

A NEW DEAL FOR OKLAHOMA

BRIDGE AND ROAD BUILDING IN THE DEPRESSION ERA



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Cover photos, clockwise from upper left: Structure No. 02N2580E0280002 in Alfalfa County, Structure No. 40N4775E1570006 in Le Flore County, State Highway 9 in Seminole County, Structure No. 04E0140N1320008 in Beaver County.

PREPARED FOR



PREPARED BY



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A NEW DEAL FOR OKLAHOMA

Between 1933 and 1945 Oklahoma's roads and bridges underwent a period of significant construction and improvement. Dirt roads became interstate highways, bridges and culverts spanned rivers and creeks, and Oklahoma began to mature into the thriving and interconnected state we know today.

When the Great Depression hit the United States just a few years earlier, Oklahoma was still coming of age. Statewide transportation infrastructure was rudimentary; in fact, a paved highway between Tulsa and Oklahoma City was not completed until 1930. Muddy, rutted roads isolated many of the state's residents in rural communities. As the Depression took hold, farms, factories, and banks failed in the wake of economic collapse, a pattern that repeated nationwide. President Franklin D. Roosevelt began his term in 1933, initiating the "New Deal for America" during



A car stuck in eroded soil, c.1935. This would have been a common sight before widespread grading and paving of roads across Oklahoma.



Farms across the country were hit hard during the Depression, which coincided with drought and dust storms in Oklahoma. This livestock watering hole in Cimarron County was almost covered by shifting topsoil, 1936.

his first 100 days in office in order to lift the country out of this crisis.

The New Deal consisted of a series of nationwide Depression-era programs and agencies intended to provide relief, recovery, and reform, which were popularly known as the "Three R's." These programs were aimed at the federal, state, and local levels in the economic sectors of agriculture, banking, housing, industry, labor, public utilities, and transportation. Central to the New Deal was the idea of "work relief," in which agencies provided employment to as many jobless Americans as possible. Highway construction and improvement projects received an

especially large proportion of New Deal funding, and it was estimated that for every federal relief worker directly employed on roads, at least two others were working in the manufacture and transportation of roadway materials and equipment. These infrastructure projects kept a nationwide road-building boom alive through the Depression.

Drivers on many of Oklahoma's roads today can still find stamps, plaques, and bollards marking highways and bridges that were constructed or improved as part of the New Deal. These markers represent the importance of the Depression era in the history of Oklahoma's ever-evolving transportation system.



A typical WPA concrete culvert, as seen from the roadway, on State Highway 63 in Le Flore County (Structure No. 4040 1659 X).



Federal relief markers across Oklahoma. From top to bottom: a WPA stamp from a 1939 bridge (Structure No. 1320 2070 X), a plaque for an early PWA project (Structure No. 63E1150N3330002), and a right-of-way marker from a NRWR project in Ellis County.



This 1941 steel girder span, characteristic of many steel bridges constructed for small crossings, was built by the WPA in Greer County (Structure No. 28N1840E1390009).

NEW DEAL PROGRAMS THAT BUILT AND IMPROVED OKLAHOMA'S ROADS

AGENCY	PERIOD OF ACTIVITY	PURPOSE	ACCOMPLISHMENTS IN ROAD AND BRIDGE BUILDING
NRH National Recovery Highway	1933-1935	Appropriated significant federal funds for road construction and improvement	Due to NRH and other funding, surfaced highways nationwide doubled in length in the 1930s and between 35 percent and 45 percent of federal-relief workers took on road improvement projects.
NRWR National Recovery Work Relief	1933-1935	Granted employment and relief to the jobless in drought states	NRWR workers completed grading, drainage, bridge construction, and gravel surfacing on America's roads.
FERA Federal Emergency Relief Administration	1933-1935	Implemented vouchers for food, rent, coal, etc., and provided work relief	FERA's work relief divisions, including the Civil Works Administration (CWA), increased employment nationwide and built or improved nearly half a million miles of roads.
CCC Civilian Conservation Corps	1933-1942	Conserved state and federal lands through work relief targeted at men ages 18-25	The CCC employed as many as 500,000 people, building and improving roads, truck trails, and bridges in state and national parks and remote areas around the country.
PWA Public Works Administration	1933-1943	Sponsored large-scale, high-profile infrastructure projects to revive the construction and transportation industries	The PWA financed a total of 34,508 construction projects nationwide at a cost of approximately \$6 billion.
WPA Works Progress Administration (later, Works Project Administration)	1935-1943	Administered localized, labor intensive public works projects	The WPA built 572,000 miles of highways, 67,000 miles of city streets, and 78,000 bridges nationally.
U.S. WPGC U.S. Works Program Grade Crossing	1935-1943	Allocated funding for the elimination of unsafe railroad grade crossings	The U.S. WPGC constructed overpasses, underpasses, traffic controls, and warning devices across the country.

EARLY TRANSPORTATION IN OKLAHOMA

In order to understand the significance of Depression-era road and bridge construction in Oklahoma, it is important to consider the evolution of transportation in the state. In 1907 Oklahoma became the 46th state to join the union. Early leaders launched a four-year effort to establish a State Highway Department, which they accomplished on June 15, 1911. By this time approximately 6,500 vehicles were registered in the state. Oklahoma, meanwhile, ranked last in the United States in terms of paved-road mileage. Pressure grew to improve the state's roads, a process that would begin in the 1910s and 1920s before the significant developments of the Depression era.

With the passage of national legislation, including the Federal-Aid Road Act of 1916 and the Federal Highway Act of 1921, significant funding for transportation projects became available. Grants, however, were often dependent on the ability of states and municipalities to raise matching capital. Federal funding required a 50-50 dollar match for state aid, as well as project approval from the federal Bureau of Public Roads. Accordingly, federal, state, and local efforts began to work together in Oklahoma, forming the beginnings of a coordinated—albeit imperfect—highway program. Oklahoma developed a state-aid procedure to assist counties in raising capital for road construction. Nevertheless, in these early years affluent local governments that were more able to contribute funds received the highest proportion of grants, which had the effect of accentuating poor road conditions in rural, less-prosperous areas of the state such as the western panhandle.



This horse-drawn wagon on a dirt road represents the state of transportation in early-twentieth-century Oklahoma.



A car on a dirt road at a train crossing in Oklahoma, 1937. Paving streets and providing railroad grade separations would improve many state roads like this one.



Rudimentary bridges across Oklahoma, such as this one, were in need of improvement or replacement. c.1935.

In the mid-to-late 1920s the State Highway Department gained new funding sources and reorganized its administrative body. Regulations passed by the Oklahoma legislature authorized a gas tax to fund road projects at both the state and county levels; this tax, which assisted communities in matching federal dollars, was so vital that it was increased in 1925 and again in 1929. In addition, the legislature installed the three-member Oklahoma State Highway Commission to replace what had previously been a single officer and focused on simplifying and de-politicizing the funding process. These regulations represented important steps to sustaining federal aid in the years to come.

The State Highway Department achieved several major accomplishments in the years before the New Deal, including the establishment of a route numbering system and the construction of the state's first paved highways. Another important effort was the elimination of private toll bridges, a change that provided free highway crossings for an expanding population of automobile owners. Oklahoma

also became part of an emerging national highway network during this era, necessitating the improvement of the state's rudimentary road system.

Despite the highway department's early achievements, Oklahoma was still far behind the national average in miles of paved roads. The 48 states averaged 4,136 miles of surfaced roads each, while Oklahoma had only 3,368 paved miles. Paved highways were vital to transportation and accessibility in the early twentieth century, and they were critically needed across the state. One report from the City of Billings in 1938 enumerated what was still year-round frustration with bad conditions:

In the dry season, everything is covered with dust and it is impossible to keep up the sanitary conditions. In the wet season it is swampy and it is impossible to drive down the streets without sliding into a ditch. The only street that is travelable is the street that leads in from the Highway, which is paved.

