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Article Summary: This brief history of road building in Nebraska includes a description of the 1945 system of state highways and plans for postwar road construction that would provide important employment opportunities.

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Photographs / Images: August Harvey map, 1862, showing eastern Nebraska with the first ten Territorial Routes

# Nebraska Public Highways\*

WARDNER G. SCOTT

We have advanced a long way since this part of the United States was first considered as having possibilities for maintaining families and producing the necessary products to sustain them. In those days our transportation system was by ox cart or by team and wagon, and was for the sole purpose of transporting supplies and settlers.

In the office of the Department of Roads and Irrigation I found a map on which are shown the principal routes from the Missouri River to the Colorado gold fields. This map was prepared by August Harvey,<sup>1</sup> a civil engineer, and bears a date of 1862, eight years after Nebraska became a territory, and five years prior to its becoming a state. Along this route, as indicated on the Harvey map, are notations as to accommodations at various stopping points. One, located on the map near where North Platte now is located, stated "Accommodations for man and beast." Around the border of this map are advertisements which point out the commodities and services available at Nebraska City at that time. One in particular is steam ferry boat service with a capacity of 12 teams, crossing at one trip. The advertisement further states that fares are reasonable, being regulated by law. Another advertisement, under the firm name of Ashton and Tate, forwarding and commissioning organization, states that their warehouse stands on the levee and that goods can be

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\*Paper read before the annual meeting of the Native Sons and Daughters of Nebraska, October 13, 1945.

<sup>1</sup> August Harvey was one of Nebraska's most talented and distinguished pioneers. He was a direct descendant of William Harvey, discoverer of the circulation of the blood. He came to Nebraska City in 1856, where he was surveyor, editor and legislator. He edited the *Nebraska City News* from 1861 to 1865. As a surveyor, he laid out the Midland Pacific Railroad and the city of Lincoln. He removed to Lincoln in 1867, where he edited the *Statesman*. He served as secretary of the University of Nebraska from 1867 to 1869. In 1870 he removed to St. Louis, and the remainder of his life was spent as an actuary. Morton and Watkins, *History of Nebraska*, 2:68-69.

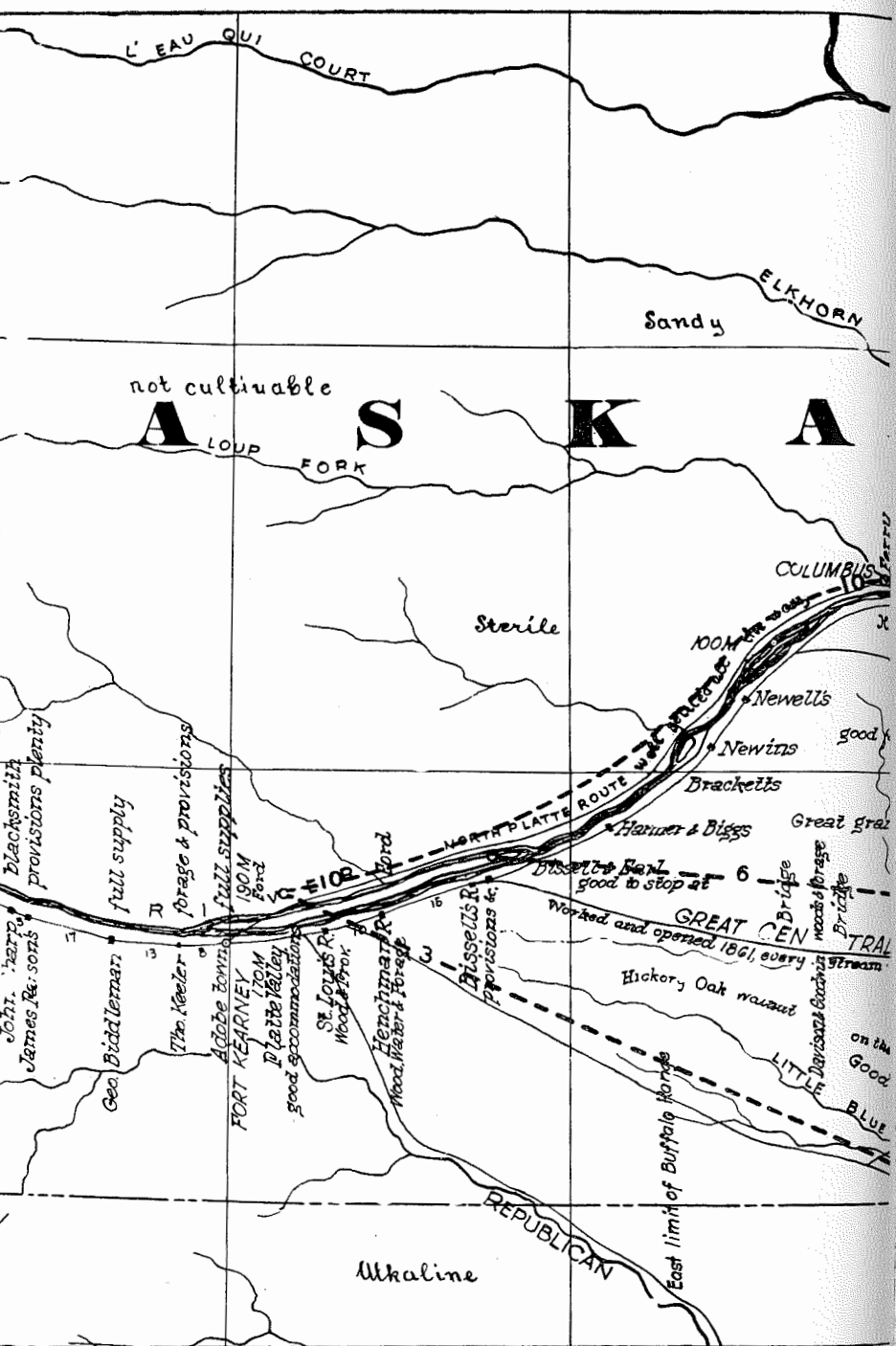
landed from steamboat, which indicates another early form of transportation. This map shows a route westerly from Nebraska City to a point near where Grand Island is now situated, and carries on this route the following notation: "Worked and opened 1861, every stream bridged, no fords or ferries." This appears to be the first highway map of Nebraska.

