

CHAPTER 4

THE WAR YEARS

If highway construction activity slowed in the late thirties, it almost came to a standstill in the early forties after World War II began. Even before the December 7, 1941 Japanese attack at Pearl Harbor in the Hawaiian Islands, the American economy was feeling the impact of the war in Europe. Responding to President Franklin D. Roosevelt's campaign to aid the Allied cause, Congress authorized an expansion of defense activities and by 1940, materials needed for highway construction were also considered vital for defense. By the summer of 1941, steel and lumber were in such short supply that the federal Office of Production Management established priorities on these and other materials. In September 1941, a Preference Rating System was established for highway projects to determine which were important enough to receive materials. According to George J. Welty, these shortages and priority systems severely restricted highway construction in Nebraska:

"The only construction was on strategic network highways or other roads that were necessary to serve the war effort. Maintenance was limited to that which was required to keep the roads usable. During the first few years after the war, the emphasis was on planning. Construction was limited to emergency projects." (George J. Welty, 1985 Interview)

Because of a growing concern for national security, the War Department and the Public Roads Administration identified a system of highways throughout the nation which was considered important for military purposes. Referred to as the Strategic Network of Highways, these routes would be given top priority for materials and federal funds for maintenance. In Nebraska, this involved three main routes: (1) US-75 from the Kansas line north to Omaha, (2) US-30A west from the Missouri River at Omaha to the junction of US-30 west of Clarks, then west on US-30 to the Wyoming state line, and (3) US-81 from the Kansas line north to Norfolk, US-275 from Norfolk to O'Neill, and US-281 from O'Neill to the South Dakota line. State highway departments were restricted even further by the Defense

Highway Act of 1941. Under this Act, federal highway funds were limited to the Strategic Network of Highways, construction of roads to military establishments and defense manufacturing plants, construction of air bases, and advanced engineering surveys for projects to be undertaken after the war. During 1943, the use of federal highway funds, with the exception of four emergency flood projects, was restricted entirely to the construction of access roads leading to war industries, air bases, and other work considered essential to the war effort.

The first four-lane, divided highway in Nebraska was completed on December 8, 1941 on Highway 73/75 from the south city limits of Omaha, south to Fort Crook. The project consisted of six miles of twin 22-foot concrete lanes separated by a 10-foot grass median with 10-foot stabilized soil shoulders surfaced with prime and armor coats. Traffic-actuated traffic control signals were installed at the entrance to the Glenn L. Martin Bomber Plant at Fort Crook. In the spring of 1945, this plant manufactured the B-29 aircraft, Number 82, which was to drop the first atomic bomb on the Japanese Empire. This B-29 was later named the "Enola Gay" by its pilot, Colonel Paul W. Tibbets, in honor of his mother, the former Enola Gay Haggard of Glidden, Iowa.

After America's entry into the war, federal government policies continued to dictate highway construction projects, even those not dependent upon federal funds. In fact, on April 9, 1942, the War Production Board issued orders prohibiting highway construction starts estimated to cost more than \$5,000 in a 12-month period, unless a Preference Rating Order was issued for the project or specific authorization was obtained from the Director of Industry Operations. The use of steel, lumber, asphalt, and cement, all of which had been added to the list of materials vital to the national defense, was restricted. Efforts were made by the Bureau of Highways to modify highway design in order to reduce or eliminate the use of these critical materials.

Commenting on the West O Street access to the Lincoln Army Air Force Base, Oliver W. Johnson describes the challenges of highway construction under these restrictions:

"There was no steel used in that pavement and there were some box culverts which were built without steel. We had never built a box culvert without steel and were now doing so since steel was in short supply because of the armament industry. There was no steel used in the pavement, no mesh or reinforcement of any kind." (Oliver W. Johnson, 1985 Interview)

Steel reinforcement was eliminated from concrete slabs and asphalt coats were applied thinner in an attempt to maintain a reasonable level of construction activity. But, by the end of 1942, most construction had been curtailed and only a small amount was let to contract.

The Bureau of Highways shifted its energies from road construction to defense-related activities. The engineering staff became deeply involved with Army and Navy engineers who were constructing ordnance plants and airfields in Nebraska. Department engineers performed valuable service by providing soil samples, survey information, testing facilities, and equipment. In fact, a much greater amount of research and testing was taking place in the face of the construction decline. This increase in activity led to a new agreement between the University of Nebraska and the Department of Roads and Irrigation in May 1942, whereby the department leased the laboratory, office space, and equipment from the university, thus making the testing facility a more integral part of the department.

In September 1942, the Federal Works Agency announced a \$500 million post-war highway program and provided funds for preliminary surveys and plans. Planning for this program became a major activity of the department for the duration of the war. In addition to these activities, the establishment of war plants created special problems of traffic control. The department's design engineers became involved in a major way, designing special intersections to accommodate traffic around the Martin Bomber Plant at Fort Crook, the Nebraska Ordnance Plant at Mead, and the Naval Ammunition Depot at Hastings.

