



Bituminuous brick roadway between Davenport and Princeton along Mississippi river. Scott county.

STATE OF IOWA  
1921

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REPORT OF THE  
**State Highway Commission**

FOR THE  
Year Ending December 1, 1921

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ISSUED BY THE  
**STATE HIGHWAY COMMISSION**  
AMES, IOWA

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WM. COLLINSON, Chairman  
J. W. HOLDEN,  
ANSON MARSTON,  
State Highway Commissioners

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F. R. WHITE, Chief Engineer

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Published by  
THE STATE OF IOWA  
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LETTER OF TRANSMITTAL

HON. N. E. KENDALL, Governor:

Pursuant to the provisions of Section 1527-s2, Supplemental Supplement to the Code, 1915, the State Highway Commission presents herewith Part One of its Eighth Annual Report. This part of the report covers the principal operations of the Commission for the year December 1, 1920, to December 1, 1921.

Part Two of this report will contain a summary of the annual reports of the county engineers for the year December 31, 1920, to December 31, 1921. It will be presented later as the law provides.

W. COLLINSON, Chairman.

J. W. HOLDEN,

ANSON MARSTON,

Commissioners.

Ames, Iowa, December 31, 1921.

## PART I

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### CHAPTER I

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#### Summary

##### **The Eighth Annual Report.**

The Eighth Annual Report of the State Highway Commission is divided into two parts.

Part One is a report of the work of the Commission for the year ending December 1, 1921, and of the expenditures of the Commission for the fiscal year ending June 30, 1921.

Part Two is a summary of the annual reports of the county engineers for the year ending December 31, 1921.

##### **The Year of 1921.**

The year 1921 is the first year since the primary road law was passed that it has been possible to carry on road construction work without ruinous delays due to causes beyond the control of anyone connected with the work. During 1919 and 1920 the work was repeatedly held up for days and weeks at a time, on account of shortages of materials, labor, and rail transportation.

A year ago, looking forward to the season of 1921, the Commission said "The year 1921 should show twice as much construction work on the primary road system as was accomplished in 1920." This forecast has been more than fulfilled. During 1921 there was completed three and one-half times as much paving, three and one-half times as much graveling, and two and one-half times as much grading as in 1920. This program of construction work has played its part in relieving unemployment and has given some stimulation to business in the communities where work was in progress. Since the primary road fund does not come from taxes on real property, the primary road work has not increased tax levies, except in the few counties where the issuance of primary road bonds was authorized by a vote of the people.



**Construction Work Accomplished.**

The following amounts of the various classes of road work were completed during 1921:

Paving .....	165.4 Miles
Graveling .....	367.7 "
Grading .....	1050.9 "
Tile Drains .....	5,416,528 Lin. Ft.

A comparison of the construction work accomplished each year since the primary road law was passed, follows:

Kind of Work	Year 1919	Year 1920	Year 1921
Paving .....	4.3 ml.	46.6 ml.	165.4 ml.
Graveling .....	3.0 ml.	102.5 ml.	367.7 ml.
Grading .....	140.9 ml.	409.8 ml.	1,050.9 ml.
Tile Drains .....	128,001 lin. ft.	1,168,709 lin. ft.	5,416,528 lin. ft.

On December 1, 1921, work was under way on one hundred fifty-one projects located in ninety-two counties. The uncompleted work on these projects was as follows:

Paving .....	5.7 Miles
Graveling .....	142.7 "
Grading .....	413.3 "
Tile Drains .....	520,381 Lin. Ft.

This work will be carried over into the 1922 construction season.

**Tests of Materials.**

In connection with the above construction work, tests and inspections have been made of twenty-five thousand, four hundred twenty-two cars of materials as follows:

Cement .....	3,635 Carloads
Sand, Gravel and Stone .....	19,484 "
Brick .....	425 "
Reinforcing Steel .....	80 "
Drain Tile .....	1,798 "

These cars, if coupled together, would form a train two hundred forty miles long.

This testing and rigid inspection of materials has resulted in the rejection of three hundred fifty-four carloads of materials which might otherwise have been incorporated into the work. The fourteen thousand, one hundred eighty-eight barrels of cement that were rejected, would, had its defective character not

been detected through careful tests, have been sufficient to spoil four miles of pavement, costing one hundred forty thousand dollars.

The survey of the road building materials of the state has been continued. Two hundred ten undeveloped deposits of road materials in sixty-two counties, have been examined. Through this work, during the past two years, heretofore undeveloped deposits of materials have been developed and used on eleven paving contracts, thereby completing such contracts for one hundred forty-three thousand dollars less than they would have cost had the material come from previously known deposits.

Thus, the Department of Materials and Tests, which has cost the state \$73,782.96 during the past two years, has during that time saved the counties and the state about \$283,000 in addition to testing materials for more than \$14,000,000.00 worth of work.

**Payments Made by Government.**

Prior to December 1, 1920, the Government had paid \$315,958.37 to the state in aid of road work. During 1921, the Government paid to the state \$4,308,078.62. The total payments by the Government to December 1, 1921, amounted to \$4,624,036.99. Of the total amount of federal aid (\$7,939,343.14) allotted to the state prior to December 1, 1921, \$3,315,306.15 is still in the hands of the Federal Treasurer in Washington. The only way the state can get this federal money is by proceeding with the construction of the road projects to which the funds have been allotted.

**Bridge Surveys and Plans.**

Field surveys have been made for one thousand six hundred twenty-four bridges and culverts. Plans have been prepared for two thousand nine hundred twenty-five bridges and culverts, estimated to cost \$4,699,940. Plans have been approved for four hundred thirty-two bridges and culverts estimated to cost \$723,264.00. A comparison of this work during the past five years, follows:

Year	Field Surveys Made	Plans Prepared		Plans Approved		Shop Drawings Approved
		No.	Estimated Cost	No.	Estimated Cost	
1921 .....	1,624	2,925	\$ 4,699,940	432	\$ 723,264	158
1920 .....	1,792	1,074	3,025,606	490	1,972,417	103
1919 .....	1,232	535	1,481,300	307	802,000	86
1918 .....		236	1,298,000	163	634,000	79
1917 .....		343	1,441,000	113	413,500	154



It will be noted that in 1921 plans were prepared for nearly three times as many bridges and culverts as in 1920, and nearly six times as many structures as in any previous year.

#### Bridge and Road Contracts.

Eight hundred thirty-four bridge, road, and material contracts were checked for approval. These contracts were classified as follows:

	Number of Contracts	Amount of Contracts
Bridge and culvert work.....	267	\$ 4,992,100.00
Bridge and culvert materials.....	49	
Primary road work.....	433	7,919,372.00
Primary work in cities.....	1	50,336.00
County road work.....	58	329,036.00
Secondary road districts.....	56	297,569.00
Total.....	834	\$ 12,789,196.00

Nine of the above bridge and road contracts, amounting to \$238,568.00, and six material contracts, were disapproved. The remaining eight hundred nineteen contracts, amounting to \$12,550,628.00, exclusive of material contracts, were approved.

A comparison of the contracts checked for approval for the past five years, follows:

Year	Bridge and Culvert Contracts		No. of Mtl. Conts.	Primary Road Contracts		Secondary Road Contracts	
	No.	Amount		No.	Amount	No.	Amount
1921.....	267	\$ 4,992,102	49	433	\$ 7,969,488	94	\$ 777,938
1920.....	228	4,307,106	53	297	12,212,659	62	878,081
1919.....	273	3,213,800	35	29	1,159,222	37	225,450
1918.....	172	1,760,800	55	6	186,571	28	290,794
1917.....	197	2,779,000	50	1	90,492	35	654,998

#### Road Surveys and Plans.

During 1921, detailed surveys were made for the improvement of one thousand five miles of the primary road system, plans were completed for one thousand four hundred fifty-five miles, and plans prepared by the county engineers for improving two hundred sixty-four miles of secondary roads were checked and approved. Surveys have now been completed for three thousand five hundred eighty-nine miles, or fifty-five per cent of the primary road system. Plans have been completed for three thousand two

hundred twenty-three miles; or forty-nine per cent of the primary road system. These plans constitute a permanent record of the road to which they apply, and once the plans are completed for the entire primary road system, the cost of the surveys, road plans, and bridge and culvert designs, which now amounts to approximately three hundred thousand dollars annually, will be almost entirely eliminated.

A comparison of the mileage of surveys and plans for the past five years, follows:

Year	Primary Roads		Secondary Plans Checked and Approved
	Surveys	Plans	
1921.....	1,905 mi.	1,455 mi.	294 mi.
1920.....	1,080 mi.	1,164 mi.	413 mi.
1919.....	1,063 mi.	287 mi.	321 mi.
1918.....	269 mi.	213 mi.	321 mi.
1917.....	138 mi.	4 mi.	899 mi.

#### Cost of the Commission.

The Highway Commission is composed of three members, one of whom is the Dean of Engineering of the Iowa State College, and the other two are appointed by the Governor. The Dean of Engineering receives no additional compensation for his work on the Commission. The two appointive members receive ten dollars per day for the time spent on Commission work, except that neither one can receive more than two thousand dollars in any one year. Each Commissioner receives actual traveling expenses when away from home on Commission business.

During the past fiscal year, the total salaries and expenses of all three Commissioners were \$4,016.45, as follows:

William Collinson, Salary.....	\$1,210.00
Expenses.....	738.56
Total.....	\$1,948.56
J. W. Holden, Salary.....	\$1,140.00
Expenses.....	672.47
Total.....	\$1,812.47
Anson Marston, Salary.....	None
Expenses.....	\$ 255.42
Total.....	\$ 255.42
Grand Total.....	\$4,016.45

**Cost of Engineering.**

Complaint and criticism is frequently heard as to the number of engineers employed by the Commission and of the amount expended for such engineering work.

A statement to the effect that so many hundreds of thousands of dollars have been spent in a given year for engineering, really means nothing unless at the same time it is also shown the amount of work to which the engineering cost applies. The total amount spent for engineering is something over which the Commission has very little control. It is dependent on the program of work laid out by the legislature when it passes its road laws. It should cost about ten times as much to make surveys and plans for one thousand miles of road as for one hundred miles, and it should cost about three times as much to supervise the construction of one hundred fifty miles of pavement as to supervise the construction of fifty miles. The only true way to state a highway engineering expenditure is in terms of the cost per mile for surveys and plans, or by stating the percentage of the total cost of the work which was spent for engineering.

The first law accepting federal aid was passed in April, 1917. Since that time, and up to December 1, 1921, the Commission has completed the surveys, plans, and specifications for one hundred fifty-four projects or divisions of projects, which involve the improvement of 2,225.35 miles of road, estimated to cost \$26,855,185.97. The completed surveys and plans of these projects cost \$472,858.87, which is an average of \$212.48 per mile, or 1.77 per cent of the estimated cost of the work. During the same time, the Commission has supervised the construction of primary road work costing \$21,148,242.33. The engineering, inspection, testing of materials, and general supervision of this construction work has cost \$874,403.41, or 4.14 per cent of the total cost of the work. Thus the total cost of all engineering, the making of surveys, preparation of specifications and plans, inspection of materials and construction work, keeping of records, and all general supervision of the work, is but 5.91 per cent of the total cost of the work.

The Commission considers this as a very moderate expenditure for engineering, especially in view of the fact that a very large percentage of the work is grading and draining, costing only four or five thousand dollars per mile, but requiring as careful and complete survey and plans as would a paved road costing

thirty thousand dollars per mile, and in view of the fact that the work is scattered all over the state of Iowa (an area of one hundred fifty times that of the Panama Canal zone) thus greatly increasing the cost of adequate supervision. It should be noted here that although several hundred contractors have been dealt with in connection with the \$21,148,242.33 worth of work constructed up to December 1, 1921, yet the engineering has been so accurately and carefully done, and the records so accurately kept, that there has been not a single case in court growing out of the settlement for such work. Through the care with which the engineering has been handled, and records kept, the state and counties have been saved the expense of costly litigation and have avoided the possibility of losses amounting to many times the total cost of the engineering work, and the construction work completed has been of a much higher quality than it could possibly have been had the engineering work been done in a careless, haphazard, and inefficient manner.

**Plans, Specifications, and Estimates Submitted.**

Plans, specifications, and estimates for one hundred thirty-three projects, involving the improvement of one thousand five hundred thirty-four miles of primary roads, at an estimated cost of \$8,512,312.00 were submitted to the Federal Government and the boards of supervisors for approval. Thirty of these projects were federal aid projects; the remainder were primary road projects.

**Federal Aid Funds Obligated.**

If project agreements are not executed, obligating federal aid funds within two years after they become available, such funds revert to the Federal Government. Under these conditions, Iowa must have obligated \$7,939,343.14 of federal funds by July 1, 1922. Up to December 1, 1921, one hundred project agreements had been signed with the Secretary of Agriculture, obligating \$7,608,208.91 of federal aid, leaving \$331,134.23 which must be obligated by July 1, 1922. These remaining funds will be obligated in time to prevent their reverting to the federal government.

**Projects Approved.**

The Commission approved sixty-seven projects, involving the improvement of 870.5 miles of the primary road system, at an estimated cost of \$4,156,652.00 and approved two projects for paving 2.6 miles of extensions of primary roads in cities.



### Summary of Progress Made in Improving Primary Road System.

Since the enactment of legislation by the Thirty-seventh General Assembly, accepting the provisions of the first Federal Aid Act, and establishing the inter-county road system, progress has been made towards the improvement of the system as follows:

(a) **Primary System Established.** A primary road system, comprising six thousand six hundred sixteen miles, has been established.

(b) **Projects Approved—Primary and Federal Aid.** Projects involving the improvement of 3,828.70 miles of this system have been approved by the Highway Commission. Of this mileage, 348.85 miles are contemplated for improvement by hard surfacing, 847.46 miles by gravel surfacing, 3,132.05 miles by constructing to finished grade, draining, and bridging, and 284.27 miles by tile drainage only.

(c) **Surveys Made and Plans Prepared.** Surveys have been made on 3,589 miles of this system and plans prepared for 3,223 miles. Plans have been submitted to the boards of supervisors for 2,935.12 miles of primary road improvement. The improvement contemplated in plans submitted, includes 319.50 miles of hard surfacing, 756.32 miles of gravel surfacing, 239.96 miles of improvement by tile drainage only, and 2,236.73 miles to be graded and drained.

(d) **Contracts Awarded.** Contracts have been awarded or force account work started for the improvement of 2,558.70 miles of this system; 226.54 miles by hard surfacing, 615.42 miles of gravel surfacing, 598.18 miles for grading in connection with surfacing, 1,368.32 miles by constructing to finished grade and draining without surfacing, and 348.42 miles for improvement by tile drainage only.

(e) **Construction Completed.** Two hundred twenty and eighty-six one hundredths miles have been hard surfaced, 472.75 miles have been gravel surfaced, 1,601.98 miles have been built to finished grade and drained, and 275 miles have been improved by tile drainage only.

### Road Maintenance.

The expenditures by the various counties for maintaining the primary road system during 1921 amounted to \$2,264,692.41. Since the system includes six thousand six hundred sixteen miles, the maintenance of such system cost an average of \$342.30 per mile. The work of maintaining the primary road system is carried on by the county boards of supervisors, under the general supervision of the Commission.

Fifty-six complaints relative to the condition of primary, county, and township roads, have been investigated and adjusted.

### Changes in Primary and County Road Systems.

Modifications of the primary roads in seventy-two counties have resulted in decreasing the primary road system five and five-tenths miles. The system now includes six thousand, six hundred sixteen miles.

Modifications of county roads in forty-three counties have resulted in increasing the county road system one hundred twenty-nine and one-tenth miles.

### Government Equipment Received.

During 1921, government equipment valued at \$510,186.42 was received. The total value of all government equipment received to December 1, 1921, is \$2,820,088.00. This equipment consists of six hundred eighty motor trucks, sixty-five Ford cars, twenty-eight other passenger cars, fifty-seven tractors, two concrete mixers, three road graders, fifty sets of double harness, and a large quantity of miscellaneous equipment, tools, etc.

During the past year, eighty-seven trucks, forty-six tractors, thirty-nine wagons, twenty-nine sets of wagon wheels, and one forge, valued at \$563,425.00 were assigned to the counties; two trucks and fifty sets of double harness valued at \$6,500.00 were assigned to the Board of Control.

This government equipment has cost the state a total of approximately \$143,000.00, or 5.1 per cent of its value.

### Railroad Crossing Work.

Surveys were made for the improvement of eight railroad crossings. Plans were prepared for thirty-four railroad crossing projects. Fifteen crossing projects have been satisfactorily adjusted and agreements reached between the railroad companies and the public regarding the division of cost. The plans for these fifteen projects contemplate the separation of grades at five crossings, and the improvement of ten crossings at grade.

### Counties Voting on Hard Surfacing.

One county, Dubuque, voted on the question of hard surfacing its portion of the primary road system. The county also voted on the question of issuing \$1,500,000 in bonds for such hard surfacing work. Both propositions were defeated.

In all, forty-two counties have voted on the hard surfacing of the primary roads. The proposition has carried in twenty-seven counties and lost in fifteen counties. A total of twenty-four coun-



ties have voted on the issuance of bonds for improving the primary roads. The bond issues have carried in thirteen counties and lost in eleven counties.

#### Bonds Issued.

During 1921, the bonds issued amounted to \$3,104,000.00. Although the issuance of \$18,475,000.00 of bonds has been authorized, the total bonds issued to December 1, 1921, is \$4,564,000.00. Of the bonds issued, \$50,000.00 have not been sold, and \$285,000.00 have been retired. The bonds outstanding December 1, 1921, amounted to \$4,229,000.00. The following is a list of the counties that have issued bonds, showing the total amount issued, the amount retired, and the amount outstanding:

County	Issued	Retired	Outstanding
Cerro Gordo	750,000		750,000
Clinton	425,000		425,000
Floyd	535,000		535,000
O'Brien	750,000	450,000	700,000
Polk	629,000		629,000
Scott	915,000	135,000	780,000
Woodbury	550,000	150,000	400,000

\*Issued but not sold.

#### The Year of 1922.

The year 1922 should see a decline in the mileage of pavement constructed, but should see a marked increase in the mileage of grading, draining, and graveling. It is the policy of the Commission to push the grading, draining, and graveling work as much as the available funds will permit, but to do no paving except where the necessity is very great.

It is estimated now that the 1922 construction program will include about one hundred miles of paving, four hundred miles of gravel, and fifteen hundred miles of grading.

## CHAPTER II

### Recommended Legislation

Some revisions in the road laws should be made to meet the difficulties of the present financial situation, but since the legislature does not meet this winter, no recommendations as to such revisions are being made at this time.

In this chapter is given a brief review of the road laws passed by the Thirty-ninth General Assembly.

The road legislation of the Thirty-ninth General Assembly was confined more particularly to amendments to existing road laws to clear up obscure points and relieve other points where difficulties have been encountered. A review of the more important parts of this legislation follows:

#### Purchase of Land for Gravel Pits.

Previously, the law specified that not to exceed five acres could be purchased in any one place for the purpose of securing gravel or other road building material. This limitation was removed. (See Chapter 79, Thirty-ninth General Assembly.)

#### Primary Road Bonds.

In order to make primary road bonds more salable, such bonds were made a general obligation of the county, and provision was made for refunding such bonds in case the primary road fund was not sufficient to meet the principal of the bonds when they became due. (See Chapter 215, Thirty-ninth General Assembly.)

#### Primary Road Funds—Accounting—Anticipation.

A law was passed (Chapter 188, Thirty-ninth General Assembly) amending the primary road law so as to clarify the method of accounting for primary road funds and to provide a means whereby funds might be loaned to any county which wished to anticipate its allotment of the primary road fund, in order to carry out immediate construction work.

#### Primary Road Contingent Fund.

In order to make it possible to make immediate payment on claims which must be paid promptly, a bill was passed, creating the primary road contingent fund. (See Chapter 220, Thirty-

ninth General Assembly.) By virtue of this law, payment can be made immediately on emergency claims, and the bill later sent through in the usual manner, for auditing and checking.

#### **Improvement of Primary Roads Within Towns.**

The primary road law was amended (Chapter 56, Thirty-ninth General Assembly) so that the grading, draining, and graveling on extensions of primary roads within towns may be paid for from the primary road fund.

#### **Improvement of Primary Roads Within Cities.**

A law was passed whereby aid may be given from the primary road fund for the paving of extensions of primary roads within the outlying districts of cities. (See Chapter 230, Thirty-ninth General Assembly.)

#### **Bridge and Culvert Work on Primary Road System.**

A law was passed (Chapter 20, Thirty-ninth General Assembly) providing that the bridge and culvert work on the primary road system can be paid for out of the primary road fund.

#### **Interest on Road Assessments.**

Previously, the interest on special assessments for road improvements started on the day such assessments were levied. This was amended so that such interest does not start until twenty days after such assessment has been levied. (See Chapter 50, Thirty-ninth General Assembly.)

#### **Township Road Work Taken Over by County.**

During the past several years, sentiment has been developing for the taking over of all township road work by the county board of supervisors. The first step along this line was taken by the Thirty-ninth General Assembly when it enacted a law (Chapter 227) providing that upon a majority vote of the people in any township, such township road work may be transferred to the county. This is one of the major pieces of road legislation passed by the Thirty-ninth General Assembly. It is a new departure from previous policies. It is quite probable that the enactment of this law is only the beginning of a series of legislative enactments which will eventually transfer all township road work from the township trustees to the county boards of supervisors.

#### **Limitations on Appropriations for Bridges.**

Heretofore the law has provided that a county cannot appropriate more than thirty-five thousand dollars for any one bridge, and if the bridge is located on a county line, neither county can appropriate more than twenty thousand dollars therefor. This limitation was increased so that a county may appropriate not to exceed fifty thousand dollars for a bridge located wholly within a county, and each county may appropriate not to exceed twenty-five thousand dollars for a bridge located on the county line. (See Chapter 107, Thirty-ninth General Assembly.)

#### **Width of Sleighs.**

A law was enacted (Chapter 110, Thirty-ninth General Assembly) requiring that sleighs and sleds should have a standard width between runners, of four feet, eight inches.

#### **Contract Bonds.**

There were two laws (Chapters 28 and 147, Thirty-ninth General Assembly) enacted with reference to the bonds to be given by contractors on public works. These laws decrease the amount of surety required, from one hundred per cent of the amount of the contract to seventy-five per cent thereof, provide that a private bond or other surety can be furnished in lieu of a surety bond, and increases the time from sixty days to four months in which claims may be filed against a contractor.



## CHAPTER III

### Executive Department

#### Appointments of Commissioners.

During the year, fifty-six formal Commission meetings were held, of which forty-four were attended by Commissioner Holden, forty-three by Commissioner Collinson, and forty by Commissioner Marston.

The Commissioners spent a total of one hundred forty-four days on inspection trips in the several counties and in conferring with county boards of supervisors, township trustees and other local road officers.

Forty-six of the ninety-nine counties were visited.

Employees of the Executive Department spent a total of one hundred twenty days on assignments outside the general office.

#### Eighth Annual Road Conference.

The eighth annual conference of road officers was held in Ames March twenty-third, twenty-fourth, and twenty-fifth, 1921. This meeting was attended by seventy-seven county engineers, eighteen assistant county engineers, one hundred ninety-eight county supervisors, twenty-nine county auditors, one township trustee and one road patrolman. There was a total enrollment of three hundred twenty-four.

#### Official Communications.

During the year the following Official Communications were issued:

No. 49—To County Boards, County Auditors, and County Engineers, relative to proposal guarantees.

No. 50—To County Officials, Drainage Engineers, and District Engineers, relative to the payment of drainage assessments on primary roads.

#### Litigation.

During the past year the Commission has been named as co-defendant in one law suit; that is, Shenandoah Artificial Ice, Power, Heat and Light Company versus The State Highway Commission, The Board of Supervisors of Page County, et al.

In this case the said company sought to enjoin the Board and the Commission from removing from a highway which was being improved, certain poles and other apparatus connected with a high tension electric transmission line. The case was settled out of court.

The case of Andrew Nielson, Julius Claeys, Patrick McDonald, and M. E. Lillis versus The Board of Supervisors of Scott County, County Auditor, County Treasurer, and Highway Commission, which was mentioned in our report last year, came to trial and was decided in favor of the County and the Commission.

In this case the plaintiffs are owners of real estate within the assessment district for hard surfacing a portion of the primary road system. They asked an injunction restraining the defendants from levying an assessment on their property. It was alleged that the law is unconstitutional, does not provide sufficient notice of assessments, and that the levying of such assessments would constitute the taking of property without due process of law. The court denied the injunction.

The case of Story County versus The State Highway Commission, which was mentioned in our report a year ago, has not yet come to trial.

In this case, the Board of Supervisors of Story County graded certain portions of the Lincoln Highway which is on the primary road system, without first securing the approval of the Commission on said gravel project. After the work was completed, they requested payment from the primary road fund. The Commission refused to approve the claims. The board is attempting to force payment of said claims as primary road work.

#### Publications.

During the year seven issues of the regular Service Bulletin were issued. The following additional publications were issued:

Weekly Letting Report—Twenty-four Issues, Standard concrete Road Specifications—Revised, Program of Improvement for Primary Road System (1921).

#### Modifications of Primary Road System.

The law provides that the primary road system may be changed,

- (a) For more efficient service,
- (b) For more economical construction.

During the past year ninety-three changes or modifications have been made in the primary road system of seventy-two coun-



ties. The greater number of these modifications consisted merely of correcting the maps where relocations of primary roads have been made to avoid bad turns, railroad crossings or steep grades. The modifications made resulted in a net decrease in the primary road system, of five and five-tenths miles. The total mileage of the system now is six thousand six hundred sixteen miles.

#### Modification of County Road System.

Sixty-two requests from forty-three counties were received, for modifications in the county road system. After investigation, the Commission approved fifty-eight of these requests, adding one hundred thirty-four and nine-tenths miles to the county road system, and removing five and eight-tenths miles, making a net increase of one hundred twenty-nine and one-tenth miles.

