

Chapter Four

The Movement For Good Roads

Introduction

The emphasis on railroad construction in Iowa effectively suppressed any comprehensive movement for road improvements beyond the era of plank roads and some local activity. So many railroads had been planned and built that it was thought that state or national road systems would not be necessary. Roads might be needed for local traffic, but this responsibility could be left to local authorities. Bridge building took priority over road construction and money was spent on roads only after bridges were built. It was assumed that horse, oxen and mule-powered wagons could navigate under any road conditions but could not ford the streams without danger. Improvements were confined to filling the low spots on the earth road to keep it above water in rainy seasons. There was little or no grading, no plans, no cost estimates or engineering except for surveying, little or no dirt moving machinery or men knowledgeable to operate such if available. The labor force functioned under the medieval practice of working out the road or poll tax, and competent foremen to supervise road work were extremely rare.

The Good Roads Movement

The near completion of the railway network and its influence on urban development marked wide differences in the level of improvements in rail as contrasted to highway transportation. Railroad service was being expanded and perfected technically, whereas highway services had seen little advancement for almost 50 years. Rural areas suffered from 18th century mobility while urban centers received direct benefits from improved transportation, communication and industrialization. Road reform was the result of public pressures for new arrangements to enable rural areas to participate in the developing economic and social structure of the state. Agriculture was undergoing a transition from a purely self-sufficient status to a capitalistic organization producing surplus crops, and all-weather roads were vital to farmers for transportation of products to urban markets. Wagons moved farm commodities to local markets or the nearest rail terminal—the cost often proportional to road conditions. The demand for better roads was oriented to the farm-to-market segment of the highway function.

As late as 1880, the sole responsibility for providing rural roads rested with local governments. Townships and road districts served as administrative units; management was on an amateur rather than a professional level. Townships gradually gave way to counties in local road administration. State governments entered the field, first by offering aid to local agencies and finally by assuming responsibility over primary roads, and the federal government slowly expanded financial participation. During the late 19th and early 20th centuries, road reform movements were the popular methods of gaining support for improvements and changes in road administration.

Despite the organization of the “good roads” groups, the situation at the turn of the century had not changed much since that time in 1840, when Judge George C. Wright asked a stagecoach driver how long it would take to reach Iowa City, 12 miles away. “About four hours,” replied the driver, “if we can find the bottom of the road.” Until the 1920’s, Illinois and Iowa residents jokingly boasted that their “roads were as deep as they were wide.”¹ A wagonload of 3,000 pounds was a heavy load. A trip of 10 miles was a long journey, and to travel 20 miles was a full and hard day’s work.

Dearing described the good roads movement as one “variously interpreted as an effort on the part of American bicyclists and manufacturers to obtain facilities for pleasure cycling; as a movement to saddle the farmer with the cost of roads to be used by automobiles; as a device for expanding the market for building machinery and materials.” He further suggested that all descriptions suffered from the defects of over-simplification and historical inaccuracies—that the major thrust of the movement was based on the need to modernize the roads and their management with the objective of “bringing the standards of rural road transportation up to those achieved in urban areas through railroad development.”² The activity received wide support

¹ Mississippi Valley Conference of State Highway Departments, *Historical Highlights: 1909-1974*, Ames: Iowa Department of Transportation, 1980, pp. 1-2.

² Charles L. Dearing, *American Highway Policy*, Washington, D.C.: The Brookings Institute, 1941, p. 46.

from organized civilian groups, political parties, state and local agencies and businessmen and included railroads who wanted improved roads as feeders for their traffic.

The Iowa Initiative

Aggravated probably by impassible roads during the winter of 1882-1883, Samuel D. Pryce of Iowa City, in a letter to the *Iowa State Register* on January 3, 1883, pointed to the inadequacies of Iowa's roads and made several recommendations for improvements. He stated that farmers were suffering great economic losses through bad roads; that the state ranked high in agriculture but had a poor reputation in roads; that the statutory labor requirement that pulled farmers out of their fields during the planting and harvesting seasons was most inefficient; that roads needed to be graded, tiled, drained and surfaced; and there was a huge waste resulting from paying taxes in labor. He advocated repeal of the labor provisions, a uniform property tax of five mills for road improvements to be paid into the county treasury, appointment by the governor of a highway commissioner for each county to build the roads or contract construction to responsible parties, with drains and grades supervised by a competent civil engineer.

The proposals received statewide newspaper publicity and were responsible for a convention held in Iowa City in March, 1883, where the Pryce recommendations were adopted and a "State Road Improvement Association" organized. Its objective was to awaken public interest and work for road legislation. It met once again in 1884, but apparently satisfied with the progress made, lost its momentum. Another "Iowa Road Improvement Association" was organized in Des Moines in August, 1892, founded by Edward H. Thayer, editor of the *Clinton Morning Age*, and among those active were Peter A. Dey and William Larrabee of railroad fame, Henry C. Wallace, John H. Gear and John Scott. The association survived but a short time. In April, 1903, called by Governor Cummins, the first Iowa Good Roads Association with semi-official status met in Des Moines, and some historians consider this meeting as the one which really started the good roads movement. Others were formed in 1910, 1923 and 1948, the latter organized at Marshalltown as a permanent group with Claude Coykendall, administrative engineer for the Highway Commission, as executive secretary. Since then, the organization

has promoted "good roads," with such men as Gerald Bogan, R. M. Hileman, John Coverdale, Archie Nelson, H. W. Callison and C. W. (Chet) Sloan, active and involved over the intervening years.