Because of the cutback in design and construction, some employees were reassigned to other activities. Such was the case with Stephen R. Gilbert, who was a graduate engineer:

"There wasn't much highway work and we didn't have much money. Most of the work was maintenance and other work related to the war. I was assigned to the Bureau of Highways and my job was reconditioning and fixing trucks at the Lincoln Fairgrounds. About 75 trucks had been on WPA and they were sending them north to assist with the construction of the Alcan Highway." (Stephen R. Gilbert, 1985 Interview)

During World War II, military construction teams performed many incredible feats. One of the most spectacular was the 1942-43 construction of the 1,530 mile Alaska Highway from Dawson Creek, British Columbia to Big Delta, Alaska. Constructed through virgin wilderness, the highway was completed in 20 months (eight working months) and has been termed the greatest engineering feat since the construction of the Panama Canal.

Many department employees were shifted to repairs and maintenance. Arthur B. Chaplin, who was the Superintendent of Equipment and Shops, commented about the increase in employees under his supervision at the 6th and South Streets shop in Lincoln and the increased demand for locally produced parts:

"I had three welders before the war. During the war, I had 29 people working in the shop. It was quite an increase. Because you couldn't get them, we had to make a lot of parts. We made timing gears and even poured aluminum and machined them. At that time, we were even taking care of the dies and everything for the Lincoln Reformatory. We were also making braces and things for hospital kids. Departments worked among themselves in those days, helping each other out." (Arthur B. Chaplin, 1985 Interview)

The Division of Maintenance was an exception. Overall, the number of personnel in the Department of Roads and Irrigation declined dramatically during the war. Between July 1941 and May 1945, the department lost 310 employees. Almost half of these were inducted into the Armed Forces:

"I think I was the first one in the department to get drafted. The morning that I left home, my dad took me down to the Lincoln depot.

He had to go to work at 8:00 and I got on the train. Bob Riddle was down there. He was my boss and a nice guy. Anyway, Bob gave me some candy bars and a couple of packs of cigarettes. He stood there waiting until the train pulled out." (Malcolm A. Gabel, 1985 Interview)

Some who received the "call to colors" were veterans of World War I, such as Arthur T. Lobdell, who was a 1916 graduate of Cornell University at Ithaca, New York. After serving with the U.S. Army in France, former Second Lieutenant Lobdell was hired by the department as a project engineer in August 1919. He was promoted to Division Engineer at York in 1921 and to Chief of the Bureau of Roads and Bridges in 1927. He served in this position until 1941 and was also acting State Engineer from July 1934 to January 1935. In March 1941 at age 46, Major Lobdell was recalled to active duty in the Army. At the end of the war, Colonel Lobdell was the commanding officer of the prisoner-of-war camp at Algona, Iowa, which held over 3,000 German military prisoners. He returned to the department in 1946 and served in Lincoln as the Administrative Engineer, Chief of Personnel, and as a Special Assistant until his 1965 retirement. He authored the "Nebraska Department of Roads - A History," covering the 1895-1965 era.

During World War II, many department employees requested leaves of absence or simply resigned to take better paying jobs in defense-related industries. Higher pay in the private sector attracted employees at all levels and grades. This was made worse, according to accountant George J. Welty, because department wages were frozen except for promotions:

"Everyone's pay was frozen for about four years. During the war, I worked almost every Saturday. We just didn't have the help to do the work. It would have been worse had we not been able to hire the wives of some military personnel stationed at the Lincoln Air Base. I put in very long hours for a long time." (George J. Welty, 1985 Interview)

The number of employees in the Department of Roads and Irrigation dropped from 990 in 1941 to 770 in 1942, a decline of 22 percent. By the end of the war in 1945, the department was down to 661 employees. During the war, the department tried to hire high school students for summer work

but many students were able to secure employment in the war industries at higher rates of pay. From 1941-48, the average number employed by the Bureau of Highways during each of those years was: 1941 (835), 1942 (638), 1943 (529), 1944 (545), 1945 (535), 1946 (736), 1947 (843), and 1948 (952).

Perhaps the most adverse effect of the war on Nebraska's highways was simply neglect and deterioration. When asked to submit its post-war highway report to the roads committee of the U.S. House of Representatives in 1944, Nebraska painted a bleak picture of its highway conditions. The state highway system comprised 9,119 miles by 1944 and only 4,050 miles (44 percent) were paved. Nebraska had 1,200 miles of concrete pavement and half of it was over 10 years old and in need of repair. Most of the remaining 2,850 miles of pavement consisted of bituminous surfacing, 40 percent of which was deemed inadequate by the department. State Engineer Wardner G. Scott was quick to note that the inadequacies of Nebraska's highways was not a reflection of the department's engineers, but the result of many years of inadequate funding made even worse by the war restrictions on materials and construction activities.