#### State Fair Exhibit.

The usual highway exhibit was maintained at the State Fair.

#### Registration of Highway Routes.

During 1921 four highway routes were registered with the Commission, under the provisions of Section 3021 of the Compiled Code, as follows:

Webster Trail .....	Registered, April 21, 1921
Detroit, Lincoln and Denver Highway.....	" Sept. 6, 1921
Glacier Trail .....	" Sept. 6, 1921
Marshalltown-Collfax Short Line.....	" Sept. 6, 1921

A complete list of the fifty-two routes registered prior to December 1, 1920, appears in the 1920 report.

#### Organization of the Commission.

On December 1, 1921, there were two hundred fifty-three people on the Commission's force, exclusive of the Commissioners and temporary and part time help. One year ago the force consisted of two hundred forty-five people, exclusive of the Commissioners and temporary and part time help. An outline of the organization of the Commissions, showing department heads and district engineers, follows:

#### Commissioners:

William Collinson .....	Chairman .....	Charlton
J. W. Holden.....	.....	Scranton
Anson Marston .....	.....	Ames

#### Executive Department:

F. R. White.....Chief Engineer .....Ames

#### Department of Purchases and Accounts:

C. R. Jones.....Auditor .....Ames

#### Department of Road Administration:

C. Coykendall .....Engineer of Road Administration...Ames

#### Department of Road Design:

W. E. Jones.....Engineer of Road Design .....Ames

#### Construction Department:

F. H. Mann.....Construction Engineer .....Ames

#### Maintenance Department:

W. H. Rott.....Maintenance Engineer .....Ames

#### Bridge Department:

J. H. Ames.....Bridge Engineer .....Ames

#### Department of Materials and Tests:

R. W. Crum.....Engineer of Materials and Tests...Ames

#### District Number One:

W. F. Beard.....District Engineer .....Ames

#### District Number Two:

Raymond Zack .....District Engineer .....Mason City

#### District Number Three:

E. W. Dunn.....District Engineer .....Sioux City

#### District Number Four:

L. M. Martin.....District Engineer .....Atlantic

#### District Number Five:

J. S. Morrison.....District Engineer .....Ottumwa

#### District Number Six:

Will M. Lee.....District Engineer .....Cedar Rapids

#### District Number Seven:

J. A. Paulsen.....District Engineer .....Waterloo

#### District Number Eight:

J. F. Reynolds.....District Engineer .....Storm Lake

#### District Number Nine:

W. O. Price.....District Engineer .....Charlton

## CHAPTER IV

### Bridge Department

During the period covered by this report the bridge department prepared detailed plans for 2,925 bridges and culverts located in eighty-three counties and estimated to cost \$4,699,940.00; approved four hundred thirty-two designs submitted from forty-two counties and estimated to cost \$723,264.00; checked and approved one hundred fifty-eight detailed shop drawings for steel structures from sixty-four counties and estimated to cost \$684,316.00; made field surveys for 1,624 bridges and culverts in fifty counties; checked for approval two hundred sixty-seven bridge and culvert contracts totaling \$4,092,103.14 from eighty-three counties; approved forty material contracts from twenty-three counties.

The district engineers representing the bridge department have attended one hundred eighty-five bridge lettings in eighty-nine counties on advertised work totaling \$4,395,300.00; attended one hundred four material lettings in seventy-seven counties; spent four hundred and seventy-four days in preliminary engineering work on bridges; and spent one hundred and five days in supervising and inspecting bridge work.

In addition to the above, this department has handled all of the office and field work on the preparation and checking of plans and estimates of cost for railroad crossing improvements and attended a number of conferences on this work. A more detailed statement of the railroad crossing work appears in Chapter V.

Since the present highway law became effective in April, 1913, the engineers of the bridge department have designed, checked or approved 10,011 detailed individual plans for specific bridges with a total estimated cost above \$23,927,000.00; checked and reported for approval 1,658 bridge contracts with a total contract price of \$19,808,000.00; approved three hundred thirty-four material contracts; attended nine hundred seventy-one bridge lettings for work estimated to cost \$21,449,000.00 and attended six hundred fifty-one material lettings.

#### Bridge Designs for Specific Locations. (Refer to Schedule No. 1.)

During the past year the bridge department has prepared 2,925 designs for individual locations from field notes secured by the engineers of the Commission and from notes sent in by county engineers. The total estimated cost of the bridges and culverts designed during 1921 by the Commission is \$4,699,940.00.

Since the present road law went into effect in April, 1913, the bridge department has prepared 6,874 designs for specific locations which are estimated to cost \$16,376,300.00.

The bridge department has completed the design of several bridges of importance during the past year. Among these are the following:

Plans were prepared for a 156'x18' reinforced concrete cantilever girder bridge over Beaver Creek near Herrold Station in Polk County. The contract price of this structure was \$24,283.36.

A 160x20' through riveted truss with two 40x20' I-Beam approach spans was designed for a crossing over Middle River north of Indianola in Warren County. The contract price of this bridge complete was \$28,729.00.

A bridge consisting of 1-90x20' and 2-70x20' steel pony truss spans was designed for Hamilton County. This bridge is located over Boone River near Webster City and cost complete \$18,612.60.

A superstructure design for 2-154x24' through riveted truss spans with a 5' sidewalk was prepared by this department in 1921 for Chickasaw County over Cedar River. The contract price for the superstructure complete including a wood block floor was \$44,566.00.

A design was made for an 80x24' reinforced concrete arch bridge over Duck Creek in Scott County. The contract price for this bridge was \$8,777.00.

Plans were completed for a steel truss bridge over Chariton River in Appanoose County. The structure is composed of 1-140x20' and 2-100x20' through riveted trusses on concrete piers with concrete floor. The contract price for the structure complete including piling was \$35,995.00.

A bridge consisting of 2-160x20' through riveted truss spans was designed for a crossing over the Maquoketa River north of Maquoketa in Jackson County. The contract price of the structure complete, including piling, was \$36,809.00.

A design was made for a bridge over the Little Sioux River in Clay County which consisted of 3-110x20' through riveted truss spans with concrete floor on concrete piers and abutments. The contract price of this structure was \$28,392.00.



### Bridge Work on Primary Road System.

Chapter 20, Acts of the 39th General Assembly makes it possible for bridge and culvert work on the primary road system to be paid from primary road funds. Since March 8, 1921, the date when this change in the law became effective, there have been eighty-four projects approved involving one hundred forty-nine bridges and 2,250 culverts with an estimated cost of \$3,100,000.00. Detailed plans for ninety bridges and 1,408 culverts on sixty-one projects have been approved during the period mentioned above. A total of one hundred eight contracts on seventy-three projects totaling \$2,038,369.94 for the construction of one hundred twenty-three bridges and 1,882 culverts have been approved up to December 1, 1921.

### Approval and Analysis of Designs Submitted.

During the past year the bridge department has checked the individual plans for four hundred thirty-two structures as submitted by county engineers or private engineers and in addition has approved the detailed shop drawings for one hundred fifty-eight structures estimated to cost \$684,316.00. A detailed record of the approval of individual plans and shop drawings is kept in the Commission's office but is not included in this report. Since April, 1913, the bridge department has checked 2,593 designs, the cost of which was estimated at \$5,915,000.00. During the same period of time and in addition to the above a total of eight hundred eighty-four shop drawings was checked on work estimated to cost \$2,860,000.00.

### Standard Plans.

Slight revisions have been made in some of the standard bridge and culvert plans which have previously been issued. In addition some work of a preliminary nature has been done towards a more complete revision of the standards for steel superstructures and concrete bridges and culverts.

The following is a complete list of the standard bridge and culvert plans which have been issued and are in effect January 1, 1922:

Series C—Concrete box culverts for spans from 2 ft. to 12 ft., 24 sheets of designs, C-1 to C-24 inclusive and 4 sheets of typical designs TC-1 to TC-4 inclusive. Dated June, 1919.

Series D—Circular concrete culverts from 18 inch to 42 inch diameter. Four sheets of designs and four sheets of estimates, D-1 to D-8 inclusive. Dated 1914.

Series E—Metal culverts. One sheet E-1. Dated 1914.

Series F—Concrete pipe culverts. F-1 concrete pipe culverts. Dated 1914. F-2 alternate design for pipe culverts. Dated 1919.

Series G—Timber and steel construction. Three sheets of designs.

G-1. Pile trestle. Revised. December, 1918.

G-2. Pile abutments for short pony truss spans, 18 ft. roadway. Dated January 1, 1917.

G-3. Pile abutment for long steel spans, 16 ft. roadway. Dated January, 1919.

G-3a. Pile abutment for long steel spans, 18 ft. roadway. Dated January, 1919.

G-4. Timber substructures for wood trusses. Dated December, 1918.

G-5 to G-10 inclusive. Six sheets timber trusses spans 30 ft., 34 ft., 38 ft., 45 ft., 51 ft., and 57 ft., 16 ft. roadway. Dated December, 1918.

Series H—Concrete deck girder bridges for spans from 24 ft. to 40 ft. inclusive. Two design sheet H-1. Dated November, 1915.

Series C, J and H are published together in booklet form.

Series I—Concrete through girder bridges for spans from 24 ft. to 42 ft. inclusive with 18 ft. and 20 ft. roadways. Published in booklet form.

Series J—Concrete slab bridges for spans from 14 ft. to 24 ft. inclusive. One design sheet J-1. Dated November, 1915.

Series K—Concrete bridge abutments. Five designs of two sheets each, dated November, 1917, and one design of two sheets dated May, 1919.

K-1. Abutments for steel truss spans. Heights 10 ft. to 19 ft. inclusive.

K-2. Abutments for steel truss spans. Heights 20 ft. to 30 ft. inclusive.

K-3. Abutments for I-Beam bridges. Heights 10 ft. to 24 ft. inclusive.

K-4. Abutments for slab bridges. Heights 10 ft. to 19 ft. inclusive.

K-5. Abutments for deck girder bridges. Heights 12 ft. to 24 ft. inclusive.

K-1 to K-5 inclusive published in booklet form.

K-6. Abutments for thru girders. Heights 12 ft. to 24 ft. inclusive. Published in booklet form.

Series M—Concrete bridge piers. One design sheet M-1. Dated July, 1916.

Series P—Piling diagrams. Four sheets covering piling diagrams for abutments for steel trusses, slab, thru and deck girders. Issued in blue print form.



Series T—Riveted high trusses with concrete floors on steel joists for spans from 90 ft. to 150 ft. inclusive and for both 16 ft. to 18 ft. roadways. 14 designs T-1 to T-14 inclusive. Published in booklet form.

Series V—I-Beam spans. Four sheets of designs. V-1 beam spans with concrete floor and angle railing. Dated January, 1915. V-2. Beam spans with wood floor and pile abutments. Dated January 15, 1917. Supersedes and renders void design V-2, dated September 1, 1915 and printed in booklet of designs for beam spans and X series pony trusses.

V-3. Beam spans with concrete floor and concrete railing. Dated September 15, 1915.

V-4. Beam spans with concrete floor and gas pipe railing. Dated September 15, 1915. Series X and V are published together in booklet form.

Series X—Riveted pony trusses with concrete floors and without joists for spans from 35 ft. to 100 ft. inclusive and for both 16 ft. and 18 ft. roadways. 28 designs X-1 to X-28 inclusive.

Series Y—Riveted pony trusses with concrete floors on steel joists for spans from 40 ft. to 85 ft. inclusive and for both 16 ft. and 18 ft. roadways. 20 designs Y-1 and Y-20 inclusive. Published in booklet form.

#### Standard Specifications.

The list of standard specifications issued by the Commission for bridge and culvert work and for materials which are in effect January 1, 1922, are as follows:

Highway Bridge and Culvert Construction (Series 1919).

Reinforcing Steel (Series 1914 revised 1919).

Corrugated Metal Culvert Pipe (Series 1918).

Bridge Lumber and Piling (Revised Series 1918).

#### Field Work of Bridge Department.

This work consists of assistance given at the request of the counties in determining the type and character of drainage structures, inspecting work under construction, preliminary work on large bridge projects; adjustments of differences arising between the counties and contractors over interpretation of the specifications and contracts, and giving general advice pertaining to bridge and culvert work and the materials of construction.

Inspection of work under construction as well as examination of existing structures, shop inspection of fabricated material, and preliminary examination of bridge sites necessitate a number of trips each year by members of the bridge department. Most of the special bridge problems of the counties are handled

through the district engineers' offices but occasionally problems are presented which require special attention by an engineer from the bridge department and when such requests are received an engineer of this department is assigned to such work.

#### Bridge Complaints.

The Commission each year receives many complaints concerning the condition of certain bridges or culverts. In general each complaint is referred to the district engineer and insofar as practical a personal examination of the conditions is made by him. It is usually possible to adjust the complaint in this manner satisfactory to all parties concerned. Where it appears desirable after a field examination to make surveys and prepare plans for the improvement this is done and the complaint is later adjusted in this manner. Since the work of adjusting these complaints is largely handled through the district offices the detailed report concerning these adjustments is given under the chapter relating to the work of the district engineer. Some of the complaints are adjusted by correspondence without the necessity of referring the matter to the district engineer for further investigation.

#### Approval of Contracts on Bridge Work. (Refer to Schedule II.)

The Commission is required by statute to approve all contracts for bridges and culverts costing over \$2,000.00 and all private contracts in amounts of \$1,000.00 or more. These contracts as awarded by the boards of supervisors are submitted to the Commission and must be approved before they are valid as contracts. The work of the approval of contracts for bridge work is one of the important duties of the Commission. During 1921 a total of two hundred sixty-seven contracts for bridge work was submitted for approval. Two hundred and fifty-nine contracts for work costing \$3,854,762.14 were approved. Eight contracts for work costing \$237,341.00 were rejected. The tabulation below gives the summary and comparative statement of the bridge contracts approved from April, 1913, to December 1, 1921.

## Bridge Contracts Approved.

Date of Report	Approved	Average Contract Amount	Total Amount Approved
April 1, 1913 to December 1, 1913	22		\$ 344,102.24
December 1, 1913 to November 1, 1914	121	7,774.00	731,296.24
November 1, 1914 to December 1, 1915	172	7,890.00	1,357,060.12
December 1, 1915 to December 1, 1916	298	9,550.00	2,842,390.41
December 1, 1916 to December 1, 1917	197	10,800.00	2,128,230.50
December 1, 1917 to December 1, 1918	159	10,735.00	1,700,797.35
December 1, 1918 to December 1, 1919	278	12,028.00	2,879,265.60
December 1, 1919 to December 1, 1920	198	17,947.00	3,552,298.64
December 1, 1920 to December 1, 1921	359	14,883.00	3,554,702.14
Total	1,595		\$18,632,421.29

Standard forms of contracts are prepared by the Commission and where the contracts submitted are on the standard form and the proceedings relative to the award made in the proper manner the time required for approval by the Commission is short. During 1921 thirty-seven per cent of the contracts submitted for approval were approved by the Commission in less than four days from date of receipt. Sixty-three per cent were retained for investigation or for correction and the average time required for approval was ten days. The average time required on all contracts was seven days.

## Approval of Material Contracts. (Refer to Schedule III.)

Although the approval by the Commission of material contracts awarded on the basis of bids received at a public letting is not required by law yet many of the counties voluntarily submit such contracts for review. When such contracts are properly made out on the standard forms supplied for this purpose the time required for approval is very short. During the period covered by this report a total of forty material contracts were submitted for approval. Thirty-four of these contracts were approved. The remaining six contracts were rejected.

## Bridge and Material Lettings.

During 1921 the total estimated cost of bridge and culvert work included in lettings attended was \$4,395,309.00 which is a decrease of \$587,203.00 over 1920. The records kept by the Commission on lettings attended cover in detail the letting data on the 3,801 structures included in lettings attended during the past year.

## Current Prices of Materials and Construction.

One of the important duties of the bridge department is to advise the counties, upon request, concerning the cost of materials and construction. During the past year the number of such requests received from the counties greatly exceeds that of any previous year. The bridge department endeavors to keep advised as to the current prices of materials and construction so that requests of this character received from the counties may be answered promptly.

During the past year there has been a very material drop in the costs of all classes of bridge and culvert construction work. This decrease in construction costs is due to lower prices on certain of the materials entering into the work and on labor costs. Competition has been keen on all classes of construction work which has been reflected in the low bids received. Also the volume of construction during the past construction year has exceeded that of any previous year by a substantial amount.

## AVERAGE PRICE PAID FOR CORRUGATED CULVERTS IN 1919, 1920 AND 1921.

Diameter	Class	Price per Lin. Ft. Less Carlots F. O. B. County					
		1919		1920		1921	
		Range in price	Average	Range in price	Average	Range in price	Average
12 inches	A	\$ .72 to \$ .90	\$ .79	\$ .30 to \$1.08	\$ .59	\$ .65 to \$ .98	\$ .70
15 inches	A	1.10 to 1.28	1.19	1.21 to 1.65	1.51	.90 to 1.00	1.23
18 inches	A	1.30 to 1.55	1.41	1.45 to 1.90	1.71	1.10 to 1.98	1.48
24 inches	A	1.75 to 2.10	1.85	2.05 to 2.43	2.39	1.35 to 2.60	1.99
30 inches	A	2.30 to 3.70	3.50	3.45 to 4.35	4.48	1.50 to 3.85	3.15
36 inches	A	2.80 to 4.10	3.90	4.14 to 5.45	4.92	2.31 to 4.65	3.92
12 inches	B	.65 to .80	.71	.85 to .98	.93	.58 to .95	.72
15 inches	B	.96 to 1.30	1.07	1.25 to 1.56	1.43	.81 to 1.52	1.12
18 inches	B	1.25 to 1.45	1.30	1.50 to 1.80	1.68	.95 to 1.77	1.33
24 inches	B	1.55 to 1.95	1.67	2.00 to 2.80	2.77	1.20 to 2.30	1.80
30 inches	B	2.50 to 3.25	2.78	3.25 to 4.20	3.80	1.80 to 3.65	2.83
36 inches	B	2.75 to 3.50	3.00	3.75 to 5.02	4.69	2.80 to 4.28	3.65

## AVERAGE PRICE PAID FOR REINFORCING STEEL IN 1919, 1920 AND 1921.

Description	Price per Cwt. Stock Lengths C. L. F. O. B. County					
	1919		1920		1921	
	Range in price	Average	Range in price	Average	Range in price	Average
¼-in. O. H. New Billet Stock	\$1.00 to \$1.30	\$1.18	\$1.10 to \$5.38	\$1.90	\$2.87 to \$2.98	\$2.93
¾-in. O. H. New Billet Stock	2.90 to 3.25	3.01	4.12 to 4.82	-----	2.82 to 2.93	2.87



AVERAGE PRICE PAID FOR STRUCTURAL STEEL IN 1919, 1920 AND 1921.

Description	Price per Cwt. Erected and F. O. B. County					
	1919		1920		1921	
	Range in price	Average	Range in price	Average	Range in price	Average
I-Beams Erected.....	\$5.60 to \$5.25	\$5.30	\$7.00 to \$6.00	\$7.35	\$3.50 to \$7.50	\$5.50
F. O. B. County.....	4.50 to 5.20	4.90	5.60 to 6.90	6.15	3.00 to 4.70	3.80
Trusses Erected.....	7.50 to 8.50	7.85	9.00 to 12.50	10.80	5.00 to 10.00	7.50
F. O. B. County.....	5.50 to 6.20	5.80	7.00 to 9.00	7.80	5.45 to 7.00	6.30

AVERAGE PRICE PAID FOR LUMBER IN 1919, 1920 AND 1921.

Size	Description	Price per M. B. M. C. L. F. O. B. County					
		1919		1920		1921	
		Range in price	Average	Range in price	Average	Range in price	Average
3x12	Stand. sawed, Doug. Fir	\$35 to \$45	\$38.00	\$45 to \$55	\$51.40	\$33.50 to \$53.50	\$41.94
3x14	Stand. sawed, Doug. Fir	35 to 48	38.50	50 to 60	54.00	40.40 to 54.50	45.10
3x16	Stand. sawed, Doug. Fir	36 to 48	39.00	51 to 60	54.20	47.00 to 56.00	44.33
3x12	Full sawed, Doug. Fir	39 to 50	41.00	46 to 60	50.35	35.00 to 45.00	41.53
3x14	Full sawed, Doug. Fir	39 to 51	42.00	50 to 62	53.40	36.00 to 43.00	40.40
3x16	Full sawed, Doug. Fir	39 to 51	42.50	51 to 64	55.90	37.00 to 45.95	43.12
3x12	Stand. sawed, White Oak		46.00		72.00		49.31

AVERAGE PRICE PAID FOR PILING IN 1919, 1920 AND 1921.

Length	Kind	Price per Lineal Foot Carlots F. O. B. County					
		1919		1920		1921	
		Range in price	Average	Range in price	Average	Range in price	Average
16 foot	Red Cedar	\$1.18 to \$1.30	\$1.224	\$1.30 to \$1.45	\$1.345	\$1.27 to \$1.37	\$1.322
20 foot	Red Cedar	.21 to .32	.250	.22 to .48	.373	.26 to .39	.347
24 foot	Red Cedar	.22 to .32	.270	.32 to .52	.402	.32 to .46	.372
16 foot	Cypress	.17 to .27	.220	.18 to .40	.280	.30 to .325	.305
20 foot	Cypress	.18 to .30	.230	.28 to .40	.297	.19 to .35	.257
24 foot	Cypress	.30 to .31	.345	.31 to .45	.329	.22 to .375	.272

AVERAGE PRICE PAID FOR CEMENT IN 1919, 1920 AND 1921.

1919. Dealer's net price per bbl. F. O. B. Cedar Rapids—Car Lots Range in Price \$2.15 to \$2.65. Average, \$2.40.  
 1920. Dealer's net price per bbl. F. O. B. Cedar Rapids—Car Lots Range in Price \$2.18 to \$2.71. Average, \$2.59.  
 1921. Dealer's net price per bbl. F. O. B. Cedar Rapids—Car Lots Range in Price \$2.28 to \$2.71. Average, \$2.50.

Bids received from local dealers are from ten cents to twenty-five cents per bbl. above dealer's price on account of storage and handling charges made.

## SCHEDULE NO. ONE

BRIDGE DESIGNS FOR SPECIFIC LOCATIONS.

County	No. of Designs	Estimated Value	County	No. of Designs	Estimated Value
Adair	40	49,753.00	Jones	62	61,376.00
Adams	55	46,709.00	Kossuth	18	21,646.00
Allamakee	17	20,085.00	Lee	12	13,249.00
Appanoose	37	80,345.00	Linn	1	11,465.00
Audubon	79	81,256.00	Louisa	35	89,415.00
Black Hawk	2	14,072.00	Lucas	60	68,257.00
Bonne	33	16,778.00	Lyon	44	20,551.00
Bremser	39	54,908.00	Madison	46	113,217.00
Buchanan	24	28,904.00	Mahaska	84	68,117.00
Butler	25	27,410.00	Marion	47	50,870.00
Calhoun	4	69,638.00	Marshall	28	29,415.00
Carroll	5	10,045.00	Mitchell	25	45,980.00
Cedar	74	132,557.00	Monona	87	177,586.00
Cass	54	28,555.00	Monroe	15	20,738.00
Chickasaw	29	70,700.00	Muscatine	60	60,356.00
Clarke	28	23,090.00	Oceola	1	12,197.00
Clay	19	66,184.00	Page	67	162,412.00
Clayton	77	82,936.00	Palo Alto	4	31,176.00
Cedar	43	27,580.00	Plymouth	39	45,305.00
Crawford	53	55,988.00	Pocahontas	20	60,908.00
Dallas	22	98,612.00	Polk	19	52,141.00
Decatur	1	950.00	Pottawattamie	163	325,328.00
Delaware	28	37,445.00	Poweshiek	40	28,066.00
Dickinson	1	9,951.00	Ringgold	41	85,501.00
Fayette	15	3,232.00	Scott	15	30,250.00
Floyd	8	17,550.00	Shelby	35	89,485.00
Franklin	2	4,525.00	Sioux	10	5,908.00
Fremont	4	26,355.00	Story	2	67,062.00
Greene	5	28,500.00	Tama	81	128,220.00
Grundy	46	107,113.00	Taylor	12	15,580.00
Guthrie	1	3,910.00	Wapello	41	64,727.00
Hamilton	25	61,382.00	Warren	116	100,948.00
Hancock	11	15,781.00	Washington	53	66,164.00
Hardin	1	10,433.00	Wayne	43	53,947.00
Harrison	68	115,944.00	Webster	9	20,101.00
Howard	30	43,078.00	Winnebago	2	784.00
Humboldt	45	109,736.00	Winnesiek	58	88,237.00
Iowa	87	74,984.00	Woodbury	17	6,617.00
Jackson	74	61,002.00	Worth	19	56,336.00
Jasper	77	309,029.00	Wright	7	36,885.00
Jefferson	60	113,701.00			
Johnson	17	12,466.00	Total	2,925	\$4,609,080.00
	1	19,724.00			



## SCHEDULE NO. TWO

## BRIDGE CONTRACTS SUBMITTED FOR APPROVAL.

December 1, 1920 to December 1, 1921.