In the early days of our highway development in Nebraska, the responsibility for all highways rested entirely in the hands of our county government. Among the specific responsibilities of the county government during this period was the following provision:

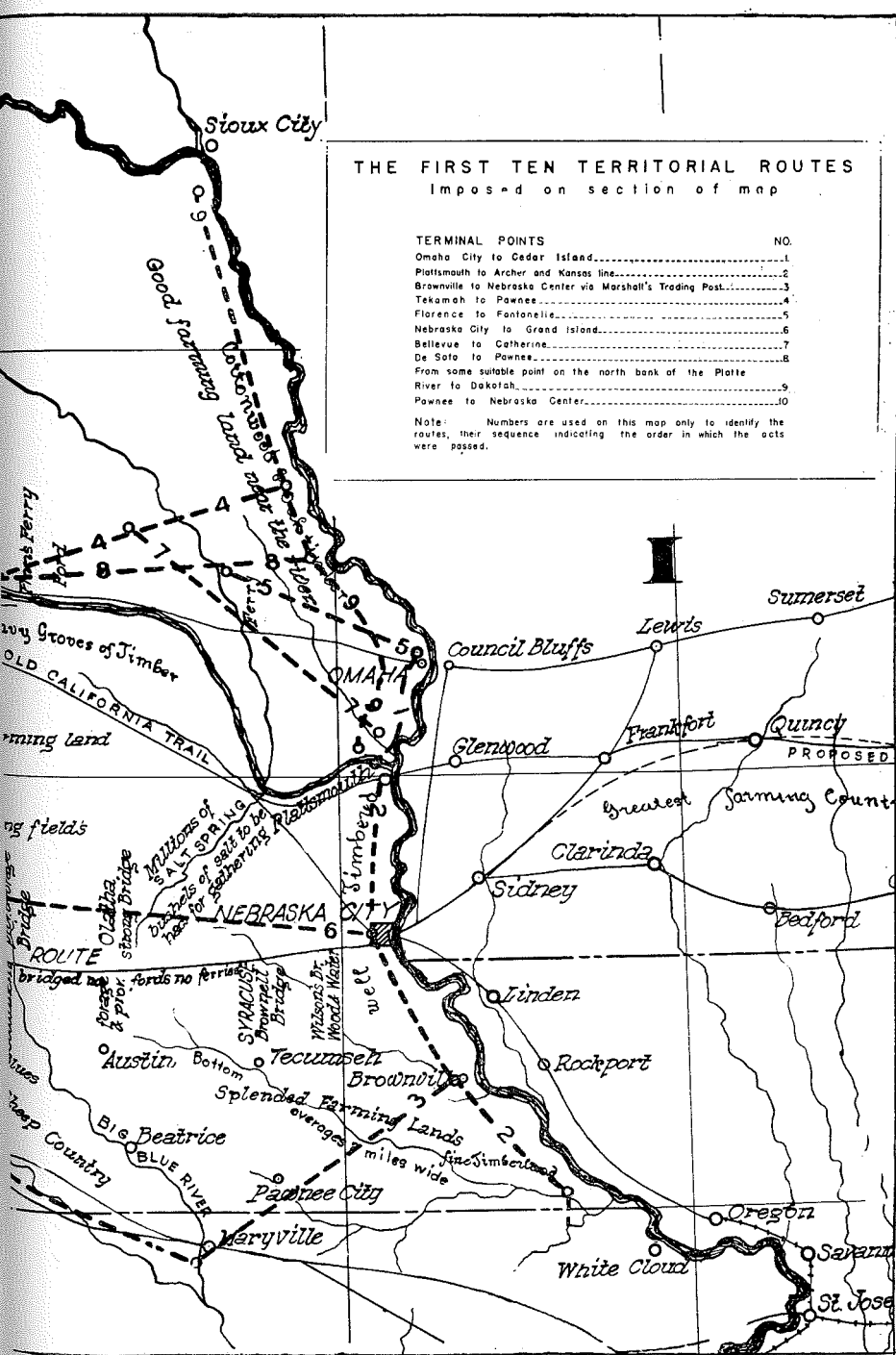
"The county board has general supervision over the public roads with power to establish and maintain them."