While highway improvements were badly needed in Nebraska and nationwide, the U.S. still had a good transportation network when compared with those in other countries. Despite the trials, tribulations, and growing pains inherent in any large organization, AASHO had been a driving force for many years in the development of better highways across the country. This fact was eloquently described by Fred R. White, State Highway Engineer of Iowa, upon the retirement of William C. Markham of Kansas, the first Executive Secretary of AASHO from 1922-43:

"As in the case with most of such organizations, the American Association of State Highway Officials did not spring into full maturity overnight. It had to grow up the hard way. Organized in 1914, the organization represented only the framework or pattern of an ideal. It had neither the substance nor the sinew for the struggle ahead, or the shape of things to come. But it did bring together the wisdom and organizing genius of the farsighted highway officials of the pioneer day. Most of these founders of the association have now passed on to their reward, but their ideal lives on. The foundation they laid still stands. And on that foundation, there has been built

in this nation a highway system second to none that the world has ever seen!"

The 1944 Federal-Aid Highway Act implemented the post-war highway program which was designed to address the inadequacies of the nation's highways. Three categories of funding were established. The first category was federal-aid primary routes. Based on the old Seven Percent System, Nebraska had 5,630 miles of such highways eligible for federal funds. The second category included farm to market, RFD, and public school bus routes. Referred to as secondary or feeder roads, Nebraska had some 9,800 miles which qualified under this category. The third category attempted to address the problem of urban highways and funds were specified for highways in urban areas of 5,000 or more in population. Eighteen cities in Nebraska were eligible under the guidelines.

On July 16, 1945, history was in the making northwest of Alamogordo, New Mexico in an area which 16th Century Spaniards called the Jornada del Muerto (Journey of Death). At 5:29 a.m., a physicist flipped a switch which would free an elemental force from its bonds after being chained for billions of years. At 5:29:45, there was a flash and explosion such as the world had never seen. The bomb's plutonium core had produced a temperature of millions of degrees Fahrenheit and an energy release equivalent to 18.6 kilotons of trinitrotoluene (TNT). On August 6 and 9, atomic bombs yielding 12.5 and 22.0 kilotons, respectively, were dropped by B-29 aircraft on the cities of Hiroshima and Nagasaki, Japan. Those bombs proved to be the coup de grace and the war would soon end.

While the 1944 Act identified major areas of need within the states, the condition of the nation's highways was much worse than the Act's sponsors anticipated and funding was far from adequate. Nebraska was scheduled to receive an annual appropriation of \$8.5 million to address a problem estimated by the Bureau of Highways to cost over \$140 million. But, even this funding was not destined to remain and Congress curtailed the entire post-war highway program in 1946.

During World War II, U.S. railroads carried almost 98 percent of all military personnel traveling in organized groups and more than 90 percent of all military freight handled by inland transportation.

The condition of Nebraska's highways became even worse in the next several years and funding was only part of the problem. Even though the war was over, it was more difficult to obtain materials than before. Steel, cement, lumber, and asphalt remained in short supply and at inflated prices. Post-war inflation continued to erode department funds as the need for replacing old and obsolete equipment increased and labor costs rose. By 1948, maintenance costs were \$3 million above the pre-war level and consumed over half of the department's budget. Equipment was difficult to obtain and spare parts were almost impossible to acquire. The demand for materials also overtaxed the ability of the railroads to move materials and equipment. And, to make matters worse, the nation's railroads suffered from both a car and labor shortage in the post-war period.

Prior to May 1942, the Testing Laboratory had been operated by the University of Nebraska for the Department of Roads and Irrigation. From May 1942 until November 1948, the Testing Laboratory was operated by the department as the Division of Tests and was located at the university. Space and part of the equipment were leased from the university. Grading work began on the department's grounds at 14th and Burnham Streets in south Lincoln in November 1945. The culverts and pavement were constructed in 1946 and the new Testing Laboratory Building was completed in October 1948. The Division of Tests finally had a home of its own.

The post-war economy continued to affect the department's ability to hire qualified personnel. It was hoped that many experienced employees would return to the department at the end of the war, but that didn't happen. The public sector was unable to compete effectively with the private sector as the post-war building boom began. In fact, the department continued to be plagued with a high turnover of personnel into the post-war period. From 1941 to 1948, the department averaged 859 employees. During that same period, 1,375 employees left the department.