The movement for good roads was based upon the removal of some degree of control from local township trustees in favor of regional and statewide highway development through which administrative and engineering expertise could be provided. Progress, however, was slow for many reasons. The traditional conservative system of road building was difficult to change; there were differences of opinion among members of the association as to the proper courses of action to take; engineers disagreed on technical questions regarding road and bridge construction; bitter arguments occurred between advocates of earth roads and those supporting surfacing and over the types of surfaces to be used; between those who supported or objected to more centralized control of highway policy and authority; and those who wanted roads funded as a pay-as-you-go project as contrasted with funding through bond issues. Then there was the question of distribution of road funds among counties and cities, and the fact that groups representing road materials, bridge and construction companies fought changes that might be objectionable to their interests. Although many were active in the good roads movement, farmers generally offered the strongest opposition to highway improvements. They feared that heavy taxes would be levied, and until 1920, at least part of their fears were justified. Prior to 1919, farmers paid four mills in property taxes to support county roads while residents of first class cities contributed only half a mill.

National Roads Associations

Nationally, a League for Good Roads was organized in 1892, and in 1893, a Good Roads Convention was held in Washington, D.C. Their efforts resulted in establishment of an Office of Road Inquiry in the Department of Agriculture in 1893, with an initial appropriation of \$10,000, to be used mainly for educational purposes. Another result of these meetings was the creation of the Rural Free Delivery Service which by 1900 had a nationwide network and became a powerful force for road improvement. The automobile appeared in 1890 and added further impetus: "The motorist had an even stronger incentive than the bicyclist to get the country out of the mud; a

mired car was more of a problem than a stuck bicycle.”³ By 1910, there were literally scores of organizations in the nation promoting good roads. A few of these were strong, effective and national in scope. The American Automobile Association, founded by owners in 1902, and the American Road Makers brought together state engineers, road contractors and road machinery manufacturers. Many of the associations were primarily pressure groups whose purpose was to get improved roads through legislation. Many had no dues-paying members but depended upon commercial interests—railroads, materials producers and automobile manufacturers—for financial support. The American Association for Highway Improvement was formed in 1910 and sponsored the first American Road Congress in 1911 at Richmond, Virginia. It recommended that Congress extend financial aid to the states to assist in road building; that no appropriation be made without proper supervision for maintenance; that states provide supervision of main highways through a state highway department; that work on construction and maintenance be under the direction of an experienced highway engineer; and that all states provide for the employment of prison labor to work on public highways. Other Road Congress meetings took place in 1913 and 1914.

Road Legislation, 1880 to 1920

State Road Laws

There was little or no administrative control over roads by state government in the early 1880's. Previous laws had given authority to county supervisors to locate new roads, change the course of old ones and levy taxes for bridges. Township trustees determined the level of property taxes and how much would be paid in cash or labor. In the fall, the township was divided into road districts, each with a supervisor who spent the funds and directed the road work performed by men working out their taxes. May observed that “there was some logic to this system in pioneer days when virtually the only use of the roads was local in character, but as the state's economy grew and traffic volumes steadily increased, doubts arose as to the wisdom of permitting thousands of separate road systems to exist with no unifying standards.”⁴

The 1884 General Assembly incorporated some of the recommendations of the State Road Improvement Association into “an Act to Promote the Improvement of Highways.” It provided for a regular

county fund as contrasted to a township road fund, the money to be raised by a one mill per dollar tax on property. The county boards of supervisors had authority to determine how the fund was to be used. By local option, the township trustees might organize the township into one road district but could return to the old multiple district plan after two years of experimentation. Road supervision in the township system was changed to allow trustees to order that township highway taxes be paid in money to the county treasurer, and to direct expenditures by letting contracts to the lowest responsible bidder or appoint a superintendent of highways to supervise the road work. The statutory requirement of highway labor was retained.⁵ Opposition to the property tax to be paid in money and appointment of a superintendent was so strong that the provisions were made optional.

Few changes in road administration occurred between 1884 and 1890, except that the one mill tax was made mandatory in all counties. Important reforms by the 1902 General Assembly recognized the inefficiencies of the old system. A new road law, known as the

³ John B. Rae, *The Road and Car in American Life*, Cambridge, Mass.: M.I.T. Press, 1971, p. 34.

⁴ George S. May, “The Good Roads Movement in Iowa,” *Palimpsest* 46 (February 1965): p. 82. For a discussion of road laws before 1884, see John Brindley's *History of Road Legislation in Iowa*, Iowa City: State Historical Society, 1912, Chapters 4-7. Summaries will also be found in *Iowa Hiway Hilites* (May 1963), pp. 17-39, published by the Iowa State Highway Commission, Ames.

⁵ 1884 Laws of Iowa, Chapter 200. The law provided that “nine hours of faithful work was required as a day's work on the road but that except for extraordinary occasions, no person shall be required to go more than three miles from his place of residence...and for the purpose of this Act, the residence of a man shall be construed to be where his family resides; for a single man, it shall be at the place where he is at work.” N. S. Shaler, writing on “Common Roads” in *Scribners Magazine* in 1889, said that “in the United States the common roads were built in a most ignorant and inefficient manner...Generally, road-making and so-called roadmending were performed not by tax money but by an impost of labor of the county. The voting part of the population is summoned each year to one or two days to working out their road tax. The busy people and those who are forehanded may pay out their assesment in money but most of the population find it convenient to attend the annual road-making picnic in person...under the supervision of a road master. More commonly, some elder is by common consent absolved from personal labor and made superintendent of the operation.” (See Rae, pp. 26-27.)

“Anderson Law,” after its most ardent supporter, abolished the office of district road supervisor and the district road system and consolidated each township into one road district. Other sections covered changes in levying and collecting road taxes and conferred rights and powers on interurban railways built along public highways. Road taxes were to be paid in money but the statutory labor requirement was still in effect.

The most important feature of the new law was the one which consolidated road districts based on civil townships and resulted in a fundamental change in road administration. The authority of the district road supervisor, established in 1853, had existed for almost 50 years with strictly local supervision of highways until 1902. The long-standing tradition of local control, self-government and personal participation in highway policy was overturned and met opposition. The law also became the basis for more centralized control through state and federal participation in highway programs.

