stated:

> It is expected that within eight years' time the bridges will have paid for themselves and thereafter will be operated as free bridges. This plan is unique and is planned after no other piece of legislation in other states. Thus will highway transportation be given an impetus in Tennessee.
>
> The passing of these ferries, though a very useful and necessary mode of transportation across gaps on highways, will cause little regret. However useful they may have been, there is no place for them in the demand for modern

roads and bridges. The construction and operation of these bridges will prove a blessing to local travel. Farmers and merchants may have ready access to the markets and trade centers and at a saving of time and money…

The bridges will prove to be a stimuli for tourist travel and will alleviate many of the criticisms directed toward the State by its visitors (*Tennessee Highways* April 1927:18).

Figure II-49: Postcard view of the Calvin J. Ward Bridge on SR58 spanning the Tennessee River near Kingston, (#130, 73-SR058-11.92). Note the toll house in the lower right corner (Author's Collection).

Ironically, the Department of Highways and Public Works often set its toll rates higher than the rates of the ferries operating at those sites. While some of the bridges destroyed the ferry crossings (such as in Meigs County) other ferries (such as in Clay County) continued to operate in competition with the toll bridges. The state built toll booths/houses near the bridges and had agents who collected the tolls. However, the bridges did not generate the anticipated revenues, and there were requests for the tolls to be removed. In 1939 the legislature freed eight bridges stating that it was not economically desirable to keep them open as toll bridges. These eight bridges had not for the past three fiscal years yielded gross revenue from tolls of an amount sufficient to defray the salaries of the toll-keepers and pay two percent of the original cost of each bridge as a maintenance fund. The state freed the remaining toll bridges in 1947 after a study by the Tennessee State Planning Office recommended the tolls be removed (Keeble 1947; Tennessee Highways April 1927:18). After the state freed the bridges, it sold the toll houses to private individuals who moved them to new sites.

Figure II-50: 1930 aerial view of the Loudon Bridge spanning the Tennessee River. Note the ferry on the right side of the photo. In several instances, the ferries charged a lower rate than the state run bridges, and some ferries remained in operation until the toll bridges were freed (TDOT Photo Collection).

Table II-1 Toll Bridge Rates

TRAFFIC	CLASS A BRIDGES*	CLASS B BRIDGES**
Automobile and Driver	$0.25	$0.50
Person, each	0.05	0.05
Motor truck or motor bus (one ton capacity or under) and driver	0.25	0.50
Motor truck or motor bus (over one ton capacity) and driver	0.50	1.00
Automobile trailer	0.15	0.25
Motor truck trailer or motor bus trailer	0.25	0.50
Motorcycle and driver	0.15	0.25
One-horse vehicle with draft animal, and driver	0.10	0.15
Two-horse vehicle and two draft animals and driver	0.15	0.25
Extra draft animals or horses or mules, each	0.05	0.05
Cattle, sheep, hogs or other domestic animals other than horses or mules, on foot, each	0.02	0.02
Circus animals, other than those specifically mentioned above, on foot, each	0.25	0.25

Class A Bridges: Numbers 1, 5, 6, 7, 8,10, 11, 14, 20, 21
Class B Bridges: Numbers 2, 3, 4, 9, 12, 13, 15, 16, 17,18, 19

Table II-2: State Highway Department 1927-1929 Toll Bridges

1927 LEGISLATURE SELECTED THE FOLLOWING SEVENTEEN TOLL BRIDGES			
COUNTY AND BRIDGE NUMBER	**DESCRIPTION**	**COST**	**COMMENTS**
1. Loudon 53-SR002-06.75	SR2 over the Tennessee River between Lenoir City and Sweetwater, at Loudon	$1,139,475.38	Freed 1947
2. Benton & Humphreys 03-SR001-13.53	Hickman-Lockhart Bridge on SR1 over the Tennessee River between Waverly and Camden at Trotter's Landing	$1,256,409.46	Freed 1947
3. Hardin 36-SR015-06.29	Milo Lemert Bridge on SR15 over the Tennessee River between Waynesboro and Selmer at Savannah	$941,061.18	Freed 1947
4. Decatur & Perry 20-SR020-09.02	The Alvin C. York Bridge on SR23 over the Tennessee River between Linden and Lexington near Perryville	$767,537.97	Freed 1947
5. Obion 66-SR211-02.82	Joseph B. Adkinson Bridge on former SR3 over the Obion River between Troy and Newbern	$452,492.20	Freed 1939
6. Hancock 34-SR070-01.65	Ed. R. Talley Bridge on former SR6 over the Clinch River between Rogersville and Sneedville at Kyle's Ford	$110,308.54	Freed 1939
7. Smith	Purchase existing toll bridge over Cumberland River in Carthage; bridge immediately freed and demolished in 1936; site of 80-SR025-11.32		
8. Monroe	Former SR64 (U.S. 411) over the Little Tennessee River between Madisonville and Maryville near Niles Ferry (Fort Loudon)	$219,407.13	Freed 1947
9. Stewart 81-SR076-10.31	Sidney Lewis Bridge on SR76 over the Cumberland River at Dover	$542,848.58	Freed 1947
10. Meigs 61-SR058-05.22	Russell Bridge on SR58 over the Hiwassee River between Decatur and Georgetown at Big Springs	$253,582.01	Freed 1939
11. Hancock 34-SR066-06.48	Charles Love Bridge on SR66 over the Clinch River near Sneedville	$114,244.22	Freed 1939
12. Clay 14-SR052-19.32	Henry Horton Bridge on SR52 over the Cumberland River at Celina	$552,290.91	Freed 1939
13. Henry and Stewart 40-	Scott Fitzhugh Bridge on SR76 over the Tennessee River at the mouth of the Sandy near Fort Henry	$1,029,390.66	Freed 1939
14. Roane 73-SR058-11.92	Calvin John Ward Bridge on SR58 over the Tennessee River at the mouth of the Clinch River near Kingston	$307,959.96	Freed 1939
15. Wilson & Trousdale 95-SR10-20.91	Nathan J. Harsh Bridge on SR10 over the Cumberland River between Lebanon and Hartsville near Hunter's Point	$327,290.92	Freed 1939
16. Knox 47-SR073-01.12	James E. Karnes Bridge SR73 over the Tennessee River between Knoxville and Maryville, near the University of Tennessee's Agriculture Department; Since bridge connected university properties, it was felt that it placed a burden on UT so tolls were not collected	$461,657.61	Tolls had not been collected for several years before officially being freed in 1939
17. Marion 58-SR002-21.19	Marion Memorial Bridge on SR2 over the Tennessee River between Chattanooga and Jasper, below Hale's Bar	$488, 848.68	Freed 1947
1929 LEGISLATURE ADDED THE FOLLOWING FOUR BRIDGES			
18. Rhea & Meigs	On projected state highway over the Tennessee River on the Rhea and Meigs County Line	$9,349.65	Not Built
19. Dickson & Cheatham 11-SR049-05.05	Montgomery Bell Bridge on SR49 over the Cumberland River between Charlotte and Ashland City on the county line	$366,672.52	Freed 1939
20. Sumner	On the projected state highway over the Cumberland River from Gallatin to Murfreesboro via LaGuardo near Martha	$4,322.59	Not Built
21. Jackson	On SR53 over the Cumberland River near Fort Blount	$2,865.82	Not Built

The legislature appropriated a total of $13,850,000 to build these bridges but the state spent only $9,366,675.03. However, due to other factors such as money lost in failed banks and interest, the bridges had cost the state $23,451,494.17 by 1946. With only $10,769,565.38 collected in tolls, the bridges cost the state a net loss of $12,681,928.79.

On a county level, the late 1920s was also a significant period in bridge building. A 1927 flood damaged several bridges and the March 1929 flood was even more destructive. Both disasters led to the replacement of numerous bridges. The state highway department's massive road building campaign in the late 1920s and 1930s resulted in a number of the counties' older bridges being replaced as a part of this program since many former county roads were now state routes. Quite logically, the counties had often built their best bridges on the main thoroughfares that frequently became part of the state route system. Although many of these bridges did not meet the Department of Highways and Public Works's criteria (such as width), most counties felt they were acceptable for use on other county roads and relocated many truss bridges scheduled for replacement by the state to local roads.

Relocating metal truss bridges had been a long-standing practice. The development of the state route system in the late 1920s simply created a short time period in which such relocations were intensified. For instance, in 1899 when Maury County built a new bridge over Fountain Creek at Thomas Mill (60-A0171-01.18), it relocated the old bridge to Hurricane Creek near Hurricane Switch and appropriated $200 for new stone abutments (Maury County Court Minutes Volume O:212). Bedford County originally erected the Moore Road Bridge (#45, 02-A0048-00.38) in 1904 west of Wartrace across Wartrace Creek. Around 1914 the county modified the road alignment and moved the bridge downstream about two hundred yards. When the Department of Highways and Public Works built a new bridge at this site in 1950, the county court appropriated $2500 to relocate the bridge to North Fork Creek. Typical of the 1930s relocation efforts were the DeVault Bridge in Washington County and the Red River Furnace Bridge in Montgomery County. When the Department of Highways and Public Works replaced the 1916 DeVault Bridge in 1929-1931 (with 90-SR034-23.04), the county reused the spans by relocating two 160-foot Parker spans to Snapp Bridge Road (90-A0912-00.22) and one 66-foot Pratt pony truss to May Road (90-02628-00.92). When the Department of Highways and Public Works replaced the 1893 Red River Furnace Road Bridge, the county relocated the 120-foot Pratt trusses to different sites in the county in 1937 (63-01853-07.84 and 63-A0458-03.62).

In the late 1910s, the highway program in Tennessee had lagged behind those in bordering states, and Tennessee became known as a "detour state," meaning that tourists bypassed it (Johnson 1978b:35). Prior to Governor Peay's election, during the 1918-1920 period, state expenditure for roads ranked fourth in state spending (behind education, Confederate pensions, and charitable institutions). Under Governor Peay, by 1923, the state spent more money on roads than it spent on any other program, and throughout the 1920s, the state spent more money on roads than all of its other programs combined (Macpherson 1969:194). Since Peay combined the funding with sound management and ethical leadership, the state accomplished many road building achievements in the 1920s. A historian of Governor Peay summarized his solid record as the "Road-Building Governor" thus:

> The original state highway system was completed almost entirely during the Peay administrations, although it has been expanded since. When Peay took office only 244 miles had been completed on the projected system of over 4,000

> miles. And in the first summer of his tenure, the governor had to send regrets to a Memphis friend he had promised to visit, because "the rain and mud so detained us that we had to turn back at Brownsville." Three years later, the Memphis to Bristol highway was paved over its entire 575-mile length, and the entire state highway system was being linked up in a connected system of intercounty routes. A glance at the official state highway map issued December 1, 1928, shows that virtually all gaps were closed and the total mileage of the system increased to 6,534.2 miles…
>
> To thousands of Tennessee voters the highway system demonstrated more clearly than anything else the governor's progressive outlook. There was nothing abstract about roads; they could be seen, measured, and enjoyed for all their practical beauty. When Peay's opponents attacked him, they had no way to conceal those thousands of miles of highways his administration had produced, and this tangible proof of progress served time after time to sustain the people's loyalty to Peay (Macpherson 1969:244, 248-249).

