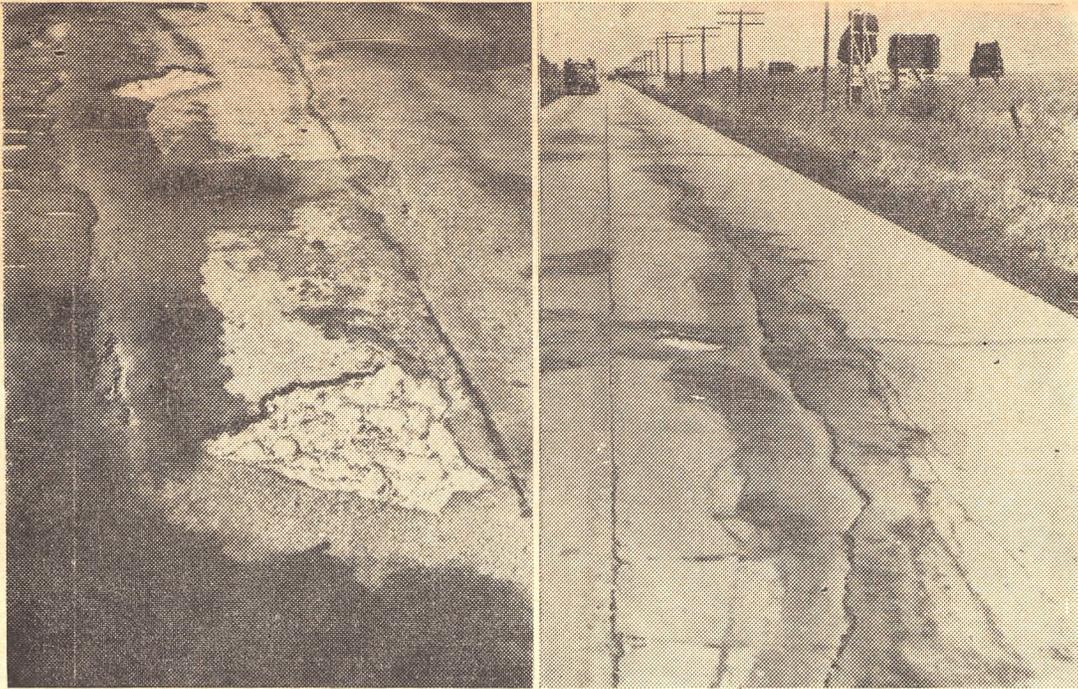


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Crisis On the Highways

Nebraska Faces a Serious Problem

The contents of this booklet are reprints of a series of articles published by the Omaha World-Herald in September and October, 1948. They told of the condition of Nebraska's highways at that time.

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Let's Talk About Our Highways

NEBRASKA faces a serious highway problem. Many of the existing roadways are worn out. Many miles are in urgent need of modernization and rehabilitation. The war prevented any great amount of normal development.

An expansion of the present state-maintained system is desired. At the same time, maintenance costs have soared to new highs. And construction costs have doubled since the war.

The problem, then, resolves into three factors: 1. Need of rebuilding present highways. 2. Need of expansion. 3. Money to do both jobs.

The basic decisions must be made by the State Legislature. But in the final analysis, it is the people of Nebraska who must decide the future of the highways.

As a public service, The World-Herald inquired into the situation. The overall problem, as viewed by the Governor of Nebraska and the State Engineer, was presented in a series of 31 articles, published daily in The World-Herald in September and October, 1948.

The series, "Nebraska's Highways," was written by Eldon K. Langevin of The World-Herald staff. This booklet reprints his stories.

(Continued from Preceding Page.)

tends through an area of 77 thousand square miles. The roads serve 1,200,000 persons.

This is an average of 13 persons to the mile, the Governor points out. The national average is 42 persons to the mile. This means that Nebraska needs more miles of highway per person than most states.

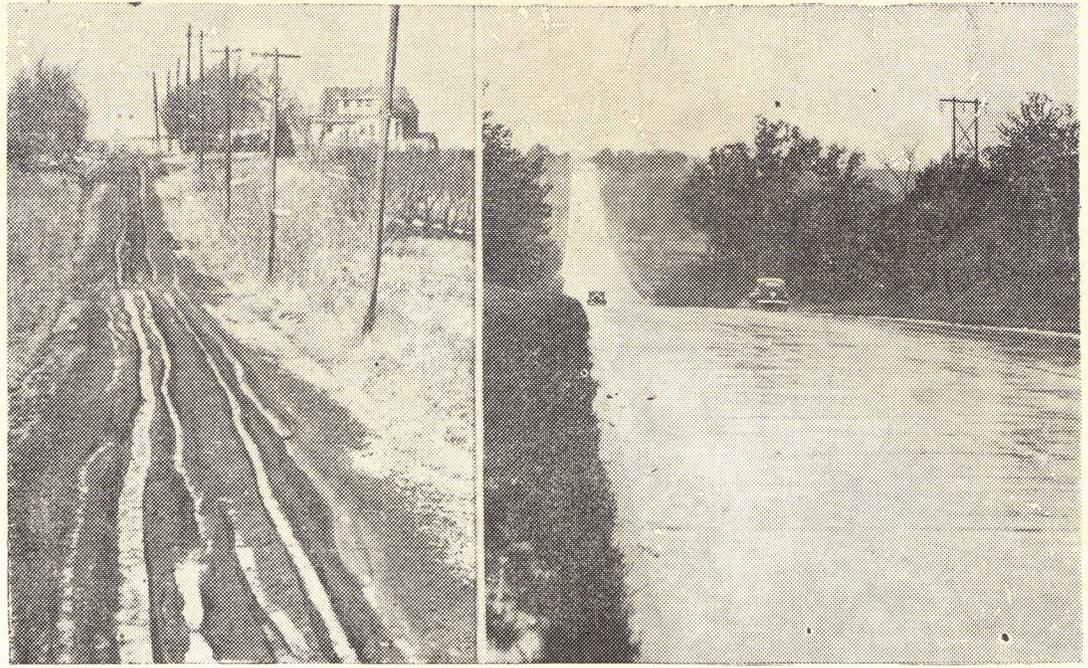
Says the Governor: "Nebraska ranks eighth among the states in total road mileage. But our population is relatively low, ranking 32 in the nation. The state has a middle-bracket income.

"Our over-all problem, then, is this: Nebraska has a tremendous road system on one hand—and a low population, with a limited income, on the other."

Nebraska has made progress, he says, in the past 30 years. There were only a few miles of hard-surfaced roads in the state in 1918, outside the larger cities.

"We actually have hundreds and hundreds of miles of good, usable roads," says the Governor. "Looking backward, like a man climbing a mountain, we can tell how far we've moved."

Early attempts to get Nebraskans out of the mud were pretty rugged.



"Get us out of the mud." "We must have hard-surfaced roads." These are the daily demands. The State Highway Department does not have enough money to meet the demands.

'Seedling Mile' of 1914, Near Grand Island, Was First Concrete Paving

The first concrete pavement in Nebraska was the Seedling Mile, located in 1914 just east of Grand Island. It was part of the proposed coast-to-coast Lincoln Highway.

This mile, partly paid for by the Lincoln Highway Association of Detroit, was one of five "planted" in Ohio, Indiana, Illinois, Iowa and Nebraska. It was hoped that the states would extend the concrete paving. They did, but it took a long time.

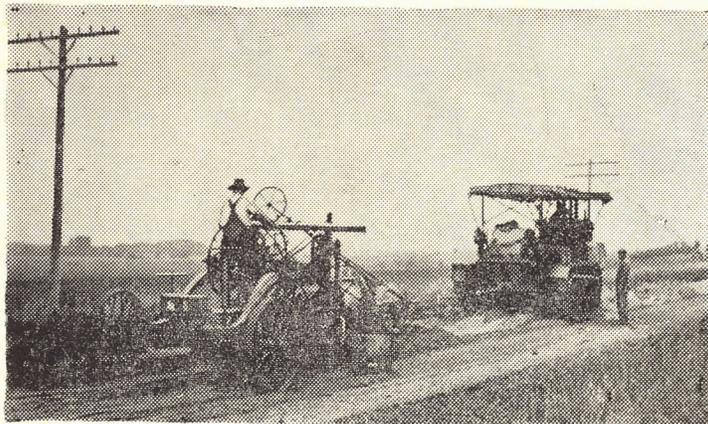
Nebraska completed the last link in the chain in November, 1935. A 30-mile stretch of paving west of North Platte was opened to traffic.

Now known as Highway 30, this part of the trans-continental route was the first highway to be entirely surfaced across the state. Its 462 miles were on concrete, brick and blacktop. It cost about seven million dollars.

Nebraska lagged behind other states in completing the Lincoln Highway. That was because the state did not go into debt for its construction. The State Constitution forbids a state debt of more than 100 thousand dollars. So the highway was built slowly, section by section, for more than 20 years.

The roads were rugged in those days. A pamphlet published in 1915 will give you an idea. It said, in part:

"The Lincoln Highway is now marked for 75 per cent of its 3,389 miles. The continent has



This photo, made about 1920, shows a blade grader spreading gravel on the old Cornhusker Route. Gravel roads in those days brought general rejoicing.—Highway Department Photo.

already been crossed via this highway by hundreds of tourists. One light car made the trip in 30 days."

In 1914, Nebraska had about 40 miles of surfaced roads. There were 40,929 car and truck registrations. There were fewer than 550 thousand in the entire country.

Nebraska had no State Highway Department or any system until the 1917 Legislature provided funds to carry out the provisions of a Federal Aid Act. The Legislature appropriated 640 thousand dollars to be raised by a mill levy.

A state highway system of about five thousand miles was laid out (on the map) by the 1919 Legislature.

The first Federal Aid project built in Nebraska was the Lincoln-Emerald road, started in 1918. It was 5.4 miles of brick pavement and cost \$217,294.75.

The second Federal Aid project was between Falls City and Nebraska City. It was started in 1919. There were 21 miles of earth construction. The costs were \$86,173.74.

Most of the early improvements on roads consisted of

grading and building them high, with drainage ditches on both sides. These early graded highways were considered triumphs of engineering skill. They brought general rejoicing.

The first graveled roads were considered worthy of civic celebrations. And the first blacktop roads seemed the acme of perfection. They solved all problems, motorists said.

Some of the early attempts to get Nebraska out of the mud seem startling today. Here are some of the highlights:

Convict labor was first used on the roads in 1915, authorized by the Legislature. This kind of cheap labor was used in some sections until 1921.

In 1918, crews in Antelope County surfaced two miles with clay, and eight miles with hay.

An engineer reported on the Long Pine-Johnstown road in 1920. Said he: "A problem was encountered in the almost impassible gravel hills across two creeks. It was solved by clay surfacing."

Another report from Holt County in 1920 said: "The entire road between the Antelope County line and O'Neill has been graded. It was covered with straw to prevent the sand from blowing away."

In 1919, Douglas County voters approved a three-million-dollar bond issue for paving the county roads. At that time there were six miles of brick and 29 miles of macadam in the county.

Even the Most Permanent Highways Can Be Destroyed by the Elements

How many years does a highway last? Is a paved road permanent?

State Engineer F. H. Klietsch says:

"No highway is permanent. If not worn out by traffic, even the more permanent (concrete) highways will ultimately be destroyed by the action of the elements."

It is an established fact, he says, that weather is more detrimental than traffic. For example, concrete is affected most by variations of temperature. Dry weather is favorable to blacktop.

"No highway is permanent." This may be a shock to most Nebraskans.

Whenever a stretch of highway has been hard-surfaced, there has been a general feeling of satisfaction.

Road users are pleased. They are inclined to say: "Well, that's done. Let's get on with another highway."

The general belief has been that the completed roadway would last forever.

It isn't true, says the State Engineer. Highways wear out and go to pieces. This is particularly true of blacktop, or what the engineers call bituminous surface. It is also true of concrete.

The state has 1,328 miles of concrete pavement. The State Engineer says that 847 miles are from 13 to 20 years old. A lot of these miles will have to be resurfaced.

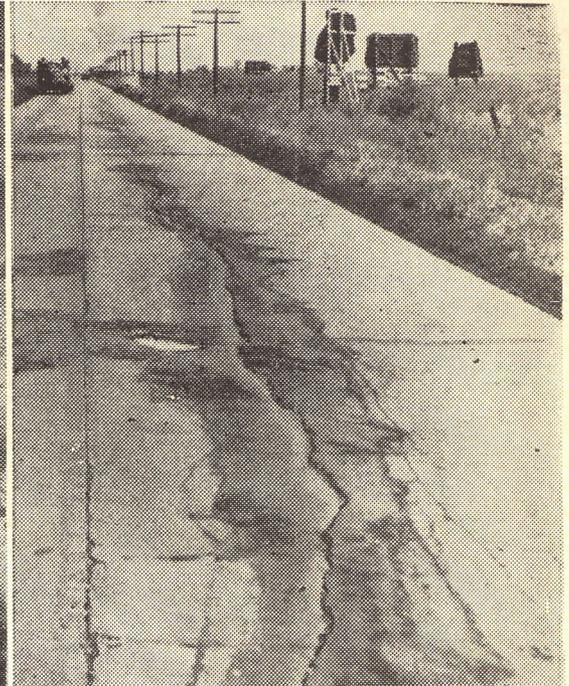
"Resurfacing is necessary to protect the investment and to reduce the loss on the original construction," he says. "This program must go forward continually to keep pace with the normal deterioration."

Additional improvements are necessary to bring the resurfaced section up to present day standards. The first project of this kind was completed in 1947 on a seven-mile stretch on Highway 30 east of North Platte.

Some of the very old pavement is shot to pieces. Much of it will have to be replaced.

One example is the stretch between Lincoln and Greenwood. This part of Highway 6 leading to Omaha is battered and broken. It was resurfaced with blacktop about 1942, but this has long since disappeared. It was gradually worn off by heavy traffic.

The State Highway Department is going to completely resurface the highway between Lincoln and Greenwood. The contract calls for 9.3 miles of concrete paving. The cost will be more than 615 thousand dollars, which includes the cost of building the detour.



This is a closeup of battered concrete paving on the Lincoln-Waverly stretch on Highway 6. Note how the blacktop resurfacing has worn off.

Lon jagged cracks show the deterioration of concrete. It is 18 years old. This roadway is under water during the spring thaws.

The sections between Lincoln and Waverly will be completed first. It is necessary to do the job now, according to State Engineer F. H. Klietsch. The road

would be impassable by next spring, he says.

The new road will be placed over the old concrete. It will be 24 feet wide, to conform with

United States standards. It is now 20 feet. The concrete will be 5 to 6 inches thick, except where the new width is on either side. There it will be 8 inches deep.

One mile near Waverly will be made higher. The grade is so low at this point, water runs over the road during the spring thaws. The old concrete will be covered with earth to a depth of two feet. This will be compacted. Then the new concrete will be laid.

The traffic between Omaha and Lincoln on Highway 6 is in excess of three thousand vehicles every 24 hours.

On football days and during the State Fair, the peak load is 6,500 vehicles.

How long will this new concrete last?