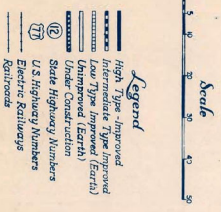
OKLAHOMA'S HIGHWAY SYSTEM IN 1929

STATE OF OKLAHOMA DEPARTMENT OF HIGHWAYS

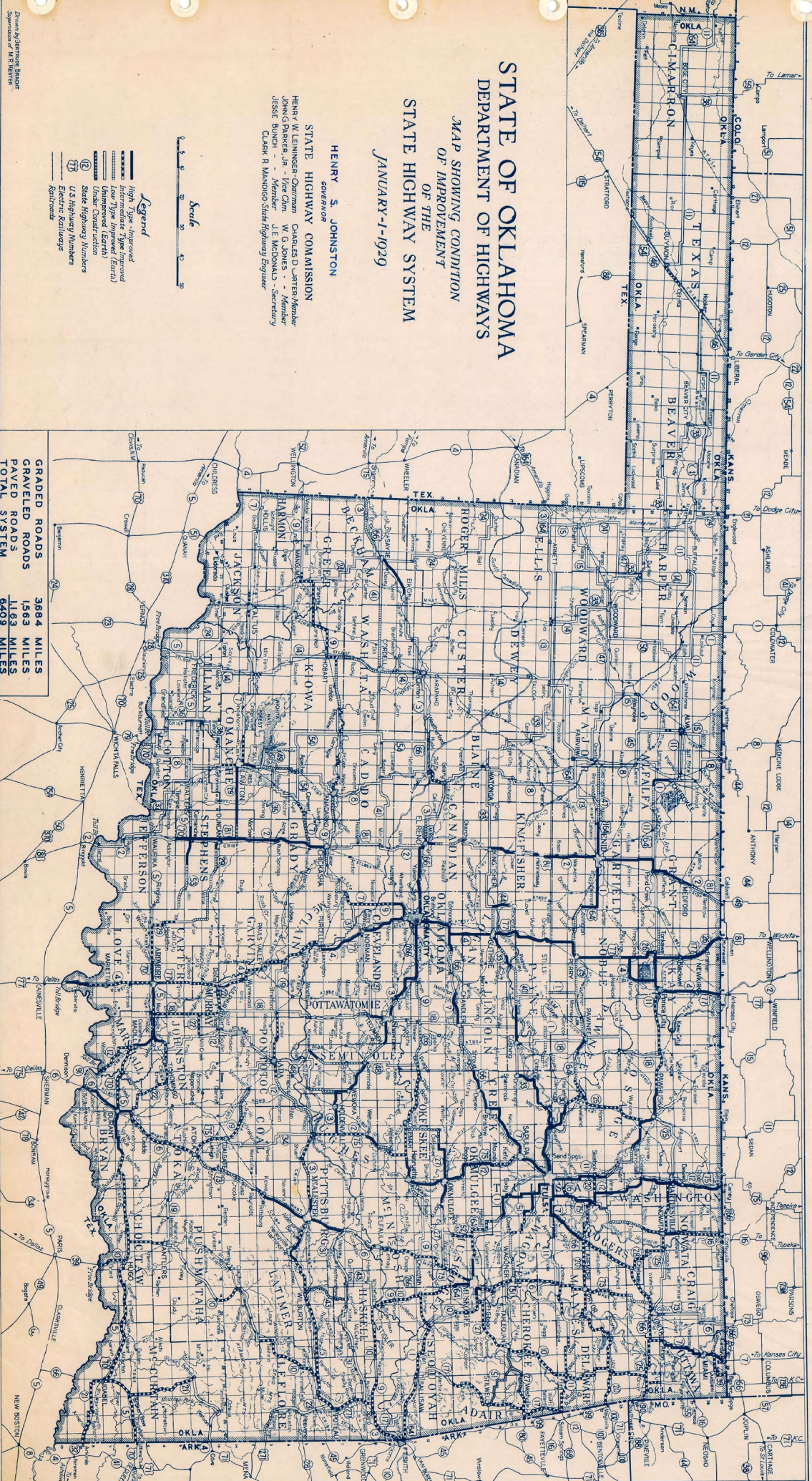
MAP SHOWING CONDITION
OF IMPROVEMENT
OF THE
STATE HIGHWAY SYSTEM
JANUARY 1-1929

HENRY S. JOHNSTON
GOVERNOR

STATE HIGHWAY COMMISSION
HENRY W. LEININGER - Chairman
CHARLES D. CARTER - Member
JOHN G. PARKER, JR. - Vice-Chair
W. G. JONES - Member
JESSE BUCHER - Member
CLARK R. MANDROS - State Highway Engineer



Drawn by Sterling Baker
Supervisor of M. RIVERS



GRADED ROADS 3684 MILES
PAVED ROADS 1583 MILES
TOTAL SYSTEM 5267 MILES

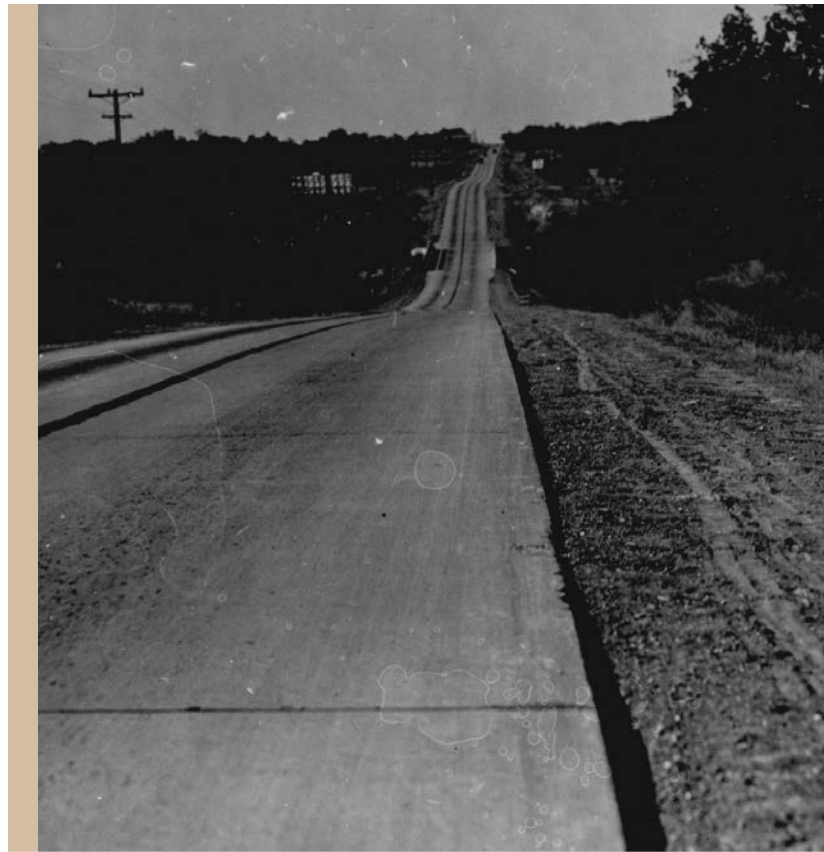
Notice the low overall number of paved roads (represented by solid lines) and the considerable amount of construction taking place (represented by cross-hatch lines).



Improving the state's highway system was a priority before and during the Depression. Canadian County, 1933.

In 1926 nine routes across Oklahoma were designated as U.S. Highways. This prompted the State Highway Department to prioritize the surfacing of the state's primary transportation network, a project that would be a focus of federal aid through the New Deal era.

From statehood until the beginning of the New Deal, Oklahoma founded a highway department, established a governing highway commission, and began to fund road projects. Even so, the state was still greatly in need of infrastructure including paved roads, bridges, and culverts. With the onset of the Great Depression, many residents would soon be unemployed and looking for work. New Deal programs addressed both of these needs through the use of relief workers for a deluge of infrastructure projects that would forever change the future of transportation in Oklahoma.



Road paving would become an important Depression-era activity in Oklahoma. North of Durant, 1938.

HAND LABOR TECHNIQUES



This cover for a report on WPA accomplishments in Oklahoma between 1935 and 1937 shows the hand labor that went into many projects.

To employ the greatest number of work-strapped Oklahomans during the Depression, New Deal agencies prioritized the use of hand labor. Special provisions of many construction projects required non-mechanical building methods, such as grubbing and clearing, grading, digging trenches for piping, loading and unloading construction materials, and roadside production of gravel and stone. Specific stipulations included the following:

- “Cement and reinforcing steel shall be unloaded by hand labor methods.”
- “Finishing of structural concrete surfaces shall be done by hand rubbing, or other hand labor methods.”
- “All painting of steel work shall be done without the use of mechanical equipment.”
- “Carpenter work and form work shall be done by hand labor methods and the use of mechanical saws will not be permitted at the bridge site.”
- “Electrical or mechanical drills shall not be used for boring holes in piles and forms at the bridge site.”



A concentration of four concrete slab bridges and 40 drainage structures built by the WPA along a 20-mile corridor of State Highway 325 in Cimarron County features signs of hand labor, including chiseled masonry substructures (top image – Structure No. 1320 2070 X).

THE GREAT DEPRESSION



A family walking on the highway in Pittsburg County, bound for the city of Krebs, 1938. Many families had to leave their homes and farms due to economic hardship in this era.



This family preparing to depart for California in 1939 was one of many that migrated out of Oklahoma during the Depression.

The United States endured a period of severe economic collapse and depression for more than a decade following the devastating stock market crash of 1929. When President Roosevelt assumed office in 1933, the national unemployment rate was at 25 percent and mass poverty was firmly entrenched.

Economic distress had overcome Oklahoma even before the Depression hit. During the 1920s the state was subjected to numerous bank failures, a decline in agricultural prices due to overproduction, and a wavering oil industry. Foreclosures increased and major cash crops in glutted markets—namely, wheat and cotton—were abandoned. Unemployment soared, reflecting a statewide income decline between 1929 and 1932 that was the third highest in the nation. During that short window of time, half of all industrial workers in Oklahoma lost their jobs.

