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G. E. CONDRA, Director

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ROAD PROBLEMS IN NEBRASKA

BY

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The Nebraska Conservation and Soil Survey covers soil, forest, road materials, industries, and the land investigation of the "Blue Sky" law.

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ROAD PROBLEMS IN NEBRASKA

By Dr. G. E. Condra, University of Nebraska, Chairman of the Advisory State Highway Commission.

The writer proposes in this connection to briefly outline some of the things which should receive careful consideration in highway improvement. The subject is discussed from an unbiased point of view and from the angle of service to the greatest number.

Nebraska is making rapid progress in road improvement. The state ranks high in the condition of her dirt roads. These roads reach more generally throughout the country than is the case in most states. As a rule, they are dragged and in good condition except when modified by rain, snow drifts and melting snows. The statement often made that our roads are the poorest, is therefore in error.

It is true, however, that Nebraska has low rank in the mileage of roads built of gravel, concrete, stone and brick. We should clearly distinguish between the two conditions, i. e. the good dirt road and the so-called permanent road. The following is a summary of problems which have importance in planning highway improvements.

Roads Must Suit Physical Conditions and Traffic Needs

Few people realize how diverse this state really is in its climate, soils, topography, road materials, industrial development and density of population. These factors usually are overlooked in discussions made at good roads meetings. Hence there is no general agreement concerning such as dragging, width of road, culverts, markers, administration. The discussions continue, nearly everyone speaking his own experience and for a locality. Perhaps all are right or nearly so. The fact is that some few roads must remain practically as trails. Some should not be graded and dragged because the native sod must be retained where possible to prevent wind erosion and to maintain the position of a trail or road. Over much of the state nature greatly favors good road building by grading and dragging. We might enumerate a long list of conditions, favorable and unfavorable, the distribution of which does not extend throughout the whole of Nebraska, but such does not seem necessary.

The problem involved here is one of general education, of broadening our experience and knowledge. It is only on such a basis that a comprehensive and right policy can be established. This policy must take into account, much more than in the past, the facts relating to physical conditions and traffic needs. When understood and accepted it will permit and promote in the state a highway improvement ranging from trail to permanent road but adapted to all the conditions and needs of the various localities and of the state as a whole.

Better Results for the Money

Large amounts are voted for roads, yet many citizens are not satisfied with the results. The unsatisfactory condition, though usually overdrawn, deserves the consideration that will tend to put all public road work on a firm business basis. The ideal should be that townships, counties and the state should be repaid in good road service, the equivalent, dollar for dollar and with interest, for all tax money expended.

The road administration should be democratic and efficient but not overshadowed by politics. Persons competent for the work in the different branches and departments should be employed and no others. Those working for the public in these capacities should be more permanent and serve as efficiently as if they were employed by private parties.

Better economics in road work, including construction, maintenance and administration will overcome some of the opposition to road taxation and improvement. It will tend to decrease taxation and will promote a higher degree of confidence in public service generally.

Township, County and Community Development

Road funds are derived largely from assessments made by townships and counties. The funds needed vary greatly. In some locations road building is simple, in others difficult and expensive. Township meetings and county commissioners determine levies except in cases of special elections. Township and county units have importance in road development in Nebraska. There are many communities in which additional funds and work are secured through the efforts of public spirited citizens. This is done under the leadership of farmers' organizations and commercial clubs. Town and country unite to improve roads leading to a community center. This brings larger improvement than can be secured from the township and county funds alone. Much of the state has been covered in this way. Among the centers leading in the work are Alliance, Chadron, Norfolk, Gothenburg, Kearney, Nelson, Geneva, Lexington, Humboldt, Exeter, Grand Island, Seward and Fremont. This list could be extended to include a large number of places. The community development results not only in improving traffic conditions but it develops co-operation in these centers.

State Roads

Just what is to be done in building inter county or state roads in Nebraska remains a problem. Traffic does not stop at township, county or community lines. It reaches over larger areas, often across several counties and state lines.

The condition of roads varies much by counties. It is particularly noticeable that a road may change at once from good to bad at a county

line. Construction and maintenance of dirt roads are well standardized in some counties but not in others. Community development does not necessarily fit into inter-county and state plans. The result is a road condition which has been called, "good, bad and indifferent." This condition is being corrected to some extent by the work of road associations. The tendency is to improve the leading roads with a degree of uniformity. The results attained show possibilities in the way of permanent roads between the larger centers. This development, if carried out, would give good highways where most needed and some of them would have interstate and national importance.

Among the well known roads are The Lincoln Highway, The Omaha-Lincoln-Denver Highway, The Omaha-Kansas City Highway and The Meridian Highway. None of these is in good condition throughout the year. The counties and communities, practically unaided by the state and federal departments, have not been able to meet the conditions imposed by heavy traffic. The state does not have funds for co-operation. So here are two practical problems: The first to determine what assistance the state is to give, in coordinating and extending the county and community work; and the second, to raise the necessary state funds to support the project.