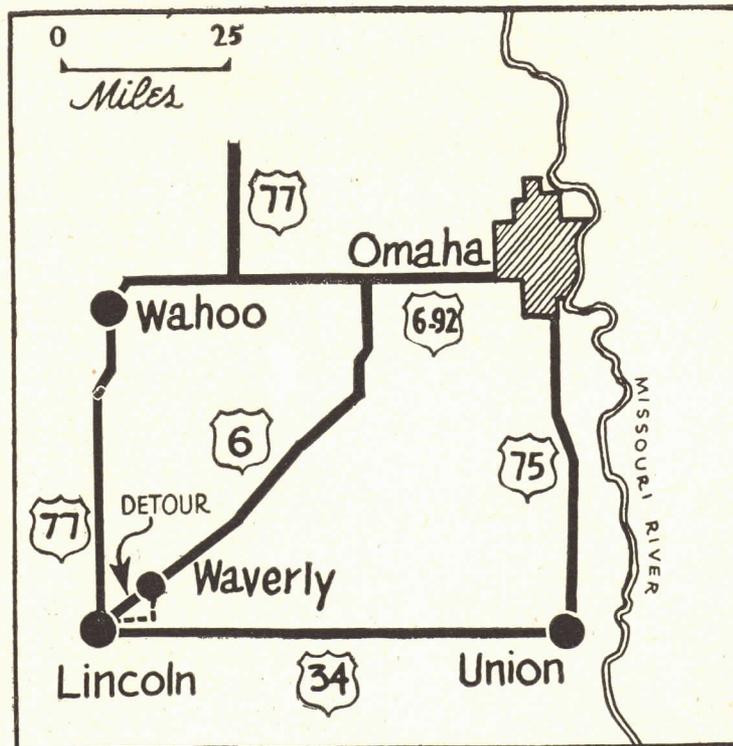
About 30 years, says the State Engineer. "The concrete roads we are building today will have about 10 years' longer life than the roads we built 20 years ago," he says.

What about future blacktop construction?

The plan is to use a depth of five inches, Mr. Klietsch says.

How long will it last?

"The new improved methods will improve the quality of the surface," he says. "Blacktop roads built today will last about 12 to 15 years before needing major rehabilitations."



As a public service, The World-Herald printed this map showing the detour, just before the first home game of the Nebraska Cornhuskers. Alternate routes were recommended to motorists.

Nebraska Is Near the Bottom in Use of Gasoline Tax Money for Highways

When you buy a gallon of gasoline, 6½ cents of the purchase price is tax.

Uncle Sam gets 1½ cents. The State charges you a nickel.

At present it is divided about equally, after certain deductions, between the State Highway Department and Nebraska's 93 counties.

The counties' share of the money is split between them on a percentage basis. A tiny slice of the county money is given to the various cities and villages.

Here is the exact breakdown, established by the 1947 Legislature:

Highway Department	2.50 cents
Counties	2.35 cents
Cities	0.15 cents

Total 5.00 cents

Until the 1947 Legislature set up this schedule, the State Assistance Fund got one penny of the nickel. The counties then got 1.35 cents. Now the counties get that penny for graveling mail routes, and the old folks get the cigaret tax.

The state's nickel gas tax adds up to big business. The gross receipts in 1947 were \$17,540,985.04.

That does not mean that 17½ million dollars were available to build highways. The State Highway Department got less

than half of it, because there are certain refunds and expenses to be deducted.

For example, the Department of Agriculture gets part of the money for collections, and for administration of the law. Dealers who ship gasoline into Nebraska but sell it outside the state pay the tax. Then they get a refund. Farmers who buy gas for agricultural work also get a refund.

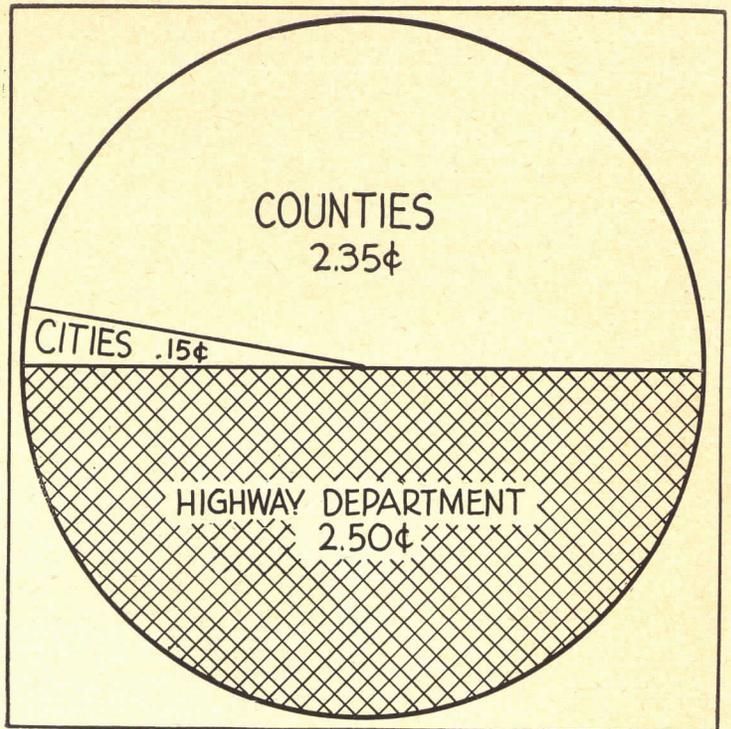
Here's how the 1947 money was divided:

State Assistance	.. \$ 2,243,788.36
Dealers' refunds	.. 219,826.40
Farmers' refunds	.. 798,899.46
Administration	... 73,928.29
xCounties	..... 6,024,558.80
Highway Dept.	.... 8,179,983.73

Total \$17,540,985.04
 xThis includes \$1,116,568.54 for mail routes, under the Schroeder Act of 1947. The law went into effect in September of that year.

Nebraska started taxing gasoline in 1925. The tax was 2 cents a gallon. This was jumped to 4 cents in 1930, and has been a nickel since 1936.

In the 23 years ending in 1947, the total gross receipts have been \$220,733,878.14. The counties' share has been \$60,220,923.73. The State Highway Department has received \$127,090,884.50.



This chart shows how your 5-cent State gas tax is divided about equally between the Highway Department and Nebraska's 93 counties.

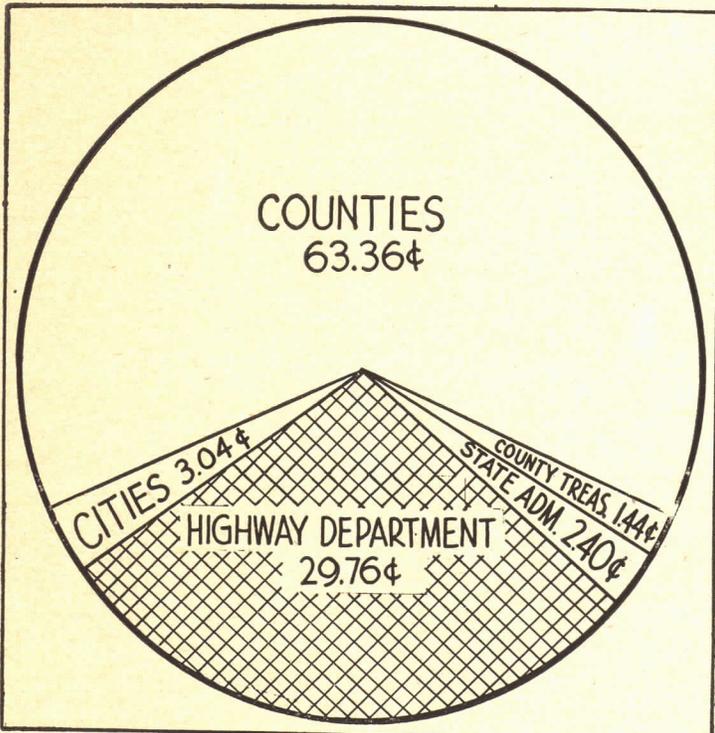
Nebraska is near the bottom, standing in forty-fourth position among the 48 states in percentage of gas tax receipts used for state highway purposes.

Five states (Missouri, Montana, Nevada, New Mexico and

West Virginia) give 100 per cent of the gas tax to roads. The average for the 48 states is 70 per cent.

Nebraska's percentage, for state highway use, is about 50 per cent.

Highway Department Uses 30 Per Cent of Licensing Fees for Maintenance



This chart shows how your license fee dollar is divided. The State Highway Department's share, about 30 per cent, cannot be used for road construction.

Your car license costs \$3 or \$5 a year, depending upon the weight of the car.

Farm truck licenses range from \$4 a year for 1½ tons to \$22 for a six-ton truck.

Fees for commercial truck licenses are based on the maximum net tons of payload the operator expects to carry. Prices range from \$4 for a half-ton truck to \$360 for an 18-ton load.

The big trucks range from 11 to 22 tons. There were 1,917 registrations in this class in 1947. There were none in 1937.

Your license fee dollar is split in five parts. This is the breakdown:

Counties' share	..... 63.36¢
Cities and villages	..... 3.04¢
xCounty treasurer fees	..... 1.44¢
xState Administration	..... 2.40¢
State Highway Department	..... 29.76¢

Total One dollar
 xThe fee to the various county treasurers is for the expense of collection.

The State Highway Department uses about 2½ cents of every dollar for administering the motor vehicle laws.

Under a schedule set up by the Legislature, the counties receive about 70 per cent of the money. The State Highway Department gets about 30 per cent. This money cannot be used for road construction. It is used for maintenance.

Your license fee dollar adds up to big business. It is not as large as it once was, because the fees have been cut.

Total fees in 1947 were \$3,703,501.51. Here's how the money was divided:

Retained by county treasurers	.. \$ 60,813.70
xCounties' share	... 2,469,593.69
Motor Vehicle administration	... 88,658.98
State Highway Department	... 1,084,489.14

Total \$3,703,501.51
 xThis includes the tiny slice for cities and villages.

The license fees reached a maximum of \$4,289,968.44 in 1929. The fees were reduced by the 1933 Legislature. This resulted in an all-time low of \$1,708,266.15 in receipts in 1933.

Receipts have been increasing since then. Fees have remained the same, but the number of registrations has grown.

Nebraska is near the bottom, standing in fortieth place among the 48 states in percentage of vehicle tax receipts used for state highway purposes.

Eight states (Arizona, Missouri, Nevada, North and South Carolina, Virginia, Wyoming and West Virginia) use 100 per cent of the fees for roads. The average for the 48 states is 65 per cent.

Nebraska uses, for state highway purposes, 30 per cent.

Rebuilding of Existing Road System Would Cost Minimum of 144 Million

During the past 22 years (1926-1947), the State Highway Department had a state-created income of \$148,032,147.48. This money is the department's share of the gas tax and license fees.

This income does not include Federal Aid of \$74,545,799.10.

Nebraska could spend a sum nearly equal to its 22-year income in just one year—if the state had the money—to repair, replace and improve its present highways.

This money would be spent to rehabilitate and modernize existing roads. Not a single dollar would be spent to expand the present system.

About a year ago, State Engineer F. H. Klietsch made a detailed estimate of the needs on state-maintained highways.

This estimate was for improvement of 6,140 miles at an approximate cost of \$144,370,000. These needs are on road systems that are eligible for Federal aid.

Here is the breakdown:

System	Miles	Cost
Federal aid rural	3,544.3	\$94,529,000
Federal aid secondary	2,533.9	37,782,000
Federal aid urban	61.6	12,016,000

Total 6,139.8 \$144,327,000

The summary below shows, in round numbers, how the money would be spent:

Type of work	Highways	Second.	Urban
Widening	\$ 2,046,070	\$ 70,000	\$ 2,536,000
New alignment	27,375,000	4,068,000	5,725,000
Reconstruction and resurfacing	64,816,000	32,699,000	3,535,000
Bridges	292,000	945,000	220,000
Totals	\$94,529,000	\$37,782,000	\$12,016,000

It will be seen that the costs for bridges total \$1,457,000.

Nebraska does not have that kind of money. The state's annual highway income is about \$10,420,000.

Suppose that you owe 144 million dollars. You can pay it back at the rate of 7½ million dollars a year. Theoretically, you will pay the debt in a little more than 19 years.

It can't be done. The catch is: Interest charges each year add greatly to the original debt.

"Interest never stops," says State Engineer F. H. Klietsch. "It works on Sundays, holidays, 24 hours every day."

Accruing needs on the highways are like interest charges on money, he points out.

The problem of paying for improvements on Nebraska's highways is quite similar to paying off the loan described above. The State Highway Department faces a big rehabilitation job. It will cost 144 million dollars.

That's the cost if the job, by some miracle of construction, could be done within a year.

Here's the picture:

1. The reconstruction program will cost \$144,327,000.
 2. The State's yearly income for construction is \$7,500,000.
- Theoretically, the bill should be paid in about 19 years. Each succeeding year will



Traffic and weather take a heavy toll . . . the State Engineer says the action of the elements ultimately will destroy even the most permanent highways. Shown above is a ruined bridge on Highway 75, north of Auburn. The reinforced concrete could not take the beating of a flood in June, 1947.—Highway Department Photo.

annual highway income is about \$10,420,000.

Maintenance, a costly item, comes out of this first. Maintenance is currently costing about \$5,500,000. Operating expenses and administration of the State Highway Department take 420 thousand dollars. That leaves about \$4,500,000 for construction.

State Engineer Klietsch estimates his department will spend one million dollars for construction that does not call for Federal money. There remains \$3,500,000 which is used for matching Federal aid funds.

In addition, Nebraska usually receives about 500 thousand United States dollars which do not require matching.

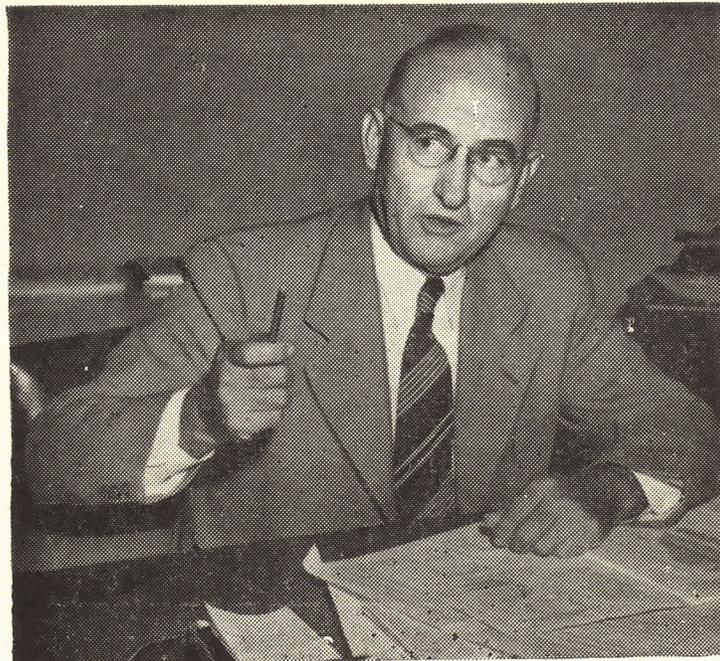
So there's \$7,500,000 a year for construction. This is the income which will have to pay the \$144,370,000 bill outlined above.