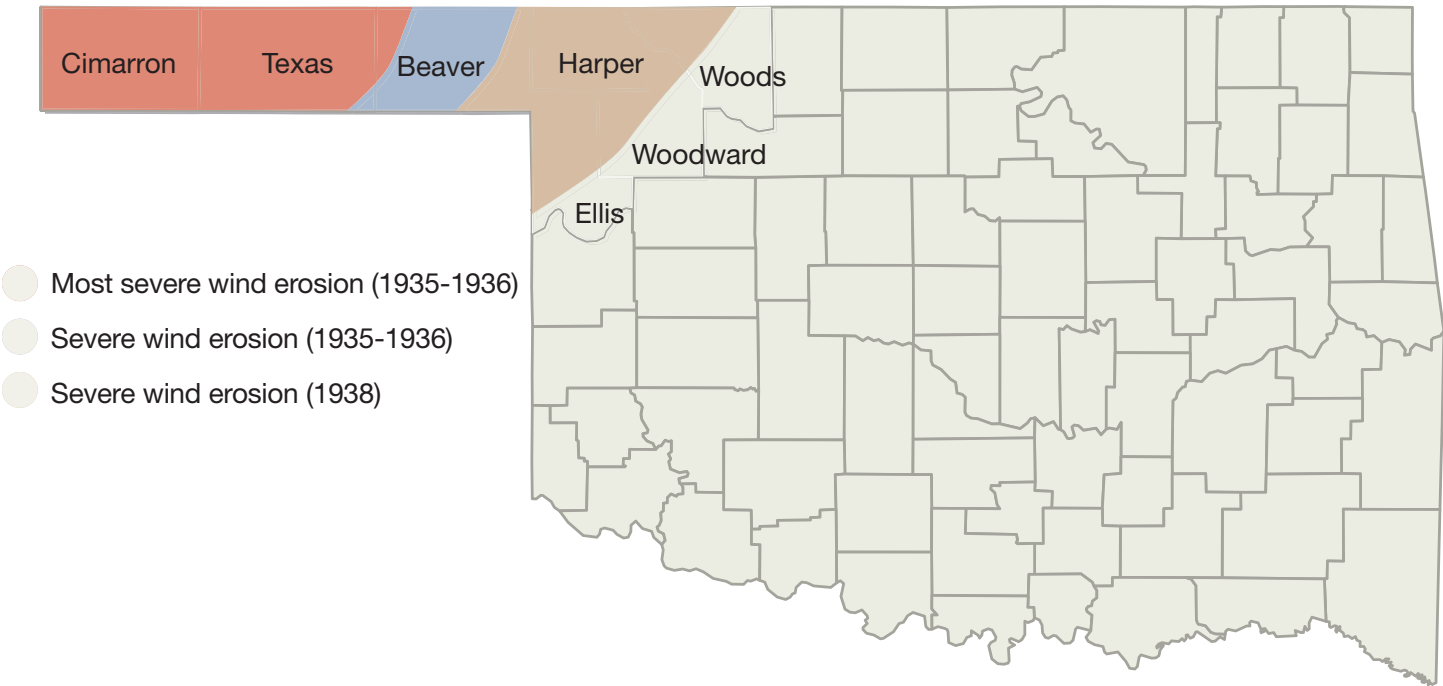
This economic depression was compounded by extreme weather and abysmal agricultural conditions in mid-1930s Oklahoma. The entire state was designated a drought area, spurring serious efforts

to improve crop production and, in the meantime, initiating an extensive migration of farmers out of Oklahoma and west to California and Arizona. John Steinbeck famously recorded this exodus in his 1939 novel *The Grapes of Wrath*. Additionally, the western panhandle of Oklahoma was affected by the Dust Bowl, a series of severe wind storms that badly eroded the soil and resulted in ruined crops, polluted drinking water, and dust-filled houses. At a time of desperation, Oklahomans sought federal relief.



Wind and dust overtake a farm near Guymon in Oklahoma's panhandle.

SEVERE WIND EROSION IN OKLAHOMA, 1935-1938



A farmer's son reacts to dust in Cimarron County, 1936.



This worker removed soil drifts blocking the highway near Guymon following dust storms, 1936.

BRIDGE MATERIALS AND TYPES IN OKLAHOMA

Bridge materials and types used in Oklahoma during the New Deal reflect changing technologies, styles, and needs. Several common materials and their associated types include:

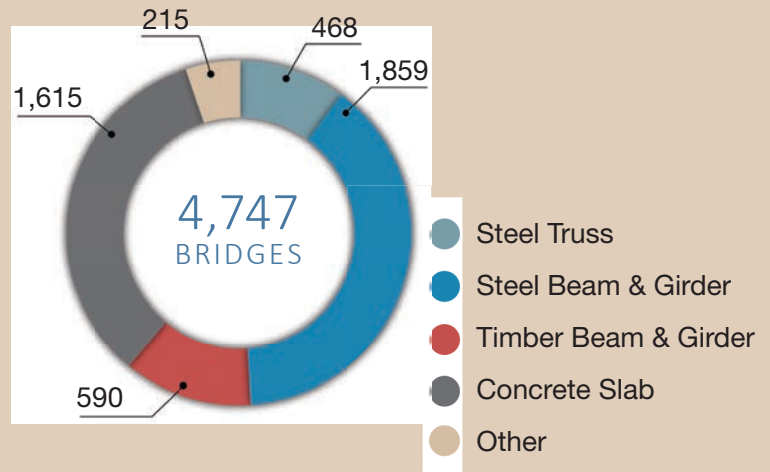
Reinforced concrete expanded from its use in early arch bridges. Later bridge types built with reinforced concrete included slab spans, beam and girder spans, and the integrated beam and slab design that became known as the T-beam. By the 1930s reinforced concrete had become the material of choice for state and local highway departments.

Steel replaced iron as a bridge material in the late-nineteenth century. Steel trusses were favored for longer bridges, displaying sophisticated design variations like the Parker and the K-truss. Simple steel beam spans, along with concrete slab and T-beams, were used for short crossings.

Stone masonry saw some revitalization in its use for federal-relief projects. In those cases, its major limitations—cost and inefficient use of labor—became advantages as Depression-era projects were required to incorporate as much hand labor as possible. Stone also contributed to the rustic aesthetic of New Deal parks and scenic highways.

Timber was an inexpensive, locally available material that was easy for nonprofessional construction crews to use. It was widely employed by counties and townships in beam or stringer spans for small, rural bridges. As with stone spans, timber bridges were also popular for their rustic style.

Bridge Types in Oklahoma, 1933-1945



Both of these bridges are located in Le Flore County. The steel stringer bridge (Structure No. 4014 2619 X), constructed with U.S. WPGC funding, carries U.S. Highway 271 over an abandoned railroad, and the concrete slab crossing (Structure No. 40E1410N4810002) along County Road E1410 was built by the WPA.

NEW DEAL PROGRAMS AND OKLAHOMA ROADS



Approximately 2,000 people crowded around a federal emergency relief headquarters in Oklahoma City, 1934.

In the years leading up to the New Deal, the Oklahoma state government struggled to come up with sufficient funds to relieve the economic crisis of the Great Depression. By and large, local and regional efforts were also inadequate. Oklahomans responded by demanding a change in leadership, creating a politically charged atmosphere that endured through several administrations of state government. Many of the state's leaders opposed Roosevelt's New Deal, and Oklahoma would not see major economic relief until the 1940s brought World War II and the end of drought. Nevertheless, several federal agencies made a significant impact on state-wide infrastructure.

Oklahoma's first Depression-era governor resisted federal relief. William H. "Alfalfa Bill" Murray successfully ran for office in 1930 with promises of tax reform, reduced state expenditures, and state-funded relief measures. Murray sought to increase agricultural production, sending State Highway Commission trucks filled with unemployed men to rural farms to work in exchange for produce. A relief fund of \$400,000 was rapidly consumed and, before long, Murray realized the state alone could not provide sufficient support. He was, however, hesitant to expand activities under the New Deal. This approach was publicly criticized, and he was voted out of office.



Relief workers surfacing State Highway 36 in Tillman County, 1932.

Murray's successor, Congressman E.W. Marland, supported federal funding and work relief. He ran for governor in 1934 under the slogan "Bring the New Deal to Oklahoma" and served from 1935 to 1939. Though he disputed with the state legislature throughout his term, limiting the range of New Deal legislation that might have passed, Marland was ultimately able to claim substantial federal aid for Oklahoma. In addition, Marland's administration established the Department of Safety, which is responsible for vehicle regulation, and the Highway Patrol. Oklahoma's next governor, Leon Phillips, once again railed against the New Deal, which restricted the federal funding that Oklahoma received through the duration of the Depression.

While this political maneuvering prevented some New Deal funding from reaching Oklahoma, roads and bridges across the state did ultimately benefit from federal aid. The following pages detail the New Deal programs that had the largest impact on Oklahoma's transportation network, organized chronologically by the year they were initiated.



WPA workers construct a shortcut between Sand Springs and Tulsa, one of many projects that involved new road and bridge construction, c.1935.