Dividing 1,375 by 859 equals 1.6, or a turnover of 160 percent. The department's ability to carry out its planning and maintenance programs was adversely affected by this 20 percent annual turnover. The heaviest losses were in the engineering grades, which reduced the number of engineers by half. In 1941, there were about 180 registered engineers in the Bureau of Highways and by the summer of 1948, only 99. In an effort to rebuild its staff, the department established an expanded On-The-Job Training Program in 1946. On-the-job training was not a new operation for the department. It was the method by which chainmen became rodmen, instrumentmen, and engineers since 1919; and by which laborers became surface patrolmen, mechanics, and skilled maintenance employees since 1927. John W. Hossack talked about the department's increased efforts to attract and train veterans by offering this training:

"We had an On-The-Job Training Program for those who didn't attend college. I think it was a four-year program. Many of our people went through the program and in quite a few instances, they got enough education to pass a professional engineer's exam and become registered engineers." (John W. Hossack, 1985 Interview)

This program attracted 195 trainees in the first year and from 1946 to 1950, a total of 431 veterans received training. Geoffery R. King was one who benefited and talks about his advancement:

"After returning from the war, I entered the training program and became a junior engineer automatically on completion. I started one project as a junior engineer and was promoted to associate engineer shortly thereafter. Then, when I received my license, I became a senior engineer." (Geoffrey R. King, 1985 Interview)

Additional programs were initiated by the department to help alleviate the loss of skilled engineers. In the spring of 1947, a program was started in conjunction with the Lincoln Public Schools to provide training for engineering assistants. Seventy-five department employees, most of whom were veterans, attended this program at Park School, which was repeated again the following spring for 95 persons. Most of the on-the-job training courses at Park School, according to John W. Hossack, were taught by department employees:

"Most of the teachers came from within the department and were experienced engineers. Some had been college professors. They were interested in the program and liked people. It was an adult education program, kind of like a Community College today." (John W. Hossack, 1985 Interview)

Orville L. Lund was one of the teachers and recalls the experience at Park School:

"They brought in a lot of field people, most of whom were veterans, and we gave them a good basic education in engineering. Representatives from Materials and Tests, Design, Construction, etc. would lecture and give examinations, very similar to university classes. From that program, many of the leaders in the department today became engineers by passing the engineering test. For instance, Charles Nutter, who is now the Deputy Director-Operations, is one who studied engineering over there." (Orville L. Lund, 1985 Interview)

Charles F. Nutter, who was hired by the department as a junior engineering assistant in 1946 and who would rise to the position of Deputy State Engineer in 1971, was a U.S. Army veteran who received engineering training at Park School. He also participated in another department program which provided correspondence courses in civil engineering:

"We had a school of two months duration over at the old Park School at 7th and F Streets. At that time, they were teaching us the basics of surveying and earth work. Our instructors were department employees. Z. N. Dewey was one of them, also Bob Riddle, H. T. Ball, and Orville Lund. A lot of us signed up for the International Correspondence School course. A. T. Lobdell, our Personnel Director, encouraged us to do that and we did. They were trying to help us get our engineering licenses." (Charles F. Nutter, 1985 Interview)

The Department of Roads and Irrigation had reached another critical point in its history. With federal funds drying up, high inflation, and deteriorating roads, Chief Highway Engineer Raymond F. "Bub" Weller expressed the following to Governor Val Peterson:

"Nebraska has reached a point, in the cycle of its highway development, where it has become necessary to review the entire problem of highway transportation from the standpoint of public demand for new roads; the vital and urgent need for repairing, improving, and

modernizing the present system; the inadequacy of available funds; and the increased volume of traffic."

In July 1947, Governor Peterson appointed a 35-member Highway Advisory Committee which was chaired by George W. Holmes of Lincoln. The other members of this historic committee were: C. J. Abbott, Hyannis; Fred Barclay, Pawnee City; Everett Barr, Liberty; M. F. Bell, Holdrege; Mrs. Arthur Bowring, Merriman; Lawrence Brock, Wakefield; Tom Coffey, Alma; Julius Cronin, O'Neill; Mrs. Essie Davis, Hyannis; State Senator John F. Doyle, Greeley; Harry Gantz, Alliance; Roy M. Green, Lincoln; C. E. Haley, Hartington; Robert D. Harrison, Norfolk; H. B. Hill, Superior; Roman Hruska, Omaha; Dr. C. R. Ivins, Crawford; Hans Jensen, Aurora; John Jirton, Morrill; Gerald McGinley, Ogallala; J. E. McNally, Schuyler; Carl Marsh, McCook; Arthur W. Melville, Broken Bow; William Mitten, Fremont; Charles R. Moon, Fairbury; Walter O'Connor, North Platte; Pete Parkert, Hooper; James S. Pittenger, Lincoln; J. C. Quigley, Valentine; State Senator Fred A. Seaton, Hastings; W. H. Smith, Seward; Oliver Stevenson, Nebraska City; H. L. Van Amburgh, Omaha; and Fred Wallace, Gibbon.