Divide the construction income of \$7,500,000 into the total cost of \$144,370,000. You will find that a little more than 19 years will be needed to pay for the job. This is based on spending \$7,500,000 each year.

But it's not as simple as that. In fact, it can't be done. The following article explains why.

In fact, it can't be done. The following article explains why.

Accrued Needs, Much Like Interest on Loan, Can Multiply Highway Bill



State Engineer F. H. Klietsch . . . "Accrual needs on highways are like interest on loans."

bring additional needs. (This adds up just like interest.) The accrued needs on highways multiply into terrific proportions.

The increase in costs is nearly incredible, but it has to be faced.

What about paying for the job, and completing the reconstruction, in five years?

The State Engineer says the job probably couldn't be accomplished in five years. But if it could, here's what it would cost every year:

Existing needs	.....	\$28,865,400
Stop-gap improvements	.....	779,366
Accruing needs	.....	10,886,132

Total \$40,530,898

Remember: That \$40,530,898 would be the cost for one year!

Total costs for five years would be \$202,654,490. Therefore, the cost of the reconstruction job has increased by \$58,327,490.

At the present time Nebraska cannot spend \$40,530,898 a year on the highways. Not on an annual construction income of \$7,500,000.

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How about a 10-year plan? This would be easier on the pocketbook, but still not possible with the present income.

This plan calls for an annual expenditure of \$28,122,868. The 10-year total is \$281,288,680. The costs are now \$136,858,680 MORE than the original estimate. The increase almost

equals the first estimate of \$144,327,000.

The costs of a 15-year plan are even more staggering. The yearly expense would be \$24,242,111. Total costs for 15 years would be \$363,631,665. This is \$219,261,665 MORE than the work would cost if it could be done in one year.

The increase alone is greater than the original estimate. In

other words, the entire repair job has more than doubled in accrued needs.

Here are the figures for the three programs, in detail:

5-Year Plan	
Existing needs	\$28,865,400
Stop-gap work	779,366
Accruing needs	10,886,132
Total	\$40,530,898

10-Year Plan	
Existing needs	\$14,432,700
Stop-gap work	1,443,270
Accruing needs	12,246,898
Total	\$28,122,868

15-Year Plan	
Existing needs	\$ 9,621,800
Stop-gap work	1,924,370
Accruing needs	12,695,951
Totals	\$24,242,111

These totals are the YEARLY costs of each program.

Highway Department Maintains 9,160 Miles of Primary, Secondary Roads

If you are observant when you drive through Nebraska, you occasionally will see small black-and-white signs along the various highways. Some are marked F. A. P. Others read F. A. S.

The first means Federal Aid Primary; the other, Federal Aid Secondary.

Nebraska's main roads form two interlocking systems. The primary consists of the arterials and main traveled highways. The secondary is composed of feeder roads.

The primary system is entirely state-maintained. More than one-third of the secondary system also is the responsibility of the State Highway Department. This means that the department pays for all the maintenance of these highways. No Federal money can be used for this purpose.

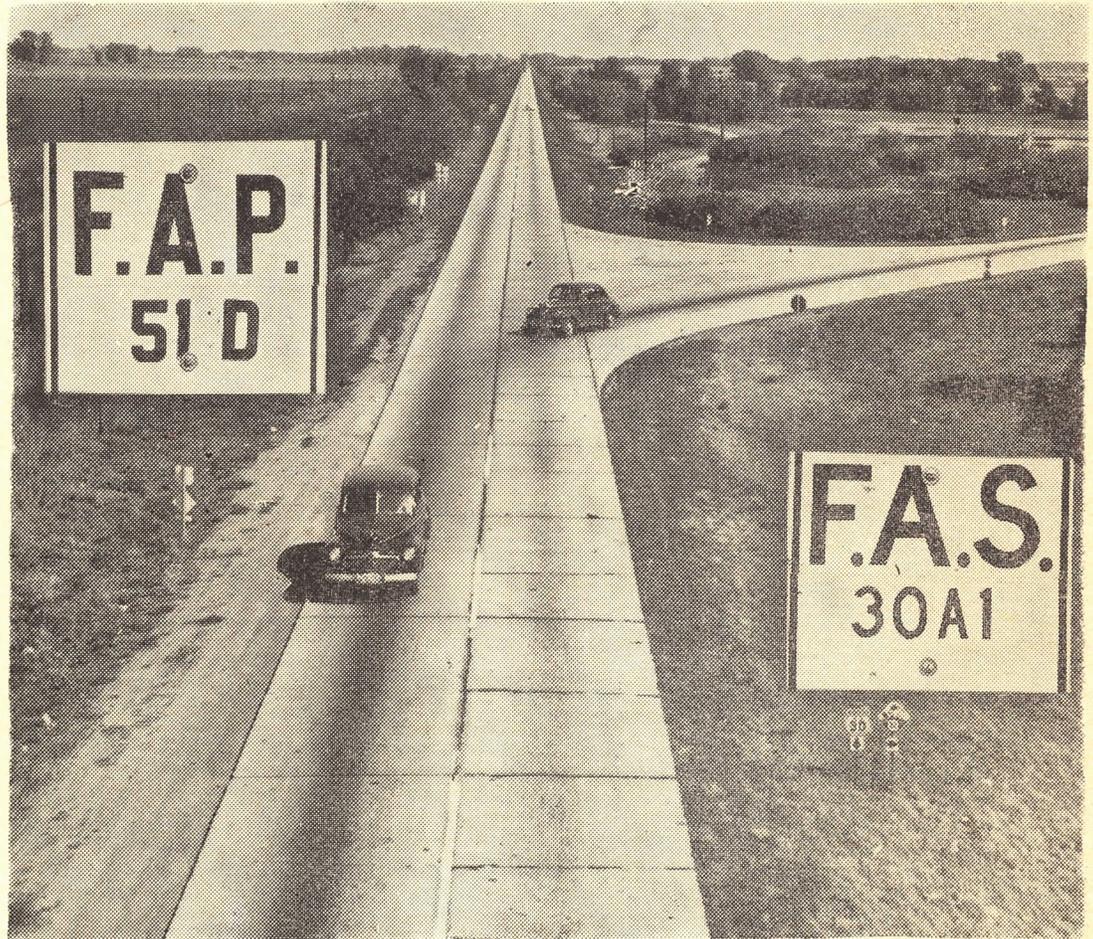
Nebraska's primary system has a potential length of 5,630 miles. This is also known as the "Seven Per Cent" system.

That is because the total mileage represents 7 per cent of the reported open road mileage in Nebraska in 1920. The Government began extending Federal aid about then. The state's mileage (now 100,600 miles) was then estimated at 80,400 miles.

Actually, Nebraska has 5,421 miles of primary roads at this time. This mileage, smaller than the potential of 5,630 miles, is a result of shortening and straightening the highways. A straight or curved line between two points is much shorter than the old "stairstep" type of road.

Nebraska's secondary system is 9,905 miles in length. The State Highway Department maintains 3,739 miles. The balance is the responsibility of the 93 counties.

Although the roads had been in existence for many years, this secondary system was mapped in 1945. The Federal act giving aid provided that the system should consist of principal secondary and feeder roads. These included farm-to-market, R. F. D., and public school bus roads.



This is an example of Nebraska's interlocking primary highway system. The roadway extending into the distance is U. S. Highway 30. Entering from the right is State Highway 92. This photo was made from the overpass near Clarks, Neb. Inserts are examples of the signs described into the story.

The act also stipulated that this system had to be chosen by the Highway Department in complete agreement with the 93 county boards, and approved by the Commissioner of the Public Roads Administration.

The catch at first seemed to be in getting the county boards in complete agreement.

"This was a big job," says State Engineer F. H. Klietsch. "It took nine months. At first it seemed doubtful whether it

would be possible to get the necessary 100 per cent concurrence. However, through the excellent co-operation of all counties, the goal was achieved."

The secondary system was submitted to the Government in 1946, and was approved.

Plans have been made to extend the primary system by 134 miles, giving a total of 5,555 miles. This will leave a balance of 75 miles which can be added to the primary, as needed.

The following extensions have been designated and approved. No timetable has been set for their construction:

Location	Miles	Type
Marsland-Hemingford ..	14.0	Blacktop
Wymore-Burchard	17.0	Gravel
O'Neill-Laurel (unbuilt sections)	27.5	Gravel
Elk City (bee-line connection)	3.2	Concrete
Albion-Newman Grove	9.5	Gravel
New U. S. 81 (Pierce-Yankton)	34.0	Blacktop
Greeley, north (gap)	1.0	Blacktop
Hadar, east (gap)	1.0	Gravel
Omaha (expressway)	18.0	Concrete
Omaha (S. 24th St.)	5.0	Concrete
Lincoln-Havelock (U. S. 6 city)	4.3	Concrete

State Engineer Says Funds Not Enough for Repair, Expansion Programs

The State Highway Department is responsible for 5,421 miles of primary highways, and 3,739 miles of the 9,905-mile secondary system.

This is a total of 9,160 miles the Department has to maintain and keep in constant, 24-hour service.

The State-maintained highways consist of these surface types:

	Primary	Secondary
Concrete	1,339 miles	None
Blacktop	2,373 miles	359 miles
Gravel	1,700 miles	3,200 miles
Earth	9 miles	180 miles
	5,421 miles	3,739 miles

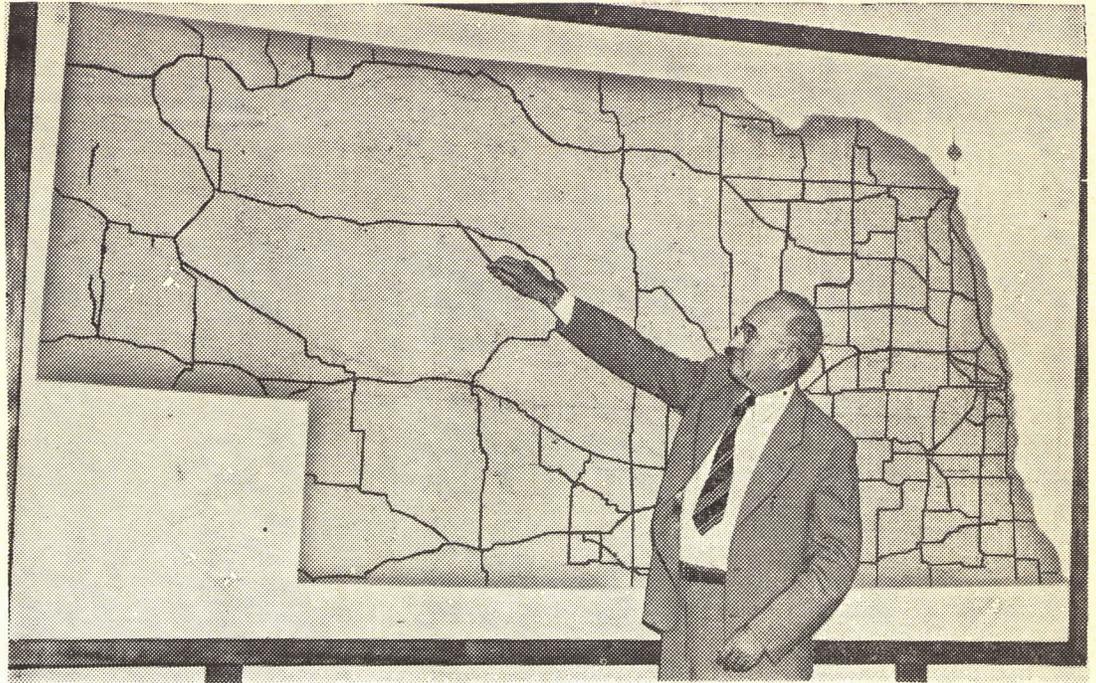
The entire state-maintained system of 9,160 miles is only 9 per cent of the total mileage in Nebraska.

These highways carry 68 per cent of all traffic, according to surveys made by State Engineer F. H. Klietsch. This is a big load.

If another 6,200 miles could be added to the secondary system, the state-maintained roads would then carry 80 per cent of the traffic, Mr. Klietsch says.

This expansion is not immediately planned. The work would extend into all parts of the state. It would consist principally of grading, graveling and building bridges. At an estimated cost of eight thousand dollars per mile, the cost would be \$49,600,000. Construction would take six years or longer.

(Note: This new 50-million-dollar estimate is entirely sep-



State Highway Engineer F. H. Klietsch is pictured with a big highway map which hangs in his office in Lincoln. The heavy black lines mark the location of highways on the primary system. The secondary system roads are not shown. These roads carry a tremendous amount of traffic

arate from the 144-million-dollar plan, previously discussed, for rehabilitation of the present roads.)

The State Engineer says it is

not possible:

1. To pay for the desired expansion; and
2. To pay for the improvements needed on the beat-up

roads that Nebraska now has.

The State Highway Department cannot do both jobs—not on its present income, Mr. Klietsch says.

Repairing and Modernizing State's Highways Vital, but to Be Costly

Repairing, improving and modernizing Nebraska's present highways is vital, says State Engineer F. H. Klietsch.

Here's the picture:

The State Highway Department maintains 1,339 miles of concrete pavement. Of this, 847 miles are from 13 to 20 years old. Much of this old pavement is wearing out. At least half of it will have to be replaced, soon.

"Resurfacing is necessary to protect the investment and to reduce the loss on the original construction," Mr. Klietsch says.

It will be costly. Replacement of concrete, based on today's prices, will average about 54 thousand dollars a mile.

The blacktop situation is blacker. Of the 2,732 miles of oil mat road maintained by the state, nearly all will have to be resurfaced or replaced.

This, too, is expensive. New construction for example, will average 24 thousand dollars a mile. This is based on the transition from a gravel road to an adequate bituminous surface.

Second stage construction on existing blacktop will average \$16,500 a mile. This includes base repairs and an armor coat.

Approximately two thousand miles of blacktop were spread thinly and cheaply over Nebraska from 1930 to 1940. It was very cheap, compared with prices today. For example, in 1932 the State Highway Department built 195 miles of bituminous mat and oil-sand roads. The average cost was \$4,330 a mile.

The two thousand miles are virtually a total loss. Don't cry over it. The blacktop served its purpose. It got Nebraska out of the mud.

In those days, says Mr. Klietsch, "we didn't have too much money. The dollars wouldn't stretch, so we stretched the material on the roads."

This was literally true. The blacktop was rolled out to a depth of about two inches. State engineers planned that strengthening layers would be added within a few years.

(Continued on Next Page.)



This is a sample of the broken and battered concrete on State Highway 15, just south of Schuyler. The paving is 30 years old.

Repairing and Modernizing State's Highways Is Vital, but to Be Costly

(Continued from Preceding Page.)

Actually, very little strengthening was added prior to 1941. Instead, more thin blacktop roads were built in response to public demand.

Blacktop was pleasing to road users — and misleading to the road engineers. The latter were completely fooled by the weather.

A great many of the oil mat roads were created during the drouth years. Months of hot, dry weather found the blacktop standing up beautifully.

Then came the rains. Roads were undermined and ruined. Frost and snow and freezing weather took their toll. The trucks got bigger and more numerous. They helped break the

blacktop to bits. And general traffic had increased.