NATIONAL RECOVERY HIGHWAY AID

The National Industrial Recovery Act (NIRA) of June 1933 marked the first time that federal highway funds were outright grants to states. States were supposed to provide matching funds; however, their ability to do so was greatly hampered by the depressed economy. Roosevelt answered with larger appropriations using the federal-aid formula allocated by the Bureau of Public Roads and a variety of federal relief programs. This essentially replaced the regular federal-aid program with the National Recovery Highway (NRH) program.

Oklahoma highway construction benefited from \$13.9 million in NIRA funds during the 1933-1934 biennium. Of this total, the amounts allotted to roadway construction included \$6.4 million for federal highways; \$2.9 million for secondary highways; and \$2.7 million for municipal roadways.



In Woods County, a 6-mile stretch of U.S. Highway 64 contains this steel I-beam bridge (Structure No. 7602 1214 X, bottom left), three bridge-class box culverts, and 14 additional drainage structures (above and below), all constructed with NRH funding in 1933 and 1934. This concentrated effort is typical of NRH projects, which greatly improved road conditions throughout Oklahoma.





This concrete-lined ditch along U.S. Highway 283 was one of several roadway features financed through a NRWR grant.



This culvert along State Highway 15 was built using NRWR funding (Structure No. 2320 0451 X).

NATIONAL RECOVERY WORK RELIEF

As with the NRH, the NRWR program received grant funding through the NIRA. The NRWR provided employment in the drought-stricken areas of nine states, including Oklahoma. It directly impacted roadway construction in Beaver, Cimarron, Ellis, Harper, Texas, and Woods Counties. A statewide allotment of \$570,000 funded supervision, equipment, and materials for projects that the State Highway Commission designated and the Bureau of Public Roads approved. Affected counties furnished materials and equipment where possible. As with other work-relief roadway projects, labor under this program consisted of grading, drainage, bridge construction, and gravel or caliche surfacing.

The NRWR had a significant impact during a time of high unemployment across the state. A 5-mile corridor along State Highway 15 in Ellis County displays five bridge-class culverts and several more drainage structures constructed in 1935 with NRWR aid and using WPA labor. Nearby, just north of



This stretch of highway in 1938 represents what a typical road in the Oklahoma panhandle looked like during the Depression era.

Shattuck, another 5-mile stretch along U.S. Highway 283 contains three historic concrete box culverts, 17 drainage structures, and three pairs of right-of-way markers associated with an NRWR transportation improvement grant. These two projects likely encompass the federal-relief work that, according to a newspaper article in the Ellis County Capital, employed 167 people in 1935.

FEDERAL EMERGENCY RELIEF ADMINISTRATION

A short term supplement to the FERA called the CWA expended approximately \$14.5 million on work relief in Oklahoma during five months of operation. Oklahoma used federal relief through the CWA and the PWA to build airports, college dormitories, and county courthouses. The majority of CWA work, however, was associated with highway and local road improvements, ranging from surfacing and grading roads to constructing bridges to laying sewer pipes. FERA funding also provided for the construction of nearly 500 new bridges and culverts and the repair of many additional structures throughout the state.

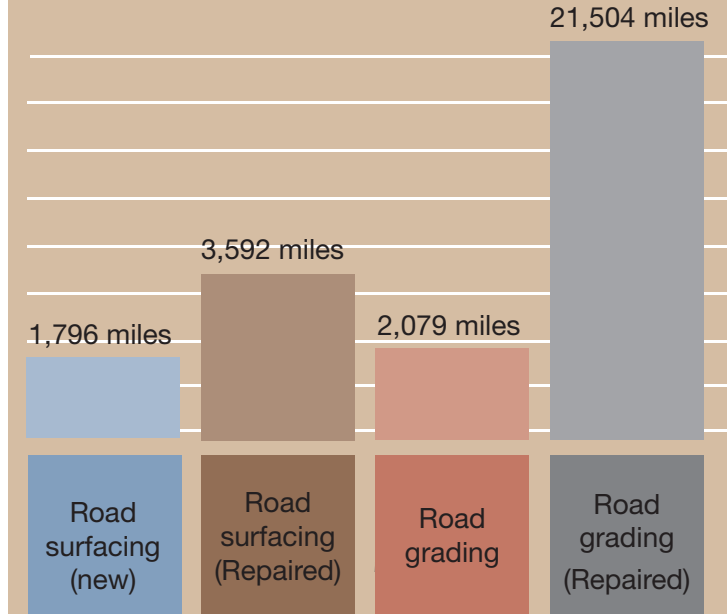


CWA employees in Okmulgee reconstructing a bridge, which was a common form of relief work, 1933.

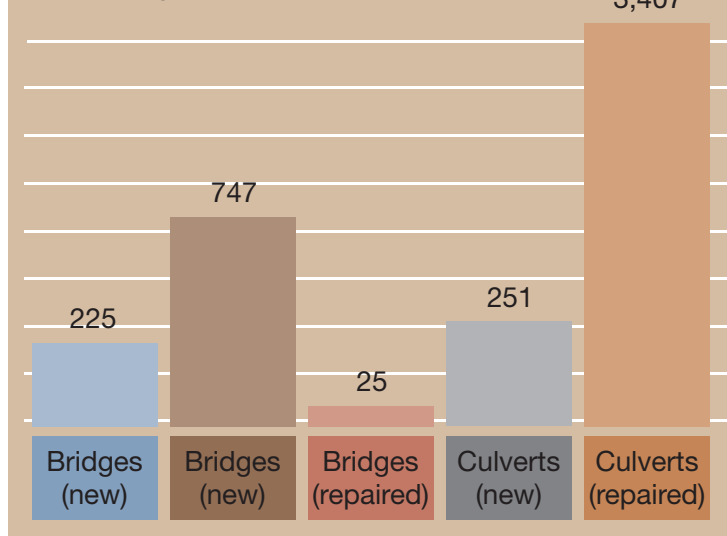


Relief workers outside a FERA office in Oklahoma City, 1934.

FERA Road Work in Oklahoma, 1934-1935



FERA Bridge Work in Oklahoma, 1934-1935





Enrollees gathered at a typical CCC camp in Nashoba, 1939.

CIVILIAN CONSERVATION CORPS

The CCC employed young, unmarried men between the ages of 18 and 25 who worked out of central camps and were required to send home the majority of their daily pay to dependent families. In addition to work relief, the program primarily focused on soil, water, and forest conservation efforts. The CCC also constructed transportation-related resources such as roads, bridges, and culverts in an effort to connect communities and create scenic highways and drivable parks throughout Oklahoma. One 1938 report of local CCC work in Talihina in southeast Oklahoma described:

Living in a mountainous and wooded area we have received a large portion of CCC work. Besides providing much of the livelihood of their respective families, reforesting our mountain area and building scenic drives through mountain areas that were inaccessible...prior to their institution, we were a small isolated community with poor facilities for travel and a great portion of the surrounding territory inaccessible...This condition is relieved by the activity of the CCC.



Barracks at a CCC camp in Nashoba, 1939.



A characteristic CCC camp office in Nashoba, 1939.

The relief program was expanded in 1935 to include construction of municipal, state, and national parks. The Oklahoma CCC planned and developed eight state parks, two national parks, and six municipal parks between 1933 and 1941 in collaboration with other federal-relief programs, the Oklahoma State Park Commission, and the National Park Service (NPS). Park development in Oklahoma followed NPS master plans that favored rustic design styles and the use of native materials, which is reflected in the bridges and culverts constructed along many park roadways. Wintersmith Park, which is located in the city of Ada near the campus of Eastern Oklahoma State University, contains a 1934 CCC bathhouse, lodge, and bridge made of stone from local quarries.