In 1909, permanent road improvement districts were authorized and could be established by county supervisors. Improvements were financed half by a two mill county tax and half by special assessments on property within a county. Road dragging by contract at 50 cents per mile was made mandatory for township trustees. In 1911, the legislature required township trustees to divide the public roads into permanent road-dragging districts, “designate which districts shall be dragged, to include all mail routes and main travelled roads within the township,” and appoint a superintendent of dragging at \$2.50 per day, to serve one year unless removed sooner by the supervisors. An annual fee of \$15 was assessed for the registration or re-registration of any electric or steam motor vehicle and 40 cents per horsepower charged for every horsepower over 20. Motor bicycles or motorcycles paid three dollars. No distinction was made between ordinary and commercial vehicles. Fifteen percent of the vehicle tax went to the State Treasury and the remainder was “apportioned among the several counties of the state in the same ratio as the number of townships in the several counties bear to the total number of townships in the state.”⁶ Iowa not only had its first highway use tax in 1911, but by statute could not divert the funds to other than specific designated highway purposes. Previously, a \$1.00 registration fee had been levied in 1904, increased to \$5.00 in 1907, as a simple regulatory and general revenue measure.

A law which marked the first definite move away from pioneer roads and toward state road administration was passed in 1913 by the 35th General Assembly. It created a separate State Highway Commission of three men, replacing the original commission established in 1904, and was given control over all county and township road officials. The office of chief engineer was created to discharge this responsibility. In 1915 and 1917, bills to abolish the commission were introduced into the legislature but failed to pass, for in order to qualify for federal funds, the state had to have a highway commission. The law continued the policy of allowing county supervisors and township trustees to be in charge of roads and funds but only under the supervisory control of the commission.

County supervisors were required to appoint a county engineer who, if found incompetent, could be discharged by the commission. Plans, specifications, advertisements for bids, and public lettings for bridge and road construction were required. Contracts were subject to approval by the commission and county engineers, and all construction was under standard state plans. Maps showing the selected systems were prepared and updated by commission personnel, and surveys made by the county engineer. The commission was given a maintenance fund of eight percent of the money paid into the State Treasury for motor vehicle registrations.

The progressive legislation brought a clash between advocates of a more centralized control and rural elements favoring local domination of road policy, and the elections of 1914 removed many of the legislators who had voted for the 1913 law. County supervisors and township trustees resented the imposition of county engineers and the commission controls in their domain. Many county supervisors made no effort to hire engineers; others did under protest. Even if they wanted to hire, it was difficult to find the number of engineers needed in 1913. Supervisors also did not appreciate the requirement that standard highway plans be used and bids for construction taken after public hearing.

⁶ 1911 Laws of Iowa, Chapters 70 and 72.

The Federal Road Act of 1916

The interest of the federal government in highway development dated from 1803, when aid was given for construction of the National Pike from Cumberland, Maryland, to Wheeling, West Virginia. Federal engineers advised as to the desirability of surfaced roads throughout the nation by 1900, and in 1912 an appropriation of \$500,000 was made to pay one-third of the costs of improving highways over which the mail was carried. The Office of Road Inquiry became the Bureau of Public Roads in 1918.

Federal-aid policy involving federal-state cooperation for highway construction was the basis of the Act of 1916. An appropriation of \$75 million over a five-year period was authorized for improvements to rural roads carrying mail and was limited to towns under 2,500 population. The aid was not to exceed 50 percent of the cost of roads constructed, not to exceed \$10,000 per mile, and was to be matched by the states. Three criteria were used in funding, all having equal weight: (1) the area of the state in relation to the total area of the United States; (2) population of the state relative to total United States population; and (3) mail route mileage of the state in relation to total mail road mileage of the nation. Assistance was to be given to those states with established highway departments.

The General Assembly in 1917 accepted the provisions of the 1916 federal act and pledged the necessary matching funds. To be designated was a road system of 2,000 to 6,000 miles, equitably distributed among the 99 counties, on which federal-aid projects could be located. Also provided was a primary road fund to finance construction and maintenance, and the duties and responsibilities of the commission were expanded, reflecting the growing influence of motor vehicle traffic.

In most states, the major highway system was known as "the State Road System," "State Trunk System," or other similar designations. A state road system of approximately 6,500 miles was established by the General Assembly in 1919, to initiate paving of principal highways. So great was the opposition to the word "state" and a state-controlled road system, that legislators, fearing for their political futures, named it the "Primary Road System." The word "pave" was also considered suicidal if used, so the legislation substituted "hard-surfaced" to define their intentions. Over the years, the need to avoid the word "state" has long abated, but the principal state highway system continued officially to be known as the "Primary Road System."

The Primary Road Fund was to include all automobile registration fees, federal-aid allotments and funds from special paving assessments, effective only where improvements called for pavement, and which were to total 25 percent of the cost of the pavement slab. Primary road expenditures were under the control of the supervisors, subject to approval of the commission. Voters in a county had to approve any proposed "hard-surfaced" improvement before construction. They could also vote authority to supervisors for issuance of bonds to fund construction if not satisfied with progress permitted by current revenues. However, the legislation specified that in both the surfacing and the bond issues, balloting must be separate on each proposal. Special assessments on adjacent property were permitted only on "hard-surfaced" projects and could cover an area extending one and one-fourth miles on each side of the road to be improved.