A wail of anguished rage came from all parts of the state. Blacktop, road users declared, was "no good." Hastily, the State Highway Department started to strengthen the surface, and to repair the bad spots.

Then came the war years. It was difficult and extremely cost-

ly to get material and labor for maintenance. In several cases, maintenance costs exceeded a thousand dollars a mile a year.

Only 650 miles of blacktop were reconditioned between 1941 and 1948.

Part of the post-war road program included strengthening some of the original two thousand miles of blacktop.

State's 93 Counties Spread 103 Millions in Road Money Rather Thinly

Nebraska is like an indulgent mother with 93 children. These are the counties. The family has a fairly good income to spend for highways and roads.

This income is divided. Mother keeps half of the gasoline tax for the State Highway Department. She gives the other half to the children.

She also gives them 70 per cent of the revenue from license fees. She keeps 30 per cent for the Highway Department. This money can be used only for maintenance.

Theoretically all of the money should be reflected in good roads. The result of spending millions of dollars should be miles and miles of good highways.

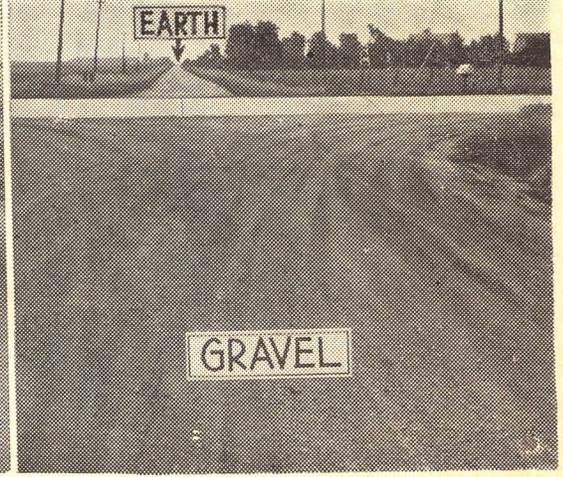
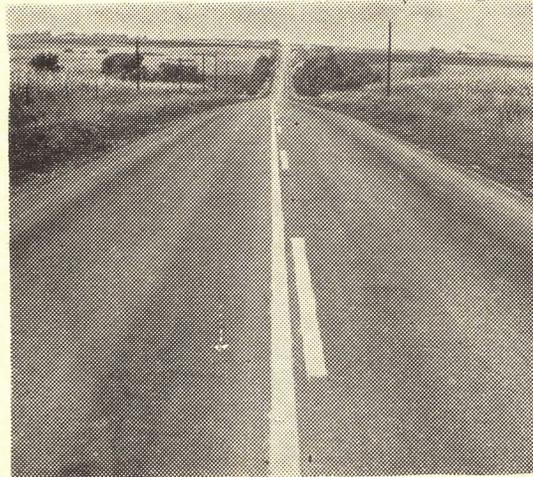
In the past 22 years (1926-1947) the Highway Department has invested more than 224 million dollars in highways. The money was spent this way:

Construction . . .	\$152,611,245.08
Maintenance . . .	66,613,141.06
Administration . .	5,428,676.48
Total	\$224,653,062.62

In the same period, the 93 counties have divided and spent \$103,205,886.92.

Just how this money was spent is probably a matter of 93 separate answers. But most of the counties have spent a great part of their income for maintaining county roads.

The complete picture is that Nebraska has spent more than 327 million dollars on her combined state-maintained and county-maintained road systems.



This is a state-maintained primary highway, paved with blacktop. The State Highway Department maintains 4,071 miles of hard-surfaced roads. Also maintained are 4,900 miles of gravel, and 189 miles of earth roads.

These are county-maintained feeder roads, connecting with a state-maintained concrete highway. The road in the foreground is gravel; the other is earth. The 93 counties maintain 18,450 miles of gravel, and 72,876 miles of earth or sand roads.

What do the road users have in return for all this money?

1. A total open road mileage of 100,600 miles.
2. A state-maintained primary system of 5,421 miles.
3. A secondary system of 9,905 miles. The State Highway Department maintains 3,739 miles of this system.
4. A remainder of 91,440 miles which are the combined responsibility of the various counties.

The State Highway Department, spending 224 million dollars, shows this result:

Concrete	1,339 miles
Blacktop	2,732 miles
Gravel	4,900 miles
Earth	189 miles

The 93 counties, spending 103 million dollars, have these roads:

Concrete	81 miles
Blacktop	33 miles
Gravel	18,450 miles
Earth or sand . . .	72,876 miles

It is apparent that the counties have to maintain a tremendous mileage. There are two important factors:

1. In some counties the mileage extends for long distances. The area is large; the population is small. In other counties the mileage and population are concentrated within comparatively small areas.
2. The counties do not receive an identical amount of highway income.

Dividing Gas Tax Money Among 93 Counties Calls for Fancy Arithmetic

The preceding article stated that Nebraska's 93 counties have divided and spent \$103,205,886.92 on the county roads. Here's where the state-created income came from:

In the past 22 years (1926-1947) the counties received \$42,984,963.19 as their share of the

license fees. And since 1929, they have received \$60,220,923.73 as their share of the gasoline tax.

Dividing the license fee money is simple arithmetic. Each county keeps 70 per cent of the amount collected within the county. The balance goes to the State Highway Department.

But splitting up the gas tax money requires some fancy figuring. That is, you don't divide 93 into the total to find out how much each county is to get.

The money is divided according to a formula established by the Legislature.

At the present time, the formula is based upon three factors: Registrations, rural population, and urban (city) population. The counties' money is apportioned on this basis:

(Continued on Next Page.)

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1. Forty-five per cent for the county's registrations, in proportion to the state's total registrations.

2. Forty-five per cent for rural population in the county, in proportion to the state's total rural population.

3. Ten per cent for the total population of the cities and towns within the county, as compared with the state's total urban population.

(Remember that the state's gas tax is 5 cents. The Highway Department gets 2½ cents. The counties get the other 2½ cents. One penny of the county money (20 per cent of the nickel) is specifically set aside to develop mail routes under the new Schroeder Law. This is sometimes called the gravel fund. That leaves 1½ cents for the counties. It adds up to big business).

As an example, let us say the counties' share of the gas tax for one year, after the gravel fund has been deducted, is four million dollars.

This amount would then be set up in three parts. Under the

formula, the breakdown would be:

Registrations (45%) \$1,800,000
Rural pop. (45%) ... 1,800,000
Urban pop. (10%) ... 400,000

Now comes the fancy arithmetic. How are these amounts apportioned among the 93 counties?

It works like this:
A large, thickly-populated county might have 20 per cent of the total registrations, 4 per cent of the total rural population, and 20 per cent of the total urban population.

This county would get, respectively, 20 per cent of the first figure, or 360 thousand dollars; 4 per cent of the second figure, or 72 thousand dollars; and 20 per cent of the third figure, or 80 thousand dollars.

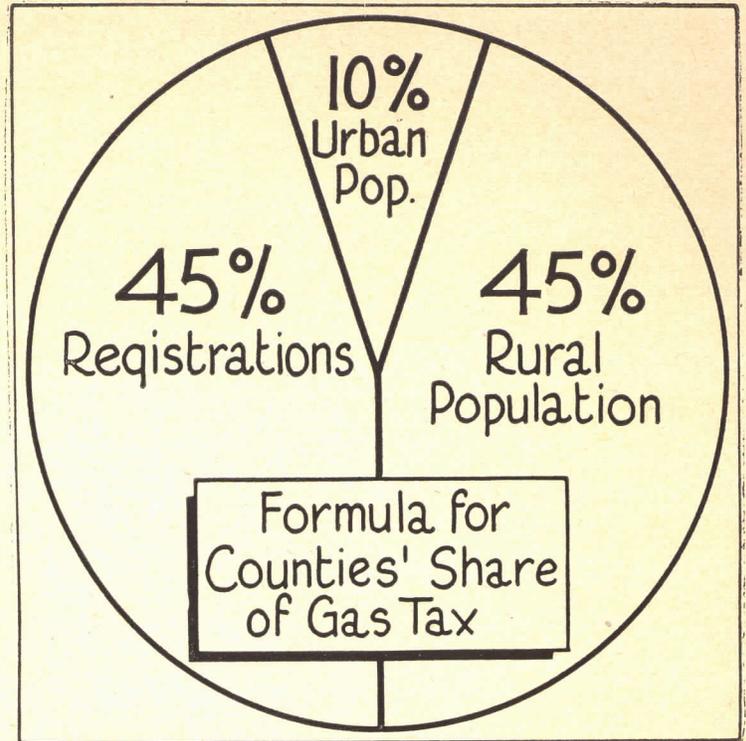
The total would be 512 thousand dollars.

A small, sparsely-settled county might have only .001 per cent of the registrations; .002 per cent of the rural population; and .001 per cent of the urban population.

Based on the formula, this county would get respectively: \$1,800—\$3,600—\$400.

The total would be \$5,800.

The same formula is applied in apportioning the counties' shares of the gravel fund.



This chart shows how the counties' share of the gasoline tax is apportioned.

Some County Officials Discover a Few 'Jokers' in Year-old Schroeder Law

The state law to improve and gravel rural mail routes has been in effect for a year. The bill was introduced in the 1947 Legislature by State Senator Norris F. Schroeder of Hoskins.

Effective in September 1947, the law takes 1 cent (20 per cent) of the state's 5-cent gas tax. The money, estimated at 3 million dollars a year, had formerly been used for state assistance. It is now given to the 93 counties, apportioned by a formula to be used specifically for improving rural mail routes.

The Schroeder law has caused considerable comment and some criticism. Observers predict that discussion of this law will be a "hot potato" when the 1949 Legislature meets.

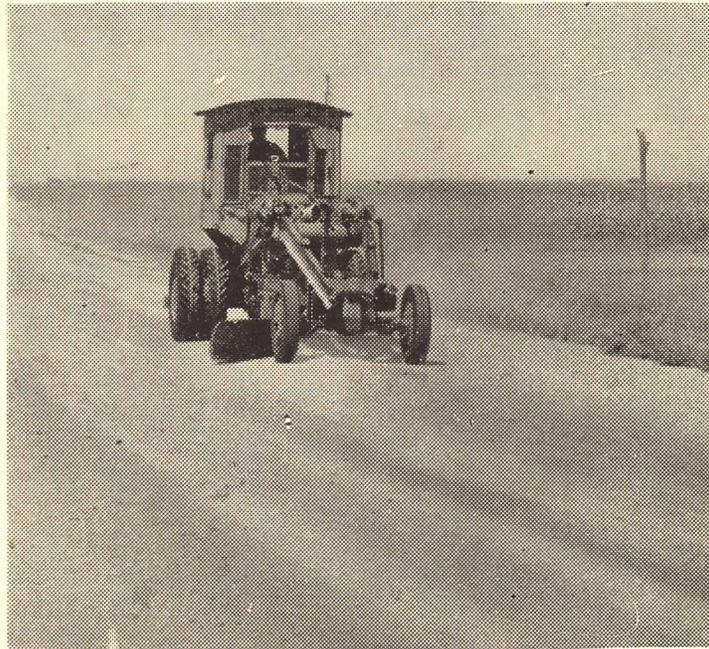
A number of county boards have discovered "jokers" in the law. The section that causes the most unfavorable criticism is as follows:

"Equal improvement in number of miles shall be progressively completed on each rural mail route, and shall be equally divided annually between the first and the last mile of each route."

Let's see what it means.

"Equal improvement." This means that no road in a county can be completed ahead of any others. Each road must be developed, mile by mile, as all other roads within the county are being developed.

"First and last miles." This means that improvement must



Spreading gravel on a rural mail route. The Schroeder Law says that improvement on each road in a county must be divided equally between the first and last miles.

start at both ends of any road. It could mean that a stretch of road serving only one farmer would be built ahead of another stretch which serves 10 or 12 farmers.

The county boards do not like

the "first and last mile" limitation. Too little can be done.

For example: Suppose a county has 14 mail routes. The county gets enough money in one year to provide gravel for seven miles. Under the Schroeder Law,

the gravel has to be placed at the BEGINNING and END of EACH of the 14 mail routes.

The result: One-fourth of a mile of improved road at each end of each route at year's end.

Another example: Suppose a county gets 56 thousand dollars a year. There are 10 mail routes. Each route's share is \$5,600—or \$2,800 to be spent at the two ends of each route. It costs about one thousand dollars to gravel one mile of road.

Here's another situation encountered by some county boards: The law says improvement must start at each end, working toward the center of any road. Suppose the muddiest, most impassable stretch is in the middle? What can be done?

There is one loophole.

The Schroeder Law specifies that 80 per cent of the gravel funds shall be used as stated above. The law also says that 20 per cent can be used "as may otherwise be designated by the county board."

One county commissioner estimated that 17 years would be needed to complete the rural mail routes in his county, working under the Schroeder Law.

When the bill was made a law in 1947, it was extremely popular among the farm folks. Senator Schroeder said his bill was "at least a start in getting Nebraska farmers out of the mud."

He has since said: "Some details of the law need changing."

More Than 72,000 Miles of Nebraska's Rural Roads Are Earth or Sand

"Get the farmer out of the mud."

The request is frequently made to the State Highway Department. It is also heard when the Legislature is in session.

It is a large order. More than 72 thousand miles of Nebraska's roads are earth.

The answer is, of course, better roads. And a great part of the responsibility lies with the 93 counties.

The Schroeder Law which provides about 3 million dollars a year to gravel rural mail routes states specifically:

"The responsibility for improving and maintaining rural mail routes shall rest upon the county board within each county."

The law further says: "It shall be the duty of every county highway official in charge of road work to give the preference to rural mail routes in keeping the same in repair. Such highways shall be kept properly drained and dragged and free from all obstructions, including snow, so as to be at all times in good condition for ordinary travel."

There are approximately 22 thousand miles of rural mail routes.

Nebraska has 100,600 miles of open roads. The State Highway Department maintains 9,160 of them. That leaves 91,400 miles which are under the jurisdiction of the counties.

Some 72,878 miles of county roads consist of earth or sand. The state-maintained system has 189 miles of earth roads.

Some of the county responsibility can be shifted to the State Highway Department. This happens when Federal aid enters the picture.



Mired to the hubs, this ancient car is stuck in the mud. Passengers at left are wading through the gumbo. This picture was made many years ago—but the muddy roads still exist in many places in Nebraska.

The Highway Department now maintains 3,739 miles of the secondary (feeder road) system. Most of these roads are graveled. The department inherited this maintenance job in the 1930's when Uncle Sam began handing out money for secondary roads.

The Legislature passed a law that whenever Federal money was spent on ANY county road, the State Highway Department forever thereafter had to maintain the road.

Sometimes only a few thousand Federal dollars were spent to improve a poorly graded road. Some of these roads have been

very expensive to maintain.

The counties can get Federal aid for both county roads and rural mail routes. The 1947 Legislature enacted a law which provided that county boards might levy a tax of one mill (with the approval of the voters) to raise funds for matching Federal dollars.

To date, 45 counties have provided matching funds involving 65 projects for construction of feeder roads. These roads are on the state's Federal aid secondary.