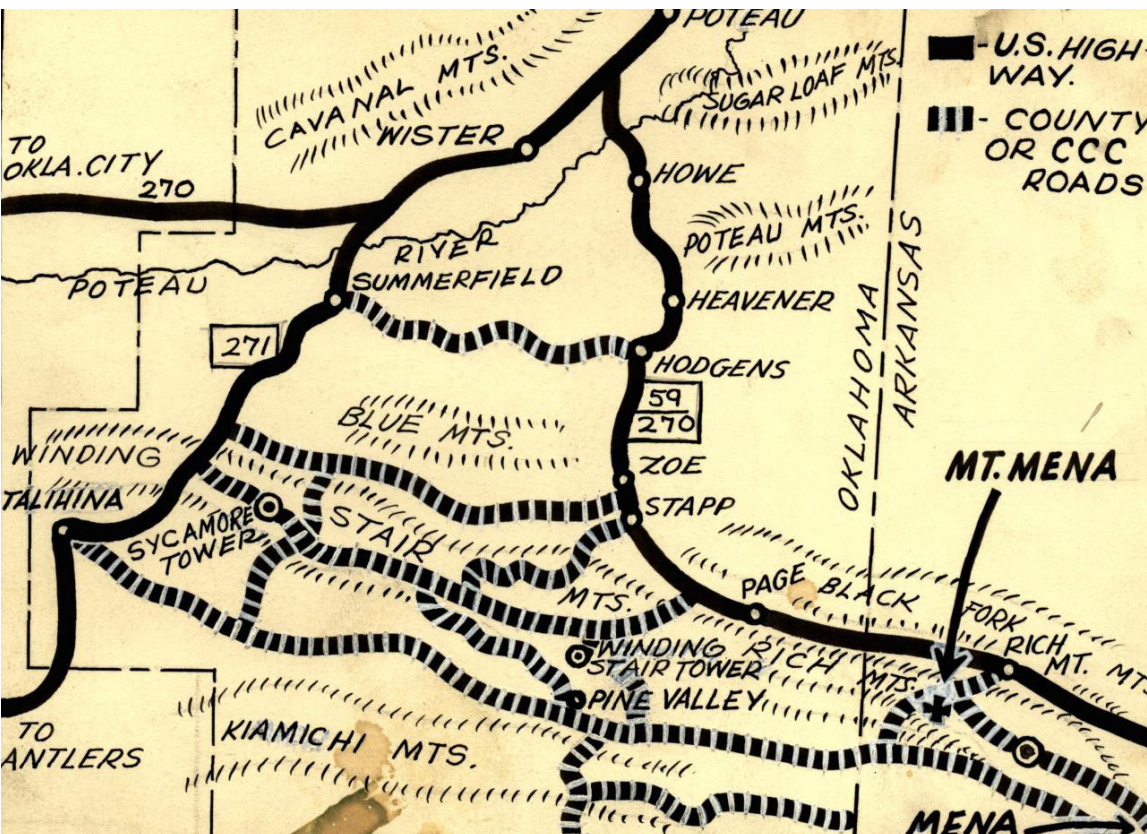
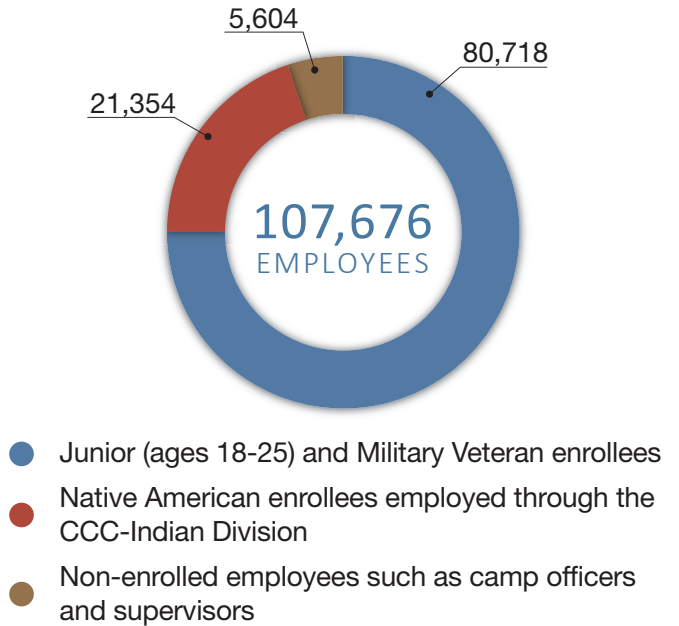
This stone arch bridge in Wintersmith Park, constructed in 1934 by the CCC, represents the agency's extensive road and bridge building within parks (Structure No. 62N3570E1550001).

CCC PLANNED AND DESIGNED PARKS IN OKLAHOMA, 1933-1941

PARK NAME AND LOCATION	PARK OWNERSHIP
Platt National Park (today part of Chickasaw National Recreation Area), Murray County	National
Wichita Mountains Wildlife Refuge, Comanche County	National
Boiling Springs, Woodward County	State
Robber's Cave, Latimer County	State
Spavinaw Hills, Mayes County	State (withdrawn in 1938)
Lake Murray, Carter County	State
Roman Nose, Blaine County	State
Osage Hills, Osage County	State
Quartz Mountain, Greer County	State
Beaver's Bend, McCurtain County	State
Lincoln Park, Oklahoma City	Municipal
Will Rogers Gardens, Oklahoma City	Municipal
Mohawk Park, Tulsa	Municipal
Wintersmith Park, Ada	Municipal
Perry Lake Park, Perry	Municipal
Nichols Park, Henryetta	Municipal

Between 1933 and 1940 the federal government expended \$51 million on Oklahoma CCC projects, which included the construction of 668 bridges, 657,641 rods of fencing, 2,233 miles of truck trails or minor roads, and 78,987 check dams. CCC-Indian Division camps, which were prominent across the state during the mid-1930s, completed significant infrastructure projects and provided needed work relief to young Native Americans. By 1941 Oklahoma boasted 64 CCC camps which, in that year, was the most of any U.S. state. They were located in private forests, state and national parks and forests, and at sites dedicated to the improvement of soil erosion; by this point, the CCC-Indian Division had been phased out.

CCC Work Relief in Oklahoma, 1933-1942



This map shows how CCC roads, along with county routes, connected highways in Le Flore County in southeast Oklahoma, 1937.

CCC – INDIAN DIVISION



This limestone arch bridge was constructed in Mayes County in 1930 by members of the nearby Cherokee tribe using federal funding through the Bureau of Indian Affairs. Projects like this were precursors to the CCC-ID (Structure No. 49E0610N4390007).

With the establishment of the CCC Indian Division (CCC-ID) in 1933, the federal government appropriated \$6 million to fund relief work for Native Americans living in areas of tribal jurisdiction nationwide. Oklahoma's CCC-ID began in December 1933, and by 1934, 13 CCC-ID camps had been established throughout the state. Enrollees were trained in carpentry, vehicle operation, radio operation, mechanics, and other specialized trades. The CCC-ID also completed a number of infrastructure projects, including road grading and paving, bridge and culvert construction, and dam erection.

The purpose of the projects was to improve tribal infrastructure and connect Native American communities to the larger state transportation system. For example, one year Native American labor was used to construct 10 truck trails in eastern Oklahoma. Nine of the trails were located in the Cherokee hills in Adair, Cherokee, Delaware, Mayes, and Sequoyah Counties. These road projects, focused in areas with significant Native American populations and land allotments, opened new

transportation routes, improved the trade of agricultural goods, and provided access to churches, cemeteries, schools, and community centers. One resident of Le Flore County praised the CCC-ID's progress in 1937:

Southeastern Oklahoma with its beautiful scenery has been practically inaccessible until the Indian service and the CCC started their road projects. The highway built from the top of Kiamichi Mountain south of Honobia this last year opened southern Le Flore County to the rest of the county for the first time.

CCC-ID funding was terminated nationally in 1942; however, Oklahoma's CCC-ID program had a lasting effect for Native Americans by providing skills training and employment for 21,354 people from the eight Indian jurisdictions. Moreover, their construction of 269 miles of new roads and 113 bridges and culverts contributed to better transportation infrastructure across the state.



This concrete stringer bridge, built by the PWA, crosses the Shawnee Lake Spillway in Pottawatomie County (Structure No. 63E1150N3330002).

PUBLIC WORKS ADMINISTRATION

Oklahoma benefited from 208 PWA projects between 1933 and 1937. As with the NRH and NRWR, the PWA also received funding through the NIRA. In comparison, PWA projects stood out because they were generally more demanding and larger in scale than those of other New Deal agencies. The PWA's most prominent projects in the state were the construction of a hydroelectric dam on the Grand River and Oklahoma City's Civic Center, which included a municipal auditorium, county courthouse, city jail, and city hall. By 1937 a handful of PWA projects involving roads and bridges had been initiated in Oklahoma at a total estimated expenditure of \$277,875.

An early iteration of the PWA called the Federal Emergency Administration of Public Works partially funded an eight-span concrete stringer bridge that crosses the Shawnee Lake Spillway in Pottawatomie County just east of Oklahoma City. The bridge, which still stands today and is largely in its original

condition, was financed using a combination of local, state, and federal contributions. It was part of the Shawnee Waterworks Project, which provided the city of Shawnee with a municipal water supply and eventually received additional funding through the WPA and CCC.

In Tulsa the PWA widened the 11th Street Bridge over the Arkansas River and constructed new streets leading to the bridge, a project that encompassed the rebuilding of the West Tulsa Trafficway. The PWA also funded paving projects in several other municipalities, including Loyal, Gracemont, Talihina, and Union.

The City of Cushing, while not identifying a specific project, commented that the "Public Works Administration required highly skilled workers, was rigidly inspected, and excellent work was performed."



The 11th Street Bridge in Tulsa as it was being widened using PWA funding, c.1935.



An elevation view of the 11th Street Bridge in Tulsa once the PWA project was complete, c.1935.

*11TH STREET BRIDGE
REBUILT and WIDENED
1934-35*

WORKS PROGRESS ADMINISTRATION

The WPA was very active in Oklahoma and had the largest impact of any federal-relief agency in the state. By 1937 the WPA had spent more than \$43 million in Oklahoma while generating almost \$10 million in matching contributions for its projects.