The Highway Advisory Committee was charged with assessing Nebraska's present and future highway needs and possible means of financing them. The creation of this committee, composed of private citizens, was a prelude to the later establishment of the State Highway Commission. The committee represented an awareness that the public had to become more actively involved in determining the direction of highway development in Nebraska. W. H. Mengel had recently been transferred to the Highway Planning Survey and recalls the committee's work:

"The federal Public Roads Administration encouraged state highway departments to study the needs of their highway systems and prepare a program for bringing their systems into shape to handle anticipated increases in traffic and to study the need for adopting higher standards for construction. After the war, the Nebraska Highway Planning Survey participated in an engineering study to provide factual data on the existing systems." (W. H. Mengel, 1985 Interview)

The Highway Advisory Committee held numerous public hearings across the state and made its initial report to Governor Peterson on November 29,

1948. Over 6,500 miles of the state highway system were considered to be defective and the estimated cost of bringing this system up to standards exceeded \$259 million, a king's ransom in those days!

During 1948, the road magnets continued to "earn their keep." One of the heaviest pick-ups of metal was made on Highway 66 east and west of Hordville, where 41.3 pounds per mile were collected.

Although most people speak of the "Blizzard of 1949," the weather during November and December 1948 aggravated the tie-up of the transportation system of the state which came several months later. Light rain began to fall in the afternoon of November 16, 1948 and falling temperatures made the highways extremely icy. This was followed by snow and winds of 50-60 miles per hour and the highways were soon blocked by deep drifts. The storm moved slowly and it was November 20 before the snow and wind abated. From 4-16 inches of snow had fallen and with the exception of routes in the extreme southeast, all highways in Nebraska were closed. As the wind subsided, snow removal progressed and by November 22, all state routes were open to at least one lane of traffic. David O. Coolidge was the Division 6 Engineer at McCook and recalls the difficulties of clearing the highways:

"We had this old, worn-out, thirties-vintage equipment and tried to clear the roads but it was impossible. The wind was blowing so hard that a highway cut would fill up. Those little snow plows weren't getting the job done and we had people out in front helping us with shovels and that still wasn't getting it. Then, a contractor told me I could get it done with a bulldozer. I think that was the first time we ever used a bulldozer in the state to get the roads open. Of course, there was a lot of dirt mixed with the snow and it was pretty solid but we finally got the job done." (David O. Coolidge, 1985 Interview)

However, winds and new snows, some of blizzard proportion, persisted and continuous trouble was encountered by those clearing the highways. On December 24, 8-12 inches of snow fell over most of the state and the highways were blocked again. For six weeks, a large part of Nebraska had been blanketed in deep snow and buffeted by strong winds. State

maintenance crews would open a few miles of highway and the winds would quickly drift them closed. People driving over open highways enroute to town would find all routes blocked when they tried to return home. State highway maintenance workers were tired and their equipment began to fail after day and night operation.

Those were the existing conditions when the "Blizzard of 1949" struck. New Year's Day was fair and warm but on January 2, winds of 50-60 miles per hour roared across the plains and gusts reached 75 miles per hour. With the wind came snow, falling as if there were no limit to the amount the sky could release. Raging for five days without let-up, the storm was described by old-timers as the worst in the history of the state. Up to 44 inches of snow was reported in the north and west. Eighty percent of Nebraska's state highways, or about 8,000 miles, were blocked. Traffic was paralyzed and many snow plow crews on rescue missions were stranded, unable to proceed or turn back. All available snow removal equipment in the southeast part of the state was dispatched to the disaster areas. New equipment was purchased and delivered from factories in the East. Snow removal equipment was rented and sent into the worst areas. Four large rotary snow plows were loaned to Nebraska by the State of Iowa.

State highway maintenance crews, superintendents, and engineers fought the drifts despite inconveniences and hardships; but the strain of operating day and night for weeks at a time began to show on both men and machines. At the height of the operation, however, there were 46 rotary snow plows, 125 heavy-duty, all-wheel-drive trucks with V-plows, 325 smaller trucks, and other auxiliary equipment employed in the battle. Good progress was made despite the tremendous volume of snow, low temperatures, and equipment breakdowns. By the second week in January, nearly all state highways were again open to one-way traffic although vehicles moved with difficulty due to ice and packed snow. In answer to calls for assistance, state forces opened many roads and streets that were not on the state system. The state maintenance forces had been working 12-16 or more hours a day, including Sundays and holidays, since the first storm on November 17 and they began to sense that victory was within their grasp.