When Governor Peay died suddenly in October 1927, Henry Horton, a novice state legislator that the state senate elected speaker as a compromise measure, became governor. Governor Horton was not a strong-willed individual, he had no talent for administration, and he lacked a political base. Reputedly, at the time of the election, Governor Peay extracted a promise from his running-mate Senator Horton that he would resign should Governor Peay die while in office (Lee 1979:80-81). Luke Lea, who had been a backer and close advisor to Governor Peay, became Governor Horton's primary advisor. While Lea had served merely as a friend and advisor to Governor Peay (who resisted Lea's efforts to politicize decisions), he became the de facto governor during Governor Horton's two terms (1927-1931). Ironically, Lea through Governor Horton was able to consolidate his power as a result of the reform measures achieved by Governor Peay that had made it more difficult for local "bosses" to control state politics while giving the state executive more authority.

Under Governor Horton, Lea became involved in Department of Highways and Public Works decisions. Lea used Governor Peay's reforms to manipulate jobs within the department, and he also traded "roads for votes" (Lee 1979:109). Lea also tried to direct many of the major decisions of the department. For instance, within a year's time, Governor Horton demanded the resignation of two Department of Highways and Public Works commissioners, reputedly at Lea's instigation. The first incident involved Commissioner Neil Bass who refused to dictate that the Department of Highways and Public Works use only Kyrock, a rock asphalt produced by the Kentucky Rock Asphalt Company that Lea's business associate Rogers Caldwell owned. The next Commissioner, Harry Berry who was a long time friend of Lea, soon specified Kyrock for many of Tennessee's road projects. However, in 1928 Commissioner Berry faced Governor Horton's and Lea's ire when he refused Governor Horton's request to route a proposed state road through the town of Henderson because it would increase the cost of the project by $50,000 to $60,000. Governor Horton and Lea had promised this route to N. B. Hardeman, the president of a church affiliated college in Henderson, Freed-Hardeman College, and one of the most powerful small town bosses in the state. Commissioner Berry stated that Hardeman was presented to him as "a sort of superman--a man who could provide political salvation at the polls in this world, as well as a halo and harp in the next," but he felt it was "a breach of public trust and an improper use of public funds" to fund the route through Henderson (Lee 1979:108). As a result Governor Horton demanded Commissioner Berry's resignation which he gave.

One of the major campaign issues in the 1928 gubernatorial election was Governor Horton's association with Lea and Caldwell, and although the election was one of the most bitter and closest in the state's political history, Governor Horton won. During the campaign Governor Horton promised to continue Governor Peay's road program. He continued the toll bridge program, and in 1929 the legislature expanded this program. When Governor Horton was unable to fund a general highway program through a revision of the tax structure, he supported funding road construction through bonds (which Governor Peay had opposed). In 1929 the state approved $28.8 million in bonds for road and bridge construction and spent much of it in West Tennessee. In December 1929, Governor Horton called a special assembly of the legislature to float additional bonds for highway construction. During this period, Governor Horton's faction also passed several laws that repealed safety measures concerning the deposit and use of this money in private banks that directly benefited Lea and Caldwell. The state already had large sums of money in some of Caldwell's banking network, and with these new laws, the state deposited an additional $9 million in Caldwell's Bank of Tennessee. Under these policies, the banks could use the deposited money until the state needed it to pay for specific projects, which could be a year or even longer.

The 1930 gubernatorial race was fairly uneventful compared to the 1928 election, and even though Governor Horton's Republican opponent tried to make the Lea-Caldwell connection an issue, Governor Horton won easily. However, on 7 November 1930, less than a week after the election, the Caldwell banking system collapsed and the state lost $6.6 million deposited in Caldwell's banks. Although many other banks collapsed as a result of the Great Depression, there was an enormous furor over the state's connection to the Caldwell banking system due to the long-standing allegations about Caldwell's and Lea's influence on state politics, the substantial sums of state money deposited in Caldwell's banking network, and the recent relaxation of state banking laws to allow that much money to be deposited in Caldwell's banks. The collapse broke Caldwell's power base and ruined him financially. The scandal shattered Lea's state machine, and Lea eventually went to prison on banking fraud charges in North Carolina. Lea's long-time political rival for "state boss," Edward Crump of Memphis, then emerged as the undisputed boss for the next twenty years (Folmsbee 1969:500; Lee 1979:148-149).

After the banking scandal, the state legislature demanded an investigation and appointed a committee to pursue allegations of unethical conduct by Governor Horton. Initially, momentum was strong to impeach Governor Horton, but he was able to delay the proceedings until much of the passion had dissipated. Also, the "rural faction" chose to support Governor Horton rather than support impeachment which many people felt would result in the "urban faction" coming into power. Over a period of time, Governor Horton was able to arrange deals to garner support from other legislators with the end result that he was able to serve out his term. As one historian wrote, "Horton bought his way out with pardons, jobs, and roads" (Macpherson 1969:3). However, debates about the banking scandal dominated his term and he accomplished little else.

One result of the Governor Horton impeachment proceedings was a general loss of faith by the public in the Tennessee road building program. Expenditures by the Department of Highways and Public Works peaked in 1930 when it spent $33,105,234, an increase of $8 million over 1929 (Tennessee 1959:42). In 1931 the legislature raised the state gasoline tax from six to seven cents a gallon and then diverted the extra income ($1.2 million) from highway construction to the general fund in order to meet other debts. In 1931 Highway

Commissioner Bob Baker requested the legislature to issue $20 million in highway bonds or lose millions in federal matching funds. After six months of intense fighting over the proposal, the legislature adjourned in late June 1931 without appropriating the funds. On July 6, Baker announced all highway construction would end except for that already in progress on Federal-aid projects. As a result, between four and five thousand Department of Highways and Public Works employees lost their jobs in what was known as "the bloody July massacre." Newspapers unsympathetic to Commissioner Baker blamed him saying that he had tried to manipulate the legislature into giving him more money. Commissioner Baker replied that to needlessly discharge workers during the Depression was inhuman and placed the blame squarely on the legislature: he had explained the options and the consequences and the legislature had chosen. The highway boom of 1923-1931 was effectively over (Johnson 1978b:83). In an editorial, the *Engineering News-Record* described the action thus, "By a puerile move of partisan politics a program of needed state road improvement is disrupted. Tennessee cuts off its nose to spite its face" (Johnson 1978b:83). Highway construction by the Department of Highways and Public Works continued during the 1930s but at a greatly reduced scale. In 1932, expenditures by the Department of Highways and Public Works totaled only $10.4 million. Between 1933 and 1946, annual expenditures by the Department of Highways and Public Works ranged between $7.4 and $14.1 million. The Department of Highways and Public Works did not exceed its 1930 expenditure of $30 million until after World War II when, in 1948, it spent $33.4 million (Tennessee 1959:42, 96).

HIGHWAY CONSTRUCTION DURING THE GREAT DEPRESSION AND WORLD WAR II

As state funds decreased during the early years of the Great Depression, many people began to look to the federal government for support. In April 1930 the state received a federal grant of $1 million which it spent in highway construction. As the effects of the Depression became

Figure II-51: Throughout the 1930s, unemployment plagued Tennessee. Work such as this project in Sumner County attracted many applicants. View of West Main Street from the L & N Railroad to West City Limits, State Route 6, Gallatin, Sumner County, Concrete Paving, Eller and Olsen (Contractor), 1934; Funded as a National Recovery Highway Project (TDOT Photo Collection).

even more pronounced across the country, President Hoover signed the Emergency Relief and Construction Act on 16 July 1932 that allocated $120 million for highway construction. Commissioner Baker managed to find a match for Tennessee's allocation of $2.5 million, and by the fall of 1932, the $5 million was under contract (Johnson 1978b:84; Minton 1979:55-56).

As the Depression continued in the early 1930s, it remained difficult to get highway funds at both the state and local levels. At a state level, legislatures showed a tendency to "rob" gasoline tax funds or other highway funding sources to pay for other programs. As a result, in 1932 various groups, which primarily included road builders and the trucking industry, organized the National Highway Users Conference to fight the diversion of gasoline and vehicle taxes from road-building into other funds. In Tennessee supporters formed the Motor Taxpayers Association to oppose diversion. Even after a massive publicity campaign, the 1932 legislature still diverted $500,000 from the highway fund for other purposes. The passage of the Hayden-Cartwright Act of 1934, which reduced the share of Federal-aid to states that diverted gas tax money from roadwork, somewhat curtailed the diversion of gas taxes (Paxson

Figure II-52: New Deal programs provided substantial road work throughout the 1930s. This is a scene from 1938 showing State Route 5 between Jackson and Henderson after completion of a project (TDOT Photo Collection).

1946:250). In 1935 the legislature approved a $15 million bond issue for general fund projects and pledged only a penny of the gasoline tax to retire the bonds, an action that left the state highway program "in shambles." As a result, the state was unable to provide a match for available federal highway funds in 1936 and lost a million dollars in federal money for road work (Johnson 1978b:95).

By 1932, twenty-five percent of the country's work force was without jobs, and unemployment was one of the most serious problems facing the country (Cutler 1985:5). With the entire country in the throes of the Great Depression, Franklin Delano Roosevelt swept to office with his promise of a "new deal." At the state level, Hill McAlister served as governor from 1932 through 1936 and Gordon Browning served from 1936 to 1940. Neither man made road building a cornerstone of his term in office, but both continued to support a good roads network. The Depression halted funding for road construction through the Bureau of Public Roads until 1936, but many of Roosevelt's New Deal programs provided money for highway construction projects that continued throughout the Depression at a steady pace. In part, this work existed because there was a need for such projects, but it also continued because public improvements were seen as an acceptable forum for "make-work" jobs during the Depression and because of the labor intensive nature of highway construction. Beginning in 1932, the federal government awarded the following special grants to Tennessee: 1932 Emergency Construction Funds, 1933-1934 Public Works Funds, 1935 National Recovery Funds for highways and grade separations, and 1938-1939 Secondary Federal Aid-Grade Crossing (Tennessee 1959:42). Beginning in 1936, the Department of Highways and Public Works began to expand its emphasis from only construction activities to more general planning and analysis. The 1936 Federal-Aid Act also provided for funding for urban roads for the first time. Between 1933 and 1940, the Federal government spent $1.8 billion on road construction. Ironically, with the emphasis on alleviating unemployment, the Federal government actually spent more money on road construction during the Depression than it had during the 1920s (Lewis 1997:22-23.)