Over 40 percent of all WPA funding in Oklahoma went to road building. This included the construction and improvement of farm-to-market roads, which were county roads that connected a rural area with a municipality. County-sponsored road projects commonly involved upgrading of existing roads so they were passable throughout the year in all weather conditions. Relief workers provided new grading, installed drainage features including culverts and bridges, and enhanced road surfaces with gravel.



Workers repairing streets in Muskogee as part of a WPA project, c.1935.



One example of WPA construction is this 3-mile stretch of roadbed along State Highway 9 in Seminole County. The project provided approximately 143,359 labor hours in work relief to local residents.

One 1938 report on a WPA project in Haskell County described these activities:

One of the outstanding improvements in our county has been the construction of what is now Oklahoma State Highway No. 26. Before WPA started, this was just an ordinary narrow earth county road. Now it is a standard grade and drainage highway. This road was constructed and surfaced by the county and WPA and has been turned over to the state for maintenance.



The WPA produced thousands of tons of stone and gravel at local quarries that were used for road projects, bridges, and culverts built as part of federal relief efforts. In Pittsburg County along a 5.5-mile stretch of County Road N4010, four WPA bridges and 10 culverts from 1938 and 1939 feature masonry substructures, suggesting the prevalence of this practice. WPA masonry was common across the state; for example, it can also be found 350 miles away supporting a steel stringer bridge over Dugout Creek in the Oklahoma panhandle.



This steel girder bridge with a masonry substructure was built in 1940 by the WPA in collaboration with the local Beaver County government (Structure No. 04E0140N1320008).



WPA workers constructing Teller Road in Johnson County, c.1935. Note the use of stone masonry.



WPA asphalt resurfacing on State Highway 9 in Kiowa County, 1937. This project was completed using hand labor and represents the extensive road-work that the agency undertook throughout Oklahoma.

The WPA was an active player in statewide bridge construction during the Depression era. WPA workers built 2,712 bridges and viaducts between 1936 and 1943 in a variety of types. The quality of local labor, availability of materials, and specific needs of each geographic location drove bridge design, planning, and execution. For example, when the WPA was tasked with constructing a new bridge over a wide expanse of the Cimarron River with shifting sands, the conditions called for a wooden structure on steel piles. In other cases, such as crossings over streams along minor roads, bridges with simple steel superstructures were the ideal type. When a WPA rock quarry was in the vicinity of a bridge project, masonry construction became an option.

Most counties and cities were glad to see WPA improvements in their areas, a sentiment that is conveyed in this statement from Roger Mills County:

To be candid [the WPA] has given us a new start as our rural roads and bridges were in a deplorable condition at the beginning of WPA.

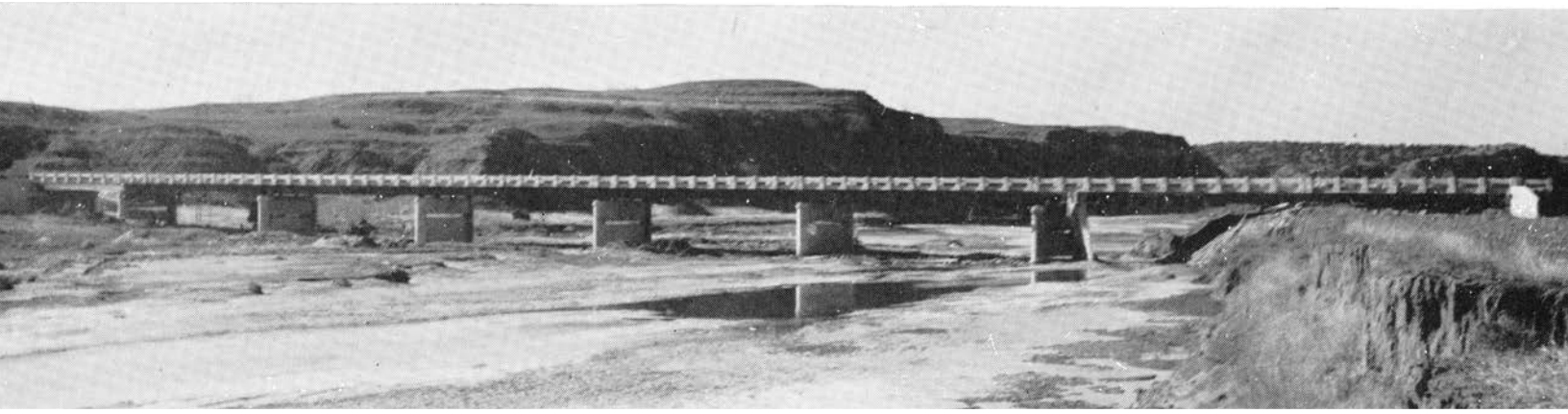
Or, as one Harmon County report put it:

We have culverts and bridges that will last long after [the] WPA is forgotten about.

The achievements of the WPA in Oklahoma between 1936 and 1943 were quantified in its final report. With respect to bridges and road-related resources, they were:

- 29,324 miles of roads constructed, reconstructed or improved;
- 3,729 bridges constructed, reconstructed or improved; and
- 2,512 culverts constructed or improved.

FARM-TO-MARKET ROADS



Bridge over the Elm Fork of the Red River, 1940. This steel girder bridge on a federal-relief-funded farm-to-market road in Harmon County still stands today (Structure No. 2908 1114 X).

A primary focus of the WPA was the construction and improvement of farm-to-market roads. These jobs used relief workers of all skill levels and involved straightening and widening roadways, reducing steep grades, surfacing with gravel or crushed stone, providing drainage, and clearing rights-of-way. The roads increased opportunities for

farmers to sell goods and gave rural Oklahomans easier access to the social, cultural, and educational resources in larger cities. Counties often involved these roads in local transportation projects, which they then described as “Farm to Market Road Programs”:



This 1938, WPA-built, concrete slab bridge in Blaine County was likely erected as part of a farm-to-market road project (Structure No. 06N2670Eo820002).

FARM-TO-MARKET ROADS



The Rock Creek Bridge is located along a WPA farm-to-market road in Pittsburg County (Structure No. 61N4097E1633000).

- A Pushmataha County report stated that the county’s Farm to Market Road Program started in November 1935 and resulted in “several hundred miles of feeder roads representing a network throughout the entire state” at a cost of \$1 million in WPA funds.
- In Blaine County, one farm-to-market road was constructed along a new alignment with a very specific goal: “to give a better farm to market outlet for the rich upland agricultural district to the west and north.” A concentration of three 1938 concrete slab bridges along a 1-mile corridor of County Road 660C are likely tied to this objective. Records indicate that a \$110,000 WPA project that year, most likely the same one that funded the bridges, employed 378 jobless residents in the county.
- One Kiowa County report stated:
The Farm to Market Road project, we think, is the most appreciated improvement, as it accommodates more people, helps the mail and bus routes, and enables the County to build a large number of permanent bridge structures, also gravel surfacing several miles of roads.
- Pittsburg County’s roads had been in very poor condition at the beginning of the Depression, and WPA funds allowed for major improvement projects. The Rock Creek Bridge, which displays a unique curved design and long, masonry approach, was constructed in 1937 as part of a major farm-to-market road project that utilized local stone for materials.

U.S. WORKS PROGRAM GRADE CROSSING

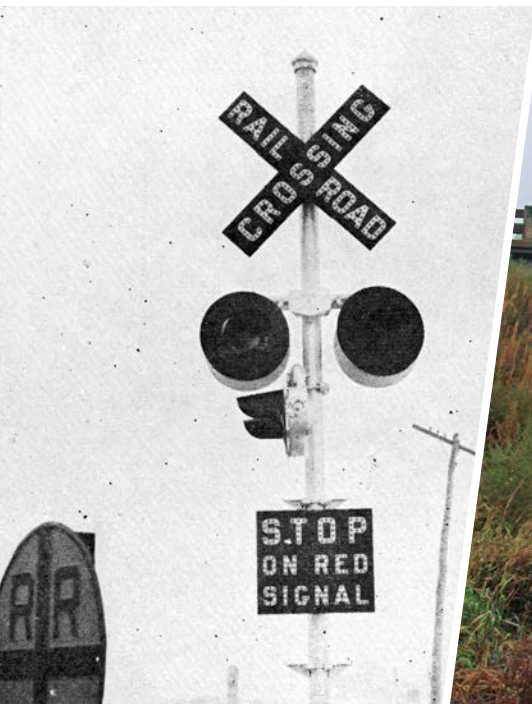
The WPGC financed the elimination of unsafe railroad crossings across Oklahoma. Until the 1930s these intersections often had only crossbuck signs; there were no gates, bells, lights, or other devices to alert motorists that a train was approaching. Funding came from the Emergency Relief Appropriation Act of 1935 and included over \$5 million for Oklahoma. Often this funding was combined with that of other New Deal programs to maximize the total possible federal aid.