Some of the money was raised by a levy. But some funds have been created by public subscription. Desperate for better roads,

citizens have donated money to a fund.

This has been particularly true in Western Nebraska in the ranch country. The homes are few and far between, but the ranchers and farmers must have good feeder roads to get to the main traveled highways.

One rancher donated four thousand dollars. Others have chipped in. One county raised 40 thousand dollars in this manner.

When a fund is thus created, the money is given to the county. Then the county board arranges through the State Highway Department to get matching Federal funds.

County Roads Are 67 Per Cent of Mileage; Carry 25 Per Cent of Traffic

"Get the farmer out of the mud."

"We recognize the farmer's necessity for swift movement to market," says Gov. Val Peterson. "The foremost problem is to provide the best possible service within our income for the broad farm community of the state."

He continues: "At first this may seem to overstress the farmer's welfare. But agriculture represents 80 per cent of our total income. All cities, large or small, are trading posts serving customers who travel Nebraska roads."

He adds: "It is not possible to build a road that does not serve farmers more fully than it serves any other segment of our people."

All local roads are feeders to secondary or primary highways. (Continued on Next Page.)



This is a typical rural road in Nebraska after a spring thaw, or following a heavy rain. The car in the background is stuck in the mud.

County Roads Are 67 Per Cent of Mileage; Carry 25 Per Cent of Traffic

(Continued from Preceding Page.)

the Governor points out. And the primary highways, he says, "serve more persons and more farmers than any other type of system."

The State Highway Department maintains 9,160 miles of Nebraska's 100,600 miles. Here are some interesting comparisons:

1. The state-maintained system is only 9 per cent of the total mileage. It carries 68 per cent of the traffic.
2. County roads are 67 per cent of the mileage, and carry 25 per cent of the traffic.
3. Township roads are 24 per

cent of the total, and carry 7 per cent of the traffic.

A traffic survey made several years ago showed that 73,325 miles carried only 10 per cent of the rural traffic. Maximum daily traffic was one vehicle per hour.

Even if it were possible to finance and construct good roads on those miles, they still would carry only a very small percentage of the total traffic in Nebraska.

A survey in 1940 determined the travel distance from rural homes to roads surfaced with pavement or gravel.

This study revealed that 54 per cent of the rural homes were within a mile of an all-weather

road; and that 15 per cent were 3 or 4 miles from a surfaced road. About 8½ per cent were more than 5 miles from a good road.

Nearly all in this latter group were in the sparsely-settled Sand Hills region.

Farmers buy a lot of gasoline. Some of it is for their cars, and they pay the full tax, just like anybody else.

Some of it is for agricultural use. Farmers pay the tax, but get a refund.

Farmers who have a state permit get a refund of 4 cents per gallon (four-fifths of the 5-cent tax) on 40 or more gallons used during a year.

This refund, according to the Schroeder law, is on "... gasoline or motor vehicle fuel which was used solely and exclusively for propelling or operating a stationary gas engine, tractor, combine or machinery used solely for agricultural purposes."

Farmers were given the refund beginning in 1942. Here are the yearly refunds:

1942	.....\$104,676.60
1943	..... 189,127.03
1944	..... 278,031.07
1945	..... 373,954.04
1946	..... 679,026.59
1947	..... 798,899.46

More Than Half of State's Highway Graders Obsolete

Upkeep and repair of the state-maintained highways is very expensive.

Maintenance costs in 1947 were \$5,496,552.87. This included 886 thousand dollars for new equipment.

Equipment prices have gone up. As an example: "A motor grader cost \$2,500 in 1932," says State Engineer F. H. Klietsch. "Now an improved modern grader costs about 10 thousand dollars. It will do twice the work."

He says the Highway Department has 250 graders in use, and more than half of them are 15 years old. They are "obsolete difficult to keep in repair, and a major handicap in maintaining gravel roads," he says.

The Highway Department maintains 4,910 miles of gravel roads. During 1947, the average cost was \$532 per mile. Some roads cost more than a thousand dollars per mile. Others were under three hundred dollars.

The only way to reduce maintenance costs is to build a more adequate highway system," Mr. Klietsch says. "The better the road, the cheaper the costs of maintenance."

As an example, he makes this comparison:

Maintenance costs for 6,882 miles were \$3,045,508 in 1930. But in 1941, the costs were \$2,841,200 for 9,124 miles. More miles were maintained at less expense because the roads had been improved, he says.

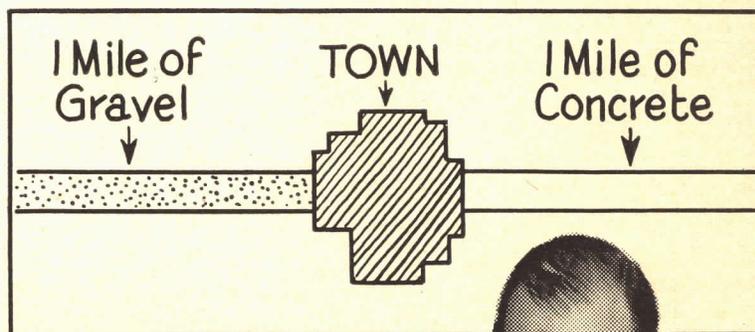
The accompanying chart illustrates a comparison between concrete paving and a gravel road.

The cost of a mile of concrete is given as 30 thousand dollars, and construction of the gravel road as one thousand dollars.

Chief Highway Engineer R. F. Weller says these prices are the approximate average costs, over a period of 20 years or more. The figures quoted are for purpose of comparison.

He adds: "If maintenance costs are to be reduced, it will be necessary to accelerate the rehabilitation and improvement program. We must improve the present system to a higher, more adequate standard."

Maintaining the state's highways includes more items of road work than just spreading gravel.



Chief Highway Engineer R. F. Weller, at right, makes an interesting comparison between gravel and concrete roads.

To construct one mile of concrete will cost 30 thousand dollars. Maintenance costs are \$332 a year. Assuming the concrete will last 30 years, the maintenance costs are \$9,960. At the end of that time, the total investment is \$39,960. But the concrete is shot to pieces by traffic and weather. It will have to be replaced.

To construct a mile of gravel road will cost one thousand dollars. Maintenance costs are \$532 per year. At the end of 30 years, the maintenance costs are \$15,960. The total investment is \$16,960.

Gravel maintenance has cost six thousand dollars MORE than concrete maintenance.

"But the gravel road is still there," Mr. Weller says. "It can be maintained indefinitely."



The gravel mile will always cost more to maintain. But at the end of 150 years, for example, the difference in total costs are startling. The gravel road has cost \$80,800 and is still going strong. The concrete has cost \$199,800. It has been replaced four times!

Maintenance of Roads Costs State \$5,500,000 a Year

Maintenance of state highways is very expensive. It is now costing about \$5,500,000 a year.

All of this comes from state-created income. No Federal funds can be used for maintenance.

As shown in the chart, gravel roads take the most money. During 1947, the cost to maintain 4,910 miles of the state system averaged \$532 per mile.

Maintaining gravel roads always has taken a lot of money. The average for 20 years probably has been about two hundred dollars a mile. Let's see what the gravel roads have cost.

Originally it cost about one thousand dollars per mile to gravel the 4,910 miles. This is an investment of about five million dollars.

Replacement gravel has cost about one hundred dollars per mile per year. This amounts to 10 million dollars for 20 years. The cost of blading or smoothing the gravel has added another 10 million dollars.

Maintenance has cost 20 million dollars.

"Would it have been cheaper to pave these roads, rather than maintain them?" The State Engineer is often asked this question.

He answers: "The 20 million dollars would have paved 750 miles of concrete, or 1,600 miles of blacktop."

Why wasn't this done?

"Because more people were gotten out of the mud," he says. "Gravel roads provided rural folks and other road users more miles of usable roads."

He adds: "Concrete and blacktop highways also have to be maintained.

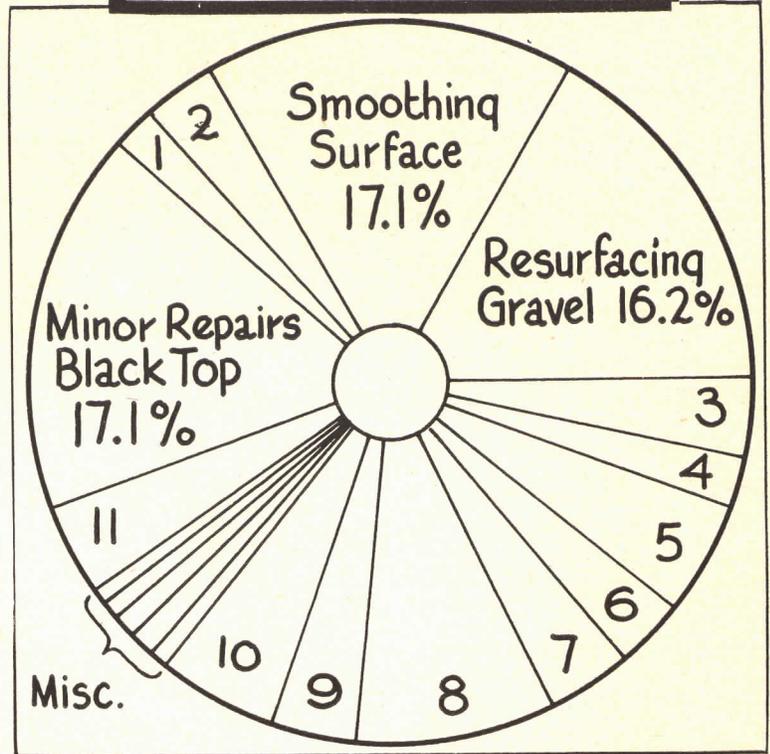
In 1947, these were the average maintenance costs per mile: Concrete, \$408; blacktop, \$546; gravel, \$532; earth, \$247.

There are many other items involved in maintaining highways.

They are, as shown by numbers in the chart at right: 1. Drainage structure repairs. 2. Bituminous seal and armor coating. 3. Ditch washouts and repair of slopes. 4. Signs, markers and signals. 5. Roadside maintenance. 6. Snow drift prevention. 7. Snow removal. 8. Supervision, salaries and expense. 9. Supply base and miscellaneous overhead. 10. Extraordinary maintenance (floods). 11. Repair of concrete pavement.

The items listed under miscellaneous include: Dust prevention, noxious weed eradication, surfacing shoulders adjacent to pavement, traffic lane and center line painting, roadside development, guard rail and auto gate repair, highway lighting, removal or treatment of lay surfaces, clearing waterways of

MAINTENANCE COSTS



This chart shows the distribution of maintenance costs in 1947. It is apparent that gravel surfacing and smoothing take about one-third. Other items are explained in the story.

snow, shoulder and side approach repair, comfort and roadside parks, miscellaneous structures, seeding and sodding of shoulders, and repairing major structures.

Paving Costs Have Doubled, but Quality Improved; Roads to Last Longer

A million dollars doesn't go very far in building surfaced highways these days.

It is equivalent to 18½ miles of concrete, or 42 miles of blacktop.

"Construction prices for 1948 are 90 to 100 per cent higher than before the war," says State Engineer F. H. Klietsch.

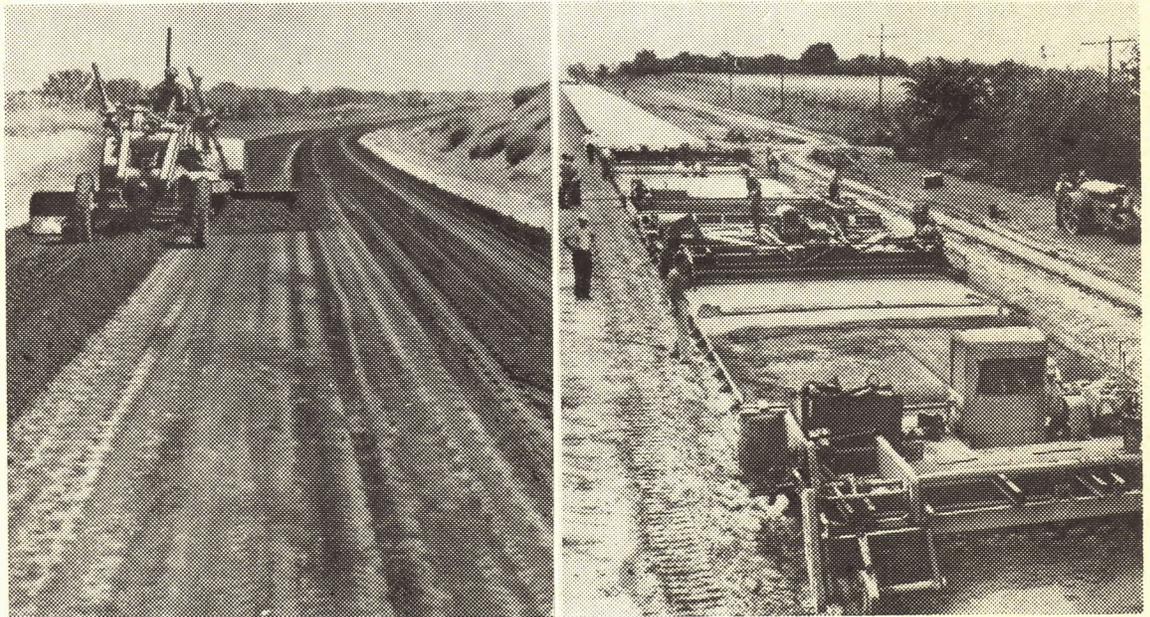
But in comparing prices, he says, "we must bear in mind that the type of construction has varied and improved between 1930, 1940 and 1948. The increase in cost per mile is not in direct proportion."

For example, concrete pavement built in 1930 was without reinforcement. It was six inches thick in the center, and nine inches deep at the outside edges. It was 18 to 20 feet wide.

Today's concrete has a uniform thickness of eight inches. It is 22 to 24 feet wide. Aggregates are of a better quality. Subgrade treatment, not generally used before the war, costs about 50 cents a square yard. These improvements have helped increase the costs.

The variation in design between blacktop constructed in

(Continued on Next Page.)



The State Highway Department in 1947 and 1948 contracted for about 21 million dollars worth of highway construction. Every dime was for improvement and modernization of the present highways. At left, blacktop roads cost approximately 24 thousand dollars a mile. The concrete road at right was built for about 54 thousand dollars per mile.—State Highway Department Photos.

(Continued from Preceding Page.)

1940 and 1948 is even more pronounced. Most of the 1940 blacktop was first stage construction, with additional thickness to be built later. Today's blacktop is thicker, and is classified as an adequate bituminous surface.

Surfaces built today, says the State Engineer, will last longer than those built 10 or 15 years ago. Maintenance costs will be cheaper.

But this fact must be faced: Fewer miles can be built for the money.

Here's a comparison of average contract prices per mile:

Type	1930	1940	1948
Grading and structures	\$ 4,300	\$ 7,550	\$12,000
Concrete	27,600	36,200	54,000
Blacktop...	4,330	5,700	24,200
Armor			
Coat ..	.....	725	1,500

Shortages of labor, material and equipment made it difficult to construct highways during the war years. Income also was down, due to gas rationing.