Tennessee's Federal allocation reflects this national trend. Between 1922 and 1930, the state had received between $1.1 and $1.6 million in Federal Aid each year. In the 1930s, the state received substantially more: 1931, $2.7 million; 1932, $5.3 million; 1933, $10.8 million; 1934, $8.5 million; 1935, $3.9 million; 1936, $2.6 million, 1937, $5.3 million, but in 1938 and 1939, the state received less than $1 million each year (Division 1940:21).

During Franklin Roosevelt's terms as President, his New Deal programs resulted in the creation of a large number of "alphabet" agencies. The National Industrial Recovery Act of 1933 created the Public Works Administration (PWA) which operated under the formal name of the Federal Emergency Administration of Public Works. The agency influenced road and bridge construction in Tennessee throughout its existence until the government combined it with other programs in 1939 to form the Federal Works Agency. The PWA did not prepare designs or specifications for projects but rather acted as a "bank" through which money flowed to government agencies or to architects employed on non-federal projects. This agency funded extensive construction projects ranging from courthouses to cemetery improvements and from schools to sewer systems. It also funded large highway projects such as the George Washington Memorial Parkway in Washington D.C. and the Blue Ridge Parkway in Virginia and North Carolina. In Tennessee, it initially placed its emphasis on road construction and allocated nearly $9.5 million for road construction in 1933 that built hundreds of miles of roads and bridges (West 2001:14-15).

This program funded about one hundred highway projects in Tennessee through the state highway department, primarily highway construction projects which occasionally included bridges as part of the roadwork. An example is a 1940 project for 32 miles of State Route 69 in Decatur County that included upgrading the existing road and bridges.

However, the Works Progress (later Projects) Administration (WPA), established in 1935, was the chief work relief agency in Tennessee until the government dissolved it with the advent of World War II. Unlike the PWA, the WPA directly employed architects and allocated construction funds. The PWA and the WPA were somewhat in competition for funding and recognition during the 1930s. The PWA's projects were construction oriented and thus tangible while the WPA's projects often involved research projects that subsidized artists, historians, and architects. However, the WPA also provided funds for road and bridge building through state highway departments or the National Park Service for federal and state parks through a standard bid letting process in which contractors hired the laborers. The first state highway projects in Tennessee funded under this program were the construction of regional highway office buildings in Jackson, Nashville, and Knoxville in 1935 and 1936. Overall, the

Figure II-53: TDOT Region IV Offices in Jackson, built in 1935-36, funded through the WPA. TDOT opened new offices in 1996. The old building is now vacant.

Figure II-54: Elevation view of the Oscar Lovette Bridge in Greene County (#138, 30-SR070-08.48).

WPA funded nearly one hundred road projects in Tennessee through the state highway agency. In Tennessee, former Commissioner of Highways Harry Berry served as the program's administrator. Perhaps not surprisingly, road construction was a major component of the program's activities in Tennessee. The Federal-aid programs of the 1920s had stipulated that money had to be spent on a primary system of highways, but county farm-to-market and secondary state roads formed the core of the Depression programs, in part, because unskilled workers could be employed in the vicinity of their homes. Between 1935 and 1939, this agency expended nearly $19 million in Tennessee for road projects, a figure that represented sixty-one percent of the agency's funds for the state (Minton 1979:72-73). By 1938 the agency had completed 225 steel and concrete bridges and had 149 bridges under construction. In Tennessee, the WPA employed 27,000 men on its Farm-To-Market road and bridge program (Scott County News, 16 September 1938). Included among the many bridges built through this program are the J. M. Walters Memorial Bridge over the French Broad River on the Cocke-Jefferson County line (15-SR032-32.05), the Oscar Lovette Bridge in Greene County (#138, 30-SR070-08.48), and the Cordell Hull Bridge in Carthage (#139, 80-SR025-11.32). An example of a WPA built bridge in a state park is the 1934 Deep Draw Road Bridge in the Cumberland Mountain State Park in Cumberland County (#137, 18-01168-03.76).

The National Youth Administration, a program under the Works Progress Administration, provided constructive training for unemployed youths not in school or gave aid to those who required it, to remain in school. At first, the program focused on unskilled jobs and paid students to perform clerical or janitorial work in schools. However, it soon changed its focus to provide job training and participants erected several buildings in the state. These included vocational shops and departmental buildings in twenty-three counties, recreational buildings and gymnasiums in thirteen counties, the Van Buren County High School, and eleven buildings in Jackson County (Minton 1979:76-79). Road and bridge construction was not a large component of this agency's projects, but it is known to have built one bridge in Tennessee, a crudely formed Warren truss built in 1939 over Goose Creek in Macon County (56-A0459-00.02).

During the 1920s and 1930s, there was a growing interest nationally in scenic beautification projects along highways. These often included turnouts, or pull-offs, sometimes with small parks or picnic areas. If an impressive view existed, the turnout was called a scenic overlook. During the 1930s, beginning in 1934 in Tennessee, federal relief programs funded "Roadside Development," "Landscaping," and "Beautification" projects resulting in landscaping projects and a variety of roadside parks, pull-offs or turnouts, and overlooks. An example is the scenic overlook on the steep western side of Monteagle Mountain. In 1918 Franklin County issued a $300,000 bond issue for road improvements which included a joint project with the state in 1919 to improve a ten mile stretch of the Dixie Highway through the county that contained this pull-off (Franklin County Court Minutes Volume S:319, 348-354). It is unknown if the original pull-off, which contained a sweeping 400 foot stone wall flanking a massive boulder, pre-dates the 1919 project or if it was built (or enhanced) as part of the project. In 1936 the state spent $11,190 as a National Recovery Highway Project to landscape 5.4 miles of the Cowan to Sewanee section of State Route 15 (the Dixie Highway) (Tennessee 1943:104, FAP 3-A). The 1936 project, whose plans show the location of the original stone wall, removed the older wall and erected a new wall of rubble masonry 1400 feet long, cut steps into the boulder (7" rise, 12" tread, and 30" width), and paved the parking area with macadam stone. The state also built over 900 discontiguous feet of rubble masonry walls and planted over 2100 trees and shrubbery "grouped in as natural arrangements as possible" on the project. In addition to

Figure II-55: Views of a pull-off with its "landscaped" boulder scenic overlook (right) and the stone retaining wall along State Route 15 with the state highway department's logo and construction date (below).

the jobs created by such labor intensive projects, pull-offs such as these were attractive lures to tourists, but they also served a practical purpose by allowing tired drivers or overheated cars to rest during or after steep climbs. [Another example is the previously discussed park on Walden's Ridge that contains the monument to Judge Allison.]

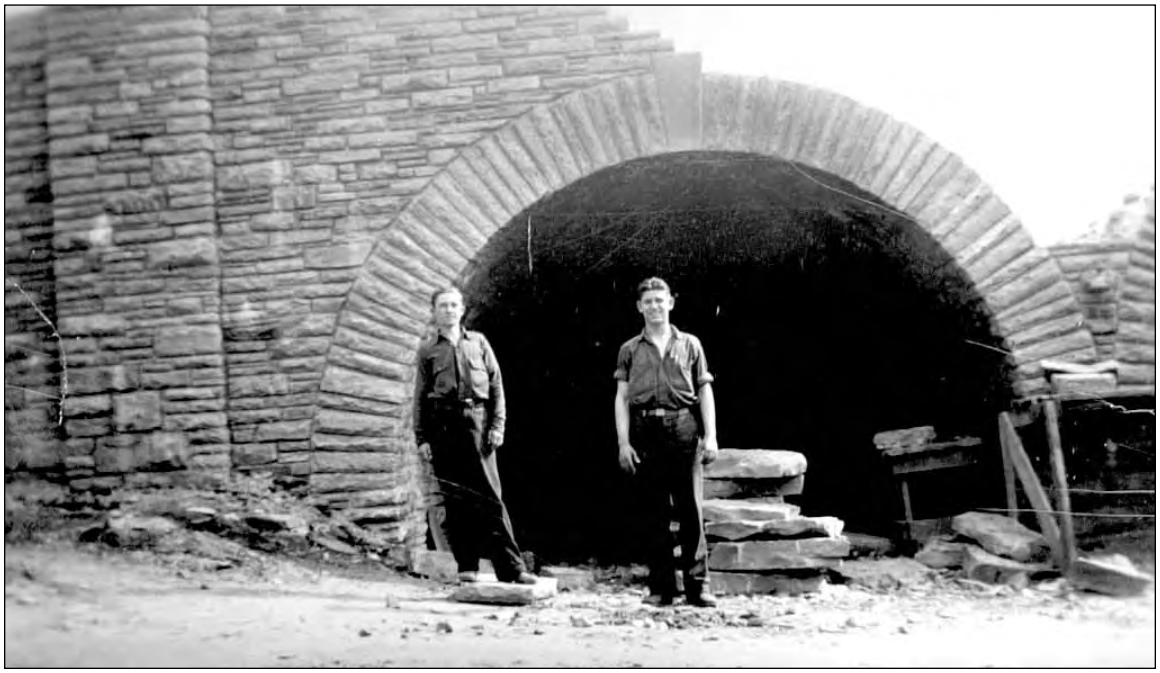
The most popular New Deal program was the Civilian Conservation Corps (CCC) (Cutler 1985:7). In 1933, as part of Roosevelt's "One Hundred Days" legislation, Congress established the Emergency Conservation Work (ECW) program that the CCC implemented. The ECW was an interagency program involving the Departments of Labor, Army, Interior, and Agriculture. In 1937 the government reorganized the CCC as an independent agency and officially renamed the program the Civilian Conservation Corps, the name by which it is most commonly remembered. The purpose of this program was to employ young men to do simple work in forestry, soil erosion, flood control, and similar projects while sending home a substantial portion of their salaries to their families. The program assigned young men to camps all around the country from which they worked (as opposed to the contracting method in the WPA). For instance, some of Tennessee's men were sent as far away as the state of Washington. The number of camps in Tennessee varied but the highest number was seventy-seven in 1935 (Jones 1984; Minton 1979:62).

Although the CCC program is often remembered as a "reforestation" program, it was also involved in other general conservation activities, primarily in state and federal parks. By the time of its demise with the outbreak of World War II, this agency alone had built at least fifty-five observation towers, nearly two thousand miles of state-owned telephone lines, a thousand miles of roads, hundreds of bridges and buildings, six major dams, and twenty state parks in Tennessee (Minton 1979:62).