The first step taken toward state participation in road improvement was in 1905 when the Legislature provided that the Secretary of the State Board of Irrigation, which Board was created in 1895, should, when requested, prepare plans and specifications for bridges costing more than \$200. The counties were required to furnish the necessary field data and to reimburse the state for costs incurred in the preparation of plans and specifications. To defray the cost of preliminary expenses, the Legislature appropriated the sum of \$3,000. Adna Dobson, who later became city engineer of Lincoln, was at that time secretary of the State Board of Irrigation. In spite of this legislation, very few calls were made upon the state engineer for his service in preparing plans and specifications for bridges. Some few counties in the eastern portion of the state, where steel bridges were being erected, availed themselves of this service.

In 1911, the Legislature designated the State Board of Irrigation as the State Board of Irrigation, Highways, and Drainage, and provided for a secretary who should be known as State Engineer. During this legislative session, there was provided state aid for bridges over streams 175 feet or more in width. The cost was to be borne equally by the counties and the state. Maintenance was provided on the same basis. The law further required that permanent construction be used. There was authorized and appropriated in 1911 and 1912 the sum of \$175,000 for state participation in state aid bridges.



THE AUGUST HARVEY MAP, 1862. Specially prepared section of eastern Nebraska with the first Territorial



by the Department of Roads and Irrigation. Showing Routes imposed.

In the year 1915 the Legislature appropriated \$35,000 to be used to defray the cost of paving one-half of the street adjoining the State University Farm at Lincoln. This is the first record that can be found of state supervision of road construction. Convict labor was used on this project and the work was done directly under the supervision of the State Engineer.

In July of 1916, Congress passed the Federal Road Act to aid the states in construction of rural post roads. This Federal Aid Act of 1916 authorized appropriations for the ensuing four years in the following amounts:

1917	\$ 5,000,000
1918	10,000,000
1919	15,000,000
1920	20,000,000
1921	25,000,000

These funds were allocated to the states on the basis of the following formula:

1/3 in the ratio which the area of each state bears to the total area of all the states.

1/3 in the ratio which the population of each state bears to the total population of all the states, as shown by the latest available Federal census.

1/3 in the ratio which the mileage of rural delivery routes and star routes in each state bears to the total mileage of rural delivery and star routes in all the states.