Colorado leads Nebraska in improving the Lincoln Highway and the Omaha-Lincoln-Denver Highway. One reason for this may be that Colorado is more of a tourist state. The condition of these roads is plainly evident to tourists who never fail to contrast the conditions of these roads in the two states.

Nebraskans are not fully convinced that tourist travel is a resource and that good roads develop this resource. An awakening in this respect is coming, however, with the increase of travel on our interstate highways. This is due to the presence of many autos from other states, especially in the summer. The tourists patronize our garages, hotels, restaurants and stores. They spend thousands of dollars in the state and receive impressions, both favorable and unfavorable, which they compare with other states on the highways. I would not go too far in urging road improvement because of its relation to the publicity derived from tourists, but I would maintain that tourist travel is becoming of greater importance and that the need for inter-county and state roads is growing.

State Highway Commission

Nebraska has a Department of Irrigation Highways and Drainage, and an Advisory State Highway Commission. These departments render valuable service in a number of capacities, yet many citizens are not aware that such services are performed. The Advisory Highway Commission has a principle duty, authority over the routing and marking of the leading highways. The State Engineer, employed by the Department of Irrigation, Highways and Drainage is the Secretary of the Advisory

Highway Commission. The State Commissioners serve ex-officio without salary.

Co-Operation with Federal Departments

Recent federal legislation provides a large fund for highways under the United States Department of Agriculture. The states are to co-operate in a movement which is intended to develop national highways. Nebraska will be required to provide funds for co-operation if this plan is accepted. Some people oppose the project, whereas others are strong in its favor. The administration of the funds is to be by the State Highway Commissions and the Office of Public Roads and Rural Engineering of the United States Department of Agriculture.

The project should receive the thought of citizens for it calls for state funds and probably for levies by townships. Some counties undertaking to complete the work in a large way, may bond themselves. This should not be done too hurriedly and without consideration of the plans tried out in such states as New York, Pennsylvania, Alabama, Florida and Virginia. The most economic plan should be used and provision must be made for maintenance as well as for road construction.

We do not know what support this movement for permanent roads is to receive in Nebraska. The matter should be decided definitely. If accepted, the state commissions will occupy a difficult position. Pressure will be brought to bear from many localities favoring the development of certain highways, all of which cannot be undertaken at once. This will foster dissatisfaction at places, but those in charge should act with a comprehensive view looking toward the general good of the state.

The decision of our state to accept or reject this federal aid and co-operation rests with the legislature. The following should factor in the decision:

1. **Traffic.**—Would such roads reduce the cost of haulage. If so, would the investment pay on this account?
2. **Land Values.**—Would they advance or lower prices, and how would farmers view the matter?
3. **Schools.**—Would they increase attendance, improve efficiency and favor consolidation?
4. **Community Development.**—Effects upon social and religious life? Health? Small towns? Cities?
5. **The State and Nation.**—What relation and how important?

Road Materials

It is sometimes said that Nebraska is without road materials. Persons claiming as much do not appear to be fully conversant with the facts for there are several road building materials within our borders. The chief ones of these are sand, gravel, limestone and subsoil. The Platte,

Republican, Loup and Elkhorn valleys are underlain with thick deposits of sand suited for road making. The big dredges of the Platte supply a vast amount of this material not only for Nebraska but for use in western Iowa, northwestern Missouri and northeastern Kansas. A number of quarries are operated, producing principally crushed stone. The leading centers are Meadow, Louisville, Cedar Creek, Nehawka and Blue Springs. The state has twenty-nine distinct limestone ledges, a thick formation of chalk rock, and a number of deposits of the so-called magnesia rock, the latter occurring principally in the central and western counties. Nearly every part of the state can be served by local deposits of sand and by some stone. The state surveys have determined the distribution and qualities of these materials.

The principle road building material in Nebraska is the subsoil of which there are many kinds. The chief subsoils of the southeastern half of the state are silt loams. These occur on the uplands and on the terraces of the principle valleys and are easily graded and dragged, making hard roads. The Platte and other principle valley floors contain a variety of subsoils ranging from clay to sandy and gravelly loams. In these situations it is necessary to use care in the selection and mixture of materials in order to build uniform roads. Otherwise, there are clayey, sandy or gravelly stretches. The sand hill region and its outliers, occupying some 20,000 square miles has four leading soil types, but the one with largest areal distribution is dune sand. This blows badly when the grass cover is destroyed. Straw, hay, grass and other materials must be used as a cover at the blow places. Grading and dragging are not feasible, except where the ground is hard.