The CCC and other New Deal programs built many structures of native materials that reflected a rustic design, in part due to the availability of local materials and due to the labor intensive nature of such work. However, the design philosophy had its roots in the National Park Service's design approach that greatly influenced state and federal park development in the 1930s. After the government created the National Park Service as a unit of the Department of the Interior in 1916, the Park Service developed and refined a cohesive design philosophy in the 1920s. This philosophy required the integration of natural elements such as land formation, topographic features, vistas, and native plants with new construction that utilized features from a variety of styles and influences which included: the Adirondack, Arts and Crafts, bungalow, and the Prairie. This approach promoted a naturalistic experience that blended and harmonized roads and bridges with the natural environment. It viewed roads and trails as not only essential to transporting visitors to sequential points of interest but as an opportunity to create a pleasurable experience for the traveler. This naturalistic approach to design is now often called "Parkitecture." [For more information see McClelland 1993 and U.S. Department of the Interior 1938.]

A national movement for the creation of state and federal parks emerged in the 1920s, and although the National Park Service honed its design philosophy during the period, it had limited funding to implement many programs in either state or national parks. The ironically fortuitous New Deal programs of the 1930s provided the money and labor necessary to implement extensive construction programs such as those at Cumberland Mountain and the Great Smokies. Some of the structures built as a result of New Deal programs during the Depression reflect a high degree of craftsmanship and others are more functional in design,

Figure II-56: Historic photographs during construction of the dam and bridge at the Cumberland Mountain State Park during the 1930s, (#147, 18-01166-03.59) (Courtesy, Tennessee State Library and Archives, LBAT CU038 and LBAT CU045).



but all are "artifacts of hard times" and "poignant reminders that once even the most menial jobs were precious" (Cutler 1985:1).

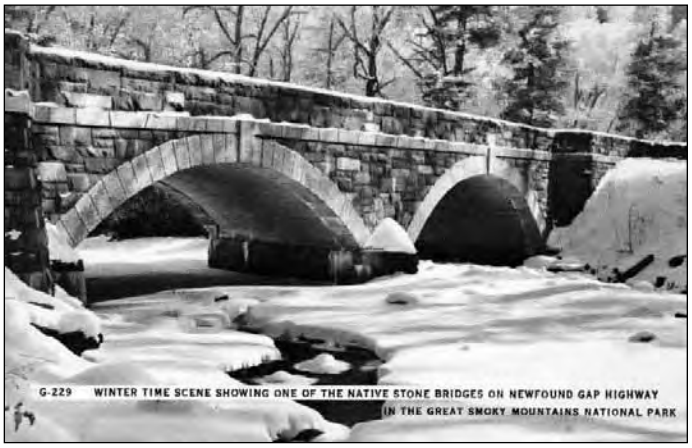
This design philosophy is evident in the CCC's work at the Cumberland Mountain State Park which includes the largest individual structure built by the CCC in Tennessee, the 1936-1938 Cumberland Mountain State Park Dam. This structure functions as a bridge with the roadway running across the dam (#147, 18-01166-03.59). The cohesive design for the entire park, including its roadways, features the extensive use of native Crab Orchard sandstone. The dam, which contains nine concrete arch spans, is faced with this sandstone. Also in the park, the CCC built the Old Mail Road Bridge (#149, 18-A0939-01.00), an arch bridge of Crab Orchard sandstone.

The CCC also worked on construction activities related to the development of the Great Smoky Mountains National Park. For the National Park Service, the CCC built portions of the New Found Gap Road in Tennessee and North Carolina that was the only highway through the Great Smoky Mountains National Park. The park is located along the Appalachian Mountain range in eastern Tennessee and western North Carolina. Roads into this rugged and mountainous area were slow to be built and of an inferior quality. In the 1920s Governor Peay supported the development of the area as a park, and in the 1920s the Department of Highways and Public Works designated the only road through the area, the Indian Gap Highway or Newfound Gap Road, as State Route 71. In an effort to facilitate development of the area and to promote tourism, the state highway department improved State Route 71 between 1927 and 1930, but even so, it was only gravel road.

In the mid-1930s, the CCC under National Park Service supervision and using Park Service designs, rebuilt portions of State Route 71 from near Gatlinburg in Tennessee to near Cherokee in North Carolina. The design attempted to blend the roadway and its structures with the environment with minimal cuts and roadwork. The resulting highway formed a cohesive unit that integrated spectacular vistas with a sweeping roadway that contained masonry faced tunnels, curbing, retaining walls, pull-offs and parking areas, a loop-over, culverts, and bridges. The following concrete arch bridges faced with masonry are located on the New Found Gap Highway (State Route 71) in Sevier County: #146, 78-SR071-01.98 spanning Walker Camp Creek; #145, 78-SR071-02.83 spanning Walker Camp Creek; #144, 78-SR071-05.23 spanning Little Pigeon River; #143, 78-SR071-05.65 spanning Cole Branch; #141, 78-SR071-05.85 spanning State Route 71; #144, 78-SR071-08.54 spanning the Little Pigeon River; and #148, 78-SR071-13.31 spanning the Little Pigeon River. The Loop-Over Bridge (#141, 78-SR071-05.85), which is a "cork-screw" or "pig-tail" bridge that doubles back over itself, is a well-known landmark and one of the most well recognized man-made features of the park.

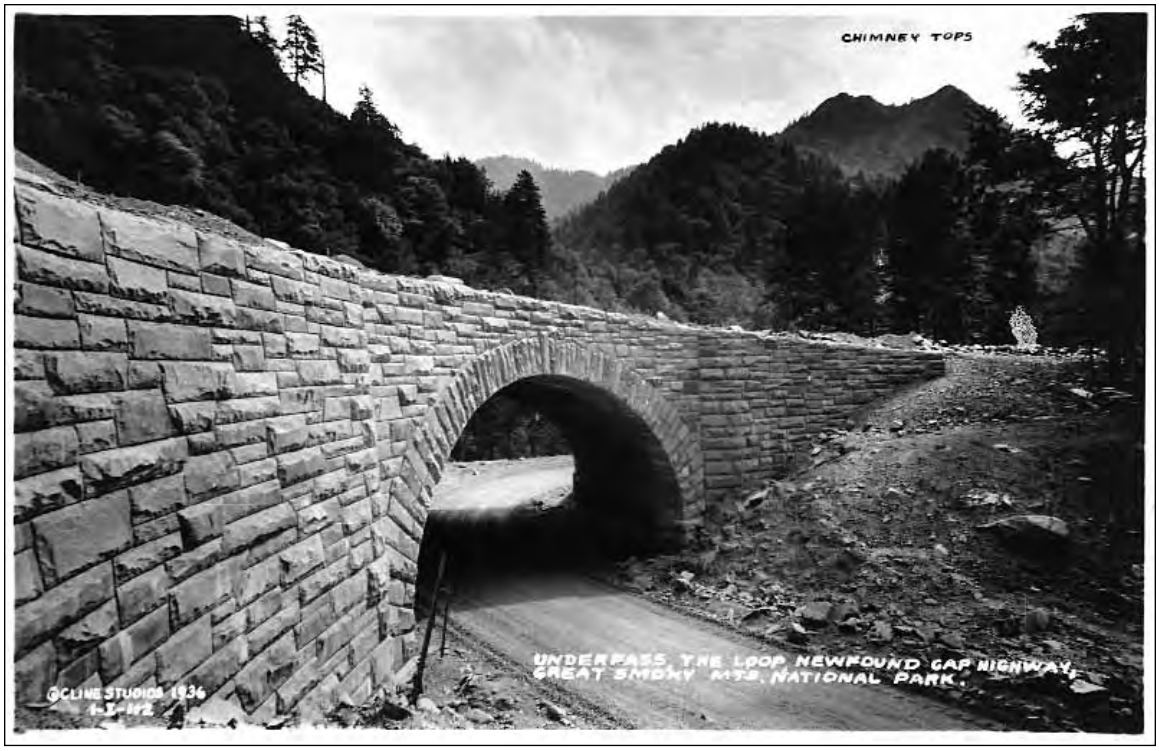
TVA, which Congress also created during Roosevelt's "One Hundred Days" legislative period in 1933, is another New Deal agency that directly affected bridge construction in Tennessee. TVA's initial legislative mandate was to solve many of the problems in the Tennessee River watershed through the development of a multi-state plan that would involve the proper use, conservation, and development of the Tennessee Valley's natural resources. Congress gave TVA authority to manage an area roughly the size of Ohio that spanned a linear nine hundred miles through the seven states of Virginia, North Carolina, Georgia, Alabama, Mississippi, Kentucky, and Tennessee. The Tennessee River, which is primarily located in Tennessee, originates in Knoxville where the French Broad and Holston Rivers converge. It then flows south through Tennessee and west across northern Alabama before turning north and flowing through West

Figure II-57: Postcard views of New Found Gap Road, Great Smokey Mountains National Park, Sevier County (Author's Collection).



Elevation view of the Walker Camp Prong Bridge (#144, 78-SR071-05.23) in the winter.

Aerial View of the Loop (sometimes called a "corkscrew" or "pig-tail" bridge).



Elevation view of the Loop Bridge.

Tunnel with Chimney Tops in the background.

Tennessee and southwest Kentucky where it merges with the Ohio River. The watershed for the river in Tennessee is quite large and involves sixty-three of Tennessee's ninety-five counties. Between 1933 and 1941, TVA built a hydroelectric network of nine major dams and lakes. It also established the town of Norris, seven parks, the Norris Freeway, six labor camps, and a major fertilizer industry, and stimulated agricultural reform and an extensive reforestation program (Cutler 1985:138). Such an extensive program in flood control and hydroelectric power inevitably resulted in TVA having a significant impact on bridges in Tennessee (TVA 1940; 1946; 1949a; 1949b; 1949c; 1951; 1958; 1966; 1972).