The battle, however, had just begun. On January 15, a few hours of new snow and high winds undid the work that had required hundreds of men and machines weeks to accomplish. Newly plowed highways were drifted deeper than before and all traffic halted. Low temperatures and intermittent high winds continued through January, February, and most of March. In the areas hardest hit, highways would remain open only a few hours or days before drifting closed them again. And some highways remained closed, according to Charles F. Nutter, who was working in Thedford at the time:

"There was nothing that you could do during that blizzard. You just had to sit it out. I was working out of Thedford when the blizzard hit. There was a fellow working for us by the name of Armond Kuehn and he lived in Crofton. There was a period of six weeks that he didn't get home because the roads were never open. That was a bad storm. There were people north of O'Neill whose roads were not open for 60 days. They had to use airplanes to deliver groceries to them." (Charles F. Nutter, 1985 Interview)

The last major storm of the year occurred on March 30-31. After days of warm thawing weather, 16-18 inches of wet snow fell over much of the disaster area. Truck plows were of little value in this later work and breakdowns of lighter equipment became more frequent. It was April 7, 1949 before all state highways were open to two-way traffic for the first time since November 17, 1948. The winter of 1948-49 was one of the worst that Nebraska has endured since record-keeping began. The cost of snow removal from the state highway system was about \$1.2 million, shattering the previous record of \$270,000 from the winter of 1935-36.

By 1950, the availability of construction materials, equipment, and labor was considered adequate for the first time since before World War II. Inflation remained a problem, however, with highway construction costs more than double what they had been in 1940 and engineers still in high demand by private contractors. With the outbreak of hostilities in South Korea on June 25, 1950, the department again suffered a loss of personnel as employees volunteered or were called to active duty in the Armed Forces. There also was renewed anxiety that U.S. involvement in South Korea would cause increased prices and new material shortages, but these

concerns proved unwarranted as the nation entered the building boom of the fifties. The previous decade of planning and design activities meant that construction could begin almost immediately. In 1950, the Bureau of Highways had eight field divisions and the state highway system totaled 9,578 miles. Of the latter, 5,062 miles were graveled, 4,386 miles were hard-surfaced, and 130 miles had dirt surfacing.

In Nebraska, the economic climate looked positive and the times appeared right for addressing the ability of the state to finance improvements to its highway system. Responding to the revenue needs estimated by the Highway Advisory Committee, Governor Val Peterson signed legislation in 1949 to increase the finances available to the Bureau of Highways, raising the gasoline tax by one cent and increasing motor vehicle registration fees. Together, these measures promised to annually produce \$5 million in new revenues, \$4.5 million of which would be earmarked for matching federal-aid highway funds to provide \$9 million for state highway construction. This legislation, however, was repealed by the voters in a referendum during the general election of November 1950:

"The public wanted better highways but there was a shortage of funds for such purposes. The issue of a gas tax increase was put on the ballot and worded in such a way that if you wanted the increase, you voted 'against'. I think that it was worded that way because someone figured that Nebraskans traditionally vote 'against' on everything. However, the scheme didn't work. I think that the people really wanted the increase, so they voted 'for'. Of course, the legislation was repealed and the revenue shortage continued." (Kenneth J. Gottula, 1986 Interview)

To repeal the gas tax increase, the vote was 207,408 (51.5%) to 195,130 (48.5%). To repeal the increase in motor vehicle registration fees, the vote was 202,098 (51.9%) to 186,854 (48.1%). Thus, the Bureau of Highways found itself in a no-win position. More than a few called the Department of Roads and Irrigation the "Department of Ruts and Irritation." The future of Nebraska's highways appeared to be "a riddle wrapped in a mystery inside an enigma." The public demand for highway improvements was not matched by its willingness to pay or understanding of the complexities of highway financing. According to Merle Kingsbury of

Ponca, who was appointed to the original State Highway Commission in September 1953, the latter was probably the greater problem:

"The referendum was premature in 1950. It was submitted to the people without concrete evidence of how it was to be accomplished. However, it did succeed in alerting the people to our problems." (Merle Kingsbury, 1985 Interview)

And the problems were real, according to G. C. Strobel, who after wartime service as a captain in the U.S. Army and graduating from the University of Nebraska College of Engineering in 1947, was hired by the department that same year as a junior engineer and appointed Deputy State Engineer on January 1, 1960 at age 38:

"We had about 5,000 miles of gravel highways on the state system in the early fifties. In the spring, you had to be careful which state highway you took because you couldn't always get through on gravel. Moisture would come up to the surface during the frost period. When the frost went away, the roadway support would disappear. It was often wiser to select another highway or even use the county road system to avoid getting into trouble." (G. C. Strobel, 1985 Interview)

In order to establish ratings within the Nebraska Safety Patrol that would be comparable to the ratings held by administrators and division heads of patrol organizations in other states, the rank of the Superintendent of Law Enforcement and Public Safety was advanced from captain to colonel in June 1951. In turn, lieutenants became captains, sergeants became lieutenants, corporals became sergeants, and the corporal rating was discontinued. This change of ratings, however, was not accompanied by any corresponding increase in pay.