WPGC projects involved constructing grade separations and installing traffic control and warning devices. Workers built bridges to separate railroads from highways, creating underpasses or overpasses. Priority locations were identified by the State Highway Commission, which singled out places with a record of:

... an excessive number of accidents or where future developments in the highway system or traffic increase appear to warrant the expenditure involved.



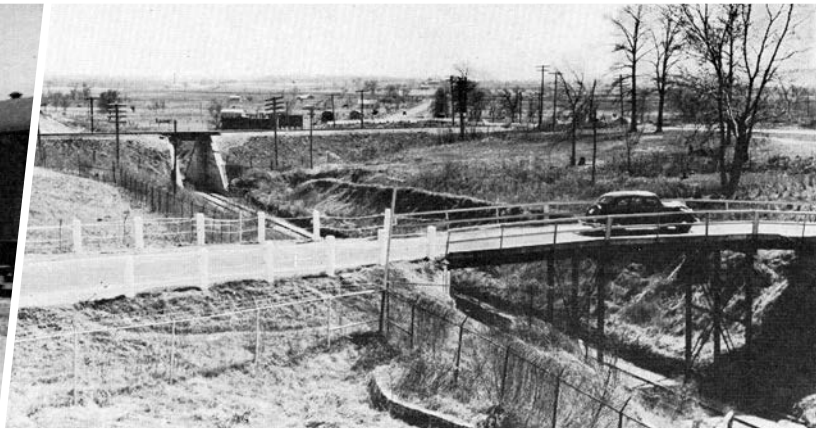
This car crossing a railroad track in 1937 demonstrates dangerous conditions that persisted in many locations across Oklahoma before grade crossings or safety measures were constructed.



This flashing light signal was a common type installed by the WPGC at various railroad crossings.



The WPGC funded this steel beam and girder bridge in 1936 to carry State Highway 152 over the railroad line in Washita County (Structure No. 7508 1345 X).



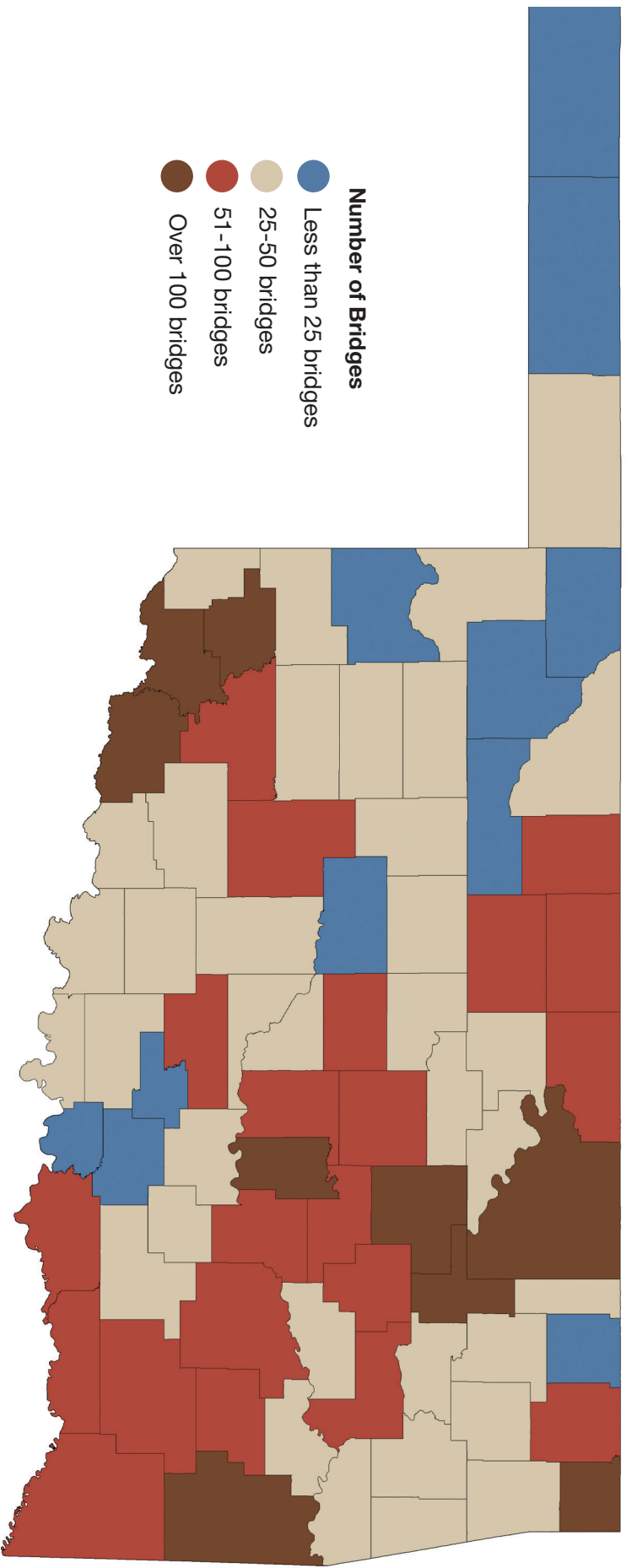
Before-and-after photos of a railroad overpass in Choctaw constructed with WPGC funding.

Before-and-after photos of a railroad overpass near Okmulgee constructed with WPGC funding.

As the Depression era neared its end, a 1941-42 biennial report from the State Highway Commission summarized the grade separation effort in Oklahoma:

In the six years previous to this biennium, the Department [of Highways] has carried on an extensive program of railroad grade crossing elimination and protection. All told, 87 structures were built, 6 crossings eliminated by highway relocation, and 135 flashing light signals were installed.

GEOGRAPHIC DISTRIBUTION OF EXTANT DEPRESSION-ERA BRIDGES IN OKLAHOMA



LOOKING AHEAD

In his book *ODOT 100: Celebrating the First 100 Years of Transportation in Oklahoma*, historian Bob Burke writes, “by the late 1930s, the scars left on Oklahoma by the Great Depression began healing.” While New Deal programs were still actively engaged in road and bridge projects into the early 1940s, the State Highway Commission’s focus began to shift toward a plan for the future of transportation in Oklahoma.

In 1939 the highway commission announced an ambitious goal for Oklahoma’s roads: that within a few years almost 90 percent of rural residents would be 3 miles or less from the nearest state highway. The infrastructure developed in the New Deal era had quite literally paved the way for a modern, post-World War II transportation system. A 1947 bill in the Oklahoma legislature expanded the State Highway Commission to eight delegates and appointed a State Highway Director. Federal-Aid Highway Acts passed in 1944 and 1956 created and funded the Interstate Highway System, which would soon revolutionize car travel nationwide.

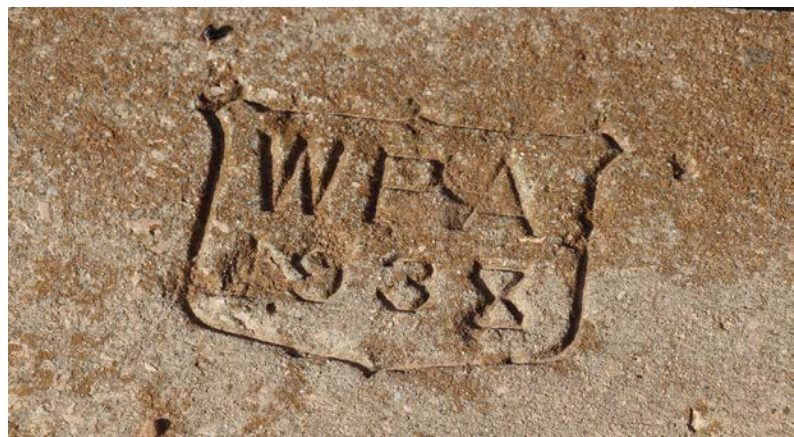
Throughout the Depression, in a time of crisis, struggling Oklahomans found relief in the employment and infrastructure provided by New Deal agencies. They worked hard to build lasting bridges and roads, embodying the state’s motto of *labor omnia vincit* or “labor conquers all things.” Drive the state today and you will still see the indelible marks they made on Oklahoma’s landscape.



This roadway in Greer County is typical of Oklahoma’s modern highway system.



A railroad overpass in Le Flore County, originally constructed with WPGC funding, which demonstrates the lasting importance of Depression-era roads and bridges throughout the state (Structure No. 4042 0015 X).



WPA stamps such as this one on a Blaine County bridge are visible on roads, bridges, and culverts across Oklahoma (Structure No. 06E0750N2630004). These and other agency markers highlight the widespread effects of New Deal projects.

IMAGES AND GRAPHICS CREDITS

Unless otherwise indicated, non-historic photos were taken by Mead & Hunt, Inc.

Historic images in this report have been cropped and converted to grayscale.

Page 1

Top right:

"[Car Stuck in Ruts of Eroded Road or Field.]" Glass lantern slide. U.S. Soil Conservation Service, n.d. Courtesy of Oklahoma State University Archives, Soil Erosion on the Southern Plains Collection. 1993-067B1Ok-279G.