Road Legislation, 1920 to 1930

The Federal Aid Highway Act of 1921

The Act required a designation of state and interstate highways eligible to receive federal funds. Aid was limited to seven percent of the total mileage of rural roads, and designated highways were divided into primary or interstate, and secondary or intercounty roads. Funds had to be matched by the state, which was also responsible for maintenance of federal-aid roads. Seventy-five million dollars was appropriated for 1922, and in 1923, Congress modified the provisions to allow specific appropriations when needed. The average was about \$100 million per year during the 1920s. The 1916 Act had a significant influence on Iowa. It provided about \$15 million annually as the 50 percent share of the road-building costs. The funds were earmarked for rural roads, a pressing and persistent problem for the state, and the act, by requiring federal approval for projects selected, established the basis for further federal involvement.

The Iowa road laws did not comply with the requirements of the 1921 federal legislation. The state law was in conflict in two important particulars: (1) The federal law required that maintenance of federal roads be under the direct control of the state highway department, whereas the state law placed this responsibility with county supervisors. If any county failed to maintain a federal-aid road, the commission had no power to assume charge of the work unless the road had been paved. Since only five percent of the state's primary roads had been paved, the commission

was powerless to cause 95 percent to be maintained, yet federal law required that as a condition precedent to aid, maintenance must be under direct control of the commission. (2) Federal law required that federal-aid highways should be surfaced in a manner suited to the traffic, and the commission should have the power to determine and select the type of surfacing. Under state law, the commission had no power to initiate such action. This power was in the hands of the supervisors, and even they had no power to start paving unless authorized by a vote of the people.

In grading and draining of any road, the federal government required the commission to agree that within a reasonable time after the road was graded, it would provide the suitable surface before any additions were made to the federal-aid system. Under state law, the commission could not fulfill such an agreement, yet the state law made it the specific duty of the commission to do whatever was necessary to secure federal funds. Further, the federal act provided that the state would have five years, or until November 9, 1926, in which to amend its laws so as to conform to the legislation. After that date, Iowa would get no federal aid if the primary road law had not been properly coordinated with the Federal-Aid Law.

State Primary Road Laws

In 1925, the General Assembly remedied these matters by enacting a new Primary Road Law which conformed to the federal act. It granted the commission absolute control over primary road development funds to be spent on its own initiative. Also passed was the first gasoline tax bill, providing for two cents per gallon in revenues and dividing the proceeds in three ways; one-third to the primary road fund, one-third to the counties for county roads, and one-third for township roads. In the Primary Road Act of 1927, powers and duties of county supervisors in primary road administration were transferred to the commission. Also, the legislation required that all roads in the state were to be divided into two systems. The Primary Road System would include "those main market roads (not including roads within towns and cities) which connect all county seat towns and cities and main market centers." The 43rd General Assembly defined secondary roads as all public highways except primary roads, state roads and highways within cities and towns. Primary roads upon which federal-aid funds were expended were to be marked as United States highways and all other primary roads were considered as state highways. The

secondary roads were classified as county trunk roads and local county roads. The local roads were formerly township roads.

The 1927 law provided that "improvement shall be made (in the primary road system) and carried on in such a manner as to equalize the work in all sections of the state where improvements have been retarded, to an equality and on the same basis with the more advanced sections."⁷ A third cent was also added to the gasoline tax for the primary road fund. This section, as well as the entire act, remains as the basic philosophy of improvement programs to the present time. That the 1927 Primary Road Law was a giant step forward in road improvements is supported by the fact that it still remains on the statutes of Iowa. A large percentage of the 6,000 miles of primary road pavement built previous to 1956 was built under this law without important substantive changes, and during 1930, three years after the act was passed, 1,030 miles of high-type concrete pavement were built on the state's primary roads without legal difficulty or delay. Only one other state has ever equaled or exceeded that mileage record in one year.

Bonding for Highways

In the 10 years, 1919 to 1929, there had been spasmodic voting of county bonds for paving of portions of the primary road system. The possibility of bonding for primary roads was raised in 1926, when a bill authorizing the issuance of \$100 million in bonds was introduced in the General Assembly. Its constitutionality was questioned since it provided for payment of interest and principal from primary road revenues but in case of deficits, taxes would be levied and collected on all taxable property in the state to make up the difference in bond obligations and primary road funds available. The sources of funds for the primary road fund were motor vehicle registration fees and motor fuel taxes. The section of the State Constitution at issue was Section 5 of Article VII which contained the following statement: "Except the debts hereinbefore specified in this

⁷ John E. Nimmo, *State Involvement in Iowa Road Development*, Report prepared for the Iowa Transportation Commission, 1975, p. 12.

Article, no debt shall be hereafter contracted by, or on behalf of this State, unless such debt shall be authorized by some law for some single work or object, to be distinctly specified therein; and such law shall impose and provide for a direct annual tax, sufficient to pay and discharge the principal of such debt, within 20 years from the time of the contracting thereof . . ." To be resolved then, was whether or not this provision precluded the use of primary road funds to pay the interest and principal of the proposed bonds.

After consulting with legal authorities throughout the state on the constitutionality of the bill and receiving unanimous affirmative response, the governor called the 42nd General Assembly into special session in March, 1928. The bonding bill was passed on a two-to-one vote in both Houses and was supported by popular vote in the 1928 general elections, only to be declared unconstitutional by the State Supreme Court in March, 1929.

The Secondary Road Law

The Secondary Road Act, known generally as the Bergman Secondary Road Law, was passed in 1929. Previous to its enactment, about 6.5 percent of the public highways of the state were included in the primary road system, under control and jurisdiction of the Highway Commission; 13.5 percent were included in the county road system under jurisdiction of county supervisors whereas the remaining 80 percent were classified as township roads under control of 1,640 township boards of trustees. These township roads were renamed "local county roads." When the new law became effective on January 1, 1930, township trustees were virtually eliminated from responsibilities for road building, reducing the number of secondary road supervisory units from about 5,500 to 400. Supervisors controlled a secondary system of 12,377 miles of county and 84,246 miles of township roads.