County	Contractor	Date Approved	Amount Approved
Adair	Wilson Concrete Co.	July 29, 1921	\$ 6,704.00
	Wilson Concrete Co.	July 29, 1921	10,998.00
	Wilson Concrete Co.	July 29, 1921	15,252.00
Appanoose	F. H. Kempe	Oct. 31, 1921	1,482.80
	Iowa Bridge Co.	May 11, 1921	46,528.00
	Iowa Bridge Co.	Aug. 22, 1921	34,387.00
	Cameron Joyce Co.	Aug. 22, 1921	11,410.00
	Standard Bridge Co.	Aug. 22, 1921	5,069.00
	Cameron Joyce Co.	Aug. 22, 1921	1,351.00
Audubon	Jensen Construction Co.	May 24, 1921	2,435.00
	Jensen Construction Co.	July 29, 1921	45,881.00
	Wickham Bridge & Pipe Co.	Sept. 14, 1921	10,760.00
Benton	Vinton Engr. & Const. Co.	Aug. 3, 1921	5,738.00
	Vinton Engr. & Const. Co.	Nov. 22, 1921	1,508.00
Black Hawk	Waterloo Const. Co.	May 5, 1921	28,800.00
	Waterloo Const. Co.	July 25, 1921	2,280.00
	J. O. Parsons	Sept. 9, 1921	5,488.00
Boone	David J. Conn	April 13, 1921	9,790.97
	David J. Conn	Aug. 12, 1921	4,042.71
Bremer	C. H. & J. H. Russell	April 19, 1921	18,659.09
	Russell Bros.	May 16, 1921	4,309.00
	Clinton Bridge Works	May 18, 1921	5,265.00
	C. W. Andersen	July 22, 1921	5,000.00
	Russell Bros.	Aug. 22, 1921	19,730.50
Buchanan	J. O. Parsons	Mar. 24, 1921	11,344.00
	F. E. Reinhold	July 26, 1921	2,840.00
Butler	Waugh & Tackman	Oct. 31, 1921	2,850.00
	Waugh & Tackman	Nov. 22, 1921	8,150.00
Calhoun	Lundgren-Bels Co.	March 4, 1921	79,777.00
Carroll	Deloit Bridge Co.	March 26, 1921	18,650.00
	Shackleton Const. Co.	June 25, 1921	8,565.25
	Shackleton Const. Co.	June 25, 1921	6,279.73
	Lundgren-Bels Co.	June 25, 1921	9,081.00
	J. B. Truesdell	June 25, 1921	1,280.00
Cass	Henningsen Construction Co.	June 17, 1921	8,990.00
	Des Moines Eng. & Const. Co.	July 28, 1921	24,695.00
	Standard Bridge Co.	July 28, 1921	4,212.00
Cerro Gordo	C. A. Holwick	June 1, 1921	4,869.00
	C. A. Holwick	Aug. 20, 1921	9,284.00
Cherokee	J. A. Hickman & Son	March 18, 1921	6,632.40
	Frank Humphrey	March 18, 1921	10,478.00
	Miller Construction Co.	May 16, 1921	7,600.00
	Geo. Gardner	June 13, 1921	10,338.00
Chickasaw	Deloit Bridge Co.	June 17, 1921	13,090.00
	A. Olson Construction Co.	April 5, 1921	44,365.00
	A. Olson Construction Co.	June 25, 1921	16,330.00
Clarks	Wickham Bridge & Pipe Co.	Sept. 17, 1921	15,436.00
Clay	E. Landsman	May 24, 1921	2,550.00
	O. Holm	May 24, 1921	8,220.00
	Hendrickson Lumber Co.	Sept. 14, 1921	1,196.05
	Hendrickson Lumber Co.	Sept. 14, 1921	13,790.00
	Frank Humphrey	Sept. 14, 1921	26,280.00
Clayton	C. H. Williamson	March 16, 1921	10,778.00
	A. Olson Construction Co.	March 16, 1921	24,650.00
	Rodley & Bales	March 16, 1921	14,230.00
	A. C. Boyle	March 19, 1921	12,150.00
	Joe Vogt	March 19, 1921	3,990.00
	C. H. Williamson	Sept. 6, 1921	2,824.00
	Josef Vogt	Sept. 6, 1921	1,107.00
	Thor Flako	Sept. 6, 1921	1,830.00
	A. Olson Construction Co.	Sept. 6, 1921	4,430.00
	Rodley & Bales	Sept. 6, 1921	7,678.00
	A. Olson Construction Co.	Sept. 19, 1921	1,210.00
	Josef Vogt	Sept. 19, 1921	1,298.13
	Rodley & Bales	Sept. 19, 1921	1,085.00
	A. C. Boyle	Nov. 22, 1921	285.00

## Schedule No. Two—Continued

County	Contractor	Date Approved	Amount Approved
Clinton	Leo Plumb	May 5, 1921	17,199.00
	John R. Kane	May 5, 1921	21,565.00
Crawford	John R. Kane	Sept. 29, 1921	3,000.00
	Iowa Bridge Co.	Sept. 15, 1921	28,320.00
	Wickham Bridge & Pipe Co.	Sept. 15, 1921	2,898.70
	O. H. Knief	April 18, 1921	24,615.00
Dallas	Shackleton Const. Co.	April 12, 1921	9,696.00
	Northwestern B. & I. Co.	Nov. 22, 1921	5,467.00
Decorah	Standard Bridge Co.	Nov. 22, 1921	11,583.00
	L. B. Gabriel & Co.	July 12, 1921	22,987.00
Delaware	Miller-Fifield Const. Co.	Sept. 13, 1921	11,505.00
Dickinson	August Schaff	April 2, 1921	6,250.00
Dubuque	Miller-Fifield Const. Co.	May 5, 1921	2,840.00
	J. J. Leonard	May 5, 1921	2,530.00
	J. O. Parsons	July 30, 1921	2,964.00
	J. J. Leonard	Jan. 27, 1921	13,988.00
Floyd	Miller-Fifield Const. Co.	Aug. 13, 1921	11,485.00
Franklin	J. A. Dunkel	Oct. 17, 1921	3,300.00
	G. E. Sargent	April 2, 1921	9,248.00
Fremont	Federal Bridge Co.	April 2, 1921	42,781.00
	Federal Bridge Co.	June 1, 1921	9,500.00
	Wickham Bridge & Pipe Co.	June 2, 1921	6,800.00
	Wilson Concrete Co.	July 25, 1921	14,246.00
Greene	F. E. Marsh & Co.	March 19, 1921	12,800.00
	F. H. Christensen	June 25, 1921	8,280.00
	Shackleton Const. Co.	June 25, 1921	2,290.00
	F. E. Marsh & Co.	Aug. 20, 1921	3,100.00
Grundy	Waterloo Const. Co.	March 19, 1921	5,130.00
	Miller-Fifield Const. Co.	May 7, 1921	9,300.00
	Miller-Fifield Const. Co.	June 18, 1921	6,090.00
	T. Fuller & Sons	June 18, 1921	18,527.00
	M. G. Mammarella	June 18, 1921	5,335.00
	A. Olson Const. Co.	Nov. 2, 1921	1,185.00
Hamilton	A. Swanson Co.	April 19, 1921	8,739.00
	Vinton Eng. & Const. Co.	April 19, 1921	15,415.00
	A. H. Austin	April 19, 1921	2,740.00
	J. A. Dunkel	Oct. 22, 1921	15,195.40
	A. H. Austin	Oct. 22, 1921	719.00
	J. A. Dunkel	Nov. 28, 1921	17,396.00
Hancock	Steelman & Wagner	June 1, 1921	14,890.00
	J. D. Bachman	Aug. 3, 1921	2,772.00
	Wm. Vesellus	Aug. 2, 1921	7,594.70
Hardin	A. Fick	May 7, 1921	2,959.00
	A. Olson Construction Co.	May 13, 1921	6,732.40
	Jens Jensen	May 16, 1921	1,800.00
	Ingersoll-Stouffer Eng. Co.	July 28, 1921	2,990.00
	Ben J. Cole	July 28, 1921	3,000.00
	Miller-Fifield Const. Co.	July 28, 1921	6,797.00
	A. Olson Const. Co.	July 30, 1921	5,682.00
	Ingersoll-Stouffer Eng. Co.	Sept. 9, 1921	5,500.00
Howard	Pittsburgh-Des Moines St. Co.	Aug. 18, 1921	4,000.00
Humboldt	Heman & Wood	Aug. 22, 1921	25,900.00
Ia	Deloit Bridge Co.	May 2, 1921	31,090.00
	Deloit Bridge Co.	Aug. 12, 1921	6,490.00
	Graves Bros.	Oct. 4, 1921	11,240.00
	Deloit Bridge Co.	Oct. 4, 1921	6,510.00
Iowa	M. O. Burnet	May 24, 1921	44,583.00
	M. O. Burnet	May 24, 1921	27,300.00
	Pittsburgh-Des Moines St. Co.	July 18, 1921	4,645.00
	Pittsburgh-Des Moines St. Co.	Sept. 23, 1921	4,002.00
	M. O. Burnet	Nov. 19, 1921	5,290.00
	A. Olson Const. Co.	Nov. 19, 1921	4,990.00
Jackson	Pittsburgh-Des Moines St. Co.	May 7, 1921	33,150.00
	Northwestern B. & I. Co.	May 24, 1921	49,547.00
	John Anderson & Son	Aug. 20, 1921	34,537.00
Jasper	A. Emmert	June 13, 1921	19,490.00
	Wicks Engr. & Const. Co.	June 13, 1921	23,945.00

## Schedule No. Two—Continued

County	Contractor	Date Approved	Amount Approved
Johnson	Geo. J. Chadek	May 24, 1921	15,100.00
	J. C. Watkins	July 20, 1921	7,400.00
	E. L. Gochanour	July 20, 1921	8,400.00
	Iowa Bridge Co.	Nov. 29, 1921	19,726.88
Jones	V. L. Hansen	April 20, 1921	15,236.00
	Howlett Const. Co.	July 19, 1921	30,750.00
Kewokuk	John Ritzinger	April 13, 1921	29,492.00
Kossuth	R. B. Orr	April 14, 1921	10,028.80
Lee	Howlett Construction Co.	June 17, 1921	8,730.00
Linn	Perry Jayne	May 24, 1921	30,500.00
	Perry Jayne	Oct. 11, 1921	6,000.00
Louisa	Gabriel & Randolph	March 16, 1921	26,835.00
	Grimm & Thompson	March 18, 1921	25,307.00
	D. I. Charbonneau	Sept. 1, 1921	1,427.75
	Des Moines Steel Co.	Sept. 1, 1921	8,770.00
Lucas	Vinton Engr. & Const. Co.	May 2, 1921	27,860.00
	Wilson Concrete Co.	Nov. 25, 1921	12,608.00
Lyon	Frank Humphrey	April 13, 1921	21,156.50
	Otis Jorstad	Sept. 27, 1921	9,753.00
	E. Landsman	Oct. 10, 1921	6,440.00
Madison	Wickes Engr. & Const. Co.	April 13, 1921	33,332.00
	Alexander & Higbie	April 18, 1921	30,800.00
	C. L. Schoorbe	April 18, 1921	8,500.00
	Wickes Engr. & Const. Co.	Sept. 8, 1921	2,300.00
Mahaska	Roth Bros. & Akers	May 24, 1921	23,811.00
	W. E. Whitlatch	July 25, 1921	8,900.00
Marion	Cameron Joyce & Co.	March 25, 1921	37,651.50
Marshall	Alexander & Higbie	Aug. 5, 1921	14,777.00
	Alexander & Higbie	Aug. 5, 1921	9,925.00
Mills	F. J. Wallace Lbr. Co.		
	Wilson Concrete Co.		
	Wickham Bridge & Pipe Co.		
	Iowa Bridge Co.	April 8, 1921	52,726.42
Mitchell	Wickham Bridge & Pipe Co.	April 8, 1921	29,171.00
	F. E. Marsh & Co.	April 8, 1921	13,891.58
	Wilson Concrete Co.	April 8, 1921	29,280.00
	Geo. W. Condon	Nov. 22, 1921	31,500.00
Monroe	Miller-Field Const. Co.	May 18, 1921	3,708.00
	Clinton Bridge Works	May 18, 1921	4,300.00
	N. M. Stark & Co.	July 28, 1921	5,719.00
	Standard Bridge Co.	Feb. 22, 1921	12,200.00
Muscatine	Voiles Construction Co.	March 16, 1921	8,705.00
	Pickus Engr. & Const. Co.	March 16, 1921	23,045.00
	Voiles Construction Co.	Aug. 22, 1921	16,300.00
	Pickus Engr. & Const. Co.	Sept. 6, 1921	15,538.00
Monroe	Standard Bridge Co.	Sept. 6, 1921	1,000.00
	The Fred M. Crane Co.	Sept. 6, 1921	12,593.00
	J. M. Christensen	Sept. 12, 1921	
	Standard Bridge Co.	Nov. 1, 1921	10,500.00
Muscatine	J. A. Lafferty	Aug. 12, 1921	12,500.00
	Elmore & Howenstein	May 18, 1921	4,200.00
	Harris & Herman	May 18, 1921	9,500.00
	Fred J. Smith	Sept. 22, 1921	8,819.00
Oskola	E. Gochanour	Sept. 27, 1921	21,038.00
	S. N. Johnston	Sept. 27, 1921	10,327.00
	Pickus Engr. & Const. Co.	Jan. 11, 1921	4,725.00
	Pittsburgh-Des Moines St. Co.	May 2, 1921	8,247.00
Page	Graves Bros.	May 2, 1921	5,125.00
	Pittsburgh-Des Moines St. Co.	May 14, 1921	103,400.00
	Waterloo Construction Co.	April 25, 1921	14,617.00
	A. Olson Construction Co.	April 25, 1921	12,300.00
Palo Alto	A. Olson Construction Co.	July 30, 1921	6,850.00
	Pittsburgh-Des Moines St. Co.	March 18, 1921	27,792.00
	Deloit Bridge Co.	March 18, 1921	26,380.00
	Standard Bridge Co.	July 26, 1921	2,945.00
Plymouth	Deloit Bridge Co.	Sept. 15, 1921	25,000.00
	Standard Bridge Co.	Sept. 15, 1921	6,435.00
	Chas. DeGrote	Oct. 10, 1921	9,475.00

## BRIDGE DEPARTMENT

## Schedule No. Two—Continued

County	Contractor	Date Approved	Amount Approved
Pocahontas	Vinton Engr. & Const. Co.	June 1, 1921	25,800.00
	Lundgren-Reis Co.	Nov. 14, 1921	3,580.00
Polk	Ben Cole		
	N. M. Stark & Co.		
Pottawattamie	Ben Cole	March 29, 1921	24,550.00
	N. M. Stark & Co.	March 29, 1921	31,951.00
	Wickham Bridge & Pipe Co.	Oct. 18, 1921	148,075.00
	Wickham Bridge & Pipe Co.	Nov. 29, 1921	54,500.00
Powsheik	W. T. Baxter	June 1, 1921	20,885.00
	W. T. Baxter	June 13, 1921	21,302.00
Ringgold	Wickham Bridge & Pipe Co.	July 20, 1921	10,700.00
	Deloit Bridge Co.	Oct. 31, 1921	37,530.00
Sac	Lundgren-Reis Co.	March 7, 1921	22,384.00
	Lundgren-Reis Co.	March 14, 1921	12,196.00
Scott	Geo. Sheldon Co.	May 1, 1921	54,965.00
	Federal Bridge Co.	Aug. 20, 1921	8,777.00
	W. D. Phelan & Co.	Aug. 25, 1921	6,180.00
	F. E. Marsh & Co.	June 25, 1921	47,900.00
Shelby	Brunkill & Baneroff	Sept. 17, 1921	2,402.00
Sioux	Ben Cole	May 18, 1921	11,591.71
Story	Ben Cole	Aug. 20, 1921	19,035.00
	A. P. Munson	May 21, 1921	33,225.00
Tama	Waterloo Construction Co.	Aug. 3, 1921	11,700.00
	A. Pick	Sept. 9, 1921	2,986.00
	Waterloo Construction Co.	Sept. 9, 1921	3,500.16
	Ingersoll-Stouffer Eng. Co.	Sept. 9, 1921	2,192.00
Taylor	A. P. Munson	Sept. 9, 1921	5,800.00
	A. P. Munson	Sept. 14, 1921	6,123.00
	Cameron-Joyce-Smith-Elder	May 18, 1921	9,007.00
	Pittsburgh-Des Moines St. Co.	Aug. 17, 1921	4,500.00
Union	Roth Bros. & Akers	Jan. 18, 1921	62,896.22
Van Buren	Ottumwa Supply & Const. Co.		
	Ottumwa Supply & Const. Co.	Feb. 22, 1921	2,050.00
	Illinois Steel Brl. Co.		
	Illinois Steel Brl. Co.	Sept. 23, 1921	21,500.00
Warren	Pittsburgh-Des Moines St. Co.	April 19, 1921	6,228.00
	C. L. Schoorbe	July 1, 1921	16,100.00
	Pittsburgh-Des Moines St. Co.	Oct. 5, 1921	4,040.00
	Pittsburgh-Des Moines St. Co.	Oct. 5, 1921	1,125.00
Washington	Alexander & Higbie	Nov. 25, 1921	9,045.00
	Pittsburgh-Des Moines St. Co.	Nov. 25, 1921	20,714.00
	Waugh & Tackman	June 1, 1921	11,148.30
	Des Moines Steel Co.	June 21, 1921	21,488.00
Wayne	A. P. Munson	June 21, 1921	5,250.00
	Waugh & Tackman	June 21, 1921	3,964.00
	F. E. Marsh & Co.	June 21, 1921	7,900.00
	F. E. Marsh & Co.	June 21, 1921	5,300.00
Webster	Corvdon Lumber Co.	Feb. 23, 1921	17,586.13
	F. N. Schwilke	Feb. 23, 1921	17,131.05
	A. Swanson Co.	June 17, 1921	10,000.00
	Herman & Wood	June 17, 1921	17,500.00
Winnebago	Ward & Teslow	March 25, 1921	21,800.00
	A. Olson Construction Co.	July 18, 1921	43,500.00
	John J. Grose	Aug. 31, 1921	6,497.00
	Ward & Teslow	Aug. 31, 1921	5,886.00
Woodbury	Pickus Engr. & Const. Co.	June 18, 1921	6,485.00
	Voiles Construction Co.	June 25, 1921	2,300.00
	Ward & Teslow	Sept. 14, 1921	4,800.00
	A. Olson Construction Co.	March 25, 1921	21,608.00
Worth	C. A. Holwick	March 25, 1921	5,644.00
	Miller-Fitted Const. Co.	Oct. 3, 1921	7,641.00
	Iowa Bridge Co.	March 17, 1921	40,584.00
	Iowa Bridge Co.	June 13, 1921	24,714.00
Wright	Iowa Bridge Co.	June 17, 1921	20,057.00
	Iowa Bridge Co.	June 17, 1921	
Total			\$ 3,854,792.14



## SCHEDULE NO. THREE

## MATERIAL CONTRACTS SUBMITTED FOR APPROVAL

December 1, 1920 to December 1, 1921.

County	Contractor	Material	Date Approved
Adair	Standard Bridge Co.	Trusses	Jan. 18, 1921
Benton	Wheeler Lbr., Brl. & Supply Co.	Lumber	
	Klauser Mfg. Co.	Corrugated culverts	March 30, 1921
Boone	Pittsburgh-Des Moines Steel Co.	Reinforced steel	March 14, 1921
	Fehlisen & Rosacker	Cement	March 14, 1921
Bremer	Independence Corr. Culvert Co.	Corrugated culverts	June 17, 1921
Buchanan	Independence Corr. Culvert Co.	Corrugated culverts	March 8, 1921
	Geo. T. Blamer Co.	Lumber	March 8, 1921
Dubuque	Klauser Manufacturing Co.	Corrugated culverts	
	Pyramid Lumber Co.	Lumber	
Fayette	Klauser Manufacturing Co.	Corrugated culverts	
Henry	Morey Sand & Gravel Co.	Gravel	Jan. 27, 1921
	Wapello Sand & Brl. Matl. Co.	Gravel	Jan. 27, 1921
	Mt. Pleasant Pro. Co.	Cement	
	Clinton Bridge Works	Truss & Reinf. steel	Feb. 9, 1921
	Spahn & Rose Lumber Co.	Cement	
Howard	Pittsburgh-Des Moines Steel Co.	Trusses	June 1, 1921
	Pittsburgh-Des Moines Steel Co.	I-Beams	June 1, 1921
Jackson	Independence Corr. Culv. Co.	Corrugated culverts	July 18, 1921
Jones	Klauser Manufacturing Co.	Corrugated culverts	Nov. 9, 1921
	Independence Corr. Culv. Co.	Corrugated culverts	Nov. 9, 1921
Lee	Hawkeye Lumber Co.	Lumber	Nov. 7, 1921
	Neb. Brl., Lbr. & Supply Co.	Lumber	Nov. 7, 1921
Linn	Union Iron Pro. Co.	Corrugated culverts	March 30, 1921
Mahaska	Hawkeye Lumber Co.	Lumber and piling	March 20, 1921
Sioux	Neb. Brl., Lbr. & Supply Co.	Lumber and piling	Feb. 14, 1921
Story	Dunkelbarger & Newton	Lumber	May 18, 1921
	Ft. Dodge Culv. & Iron Mills	Corrugated culverts	May 18, 1921
Tama	Union Iron Products Co.	Corrugated culverts	March 14, 1921
	Farmers Elevator Co.	Lumber	July 5, 1921
	Dinsdale Grain & Lumber Co.	Lumber	July 5, 1921
Wapello	Midland Metal Co.	Corrugated culverts	May 18, 1921
	Central Culv. Co.	Corrugated culverts	May 18, 1921
Warren	Pittsburgh-Des Moines Steel Co.	Reinforced steel	July 13, 1921
Winnebago	Klauser Manufacturing Co.	Corrugated culverts	April 18, 1921
	Klauser Manufacturing Co.	Corrugated culverts	Sept. 27, 1921
	Neb. Brl., Lbr. & Supply Co.	Lumber	March 7, 1921
Wright	Klauser Manufacturing Co.	Corrugated culverts	Feb. 23, 1921
	Thomas & Sons	Paint	Feb. 23, 1921
	Wheeler Lbr., Brl. & Supply Co.	Lumber and piling	

## CHAPTER V

## Railroad Crossing Improvements

During the past year the Commission has concentrated its efforts in connection with crossing improvements almost entirely to those crossings located upon the Primary Road System. Efforts are being made to undertake the improvement of crossings at the same time that the road is under construction for grading work. Lack of adequate legislation to permit the handling of the preliminary negotiations expeditiously has interfered with the work to a great extent. Before any extensive crossing improvements can be accomplished it will be necessary to completely revise the present statutes relating to crossing improvements.

Below is given a comparative statement of the work accomplished on railroad crossing improvements from December 1, 1920, to December 1, 1921:

	During 1920	During 1921	Grand total to Dec. 1, 1921
Crossing projects listed	37	41	410
Number of railroad crossings involved on projects listed	39	45	496
Projects surveyed	13	8	178
Projects for which plans and estimates were prepared	20	24	210
Number of conferences held	25	28	179
Number of projects satisfactorily adjusted	21	15	142
Number of projects listed which have been appealed to Railroad Commission	3	4	25
Projects adjusted by Railroad Commission	2	8	20
Grade crossings eliminated by grade separation	5	5	25
Crossings improved	16	10	129
Estimated cost of crossing improvements satisfactorily adjusted	\$ 122,400	\$ 170,000	\$ 620,110
Total estimated amount appropriated by railroad companies for crossing improvements	56,050	72,000	320,848
Total estimated amount appropriated from public funds for crossing improvements	66,350	98,000	290,262
Average percentage of cost paid by railroad companies for crossing improvements	46%	42%	52%
Average percentage of cost paid from public funds for crossing improvements	54%	58%	48%

The crossing projects listed include all of the crossings which have been referred to the Commission since 1914. Many of these projects have been satisfactorily adjusted and completed.

From the foregoing tabulation it will be noted that the crossing work accomplished and the expenditures made for crossing improvements since 1914 are very small in view of the large number of crossings in this state.

It will be necessary to greatly increase the number of crossings improved each year or thousands of people will have lost their lives before there is any appreciable decrease in the number of grade crossings on our highways.

#### Methods of Handling Railroad Crossing Complaints.

Many applications are received each year from highway officials, associations and individuals asking for assistance in securing the improvement of railroad crossings. These applications in general are referred to the district engineers for investigation and if found meritorious are assigned a project number and a detailed investigation is made. If it develops from the investigation that a survey and plan are necessary one of the Commission's engineers is assigned to the county to secure this information. The plans are then prepared by the Commission and copies of the plans and estimates of cost furnished to the county and railroad company.

In many instances it is possible to adjust a complaint by correspondence but in the event that the improvement contemplated is of such character that it cannot be so adjusted the usual procedure is to arrange a conference at the site of the crossing between those interested in the improvement. At this conference the plans for the improvement and the distribution of cost between the interested parties are taken up and discussed.

It has been found possible through this procedure to adjust many of the crossing projects. The statutes provide that in the event of a disagreement between the parties interested in the improvement they may appeal to the Board of Railroad Commissioners for final decision.

The dissimilarity of the projects which come up for improvement makes it impractical to attempt to fix any uniform method for determining the percentage to be paid by the public and the railroad company. In so far as possible the adjustment is made on the basis of the benefits which each derive from the improvement.

#### Distribution of Dangerous Crossings.

By far the greater majority of the crossings listed for improvement during the past few years have been grade crossings. However, there are many complaints received and investigated by the Commission referring to dangerous conditions existing at undergrade and overhead crossings. The crossings listed for improvement are classified as to type as follows:

DISTRIBUTION AND PERCENTAGE OF CROSSINGS LISTED FOR IMPROVEMENT OR IMPROVED TO DECEMBER 1, 1921.

Type of Crossing	Number listed 1921	Distribution of original crossings as listed by Commission	
		Number	Percentage
Grade .....	40	374	77
Overhead .....	3	44	9
Undergrade .....	3	63	13
New crossing .....	0	6	1
Total .....	46	487	100%

DISTRIBUTION OF CROSSING IMPROVEMENTS ACCORDING TO THE PLANS AND RECOMMENDATIONS OF THE COMMISSION, DECEMBER 1, 1921.

Type of Crossing	Eliminated		Improved		Grade Separation		Total Number
	No.	%	No.	%	No.	%	
Grade .....	22	25	136	42	166	33	322
Overhead .....	3	6	36	92			39
Undergrade .....	5	9	51	91			56
New crossings .....							
Total number .....	90		222		166		417
Percentage of total .....		21		53		39	

DISTRIBUTION OF CROSSING IMPROVEMENTS SATISFACTORILY ADJUSTED TO DECEMBER 1, 1921.