A major activity of the TVA was the erection of several dams along the Tennessee River system, beginning in the mid-1930s with the Norris Dam on the Clinch River in Anderson County. These reservoirs and altered water levels inundated many bridges. This was especially true for concrete arch bridges that builders had erected extensively in East Tennessee. Unlike metal truss bridges, it was not possible to relocate them. For example, in the late 1930s as a result of the Norris Dam project, Union County lost three major concrete arch bridges it had

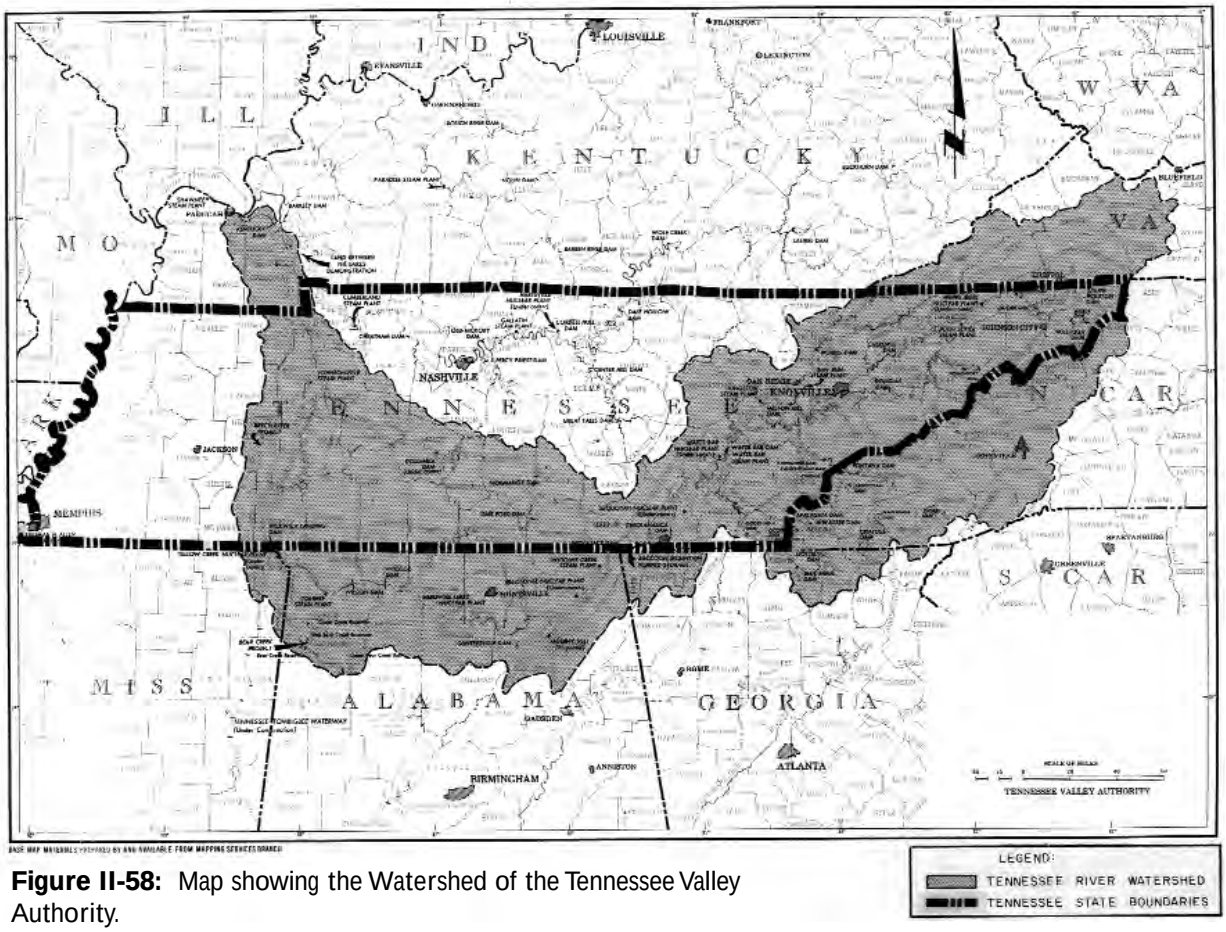


Figure II-58: Map showing the Watershed of the Tennessee Valley Authority.

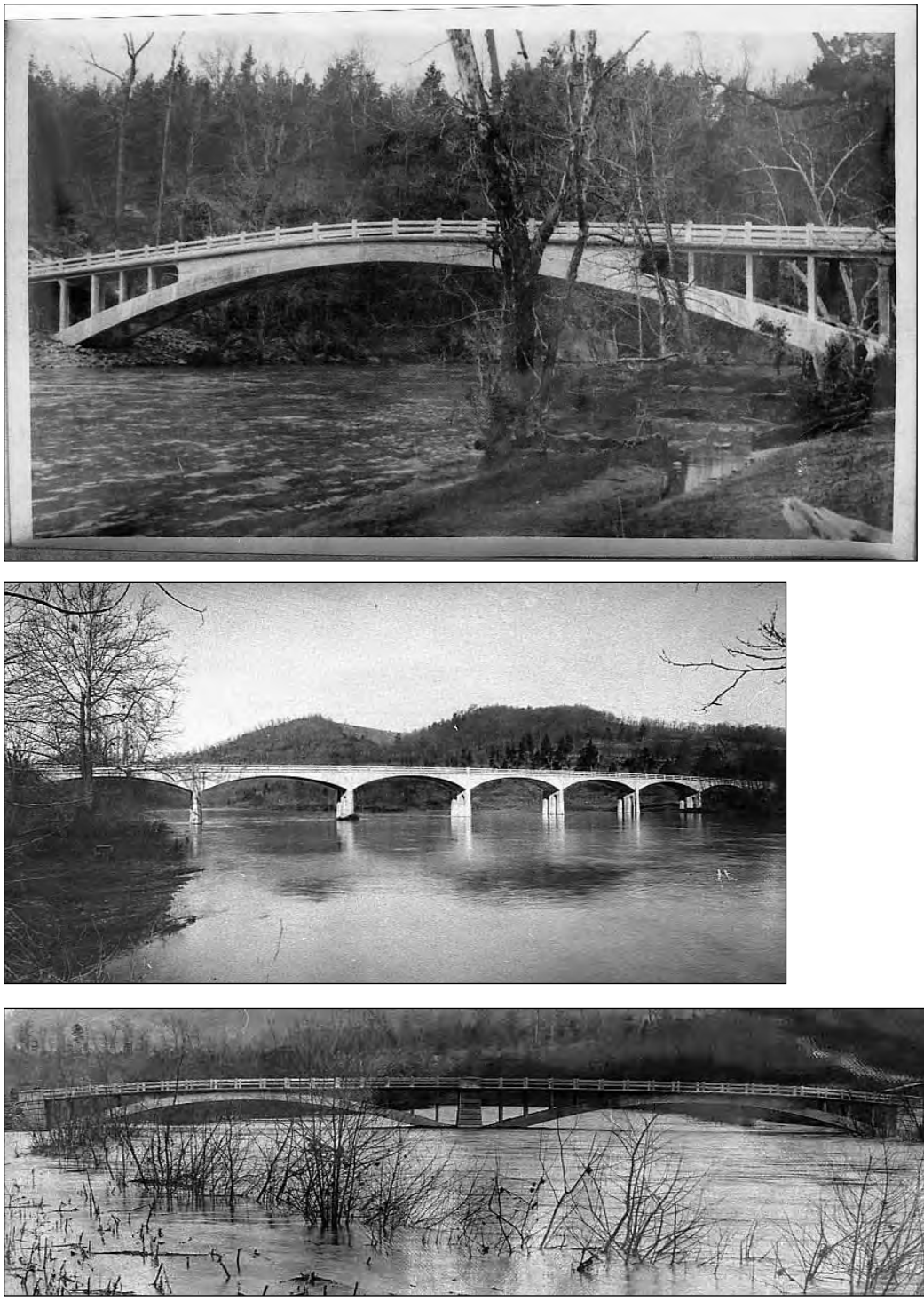


Figure II-59: Three of the bridges demolished as part of the TVA's inundation projects: The Rainbow Bridge in Sullivan County (top); the Walker Ford Bridge over the Clinch River on the Claiborne-Union County line (center); the Nett's (Witt's) Ferry Bridge in Union County during a flood, probably March 1929 (bottom) (Photos from the Steel Collection).

constructed in the 1920s over the Clinch River: the Walker's Ford Bridge, the Netts (Witts) Ferry Bridge, and the Longmere Bridge. In cooperation with TVA, the Army Corps of Engineers demolished these bridges to test explosives used in military operations. The Boone's Lake project resulted in the removal in 1951 of the 240-foot Rainbow Bridge south of Blountville over the Holston River. The Steel and Lebby Company built this bridge in the 1920s. John Steel's notes claimed it was the longest span of its kind in the country (Steel Collection).

Once more the flexibility of truss bridges became evident as many were adapted to the changing water levels. Many truss bridges on state routes were raised to accommodate the higher water levels through the addition of concrete caps on top of the original concrete substructure. Two examples are the Scott Fitzhugh Bridge on the Henry and Stewart County line (#125, 40-SR076-30.34) which was altered in the 1940s as part of the Kentucky Dam project and the 1931 Calvin Ward Bridge in Roane County (#130, 73-SR058-11.92) that was altered in the 1940s as an element of the Watts Bar project.

TVA's projects also resulted in the relocation of a substantial number of bridges. Since TVA dealt with a large region, it did not necessarily relocate the bridges within their county of origin. For example, as a part of the Norris Dam project, TVA relocated a portion of State Route 33 in Union County that contained the Miller's Ferry Bridge (TVA notes refer to it as the Ousley Bridge). TVA relocated a 161-foot Camelback span about 1934-1936 from the Miller's Ferry Bridge to Grainger County (#91, 29-A0025-02.62). TVA also relocated the Three Springs Bridge that Hamblen and Hawkins Counties had originally built in 1917 over the Holston River on the county line. As a part of the Cherokee project, about 1941, TVA moved four of the six spans of this bridge to the Melindy's Ferry site over the Holston River in Hawkins County (37-00717-03.83). In 1943 TVA moved the old Shield's Ferry Bridge over the Holston River on the Hamblen and Grainger County line to Hale Road over the Nolichucky River in Hamblen County (32-02461-05.11).

Figure II-60: Truss Bridge at Dandridge, built about 1913 by the Virginia Bridge Company of Roanoke, Virginia. As part of the Douglas Dam project, TVA relocated this bridge to Sevier County where it remained until about 1980. Note the splayed verticals on the pony truss and the combination of pony, through and deck trusses (Courtesy, Tennessee State Library and Archives, LBAT JF013).

Figure II-61: Art Moderne arched bridge on the Norris Freeway in Anderson County (#136, 01-SR071-04.79, spanning Buffalo Creek).

In the mid-1930s TVA was viewed as an innovative social and economic experiment which drew international attention. President Roosevelt appointed Arthur Morgan, an engineer with a visionary philosophical approach, as Chairman. Morgan appointed Earle Draper, who had a strong background in planning and landscape architecture, as director of the Division of Land Planning and Housing. In line with this philosophy, TVA wanted an imaginative architect to head its architectural department. As a result, Draper hired Roland Wank as chief architect. European interpretations of Art Deco and Moderne styles had greatly influenced Wank, and his innovative Cincinnati Railroad Station (1929-1933) design was one of the major reasons TVA selected him (Creese 1990:147, 162). Draper, Wank, and others at TVA deliberately chose to design TVA's public structures in a manner that did not replicate regional or even traditional architectural styles but rather in a mode that emphasized TVA's view of itself as an experimental, modern, and forward-looking agency. From tiny culverts and massive bridges to power plants and enormous dams, most structures are concrete and sleek in appearance exhibiting smooth surfaces, sweeping lines, and rounded elements that characterize the Art Moderne style. The exception to TVA's use of the Art Moderne style was its use of a rustic design in its parks and for the town of Norris.