The legislature also acted to facilitate the voting of county bonds for primary road improvement and raised the limit of indebtedness from three to four and one-half percent of the assessed valuation of property in the county. Immediately, 18 counties voted primary road bonds aggregating \$21 million, and 18 counties which had previously voted primary bond issues voted additional issues totaling \$12 million. Eventually 98 of the 99 counties in the state voted \$118 million for county primary roads.

The process of centralizing road administration begun in 1884 was practically completed by 1929.

Responsibilities had been transferred from many independent civil units to the centralized structure of state government. Authority for road construction and maintenance was clearly defined between the state and the counties, with general supervision over all roads and direct control over the state's primary highways exercised by the highway commission.

Evolution of the County Engineer

Creation of the office of county engineer was probably the most important reform measure promoting expert supervision of roads on a county level. As early as 1883, Samuel D. Pryce observed that road work should be supervised by competent civil engineers. Further efforts to establish the position were made immediately afterward by a legislative committee of engineers, and in 1910, by Governor Carroll and the Good Roads Association. Delegates defeated the proposal, considering the idea that road work could be efficiently managed by trained experts as an affront to many local road officials. May quotes one delegate as calling it a plan for "giving places to a lot of boys from college without accomplishing anything," and another contending that "they did not have to go to college to get men capable of using a level."

A compromise was effected in 1911, whereby supervisors could, if they wished, "employ a competent person" to work out plans and specifications for county roads. The Act of 1913 finally created the office of county engineer but there was considerable opposition. In 1923, critics made the county engineer an optional position, yet few counties took advantage. However, the Bergman Act of 1929 not only repealed this provision but gave the county engineer greater responsibility over road work. It was recognized by this time that engineers could save counties thousands of dollars, and at least one county board chairman declared that if counties had to choose between the engineer and the supervisor, "it would do well to give up the latter because the engineer could do the work of the supervisors but the supervisors could not do the work of the engineer."⁸

⁸ George S. May, "The Good Roads Movement in Iowa," *Palimpsest* 46 (February 1965), pp. 86-87.

State Road Administration

The Highway Commission, 1904-1913

Establishment of the first highway commission was primarily the result of the efforts of two men, namely, Charles F. Curtiss, Dean of Agriculture, and Anson Marston, Dean of Engineering, Iowa State College. Questions concerning the creation of the commission and providing for an appropriation were debated in the Thirtieth General Assembly in 1904. It became apparent that a separate department funded by the state could not be established until the public had been educated to the value of highways and the need for an efficient administrative system. Therefore, the General Assembly directed the Iowa State College to "act as a Highway Commission for Iowa" and appropriated \$7,000 for the next biennial period. In 1906, Iowa was at the bottom of the list of 17 states in road appropriations. The funds were included in the regular college budget for experimental purposes and were under control of the board of trustees.

The college had for a number of years taken an active interest in road problems of the state and had gathered considerable statistical data previous to 1904 through student research. The research consisted of tests on different road surfaces to determine the resistance to traffic, and to establish the relationship between market prices and road conditions. The board of trustees appointed Deans Curtiss and Marston as commissioners and engaged Thomas H. MacDonald as an assistant in charge of field operations. MacDonald, a 1904 Civil Engineering graduate, was appointed Assistant Professor at \$600 per year on the college budget and paid an equal amount from the state funds for an annual salary of \$1,200. The act provided that the college should serve as the state highway commission with the following powers and duties:

1. To devise and adopt plans and systems of highway construction and maintenance suited to the needs of the different counties of the state.
2. Conduct demonstrations on such highway construction at least once a year at some desirable place for instruction of county supervisors, township trustees, superintendents, students of the college, and others.
3. Disseminate information and instruction to county supervisors and other highway officers who make requests on questions of highway construction and maintenance.
4. Keep a record of all important operations of the

highway commission and report same to the governor at the end of the year.

Although the \$3,500 annual appropriation was increased later to \$10,000, the lack of funds limited the work. Despite this handicap, Professor MacDonald, in addition to his other duties, published a bulletin titled *The Good Roads Problem in Iowa* in June, 1905, which reviewed the early work of the commission and outlined a constructive program of reform for road legislation and administration. Efforts were made to investigate road conditions in the different sections of the state and to prepare road maps for about 12 counties. Research included the amount of funds collected in the counties, the methods used, and the results of the expenditures. Investigation of road materials was made by Professor S. W. Beyer.

A manual for Iowa highway officers was published in 1905 and revised in 1906. It contained a general survey and data pertaining to public highways, topography of Iowa, history and development of road legislation, the organization of the work of the commission to that time, and road construction and maintenance in the state. In particular, the manual declared that the Anderson Law had been generally disregarded by township trustees. "Some townships have appointed several men to work on roads and called them road superintendents, but this is merely a modification of the old, many district system. It would be much better and would follow the requirements of the law to have one superintendent for the township and let him have, if necessary, a number of assistants. The more the work is concentrated under one man held responsible for the proper expenditure of the fund, the more economical will be the administration of the road funds provided that the proper man is selected in the first place."⁹

The first annual report summarized the work of the commission. It pointed out that the act creating it provided that "it should not only act as a bureau of information on road matters but should also make as thorough an investigation as possible of the general

⁹ Iowa Highway Commission, *Manual for Iowa Highway Officers*, 1905, p. 35.

road problems of the state." The report covered four major sections: (1) Investigations, (2) Experiments, (3) Plans and Publications; and (4) The Road School.¹⁰ Many of the investigations were conducted by Dean Marston and MacDonald. Both studied road construction at various points in the state, traveling by train, buggy and spring wagon. Marston reported "that their investigations revealed that local units had been getting about 10 cents worth of road work for every dollar expended, a situation that generally existed throughout the Midwest."¹¹