Type of Crossing	Eliminated		Improved		Grade Separation		Total Number
	No.	%	No.	%	No.	%	
Grade crossings .....	34	51	80	56	36	23	150
Overhead .....	2	7	25	93			27
Undergrade .....	2	6	30	94			32
New crossings .....							
Total number .....	38		144		36		218
Percentage of total .....		17		66		17	



**Minimum Standard Requirements for Crossing Improvements.**

The minimum requirements as adopted by the Commission for grade, undergrade and overhead crossings are given in detailed form below:

**Grade Crossings.**

Location of crossing signs at all grade crossings a minimum distance of 300 ft. from the crossing. Maximum approach grade to the crossing of 6 per cent. Level approach grade on either side of the tracks of 25 ft.

Minimum width of planking measured at right angles to the center line of the highway of 24 ft. on the Primary Road System and 20 ft. on the Secondary Road System.

Clear view which allows a person in a vehicle 200 ft. from the crossing to observe an approaching train at least an equal distance from the crossing.

**Undergrade Crossings.**

Minimum vertical clearance of 13 ft. with a recommended clearance of at least 14 ft. wherever practical.

Minimum horizontal clearance for temporary construction of 13 ft. measured at right angles to the highway.

Minimum horizontal clearance for permanent construction of 24 ft. for crossings on the Primary Road System measured at right angles to the highway.

Clear view which will permit one vehicle on the highway to observe another vehicle approaching a minimum distance of 200 ft.

**Overhead Crossings.**

Minimum vertical distance from top of rail to low steel of 22 ft.

A bridge structure capable of safely carrying the Commission's standardized loadings.

Minimum width of roadway for temporary construction of 18 ft.

Minimum width of roadway for permanent construction on the Primary Road System of 20 ft. and for the Secondary Road System of 18 ft.

Changes in grade on the bridge structure or approaches not to exceed 2 per cent between bents or between end span and approach grade.

Clear view which will permit one vehicle on the highway to observe another vehicle approaching for a minimum distance of 200 ft.

**Plans for Future Crossing Work.**

Surveys have been completed and plans are in the course of preparation on a number of important crossing improvements.

It is the policy of the Commission to secure if possible the improvement of the crossings located on important highways and main line railroads as rapidly as practicable. Other improvements requiring a nominal expenditure will be given attention by the Commission but the more important crossings will be given first consideration.

### SCHEDULE

## DETAILED STATEMENT OF WORK ACCOMPLISHED

Project No.	County	Location	Road System	Railroad
4	PAGE	29-32 Nodaway	P	C. B. & Q.
5	Union	Sec. 9 Highland	P	C. B. & Q.
14	Page	Town of Norway	P	C. B. & Q.
24	Clarke	In town of Woodburn	City	C. B. & Q.
27	Louisa	Sec. 2, 11 Grand View Township	T	C. R. I. & P.
56	Muscatine	Sec. 31 Morningside	T	C. R. I. & P.
116	Dallas	Sec. 4, 9 Spring Valley	C	M. & St. L.
125	Story	Sec. 3, 10 Nevada Twp.	P	C. & N. W.
136	Scott	Sec. 35 Princeton	P	D., R. I. & N. W.
199	Carroll	21-28 Maple River	P	C. G. W.
137	Carroll	37-28 Maple River	P	C. & N. W.
139	Carroll	22-27 Maple River	P	C. & N. W.
143	Mahaska	Sec. 1 Adams	T	M. & St. L.
146	Plymouth	Sec. 6 Fredonia Twp.	T	C. St. P., M. & O.
156	Franklin	Sec. 31 Mott Twp.	P	C. G. W.
191	Wapello	Sec. 25 Greene	P	Wabash
199	Washington	In town of Washington	City	C. M. & St. P.
209	Mahaska	Sec. 10 White Oak	P	C. R. I. & P.
223	Pottawattamie	Sec. 29, 32 Garner Twp.	P	C. R. I. & P.
296	Mahaska	Sec. 8, 2 White Oak	P	C. M. & St. P.
272	Wright	Sec. 33 Iowa Twp.	P	C. R. I. & P.
286	Monroe	33 Troy Twp.	P	C. R. I. & P.
293	Pottawattamie	Sec. 23 Garner	P	M. & St. L.
301	Woodbury	Sec. 9 Woodbury Twp.	P	C. G. W.
311	Louisa	Sec. 6 Grand View	C	C. M. & St. P.
318	Cerro Gordo	Sec. 28 Lime Creek	P	C. R. I. & P.
327	Jasper	4, 9 Mound Prairie	P	C. G. W.
328	Dubuque	Sec. 3 Table Mound	P	C. R. I. & P.
331	Polk	Sec. 23 Delaware	P	D. M. I. R. R.
334	Monona	Sec. 32 Cooper	P	C. M. & St. P.
346	Iowa	Sec. 4, 5 Iowa Township	P	C. M. & St. P.
348	Mills	Sec. 13 Glenwood	P	C. B. & Q.
351	Marshall	Sec. 9, 10 State Center	P	C. & N. W.
353	Dallas	Sec. 5, 6 Beaver	P	C. R. I. & P.
356	Van Buren	In Mt. Zion	P	C. R. I. & P.
357	Cedar	Sec. 9, 16 Pioneer	P	C. & N. W.
358	Cedar	Sec. 20 Fremont Twp.	P	C. & N. W.
360	Decatur	Sec. 2 New Buda	City	C. B. & Q.
362	Floyd	Sec. 7, 8 Nora Springs	P	C. M. & St. L.
363	Mahaska	36 Madison & 1 Lincoln	P	M. & St. L.
364	Washington	Sec. 24 Washington	P	C. R. I. & P.
365	Tama	Sec. 2, 3 Buckingham	P	C. & N. W.
368	Page	Sec. 23, 26 Grant Twp.	P	Wabash
370	Crawford	Sec. 18, 19 Nishnabotna	P	C. M. & St. P.
371	Iida	Sec. 22 Corwin Twp.	P	C. & N. W.
372	Monona	In town of Castana	City	C. & N. W.
373	Plymouth	Sec. 20, 31 America Twp.	P	C. R. I. & P.
374	Pottawattamie	Sec. 16 Norfolk	City	C. R. I. & P.
375	Pottawattamie	Sec. 24 Neola Township	City	C. R. I. & P.
379	Wapello	Sec. 36 Cass	C	C. B. & Q.
377	Floyd	In Sec. 16, 17 Rock Grove	P	C. M. & St. P.
378	Lee	Sec. 22 Jefferson	P	A., F. & S. F.
381	Clarke	Sec. 27 Fremont	P	C. B. & Q.
379	Dallas	N. W. 1/4 Sec. 30 Van Meter	P	C. R. I. & P.
382	Grundy	Sec. 25, 29 Felix Twp.	P	C. & N. W.
382	Mahaska	Sec. 13 Spring Valley	P	C. R. I. & P.
383	Calhoun	Sec. 6 Sherman	P	I. C.

## FOUR

## ON INDIVIDUAL CROSSING PROJECTS LISTED.

Present Crossing	Proposed Improvement	Work Accomplished 1951									
		Project No. Assigned	Field Inspection	Surveyed	Plans prepared	Estimate prepared	Plans revised	Conferences attended	Plans approved	Cost adjusted	Corresp. for Adj. Appeal to R. R. Com., Hearing R. R. Com., Decision by R. R. Com.
Grade.	Overhead.		X	X	X	X		X		X	
Overhead.	Overhead.		X	X	X	X					
Grade.	Undergrade.									X	
(2) Grade.	(2) Grade.										X
Grade.	Undergrade.										
Grade.	Undergrade.		X					X		X	
Grade.	Overhead.				X	2		X		X	
Grade.	Overhead & undergrade.										
Grade.	Undergrade.			X	2				X		X
Grade.	Undergrade.			X							X
Grade.	Relocate.			X							
Grade.	Undergrade.								X	X	
Grade.	(2) Grade.										X
Grade.	Undergrade.		2			2	X	X			
Grade.	Overhead.				X				X	X	X
(2) Overhead.	(3) Overhead.										
None.	Undergrade.		X							X	
(2) Undergrade.	(2) U. G.		2		X	X					
Grade.	Undergrade.		X								
Overhead.	Overhead.		X		X				X		
Grade.	Gr. Improv.				X				X		
Undergrade.	Undergrade.		X								
Grade.	Overhead.		X			2		X	X	X	
Grade.	Grade.							X			X
(3) Grade.	Undergrade.						X	X			
Grade.	Overhead.		X		X			X			
Grade.	Eliminate.										X
(2) Grade.	Undergrade.		X		X	2		2	X	X	X
Overhead.	Overhead.							2	X	X	
Undergrade.	Undergrade.		X		X			2	X	X	
Grade.	Undergrade.							X			
Overhead.	Overhead.		X		X			X		X	X
Grade.	Overhead.								X		
Grade.	Undergrade.				2	2					
Grade.	Overhead.		X		X	X					
Undergrade.	Undergrade.			X	X	X				2	
Gr. & O. H.	Overhead.		X		X	2	X	X			
Undergrade.	Undergrade.		X		X	2	X	2			
Grade.	Undergrade.				X						
Grade.	Overhead.							X			X
Undergrade.	Undergrade.		X	X						X	
Grade.	Grade.		X								
Grade.	Grade.		X							X	
Grade.	Overhead.			X	X	X					
Grade.	Grade.		X								
Grade.	Grade.		X								
(2) Grade.	Eliminate.		X	X	X			2			
Grade.	Undergrade.		X	X		X	X				
Grade.	Overhead.		X		2		X	X			
Grade.	Overhead.		X			X					
Grade.	Undergrade.		X	X	X			2			
Grade.	Overhead.		X	X							



### Schedule

Project No.	County	Location	Road System	Railroad
384	Pottawattamie	Sec. 15 and 16 Lewis	P	Wabash
385	Plymouth	3-10 Washington	P	C. & N. W.
386	Harrison	Sec. 57 St. Johns Twp.	P	I. C. R. I. & P.
387	Humboldt	Sec. 23-24 Delana	C	C. R. I. & St. P.
388	Clinton	Sec. 37 Spring Rock	P	C. M. & St. P.
389	Emmett	Sec. 14 and 23 Estherville	P	C. R. I. & St. P.
390	Fayette	In town of Fayette	P	M. & St. L.
391	Jackson	Sec. 21 Monmouth	P	C. M. & St. P.
392	Muscatine	Sec. 31 Orono Twp.	P	C. & N. W.
393	Monroe	Sec. 33 Troy Twp.	P	C. R. I. & P.
394	LaSalle	Sec. 34 Jefferson	P	S. I. & L. P.
395	Pottawattamie	N. W. 1/4 Sec. 21 Garner	P	C. B. & Q.
396	Marshall	Sec. 7-8 Logan Twp.	T	C. R. I. & P.
397	Ia	Sec. 23-26 Galva Twp.	C	C. M. & St. P.
398	Ringgold	Sec. 6-7 Rice Township	C	C. M. & St. P.
399	Sac	Sec. 25-24 Sac Twp.	P	C. & N. W.
400	Buchanan	In town of Aurora	P	C. G. W.
401	Clay	In town of Petersol	P	C. & N. W.
402	Clinton	Sec. 10 Spring Rock	P	C. M. & St. P.
403	Audubon	Sec. 3-9 Leroy Twp.	P	C. & N. W.
404	Henry	Sec. 1 Tippecanoe	T	C. B. & Q.
405	Monroe	Sec. 26 Pleasant	T	C. B. & Q.
406	Wapello	Sec. 6-7 Richland	P	C. M. & St. P.
407	Wapello	Sec. 6-7 Richland	P	C. M. & St. P.
408	Monroe	Sec. 26-27 Pleasant	P	C. B. & Q.
409	Tama	29-32 Otter Creek	T	C. M. & St. P.
410	Tama	29 Tama Twp.	P	C. & N. W.

## Four—Continued

[illegible]

## CHAPTER VI

### Department of Road Administration

During the period covered by this report sixty-seven project statements involving the improvement of 870.48 miles of primary road at an estimated cost of \$4,156,652.00 have been approved; two city paving projects involving the paving of 2.60 miles of primary road extensions inside the incorporated limits of cities, at an estimated cost of \$109,542.75 have been approved; plans, specifications and estimates on thirty Federal Aid projects, contemplating the improvement of 503.05 miles of road at an estimated cost of \$2,790,883.01 have been submitted to the Bureau of Public Roads; plans, specifications and estimates on eighty-three primary road projects, contemplating the improvement of 1,031.44 miles of road at an estimated cost of \$5,721,429.64, have been submitted to the Boards of Supervisors; project agreements whereby \$1,750,368.93 of Federal Aid funds have been obligated for the construction of thirty Federal Aid projects, have been executed by the Secretary of Agriculture; lettings held on one hundred fifty-one projects in eighty-seven counties have resulted in the awarding of four hundred thirty-two contracts for work on the primary road system, four hundred thirty-one of which have been approved, totaling \$7,917,952.48, and one of which, totaling \$1,226.62, has been disapproved; one contract amounting to \$50,315.80, for work on a city paving project, has been approved; fifty-eight contracts, totaling \$520,035.69, for county road work, have been approved; thirty-six contracts, totaling \$207,569.26, for work in connection with secondary road districts have been approved, and sixty-three secondary road districts, for the gravel surfacing of 250.87 miles of secondary road, have been established.

#### Projects Approved—Refer to Schedule Five.

(a) Federal Aid Projects. No Federal Aid projects were approved during the period covered by this report. All Federal Aid funds becoming available prior to November, 1921, were allotted to projects approved prior to December 1, 1920. Federal Aid Project No. 117, Humboldt County, reported as approved in the 1920 report, was withdrawn as a Federal Aid project and is being constructed as a Primary Road project.

(b) Primary Road Projects. Sixty-seven primary road projects, contemplating the improvement of 870.48 miles of road, at an estimated cost of \$4,156,652.00, have been approved by the Commission. Four of these projects contemplate the hard-surfacing of 14.71 miles of road, thirty-two projects contemplate the gravel-surfacing of 374.86 miles of road, in six of the projects the improvement of 113.38 miles of road by tile drainage only is contemplated, while 367.53 miles of road will be improved by constructing to finished grades and providing the necessary drainage, with no surfacing contemplated.

(c) City Primary Projects. Refer to Schedule Six. Two city primary projects, involving the paving of 2.60 miles of primary road extensions within the incorporated limits of cities, were approved by the Commission. The total estimated cost of these two projects was \$109,542.75, and the amount to be paid from the primary road fund is \$39,239.14.

#### Plans, Specifications and Estimates Submitted.

(a) Federal Aid Projects. Refer to Schedule Seven. Plans, specifications and estimates have been submitted to the Bureau of Public Roads on thirty Federal Aid projects, involving the improvement of 503.05 miles of road at an estimated cost of \$2,790,883.01. Six of these projects contemplate the gravel surfacing of 74.29 miles of road, while the improvement contemplated on the remaining 428.76 miles consists of constructing to finished grades and providing the necessary drainage, with no surfacing involved.

(b) Primary Road Projects. Refer to Schedule Eight. Plans, specifications and estimates have been submitted to the Boards of Supervisors on eighty-three projects involving the improvement of 1,031.44 miles of road, at an estimated cost of \$5,721,429.64. Eight of these projects contemplate the hard-surfacing of 27.06 miles of road, thirty-four of the projects contemplate the gravel-surfacing of 398.83 miles of road, nine of the projects contemplate the improvement by tile drainage only, of 136.14 miles, while the improvement contemplated on the remaining 469.41 miles consists of constructing to finished grades and providing the necessary drainage, with no surfacing involved.

#### Project Agreements Executed—Refer to Schedule Nine.

Project agreements whereby \$1,750,368.93 of federal funds were set aside as the Federal Government's share of the cost of con-



struction on thirty Federal Aid projects, were executed by the Secretary of Agriculture and the State Highway Commission. The work contemplated in these thirty projects involves the improvement of 547.26 miles of road, 24.35 miles by hard-surfacing, 77.17 miles by gravel-surfacing, and the remaining 445.74 miles by constructing to finished grades and providing the necessary drainage, with no surfacing involved.

**Project Agreements Modified**—Refer to Schedule Ten.

Five project agreements executed by the Secretary of Agriculture prior to December 1, 1920, have been modified during the period covered by this report. In three cases the modifications were the result of a change in the estimated cost of the project, resulting from agreed modifications in the plans and specifications, while in the other two cases the modified agreements were entered into to release Federal funds allotted to dormant projects in order that such funds might be made available for other projects which were being placed under construction. The net result of the modifications was the release of \$436,000.00 of Federal funds for use on active projects.

**Lettings Held, Contracts Awarded, Contracts Approved**—Refer to Schedules Eleven and Twelve.

Lettings held on one hundred fifty-one Primary Road and Federal Aid projects in eighty-seven counties have resulted in the awarding of four hundred thirty-two contracts, four hundred thirty-one of which, totaling \$7,917,952.48, have been approved, and one of which, amounting to \$1,226.62, has been disapproved. Work included in these contracts contemplates the improvement of 1,328.83 miles of the primary road system, 58.31 miles by hard-surfacing, 391.41 miles by gravel-surfacing, and 671.04 miles by constructing to finished grades and providing the necessary drainage, with no surfacing involved, and 208.07 miles by tile drainage only. Schedule Eleven gives the date of letting and the number, length and location of project, also the type of improvement. Schedule Twelve gives detailed information as to the name of the contractor, quantities involved, unit prices, total amount of contract, and the action on the contract by the Commission.

In addition to the work herein listed, on September 26, 1921, a contract was let for City Primary Project No. 1 at Eldora, Iowa. This contract, involving \$50,315.80, was approved by the Commission on October 10, 1921.

**Secondary Road Contracts Approved.**

(a) County work aside from Secondary Districts. Refer to Schedule Thirteen.

Fifty-eight contracts, totaling \$520,035.69, have been approved for secondary road work aside from contracts in connection with secondary road districts.

(b) Secondary Road District Contracts. Refer to Schedule Fourteen.

Thirty-six contracts, totaling \$207,569.26, have been approved for work in connection with secondary gravel surfacing districts.

**Secondary Road Districts Established**—Refer to Schedule Fifteen.

Sixty-three secondary road districts, proposing the gravel-surfacing of 250.87 miles of road in seventeen counties, have been established. In this connection it is interesting to note that lands included in the proposed special assessment districts total approximately 257,490 acres, or slightly in excess of 1,000 acres of land for each mile of road.

**SCHEDULE NO. FIVE**

**PRIMARY ROAD PROJECTS APPROVED BY HIGHWAY COMMISSION.**

County	Project No.	Length in Miles					Estimated Cost
		Grading	Gravel	Paving	Tiling	Total	
Adair	116	11.00				11.00	\$ 80,480.00
Adair	102	3.78				3.78	19,806.40
Allamakee	135	13.10				13.10	91,029.20
Allamakee	127	12.40				12.40	93,086.40
Allamakee	160	0.50		0.50		0.50	26,009.70
Black Hawk	161	14.00				14.00	48,043.00
Boone	94	2.50	2.50			2.50	21,301.50
Boone	134	6.90	6.90			6.90	55,630.98
Bremer	191	0.25				0.25	26,010.60
Calhoun	95	3.00	10.00			8.00	29,310.75
Calhoun	96		6.50		4.75	11.25	27,602.50
Carroll	141				21.87	21.87	5,305.97
Cass	150	3.13				3.13	28,305.38
Cherokee	98	1.00	11.50			11.50	51,416.75
Cherokee	151	22.50				22.50	49,450.00
Chickasaw	131	18.00	18.00			18.00	95,063.00
Clayton	208	9.00				9.00	29,658.30
Clinton	125	16.00				16.00	61,197.40
Crawford	209	3.30				3.30	18,634.00
Dallas	194		14.27			14.27	22,534.27
Dallas	195	10.85	10.85			10.85	51,063.16
Davis	112	11.75				11.75	58,877.50
Delaware	139		12.02			12.02	35,103.75
Dubuque	147				20.04	20.04	16,122.48
Fayette	142	8.50				8.50	25,113.00
Franklin	190		10.57			10.57	33,723.90
Franklin	168	12.00	12.00			12.00	126,430.30
Greene	24	6.92				6.92	40,156.43
Grundy	163		8.21			8.21	18,812.47
Hamilton	79	18.80				18.80	130,322.49
Hamilton	200	14.94				14.94	55,126.61
Hancock	178	0.49		0.49		0.49	22,643.11

Schedule No. Five—Continued

County	Project No.	Length in Miles					Estimated Cost
		Grading	Gravel	Paving	Tiling	Total	
Henry	135	9.50				9.50	45,925.00
Ia	205		9.83			9.83	28,508.90
Iowa	130	20.60				20.60	86,431.50
Jasper	180		12.10			12.10	65,377.00
Jefferson	250	21.49				21.49	79,028.75
Lyon	146	12.77				12.77	22,595.00
Lyon	174		23.00			23.00	62,216.00
Madison	172	15.37				15.37	97,295.00
Mitchell	138	21.21	21.21			21.21	140,847.24
Oscola	180		10.45			10.45	22,011.00
Oscola	197	15.00				15.00	27,806.00
Oscola	201	0.52	0.52			0.52	2,022.62
Oscola	202		15.02			15.02	33,066.00
Pocahontas	90	9.11				9.11	101,875.29
Pocahontas	91		14.78			14.78	88,187.00
Polk	115	4.10				4.10	33,225.32
Polk	122		6.25			6.25	17,359.37
Polk	142		16.30			16.30	49,709.00
Sac	106		18.92			18.92	125,900.92
Sac	210	6.31	6.31			6.31	19,416.65
Scott	50	12.80		12.80		12.80	740,356.85
Sioux	123	15.30				15.30	40,073.00
Story	123		4.90			4.90	14,190.00
Tama	140	26.50				26.50	123,094.30
Van Buren	118	16.30				16.30	103,904.00
Wayne	127	15.10				15.10	68,145.00
Washington	139	19.80				19.80	58,582.70
Webster	108		2.50		6.75	9.25	16,752.18
Webster	111		7.00			7.00	31,625.00
Winnebago	130	22.50	22.50			22.50	76,367.50
Winnebago	121	15.30				15.30	20,067.70
Winnebago	117	8.00				8.00	49,973.40
Woodbury	187	0.92		0.92		0.92	34,022.22
Worth	161				52.44	52.44	23,182.50
Wright	300	9.50	9.50			9.50	64,784.50
Totals	67	221.44	274.86	14.71	112.38	570.48	\$4,156,892.00

SCHEDULE NO. SIX

CITY PRIMARY PROJECTS APPROVED BY HIGHWAY COMMISSION.

City	City Project No.	Length Paving	Distribution of Cost			Estimated Cost
			Special Assessment	City Funds	Primary Road Funds	
Eldora	1	1.55	\$40,700.42	\$9,418.32	\$20,300.00	\$70,418.75
Missouri Valley	2	1.05	20,184.36		18,039.14	39,124.00
Totals	2	2.60	\$60,884.78	\$9,418.32	\$38,339.14	\$109,542.75

One contract on city projects has been approved, to-wit: Eldora City Project No. 1 entered into contract with the Western Asphalt Paving Corporation of Sioux City, Iowa, for 16,234 sq. yd. of concrete paving at \$2.65 per sq. yd., and 2,790 cu. yd. of excavation at 50c per cu. yd., or a total amount of \$50,315.80. This contract approved Oct. 10, 1921.

SCHEDULE NO. SEVEN

PLANS, SPECIFICATIONS AND ESTIMATES ON FEDERAL AID PROJECTS SUBMITTED TO BUREAU OF PUBLIC ROADS.

County	Project No.	Length in Miles				Estimated Cost	Fed. Aid Requested
		Grading	Gravel	Paving	Total		
Audubon	52	17.47			17.47	\$141,498.85	\$6,000.00
Bremser	88	10.70			10.70	44,332.48	22,000.00
Cass	44	17.73			17.73	159,086.97	21,804.00
Cedar*	57	23.60			23.60	135,921.50	67,000.00
Chickasaw	76	14.48	14.48		14.48	90,964.40	48,000.00
Clayton	74	27.22			27.22	125,119.42	62,000.00
Delaware	103	12.44	12.44		12.44	91,736.66	45,000.00
Payette	59	32.04			32.04	160,558.47	80,000.00
Howard	92	11.00	11.00		11.00	66,532.47	34,000.00
Iowa	90	25.12			25.12	152,165.18	75,000.00
Jasper	64	12.10			12.10	41,678.61	20,800.00
Jefferson	120	6.84			6.84	27,338.63	13,500.00
Jackson	21	16.30			16.30	106,635.35	25,000.00
Jones	86	24.33			24.33	146,772.37	73,000.00
Kossuth	69	10.41			10.41	46,798.18	23,300.00
Louis	50	20.84			20.84	131,059.42	65,000.00
Louis	63	5.88			5.88	25,430.65	12,000.00
Mahaska	70	17.54			17.54	76,695.33	36,000.00
Marion	75	13.26			13.26	69,406.97	49,000.00
Mitchell	45	18.19	18.19		18.19	146,414.97	73,000.00
Muscatine	87	28.15			28.15	80,874.77	41,400.00
Plymouth	38	5.15			5.15	30,264.30	15,000.00
Ringgold	123	8.79			8.79	50,880.57	25,400.00
Story	72	18.20	9.75		21.89	121,112.30	42,000.00
Tama	47	29.82			29.82	165,298.96	46,600.00
Taylor	81	5.56			5.56	35,907.72	16,000.00
Warren	11	16.26			16.26	106,721.43	50,000.00
Washington	71	21.84			21.84	75,834.82	37,000.00
Winnebago	98	14.02			14.02	94,318.82	40,000.00
Worth	124	8.43	8.43		8.43	77,794.36	30,000.00
Totals	39	494.88	74.29		509.05	\$2,790,885.01	\$1,254,294.02

\*Cedar County Federal Aid Project No. 57 has been submitted to the Federal District office with the exception that the Board of Supervisors have not approved the plans; hence approval by the Bureau of Public Roads is necessarily withheld.