TVA designed and constructed several road systems and bridges in the Tennessee Valley. One road system is the 1934 Norris Freeway in Anderson and Knox Counties, the first limited access roadway in Tennessee. The roadway and its varied structures with clean, sweeping lines embody a cohesive Art Moderne influenced design. In addition to the Norris Dam itself, structures on the Norris Freeway include simple slab bridges less than twenty feet long, one twenty-five foot slab bridge, one haunched girder span, and the concrete arch Hinds Creek Bridge in the town of Norris (#136, 01-SR071-04.79).

TVA-designed bridges vary from the simple spans on the Norris Freeway in Anderson County (such as #136, 01-SR071-04.79) to the massive double 508-foot two span continuous Warren truss erected in 1936 over the Clinch River in Union County (#140, 87-SR033-15.83). TVA tended to use different truss types than the state typically used in the 1930s, as well as

different design components such as the portal bracing or the composition of members. The TVA bridges typically used Art Moderne influenced railings and approaches that were considerably different from those used by the State Department of Highways and Public Works. In addition to five pre-1942 trusses, TVA built four other truss bridges between 1946 and 1950. [Since the historical context for TVA spanned the 1945 cut-off date, the survey evaluated these bridges.]

After a series of disastrous floods in the 1920s and 1930s, Congress passed the Flood Control Act of 1936. Congress viewed the problems associated with severe flooding as too complex or too large for states or localities to manage. Thus, Congress established a federal policy of flood control and gave the U.S. Army Corps of Engineers authority for flood control nationally. The act authorized the Corps to develop comprehensive plans for flood control in the Ohio River and Cumberland River valleys that included tributary reservoirs. Consequently, the Nashville District of the Corps of Engineers investigated one potential impoundment site in southern Kentucky on Wolf Creek on the upper Cumberland River, and five sites in Tennessee which included Dale Hollow on the Obey River, Center Hill on the Caney Fork River, Stewart's Ferry (J. Percy Priest) on Stone's River, Three Islands on the Harpeth River, and Rossview on the Red River. Construction began on the Wolf Creek, Center Hill, and Dale Hollow dams in 1941. However, World War II delayed construction, but the government completed the Wolf Creek and Dale Hollow dams on the grounds that they generated power needed for war industries. Due to shortages in materials, the Corps did not restore route continuity in the impoundment areas until after World War II. Therefore, the three truss bridges built by the Corps in Tennessee all post-date the 1945 cut-off period of this survey. As part of the Dale Hollow project, in 1943 the Corps built the piers of the L. B. Hassler Bridge (#154, 69-SR042-03.27), which spanned the Obey River in Pickett County, but soon ceased work due to war

Figure II-62: Historic Postcard of the Hassler Bridge (below) spanning the Obey River Bridge in Pickett County, built by the Army Corps of Engineers in the 1940s, (#154, 69-SR042-03.27) (Author's Collection).

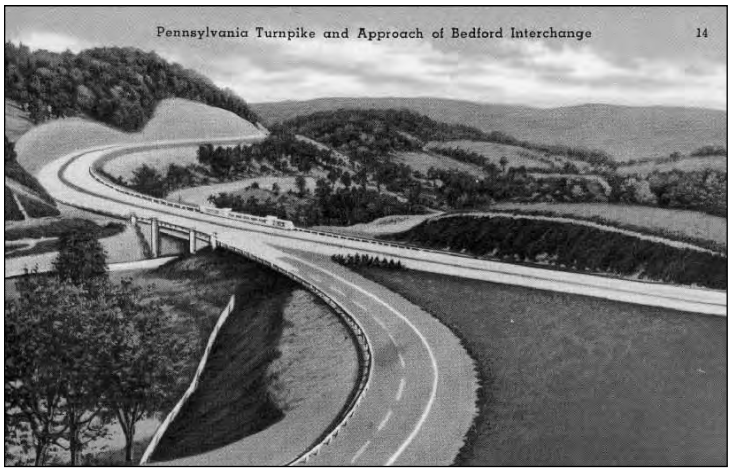


Figure II-63: Historic Postcard view of the Pennsylvania Turnpike which opened in 1940. Successful turnpikes such as this encouraged interest in a national system of four-lane roads (Author's Collection).

related shortages in materials and operated a ferry at the site until after World War II. The Corps finished the Hassler Bridge sometime prior to 1947 but presumably after World War II ended. As part of the Center Hill project, the Corps built two large truss bridges to span the Caney Fork River in DeKalb County, the Sligo Bridge (21-SR026-24.58) in 1948 and the Hurricane Bridge (21-SR056-15.71) in 1949. Unlike TVA, which based its building and bridge designs on a design philosophy, the Corps did not seem concerned with developing a design philosophy and its designs are very similar to state designed bridges of the 1930s. However, they are noteworthy in that they are among the last large truss bridges erected in the state.

With the infusion of New Deal money, a significant change in funding priorities occurred. Since the 1921 Federal-aid Act, the Federal program allocated money to the primary road system, an interconnecting system of state routes, previously termed interstates. For these years, the Bureau of Public Roads maintained a single focus on priorities and funding, a system of interconnecting state routes. The 1930s ended this cohesion both in funding and in philosophy. During the Great Depression, with road construction the "largest public works program" of all (Seely 1987:88), it is not surprising that differing factions aggressively competed for a limited pool of money. From this emerged a shift in funding focus. Until 1933, the State Highway Departments received Federal money to spend on the primary network of roads, which was limited to 7% of the state's roads. Beginning in 1933 through the National Industrial Recovery Act, the states were allowed to spend money on other "secondary" roads. In addition, for the first time, city streets and highways were eligible for these funds (Seely 1987:141-142, 154-155). Even more significantly, in 1936, funding through regular federal-aid funds could be spent on rural roads, an institutionalized bifurcation of priorities (Seely 1987:158). Beginning in the 1930s funding proponents fractured into those supporting rural roads (secondary roads such as farm-to-market roads), urban roads (such as Robert Moses's parkways in New York), interstates (primary state routes), and toll transcontinental routes or four-lane expressways which came to be known as superhighways.

In the late 1930s, a growing interest in transcontinental or superhighways, funded through tolls, emerged as a way to improve the overall transportation system. This interest came partly

from the success of interstate routes (highways that connected cities and states as opposed to rural secondary roads). Also, the German autobahn system impressed many people. However, the Bureau of Public Roads opposed these roads because the Bureau perceived them as not economically viable. Congressional road committees held hearings to discuss such a system in 1937. Although both houses voted against such roads, it is a striking indication of the interest in this type of road that Congress even held these meetings over the objections of the Bureau. It also showed the lack of cohesion within the highway industry over what type of roads to emphasize. Ironically, the publicity led to an enhanced legitimacy for toll-funded expressways. From this, in 1938, Congress through the Federal-Aid Highway Act of 1938 directed the Bureau to study the feasibility of a six-route toll network.

In this 1939 study, Toll Roads and Free Roads, the Bureau concluded the amount of transcontinental traffic was insufficient to support a network of toll roads. The study recommended non-toll interregional highways that would utilize existing road systems. More than two lanes of highway would be provided only when traffic supported it. In essence, it emphasized the need for free highways connecting cities and of sufficient width to meet traffic needs (usually two-lanes). Even so, the study marked a major shift in that it emphasized urban orientation over rural road construction. The Bureau plan was an effort to build consensus

Figure II-64: Historic Postcard view of downtown Crossville, postmarked 1944; the text on the back notes that the couple had driven through Crossville sight-seeing to view the German POW camp in the area, an indication that roads were in relatively good condition. Note the directional sign in the street, a reproduction of this sign is now located at the courthouse (Author's Collection).

Figure II-65: Historic postcard view of troop maneuvers on the Walter Hill Bridge near Murfreesboro (Courtesy, the Jim Laughlin Collection).

for a national road building plan, in that it contained expressways or arterial highways that entered central business districts, perhaps with by-passes, while tying the urban areas to an improved cross-county system. The plan incorporated objectives from three of the four main highway lobbyists: the primary state routes of the state highway departments, the transcontinental or superhighway proponents, and urban road builders (Seely 1987:160-171).

Although the Bureau opposed transcontinental freeways, other engineers supported them, and they continued to gain favor with the public. One reason was the vastly popular Norman Bel Geddes exhibit, the General Motors' Futurama exhibit at the 1939-40 New York World's Fair showed twelve-lane highways carrying cars at 100 mph with automated driving systems. Another, and more tangible factor, was the success, both financially and in moving traffic, of 1930s toll roads such as the Merritt Parkway in Connecticut and the Pennsylvania Turnpike, and Robert Moses's parkways in New York, which impressed then President Franklin D. Roosevelt, a fellow New Yorker. However, the final reason that resulted in a movement toward transcontinental roads was the perception, as war loomed in Europe, of their military value (Seely 1987:175-176).

By the early 1940s, and the beginning of World War II, the country had a relatively good road system. As national priorities changed due to the spreading global conflicts, the states and the Federal government placed less emphasis on a concerted road building effort, and Congress abolished many of the New Deal programs. By then, enough work had been accomplished "on the new frontier of the national highways, driven by a nonpartisan demand which few could

resist on principle" to forever change the country's landscape and its lifestyle (Paxson 1946:248).

The country's roads had been woefully inadequate during World War I. However, by the beginning of World War II, "the highways were a completed operating mechanism, needing at the last minute little more than a detail act for access and strategic roads. The President approved such an act on November 19, 1941" (Paxson 1946:238), the Defense Highway Act. Once World War II began, not only funding, but manpower and materials became increasingly scarce for road construction. In 1940, federal-aid projects in the United States accounted for 11,549 miles of completed roads, but in 1945, such projects accounted for only 3,035 miles (Seely 1987:177). Concerned about the lack of consensus during the 1930s on a national road construction program, the Bureau of Public Roads attempted to use this period to develop priorities. President Roosevelt also encouraged the agency to develop a postwar highway program, fearing a recession and high unemployment rates, similar to the economic problems following World War I. Many people believed a system of superhighways would end urban congestion, the Bureau of Public Roads asked state highway departments to submit route selections for such a road during World War II.