During 1904 and 1905, MacDonald continued his campaign for good roads, riding "good road" trains which the CNW and CB&Q were running at that time. He lectured at every stop, and by 1906-1907, he and the commission members were giving lectures at good roads organizations throughout Iowa and Missouri. An annual road school was first held in Ames in June 1905, then throughout the state. It became an annual event and grew so large that it had to be discontinued in 1918. In the 1907-1908 annual report, the commission stated that Iowa was ready for permanent roads in certain districts and that some mileage had been built. Further, the idea that farmers would oppose permanent roads was to be questioned. Doubts, however, were expressed about the permanence of macadam roads under automobile traffic. "Petrolithic" paving, consisting of asphaltic oil, earth, gravel and broken stone, was mentioned as a promising surface. The commission concluded its 1908 annual report with statistics comparing Iowa with progress in road building in other states. It urged that its powers and duties be increased and recommended in this and other reports many of the changes eventually incorporated into the road laws.

At an early meeting of the commission, it was decided that an organization was required that operated through four departments: Office, Design, Field and Education. The organization was developed entirely on the basis of experience in Iowa, since there were no other road laws in any of the states formulated on the principle of state supervision or control of highways without state aid. All other state laws provided for state aid in some form. In July, 1911, the entire staff of the commission consisted of three full-time employees; a highway engineer (MacDonald), an assistant engineer (Conde B. McCullough), a stenographer (Annie Laurie Bowen), and two part-time employees. These people were employed by and received their salaries from the Iowa State College, not from the highway commission.

The State Highway Commission, 1913

In 1913, forces favoring more centralized control of highway administration succeeded in passing a law which established a new highway commission, increased its powers and duties, and separated it from the administration of the college although still officed on the campus. The new commission consisted of three members, one of which was Dean Marston, made an ex officio member, and the other two appointed by the governor from opposite political parties for a term of four years. Dean Marston received no salary; the others were paid \$10 per day with a limit of 100 days for which salaries would be paid for a total compensation of \$1,000. T. H. MacDonald was hired as highway engineer at an annual salary of \$2,400 and J. E. Kirkham as part-time consulting bridge engineer at \$300 per year. Commissioners were bonded for \$5,000; department heads, \$3,000; and \$1,000 for district engineers.

J. W. Holden of Scranton was the Republican member and H.C. Beard from Mt. Ayr, the Democratic appointee. The employees under the old commission were transferred to form the nucleus of the organization, considered adequate to carry out the provisions of the new law. Personnel were as follows: T. H. MacDonald, highway engineer; J. E. Kirkham, consulting bridge engineer; C. B. McCullough, assistant engineer; F. R. White, assistant engineer; Annie Laurie Bowen, and Merle Crabtree, stenographers; and J. H. Paulson, draftsman. MacDonald continued in his position until he was appointed Director of the U. S. Bureau of Public Roads in 1919 and was succeeded by Fred R. White.

By December 1, 1918, there were 62 people on the commission payroll, exclusive of the commissioners. The expanded volume of work created by the Federal-Aid and State Primary Road Acts, together with the end of World War I, increased the number of

¹⁰ *First Annual Report of the Iowa State Highway Commission Made To The Governor of Iowa For the Year Ending July 1, 1905.* Des Moines: State Printer, 1905, p. 9.

¹¹ Mississippi Valley Conference of State Highway Departments, pp. 1-2.

employees to 156 in 1919. J. W. Holden held the chairmanship of the commission and William Collison of Chariton and Dean Marston were the other members. In 1919, the commission was extensively reorganized. New departments were created and new department administrators appointed. These were:

Administrative	F. R. White, Chief Engineer
Accounting	M. E. Davis
Road Management	C. Coykendall
Road Surveys and Plans	W. E. Jones
Road Construction	F. H. Mann
Road Maintenance	W. R. Root
Bridge	J. H. Ames
Drainage	R. H. Clyde
Materials and Tests	R. W. Crum
State Parks and Institutional Roads	R. McCormick
Women's Drafting	Alda Wilson

To supervise the increased volume of work, the number of district engineers was increased from six to nine. All work in each district, as well as the men employed on preliminary surveys and in superintending construction of federal-aid projects, was placed under the direct supervision of the district engineer.

Chapter 328 of the Acts of the 40th General Assembly directed the commission to construct an office building as funds became available. It authorized the location of the building on ground adjacent to the sheds used for storage of surplus equipment distributed by the federal government to the state in 1919. Promptly after enactment of the legislation, citizens of Ames, through popular subscription, raised \$16,500 for the purchase of five acres of land west of the equipment sheds.¹² The tract (with a frontage of 240 feet on Lincoln Way and depth of 900 feet) was presented to the state as the site for a new office building. The total cost of the building, which was 160 feet long by 60 feet wide and three stories high, was \$123,518. It would provide sufficient space for all of the commission's personnel located in Ames and release the space occupied in the engineering buildings at the college. The date above the old Lincoln Way entrance shows completion of the building in 1923, but it was not occupied until June 1, 1924.