†The total number of projects shown includes projects or portions of projects.



## SCHEDULE NO. EIGHT

PLANS, SPECIFICATIONS AND ESTIMATES FOR PRIMARY ROAD PROJECTS SUBMITTED TO BOARD OF SUPERVISORS.

County	Project No.	Length in Miles					Estimated Cost
		Grading	Gravel	Paving	Tilling	Total	
Adair	18	4.08				4.08	25,415.42
Adair	102	5.78				5.78	19,566.49
Adams	62	12.79				12.79	65,197.95
Allamakee	112	3.49		3.49		3.49	182,405.19
Allamakee	109	0.50		0.50		0.50	21,405.12
Appanoose	55	10.48				10.48	19,553.22
Black Hawk	144	7.91				7.91	31,504.88
B Boone	124	6.90	6.90			6.90	58,235.27
Buchanan	66	11.30				11.30	39,634.89
Buena Vista	82	4.19	4.19			4.19	15,129.02
Butler	71	11.42				11.42	78,829.48
Calhoun	132	2.09	9.13		11.95	21.98	42,879.54
Calhoun	96		6.50		4.75	11.25	31,255.10
Calhoun	197	6.24	6.24		1.00	7.24	21,496.20
Carroll	141				21.49	21.49	7,669.46
Cass	120	2.13				2.13	26,256.38
Clarke	31	12.06				12.06	43,170.65
Clay	56	6.42				6.42	41,295.13
Cherokee	98	1.00	11.50			11.50	31,419.75
Clinton	122	15.06				15.06	60,580.65
Crawford	8	15.42				15.42	92,709.27
Dallas	33	15.00				15.00	62,363.95
Dallas	180		16.82			16.82	57,209.02
Dallas	194		14.27			14.27	22,554.27
Dallas	195	10.88	10.88			10.88	35,157.16
Delaware	150		12.62			12.62	35,065.06
Dubuque	107				20.04	20.04	16,122.48
Payette	143		5.20			5.20	10,585.15
Floyd	63	2.58		2.58		2.58	111,568.32
Franklin	100		10.97			10.97	33,725.80
Greene	14	6.92				6.92	40,195.43
Grundy	48	10.44				10.44	95,070.88
Grundy	162				8.23	8.23	16,539.52
Hamilton	79	18.10	18.10			18.10	139,716.64
Hamilton	290		14.94			14.94	45,281.97
Hancock	178	0.49		0.49		0.49	22,643.11
Hardin	4	8.95	4.49			8.95	37,487.30
Hardin	58	1.00	39.14			39.14	121,399.06
Harrison	34	18.12				18.12	131,048.06
Humboldt	117	15.73	29.30		11.36	56.39	188,987.39
Ia	111	12.42				12.42	47,510.56
Ia	298				9.83	9.83	25,568.50
Jasper	185		12.10			12.10	61,864.00
Johnson	25	18.08				18.08	73,112.46
Jones	80	2.07				2.07	17,796.24
Kossuth	6	17.48			6.64	24.12	70,179.30
Lee	99	8.27				8.27	128,449.06
Lyon	95	16.19				16.19	51,097.09
Lyon	174		22.00			22.00	47,833.50
Madison	36	11.36				11.36	126,129.24
Marshall	12	8.95				8.95	27,154.40
Monona	58	21.71				21.71	119,878.37
Monroe	78	5.95				5.95	47,751.12
Oceola	169		10.45			10.45	23,075.25
Oceola	201	9.82				9.82	1,692.31
Oceola	225		17.00			17.00	28,887.70
Page	27	22.62				22.62	180,081.35
Plymouth	39	20.00				20.00	76,975.98
Plymouth	74	13.51				13.51	47,067.27
Pocahontas	60	9.11	15.02			15.02	161,875.29
Pocahontas	91		14.78			14.78	87,870.42
Polk	1	1.50		1.50		1.50	82,063.30

## Schedule No. Eight—Continued

County	Project No.	Length in Miles					Estimated Cost
		Grading	Gravel	Paving	Tilling	Total	
Polk	40	4.78		4.78		4.78	206,344.83
Polk	59	2.55				2.55	18,827.28
Polk	115	4.19				4.19	35,225.33
Pottawattamie	21	20.15				20.15	80,711.22
Pottawattamie	22	20.30				20.30	132,523.44
Pottawattamie	92	2.94				2.94	75,557.28
Potosi	41	15.92				15.92	75,353.08
Sac	106		19.90			19.90	84,705.11
Scott	50	12.80		12.80		12.80	145,487.25
Shelby	42	12.48				12.48	116,775.79
Sioux	67	2.00				2.00	14,191.52
Story	133		4.00			4.00	14,975.00
Warren	44	16.11				16.11	74,927.05
Webster	25	9.98				9.98	80,076.12
Webster	64	15.98				15.98	41,539.19
Webster	108		2.50		6.06	8.56	12,828.47
Webster	111		7.03			7.03	19,834.65
Winnebago	120	5.00	22.36			27.36	72,544.65
Worth	101				52.44	52.44	29,570.72
Wright	19	8.23	8.23			16.46	87,949.83
Woodbury	137	0.92		0.92		0.92	27,728.35
Totals	81	610.79	308.81	27.66	136.14	1,083.44	\$85,721,429.61

\*Lee County Primary Road Project No. 68 is really macadam but has been classified as gravel for purposes of this report.

## SCHEDULE NO. NINE

PROJECT AGREEMENTS EXECUTED BY SECRETARY OF AGRICULTURE.

County	Project No.	Length in Miles				Estimated Cost	Federal Aid Allotted
		Grading	Gravel	Paving	Total		
Bremer	85	10.70			10.70	\$ 44,322.68	\$ 22,000.00
Butler	85-D	2.88	2.88		2.88	20,349.83	12,474.91
Cass	44	17.77			17.77	150,086.07	21,804.00
Chickasaw	70	14.48	14.48		14.48	99,964.40	48,000.00
Clayton	74-B						
	D-E	27.22			27.22	125,116.42	62,000.00
Decatur	122	9.93			9.93	76,051.92	31,800.00
Delaware	108	12.44	12.44		12.44	91,736.65	45,000.00
Fayette	59	32.04			32.04	160,558.47	80,000.00
Hancock	94	24.35		24.35	24.35	1,297,552.05	470,000.00
Howard	68	11.00	11.00		11.00	111,908.17	54,000.00
Iowa	00	26.12			26.12	152,105.18	75,000.00
Jackson	21	16.30			16.30	106,010.30	25,000.00
Jasper	64CD	12.11			12.11	41,678.61	20,800.00
Jones	89	24.33			24.33	146,772.37	73,000.00
Kossuth	96	23.76			23.76	161,646.15	80,300.00
Louis	53	20.84			20.84	121,069.42	65,500.00
Mahaska	70HC	17.54			17.54	76,466.33	35,000.00
Marion	75-A						
	B-C	13.36			13.36	99,406.61	49,000.00
Mitchell	45	18.19	18.19		18.19	146,414.97	73,000.00
Muscatine	87	28.15			28.15	82,974.77	41,400.00
Plymouth	38-A						
	B-C	25.09			25.09	128,137.57	60,000.00
Story	73	18.29	9.75		21.89	121,115.39	42,000.00
Tama	74	29.51			29.51	90,236.94	45,000.00
Taylor	81-A	5.59			5.59	33,907.72	16,000.00
Union	85-A						
	BCD	14.50			14.50	111,494.84	16,900.00
Warren	11	16.26			16.26	105,731.43	50,000.00
Washington	71	21.84			21.84	75,834.82	37,900.00
Wayne	91	10.95			10.95	79,604.41	39,000.00
Winnebago	98	14.02			14.02	64,315.82	40,000.00
Worth	134	8.43	8.43		8.43	77,794.99	39,000.00
Totals	30	539.09	77.17	24.35	547.26	\$4,255,328.41	\$ 1,759,268.98

## SCHEDULE NO. TEN

PROJECT AGREEMENTS EXECUTED BY SECRETARY OF AGRICULTURE PRIOR TO DECEMBER 1, 1920, PREVIOUSLY REPORTED, AND MODIFIED SINCE DECEMBER 1, 1920.

County	Project No.	Length in Miles				Modifications in Estimated Cost	Modifications in Fed. Aid Allotted
		Grading	Gravel	Paving	Total		
Calhoun	10					\$ -23,475.33	\$ -17,500.00
Palo Alto	169					+133,986.05	+50,500.00
Ringgold	5					+28,016.80	
Buchanan	5						-300,000.00
Scott	54	-8.46		-8.46	-8.46	-379,289.62	-169,000.00
Net addition						\$ 162,002.94	\$ 50,500.00
Net deduction		8.46		8.46	8.46	\$ 402,765.94	\$ 486,500.00
Difference		-8.46		-8.46	-8.46	\$ -240,763.00	\$ -436,000.00



## SCHEDULE NO. ELEVEN

LETTINGS HELD ON FEDERAL AID, PRIMARY, AND CITY PRIMARY PROJECTS.

County	Date	Project No.		Location of Road	Type of Improvement
		Fed.	Prim.		
*Indicates bids rejected.					
Adair	7-27-21		192	Adair SW to Cass county line	Grading, draining 3.28 Mi.
Adair	7-27-21		28	Greenfield north	Grading, draining 4.08 Mi.
Allamakee*	1-13-21		29	Postville north	Grading, draining, paving 3.41 Mi.
Allamakee*	1-13-21		113	Waukon north	Grading, draining, paving 3.49 Mi.
Allamakee	3- 9-21		29	Postville north	Grading, draining 3.41 Mi.
Allamakee	3- 9-21		113	Waukon north	Grading, draining 3.49 Mi.
Allamakee*	10-12-21		169	Waukon south	Grading, draining, paving 0.50 Mi.
Appanoose	11- 2-21		76	SW and NE Centerville	Grading, draining 10.475 Mi.
Arnold	7-19-21	52		Esira north to county line	Grading, draining 17.47 Mi.
Benton	2- 7-21	58		Vinton south	Tile drainage on paving project
Black Hawk	8-29-21		164	Waterloo north to county line	Grading, draining 7.91 Mi.
Boone	12-29-20		58	Boone-Madrid road	Gravel surfacing 13.09 Mi.
Boone	6-31-21		194	Ogden west to Greene county line	Grading, draining and graveling 6.9 Mi.
Bremser	7-14-21	88		East and west of Waverly	Grading, draining 10.70 Mi.
Bremser	8- 5-21	88		East and west of Waverly	Grading that was not awarded 7-14-21
Buchanan	10- 5-21	6		Between Jessup and Winthrop	Tile draining 15.56 Mi.
Buchanan	11- 1-21	66		Independence south to county line	Tile draining 11.5 Mi.
Boona Vista	2- 8-21	90		Newell east	Drain and gravel 4.19 Mi.
Butler	8-31-21	71		North, east and south of Allison	Grading and draining 11.42 Mi.
Butler*	7- 1-21	85		Allison south	Grading and draining 2.89 Mi.
Butler*	8-31-21	85		Allison south	Grading and draining 2.89 Mi.
Calhoun	3-11-21	95		Rockwell City east	Grading, draining, gravel on 12.08 Mi.
Calhoun	3-11-21	95		West and south of Lebrville	Grading, draining on 8.10 Mi.
Calhoun	4-19-21	96		Pomeroy east to Webster county line	Draining and gravel on 11.25 Mi.
Calhoun	3-11-21	107		Lake City west to county line	Grading, draining 6.25 Mi.
Cass	7-26-21	150		Anita NE to county line	Grading, draining 3.13 Mi.
Carroll	6- 4-21	141		Lincoln Highway across county	Tile draining 21.4 Mi.
Cherokee	3- 2-21	98		South of Marcus and east of Cherokee	Grading, draining, gravel 11.50 Mi.
Cherokee	7-19-21	119		Plymouth county line to Cherokee	Tile draining 14.09 Mi.
Chickasaw	3-31-21	76		South and northeast of Nashua and west and north of New Hampton	Grading, draining, graveling 14.48 Mi.
Clarke	8-18-21	31		Oseola NE to county line	Grading, draining 12.06 Mi.
Clarke	3- 9-21	33		Oseola south to county line	Guard rail material
Clay	8-30-21	56		East and west of Peterson	Grading, draining 5.82 Mi.
Clayton	3-10-21	74		Between Elkader, McGregor, Garnaville and Monona	Grading, draining 27.22 Mi.
Clinton	9-30-21	125		Cedar county east toward De Witt	Grading, draining 15.96 Mi.
Crawford	9- 1-21	8		North, northwest and southeast of Denison	Grading, draining 15.42 Mi.
Dallas	3-15-21	33		Woodward-Bouton-Ogden-Perry	Graveling 7.14 Mi.
Dallas	3-15-21	109		Adel-Perry road	Graveling 16.82 Mi.
Dallas	3-15-21	33		Southwest of Adel and southeast of Wauke	Grading, draining 15 Mi.
Dallas	9-12-21	194		Wauke southeast to Polk county line	Graveling 7.33 Mi.
Dallas	10-24-21	194		Adel and southwest toward Redfield	Graveling 7.39 Mi.
Dallas	9-27-21	195		East and west of Dallas Center	Tile draining 10.35 Mi.
Dallas	10-10-21	195		East and west of Dallas Center	Grading 10.35 Mi.
Davis	10-26-21	59		Bloomfield north to county line	Guard rail and baffle wall const.
Decatur	11-15-21	122		North, southwest and west of Leon	Grading, draining 9.83 Mi.
Delaware	6-29-21	103		Linn county north thru Ryan to Manchester	Grading, draining 12.44 Mi.
Delaware	6-29-21	159		Between Manchester and Dyeraville	Graveling 12.02 Mi.
Des Moines	1-27-21	32		Burlington to Middleton	Paving, etc., 4.89 Mi.
Des Moines	1-27-21	53		W. Burlington toward Middleton	Paving, etc., 2.35 Mi.
Dickinson	10-26-21	98		Milford south	Excavation and guard rail
Dubuque	10-11-21	17		Dubuque-Cascade road	Guard rail and baffle wall
Dubuque	5-27-21	147		Dubuque-Dyeraville road	Tile draining 20.04 Mi.
Fayette	2-23-21	59		Oelwein north to West Union and east to county line	Grading 32.04 Mi. and tiling 35.52 Mi.
Fayette	9-28-21	145		Between West Union and Clermont	Graveling 5.26 Mi.
Floyd	11- 8-21	41		Charles City-Rudd road	Wood guard rail construction
Floyd	1-19-21			Nora Springs-Rudd road	Grading, draining, paving 5.56 Mi.
Franklin	12-16-20	49		North and south of Hampton	Grading, draining 10.57 Mi.
Franklin	9-14-21	105		Coulter east thru Hampton	Graveling 9.84 Mi.
Franklin	9-14-21	190		Hampton south	Gravel surfacing 6.47 Mi.
Greene	3-28-21	24		Grand Junction east to county line	Grading, draining 6.92 Mi.
Grundy	10-10-21	19		Extension at Morrison	Grading, draining 1.81 Mi.
Grundy	5-19-21	48		Marshall county line north and Hardin county line east	Grading, draining 19.44 Mi.
Grundy	9- 6-21	163		Radiating north, east and west from Grundy Center	Graveling 8.21 Mi.
Guthrie	9-19-21	51		West of Guthrie Center	Guard rail and baffles
Hamilton	8-24-21	79		Webster City south	Grading, draining 12.05 Mi.
Hamilton	10-12-21	206		Webster City east	Gravel 14.94 Mi.
Hamilton	10-21-21	79		Jewell south	Grading, draining 6.05 Mi.
Hancock	1-20-21	94		North Iowa Pike across county	Grading, draining, paving 9.83 Mi.
Hancock*	5-17-21	94		North Iowa Pike	Grading, draining, paving 14.50 Mi.
Hancock	8-16-21	178		In town of Britt	Grading, draining, paving 0.49 Mi.
Hardin	9-19-21	C-1		Paving in Eldora	Grading, draining 1.55 Mi.
Hardin	6- 7-21	4		Various roads in county	Grading 8.95 Mi., gravel 4.46 Mi., tiling all
Hardin	6- 7-21	88		Jefferson Highway	Grading 1 Mi., gravel 30.25 Mi., tiling all

## Schedule No. Eleven—Continued

58

IOWA STATE HIGHWAY COMMISSION

County	Date	Project No.		Location of Road	Type of Improvement
		Fed.	Prim.		
Howard	3-30-21	31		Cresco-Riceville road	Graveling
Howard	3-30-21	93		Riceville east	Grading, draining 11.50 Mi.
Humboldt	7-19-21	117		Radiating four ways from Humboldt	Grading 14.28 Mi., gravel 5.97 Mi., tiling 16.37 Mi.
Ida	4-11-21	80		Holstein-Ida Grove-Arthur road	Tile drainage
Ida	9-6-21	80		Same as above	Guard rail const.
Ida*	10-19-21		101	Ida Grove-Battle Creek and Holstein east	Grading, draining 13.42 Mi.
Ida*	9-30-21		203	North and southeast of Ida Grove	Gravel surfacing 9.84 Mi.
Iowa	5-17-21	90		River to River road	Grade and drain 26.12 Mi.
Jackson	10-25-21	21		North and south of Maquoketa	Guard rail and baffle walls
Jackson	4-21-21	21		North and south of Maquoketa	Grade and drain 16.3 Mi.
Jasper	11-2-21	64		East and west of Newton	Guard rail construction
Jasper	5-12-21	64		East and west of Newton	Grade and drain 12.10 Mi.
Jasper	10-11-21		180	East and west of Newton	Gravel surfacing 12.10 Mi.
Jefferson	8-5-21	3		East and west of Fairfield	Guard rail and baffle walls
Jefferson*	11-10-21		120	Fairfield south to county line	Grade and drain 6.84 Mi.
Johnson	4-20-21		35	Radiating out of Iowa City	Grade and drain 18.08 Mi.
Johnson	4-20-21		97	South of Iowa City	Grade and drain 1.87 Mi.
Jones	6-28-21	86		Southwest and northeast of Anamosa	Grade and drain 24.33 Mi.
Jones	7-12-21	86		Southwest and northeast of Anamosa	Grade 24.33 Mi.
Keokuk	7-21-21	34		East and west of Sigourney	Guard rail construction
Kossuth	7-28-21	6		Algona west to county line	Grade and drain 10.98 Mi.
Kossuth	10-25-21	6		Algona east	Grading 6.48 Mi., tiling 13.12 Mi.
Kossuth	2-17-21	96		Imperial Highway across county and north therefrom to state line	Grade and drain 33.75 Mi.
Kossuth	8-19-21	111		Daniel Boone Trail	Bridge fills
Lee	5-31-21	68		Ft. Madison-Montrose road	Grade, drain and macadam 8.57 Mi.
Linn	10-15-21	22		Cedar Rapids east	Guard rail construction
Linn	4-5-21	96		Lincoln Highway from Cedar county line NW	Tile drainage
Louis	1-25-21	53		NW and NE of Wapello and Grand View-Columbus Junction road	Grade and drain 20.84 Mi.
Louis	7-13-21	53		Same as above	Guard rail construction
Lucas	4-27-21	63		Between Chariton and Russell	Grade and drain 5.89 Mi.
Lucas	8-1-21	63		Radiating out of Chariton	Guard rail construction
Lyon	9-13-21	85		North and south across county thru Rock Rapids	Grade and drain 16.19 Mi.
Lyon	5-3-21	119		East and west of Rock Rapids	Tile drainage
Lyon	9-13-21	174		Lester east to Osceola county line	Gravel surfacing 23.00 Mi.
Lyon	4-5-21	36		Winterset north	Grade and drain 11.35 Mi.
Madison	8-2-21	36		Winterset north	Guard rail construction
Mahaska	5-10-21	79		Radiating out of Oskaloosa	Grade and drain 17.54 Mi.
Marion	1-20-21	75		Radiating out of Knoxville	Grade and drain 13.51 Mi.
Marion	8-16-21	75		Radiating out of Knoxville	Guard rail and baffle walls
Marshall	7-12-21	13		East and west of Marshalltown	Grade and drain 6.06 Mi.
Marshall	12-8-20	23		Radiating out of Marshalltown	Pave 5.06 Mi.
Mitchell	3-20-21	43		From south county line north and west to St. Ansgar	Grading and draining 18.19 Mi.
Mitchell	7-22-21	45		From south county line north and west to St. Ansgar	Graveling 18.19 Mi.
Monona	9-15-21	38		Turin-Sollier road	Grade and drain 5.11 Mi.
Monroe	8-5-21	78		West and south of Albia	Grade and drain 5.95 Mi.
Monroe	10-4-21	78		West and south of Albia	Guard rail construction
Monroe	1-31-21	30		East of Albia	Guard rail material
Muscatine	8-2-21	40		River to River road and Northeast of Muscatine	Guard rail and baffle wall construction
Muscatine	9-7-21	87		River to River road east of Moscow, and White Pole road	Grade and drain 6.32 Mi., gravel 4.18 Mi., tile 17.55 Mi.
Osceola	5-12-21	15		Sibley-Ocheyedan road	Tile drainage
Osceola	8-26-21	169		Sibley-Ocheyedan road	Gravel 19.45 Mi.
Osceola	10-21-21	15		Sibley-Ocheyedan road	Wood guard rail
Osceola	10-13-21	201		South of Ocheyedan	Grade and gravel 0.62 Mi.
Osceola	11-15-21	202		North and south across county thru Alford	Gravel surfacing
Page		27		Shenandoah east	Grade and drain 22.62 Mi.
Pocahontas	3-20-21	90		Fonda-Pomeroy road	Grade 9.11 Mi., gravel 4.00 Mi., tiling 15.02 Mi.
Pocahontas	3-20-21	91		North and south of Pocahontas	Grade and drain 9.78 Mi., gravel 5.00 Mi.
Pocahontas	9-8-21	38		Merrill to Cherokee county line	Grade and drain 21.1 Mi.
Plymouth	6-28-21	38		Wren Junction to Merrill	Grade and drain 5.15 Mi.
Plymouth	9-8-21	39		Le Mars-Akron road	Grade and drain 20.0 Mi.
Plymouth	10-4-21	74		Hinton south, and Le Mars north	Grade and drain 13.21 Mi.
Polk	8-1-21	1		1 Ft. Des Moines road	Grade, drain and pave 1.5 Mi.
Polk*	12-15-20	40		North and west of Altoona and southeast of Des Moines	Grade, drain and pave 8.8 Mi.
Polk	8-7-21	40		Southeast from Des Moines	Grade, drain and pave 4.78 Mi.
Polk	6-6-21	59		Elkhart west	Grade and drain 2.55 Mi.
Polk	6-6-21	72		South of Madrid	Grading 1 Mi.
Polk	1-15-21	122		Panora Speedway	Gravel surface 9.33 Mi.
Polk	6-1-21	104		Des Moines-Ankeny road	Curb and gutter
Pottawattamie	10-14-21	21		Council Bluffs to Reels and Council Bluffs south	Grade and drain 14.55 Mi.
Pottawattamie	10-14-21	22		White Pyle and River to River road	Grade and drain 18.44 Mi.

ROAD ADMINISTRATION

59





During the period from December 1, 1920, to December 1, 1921, contracts were let or force account work started on projects involving the improvement of the primary road system, as follows:

Grading only .....	671.04 ml.
Grading on roads surfaced .....	327.55 "
Graveling .....	391.41 "
Paving .....	58.31 "
The draining only .....	208.07 "

1,328.83 "

In additions to above contract was let on a paving project at Eldora, Iowa, involving 1.55 miles of paving, this work being under the provisions of Chapter 230, Acts of the Thirty-ninth General Assembly.