In 1917, the Legislature accepted the provisions of this federal act and the State Board of Irrigation, Highways, and Drainage was designated as the agency to carry out this cooperative program. A property tax of sixty-five one-hundredths of one mill was levied, and an appropriation of \$640,000 was made for the ensuing biennium to match federal appropriations. The Legislature further provided that any roads constructed under this program were to be maintained by the counties and with county funds. The state, however, was to prepare all plans and supervise the construction. This year of 1917 was then the beginning of the building of our state system of highways. Two hundred fifteen miles were constructed during the 1917-18 biennium. Federal Aid Project No. 1 in Nebraska was the pro-

ject for the paving of what is commonly known as West O Street at Lincoln, from Lincoln to Emerald.

In 1919, the Legislature adopted the Civil Administrative Code which established administrative departments under direct control of, and with all authority vested in, the governor. Under this act the State Board of Irrigation, Highways, and Drainage was abolished and the Department of Public Works was created as its successor. The Department was required to supervise all state buildings and specifically to superintend the construction of highways and bridges, and to maintain them. This act further provided that the Department would have power to acquire land by purchase or condemnation for the purpose of securing road materials and that the Department should formulate rules and regulations to promote safety on, and to preserve and protect, the state highways.

The amended Federal Highway Act of 1921 gave the United States Department of Agriculture authority to approve for federal aid seven per cent of the total road mileage of each state, as it had been certified to that department under the original act. Nebraska's certified system consisted of 80,272 miles and as a result, Nebraska's seven per cent system, based upon this original certification, was limited to 5,619 miles. This law was later amended to provide for the establishment of the secondary system which was limited to 10 per cent of the certified mileage, or approximately 8,000 miles.

The first gasoline tax was imposed in Nebraska in 1925, providing for a tax of two cents per gallon. This gasoline tax replaced the property tax previously used, and provided funds for highway construction. The revenue from this tax in 1925 was \$1,984,000. Motor vehicle license fees, levied beginning with 1919 and going to the counties exclusively up to 1926, were apportioned between the counties and the state beginning with the year of 1926. In this year the department received \$1,055,000 from this source for highway maintenance.

In 1933, the Legislature again changed the name of the agency responsible for the state highway system to the Department of Roads and Irrigation. During the period from 1926 to 1945, there was received for the use of the state department from motor vehicle license fees the sum of \$15,950,000 and from

gasoline tax, which had been increased from time to time, over the two cents per gallon collected in 1925, \$105,395,000. During the period from July 1916 to 1944, the state received a total of \$76,692,000 of federal funds to be expended in building a Federal Aid system of highways.

At the present time the system of highways maintained by the state department consists of 9,119 miles, of which surfacing has been constructed on 4,050 miles. The surfacing consists of two major types:

1200 miles of concrete paving.

2700 miles of bituminous types of surfacing.

The average age of the 1,200 miles of concrete pavement is 11 1/2 years. Over 55 per cent of this pavement was constructed from 10 to 14 years ago. A considerable mileage of the concrete pavement is now in need of additional surfacing in order to preserve the investment that has been made in the original improvement.

The bituminous types of pavement are of many different designs.

Approximately 7 per cent of the bituminous types are merely surface treatments applied to an existing gravel road. This is a very cheap type and is ordinarily satisfactory for only a few years.

The next type of bituminous surfacing is where a stabilized base course has been prepared with a thin surface treatment applied. Forty-two per cent of the bituminous surfacing in Nebraska is of this type and must necessarily be strengthened to provide an adequate surface for supporting the volume of traffic and the loads that they are called upon to carry.

Approximately 29 per cent of the bituminous surfacing consists of a bituminous mat varying from 1-1/2 to 2 inches in thickness, which has been placed on a previously existing gravelled road. In many instances, these have shown serious signs of distress and must be reinforced or added to.

Approximately 11 per cent of the more recent construction of bituminous surfacing is a bituminous mat laid on a base course. This type of road, we believe, will be adequate for some time to come.

In the sand hills areas of Nebraska, it has been possible to construct a bituminous sand mat which has proven very, very satisfactory. About 11 per cent of our bituminous mileage is of this type.

On the state-maintained system there are approximately 3,700 miles of graveled road, and of the entire system there are 1,400 miles now maintained that have never been improved to any standard. During this postwar period surely every effort should be made to improve the existing maintained system to a satisfactory standard in order to reduce maintenance costs and to improve safety conditions.