Investigations conducted by the department from 1943-50 indicated that many sand-gravel aggregates produced over a large area of Nebraska were more or less reactive with cements in concrete structures and pavement. This reaction generally caused "map-cracking" of the surface and often caused excessive expansion which could destroy the concrete, necessitating expensive repair or replacement of structures and pavement.

Converting Nebraska's gravel highways to hard-surfacing became the priority issue of the department in the 1950's. To Gerald Grauer, who was hired by the department as an engineering assistant in 1951, appointed Program and Planning Division Engineer in 1968, Project Development Division Engineer in 1974, and Roadway Design Division Engineer in 1989, the goal was "to get Nebraskans out of the mud."

In order to function with the limited finances at his disposal, State Engineer L. N. Ress initiated a two-fold program. The immediate need for highway improvements would be determined by the establishment of a Sufficiency Rating, which would determine the relative priority of projects. The rating would include, but not be limited to surface condition, economic factors, safety, and service:

"About 1952, we developed a Sufficiency Rating. Basically, you drove every mile of highway in the state and analyzed it as to its condition, width, and all the various things that would have to do with the condition, life, and service rating of that particular section. Then, every highway got a grade. Kind of like a report card, it got a grade from 0 to 100." (John W. Hossack, 1985 Interview)

An administrative reorganization of the department was effected in 1952 to promote more efficient use of manpower and better coordination of services. The position of Chief of the Bureau of Highways was replaced by that of the Deputy State Engineer. Under this new structure, the Deputy State Engineer had full authority, in the absence of the State Engineer, in matters concerning both bureaus, the Motor Vehicle Division, and the Safety Patrol. A streamlining of the divisions in the Bureau of Highways was also accomplished.

Along with constructing and maintaining adequate highways, the department had been involved with roadside development projects and reducing soil erosion since 1934:

"An effort is made to obtain a growth of vegetation on the highway shoulders, slopes, and roadsides to prevent wind and water erosion. Brome grass is sowed generally throughout the state and provides an excellent sod with ample root growth to materially assist in the

prevention of erosion and to discourage the growth of weeds. Each year, the department harvests brome grass seed from the rights-of-way where good stands are available. During 1953, over 40,000 pounds of such seed were harvested and in 1954, over 65,000 pounds. Most of this seed is planted on recently constructed highways. Much improvement has been made not only in the appearance of the rights-of-way, but also the reduction of soil erosion."

At the same time, the department began working on a major report to be presented to the Legislature suggesting revisions to statutes which would make highway funding more efficient and realistic. It was also recognized that the public needed to be more aware of the total picture of highway development and financial needs within the state in order to make more responsible decisions about funding. The Highway Advisory Committee represented a positive step in this direction. Its contacts with people throughout the state had already promoted better relations between the public and the Bureau of Highways. Other states discovered this same need and 32 states had some form of committee or commission acting in this capacity. To further these public relations functions and assure the continuation of a representative group to serve as a liaison between the citizens, Bureau of Highways, and Governor, the 1953 Legislature passed a bill which created the State Highway Commission. The original seven commissioners were: Christian E. Metzger, Cedar Creek (District 1); Arthur L. Coad, Omaha (District 2); Merle Kingsbury, Ponca (District 3); Arthur C. Albrecht, Deshler (District 4); William O. Collett, North Platte (District 5); Don E. Hanna, Brownlee (District 6); and Fred M. Attebery, Mitchell (District 7). According to Merle Kingsbury, the commission was a response to increased public pressure for better highways:

"In 1953, Nebraska had a state highway system of over 9,800 miles. About half of it was gravel and the people of the state were very impatient to convert gravel to hard-surfacing. The various communities became insistent that more progress be made and that we move faster. The Legislature decided to create a State Highway Commission consisting of lay-people to advise and assist the department in the public acceptance of a program that would upgrade the state highway system. It was a way of getting the people aware of our problems and then trying to get some public support, to get the people involved. Before that time, it was all engineers." (Merle Kingsbury, 1985 Interview)

In part, this action formalized the function being served by the former committee. Specifically, the State Highway Commission was to act in an advisory capacity to the State Engineer in establishing broad policies and was to advise the public regarding those policies, as well as the activities of the Bureau of Highways. The commission was also charged with the formulation of a trunk highway system to be financed with revenue produced by highway user taxes.