# SCHEDULE NO. TWELVE

LETTINGS HELD, CONTRACTS AWARDED, CONTRACTS APPROVED AND CONTRACTS DISAPPROVED ON PRIMARY ROADS AND FEDERAL AID PROJECTS

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Adair		28	Orient Lumber Co.	2x6-16 Posts	39,792 B. M. 1,694	\$ 35.50 M. 1.15			
Adair		28	C. C. Barnes Co.	Earth excav.	60,129 cu. yds.	.254	\$ 3,360.72	Apprvd.	1-31-21
Adair		28	Olaf Jensen	6" tile labor	3,460 ft.	.68	15,272.77	Apprvd.	7-28-21
				Type A Intake		30.00			
				Type B Intake		25.00	279.30	Apprvd.	7-30-21
Adair		102	C. C. Barnes Co.	Earth excav.	64,569 cu. yds.	.234	15,116.17	Apprvd.	7-28-21
Allamakee		29	Ehling & Gustafson	6" tile drain	16,230 ft.	.189			
				12" tile drain	100 ft.	.48			
				Intakes	3	30.00	3,209.25	Apprvd.	3-16-21
Allamakee		29	Russell Condon	Earth excav.	48,047 cu. yds.	.625			
		113		Loose R. excav.	1,675 cu. yds.	1.50			
				Solid R. excav.	2,308 cu. yds.	3.00	40,965.89	Apprvd.	3-16-21
Allamakee		113	Ehling & Gustafson	6" tile drain	2,635 ft.	.205			
				12" tile drain	70 ft.	.48			
				Intake	1	32.00	606.78	Apprvd.	3-16-21
Appanoose		27	Fisher Lumber Co.	2x6-16 Posts	24,992 B. M. 1,000	33.00 M. 1.25	824.74	Apprvd.	4-11-21
Appanoose		27	Hawkeye Lumber Co.	6" tile drain	5,255 ft.	.18	1,250.00	Apprvd.	4-11-21
Appanoose		70	F. Bruggemeyer	8" tile drain	1,120 ft.	.20			
				12" tile drain	380 ft.	.35			
				Type A Intake	6	25.00			
				Type B Intake	9	22.00	1,486.25	Apprvd.	11-10-21
Appanoose		76	C. O. Mitchell	Earth excav.	225,388 cu. yds.	.235	65,925.59	Apprvd.	11- 8-21
Audubon		32	G. W. Condon	Earth excav.	226,175 cu. yds.	.235			
				Earth excav.	229,141 cu. yds.	.235	116,422.75	Apprvd.	7-23-21
Audubon		32	J. P. Nelson	12" tile drain	300 ft.	.60			
				Intakes	5	30.00	430.00	Apprvd.	7-25-21
Benion		58	Gilbert Johnson & Sons	8" tile labor	3,370 ft.	.15			
				6" tile labor	30,783 ft.	.125			
				12" tile labor	100 ft.	.25			
				Intakes	8	35.00	4,658.00	Apprvd.	2- 9-21



## Schedule No. Twelve—Continued

64

IOWA STATE HIGHWAY COMMISSION

ROAD ADMINISTRATION

65

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Benton	58		J. W. Cox	6" tile mat'l.	30,785 ft.	.09			
				8" tile mat'l.	3,370 ft.	.14			
				12" tile mat'l.	100 ft.	.30	3,272.45	Apprvd.	2-11-21
Black Hawk	164		Pbelan & Shirley	Earth excav.	62,803 cu. yds.	.275	17,570.58	Apprvd.	8-30-21
Black Hawk	164		Auburn Brick & Tile Co.	6" tile mat'l.	37,058 ft.	.051			
				8" tile mat'l.	3,496 ft.	.083	3,300.13	Apprvd.	9-14-21
Black Hawk	164		Henry Teget	6" tile labor.	37,058 ft.	.0775			
				8" tile labor.	3,496 ft.	.09			
				Type A Intake	3	25.00			
				Type B Intake	5	22.50	4,924.14	Apprvd.	9-6-21
Boone	58		John Olson	6" tile labor.	16,355 ft.	.075	1,226.62	Not Apprvd.	
Boone	58		Munson & Sons	Gravel 1 mi. haul.	20,530 cu. yds.	.55			
				Gravel 1/2 mi. unit.	207,000 U.	.14	40,271.50	Apprvd.	12-22-20
Boone	58		W. P. Zenor	Gravel at pit.		.30		Apprvd.	6-25-21
Boone	134		North Iowa Brick & Tile Co.	6" tile mat'l.	50,370 ft.	.52			
				8" tile mat'l.	750 ft.	.089	2,685.90	Apprvd.	7-9-21
Boone	134		Robert Johnson	8" tile labor.	50,370 ft.	.055			
				10" tile labor.	750 ft.	.07			
				Type A Intake	25	25.00			
				Type B Intake	12	20.00	3,687.85	Apprvd.	7-6-21
Boone	134		W. V. Flynn	Earth excav.	45,417 cu. yds.	.30	13,625.10	Apprvd.	7-5-21
Boone	134		David J. Conn	Gravel 1 mi. haul.	10,350 cu. yds.	.42			
				Gravel 1/2 mi. unit.	18,750 U.	.20	8,007.00	Apprvd.	7-5-21
Boone	134		North Western Gravel Co.	Gravel f. o. b.	6,000 cu. yds.	1.3125			
				Gravel f. o. b.	4,330 cu. yds.	1.23	13,225.50	Apprvd.	7-5-21
Bremer	88		Mankato Construction Co.	6" tile labor.	65,061 ft.	.10			
				8" tile labor.	4,250 ft.	.11			
				10" tile labor.	2,100 ft.	.12			
				12" tile labor.	400 ft.	.14			
				Type A Intake	2	28.00			
				Type B Intake	7	24.00	6,854.09	Apprvd.	7-23-21
Bremer	88		National Clay Works	6" tile mat'l.	65,061 ft.	.062			
				8" tile mat'l.	4,250 ft.	.088			
				10" tile mat'l.	2,100 ft.	.154	4,183.33	Apprvd.	7-23-21
				12" tile mat'l.	400 ft.	.21.44			
Bremer	88		Peterson, Shirley & Gunther	Earth excav.	80,955 cu. yds.	.42			
				Solid R. excav.	1,657 cu. yds.	3.00	50,542.10	Apprvd.	8-5-21
Buchanan	6		W. O. Sprague	6" tile drain.	41,743 ft.	.121			
				8" tile drain.	6,195 ft.	.169			
				10" tile drain.	1,550 ft.	.232	6,478.14	Apprvd.	10-10-21
Buchanan	66		Edwards & Phillips	6" tile labor.	62,614 ft.	.065			
				8" tile labor.	8,322 ft.	.08			
				10" tile labor.	2,348 ft.	.10			
				Type A Intake	5	15.00			
				Type B Intake	6	12.00	5,126.62	Apprvd.	11-5-21
Buchanan	66		Johnson Bros. Clay Works	6" tile mat'l.	62,614 ft.	.05			
				8" tile mat'l.	8,562 ft.	.083	3,842.85	Apprvd.	11-7-21
				10" tile mat'l.	1,550 ft.	.15	232.50	Apprvd.	11-10-21
Buchanan	93		Independence Cement Tile Co.	Gravel 1 mi. haul.	600 cu. yds.	.60			
Buena Vista	18		S. D. McCown	Gravel 1/2 mi. unit.	900	.15	540.00	Apprvd.	8-16-21
Buena Vista	18		Barnes & Johnson	Earth excav.	1,500 cu. yds.	.60	900.00	Apprvd.	8-16-21
Buena Vista	93		T. M. Thomsen	6" tile labor.	23,510 ft.	.11			
				Intakes	6	30.00	2,850.10	Apprvd.	2-25-21
				6" tile mat'l.	23,510 ft.	.0925	2,174.58	Apprvd.	2-25-21
Buena Vista	93		Newell Block & Tile Co.	Gravel 1 mi. haul.	23,100 U.	.195			
Buena Vista	93		Raymond Ellrich	Gravel 1/2 mi. unit.	23,100 U.	.195			
				Shaping road	4.25 Mi.	20.00	8,666.88	Apprvd.	2-25-21
Butler	71		Mason City Brick and Tile Co.	6" tile mat'l.	49,175 ft.	.00775			
				8" tile mat'l.	34,762 ft.	.04925			
				10" tile mat'l.	2,700 ft.	.0805			
				12" tile mat'l.	800 ft.	.083			
				6" tile labor.	6,300 ft.	.0770	4,981.77	Apprvd.	9-13-21
Butler	71		Albert Gustafson	8" tile labor.	33,365 ft.	.069			
				10" tile labor.	2,700 ft.	.085			
				Intakes	2	30.00	2,317.78	Apprvd.	9-31-21
Butler	71		H. A. Sayers	6" tile labor.	50,622 ft.	.07			
				8" tile labor.	7,100 ft.	.08			
				Intakes	10	25.00	4,363.54	Apprvd.	9-13-21
Butler	71		Littig Const. Co.	Earth excav.	119,122 cu. yds.	.32			
				Loose R. excav.	2,134 cu. yds.	1.75	38,956.74	Apprvd.	9-13-21
				6" tile mat'l.	13,500 ft.	.0625	708.75	Apprvd.	10-15-21
Butler	85		National Clay Works	Tile haul	13,171 ft.		105.37	Apprvd.	10-18-21
Butler	85		Geo. Mead	6" tile labor.	13,171 ft.	.07	921.97	Apprvd.	9-20-21
Butler	85		W. W. Codner	Earth excav.	12,828 cu. yds.	.32	4,104.96	Apprvd.	9-13-21
Butler	85		Littig Const. Co.	6" tile labor.	8,400 ft.	.08			
Butler	85		Oscar Ehling	12" tile labor.	55 ft.	.13			
				Intakes	1	35.00	714.15	Apprvd.	9-13-21
				6" tile mat'l.	8,400 ft.	.0645			
Butler	85		National Clay Works	12" tile mat'l.	55 ft.	.1964	488.00	Apprvd.	9-13-21
Butler	85		W. M. Brooks	Gravel f. o. b.	10,900 cu. yds.	1.05	10,900.00	Apprvd.	7-11-21

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## Schedule No. Twelve—Continued

68

IOWA STATE HIGHWAY COMMISSION

ROAD ADMINISTRATION

69

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Crawford		8	O. H. Kulef	12" tile drain	785 ft.	.45			
Dallas		33	J. Pestotnik	Intakes	8	37.00	665.25	Apprvd.	9-23-21
Dallas		33	Hysham & Stewart	Gravel 1 mi. haul	10,700 cu. yds.	.40			
Dallas		33	Adel Clay Products Co.	Gravel 1/2 mi. unit	68,000 U.	.16	16,515.00	Apprvd.	3-17-21
Dallas		33	Bert Skarr	Earth excav.	77,003 cu. yds.	.42	32,719.26	Apprvd.	4-5-21
Dallas		109	J. Pestotnik	6" tile labor	87,015 ft.	.002	5,394.00	Apprvd.	3-19-21
Dallas		194	Pestotnik Brothers	6" tile labor	87,015 ft.	.083	7,483.29	Apprvd.	3-17-21
Dallas		194	Pestotnik Brothers	Gravel 1 mi. haul	25,230 cu. yds.	.40			
Dallas		194	Pestotnik Brothers	Gravel 1/2 mi. unit	163,980 U.	.16	41,374.80	Apprvd.	3-17-21
Dallas		194	Pestotnik Brothers	Gravel 1 mi. haul	8,800 cu. yds.	.40			
Dallas		194	Pestotnik Brothers	Gravel screened	8,800 cu. yds.	.08			
Dallas		194	Pestotnik Brothers	Gravel 1/2 mi. unit	33,000 U.	.11	7,863.00	Apprvd.	11-7-21
Dallas		195	W. V. Flynn	Gravel 1/2 mi. unit	7,330 cu. yds.	.11			
Dallas		195	Blakemore & Jacobsen	Gravel 1/2 mi. unit	23,300 U.	.11	6,063.30	Apprvd.	9-19-21
Dallas		195	Blakemore & Jacobsen	Earth excav.	40,955 cu. yds.	.25	13,188.30	Apprvd.	10-21-21
Dallas		195	Blakemore & Jacobsen	6" tile labor	81,913 ft.	.02			
Dallas		195	Blakemore & Jacobsen	8" tile labor	1,000 ft.	.07			
Dallas		195	Blakemore & Jacobsen	6" tile labor	800 ft.	.09			
Dallas		195	Blakemore & Jacobsen	Intakes	23	22.00			
Dallas		195	Blakemore & Jacobsen	Intakes	7	25.00	5,737.78	Apprvd.	9-29-21
Dallas		195	Blakemore & Jacobsen	6" tile mat'l.	81,913 ft.	.0058			
Dallas		195	Blakemore & Jacobsen	8" tile mat'l.	1,000 ft.	.098			
Dallas		195	Blakemore & Jacobsen	6" tile labor	800 ft.	.20	4,910.66	Apprvd.	9-29-21
Dallas		195	Blakemore & Jacobsen	12" tile labor	450 ft.	.15	67.50	Apprvd.	8-30-21
Dallas		195	Blakemore & Jacobsen	6" tile labor	2,400 ft.	.15	360.00	Apprvd.	8-30-21
Dallas		195	Blakemore & Jacobsen	8" tile mat'l.	2,400 ft.	.07	168.00	Apprvd.	8-30-21
Dallas		195	Blakemore & Jacobsen	12" tile mat'l.	450 ft.	.27	123.50	Apprvd.	8-30-21
Dallas		195	Blakemore & Jacobsen	Baffles	522	8.00			
Dallas		195	Blakemore & Jacobsen	Guard rail	10,874	2300.00	6,076.00	Apprvd.	11-7-21
Dallas		195	Blakemore & Jacobsen	Earth excav.	130,236 cu. yds.	.275	34,739.40	Apprvd.	11-22-21
Dallas		195	Blakemore & Jacobsen	6" tile mat'l.	7,380 ft.	.085			
Dallas		195	Blakemore & Jacobsen	8" tile mat'l.	700 ft.	.125			
Dallas		195	Blakemore & Jacobsen	12" tile mat'l.	510 ft.	.33			
Dallas		195	Blakemore & Jacobsen	6" tile labor	7,380 ft.	.08	883.10	Apprvd.	11-22-21
Dallas		195	Blakemore & Jacobsen	8" tile labor	700 ft.	.09			
Dallas		195	Blakemore & Jacobsen	12" tile labor	510 ft.	.10			
Dallas		195	Blakemore & Jacobsen	Intakes	19	24.00	1,088.40	Apprvd.	11-29-21
Delaware		103	Byers & Wilson Const. Co.	Earth excav.	100,901 cu. yds.	.35			
Delaware		103	C. N. Hildebrand	Loose R. excav.	2,409 cu. yds.	1.40	30,769.45	Apprvd.	7-8-21
Delaware		103	C. N. Hildebrand	6" tile labor	25,054 ft.	.0796			
Delaware		103	C. N. Hildebrand	8" tile labor	50 ft.	.12			
Delaware		103	C. N. Hildebrand	10" tile labor	2,835 ft.	.12			
Delaware		103	C. N. Hildebrand	Intake	1	28.00			
Delaware		103	C. N. Hildebrand	Intake	6	22.00	2,478.79	Apprvd.	7-5-21
Delaware		103	C. N. Hildebrand	6" tile mat'l.	25,054 ft.	.002			
Delaware		103	C. N. Hildebrand	8" tile mat'l.	50 ft.	.080			
Delaware		103	C. N. Hildebrand	10" tile mat'l.	2,835 ft.	.155	1,714.14	Apprvd.	7-5-21
Delaware		159	C. F. Chaney	Gravel 1 mi. haul	16,745 cu. yds.	.53			
Des Moines		32	C. Weitz Sons	Gravel 1/2 mi. unit	73,929 U.	.125	18,114.85	Apprvd.	7-2-21
Des Moines		32	C. Weitz Sons	Earth excav.	5,880 cu. yds.	1.10			
Des Moines		32	C. Weitz Sons	Paving	22,501 sq. yds.	2.68	199,802.48	Apprvd.	2-2-21
Dubuque		17	Pyramid Lumber Co.	Earth excav.	24,800 cu. yds.	3.68	94,377.04	Apprvd.	2-2-21
Dubuque		17	Pyramid Lumber Co.	Paving	1,300	.75			
Dubuque		17	Pyramid Lumber Co.	2x15-16	57,600 B. M.	36.25 M.			
Dubuque		17	Pyramid Lumber Co.	2x12x18	3,618 B. M.	38.25 M.	3,126.29	Apprvd.	10-18-21
Dubuque		147	J. J. Leonard	Guard rail	7,000 ft.	.37	2,623.30	Apprvd.	10-18-21
Dubuque		147	Rockford Brick & Tile Co.	6" tile mat'l.	75,560 ft.	.0615			
Dubuque		147	Rockford Brick & Tile Co.	8" tile mat'l.	1,300 ft.	.092			
Dubuque		147	Rockford Brick & Tile Co.	10" tile mat'l.	2,830 ft.	.154	5,123.82	Apprvd.	6-7-21
Dubuque		147	Rockford Brick & Tile Co.	6" tile labor	75,560 ft.	.083			
Dubuque		147	Rockford Brick & Tile Co.	8" tile labor	1,300 ft.	.103			
Dubuque		147	Rockford Brick & Tile Co.	10" tile labor	2,830 ft.	.12			
Dubuque		147	Rockford Brick & Tile Co.	Intakes	1	28.00	7,467.38	Apprvd.	6-7-21
Fayette		50	Mankato Construction Co.	6" tile drain	102,408 ft.	.21			
Fayette		50	Mankato Construction Co.	8" tile drain	10,241 ft.	.285			
Fayette		50	Mankato Construction Co.	Intakes	23	25.00	25,074.37	Apprvd.	3-8-21
Fayette		50	Mankato Construction Co.	6" tile drain	67,941 ft.	.297			
Fayette		50	Mankato Construction Co.	8" tile drain	16,585 ft.	.275			
Fayette		50	Mankato Construction Co.	10" tile drain	633 ft.	.385			
Fayette		50	Mankato Construction Co.	Intakes	17	35.00	19,471.07	Apprvd.	3-8-21
Fayette		50	Mankato Construction Co.	Earth excav.	143,339 cu. yds.	.52			
Fayette		50	Mankato Construction Co.	Rock excav.	7,227 cu. yds.	3.40	91,875.40	Apprvd.	2-25-21
Fayette		143	Bringolf & Johnson	Gravel 1 mi. haul	5,265 cu. yds.	.45			
Fayette		143	Bringolf & Johnson	Gravel 1/2 mi. unit	40,945 U.	.15	8,511.00	Apprvd.	10-4-21
Fayette		143	Bringolf & Johnson	Gravel at pit	5,265 cu. yds.	.30	1,579.50	Apprvd.	10-4-21
Floyd		63	J. W. Cox	6" tile drain	10,735 ft.	.20			
Floyd		63	J. W. Cox	8" tile drain	6,810 ft.	.25			
Floyd		63	J. W. Cox	Intakes	3	35.00	3,954.50	Apprvd.	3-19-21
Floyd		63	J. W. Cox	Earth excav.	18,512 cu. yds.	.95			
Floyd		63	J. W. Cox	Concrete paving	58,743 sq. yds.	3.68	233,760.64	Apprvd.	3-10-21
Franklin		46	Harrison Transportation Co.	6" tile mat'l.	54,115 ft.	.095	5,140.90	Apprvd.	1-29-21
Franklin		46	J. E. Kuhn & Sons	Earth excav.	50,925 cu. yds.	.485	24,698.63	Apprvd.	1-5-21

## Schedule No. Twelve—Continued

70

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Franklin		48	Nicholson & Blunt	6" tile labor	54,115 ft.	.1225			
Franklin		105	Miller Construction Company	Intakes	15	35.00	7,005.24	Apprvd.	1- 5-21
				Gravel 1 mi. haul	14,884 cu. yds.	.38			
				Gravel 1/2 mi. unit	49,125 U.	.10			
				Gravel 1/2 mi. unit	8,250 U.	.11			
Franklin		190	Miller Construction Company	Stripping pit	2,500 cu. yds.	.25	12,100.92	Apprvd.	9-24-21
				Gravel 1 mi. haul	9,705 cu. yds.	.38			
				Gravel 1/2 mi. unit	87,075 U.	.10			
				Gravel crushed	9,705 cu. yds.	.25	15,500.15	Apprvd.	9-24-21
Greene		24	E. V. Martin	Stripping pit	2,750 cu. yds.	.25	20,751.53	Apprvd.	3-31-21
Greene		24	J. A. Ervine	Earth excav.	53,226 cu. yds.	.3885			
				6" tile labor	29,023 ft.	.075			
				Type A Intake	29 ft.	35.00			
Greene		24	Iowa Pipe & Tile Co.	Type B Intake	3	30.00	5,331.72	Apprvd.	3-31-21
Grundy		19	L. T. Wical	6" tile mat'l.	29,023 ft.	.0755	4,456.34	Apprvd.	4- 2-21
				6" tile labor	2,334 ft.	.075			
				Type B Intake	2,380 ft.	.085			
Grundy		19	Sam Bowers	Earth excav.	13,616 cu. yds.	15.50	439.35	Apprvd.	10-17-21
Grundy		19	Jas. Wilford	6" tile labor	7,702 ft.	.285	3,709.56	Apprvd.	10-17-21
Grundy		19	Morrison Co-Operative Elevator Co.	6" tile labor		.09	462.42	Apprvd.	10-17-21
				10" tile mat'l.	880 ft.	.14			
				8" tile mat'l.	2,800 ft.	.08			
				6" tile mat'l.	5,600 ft.	.051	632.80	Apprvd.	11- 5-21
Grundy		48	Mary Nicholson	Earth excav.	9,132 cu. yds.	.34			
				Earth excav.	20,505 cu. yds.	.35			
				Earth excav.	49,080 cu. yds.	.31			
Grundy		48	Chris. Jeppsen	Earth excav.	80,808 cu. yds.	.31	52,947.30	Apprvd.	6- 7-21
				6" tile labor	81,369 ft.	.0718			
				8" tile labor	5,450 ft.	.09			
				15" tile labor	709 ft.	.15			
				Intakes	21	20.00			
Grundy		48	Engle Tile & Fuel Co.	Intakes	5	30.00	7,024.09	Apprvd.	6-13-21
				6" tile mat'l.	81,506 ft.	.063			
				8" tile mat'l.	5,430 ft.	.065			
				15" tile mat'l.	709 ft.	.50	9,060.59	Apprvd.	7-12-21

IOWA STATE HIGHWAY COMMISSION

Grundy		193	Miller Construction Co.	Gravel 1 mi. haul	12,303 cu. yds.	.42			
				Gravel 1/2 mi. unit	25,500 U.	.11			
				Shape road	8.21 Mi.	60.00			
				Stripping pit		.47	8,460.00	Apprvd.	9-14-21
Guthrie		51	F. P. Tracey	Woven wire	29,000 ft.	.0394	1,135.06	Apprvd.	10- 6-21
Guthrie		51	Standard Bridge Co.	2x12-16	179,200 B. M.	20.25 M.			
				Posts	3,700	.73	5,121.80	Apprvd.	10- 6-21
Guthrie		51	Wickham Br. & Pipe Co.	Raffles	1,400	3.95	5,530.00	Apprvd.	10- 6-21
Guthrie		51	E. E. Holbrook	Guard rail	29,000 ft.	.08	2,320.00	Apprvd.	10- 6-21
Hamilton		17	L. E. Rollins	Intakes	12	25.00	300.00	Apprvd.	5- 9-21
Hamilton		79	P. E. Shugart	Earth excav.	40,968 cu. yds.	.35	10,649.08	Apprvd.	11-29-21
Hamilton		79	O. C. Kalvig	6" tile labor	44,143 ft.	.061			
				8" tile labor	4,145 ft.	.064			
				10" tile labor	60 ft.	.059			
				Type A Intake	5	16.85			
				Type B Intake	35	15.40	3,101.73	Apprvd.	11-10-21
Hamilton		79	National Sewer Pipe Co.	6" tile mat'l.	44,143 ft.	.06			
				8" tile mat'l.	4,145 ft.	.105			
				10" tile mat'l.	60 ft.	.18	3,094.61	Apprvd.	10-25-21
Hamilton		79	Henry Teget	12" tile mat'l.	175 ft.	.35			
				8" tile mat'l.	7,000 ft.	.11			
				6" tile mat'l.	29,710 ft.	.062			
				8" tile mat'l.	4,540 ft.	.10			
				6" tile mat'l.	21,130 ft.	.06			
				6" S. P. mat'l.	250 ft.	.21	3,872.07	Apprvd.	8-26-21
Hamilton		79	C. A. McCoskey	12" tile labor	175 ft.	.12			
				8" tile labor	11,540 ft.	.0695			
				6" tile labor	41,840 ft.	.058			
				6" tile labor	250 ft.	.05			
				Intakes	25	22.00			
				Intakes	15	18.00	4,016.25	Apprvd.	8-26-21
Hamilton		79	J. A. Dunkel	Earth excav.	98,292 cu. yds.	.29	28,504.68	Apprvd.	8-25-21
Hamilton		206	A. R. Eno	Gravel 1 mi. haul	19,225 cu. yds.	.37			
				Gravel 1/2 mi. unit	98,800 U.	.075			
				Gravel 1/2 mi. unit	92,280 U.	.09	22,822.95	Apprvd.	10-25-21
Hancock		94	Rasmussen & Trulson	Earth excav.	2,649 cu. yds.	.29	768.21	Apprvd.	10- 6-21
Hancock		94	Henkel Const. Co.	Earth excav.	22,900 cu. yds.	1.05			
				Concrete paving	65,527.2 sq. yds.	3.745	276,934.36	Apprvd.	1-26-21
Hancock		94	Pickus Engineering & Construction Co.	Earth excav.	9,327 cu. yds.	1.08			
Hancock		94	Andrew Nelson	Concrete paving	30,876.3 sq. yds.	3.79	150,051.47	Apprvd.	1-24-21
				6" tile drain	85,000 ft.	.17			
				8" tile drain	2,750 ft.	.35			
				10" tile drain	2,000 ft.	.35			
				Intakes	29	40.00	17,015.00	Apprvd.	1-26-21

ROAD ADMINISTRATION

71



Schedule No. Twelve—Continued

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract by Com.	Action by Com.	Date
	Fed.	Pr.							
Hancock	178		Pickus Engineering & Construction Co.	Earth excav. ....	2,120 cu. yds.	1.04			
				Concrete paving ....	5,158.4 sq. yds.	3.43	19,088.67	Approved.....	8-19-21
Hancock	178		A. Nelson	6" tile drain ....	2,475 ft.	.13	321.75	Approved.....	9-30-20
Hancock			Miller Construction Co.	Gravel 1 mi. haul ....	6,686 cu. yds.	.57			
				Gravel ½ mil. unit ....	61,125 U.	.15			
Hardin	4		L. C. Wood & Co.	Trap excav. ....	41,601 cu. yds.	50.00	19,412.91	Approved.....	7-26-21
Hardin	4		Eldora Pipe & Tile Co.	8" tile mat'l. ....	9,125 ft.	.00732	15,717.56	Approved.....	7-12-21
				8" tile mat'l. ....	3,475 ft.	.084			
Hardin	4		H. W. Emery	Gravel mat'l. ....	6,686 cu. yds.	.25	2,890.90	Approved.....	7-9-21
Hardin	4		E. J. Welsh	6" tile labor ....	31,435 ft.	.088	1,671.50	Approved.....	6-30-21
				8" tile labor ....	375 ft.	.083			
				Intakes ....	9	30.00	4,820.37	Approved.....	6-30-21
Hardin	88		Wood & Co.	Earth excav. ....	18	35.00			
Hardin	88		Eldora Pipe & Tile Co.	8" tile mat'l. ....	191,598 ft.	.0032	2,750.40	Approved.....	10-10-21
				8" tile mat'l. ....	9" tile mat'l. ....	1,002			
Hardin	88		North Western Gravel Co.	Gravel mat'l. ....	1,820 ft.	1.335	12,339.54	Approved.....	7-11-21
Hardin	88		Miller Construction Co.	Gravel 1 mi. haul ....	36,750 cu. yds.	.56	22,361.25	Approved.....	7-9-21
				Gravel ½ mil. unit ....	16,750 cu. yds.	1.15			
Hardin	88		G. E. Sargent Co.	Gravel 1 mi. haul ....	115,175 U.	1.02	36,656.25	Approved.....	7-25-21
				Gravel ½ mil. haul ....	12,250 cu. yds.	1.15			
Hardin	88		F. J. Welp	Gravel ½ mil. unit ....	92,000 U.	.18	29,035.09	Approved.....	6-30-21
				6" tile labor ....	191,998 ft.	.008			
				8" tile labor ....	11,172 ft.	.085			
				10" tile labor ....	1,890 ft.	.085			
				Intakes ....	7	30.00			
Howard	31		Dart Sales Co.	Intakes ....	14	25.00	14,686.22	Approved.....	6-22-21
				Gravel 1 mi. haul ....	11,100 cu. yds.	.43			
Howard	93		Chas. Weaver	Gravel ½ mil. unit ....	41,925 U.	.40	21,542.00	Approved.....	4-6-21
				Gravel 1 mi. haul ....	11,500 cu. yds.	.35			
Howard	93		G. E. Sargent Co.	Gravel ½ mil. unit ....	25,000 U.	.10	6,825.00	Approved.....	10-21-21
				Gravel 1 mi. haul ....	11,500 cu. yds.	.40			
Howard	93		J. W. Cox	Gravel ½ mil. unit ....	18,000 U.	.075	22,000.00	Approved.....	10-21-21
				8" tile mat'l. ....	7,915 ft.	.118			