With the outbreak of World War II, the Federal government diverted money to the war effort and limited funding for road construction to those roads essential to the war. In 1942, Governor Prentice Cooper held his own "fireside chat" about roads in Tennessee, noting they were a "primary necessity" during "modern days of mechanized, mobile warfare" (Johnson 1978b:111). For military reasons, federal money funded road improvements near Camp Forrest, the Paris Balloon Barrage Center, the Smyrna Bomber Base, Camp Campbell, the Vultee Aircraft Factory, the Alcoa Aluminum plants, the Chattanooga TNT plant, the Milan Shell-Loading plant, and the Millington powder plant. Governor Cooper used state convicts to maintain other roads. Traffic related to the war production plants and troop maneuvers in 1943 on roads in 22 counties did extensive damage to Tennessee roads. Consequently, the Federal government requested Tennessee to improve many of its roads, and over the next two years, the state spent approximately $3.8 million to improve roads key to military use (Johnson 1978b:111-112).

Like most states, Tennessee built few bridges during World War II, and many of those built related to the war effort, primarily road reconstruction due to dam construction. An example is the Haskins Bridge in Jefferson County (#152, 45-SR092-09.21) which TVA built between 1942 and 1944 as the result of the construction of Douglas Dam, which Congress had approved as a World War II emergency program for power production.

The Army Corps of Engineers also built a truss bridge in Roane County in 1946 as a result of the Manhattan Project, the successful effort by the United States to build an atomic bomb during World War II. The Corps was in charge of this project, and in 1941 the Corps purchased 59,000 acres in Anderson and Roane Counties as a production site for enriched plutonium and a townsite for workers. The Corps quickly built facilities and the infrastructure to accommodate 75,000 workers. After World War II, the federal government chose to continue nuclear production and research at the facility, and between the end of World War II and the transition to management by the Atomic Energy Commission in January 1947, the Corps built a few additional buildings and improved transportation facilities. One of these projects involved the erection of a "second-hand" circa 1943-1945 war surplus Bailey truss over Poplar Creek (#153, 73-00653-04.34) near one of the production plants.

By the mid-twentieth century, the design and construction of the bridge types in this survey--masonry arch, wooden truss, metal truss, suspension, metal arch and concrete arch--had essentially ceased. Although these types used a similar amount or even fewer materials to construct than girder bridges, they were more labor intensive. With materials comparatively cheap and labor expensive by the mid-twentieth century, the construction of these types for either short or long spans became uneconomical in comparison with deck girder bridges of either concrete or steel. After about 1950, designers rarely chose to build truss bridges, and when they did, it was usually due to some specific design constraint such as navigational clearances. Thus, while these bridge types remained functional, they were no longer competitive economically for new designs and generally disappeared from the construction scene.

ROAD BUILDING IN TENNESSEE, 1946 TO PRESENT

Although funding priorities during World War II focused on the war effort, interest in additional highway work existed. In 1941, President Roosevelt appointed the National Interregional Highway Committee to investigate the need for a limited system of national highways. The committee's 1944 report *Interregional Highways*, recommended the federal road program emphasize high quality interstate routes, primarily in rural areas, that connected principal metropolitan areas as well as with major routes in Canada and Mexico, with 5,000 miles of auxiliary urban routes. The Federal-Aid Highway Act of 1944 incorporated these recommendations and designated funding levels for roadwork for the first three years after the war ended. This act contained many of the same points as the 1939 *Toll Roads and Free Roads*, including authorization for a national system of superhighways and urban expressways. Although not implemented due to lack of dedicated funding, the act set the stage for changes in the nation's highway system and federal highway policies. The 1950 Federal-Aid Act did not provide funds for the new "Interstate" highways, even though a 1949 study, *Highways Needs of the National Defense*, concluded the existing system contained numerous deficiencies. Although the Korean War diverted funds from road construction, it heightened awareness for the need of a better road system for military purposes (Seely 1987:202-203).

The 1952 election of Dwight D. Eisenhower as president brought an ardent believer in good roads to the White House. President Eisenhower gave credit for the commitment to a national system of roads partly due to his exposure to the German autobahn system during World War II. However, he also gave credit to a trip in 1919 when, as a member of a military truck and tank convoy, he crossed the country from Washington to San Francisco on the Lincoln Highway. The purpose of the trip was two-fold: to dramatize the need for better main highways and to showcase the military and its equipment. The deplorable road conditions, on what was considered the country's best transcontinental highway, led Eisenhower to dub the trip a trek "through darkest America" that had taken "sixty days and 6,000 breakdowns" (Eisenhower 1967:155-168; Lewis 1997:90, 104).

The 1950s and the Cold War era provided a new arena in which to frame the debate. Under Eisenhower, the first Republican president since Herbert Hoover, the country entered a mild recession after the Korean War with unemployment rising from 2.9% to over 5%. Eisenhower, who was "haunted" by the association of Hoover and the Republican Party with the Crash of 1929, had "an almost pathological fear of a depression" (Lewis 1997:86). Eisenhower and many others viewed judicious spending through massive road construction as a means to stimulate

Figure II-66: Albert Gore, Sr (photo courtesy of the Gore Center at Middle Tennessee State University): Albert A. Gore Sr. (1907-1998), attended Middle Tennessee State Teachers College in Murfreesboro and the University of Tennessee and served as superintendent of schools for Smith County from 1932 to 1936. He received a law degree by attending the Nashville YMCA Night Law School. Gore met his wife, Pauline LaFon Gore, while she was working as a waitress in Nashville to pay her way through Vanderbilt University law school. She was one of the school's first women graduates. They were married in 1937 and for a time operated a joint practice at Carthage.

Elected as an U.S. Representative to Congress in 1939, he waived any congressional draft deferment and was drafted 29 December 1943. He reported to Camp Shelby, Mississippi, on 19 January 1944, but at the request of President Franklin D. Roosevelt, he transferred to the inactive reserve and returned to Congress. However, Gore later resigned from Congress and went on active duty 4 December 1944. He was assigned to a military government detachment and took part in the battle to cross the Ruhr River. "Miss Pauline" ran the Washington office when he was serving in the war. He gave up his Congressional seat to run for the U.S. Senate in 1952 and served as a senator from 1953 until 1970, when his opposition to the Vietnam War, in part, led to his defeat. He is the father of former Vice President Al Gore.

economic growth. The Cold War provided a national consensus to fund a national highway system for movement of troops and to aid in the evacuation of cities in the event of a nuclear attack.

As President, Eisenhower argued that such a strong network of highways was essential, not only because of the growing number of cars in the country, but also because of the military importance of such a network and because it would stimulate the economy. Eisenhower, through the Federal-Aid Highway Act of 1952, authorized the first funding of the interstate system, but the minimal amount of $25 million a year for two years was not enough to start the program. In 1954, President Eisenhower appointed a committee, the President's Advisory Committee on a National Highway Program, to study the issue of creating a nation-wide network of modern limited-access highways. He appointed a close friend, General Lucius Clay, to head this committee, not only because of friendship and Clay's extensive experience, but also to signal the military value of the new system (Lewis 1997:105-107). In 1955, after original defeats on the interstate bill, Eisenhower suffered a serious heart attack which required extensive recuperation. During that time, Eisenhower reflected on the long-range future of the country and became even more convinced the country must have a national system of superhighways, and as a result, more willing to compromise on specific details.

Funding the system seemingly proved more controversial and troublesome than the issue of building it. Various funding mechanisms that Congress debated included: toll roads, a general tax based on defense needs, a portion of the defense budget, and bonds based on fuel taxes. Eventually, Congress passed a compromise measure that funded construction on a pay-as-you-go basis financed by taxes levied on trucks, tires, gasoline, and related products channeled through a dedicated fund for highway construction, the Highway Trust Fund. The law required all funds raised through these user taxes had to be used exclusively for transportation purposes. Key congressional players were George H. ("Highways") Fallon from Maryland in the House of Representatives and Tennessean Albert Gore Sr. in the Senate. However, in 1958, as a recession hit the country, Congress removed the pay-as-you-go provision.

The 1956 Federal-Aid Act, the most significant transportation development in post World War II America and often called the Fallon-Gore Act, provided $25 billion for twelve years to fund the National System of Interstate and Defense Highways. Projected to be completed by 1972, the act established the Interstate and Defense Highway System, a new 41,000 mile network of super highways to connect every major city in the United States, the "biggest peacetime construction project of any description ever undertaken by the United States or any other country" (Eisenhower 1969:548; Lewis 1997:120-122). The creation of the interstate program resulted in an unprecedented boom in highway construction never equaled before or since then in this country. The network was later expanded to 42,800 miles.

The act initially allocated Tennessee 1,047.6 miles of roadway. Originally, the program intended for roads designed on twenty-year traffic forecasts which would have allowed two-lane segments and at-grade intersections on lightly traveled sections. In 1957 the Department of Highways and Public Works, first planning to use existing major routes, delineated routes for the proposed interstate system. However, due to the problems of imposing controlled access on existing roads, the Department of Highways and Public Works in 1960 proposed alignments on new locations. In 1966, legislation required all sections of the interstate system to be at least four lanes with no at-grade intersections, regardless of traffic volume. Under the

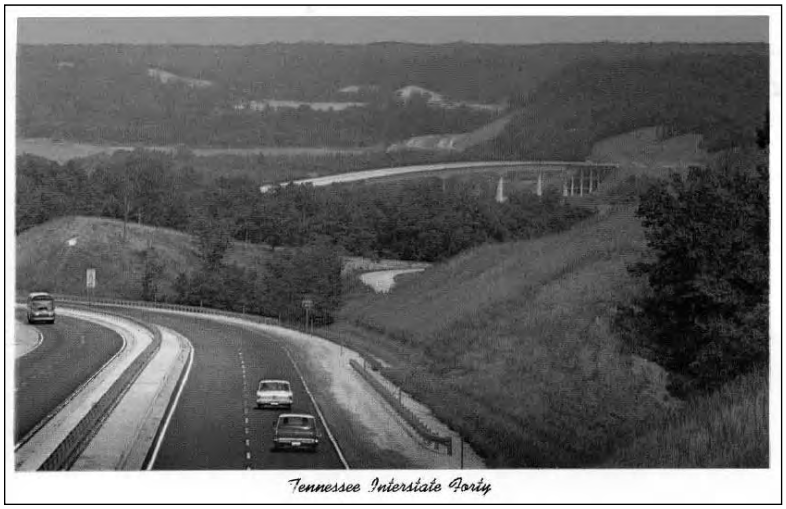


Figure II-67: This historic postcard shows Interstate 40 near the Cuba Landing Bridge spanning the Kentucky Lake-Tennessee River between Waverly and Camden (Author's Collection).

interstate program, the federal government paid ninety percent of the cost of the new highways through the Bureau of Public Roads and the State of Tennessee paid a matching ten-percent through the Department of Highways and Public Works.

In 1991, Congress renamed the interstate system the Dwight D. Eisenhower System of Interstate and Defense Highways. In 1994, the American Society of Civil Engineers (ASCE) designated the interstate system as one of the "Seven Wonders of the United States." In 2000, the ASCE implemented its Monuments of the Millennium program in which it selected ten civil engineering achievements that had the greatest positive impact on life in the twentieth century. Considered as classes of projects rather than as individual undertakings, the interstate system is included with engineering achievements such as dams and skyscrapers.