At the commission's first meeting on October 28, 1953, Mr. Kingsbury was twice nominated for chairman and twice declined, citing limited time, the heavy workload of his law practice, and his intent to run for Dixon County Attorney the next year. Thereafter, Arthur L. Coad was elected chairman. Mr. Kingsbury did indeed run for Dixon County Attorney in 1954 and was elected, serving seven terms (28 years) until his retirement from that office in 1983. And, when Mr. Kingsbury retired from the State Highway Commission in November 1987, he had served six terms (one 4-year and five 6-year) for a total of 34 years and 2 months.

Political considerations had played a role in the location of some highway projects, with a few decisions appearing more blatant than others, according to State Senator Jerome Warner of Waverly, who grew up in a farm family where state issues were common topics around the dinner table. He recalled that roads seemed to be subject to political dealings and that the creation of the State Highway Commission was an attempt to lessen the possibility of such happenings and to insure a broader representation of political interests:

"An example was during one of the governor's elections. The incumbent governor was endorsed by a former governor at the same time that a hard-surfaced highway was completed to that former governor's ranch. It was presumed to be a reward for an endorsement. One of the first steps to help get highway building away from politics was the creation of the State Highway Commission in the early fifties." (Jerome Warner, 1985 Interview)

Merle Kingsbury agreed that the commission attempted to represent varied business interests as well as geographical districts. From

photographs, he describes the original seven commissioners appointed by Governor Robert B. Crosby in September 1953:

"I see Fred Attebery, who ranched north of Mitchell on Highway 29. Next is Don Hanna, Sr. from Brownlee, who was also a rancher. Next is Bill Collett, who was an insurance man from North Platte. The first chairman of our commission was Art Coad, the president of the Packer's National Bank in south Omaha. Next is Art Albrecht, who was a farmer and businessman from Deshler. Myself, a lawyer from Ponca...and Chris Metzger, a former State Senator who had farming interests near Cedar Creek. Over the years, quite a variety of professions have been represented." (Merle Kingsbury, 1985 Interview)

The 1953 law creating the State Highway Commission was amended in 1955 and provided, in part, that the State Engineer shall be an ex officio, non-voting member of the commission, and the commission, subject to the approval of the governor, shall employ a person who shall act as Secretary to the commission. The first Secretary was Owen J. Boyles, who had served as the Assistant Director of the Motor Vehicle Division from 1942-55. He was hired by the commission on January 1, 1956 and died of cancer on August 11, 1959 at age 53, while still serving.

A major benefit for department employees came on January 1, 1951 when payroll deductions began for coverage under the 1935 Social Security Act. The rate deducted from each employee's pay was 2.5 percent of the first \$4,200 in earnings. This did not include the uniformed members of the Safety Patrol because they had the Safety Patrolmen's Retirement System which was established by the 1947 Legislature.

On January 4, 1954, Robert H. Willis died at age 83 while serving in his fifty-ninth year of continuous employment with the department. In 1945, he became the first department employee to log 50 years of continuous service. Mr. Willis, who was educated as a civil engineer at the Rensselaer Polytechnic Institute at Troy, New York, began his service in 1895 as Water Commissioner of the North Platte River Basin for the State Board of Irrigation. He also served as Water Superintendent and, in 1918, as Assistant State Engineer. In 1919, his title was changed to Chief of the Bureau of Irrigation, Water Power, and Drainage. He remained in this

position until his "retirement" in 1951. However, Mr. Willis continued his employment by serving as a consultant to the department until his death. During his long career, he served under 15 state engineers and 18 governors.

On February 15, 1954, the department restricted the weights of truck loads on various state highways across the state. This was necessary after studies revealed that in some areas, freezing and thawing cycles weakened bituminous highways. The 1953 Legislature made these restrictions mandatory when weather conditions caused the weakening of a state highway subgrade:

"We posted our 'slobber coat' highways, most of which were nothing more than a base and armor coat built to get the public out of the mud. Of course, the farmers used to joke that on these highways, they could only haul their bull to market one-half at a time. By the early seventies, most of these roads had been upgraded so that load-posting was no longer necessary." (Kenneth J. Gottula, 1986 Interview)

On October 1, 1954 and for the first time, the state provided voluntary group medical insurance to all regular state employees.

In December 1955, the officers of the Safety Patrol switched from "garrison" caps to "campaign" hats. This change was made in response to the interest in such headgear by officers within the organization and because of favorable reports from police and patrol organizations in other states.

From November 1948 to October 1959, the department sponsored the 370th Engineer Construction Group, a U.S. Army Reserve Unit manned principally by department employees. The 370th was initially commanded by Colonel Arthur T. Lobdell and later by Lieutenant Colonel Henry G. Schlitt. Colonel Schlitt served as the Deputy State Engineer from 1953-59. On October 1, 1950, there were 16 officers and 22 enlisted men assigned to the unit. Although the "colors" of the 370th have long been retired, there are still a number of department employees who recall "Lobdell's Raiders" with fond memory.