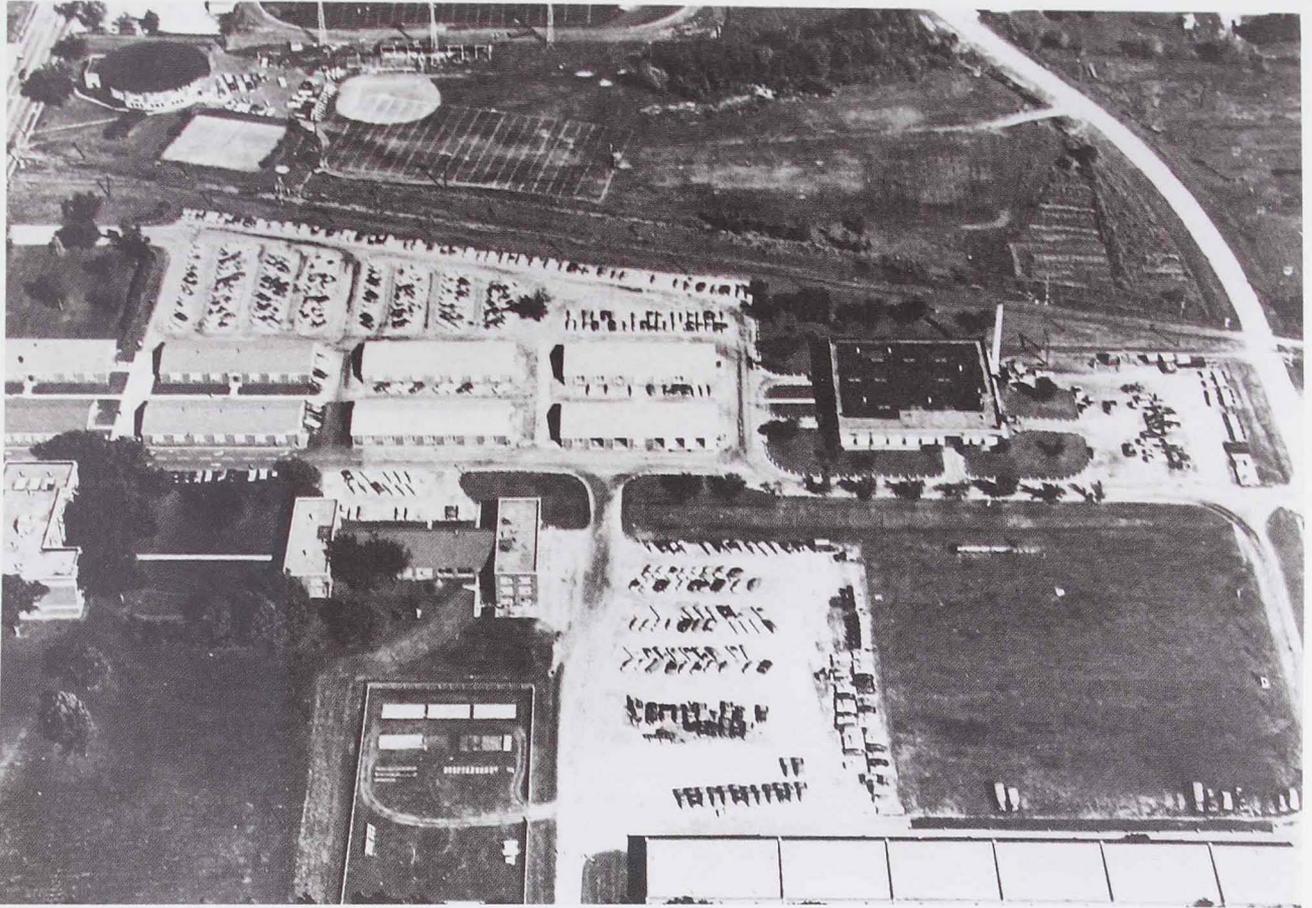
Responsibilities of the commission were further expanded when the General Assembly rewrote the Primary Road Law and granted them absolute power over the primary road development fund. Previously, the commission had been forced to await decisions by boards of supervisors for initiation of projects, often resulting in delay and lack of continuity in road

improvements. When controlled by the commission, the \$4 million fund was available to close gaps in the primary road system. Under the Primary Road Act of 1927, the powers and duties of the county supervisors with respect to construction and maintenance of primary roads were transferred to the commission. This action represented the final step in placing complete jurisdiction of primary roads under control of the state. The act also provided for reorganization of the commission by increasing the membership from three to five persons, appointed by the governor with the approval of two-thirds of the Senate in executive session, for a term of four years. Although not compulsory or suggested by law, it was generally accepted that members would come from different sections of the state and have personal knowledge and a better understanding of road problems in their areas. Each was to receive \$4,000 per year plus the necessary expenses. Anson Marston, who had served on the commission since its inception, requested to be relieved of his duties.



The original Highway Commission building completed in 1923.
(Courtesy: Iowa State Highway Commission)

¹² *Report of the State Highway Commission for the Year Ending December 1, 1922*. Des Moines: State of Iowa, 1922, p. 13. A tract of land in Ames was leased with the option to purchase 18 acres. It was favorably located near both highways and railroads. For storage purposes, eight hollow tile sheds, 52' X 142', were constructed at a cost of \$75,000. The lease was \$400 per year and was to expire in 1926. The option price was \$12,000.



Aerial view of Highway Commission's Ames complex in the 1950's.
(Courtesy: Iowa State Highway Commission)

The new commissioners were Clifford L. Niles, Anamosa; Carl C. Riepe, Burlington; H. E. Dean, Ocheyedan; H. A. Dartin, Glenwood; and T.E. O'Donnell from Dubuque. On December 1, 1929, there were 896 people on the payroll, exclusive of commissioners and temporary and part-time help. Of the total, 544 were engaged in field construction and 71 in maintenance work. As the powers and duties of the organization expanded, some old departments were eliminated, others changed in their responsibilities, or new ones were created. "The ability of the organization to develop and change to meet the ever increasing duties without complete reorganization, has been of untold value in the work of the commission. No administrative system is at any time perfectly adapted to its work, but is in continual process of becoming better adapted to it. As an example . . . in the beginning road design and bridge

design were of such prime importance that each was established as a separate department, but later, when much of the work was finished, the two departments were combined into the Department of Design."¹³ The commission in 1929 was organized into seven major departments, namely: Executive, Construction, Administration, Design, Maintenance, Materials and Tests, and Purchases and Accounts.

¹³ S. C. E. Powers, "The Iowa State Highway Commission," *Iowa Journal of History and Politics* 29 (January 1931): pp. 51-53.