Tennessee's first interstate project, built between April 1957 and November 1958, was a 1.8 mile bypass of Ardmore in Giles County that contained a figure eight interchange on I-65 with U.S. 31 (State Route 7). In 1987 the state completed the final segment of Tennessee's original interstate allotment, I-440 in Davidson County. Today, Tennessee's 1,062 miles of interstate routes carry 27 percent of the state's motor vehicular traffic but comprise only 1.2 percent of the state's public road mileage. Tennessee's interstates include I-40 that runs east-west from Memphis to Bristol; I-65 that runs north-south through Nashville; I-24 that runs east-west through Nashville, I-75 that runs north from Chattanooga through Knoxville; and I-81 from near Knoxville to Bristol. Nashville is one of only four cities in the United States to have six legs of interstates converge within its limits.

The methodology of interstate numbering was systematically planned. North-south routes have odd numbers, beginning in California with I-5 and numerically increasing as they move east. East-west routes have even numbers, starting with I-10 in the Deep South, numerically increasing as they move north. Three-numbered routes are loops or spurs (for example I 440). The last two digits relate to the interstate to which it connects. The first digit is even if it forms a circle or if it connects to an interstate on both ends. If only one end is connected to an interstate, the first digit is odd (for example, I-181). Exit numbers can either be numbered sequentially or, as in Tennessee, numbered equivalent to mile markers. Mile markers begin at the western state line for even-numbered interstates and at the southern state line for odd-numbered interstates.

In 1966 Congress passed the Department of Transportation Act that created the cabinet level U.S. Department of Transportation (U.S.-DOT). This act consolidated several fragmented programs including the Bureau of Public Roads under U.S.-DOT. Some of U.S.-DOT's agencies then included the U.S. Coast Guard, Federal Aviation Administration, Federal Highway Administration, Federal Transit Administration (formerly Urban Mass Transit Administration), and Maritime Administration. [Since then, the Coast Guard was been moved to Homeland Security and is no longer under U.S. DOT.] The Federal Highway Administration and state highway agencies jointly administer the Federal-aid highway program. The Federal Highway Administration provides financial funding and must approve projects at different stages. The state highway agencies initiate, plan, design, build, and operate the highway projects. The states also own the state routes and interstate highways.

In 1972 the state reorganized its old Bureau of Highways as the Tennessee Department of Transportation. Originally the Department contained six Bureaus: Aeronautics, Business Management, Highways, Mass Transit, Planning and Programming, and Waterways and Rail.

However, in 1981 the Department consolidated these six Bureaus into two: the Bureau of Planning and Development and the Bureau of Operations. Due to the important role that safe bridges play in a transportation network, the Department reorganized the Bureaus in 1989 so that the Bridge Inspection and Maintenance section reported directly to the Commissioner. With the importance of safe bridges established, this program has since resumed its previous position within the Structures Division and is accountable to the Department's Chief Engineer. In 1999, TDOT reorganized again, with the Chief Engineer overseeing all transportation functions, except Aeronautics.

The Department of Transportation is now the lead agency in transportation projects in Tennessee. In some ways it functions much as the original State Highway Department did in that it serves as an agency to receive Federal-aid money allocated for transportation related projects in the state. It also receives substantial state funding and administers a variety of transportation programs including road and bridge design and construction, waterways, mass transit, and aeronautics. This agency owns and administers Tennessee's 1057-mile Interstate system and its 12,219 miles of State Routes with over 8,000 bridges. Cities, counties, or federal reservations own at least 70,557 miles of other publicly owned roads with over 11,000 bridges. For these, the Department is available to provide financial and planning assistance for projects such as road and bridge design and construction.

The massive construction programs related to the interstate system and urban renewal programs of the 1950s and 1960s, and to a lesser degree, flood control projects that inundated large areas in the mid-twentieth century resulted in an environmental movement and neighborhood activism. In the 1960s, the country began to pass environmental legislation that would give interested groups a forum to provide input into the creation and implementation of projects as well as providing protection to sensitive environmental sites.

In 1966 Congress passed two pieces of legislation that provided protection to historic resources. The Department of Transportation Act of 1966 contains the first measure. This measure, which is known as Section 4(f), stipulates that US-DOT can not use a historic resource unless there is no prudent or feasible alternative to that use in the transportation project and that the project must include all possible planning to minimize harm to the historic resource. The Historic Preservation Act of 1966 contains the second measure. This measure, which is known as Section 106, requires all federal agencies to take into account the effects of its projects on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. A third law, the National Environmental Policy Act of 1969, charged federal agencies to evaluate the range of their project-related impacts on the environment and to include environmental issues in the decision making process. After the passage of these laws, the Federal Highway Administration encouraged state highway agencies to hire qualified personnel to deal with historic preservation issues. In 1975 the Tennessee Department of Transportation hired its first archaeologist and in 1977 its first historian. Today the department has five archaeologists and three historians in its Technical Studies Office. In recognition of the importance of environmental considerations, TDOT moved its Environmental Planning Office from within the Planning Division and reorganized it as the Environmental Planning Division in 1999.

Much of the current emphasis on rehabilitation or replacement of existing bridges was a direct result of the collapse in 1967 of the Silver Bridge over the Ohio River between Point Pleasant, West Virginia, and Gallipolis, Ohio, that killed forty-six people. This tragic event led to

Figure II-68: Photograph of TDOT historian inventorying the Hatfield Bridge spanning the Sequatchie River south of Dunlap in Sequatchie County (#25, 77 NonHighway 1).

additional funding for bridges in the Federal-Aid Highway Act of 1968 that set bridge inspection standards and required states to inspect and inventory Federal-aid bridges. The National Emergency Bridge Replacement Program within the Federal-Aid Highway Act of 1970 provided $816.5 million through 1978 for bridge replacements. In 1978 the Surface Transportation Assistance Act provided funding through 1982 (which Congress reauthorized through 1986) for the comprehensive Highway Bridge Replacement and Rehabilitation Program to replace or repair deficient bridges (as opposed to replacement only under the 1970 act). It also stipulated that each state would inventory and inspect on a regular basis all bridges on public highways, which included all off-system bridges such as county-owned bridges as well as previously inventoried bridges on state or federal routes. Due to the heavy usage of state and federal roads and previous funding programs, the states had replaced most older bridges on these roads many years ago. Consequently, off-system routes contained most of the older bridges still in existence. Thus, this expansion of the scope of the bridge inventory has been crucial in identifying historic bridges. This act also permitted states to use program funds to prepare an inventory of historic bridges (such as this survey). Although this act did not specifically authorize the expenditure of money for mitigation for the replacement of historic bridges, most states administratively interpreted the act to allow funds to be used for mitigation such as the rehabilitation, relocation, or marketing of historic bridges.

Figure II-69: Photograph showing children exiting a bus to walk across a dilapidated bridge near Pulaski in Giles County. The bus driver then drove the bridge across the bridge and the children got back on the bus. Scenes like this occurred across the country twice a day as counties faced increasingly dangerous older bridges (Courtesy, Tennessee State Library and Archives).

Figure II-70: Collapse of unidentified bridge with truck in Tennessee (TDOT Photo Collection).

Over the years, the Highway Bridge Replacement and Rehabilitation Program came normally to mean replacement when applied to historic bridges. Older truss and other historic bridge types normally could not meet the stringent criteria to qualify for federal rehabilitation moneys. Thus the local entity that owned the bridge (city, county, or state) faced the choice of paying all the rehabilitation costs for an old bridge, which then would not meet federal safety standards, or paying no more than twenty percent of the cost of a new bridge which met those standards. Most owners opted for new bridges.

Thus, to the dismay of many historians and engineers, this surge to rehabilitate or replace deficient bridges led to replacement projects that resulted in the demolition of numerous historic bridges. This concern led to some significant policy changes in the Surface Transportation Assistance Act of 1987. This act stated that prior to demolition of a historic bridge with funds from this program, the state must make the historic bridge available for donation to a public or private entity and that money up to an amount equal to the demolition cost could be used for mitigation. It also required that all states complete an inventory of historic bridges. Another aspect of the law provided that the Transportation Research Board, of the National Academy of Sciences, would conduct a study on the effects of the bridge program on the preservation and rehabilitation of historic bridges. Of special importance, the law directed the Transportation Research Board to develop rehabilitation standards applicable to historic bridges. As a result of this interest in historic preservation issues, in 1990 the Transportation Research Board created a Committee on Historic and Archaeological Preservation in Transportation. The purpose of the committee is to find ways to effectively implement the cultural resources rules and regulations on transportation projects to protect resources and integrate the Historic Preservation laws with the National Environmental Policy Act to facilitate the implementation of needed transportation improvements for the public. The Committee provides technical support to the Transportation Research Board, which provides similar support to the National Research Council, which is under the aegis of the National Academy of Sciences.

The 1992 Intermodal Surface Transportation Efficiency Act (ISTEA) contained no new provisions relating to historic bridges but continued existing policies. However, one key

Figure II-71: 1941 Photograph of the Elizabethton Covered Bridge, (#008, 10-A0398-00.01) (Courtesy of the Tennessee State Library and Archives, #10-38).

element of this program that had the potential to impact historic bridges was the "Enhancement" program that authorized states to spend up to ten percent of their federal Surface Transportation Program allocation on activities related to enhancing the environment. This act specifically defined ten fundable programs, one of which was historic preservation. At a national level, this program allowed states to spend up to $3 billion on enhancements during the act's six years. Tennessee's share was roughly $54 million. In 1998, Congress passed the Transportation Equity Act for the 21st Century (TEA-21) that continues the same Enhancement program as well as previous bridge programs. Under TEA-21 Tennessee has received in excess of $70 million. Under the Enhancement program, TDOT has awarded grants to rehab historic bridges such as the Elizabethton Covered Bridge (#8, 10-A0398-00.01), the Bible Covered Bridge (#109, 30-A906-00.01), and the Elkton Bridge (#111, 28-NonHighway-1).

Renewed interest in historic bridges led to the passage of the National Historic Covered Bridge Preservation Program through TEA-21. This program provides a total of $10 million each year from 1999 through 2003 to preserve, rehabilitate, or repair National Register listed or eligible covered bridges. The Harrisburg Covered Bridge (#4, 78-A0324-00.58), has received a grant under this program.

In the recent past, many of Tennessee's older bridges have been replaced; some of which were either eligible for or listed in the National Register of Historic Places. Thus, awareness of the historic significance of Tennessee's bridges continues to grow while at the same time substantial funding is available for their replacement. Tennessee is typical of every state as it tries to meet dual--and often conflicting--goals of maintaining a safe and efficient transportation system while preserving its historic resources.