Howard	90	Mankato Construction Co.	Earth excav.	66,715 cu. yds.	48	32,052.20	Approved	4-13-21
Howard	90	Harrison Transportation Co.	Earth excav.	69,355 ft.	175			
			Earth labor	7,910 ft.	12			
			Intakes	32	32.00			
			Intakes	12	27.00			
Humboldt	43	C. Fawcett	Graveling	725 cu. yds.	50	8,685.71	Approved	4-6-21
Humboldt	117	Kalo Brick & Tile Co.	Gravel 1 m. haul	20,130 ft.	50	682.50	Approved	12-27-20
Humboldt	117	Murray and Larsen	Gravel 1 m. haul	20,130 ft.	50	2,081.18	Approved	8-16-21
			Intakes	9	20.00			
			Intakes	9	15.00			
			Intakes	145,285 ft.	122			
			Gravel 1 m. haul	6,400 ft.	17			
			Gravel 1 m. haul	1,430 ft.	18			
			Intakes	33	27.00			
			Intakes	60	22.00			
Humboldt	117	L. O. Kimball	Earth excav.	75,355 cu. yds.	34	22,820.01	Approved	8-16-21
Humboldt	117	J. A. Dunkel	Earth excav.	19,677 cu. yds.	34	25,579.00	Approved	8-16-21
Humboldt	117	J. W. Donnelly	Gravel 1 m. haul	8,960 cu. yds.	33	6,488.18	Approved	8-16-21
			Gravel 1/2 m. unit	69,510 ft.	13			
			Grading road	5,486 ft.	75.00			
Iowa	80	Lakeview Concrete Tile Co.	Gravel 1 m. haul	16,480 ft.	184	12,139.35	Approved	8-15-21
			Gravel 1 m. haul	1,500 ft.	104			
			Gravel 1 m. haul	3,375 ft.	12			
Iowa	80	Rollins & Sharkey	Gravel 1 m. haul	16,480 ft.	174	1,945.25	Approved	4-14-21
			Gravel 1 m. haul	1,500 ft.	104			
			Gravel 1 m. haul	3,375 ft.	12			
Iowa	80	A. J. Stoner	Catch basin	1	40.00	1,683.27	Approved	4-25-21
Iowa	80	M. Mosher	Gravel 1 m. haul	10,490 cu. yds.	55	2,830.00	Approved	9-26-21
Iowa	203	North Western Gravel Co.	Gravel mat'l	5,395 cu. yds.	1,612.55	2,623.75	Approved	11-14-21
			Gravel mat'l	4,689 cu. yds.	1,512.55	15,395.94	Approved	10-6-21
Iowa	303	E. J. Thraves	Gravel 1 m. haul	9,803 cu. yds.	34			
			Gravel 1/2 m. unit	18,900 ft.	12			
			Gravel 1/2 m. unit	48,834 ft.	108	5,565.80	Approved	10-6-21
Iowa	90	Gladwin Brothers	Gravel 1 m. haul	5,897 ft.	105			
			Intakes	3	32.00			
			Intakes	13	38.00			
Iowa	90	W. R. Grinnell	Earth excav.	198,014 cu. yds.	274	5,656.94	Approved	6-25-21
			Earth labor	181,544 ft.	2704			
Iowa	90	Adel Clay Products Co.	Gravel mat'l	48,834 ft.	108	87,070.82	Approved	5-24-21
			Gravel mat'l	5,807 ft.	105			
			Gravel mat'l	110 ft.	23	3,741.90	Approved	6-29-21
			Gravel mat'l	900 ft.	114			
Jackson	21	Cement Products Co.	Gravel mat'l	3,250 ft.	183	17,277.75	Approved	5-13-21

## Schedule No. Twelve—Continued

74

IOWA STATE HIGHWAY COMMISSION

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Jackson	21		F. J. McCaughey	Earth excav.	94,982 cu. yds.	.39			
				8" tile labor	230 ft.	.25			
				12" tile labor	110 ft.	.35			
				Intakes	3	30.00	37,228.98	Apprvd.	5-5-21
Jackson	21		Ritzinger & Cameron	Earth excav.	22,903 cu. yds.	.344			
				Solid R. excav.	575	2.40			
				6" tile labor	3,220 ft.	.07			
				8" tile labor	70 ft.	.18			
				Intakes	4	42.00	33,743.22	Apprvd.	5-9-21
Jackson	21		Crouse & Adams	Baffle labor	907	3.85	3,491.05	Apprvd.	11-5-21
Jackson	21		Grosz & Tubbs	Guard rail labor	22,300 ft.	.053	1,176.00	Apprvd.	11-5-21
Jackson	21		Nebraska Bridge Supply & Lumber Co.	Posts	2,731	.23			
				3x12 lumber	128,771 B. M.	34.05 M.	5,475.88	Apprvd.	11-5-21
Jackson	21		Fred Hurst	Woven wire	22,300 ft.	.009	865.80	Apprvd.	11-5-21
Jackson	21		Long Bell Lumber Co.	Crossed post	2,800	1.30	3,660.00	Apprvd.	11-5-21
Jasper	64		J. E. Snook	Guard rail	11,040 ft.	.205	2,303.20	Apprvd.	11-14-21
Jasper	64		Engle Tile & Fuel Co.	6" tile mat'l.	20,910 ft.	.000			
				8" tile mat'l.	1,200 ft.	.12			
				12" tile mat'l.	120 ft.	.25	1,616.79	Apprvd.	5-13-21
Jasper	64		Grover Blunt	6" tile labor	20,910 ft.	.08			
				8" tile labor	1,200 ft.	.10			
				12" tile labor	120 ft.	.12			
				Intakes	9	20.00			
Jasper	64		Phelan-Shirley Co.	Earth excav.	95,611 cu. yds.	.214	2,017.20	Apprvd.	6-9-21
Jasper	180		Empire Construction Co.	Gravel	6,305 cu. yds.	.212	90,021.85	Apprvd.	6-13-21
				Gravel	7,805 cu. yds.	2.066			
				Gravel	4,394 cu. yds.	2.29			
				Gravel 1/2 ml. unit.	40,885 U.	.105			
				Gravel 1/2 ml. unit.	84,442 U.	.105	48,485.77	Apprvd.	10-25-21
Jefferson	3		Standard Bridge Co.	Posts	1,056	Lump			
				2x6-16	1,512 B. M.	Sum			
				2x12-16	1,132 B. M.				
				2x12-18	581 B. M.		5,741.02	Apprvd.	9-14-21
Jefferson	3		A. J. Schultz	Guard rail	5,034 ft.	.12	937.68	Apprvd.	9-20-21

Johnson	97		Cox Brothers	Earth excav.	139,263 cu. yds.	.369			
				Earth excav.	9,788 cu. yds.	.47	54,918.31	Apprvd.	4-27-21
Johnson	35		Cox Brothers	Earth excav.	33,673 cu. yds.	.369	12,436.98	Apprvd.	4-27-21
Jones	86		North Iowa Brick & Tile Co.	6" tile mat'l.	28,155 ft.	.054			
				8" tile mat'l.	3,875 ft.	.085			
				12" tile mat'l.	1,145 ft.	.192			
				15" tile mat'l.	230 ft.	.545	2,194.91	Apprvd.	7-7-21
Jones	86		H. Z. Calhoun	6" tile labor	28,155 ft.	.08			
				8" tile labor	3,875 ft.	.10			
				12" tile labor	1,145 ft.	.12			
				15" tile labor	230 ft.	.12			
				Intakes	21	30.00	5,734.90	Apprvd.	7-7-21
Jones	86		Foley Brothers	Earth excav.	68,398 cu. yds.	.36			
				Rock excav.	9,912 cu. yds.	2.50			
				Earth excav.	116,347 cu. yds.	.30			
				Earth excav.	90,811 cu. yds.	.38	115,287.56	Apprvd.	7-18-21
Keokuk	34		Sigourney Lumber Co.	2x12-16	2,852 pcs.	Lump			
				Posts	1,100	Sum			
				2x6-16	1,542 pcs.		4,000.00	Apprvd.	7-30-21
Keokuk	34		John Ritzinger	Guard rail labor	680 ft.	.12			
				Guard rail labor	8,224 ft.	.12			
				Cresote posts	1,160	.10	1,184.48	Apprvd.	7-30-21
Keokuk	34		Harry Adams	Baffles	718	3.70	2,656.60	Apprvd.	9-23-21
Kossuth	6		Nelson Johnson & Sons	6" tile labor	91,750 ft.	.0645			
				8" tile labor	1,000 ft.	.06			
				12" tile labor	110 ft.	.12			
				Intakes	73	16.00	6,280.03	Apprvd.	11-28-21
Kossuth	6		Mason City Brick & Tile Co.	6" tile mat'l.	91,751 ft.	.048			
				8" tile mat'l.	1,000 ft.	.07			
				12" tile mat'l.	110 ft.	.17	4,492.75	Apprvd.	11-7-21
Kossuth	6		Empire Construction Co.	Earth excav.	43,994 cu. yds.	.30	13,192.30	Apprvd.	11-7-21
Kossuth	6		E. S. Camden	6" tile labor	71,614 ft.	.064			
				8" tile labor	6,015 ft.	.09			
				12" tile labor	110 ft.	.15			
				Intakes	12	25.00			
				Intakes	30	20.00	6,017.15	Apprvd.	8-16-21
Kossuth	6		National Clay Works	6" tile mat'l.	71,614 ft.	.05			
				8" tile mat'l.	6,015 ft.	.08675			
				12" tile mat'l.	110 ft.	.20	4,124.50	Apprvd.	8-8-21
Kossuth	6		Peterson, Shirley & Gunther	Earth excav.	76,837 cu. yds.	.305	30,350.02	Apprvd.	8-8-21
Kossuth	6		Peterson, Shirley & Gunther	Earth excav.	127,570 cu. yds.	.48	61,233.60	Apprvd.	2-21-21
Kossuth	6		Peterson, Shirley & Gunther	Earth excav.	47,036 cu. yds.	.48	22,572.48	Apprvd.	2-21-21
Kossuth	6		Humboldt Gravel & Tile Co.	6" tile mat'l.	57,194 ft.	.089			
				8" tile mat'l.	2,000 ft.	.12	5,390.27	Apprvd.	2-21-21
Kossuth	6		Humboldt Gravel & Tile Co.	6" tile mat'l.	56,830 ft.	.089			
				10" tile mat'l.	1,280 ft.	.19	5,301.07	Apprvd.	2-21-21

ROAD ADMINISTRATION

75



## Schedule No. Twelve—Continued

76

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Kossuth	65		Humboldt Gravel & Tile Co.	8" tile mat'l.	41,075 ft.	.085			
Kossuth	65		L. W. Welp	8" tile mat'l.	490 ft.	.118	3,545.66	Apprvd.	5-21-21
				6" tile labor.	55,530 ft.	.0672			
				10" tile labor.	1,380 ft.	.15			
				6" tile labor.	98,239 ft.	.0672			
				8" tile labor.	2,460 ft.	.14			
				Intakes	34	27.00	11,624.15	Apprvd.	2-25-21
Kossuth	111		Dally & Reilly	Earth excav.	5,800 cu. yds.	.45			
Lee	68		Keokuk Quarry & Construction Company	Earth excav.	39,825 cu. yds.	.465	2,520.00	Apprvd.	9-2-21
				Macadam	46,107 sq. yds.	.07	91,107.53	Apprvd.	6-8-21
				Oil	32,736 gal.	.14			
				Gravel surface	46,107 sq. yds.	.07			
Lee	68		Cameron, Joyce Co.	Earth excav.	11,421 cu. yds.	.39			
				Macadam	3,440 sq. yds.	1.39			
				Earth excav.	17,142 cu. yds.	.475			
				Macadam	40,116 sq. yds.	1.39			
				6" tile drain	885 ft.	.20			
				10" tile drain	900 ft.	.34			
				12" tile drain	3,045 ft.	.48			
				Man hole	1	75.00			
				Intakes	10	35.00			
				Oil	32,204	.13			
				Gravel surface	43,556 sq. yds.	.06	85,867.27	Apprvd.	5-8-21
Linn	22		Perry Jayne	Guard rail labor.	6,740 ft.	.35	2,359.00	Apprvd.	10-31-21
Linn	96		H. A. Sayers & Co.	6" tile labor.	13,870 ft.	.08	1,109.60	Apprvd.	4-13-21
Linn	96		H. Z. Calhoun	6" tile mat'l.	13,870 ft.	.077	1,067.99	Apprvd.	4-13-21
Louisa	53		Russell Condon	Guard rail	10,640 ft.		2,500.00	Apprvd.	8-2-21
Louisa	53		Russell Condon	12" tile labor.	120 ft.	.325			
				8" tile labor.	7,840 ft.	.175			
				6" tile labor.	59,685 ft.	.125			
				Intakes	48	48.00			
Louisa	53		Russell Condon	Earth excav.	198,473 cu. yds.	.455	11,100.92	Apprvd.	2-3-21
				Clay surface	267 cu. yds.	1.90	91,272.22	Apprvd.	2-3-21

IOWA STATE HIGHWAY COMMISSION

Louisa	53		Whaley & Sons	12" tile mat'l.	120 ft.	.30			
				8" tile mat'l.	7,840 ft.	.15			
				6" tile mat'l.	59,065 ft.	.10	7,105.50	Apprvd.	2-11-21
Lucas	63		G. L. Roberts	Earth excav.	98,822 cu. yds.	.3925	38,787.64	Apprvd.	4-29-21
Lucas	63		J. D. Sweazy	6" tile labor.	6,865 ft.	.10			
				10" tile labor.	1,335 ft.	.135			
				Intakes	10	33.00	1,176.72	Apprvd.	5-2-21
Lucas	63		Iowa Pipe & Tile Co.	8" tile mat'l.	6,665 ft.	.073			
				12" tile mat'l.	1,335 ft.	.30			
Lucas	63		Long Bell Lumber Co.	Posts	3,000	1.39	753.54	Apprvd.	5-2-21
Lucas	63		Dunshie Brothers	Wire fence	24,000 ft.	.0424	1,017.60	Apprvd.	8-5-21
Lucas	63		G. L. Roberts	Guard rail labor.	24,000 ft.	.10	2,400.00	Apprvd.	8-29-21
Lucas	63		G. L. Roberts	Earth excav.	92,486 cu. yds.	.250	23,963.87	Apprvd.	11-28-21
Lyon	85		A. H. Pittengell	6" tile mat'l.	5,190 ft.	.063			
				8" tile mat'l.	2,800 ft.	.08			
				12" tile mat'l.	620 ft.	.30			
Lyon	85		Ira Cox	Earth excav.	148,734 cu. yds.	.205	673.80	Apprvd.	9-28-21
Lyon	85		Fred Carpenter	6" tile labor.	5,160 ft.	.0645	30,490.77	Apprvd.	10-1-21
				8" tile labor.	2,800 ft.	.0745			
				12" tile labor.	620 ft.	.18			
				Intakes	5	27.50			
				Intakes	4	25.00	800.22	Apprvd.	9-28-21
Lyon	110		Auburn Brick & Tile Co.	6" tile mat'l.	42,806 ft.	.0665			
				8" tile mat'l.	1,070 ft.	.09	5,077.57	Apprvd.	5-12-21
Lyon	110		W. O. & L. S. McKeever	6" tile labor.	42,806 ft.	.075			
				8" tile labor.	1,070 ft.	.08			
				Intakes	3	30.00	3,292.80	Apprvd.	5-9-21
Lyon	174		Miller Construction Co.	Gravel 1 mi. haul	34,500 cu. yds.	.365			
				Gravel 1/2 mi. unit	151,750 U.	.104			
				Gravel 1/2 mi. unit	16,125 U.	.11			
				Stripping pit	8,900 cu. yds.	.24	33,527.25	Apprvd.	9-28-21
Madison	36		Wheeler Lumber, Bridge & Supply Co.	Posts	2,400	1.204			
				Fence	18,812	.46	5,413.00	Apprvd.	8-5-21
Madison	36		C. O. Mitchell	Earth excav.	252,116 cu. yds.	.378	96,413.25	Apprvd.	4-15-21
Mahaska	70		W. R. Grinnell	Earth excav.	118,650 cu. yds.	.324	38,579.74	Apprvd.	5-16-21
Mahaska	70		Mankato Construction Co.	6" tile labor.	70,424 ft.	.0945			
				8" tile labor.	7,380 ft.	.11			
				10" tile labor.	800 ft.	.12			
				12" tile labor.	1,395 ft.	.15			
				Intakes	82	50.00			
				Intakes	10	25.00	8,982.78	Apprvd.	5-20-21
Mahaska	70		National Clay Works	6" tile mat'l.	70,424 ft.	.0725			
				8" tile mat'l.	7,380 ft.	.11			
				10" tile mat'l.	800 ft.	.12			
				12" tile mat'l.	1,395 ft.	.25	6,426.95	Apprvd.	5-16-21

ROAD ADMINISTRATION

77

## Schedule No. Twelve—Continued

78

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Marion	75		Wisely & Son	Earth excav.	66,649 cu. yds.	.56	37,323.44	Apprvd.	3-8-21
Marion	75		Harrison Transportation Co.	6" tile drain	5,475 ft.	.25			
				12" tile drain	430 ft.	.70	2,419.75	Apprvd.	1-29-21
Marion	75		A. Phelps & Son	Excavation	59,319 cu. yds.	.53	31,434.30	Apprvd.	1-29-21
Marion	75		A. Phelps & Son	Excavation	68,132 cu. yds.	.55	37,472.60	Apprvd.	1-29-21
Marion	75		Russell Condon	Baffles	220	10.00			
				Guard rail	32,000 ft.	.285	11,380.00	Apprvd.	10-5-21
Marshall	13		Engle Tile & Fuel Co.	6" tile mat'l.	8,450 ft.	.065			
				10" tile mat'l.	1,250 ft.	.17			
				12" tile mat'l.	300 ft.	.255	812.75	Apprvd.	8-2-21
Marshall	13		F. B. Ingersoll	6" tile labor	8,450 ft.	.06			
				10" tile labor	1,250 ft.	.14			
				12" tile labor	300 ft.	.15			
				Intakes	5	24.00			
Marshall	13		Herbert & Sons	Earth excav.	45,150 cu. yds.	.39	1,661.00	Apprvd.	8-2-21
				Earth excav.	39,805 cu. yds.	.345	24,203.78	Apprvd.	8-2-21
Marshall	23		Wright Construction Co.	Excavation	12,553 cu. yds.	1.25			
				Concrete paving	62,670 sq. yds.	3.17	214,355.15	Apprvd.	12-9-20
Mitchell	45		Harrison Transportation Co.	Gravel 1 mi. haul	27,280 cu. yds.	.60			
				Gravel 1/2 mi. unit	145,000 U.	.12	33,768.30	Apprvd.	7-27-21
Mitchell	45		C. F. Ulrickson	6" tile labor	35,784 ft.	.112			
				8" tile labor	3,356 ft.	.13			
				10" tile labor	1,000 ft.	.13			
				Intakes	22	30.00			
				6" tile labor	79,017 ft.	.105			
				8" tile labor	10,078 ft.	.12			
				10" tile labor	4,877 ft.	.16			
				Intakes	23	35.00	16,486.77	Apprvd.	4-1-21
Mitchell	45		Mankato Construction Co.	Excavation	112,000 cu. yds.	.44			
				6" tile mat'l.	114,801 ft.	.07			
				8" tile mat'l.	13,428 ft.	.16			
				10" tile mat'l.	5,857 ft.	.181	60,067.17	Apprvd.	4-1-21
Monona	38		C. F. Betz	Earth excav.	58,281 cu. yds.	.184	9,808.70	Apprvd.	9-19-21
Monona	38		H. A. Moseman	Earth excav.	83,045 cu. yds.	.1925	15,986.16	Apprvd.	9-19-21
Monroe	20		Hawkeye Lumber Co.	Posts	750	1.25			
				Exc-16	16,000 B. M.	31.90 M.	1,447.90	Apprvd.	2-2-21

IOWA STATE HIGHWAY COMMISSION

Monroe	20		E. C. Armstrong	Paint	100 gal.	2.95			
				Linseed oil	40 gal.	.77	325.80	Apprvd.	4-21-21
Monroe	78		Russell Condon Co.	Woven wire	845 rod	.61	515.45	Apprvd.	10-10-21
Monroe	78		Hawkeye Lumber Co.	Posts	2,000	1.20	2,400.00	Apprvd.	10-5-21
Monroe	78		Standard Bridge Co.	Exc-14	38,160 B. M.	41.50 M.	1,583.64	Apprvd.	10-5-21
Monroe	78		Carey Smith Co.	Earth excav.	111,024 cu. yds.	.355	39,082.80	Apprvd.	8-5-21
Monroe	78		Morey Clay Products Co.	6" tile mat'l.	300 ft.	.055			
				8" tile mat'l.	600 ft.	.09			
				10" tile mat'l.	450 ft.	.155			
				12" tile mat'l.	1,285 ft.	.215			
Muscatine	40		F. F. Maher	Guard rail	6,443 ft.	.195	411.02	Apprvd.	8-31-21
				Baffles	55	13.82			
				Baffles	61	13.64			
				Drain wells	9	74.11			
Muscatine	87		Aug. Korneman	Earth excav.	38,261 cu. yds.	.24	9,322.22	Apprvd.	8-15-21
Muscatine	87		Grimm & Thompson	Gravel 1 mi. haul	7,810 cu. yds.	.474	9,182.64	Apprvd.	9-23-21
				Gravel 1/2 mi. unit	470 U.	.15	3,772.44	Apprvd.	9-23-21
Muscatine	87		Gage & Hedrix	6" tile labor	30,300 ft.	.085			
				8" tile labor	9,000 ft.	.085			
				10" tile labor	1,020 ft.	.11			
				12" tile labor	1,145 ft.	.15			
				Intakes	38	22.00			
				Intakes	39	30.00	3,385.60	Apprvd.	9-23-21
Muscatine	87		Rockford Brick & Tile Co.	6" tile mat'l.	30,000 ft.	.0557			
				8" tile mat'l.	9,000 ft.	.0873			
				10" tile mat'l.	1,020 ft.	.1543			
				12" tile mat'l.	1,145 ft.	.2004	2,305.35	Apprvd.	9-13-21
O'Brien	43		L. Johnson	Catch basins	30	22.00	660.00	Apprvd.	9-2-21
Oscola	15		J. H. Oston	6" tile labor	34,813 ft.	.0905			
				8" tile labor	1,655 ft.	.077	2,500.74	Apprvd.	5-16-21
				6" tile mat'l.	34,813 ft.	.0985			
Oscola	15		Sibley Cement Co.	8" tile mat'l.	1,055 ft.	.30	2,479.64	Apprvd.	5-16-21
Oscola	100		E. & W. Nichols	Gravel 1 mi. haul	15,675 cu. yds.	.37			
				Gravel 1/2 mi. unit	47,625 U.	.135	11,752.88	Apprvd.	9-14-21
Oscola	201		A. W. Madsen	Guard rail	9,400 ft.	.405	3,807.00	Apprvd.	10-18-21
Oscola	201		A. W. Madsen	Excavation	3,043 cu. yds.	.40	1,217.20	Apprvd.	10-18-21
Oscola	201		E. & W. Nichols	Gravel 1 mi. haul	790 cu. yds.	.40			
				Gravel 1/2 mi. unit	1,125 U.	.16	480.00	Apprvd.	10-18-21
Oscola	202		C. H. Klamp	Gravel 1 mi. haul	10,220 cu. yds.	.48			
				Gravel 1 mi. haul	15,900 cu. yds.	.44			
				Gravel 1/2 mi. unit	53,830 U.	.10			
				Gravel 1/2 mi. unit	88,920 U.	.066			
				Stripping	2,000 cu. yds.	.30			
				Stripping	2,500 cu. yds.	.36	27,445.00	Apprvd.	11-21-21
Page	27		Peterson, Shirley & Gunther	Excavation	429,171 cu. yds.	.315	134,343.86	Apprvd.	5-14-21
Palo Alto	109		A. Elkwald	Intakes	17	27.00	459.00	Apprvd.	7-27-21