The chief engineer, selected by the commission, was head of the entire organization. Until 1930 the commission had only two chief engineers, T. H. MacDonald and Fred R. White, so they seldom had to exercise their powers for this appointive position. The salary of the chief engineer was \$10,000. His duties were primarily administrative, to build an organization whose expertise, initiative and imagination would carry out the policies of the commission. In addition, the chief engineer was in charge of all litigation in which the commission was involved, and he advised on modification of both primary and county road systems.

The state was divided into nine districts to bring the commission into more direct contact with road work and road problems. Heading each district was the district engineer, selected by the chief engineer. He had general supervision of all road work in his district, including direct charge of surveyors, control of material inspectors, and supervision of all maintenance work. One or two assistants could be provided, also appointed by the chief engineer. One was in charge of construction and the other had responsibility for maintenance.



Aerial view of Department of Transportation's Ames complex in 1986.
(Courtesy: Iowa Department of Transportation)

Cooperative Activities

The commission worked closely with the Federal Bureau of Public Roads and with the county supervisors. Since 1927, the General Assembly required close cooperation of the state with the federal government in arrangements and funding on federal-aid highway projects. These had to be approved and accepted by the Federal Bureau before the federal share of the cost could be paid. For all practical purposes, this cooperation made the Federal Bureau a part of the state organization.

The relationship with the county supervisors concerned the secondary roads and road improvement. The commission acted in an advisory capacity with communications handled through the district engineer, or if necessary directly from the counties with the chief engineer. The county engineer often became a resident engineer of the commission for construction on primary roads and during these periods was considered an employee. These activities were in addition to his regular duties as inspector on secondary road work.

The powers over secondary road programs were thought necessary for uniformity, efficiency and economy on road plans and construction. Standard specifications and plans for culverts, bridges, railroad crossings, etc., were furnished without charge to the counties and had to be followed, assuring that their completion would be of proper design and location. Likewise, plans for all interconnecting roads and improvements on county boundary roads had to be approved by the commission. As provided by the Secondary Road Law, supervisors were required to submit definite plans covering one to three year programs to the commission for approval before funds were expended.

Where questions arose on bridging or improvements on interstate roads, highway commissioners of the states involved and supervisors of the counties on the borders negotiated the problems. Within municipalities, the commission had powers, subject to approval by local authorities, to construct or improve streets or roads which were continuations of primary roads within the limits of towns or cities under 2,500 population, or within a city where houses were not less than 200 feet apart. The cost of paving would come from the primary road fund. Along the primary road extensions, the commission was obliged to furnish suitable signs indicating whether the area was designated as business, school, residence, etc., and the speed limit in each instance. The commission also had

to approve city ordinances regulating traffic at primary road extensions or on heavily traveled streets. Cities could not erect traffic signals or close or obstruct any primary road extensions within the city except for fire or construction without commission consent. These provisions applied to all cities in the state having populations of 4,000 or over, except for their business districts.

The Major Commission Funds

Three funds were provided for the commission's work: the primary road fund, maintenance or support fund, and emergency fund. In addition, revenues from county bond sales was another source for primary road construction. The primary road fund received motor vehicle registration fees, fuel taxes, federal-aid monies and any surplus from the support fund. Approximately 93 percent of registration fees and supplementary revenues, such as penalties and transfers on motor vehicles, was spent directly on primary road projects. The remaining seven percent was divided into 2½ percent for highway department administration, 3½ percent for the motor vehicle department, and the remainder for reimbursement for overcharges in registrations. Counties charged a 50-cent collection fee for each vehicle registration. One-third of the original gasoline tax of two cents and all of the revenues from the additional one cent levied in 1927 were allocated to the primary road fund. Before using it for construction, however, the commission was required to establish a fund for maintenance of these highways during the year. In addition to construction, expenditures were used for right-of-way purchases, grading, graveling or paving, drainage, bridge and culvert work, guard rails, machinery and equipment purchases, and engineering. The fund was also used to pay interest and principal on county bonds issued for primary road improvements.

The support fund was used for the necessary overhead expenses of the commission. Indirect revenues came from sales of surplus equipment, road maps and guides, and forms for road improvement proposals. The emergency fund, which amounted to \$350,000, was taken from the primary road fund for the payment of claims, labor and freight. It was used to enable the commission to make prompt payments when delays in the normal reimbursement schedules might occur and result in serious inconveniences to those presenting bills or claims.

Summary

Many forces were working toward improvement of roads and highways in Iowa during the late 19th and early 20th centuries. The realization that railroads could not completely satisfy the needs of the public for efficient transportation, especially in the rural areas, brought pressures for better roads. These took the form of organized groups composed of different and varied interests in Iowa and throughout the nation in proposals for highway improvements. The "good roads organizations" made slow but steady progress in convincing legislators of their cause and their resolutions were endorsed by the General Assembly and Congress. Laws were passed which gradually transferred local administration of roads to a centralized state unit, provided for funding and made possible a more comprehensive system of road construction and management. Congress, recognizing the nationwide scope of the problem, assisted the states with federal funds, tied to certain rules and regulations, one of which was the requirement that the state receiving funds had to have a highway commission to administer them.

The history of road building in Iowa could be written as the history of the State Highway Commission. It was established partly through the efforts of Deans Curtiss and Marston and T. H. MacDonald of the Iowa State College, who acted as the commission for approximately 10 years, a rather unique arrangement in highway administration. Handicapped by lack of funds and conservative traditions, the commission first attempted to educate the public as to the value of good roads, then proceeded to build an organization with expertise necessary and sufficient to lay the foundations for construction of the highway network

of the state. The effectiveness of the commission in meeting its obligations and performing its duties and responsibilities in the early 20th century will be discussed in the chapters that follow.

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