There are some thirty kinds of subsoil in the High Plains region of western Nebraska. These range between clays, silts, fine sandy loams, sand, gravel and partly weathered stone. Some stretches of road remain good without much work, others require careful selection of materials, grading and dragging. The so-called magnesia rock when spread upon a road surface makes it smooth and hard.

The road materials of our state are being surveyed, mapped, tested and described by the State Conservation and Soil Survey in co-operation with the Engineering College of the University and the State Engineer. To date the subsoil of more than twenty counties has been surveyed in detail.

Kinds of Permanent Road

Experimental roads have been built in a number of states. The federal department has constructed them at several places as in the vicinity of Washington, D. C. The object has been to determine the kinds best suited to the different needs. Our state should profit by this experience.

Enough has been learned in the way of building and standardizing roads to supply the public generally with a vast amount of information. The experience gained with this and the literature connected therewith

has made advocates of sand roads, oiled roads, cement roads and rock roads. No doubt most advocates are sincere in their belief, yet some may be selfish, hoping to secure the sale of such materials as stone, sand, brick or cement. Persons actually representing the state must be free from all such bias and it would seem that when the time comes for extensive permanent road building the different communities should be ready and willing to accept technical information concerning the materials and types of construction that best serve the traffic needs.

Causes and Prevention of Accidents

The state is facing the problem of an increasing accident and death rate on the public highways. The courts are occupied with suits brought against counties and the number of these is also increasing. The situation is becoming alarming.

The accidents are caused in several ways but practically all of these could be prevented. Some are due to road conditions, including bridges, others to teams and defective machines, but most are caused by reckless driving.

Heavy traffic of recent years and especially with autos has brought a condition difficult for road commissioners to meet. It is a new situation. Hills must be planed down, grades widened, culverts lengthened, bridges widened, markers erected and in some cases the highways policed. This need for construction and maintenance cannot be met at once with the funds available.

Let us summarize a few of the things causing accidents, and point out method of prevention.

1. **Narrow Grades:** These present dangerous conditions by caving, the skidding of cars and wagons after rains, and in being too narrow to permit passing. The condition can be remedied but at great expense. Drivers should exercise exceptional caution on such grades.
2. **Sharp Hill Crests:** Many accidents are caused by the collision of rapidly moving autos at hill tops. This can be prevented by grading the hills downward, widening the cuts and by more careful driving. Making the hills at a high rate of speed is dangerous.
3. **Short Culverts:** The last legislature passed a law requiring the lengthening of culverts so that teams and autos may pass. This legislation requires also the erection of white posts at the ends of culverts. Though the step is in the right direction, some of the counties do not have the necessary funds to complete the work, hence the public should not be overly critical with these counties because the improvements can be made when funds are available. Furthermore, we should not expect long culverts, on highways carrying little traffic.

4. **Narrow Bridges:** Traffic along the principle highways demands bridges wide enough for passing teams and autos. The actual construction of these must necessarily be delayed because of the great expense and drivers should be careful.
5. **Zig Zag Bridges:** Not many of these are left in the state, yet it is plainly evident that safety demands the reallignment of such structures.
6. **Rushing for Bridges:** This is one of the worst features of reckless driving. It has resulted in a number of collisions and several deaths. This kind of driving is not an act of sportmanship and it would seem that those so careless should be denied the privilege of the road. The driver should slow up especially when meeting others at bridges. It is a good plan to let the other fellow pass first.
7. **Speeding and Racing:** The state law places a limit of 25 miles per hour on autos, yet practically every driver breaks this limit and the law of the state. The fact is that recklessness should be guarded against more than fast driving. Some counties, as a result of practical experience, make the limit thirty-five or forty miles per hour, allowing for the skill of the driver and the conditions of the machine and road. Speeding and racing are dangerous under most conditions and should be stopped.
8. **Drunkenness:** Herein is a positive element of danger, quite evident in some parts of the state. It is the cause of damage suits now pending in the courts and has contributed largely to the list of fatal accidents. Persons addicted to drunkenness should not be permitted to drive autos on the public highways thereby endangering the lives of themselves and others.
9. **Railroad Crossings:** Crossing railroad tracks without due caution is one of the leading causes of accidents in our state. Reports of such are frequent in the daily press. Some railroads are poorly marked, a condition which must be remedied. Drivers should be on the watch; they should slow up at railroads and look both ways with care, before crossing.

Courtesy and Politeness

The consideration given autoists by farmers in Nebraska is a noticeable feature. They drive well to one side in order that machines may pass. The hindrance to farmers hauling heavy loads is very annoying when many machines are encountered. The polite thing for the chauffeur to do in every case of this kind is to acknowledge the favor. "Thank you," is in order. It expresses appreciation and manliness.

Some drivers fail to signal when passing teams. Rushing by skittish horses and taking people unawares is one of the frequent discourtesies of the road.