"We were not exactly standing still," says Mr. Klietsch. And the record shows these miles of construction:

Year	Rigid type	Black-top	Gravel
1942	..... 12.8	50.4	87.3
1943	..... 10.1	126.7	49.0
1944	..... 36.7	195.7	.7
1945	..... 1.0	106.9	11.2

Construction costs during these years were, respectively: 1942—\$3,574,022.86. 1943—\$2,487,807.69. 1944—\$3,968,733.59. 1945—\$3,007,331.20.

The State Highway Department accumulated a surplus of about five million dollars during the war years. This money has since been obligated in contracts, and the department is now working on a current income basis.

In 1947 and 1948, approximately 21 million dollars, including Federal aid funds, have been spent for construction. Every dime of it was for improvement and modernization of the state's present highways.

Here are the miles of construction in the post-war years:

Year	Rigid type	Black-top	Gravel
1946	.... 48.6	289.3	60.2
1947	.... 30.9	162.6	231.6
*1948	.... 19.9	252.0	152.6

*To September 1.

Construction costs during these years were: 1946—\$7,777,926. 1947—\$9,365,968. 1948—12 million dollars (estimated).

Nebraska Is Divided Into 8 Districts for Construction and Maintenance

The State Highway Department has 99 registered engineers. There are 823 additional employees.

Including State Engineer F. H. Klietsch and Chief Highway Engineer R. F. Weller, there are 36 engineers listed under administration.

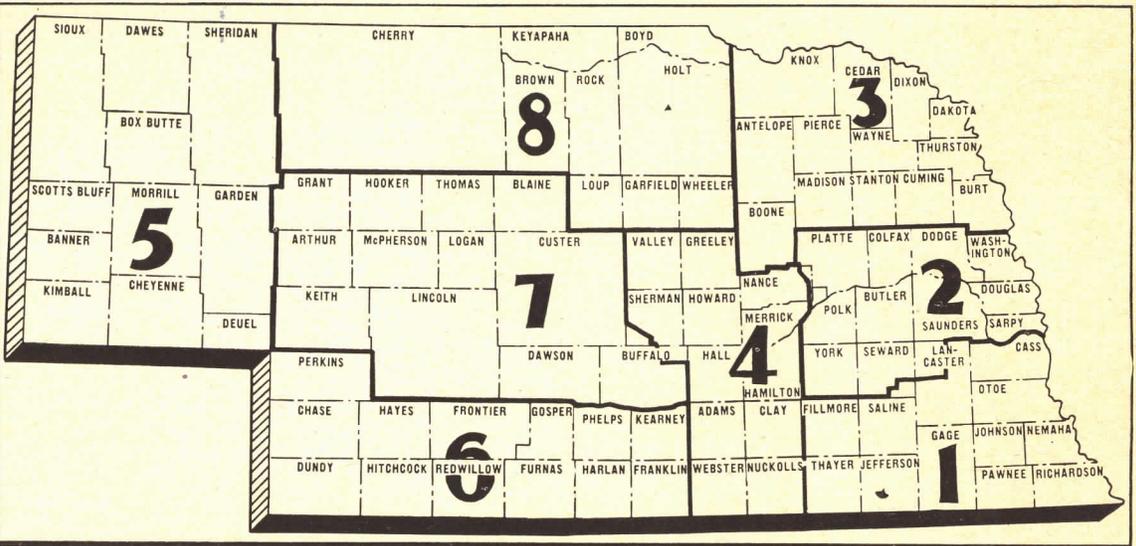
This includes the district engineers. For all highway work the state is divided into eight districts. These men are responsible for the roadways which are maintained by the State Highway Department.

These include the Federal Aid primary system of 5,421 miles, and 3,739 miles of the secondary system.

The following chart shows how the miles of state-maintained highways are distributed in the eight districts:

Dist.	Rigid Type	Black Top	Gravel	Earth, Sand
1	..... 283	292	755	None
2	..... 469	184	463	None
3	..... 147	344	870	None
4	..... 181	305	639	None
5	..... 60	626	371	52
6	..... 37	331	722	16
7	..... 158	288	563	74
8	..... 4	362	555	49

Other Highway Department engineers include: Field construction, 27; maintenance, 17; material and testing, 9; bridge



For all highway work, Nebraska is divided into eight districts, as shown above. Each division is headed by a District Engineer.

design, 5; highway planning, 5. Mr. Klietsch has frequent huddles with his district, maintenance and planning engineers. The needs within each district

are discussed. Plans are made, long in advance, for maintenance, reconstruction and improvement of the highways.

The engineers are usually

guided by this factor: Roads should be kept in tiptop condition, and priority should be given to roads which best serve the largest possible number of users.

District 1 Produces 19 Pct. of Receipts, Shares 19 Pct.

District 1 is in Southeastern Nebraska, and includes Lincoln. The counties are Cass, Fillmore, Gage, Jefferson, Johnson, Lancaster, Nemaha, Otoe, Pawnee, Richardson, Saline and Thayer.

F. S. Smith is District Engineer, with headquarters at Lincoln. There are approximately 1,329 miles of state-maintained highways.

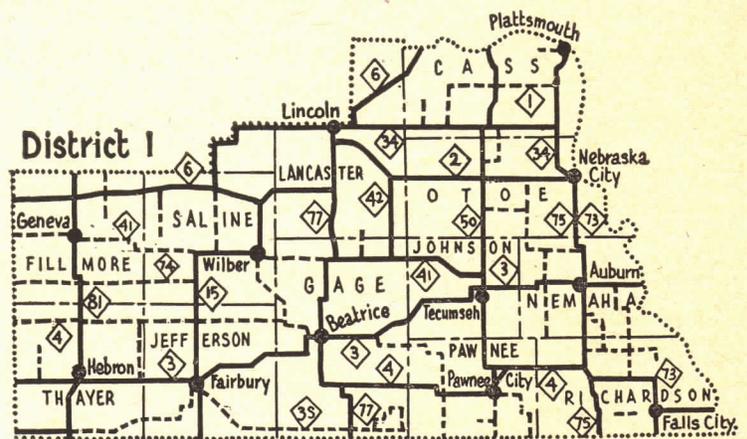
Total car, truck and tractor registrations in this district last year numbered 113,854. Approximately 270 thousand persons live in this area, based on the 1940 census.

According to figures published by the Nebraska Petroleum Marketers, Inc., some 68,665,080 gallons of gasoline were sold in this district in 1947.

This quantity would produce a state tax revenue of \$3,433,253, based on the 5-cent gas tax. This is about 19 per cent of the state's total gross receipts of \$17,540,984 in 1947.

The counties in District 1 shared in \$1,150,000 of the state tax. This is a little more than 19 per cent of the 93 counties' total share of \$6,024,558 in 1947.

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This map shows the state-maintained highways in District 1. The heavy black lines are primary highways. The broken lines indicate the secondary roads. The lines do NOT indicate pavement or gravel.

(Continued from Preceding Page.)

In Lancaster County some 27,-330,622 gallons of gas were sold. This would produce a state revenue of \$1,366,531, based on the 5-cent tax. This is about 7½ per cent of the state's total gross receipts. Lancaster County re-

ceived approximately 353 thousand dollars of the counties' share of the state tax. This is about 6 per cent.

The State Highway Department in 1948 contracted for the following miles of blacktop construction:

Douglas Produces 16 Pct. of Revenue, Receives 11 Pct.

District 2 is in the eastern part of Nebraska and includes Omaha. The counties are Butler, Colfax, Dodge, Douglas, Platte, Polk, Saunders, Seward, Washington and York.

Edwin Olmstead is District Engineer with headquarters in Lincoln.

Following are the miles of state-maintained highways in District 2 by counties:

County	Rigid type	Black top	Gravel
Butler	23	26	36
Colfax	22	2	43
Dodge	65	17	18
Douglas	144	7	9
Platte	23	39	38
Polk	11	30	47
Sarpy	25	7	50
Saunders	45	15	97
Seward	43	16	9
Washington	40	3	55
York	26	22	31

Total car, truck and tractor registrations in this district last year numbered 141,265. Approximately 394 thousand persons live in this area.

According to figures pub-

lished by the Nebraska Petroleum Marketers, Inc., some 97,065,803 gallons of gas were sold in this district in 1947.

This quantity would produce a state tax revenue of \$4,853,290, based on the 5-cent gas tax. This is a little more than 27 per cent of the state's total gross receipts of \$17,540,984 in 1947.

The counties in District 2 shared in \$1,402,000 of the state tax. This is about 23 per cent of the 93 counties' total share of \$6,024,558 in 1947.

In Douglas County, some 55,-092,921 gallons of gas were sold. This would produce a state revenue of \$2,754,646, based on the 5-cent gas tax. This is nearly 16 per cent of the state's total gross receipts. Douglas County received approximately 663 thousand dollars of the counties' share of the state tax. This is about 11 per cent.

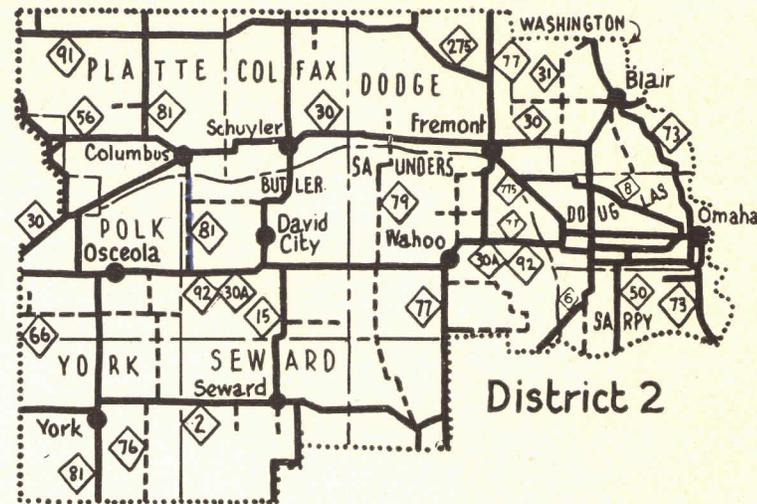
The State Highway Department in 1948 contracted for 5.8 miles of blacktop construction south of Valley. The cost was \$106,923.59.

The Highway Department also

Location	Miles	Cost	County	Rigid Type	Black Top	Gravel
Fairbury-Beatrice	13.1	\$199,965.09	Cass	55	5	50
Deshler-Ruskin*	8.2	223,094.68	Fillmore	26	26	59
*This road was formerly gravel.						
			Gage	22	39	106
			Jefferson	1	27	89
			Johnson	1	7	57
			Lancaster	79	24	29
			Nemaha	19	30	44
			Otoe	28	26	50
			Pawnee	2	11	90
			Richardson	30	29	29
			Saline	19	23	71
			Thayer		45	81

The Highway Department also contracted for 9.3 miles of concrete paving between Lincoln and Greenwood. The cost was to be \$615,112.97.

Following are the miles of state-maintained highways in District 1 by counties:



Pictured are the state-maintained highways in District 2. The heavy black lines are the primary roads. The broken lines show the secondary. The lines do NOT indicate pavement or gravel.

contracted for the following miles of concrete pavement:

Location	Miles	Cost
Wahoo, south	3.8	\$217,343.55
Omaha, N. 60 St. (1)	0.7	58,640.10
Omaha, Dodge St. (2)	0.7	359,111.71

1. No state funds used. This is a matching arrangement using Douglas County money and Federal Aid Secondary funds.
2. No state funds used. This cost was paid by City money and Federal Aid urban funds.

Tax Receipts and Revenue Share Both Top 12 Per Cent

District 3 lies in the north-east part of Nebraska and has 13 counties. They are: Antelope, Boone, Burt, Cedar, Cuming, Dakota, Dixon, Knox, Madison, Pierce, Stanton, Thurston and Wayne.

District Engineer R. C. Ayers has offices at Norfolk.

Following are the miles of state-maintained highways:

County	Rigid Type	Black Top	Gravel
Antelope	2	87	25
Boone	3	13	97
Burt	15	13	74
Cedar	7	39	87
Cuming	28	2	81
Dakota	29	..	29
Dixon	16	5	72
Knox	2	46	143
Madison	18	35	56
Pierce	3	54	46
Stanton	19	18	34
Thurston	4	18	56
Wayne	3	14	70

Total car, truck and tractor registrations in this district last year numbered 72,039. Approximately 165 thousand persons

live in this area.

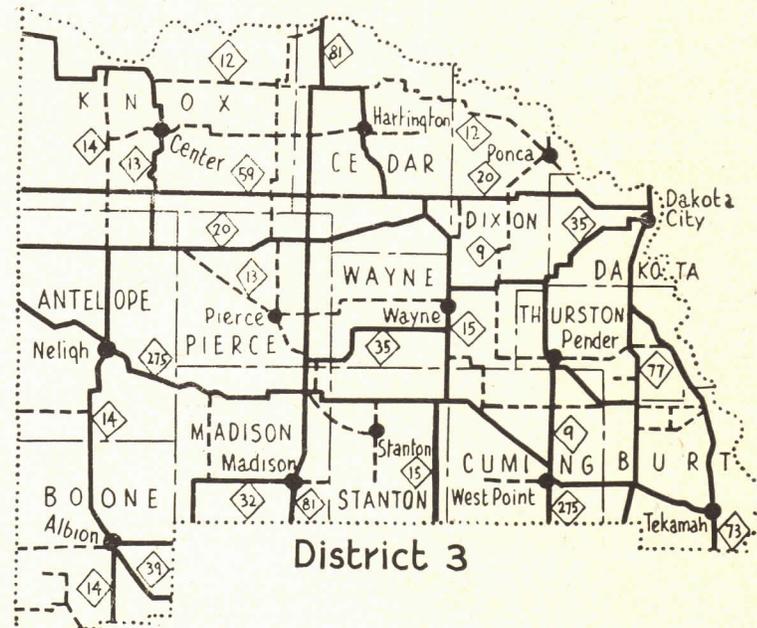
According to figures published by the Nebraska Petroleum Marketers, Inc., some 41,722,562 gallons of gasoline were sold in 1947.

This quantity would produce a state tax revenue of \$2,086,-127, based on the 5-cent tax. This is a little more than 12 per cent of the state's total.

The counties in District 3 shared in 815 thousand dollars of the state gas tax. This is more than 12 per cent of the 93 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the following blacktop construction:

Wayne-Laurel	9.4	\$158,932.26
Osmond-Randolph	5.9	137,301.03
Lyons-Winnebago	33.4	349,465.31
Madison, south	9.4	182,290.94
Tekamah-Decatur	9.2	347,100.56



These are the state-maintained highways in District 3. The primary highways are shown by the heavy black lines. The broken lines indicate the secondary roads. The lines do NOT indicate pavement or gravel.

44,850,560 Gallons of Gas Bring 12 Pct. of Receipts

District 4, in the south-central part of Nebraska, includes these counties: Adams, Clay, Greeley, Hall, Hamilton, Howard, Merrick, Nance, Nuckolls, Sherman, Valley and Webster.

District Engineer L. R. Jones has offices in Grand Island. There are about 1,125 miles of state-maintained highways.