Bottom left:

Rothstein, Arthur, photographer. "[Stock Watering Hole almost Completely Covered by Shifting Topsoil. Cimarron County, Oklahoma.]" Photograph. Farm Security Administration, April 1936. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8b38284.

Page 4

Top right:

"[Horse-drawn Wagon on Unidentified Road.]" Photograph. N.p., n.d. Courtesy of the Cyrus Stevens Avery Archives, Oklahoma State University-Tulsa Library, Special Collections and Archive Department. <http://dc.library.okstate.edu/cdm/singleitem/collection/Avery/id/87/rec/1>.

Bottom right:

Mumbrow, Milt, photographer. "2012.201. B1073.0431." Photograph. *Oklahoma Times*, September 9, 1937. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc552900>.

Page 5

Top of the page:

"[Car on Bridge over Heavily Eroded Dry Streambed.]" Glass lantern slide. U.S. Soil Conservation Service, n.d. Courtesy of Oklahoma State University Archives, Soil Erosion on the Southern Plains Collection. 1993-067B3Ok-6239G.

Page 6

Map:

Bracht, Gertrude, cartographer. *Map Showing Condition of Improvement of the State Highway System*. Map. N.s. State of Oklahoma Department of Highways, January 1, 1929. Courtesy of ODOT.

Page 7

Top of the page:

"Building a Highway in Canadian County." Photograph. N.p., 1933. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Historical Society Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc230999>.

Bottom right:

"2012.201.B0318.0158." Photograph. Oklahoma Publishing Company, September 29, 1938. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc199836>.

Page 8

Top center:

Connelly, A.F., photographer. "Then Came WPA! Oklahoma Relief Clients at Work." Photograph collage. In W.S. Key. *Works Progress Administration: Accomplishments for Oklahoma*. N.p., 1937. Courtesy of the Carl Albert Congressional Archives, University of Oklahoma.

Page 9

Top left:

Lange, Dorothea, photographer. "[Family Walking on Highway, Five Children. Started from Idabel, Oklahoma. Bound for Krebs, Oklahoma. Pittsburg County, Oklahoma.]" Photograph. Farm Security Administration, June 1938. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8b38702.

Top right:

Lee, Russell, photographer. "[Getting Ready to Depart From Home in Oklahoma for the Trip to California. Near Muskogee, Oklahoma.]" Photograph. Farm Security Administration, July 1939. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8a26684.

Bottom right:

"2012.201.B1192.0569." Photograph. Oklahoma Publishing Company, n.d. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc586756>.

Page 10

Severe Wind Erosion map:

Adapted from U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Science and Resource Assessment, Resource Assessment Division. *Areas Subject to Severe Wind Erosion, 1935-1938*. Map. N.s. Beltsville, Md.: U.S. Department of Agriculture, 2012.

Bottom left:

Rothstein, Arthur, photographer. "[Dust is Too Much for this Farmer's Son in Cimarron County, Oklahoma.]" Photograph. Farm Security Administration, April 1936. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8b38283.

Bottom right:

Rothstein, Arthur, photographer. "[Removing Drifts of Soil Which Block the Highways Near Guymon, Oklahoma.]" Photograph. Farm Security Administration, March 1936. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8b27280.

Page 11

Bridge types graphic:

Oklahoma Department of Transportation. Bridge Inspection Data. Provided to Mead & Hunt, Inc., 8 February 2012.

Page 12

Top of the page:

"2012.201.B0358.0110." Photograph. *Oklahoma Times*, March 6, 1934. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc219778>.

Page 13

Top of the page:

"[Scene Showing Part of 120 Teams and Wagons Hauling Gravel North of Grandfield on S.H. 36 as a Part of Relief Work.]" Photograph. In *Report of the Oklahoma State Highway Commission for the Calendar Years 1931 to 1932 Inclusive*. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1932. Pp. 86. Courtesy of ODOT.

Bottom right:

Connelly, A.F., photographer. "New Shortcut, Sand Springs to Tulsa Highway." Photograph. In W.S. Key. *Works Progress Administration: Accomplishments for Oklahoma*. N.p., 1937. Courtesy of the Carl Albert Congressional Archives, University of Oklahoma.

IMAGES AND GRAPHICS CREDITS

Page 14

NRH Road Work graphic:
Report of the Oklahoma State Highway Commission for the Calendar Years 1933 to 1934 Inclusive. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1934. Pp. 17, 29.

Page 15

Right center:
Lange, Dorothea, photographer. "Blowing Dust in the Oklahoma Panhandle." Photograph. Farm Security Administration, June 1938. From the Library of Congress, Prints & Photographs Division, FSA/OWI Collection. LC-DIG-fsa-8b32337.

Page 16

Left center:
"Rebuilding a Bridge in Okmulgee." Photograph. N.p., 1933. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Historical Society Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc231614>.

Bottom left:
"2012.201.B0358.0127." Photograph. *Daily Oklahoman*, September 14, 1934. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Historical Society Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc191960>.

FERA Road Work graphic:
Stallings, H.C. *Report of Analysis of Approved Projects, FERA, State of Oklahoma 1934 & 1935*. Oklahoma City, Okla.: Works Division, 1935.

FERA Bridge Work graphic:
Stallings, H.C. *Report of Analysis of Approved Projects, FERA, State of Oklahoma 1934 & 1935*. Oklahoma City, Okla.: Works Division, 1935.

Page 17

Across the top:
"18021.3: Group Photo." Photograph. Spencer and Wyckoff, January 17, 1939. Courtesy of the Oklahoma Historical Society, William E. Ward Collection.

Right center:
"18021.5: Camp View." Photograph. Spencer and Wyckoff, January 17, 1939. Courtesy of the Oklahoma Historical Society, William E. Ward Collection.

Bottom right:
"18021.2: Office." Photograph. Spencer and Wyckoff, January 17, 1939. Courtesy of the Oklahoma Historical Society, William E. Ward Collection.

Page 19

CCC Work Relief graphic:
Merrill, Perry H. *Roosevelt's Forest Army: A History of the Civilian Conservation Corps, 1933-1942*. Montpelier, Vt.: Perry H. Merrill, 1981. Pp. 164-165.

Bottom of the page:
"2012.201.B0415B.0453." Map. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc409534>.

Page 22

Top left:
"P 2012.049.868: 11th Street Bridge, also called the Avery Drive Bridge Sometimes." Photograph. N.p., n.d. Courtesy of the Tulsa Historical Society and Museum.

Top right:
"A 2012.077.107: Concrete Bridge, Refinery in the Background on Opposite Side of the River, Concoco Sign on Viewer Side." Photograph. N.p., n.d. Courtesy of the Tulsa Historical Society and Museum.

Right center:
Connelly, A.F., photographer. "Repairing Streets of Muskogee." Photograph. In W.S. Key. *Works Progress Administration: Accomplishments for Oklahoma*. N.p., 1937. Courtesy of the Carl Albert Congressional Archives, University of Oklahoma.

Page 23

Bottom of page:
Connelly, A.F., photographer. "Building Teller Road in Johnston County." Photograph. In W.S. Key. *Works Progress Administration: Accomplishments for Oklahoma*. N.p., 1937. Courtesy of the Carl Albert Congressional Archives, University of Oklahoma.

Page 24

Across the top:
"[Spreading Asphalt Surfacing Material, WPA Project.]" Photograph. In *Report of the Oklahoma State Highway Commission for the Calendar Years 1935 and 1936*. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1936. Pp. 116. Courtesy of ODOT.

Page 25

Across the top:
"[Bridge over Elm Fork of Red River on a Farm to Market Highway in Harmon County. Project No. FAS 432-B(1).]" Photograph. In *Biennial Report of the Oklahoma State Highway Commission for the Period Ending June 30, 1940*. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1940. Pp. 94. Courtesy of ODOT.

Page 27

Top right:
Mumblow, Milt, photographer. "2012.201.B1073.0430." Photograph. *Oklahoma Times*, September 9, 1937. Courtesy of the Oklahoma Historical Society – Gateway to Oklahoma History, Oklahoma Publishing Company Photography Collection. <http://gateway.okhistory.org/ark:/67531/metadc557621>.

Bottom left:
"[Railroad Crossing Flashing Light Signal which Warns Traffic from Side Road as well as on Main Highway.]" Photograph. In *Biennial Report of the Oklahoma State Highway Commission for the Calendar Years 1937 and 1938*. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1938. Pp. 66. Courtesy of ODOT.

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Clockwise from top left:
"[View of Site before Construction of Overpass]; [View of Site before Construction]; [Overpass of St. L-S F and Omulgee Northern Railways on U.S. 62 and U.S. 75 near Okmulgee. Project No. WPGH-53-C]; and [Overpass of C.R.I. & P. Railway at Choctaw on U.S. 62 and U.S. 270. Project No. WPGH 131-A].]" Photographs. In *Biennial Report of the Oklahoma State Highway Commission for the Calendar Years 1937 and 1938*. Oklahoma City, Okla.: Oklahoma State Highway Commission, December 31, 1938. Pp. 62-63. Courtesy of ODOT.