The autoist should be thoughtful not only of farmers and teams but also of fellow autoists. This thoughtfulness is expressed in assistance to those having car trouble. Auto drivers should express appreciation for all favors shown them on the highways and at garages.

Garage Service and Charges

The garage business has sprung up so rapidly that service and charges have not yet been standardized. Some places give polite and efficient services whereas others keep patrons on the waiting list. Some make excessive charges; others are more reasonable. Our state can well afford to improve its garage service especially along the main highways and in the larger cities. Such will have increasing importance in the future.

Road Maps

The State Conservation and Soil Survey is mapping the state as rapidly as possible, consistent with good work. These maps show soils, topography, houses, railroads, wagon roads and towns. Some data are also supplied on local history and industries. Such information and the maps will be published for general use.

Road Marking

The roads of some states are poorly marked. This makes it inconvenient and difficult for travel. Nebraska ranks well in road marking, yet the public should show additional interest and helpfulness to the end that the right ensignia may be adopted for the various routes. The work must be brought to a high degree of standardization. It is not enough to select colors simply to show the location of a route. These colors and other markers should express something of importance concerning our state. For example, a road is to be routed and marked between Marysville Kansas and Sioux City, Iowa. There is much interest in this highway. It traverses a part of the corn belt of Nebraska. Our citizens are called Cornhuskers so among the names proposed for this route the one "Cornhusker" seems most appropriate. The majority of persons consulted favor the colors white and yellow, representing the two principle kinds of corn grown in Nebraska, which is a good choice.

The Omaha-Lincoln-Denver Highway is marked by a band of white bordered with black. A better color scheme would have been scarlet and cream, representing the University of Nebraska and the spirit of the state. The Lincoln Highway has for its colors, red, white and blue, the most appropriate selection of them all. These examples are given to show that the ensignia used on Nebraska highways should have the fullest possible meaning. Though many of the highways have been marked by public spirited citizens and some of the routings and markings have been passed upon favorably by the Advisory Highway Commission, there will

come a time when they must be revised according to a uniform plan. We have not done enough in marking distances between towns, in showing county lines and places of historic interest.

Mileage Reduction

It seems, as traffic increases between the principle centers and on the interstate roads, that the mileage should be decreased where possible, in order to reduce the expense of construction and maintenance, to eliminate sharp turns and accidents resulting therefrom, and to conserve time. For example, the road distance between the two leading cities in the state is about 65 miles with several sharp turns and railroad crossings. This distance could be reduced at comparatively small expense to less than 60 miles and at the same time eliminate certain elements of danger. What is true here is also true at other points.

The total mileage of interstate roads such as the Lincoln Highway and the Omaha-Lincoln-Denver Highway, can be reduced by routing them together where possible. A comprehensive plan covering the distribution of the main roads will be largely governed, when determined, by the traffic needs as shown by careful surveys. This routing will give the best results to the state as a whole and with the least mileage.

Confidence and Co-Operation

If we view the matter correctly there appears to be a lack of confidence and co-operation in the road situation in Nebraska. There is misunderstanding at places between county and town, yet the community development is removing this barrier.

The value of good roads in the country proper has paramount importance in Nebraska, yet not all farmers and town folk on the smaller arteries of travel realize the importance of the fact that their roads lead out to highways with more traffic and that these in turn reach the paved streets and large centers of population. There is no break along the line. All are public roads whether in good or bad condition or in large or small communities. They are related parts of what should be a more perfect development. County lines bar none.

The big road problem of Nebraska is involved in the relationship of township, county and state work. We have three inter-related units somewhat out of adjustment. Some maintain that all road work should be placed under a central or state administration whereas others would decentralize, retaining only the township unit. Here are two extremes, and it seems that, if put into effect, either would be equally bad at this time.

This problem can be solved without much change and with little legislation. Most roads might remain under township and county administration, and those of greatest state and interstate importance could be placed

under state control. The State Highway Department would be required as now, to supply certain kinds of useful advisory data to the township and county work. This would serve to unify and standardize the system. But how are we to meet the expense of state roads? It cannot be met by township and county levies alone. There must be funds for this purpose, supplied by the state.

There is a growing need for permanent state and interstate roads. They would have local use, would serve as interurbans, for tourists, and for national purposes. It is evident, however, that there must be a better understanding than we now have, together with added confidence before anything worth while can be accomplished in this line in Nebraska.

The time was when such subjects as convict labor and the bridge interests held our attention. Now convict labor is a road resource and the bridge matters are in better condition. One after another of the discordant problems has been solved, giving a better understanding, greater confidence and a higher degree of co-operation. This spirit and understanding when more fully developed should produce a workable plan for highway improvement, a plan supported by all interests including those of county, state and nation.