Total car, truck and tractor registrations in this district last year numbered 67,448. Approximately 140 thousand persons live in this area, based on the 1940 census.

According to figures published by the Nebraska Petroleum Marketers, Inc., some 44,850,560 gallons of gasoline were sold in this district in 1947.

This quantity would produce a state tax revenue of \$2,242,527, based on the 5-cent tax. This is a little more than 12 per cent of the state's total gross receipts of \$17,540,984 in 1947.

The counties in District 4 shared in 669 thousand dollars

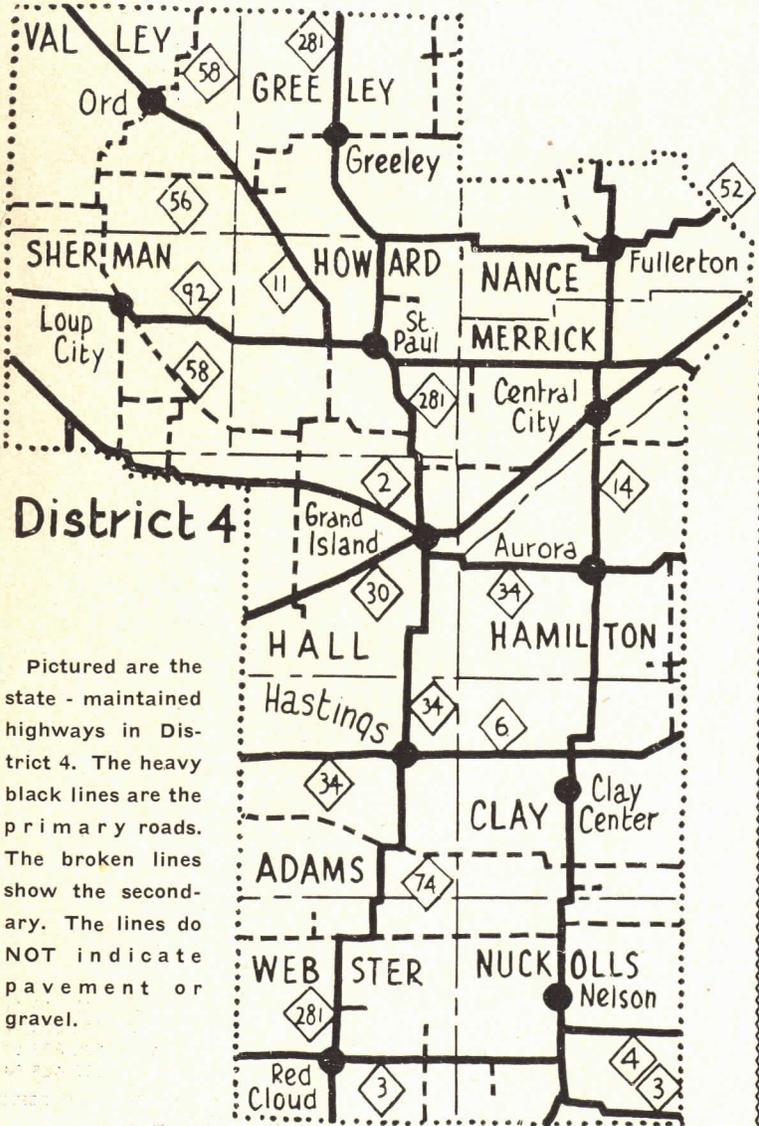
of the state tax. This is more than 11 per cent of the 93 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the following blacktop construction:

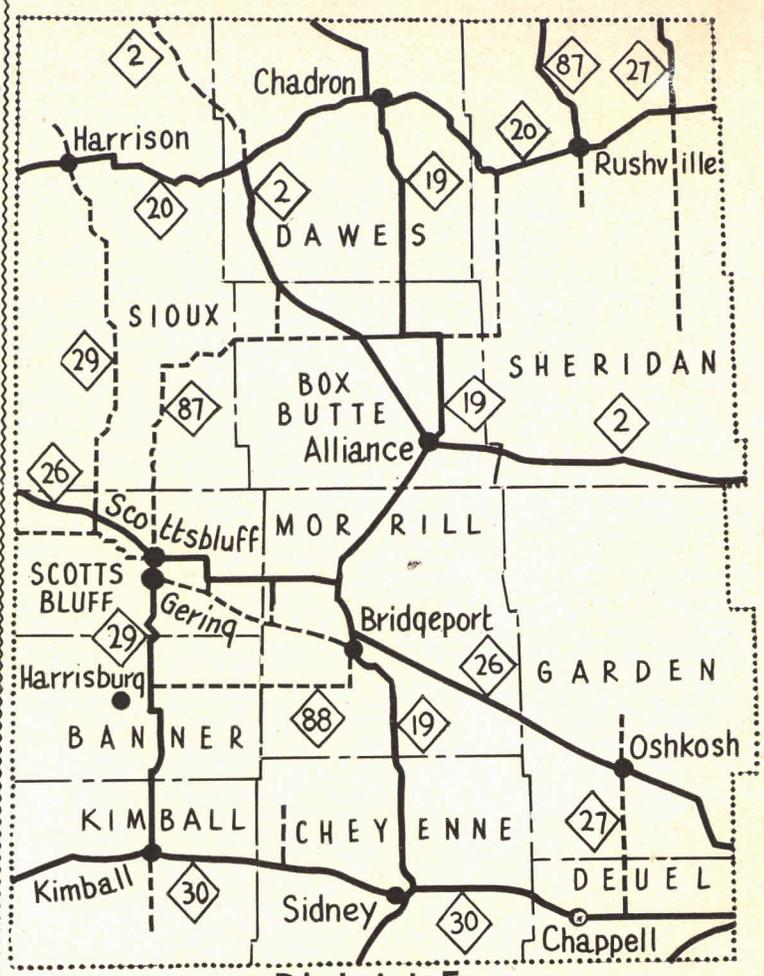
Location	Miles	Cost
Ashton-St. Paul	12.8	\$176,545.63
Ashton-L'p City	10.4	145,316.74
Red Cloud, north	8.1	138,877.39
Superior-Hardy	4.4	116,517.11

Following are the miles of state-maintained highways in District 4 by counties:

County	Rigid type	Black top	Gravel
Adams	26	31	26
Clay	26	33	48
Greeley	—	13	78
Hall	46	31	24
Hamilton	24	—	54
Howard	4	51	51
Merrick	49	31	25
Nance	2	6	73
Nuckolls	1	22	66
Sherman	—	29	72
Valley	2	26	57
Webster	1	32	65



Pictured are the state-maintained highways in District 4. The heavy black lines are the primary roads. The broken lines show the secondary. The lines do NOT indicate pavement or gravel.



District 5

Highways in the Panhandle. These are the state-maintained roads in District 5. Primary highways are shown by the heavy black lines. The broken lines indicate the secondary roads. The lines do NOT indicate pavement or gravel.

District Produces 11 Pct. of Receipts, Shares 8 Pct.

District 5 is the Panhandle in the extreme west and northwest part of Nebraska. The counties are Banner, Box Butte, Cheyenne, Dawes, Deuel, Garden, Kimball, Morrill, Scotts Bluff, Sheridan and Sioux.

District Engineer is T. C. Middleswart, with headquarters at Bridgeport. There are approximately 1,109 miles of state-maintained highways.

Total car, truck and tractor registrations in this district last year numbered 52,965. Approximately 53 thousand persons live in this area, based on the 1940 census.

According to figures published by the Nebraska Petroleum Marketers, Inc., some 37,271,213 gallons of gasoline were sold in this district in 1947.

This quantity would produce a state tax revenue of \$1,863,563, based on the 5-cent tax. This is nearly 11 per cent of the state's total gross receipts of

\$17,540,984 in 1947.

The counties in District 5 shared in 503 thousand dollars of the state tax. This is a little more than 8 per cent of the 93 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the following blacktop construction:

Location	Miles	Cost
Hemingford-Crawford	12.0	\$225,236.66
xAlliance-Hemingford	4.8	52,216.57
xChadron-Rushville	4.7	50,880.96
xAlliance-Antioch	4.1	40,473.60
xRushville-east	7.4	81,757.37
Minatare-Melbeta	2.2	29,151.39
Hay Springs, south	15.3	183,696.59
Bridgeport-Gering	14.0	260,686.21

This construction was paid for entirely from state funds.

Following are the miles of state-maintained highways in District 5 by counties:

County	Rigid type	Black top	Gravel	Earth Sand
Banner	1	28	17	..
Box Butte	1	64	38	..
Cheyenne	24	65	15	..
Dawes	—	96	33	..
Deuel	6	37	18	..
Garden	1	37	20	..
Kimball	1	48	12	..
Morrill	2	98	34	..
Scotts Bluff	23	52	41	..
Sheridan	2	81	91	..
Sioux	..	31	52	52

District 6 Furnishes 8 Per Cent of Gas Income, Divides 8 Per Cent of Tax

District 6 includes the 13 counties south of the Platte River which lie in the southwest corner of Nebraska.

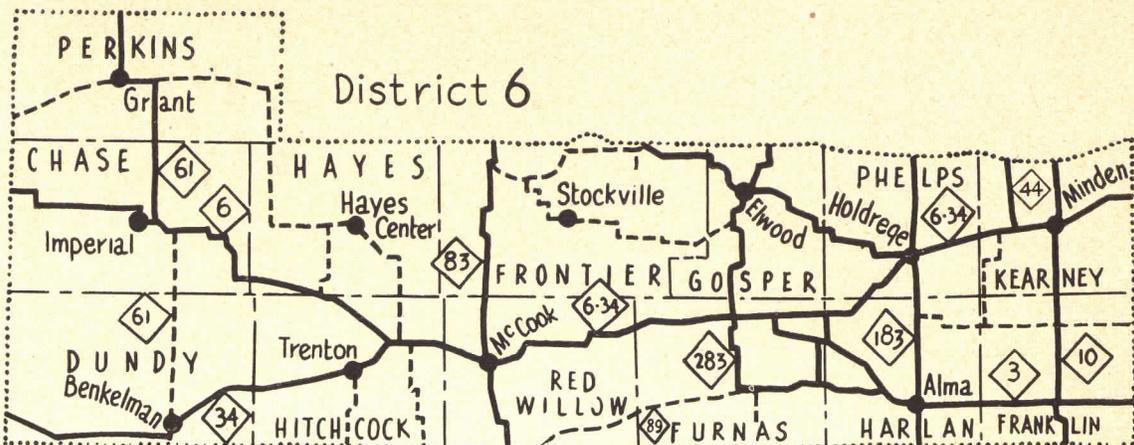
The counties are Chase, Dundy, Franklin, Frontier, Furnas, Gosper, Harlan, Hayes, Hitchcock, Kearney, Perkins, Phelps and Red Willow. District Engineer D. O. Coolidge has offices in McCook.

There are about 1,106 miles of state-maintained highways in this district. The main east-west road is Highway 6-34.

Following are the miles of state-maintained highways in District 6 by counties:

County	Rigid type	Black top	Gravel	Earth Sand
Chase	1	45	36	..
Dundy	2	44	24	..
Franklin	1	12	66	..
Frontier	1	..	100	..
Furnas	1	41	74	..
Gosper	..	..	60	..
Harlan	4	33	64	..
Hayes	..	13	60	..
Hitchcock	..	48	28	16
Kearney	3	36	56	..
Perkins	..	12	68	..
Phelps	8	18	44	..
Red Willow	16	29	42	..

Approximately 87 thousand persons live in this area, based



Shown above are the state-maintained highways in District 6. The heavy black lines are the primary roads. The broken lines show the secondary highways. The lines do NOT indicate pavement or gravel.

on the 1940 census.

Total car, truck and tractor registrations in 1947 numbered 46,289 in this district. According to statistics published by the Nebraska Petroleum Marketers, Inc., some 28,329,413 gallons of gasoline were sold in District 6 last year.

This gallonage would produce a state tax revenue of \$1,416,-

470, based on the 5-cent tax. This is nearly 8 per cent of the state's total gross receipts of \$17,540,985 in 1947.

The 13 counties shared about 500 thousand dollars of the gas tax. This is a little more than 8 per cent of the 93 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the

following blacktop construction:

Location	Miles	Cost
Oxford-Axtell	10.6	\$ 92,827.96
Benkelman-Imperial	7.4	152,830.92
Stratton-Max	5.6	97,206.83
Also contracted for was this concrete construction, which included a large bridge:		
Indianola-Bartley	5.2 miles	\$524,187.11

District 7, With 50,087 Registrations, Produces 11 Per Cent of Gas Tax

District 7 lies in the west-central part of the state. It is made up of these counties: Arthur, Blaine, Buffalo, Custer, Dawson, Grant, Hooker, Keith, Lincoln, Logan, McPherson and Thomas.

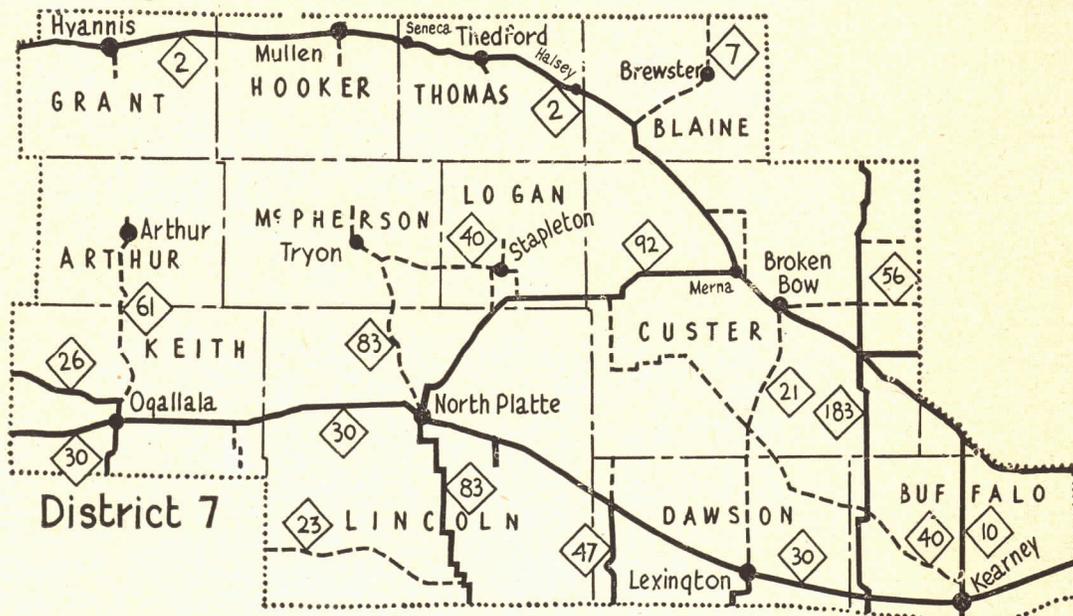
District Engineer Harold H. Eason has headquarters at North Platte.

There are approximately 1,083 miles of state-maintained roads. The northern part of the district has part of State Highway 2. This is Nebraska's longest roadway. It extends for 512 miles from Nebraska City to the Nebraska-South Dakota state line in Sioux County.