An inventory was made in 1943 of the sums of money that would be necessary to bring the present state system, together with some extensions, up to present day needs. The primary system, involving 5,600 miles, should have spent on it the sum of \$68,000,000. The secondary system, consisting of 3,519 miles, should have spent on it \$17,000,000. New secondary roads should be built at an estimated cost of \$50,000,000. Improvements in urban areas, necessary for the handling of postwar traffic, have been estimated to cost approximately \$10,000,000. This makes a total need for improving the state system of \$145,000,000.

We have on file in our office a list of projects that would total more than \$90,000,000. These projects are considered by our engineers as well as by other people who are acquainted with the individual projects as being projects that are needed immediately and should be built at the earliest possible date.

Early in 1943 discussion was started in the Congress of the United States relative to the postwar highway program and the amount of funds that should be appropriated to accomplish the same. This legislation was debated for some 20 months in Congress, and in December, 1944, the Federal Aid Highway Act passed. This bill contained some items which were new and different from previous federal authorizations. The Federal Aid Act of 1944 provides for Federal participation in the costs of acquisition of right-of-way up to one-third of the cost. It further provides for the expenditure of funds on federal aid routes within urban areas. (Urban areas are centers of population of 5,000 or more, as defined by the bill.) It further provides for the selection of a secondary, or feeder road, system jointly by

the county road officials, the State Department, and the Federal government. Such a system of secondary roads has been worked out and agreement has been reached with 73 of the 93 counties in the state. It is anticipated that agreement will be reached shortly with the remaining counties, thus clearing the way for the improvement, using federal funds, of projects that are on the secondary system.

The legislation further provides that there should be selected a national system of interstate highways--the selection to be made by the states individually, and the recommendations were to then be correlated so that the system should not exceed 40,000 miles in extent. Recommendations have been made by Nebraska for the inclusion in such a system of U.S. Number 30 from the Wyoming state line to Grand Island; U. S. Number 34 from Grand Island to Lincoln; and U.S. Number 6 from Lincoln to Omaha; also a north-and-south route to follow U.S. Number 81 across Nebraska.

There has been considerable comment in newspapers and other publications relative to this so-called "Super-Highway System." The facts are that with the standards which have been adopted recently for improvements on this interstate system of highways, it will be very difficult for the layman to distinguish between the standards for this system and for the regular Federal Aid projects. The number of lanes of traffic will be determined by future estimated traffic volumes.

As an example--two projects near Omaha would qualify for four lanes under the new standards. These are from Omaha to Fort Crook and from Omaha west on Dodge Street. Both of these projects are now four-lane highways. It appears doubtful there will be any considerable mileage of highways in Nebraska that will develop traffic volumes that will require more than two lanes.

The Federal Act provides for the authorization and appropriation of \$500,000,000 annually for each year of a three-year postwar period. This means to Nebraska the making available of federal funds in the amount of \$8,418,187 annually--or a total for the three-year period of slightly over \$25,000,000. Thus, if funds were available to match the federal funds, it would be possible to have a construction program of \$49,000,000 during the three postwar years.

Under existing revenues to the State Highway Department, full matching of the federal funds is not possible. Nebraska has accumulated, during the past war years, a surplus of funds that can be used for matching Federal Aid amounting to approximately \$4,200,000. It is estimated that with a return to normal traffic, there will be available under present revenues the sum of \$3,000,000 during each of the years 1946 to 1948, inclusive, which when added to the carry-over balance will make a total of \$13,200,000 available for matching Federal Aid. This would permit the matching of one-half of the federal funds allocated to Nebraska during this three-year period. We then have this situation: We will be able to build, under current revenues during the postwar period, only one out of four of the projects that are immediately needed, and with additional revenues made available to fully match Federal Aid, we would be able to build about one out of two of the immediately needed projects.

With this picture of our needs and the ability of the state to match the federal program, it then becomes the responsibility of the citizens of Nebraska as to whether or not they are in accord with the size of the program set out by Congress, and whether or not Nebraska as a state desires to keep pace with other states in the United States in the postwar building program.

As a department, we have been persistently working toward the development of plans for this postwar period. We now have plans approved for slightly over \$7,000,000 worth of work. We have surveys with plans partially complete on approximately \$22,000,000 worth of work. We believe we will be able to keep step with the federal program if funds are provided to fully match federal funds.

One thing that should not be lost sight of in the discussion of the size of the future highway program for Nebraska is the opportunity that will be provided for the employment of many, many returning servicemen and former workers in war plants--not alone on the actual construction of the project but in the development of the materials and machinery that must be incorporated into such a program.