Following are the miles of state-maintained highways in District 7 by counties:

County	Rigid Type	Black Top	Gravel	Earth Sand
Arthur	..	14	5	..
Blaine	..	11	25	11
Buffalo	38	20	79	..
Custer	..	59	195	18
Dawson	46	..	65	7
Grant	..	31	2	..
Hooker	..	31	4	..
Keith	12	68	21	4
Lincoln	62	22	99	3
Logan	..	..	40	9
McPh'son	..	15	1	23
Thomas	..	16	26	..

In the southern part of District 7 is U. S. Highway 30. This is the second longest roadway. Through Nebraska it runs 450 miles.



These are the state-maintained roads in District 7. The heavy black lines mark the primary routes. The broken lines are the secondary highways. The lines do NOT indicate pavement or gravel.

Approximately 107,527 persons live in this area. The figures are based on the 1940 census.

Total car, truck and tractor registration in 1947 were 50,087 in District 7. According to statistics published by the Nebraska Petroleum Marketers, Inc., some 38,465,501 gallons of gasoline were sold in this district last year.

This quantity would produce a state tax revenue of \$1,923,275, based on the 5-cent gas tax. This is about 11 per cent of the state's total gross receipts of \$17,540,985 in 1947.

Counties in this district shared about 521 thousand dollars of the gas tax. This is about 8½ per cent of the 92 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the following construction:

Location	Miles	Cost
Thedford-Seneca	3.2	\$ 45,119.18
Merna-Litchfield	10.8	149,028.78
Thedford-Halsey	6.4	189,835.64
Lewellen-Ogallala	13.7	162,465.04

All construction was to consist of blacktop surfacing.

District 8 Produced 3 Per Cent of Gas Tax, Shared 4 Per Cent Last Year

District 8 lies in the north-central part of Nebraska. It is a large area containing 13,647 square miles.

It is made up of these counties: Boyd, Brown, Cherry, Garfield, Holt, Keya Paha, Loup, Rock and Wheeler. J. M. Crook is District Engineer, with offices at Ainsworth.

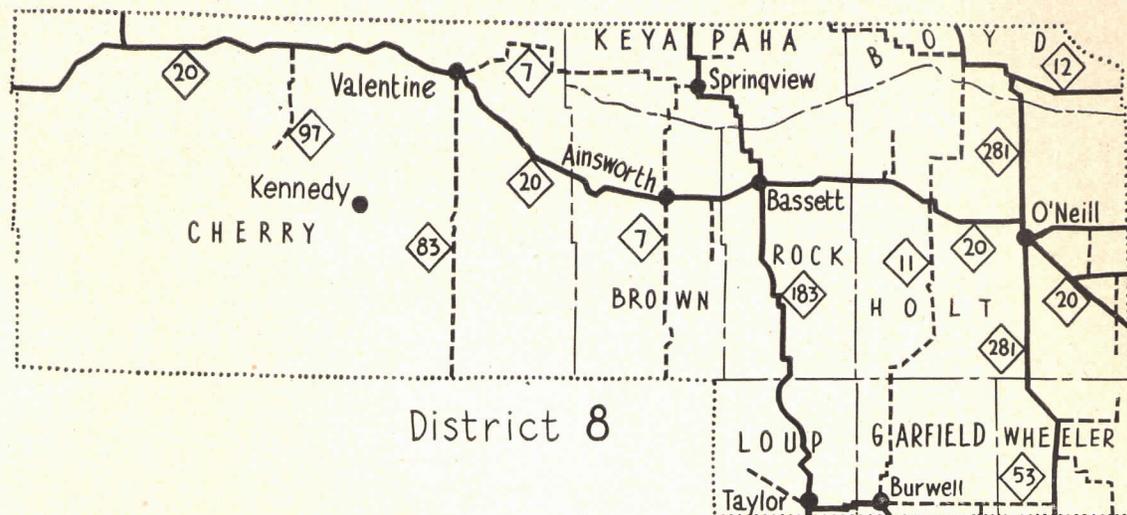
There are about 970 miles of state maintained highways in this district. The main east-west road is Federal Highway 20.

Here are the miles of state-maintained roads in District 8, by counties:

County	Rigid type	Black top	Gray-el	Earth-Sand
Boyd	1	19	69	..
Brown	1	36	49	..
Cherry	1	162	28	31
Garfield	..	4	53	..
Holt	1	97	136	9
Keya Paha	..	..	65	9
Loup	..	..	52	..
Rock	..	23	53	..
Wheeler	..	21	50	..

Approximately 53 thousand persons live in the area. This figure is based on the 1940 census.

Total car, truck and tractor registrations in 1947 were 21,744. According to statistics furnished by the Nebraska Petroleum Marketers, Inc., some 13-



This map shows the state-maintained highways in District 8. The heavy black lines are primary highways. The broken lines indicate the secondary roads. The lines do NOT indicate either pavement or gravel.

500,721 gallons of gasoline were sold in this district last year.

This quantity would produce a state tax revenue of \$675,036, based on the 5-cent gas tax. This is a little more than 3 per cent of the state's total gross receipts of \$17,540,985 in 1947.

Counties in this district shared in 265 thousand dollars of the gas tax. This is about 4 per cent of the 93 counties' total share of \$6,024,558 in 1947.

The State Highway Department in 1948 contracted for the following highway construction

in this district:

Ainsworth-Location	Miles	Cost
Johnstown ..	9.9	\$128,243.16
Bassett-Stuart	6.3	94,138.13
Kennedy, east	13.4	218,081.24

The construction called for blacktop.

Today's Dollars for Road Building Go Only Half as Far as They Once Did

Unless the revenue for the State Highway Department is increased, the road building program will be at the lowest ebb in its history.

State Engineer F. H. Klietsch makes that prediction, adding: "Today's dollars go only half as far as they once did."

He says the Highway Department annually will have about \$3,500,000 of its own money for improvement and rehabilitation of the present highways. This money, matched with Federal Aid money, will provide a highway construction fund of seven million dollars a year.

In addition, the normally available 100 per cent Federal fund, which does not require matching, will be about 500 thousand dollars a year. This means a total of \$7,500,000 annually for the road building program.

It isn't enough, Mr. Klietsch says.

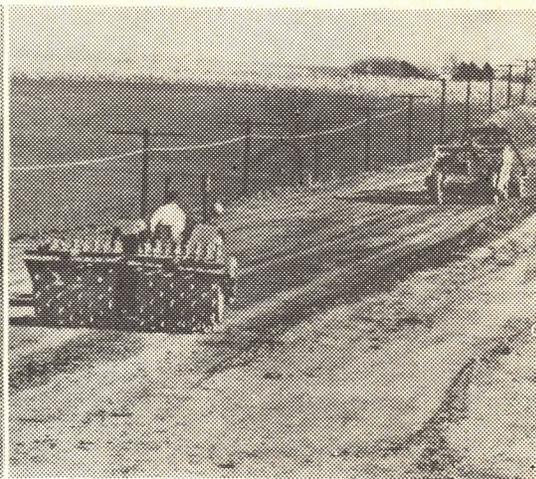
"An improvement program limited to 7½ million dollars will result in only half as much improved highway service as was given during the 16-year pre-war period," he says.

During the pre-war years (1926-1941) the Highway Department spent \$122,429,454 for construction. This is an average of \$7,651,840 per year.

Construction expenditures



Maintenance costs on Nebraska's highways are currently estimated at \$5,500,000.



Construction costs have increased about 100 per cent, according to the State Engineer.

during the war (1942-1945) totaled \$13,037,895. This is an average of \$3,259,474. The road building program was necessarily curtailed.

Future highway improvement in Nebraska will be far below the pre-war level, Mr. Klietsch says, unless the income is materially increased.

"The \$7,500,000 a year now available will provide highway

improvements comparable to what \$3,800,000 provided during the pre-war years," he says.

This is because construction costs have increased about 100 per cent, he says.

Other increased costs of construction consist of building the highways to higher standards. These provide increased strength and better quality, which in turn

prolong the useful life of the road.

The State Highway Department is now preparing an itemized statement of the physical and financial needs of the state's highways, Mr. Klietsch says.

This statement will be completed by the end of this year. Copies will be available to the Legislature when it convenes in January.

With Present Income, Nebraska Faces \$5,000,000 Loss in Federal Road Aid

State Engineer F. H. Klietsch says Nebraska faces a possible loss of five million dollars of Federal Aid.

Certain sums are authorized each year for highway construction. The Federal money has to be matched before it can be used.

Based on its present income, the State Highway Department will have 3½ million dollars a year for matching United States dollars.

This won't be enough, says Mr. Klietsch.

Why?

Because Nebraska will have to put up 4½ million dollars a year for five years to take full advantage of Uncle Sam's offers, authorized to date.

"Therefore, if additional state revenue is not provided, a loss in Federal aid could result," says Mr. Klietsch.

One reason that Nebraska cannot provide that extra million dollars, he says, involves certain fixed charges. These are overhead (administration), stop-gap construction, and maintenance. These items require the use of

state money only.

These fixed charges take two-thirds of the State Highway Department's present income, Mr. Klietsch says.

For example, the State Highway Department in 1947 spent \$5,496,552 for maintaining the state highways. This was more than half as much as the \$9,365,968 spent for road construction.

"If improvement of our present system is not speeded up to keep pace with deterioration and obsolescence, and if prices continue to climb, we can expect increased maintenance costs," says Mr. Klietsch.

He asserts "the question of ability to match Federal funds, although important, should not be used as a yardstick in determining the state highway needs." He says that the major factors are:

1. The amount of money needed to meet the highway needs.
2. Nebraska's financial capacity to provide those needs.

Mr. Klietsch says: "If, in the final analysis, the question of matching Federal funds must be considered, it should be how

rapidly we can use available Federal funds, and not whether we lose them. Under no circumstances can the state afford to lose them."

The State Engineer says the needs for improved highways are "much greater than can be met with present revenue." They are, he says, "even greater than matching Federal funds will cover."

He adds: "Under our present system of financing, the majority of those needs cannot be taken care of for many years to come."

He says the Highway Department has funds to carry on "a limited improvement program, in addition to maintaining the present system."

Mr. Klietsch further warns: "A construction program which is limited by the state's ability to match Federal aid means that the Highway Department cannot provide improvements as rapidly as the people want them."

Here is the financial situation as it will shape up in the years immediately ahead, as seen by the State Engineer:

1. Income (estimated)	
Gas tax	\$ 8,800,000
License fees	1,100,000
Equalization fees..	20,000
County, local funds	500,000
Total	\$10,420,000
2. Expenses (estimated)	
Administration	\$ 420,000
Maintenance	5,500,000
2. Stopgap construct	1,000,000
Total	\$6,920,000

Subtract the expenses from the income. The balance is \$3,500,000. This is the maximum amount available for matching Federal Aid, Mr. Klietsch says.

The Government has a continuing program which runs from July 1, 1948, to June 30, 1953. During these five years, the total Federal Aid offered to Nebraska is \$25,674,000.

To match it, Nebraska will have to put up \$22,434,000. To do that, Nebraska will have to put up an average of \$4,500,000 each year.

If this can be done, the total potential construction program will be \$48,108,000.

In Final Analysis, State Legislature Must Make Decision on Road Problems

Nebraska's highway problem resolves into these factors:

1. The necessity for improving a larger percentage of road mileage.
2. The urgent need to rebuild, rehabilitate and modernize the present system.

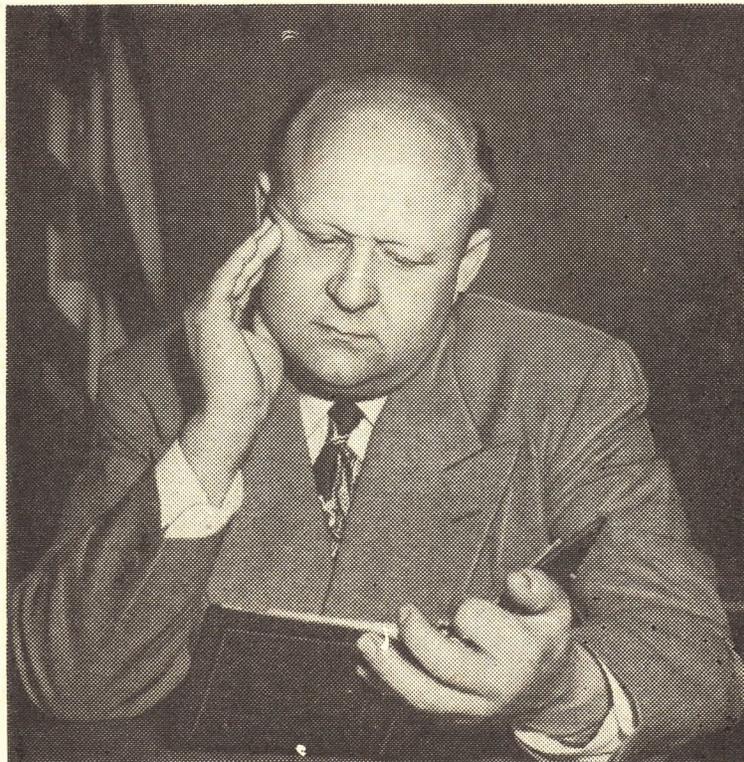
The answer, obviously, is more money. How can it be obtained?

Gov. Val Peterson says: "This is a big problem. It must be faced with cold logic and hard work. I firmly believe we can carry out a progressive improvement program from revenues raised as we build."

"We are proud of what we have accomplished in the last two years within the framework of our present revenues," he says. "During this time, the State Highway Department has contracted for the building of more than 21 million dollars worth of road improvements. We have rehabilitated hundreds of miles of roads. Nebraska's highway system is providing better service to more people than ever before."

The Highway Department now maintains 9,160 miles of highways. These roads serve 68 per cent of all traffic (outside of city limits). The addition of another 6,200 miles to the state-maintained system, the Governor says, would increase to 80 per cent the traffic that could be handled.

"To overcome the present deficiencies," he adds, "will require expenditures greatly in excess of those possible under



Gov. Val Peterson says an improvement program can be carried out "from revenues raised as we build."

the revenues now provided to the Highway Department."

What can be done to increase the revenue?

"I will be absolutely frank

about finances," Governor Peterson says. "I intend that Nebraska shall not be plunged into an overly-ambitious program of road building which will require

excessive tax burdens.

"My thought is fixed on sound financing at a rate Nebraskans can afford," he says, "with an equitable distribution of the costs."

A number of suggestions have been made. Most of them center around increased taxes.

One idea is for a large bond issue. Nebraskans have long been opposed to state bonds. Also, the State Constitution would have to be amended. The Constitution forbids a state debt larger than 100 thousand dollars. At present prices, this amount would build less than two miles of concrete highway.

Other persons have mentioned sales and state income taxes. There has been little enthusiasm in Nebraska for such proposals in the past.

Some persons believe money could be raised by additional "use" taxes. For example, a higher license fee, or higher gasoline tax, a wheel tax, and perhaps much stiffer taxes on the heavy trucks and trailers and buses.

But in the final analysis, says Governor Peterson, "only the members of the State Legislature can make the decision."

The problem of additional revenue will require a great deal of study.

The answer to this, and to Nebraska's entire highway problem, lies with the Legislature which will convene in January.

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