ROAD ADMINISTRATION

79



## Schedule No. Twelve—Continued

80

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Pocahontas		20	J. B. Acklund	6" tile drain	4,000 ft.	.15			
Pocahontas		20	Ed. Briggs	Intakes	3	30.00	690.00	Apprvd.	10-19-21
Pocahontas		90	Shipman Construction Co.	Excavation	2,300 cu. yds.	.40	880.00	Apprvd.	10-19-21
Pocahontas		90	J. P. N. Tolan	Excavation	44,218 cu. yds.	.3985	17,629.87	Apprvd.	4-27-21
Pocahontas		90	L. W. Welp	Gravel mat'l.	6,000 cu. yds.	.30	1,800.00	Apprvd.	5- 5-21
Pocahontas		90		6" tile drain	122,805 ft.	.154			
				8" tile drain	800 ft.	.225			
				12" tile drain	2,750 ft.	.22			
				Intakes	75 ft.	.35			
Pocahontas		90	Miller Construction Co.	Gravel 1 mi. haul	6,079 cu. yds.	.50	21,923.22	Apprvd.	4-18-21
				Gravel ½ mi. unit.	9,750 U.	.18			
				Removing crown	4.05 Mi.	50.00	5,544.11	Apprvd.	4-13-21
Pocahontas		90	Barnes & Johnson	Excavation	500 cu. yds.	.50	250.00	Apprvd.	5-23-21
Pocahontas		91	Albert Hanson & Co.	Gravel 1 mi. haul	880 cu. yds.	.48			
Pocahontas		91	Miller Construction Co.	Gravel ½ mi. unit.	8,160 U.	.13	1,483.20	Apprvd.	9- 2-21
				Gravel 1 mi. haul	16,554 cu. yds.	.59			
				Gravel ½ mi. unit.	132,750 U.	.155			
				Gravel 1 mi. haul	41,800 U.	.17			
				Shipping road	14.75 Mi.	50.00	42,139.36	Apprvd.	4-13-21
Pocahontas		91	L. W. Welp	6" tile drain	58,165 ft.	.154			
Pocahontas		91	M. J. Gilles & Co.	Intakes	4	30.00	9,068.17	Apprvd.	4-18-21
				Gravel mat'l.	1,875 cu. yds.	2.025			
				Excavation	3,750 cu. yds.	1.52	9,496.88	Apprvd.	4-14-21
Pocahontas		91	Barnes & Johnson	Excavation	4,200 cu. yds.	.50	2,100.00	Apprvd.	5-23-21
Plymouth	38		C. M. Richards	Excavation	4,274 cu. yds.	.29	1,239.46	Apprvd.	8-26-21
Plymouth	38		Ira M. Cox	Excavation	101,900 cu. yds.	.16	16,304.00	Apprvd.	9-14-21
Plymouth	38		Mike Botzma	6" tile labor	6,820 ft.	.06			
				8" tile labor	2,750 ft.	.07	601.70	Apprvd.	7-22-21
Plymouth	38		National Clay Works	6" tile mat'l.	6,820 ft.	.068			
				8" tile mat'l.	2,750 ft.	.095	656.81	Apprvd.	7-22-21
Plymouth		20	A. L. Cook	Excavation	250,178 cu. yds.	.1875	48,595.88	Apprvd.	9-28-21
Plymouth		74	G. W. Condon	Excavation	107,823 cu. yds.	.154	16,527.74	Apprvd.	10-10-21
Plymouth		74	Shipman Construction Co.	Earth excav.	66,958 cu. yds.	.18	12,502.44	Apprvd.	10-11-21

IOWA STATE HIGHWAY COMMISSION

Polk		1	Wright Construction Co.	Excavation	7,522 cu. yds.	.79			
				Concrete paving	17,577 sq. yds.	2.88			
				Curb	3,390 ft.	1.47	61,268.14	Apprvd.	8-19-21
Polk		40	Wright Construction Co.	Excavation	14,494 cu. yds.	1.90	217,465.42	Apprvd.	3-26-21
Polk		40	Pewick Brothers	Concrete paving	56,538 sq. yds.	3.59	2,793.00	Apprvd.	3-19-21
Polk		50	C. O. Mitchell	Excavation	5,700 ft.	.49	5,876.91	Apprvd.	6-21-21
Polk		50	Bradley & Son	12" tile labor	17,543 cu. yds.	.335			
				10" tile labor	2,585 ft.				
				8" tile labor	1,600 ft.				
				6" tile labor	1,300 ft.				
				Intakes	5,197 ft.				
Polk		72	Dutton & Erickson	Excavation	3,510 cu. yds.	.38	3,845.00	Apprvd.	4-15-21
Polk		72	Iowa Pipe & Tile Co.	6" tile mat'l.	9,040 ft.	.085	1,333.80	Apprvd.	6-23-21
				8" tile mat'l.	5,810 ft.	.125			
				12" tile mat'l.	65 ft.	.90			
				24" tile mat'l.	65 ft.	1.50	1,565.85	Apprvd.	5-20-21
Polk		72	Geo. Kelley	6" tile labor	8,040 ft.				
				8" tile labor	5,810 ft.				
Polk		72	Bradley & Sons	6" tile labor	4,550 ft.				
				Intakes	9				
Polk		104	Des Moines Steel Co.	Curb and gutter	963 ft.	29.00	500.50	Apprvd.	4-14-21
Polk		122	W. V. Flynn	Gravel 1 mi. haul	6,827 cu. yds.	.49	1,377.09	Apprvd.	7- 8-21
				Gravel ½ mi. unit.	12,000 U.	.20			
				Gravel 1 mi. haul	2,699 cu. yds.	.73			
				Gravel ½ mi. unit.	9,750 U.	.23			
				Stripping	1,000 cu. yds.	.50	11,801.50	Apprvd.	1-23-21
Pottawattamie		21	Wickham & Company	Earth excav.	207,300 cu. yds.	.174	36,055.86	Apprvd.	10-18-21
Pottawattamie		22	Wickham & Company	Earth excav.	407,323 cu. yds.	.174	70,874.20	Apprvd.	10-18-21
Pottawattamie		92	Wickham & Company	Earth excav.	200,156 cu. yds.	.174	34,832.36	Apprvd.	10-18-21
Poweshiek		41	National Road Construction Co.	6" tile labor	43,576 ft.	.095			
				8" tile labor	1,180 ft.	.13			
				12" tile labor	370 ft.	.18			
				Intakes	19	32.00	4,967.72	Apprvd.	3- 3-21
Poweshiek		41	O'Hanlon & Rolly	Excavation	125,344 cu. yds.	.434	54,330.30	Apprvd.	3- 3-21
Poweshiek		41	Engle Tile & Fuel Co.	6" tile mat'l.	43,576 ft.	.07			
				8" tile mat'l.	1,180 ft.	.11			
				12" tile mat'l.	370 ft.	.298	2,290.38	Apprvd.	3-22-21
Poweshiek		41	Grant Iman	Guard rail labor	9,128 ft.	.181	1,633.08	Apprvd.	11-14-21
Ringgold	6		J. W. Graham	2x6-16	2,230 ft.	.15	1,384.50	Apprvd.	7-11-21
Ringgold	6		Hawkeye Lumber Co.	Posts	27,840 B. M.	41.00 M.			
				Earth excav.	1,154	1.21	2,537.78	Apprvd.	3- 3-21
Ringgold	123		Cox Brothers	Earth excav.	73,539 cu. yds.	.29			
				Earth excav.	110,104 cu. yds.	.24	47,788.97	Apprvd.	11- 5-21

ROAD ADMINISTRATION

81

## Schedule No. Twelve—Continued

County	Project No. Fed. Fr.	Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
Ringgold	133	C. L. Henry	12" tile drain	800 ft.	.52			
Sac.	10-11		Intakes	4	\$1.00	\$78.00	Appr'd.	11-7-21
Sac.	12-108	B. E. Adams	Drillheads	60	16.00	960.00	Appr'd.	9-23-21
Sac.	89	North Western Gravel Co.	Gravel mat'l.		30 Ton		Appr'd.	7-16-21
Sac.	89	A. J. Mallinger	Gravel 1 mi. haul	2,250 cu. yds.	.75			
Sac.	83	National Clay Works	Gravel 1/2 mi. unit	5,250 U.	.32	1,680.00	Appr'd.	4-11-21
Sac.	80	A. M. & H. L. Montgomery	6" tile labor	9,170 ft.	.08	733.60	Appr'd.	4-6-21
Sac.	106	V. L. Hammond	Intakes	4	23.40	93.60	Appr'd.	4-13-21
Sac.	106	Quinlan & Steward	6" tile labor	10,000 ft.	.065			
Sac.	106	National Clay Works	6" tile labor	28,920 ft.	.065	1,900.80	Appr'd.	4-8-21
Sac.	106	W. H. Freimuth	Gravel 1 mi. haul	38,980 ft.	.0825	3,208.35	Appr'd.	4-11-21
Scott	80	Adel Clay Products Co.	Gravel 1/2 mi. unit	13,275 cu. yds.	.70			
Scott	50	Littig Construction Co.	6" tile mat'l.	97,000 U.	.15	14,550.00	Appr'd.	4-7-21
Scott	50	David Wisely & Son	6" tile mat'l.	17,000 ft.	.0025			
Scott	50	David Wisely & Son	Earth excav.	530 ft.	.009			
Scott	50	David Wisely & Son	Loose rock excav.	27,804 cu. yds.	.49			
Scott	50	David Wisely & Son	Solid rock excav.	1,718 cu. yds.	.95			
Scott	50	David Wisely & Son	6" tile labor	17,000 ft.	.10	1,700.00	Appr'd.	8-5-21
Scott	50	David Wisely & Son	12" tile labor	650 ft.	.13			
Scott	50	David Wisely & Son	Intakes	1	.19			
Scott	50	McCarthy Improvement	Intakes	1	25.00			
Shelby	62	G. W. Condon	Excavation	8,250 cu. yds.	.92	2,022.35	Appr'd.	8-5-21
Shelby	62	G. W. Condon	Brick paving	65,798.1 sq. yds.	4.96	\$14,239.14	Appr'd.	9-12-21
Shelby	62	C. F. Dets.	Excavation	250,548 cu. yds.	.155	66,133.74	Appr'd.	9-22-21
Shelby	62	P. K. Mattison	Excavation	33,851 cu. yds.	.249	8,438.80	Appr'd.	5-16-21
Shelby	62	P. K. Mattison	Intakes	113	15.00			
Shelby	62	R. F. Carver	Intakes	29	25.00	2,420.00	Appr'd.	11-8-21
Shelby	62	L. Hines	6" tile labor	4,600 ft.	.0006+	631.16	Appr'd.	3-10-21
Shelby	62	L. Hines	6" tile labor	4,600 ft.	.0006+			
Shelby	62	L. Hines	6" tile labor	1,400 ft.	.007			
Shelby	62	L. Hines	6" sewer pipe labor	200 ft.	.0003	439.68	Appr'd.	3-8-21
Shelby	62	J. J. Brown	6" tile labor	12,000 ft.	.0006+	727.20	Appr'd.	2-10-21
Story	62	Ford & Christensen	6" tile labor	37,000 ft.	1.25 rod	2,802.75	Appr'd.	3-3-21
Story	62	John Walker	6" tile labor	20,000 ft.	1.00 rod	1,712.00	Appr'd.	3-5-21
Story	62	Bruner & Halberstadt	6" tile labor	29,000 ft.	.0609	1,757.49	Appr'd.	1-10-21
Story	62	J. Meibour	6" tile labor	16,000 ft.	1.25 rod	1,312.50	Appr'd.	12-8-20
Story	62	Perry Swift	6" tile labor	4,100 ft.	1.25 rod	319.57	Appr'd.	12-8-20
Story	72	P. E. Shugart	Earth excav.	5,800 cu. yds.	.309			
Story	72	P. E. Shugart	Earth excav.	79,019 cu. yds.	.355	30,286.14	Appr'd.	9-12-21
Story	72	Miller Construction Co.	Gravel 1 mi. haul	14,631 cu. yds.	.45			
Story	72	Miller Construction Co.	Gravel 1/2 mi. unit	37,750 U.	.115			
Story	72	Miller Construction Co.	Gravel mat'l.	18,750 U.	.12	11,715.20	Appr'd.	8-26-21
Story	72	Moore & Smith Gravel Co.	Gravel mat'l.	7,500 cu. yds.	1.585			
Story	72	Moore & Smith Gravel Co.	Gravel mat'l.	7,131	2.90	20,479.90	Appr'd.	8-19-21
Story	72	Adel Clay Products Co.	6" tile mat'l.	92,865 ft.	.051			
Story	72	Adel Clay Products Co.	6" tile mat'l.	15,250 ft.	.077			
Story	72	Adel Clay Products Co.	6" tile mat'l.	6,935 ft.	.103			
Story	72	Adel Clay Products Co.	6" tile mat'l.	4,985 ft.	.143			
Story	72	Adel Clay Products Co.	6" sewer pipe	750 ft.	.39			
Story	72	Adel Clay Products Co.	6" sewer pipe	240 ft.	.30	6,901.12	Appr'd.	8-16-21
Story	72	J. T. Walker	6" tile labor	82,905 ft.	.06			
Story	72	J. T. Walker	6" tile labor	15,250 ft.	.066			
Story	72	J. T. Walker	6" tile labor	6,905 ft.	.07			
Story	72	J. T. Walker	6" tile labor	4,685 ft.	.09			
Story	72	J. T. Walker	6" sewer pipe labor	750 ft.	.075			
Story	72	J. T. Walker	6" sewer pipe labor	240 ft.	.075			
Story	72	J. T. Walker	Intakes	14	19.00			
Story	72	J. T. Walker	Intakes	38	14.90	6,564.00	Appr'd.	8-16-21
Story	72	Dunkelberger & Newton	6" tile mat'l.	86,175 ft.	.0685			
Story	72	Dunkelberger & Newton	6" tile mat'l.	1,650 ft.	.128			
Story	72	Dunkelberger & Newton	6" sewer pipe	12,350 ft.	.218			
Story	72	Dunkelberger & Newton	6" sewer pipe	800 ft.	.34	6,349.79	Appr'd.	3-17-21
Story	72	P. K. Mattison	6" tile labor	86,175 ft.	.069			
Story	72	P. K. Mattison	6" tile labor	1,650 ft.	.07			
Story	72	P. K. Mattison	6" tile labor	10,350 ft.	.08			
Story	72	P. K. Mattison	6" sewer pipe	800 ft.	.08			
Story	72	P. K. Mattison	Intakes	23	25.00			
Story	72	P. K. Mattison	Intakes	17	15.00			
Story	72	P. K. Mattison	Intakes	17	35	6,946.36	Appr'd.	3-8-21
Story	72	Britton & Hoveston	Gravel 1 mi. haul	4,000 cu. yds.	.35			
Story	72	Britton & Hoveston	Gravel 1/2 mi. unit	12,250 U.	.13	3,796.50	Appr'd.	5-2-21
Story	72	Britton & Hoveston	Gravel mat'l.	4,000 cu. yds.	1.73	6,920.00	Appr'd.	5-2-21
Tama	47	Shupman Construction Co.	Excavation	86,420 cu. yds.	.39	\$1,111.20	Appr'd.	7-12-21
Tama	47	Carl Carlson	6" tile labor	90,500 ft.	.069			
Tama	47	Carl Carlson	6" tile labor	5,800 ft.	.083			
Tama	47	Carl Carlson	12" tile labor	415 ft.	.31			
Tama	47	Carl Carlson	12" tile labor	50 ft.	.10			
Tama	47	Carl Carlson	Intakes	21	25.00			
Tama	47	Carl Carlson	Excavation	74,030 cu. yds.	.30	7,729.20	Appr'd.	7-23-21
Tama	47	Carl Carlson	Excavation	74,030 cu. yds.	.30	22,809.16	Appr'd.	7-23-21

## Schedule No. Twelve—Continued

84

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Tama	47		Hysham & Stewart	Earth excav.	63,480 cu. yds.	.37			
Tama	47		Auburn Brick & Tile Co.	Loose rock excav.	1,077 cu. yds.	1.00	24,564.00	Apprvd.	7-12-21
				6" tile mat'l.	90,569 ft.	.048			
				12" tile mat'l.	5,830 ft.	.08			
Taylor	81		A. L. Cook	Earth excav.	465 ft.	.20	4,900.83	Apprvd.	7-28-21
Taylor	81		Earl Woodward	Guard rail	67,308 cu. yds.	.33	22,311.64	Apprvd.	5-12-21
Taylor	81		Earl Woodward	Baffles	9,808 ft.	.20	1,961.60	Apprvd.	11-28-21
Union	83		A. L. Cook	Excavation	307	8.37	2,569.59	Apprvd.	11-28-21
Union	83		B. J. Concrete Products Co.	6" tile mat'l.	117,999 cu. yds.	.45	80,099.55	Apprvd.	12-16-20
				12" tile mat'l.	10,765 ft.	.115			
Union	83		C. L. Henry	6" tile labor	110 ft.	.46	1,287.57	Apprvd.	12-10-20
				12" tile labor	10,765 ft.	.14			
Union	83		Standard Bridge Co.	2x6-16	30,000 B. M.	39.00 M.	1,522.50	Apprvd.	2-14-21
Van Buren	60		Pedrick Hardware Co.	Posts	1,350	.80	2,398.50	Apprvd.	3-14-21
Van Buren	60		Wheeler Lumber Bridge	Staples	50 lbs.	.0425			
				3x12-16	408 pcs.	.685.44	2.12	Apprvd.	9-20-21
				3x12-18	23 pcs.	43.47			
				Woven wire	1,728 ft.	.55 rod			
				Posts	490	.70			
Wapello	42		Standard Bridge Co.	2x6-16	24 pcs.	13.44	1,142.94	Apprvd.	8-26-21
				Baffles	582	5.00			
Wapello	42		Standard Bridge Co.	Guard rail labor	9,882 ft.	.215	4,773.83	Apprvd.	8-30-21
				3x12-12	1,070 pcs.	32.25 M.			
				3x12-16	540 pcs.	33.25 M.			
				2x6-16	1,800 pcs.	28.50 M.			
Wapello	42		Tisdale Lumber Co.	Posts	1,300	1.20	4,586.97	Apprvd.	8-30-21
Warren	11		Cox Brothers	Excavation	1,000	.32	519.00	Apprvd.	8-30-21
Warren	11		J. D. Sweazy	6" tile labor	322,789 cu. yds.	.285	57,794.87	Apprvd.	6-21-21
				12" tile labor	9,665 ft.	.08			
				Intakes	475 ft.	.135			
Warren	11		Russell Condon	Woven wire	11	33.00	1,302.72	Apprvd.	7-23-21
Warren	11		E. E. Holbrook	Posts	14,000 ft.	.045	1,665.00	Apprvd.	8-30-21
				Guard rail labor	1,800	.575	1,400.00	Apprvd.	10-10-21
					14,000 ft.	.10			
Washington	71		F. Bruggemeyer	6" tile labor	15,345 ft.	.09			
				8" tile labor	9,000 ft.	.10			
				12" tile labor	1,800 ft.	.11			
				Intakes	17	35.00	2,809.05	Apprvd.	6-22-21
Washington	71		Iowa Clay Products Co.	6" tile mat'l.	15,345 ft.	.0683			
				8" tile mat'l.	6,900 ft.	.100			
				12" tile mat'l.	1,800 ft.	.17			
				Excavation	200 ft.	.22	1,985.55	Apprvd.	6-22-21
Washington	71		Peed & Sons	Excavation	83,671 cu. yds.	.273			
				Excavation	90,928 cu. yds.	.285			
				Excavation	2,011 cu. yds.	.50	50,020.01	Apprvd.	6-22-21
Wayne	91		Hayes Lumber Co.	6" tile mat'l.	6,550 ft.	.115			
				8" tile mat'l.	2,710 ft.	.205			
				12" tile mat'l.	60 ft.	.40			
				Intakes	13	53.00	2,021.80	Apprvd.	12-27-20
Wayne	91		Littig Construction Co.	Excavation	125,153 cu. yds.	.494	61,825.58	Apprvd.	12-27-20
Webster	13		Cook & Bryant	Gravel 1 mi. haul	2,105 cu. yds.	.65			
				Gravel 1/2 mi. unit.	27,375 U.	.19	11,119.50	Apprvd.	3-14-21
Webster	13		Flaherty & Mulrone	Gravel mat'l.	7,500 cu. yds.	.25	1,875.00	Apprvd.	7-28-21
Webster	13		C. J. Kramme	Baffles	150		1,291.50	Apprvd.	10-10-21
Webster	13		Gross & Tubbs	Guard fence	2,700 ft.		459.80	Apprvd.	10-10-21
Webster	25		P. E. Shugart	Excavation	66,875 cu. yds.	.369	24,676.88	Apprvd.	4-13-21
Webster	25		Kalo Brick & Tile Co.	6" tile mat'l.	74,335 ft.	.07			
				8" tile mat'l.	3,885 ft.	.11	5,575.80	Apprvd.	4-13-21
				6" tile labor	74,335 ft.	.073			
				8" tile labor	3,885 ft.	.10			
				Intakes	45	25.00			
				Intakes	9	20.00	7,292.96	Apprvd.	4-14-21
Webster	64		C. J. Kramme	6" tile labor	105,275 ft.	.058			
				8" tile labor	100 ft.	.068			
				12" tile labor	150 ft.	.11			
				Intakes	24	24.00			
				Intakes	105	19.00	8,709.25	Apprvd.	10-25-21
Webster	64		Johnson Clay Works	6" tile mat'l.	105,275 ft.	.045			
				12" tile mat'l.	150 ft.	.12			
				8" tile labor	100 ft.	.07	4,702.57	Apprvd.	11-7-21
Webster	108		Cook & Bryant	Gravel 1 mi. haul	3,746 cu. yds.	.74			
				Gravel 1/2 mi. haul	4,500 U.	.23	3,807.04	Apprvd.	3-14-21
Webster	108		Branham & Moore	6" tile labor	22,965 ft.	.005			
				Intakes	58	23.00	3,518.53	Apprvd.	3-14-21
Webster	108		National Clay Works	6" tile mat'l.	22,965 ft.	.07	1,609.65	Apprvd.	3-17-21
Webster	108		Birden Hill	Gravel mat'l.	3,000 cu. yds.	.25			
Webster	111		C. M. Briggs	Roadway		75.00	825.00	Apprvd.	5-20-21
Webster	111		A. R. Eno	Gravel mat'l.	6,000 cu. yds.	.50	3,000.00	Apprvd.	4-29-21
				Gravel 1 mi. haul	10,545 cu. yds.	.70			
				Gravel 1/2 mi. unit	53,250 U.	.20	18,051.50	Apprvd.	3-14-21

IOWA STATE HIGHWAY COMMISSION

ROAD ADMINISTRATION

85



## Schedule No. Twelve—Continued

86

County	Project No.		Contractor	Item	Estimated Quantity	Unit Price	Total Amount Contract	Action by Com.	Date
	Fed.	Pr.							
Winnebago		2	L. H. Marvill	Guard rail	8,000 ft.	.335	2,681.50	Apprvd.	9-23-21
Winnebago	30		Chris Jensen	Baffles	67	11.00	737.00	Apprvd.	10-1-21
Winnebago	30		L. H. Marvill	Guard rail	4,300 ft.	.335	1,440.50	Apprvd.	9-23-21
Winnebago	120		Mason City Brick & Tile Co.	6" tile mat'l.	123,959 ft.	.04725			
				8" tile mat'l.	5,796 ft.	.0775			
				10" tile mat'l.	400 ft.	.14			
				12" tile mat'l.	110 ft.	.18			
Winnebago	120		A. Gudahl	6" tile labor	123,959 ft.	.057	6,375.08	Apprvd.	10-4-21
				8" tile labor	5,796 ft.	.057			
				10" tile labor	400 ft.	.057			
				12" tile labor	110 ft.	.057			
				Intakes	7	26.00			
				Intakes	45	22.00	8,501.98	Apprvd.	10-12-21
Winneshek	98		North Iowa Brick and Tile Co.	6" tile mat'l.	46,468 ft.	.061			
Winneshek	98		Mankato Construction Co.	6" tile labor	590 ft.	.211	2,056.90	Apprvd.	7-12-21
				12" tile labor	45,468 ft.	.061			
				Intakes	580 ft.	.12			
				Intakes	9	28.00			
Winneshek	98		Shipman Construction Co.	Intakes	4	24.00	4,646.79	Apprvd.	7-12-21
				Earth excav.	142,708 cu. yds.	.43			
				Loose R. excav.	6,399 cu. yds.	1.20			
				Solid R. excav.	10,513 cu. yds.	2.00	89,013.24	Apprvd.	7-12-21
Woodbury	2		O. Sylvester	Guard rail	15,300 ft.	.48	7,356.00	Apprvd.	7-25-21
Woodbury	2		C. F. Betz	Excavation	35,000 cu. yds.	.197	6,865.00	Apprvd.	10-31-21
Woodbury	45		Simpson Stone Co.	Aggregate	540 ton	2.00	1,080.00	Apprvd.	6-13-21
Woodbury	45		Hig Sioux Gravel Co.	Gravel	1,000 ton	1.50	1,500.00	Apprvd.	5-27-21
Woodbury	45		LeMars Gravel Co.	Sand	2,000 ton	.48			
				Gravel	2,000 ton	1.21	3,380.00	Apprvd.	5-23-21
Woodbury	45		C. F. Lytle	Excavation	8,117 cu. yds.	1.12			
				Concrete paving	37,738.7 sq. yds.	3.67			
				Intakes	21	100.00	149,092.07	Apprvd.	12-27-20
Woodbury	45		C. F. Lytle	Excavation	27,780 cu. yds.	1.12			
				Concrete paving	74,017.8 sq. yds.	3.67			
				Intakes	100.00		306,158.93	Apprvd.	12-27-20
Woodbury	45		C. F. Lytle	Excavation	10,944 cu. yds.	1.12			
				Concrete paving	52,704.3 sq. yds.	3.67			
				Intakes	22	100.00	208,212.36	Apprvd.	12-27-20
Woodbury	78		C. F. Lytle	Excavation	19,236 cu. yds.	1.12			
				Concrete paving	32,157.2 sq. yds.	3.67			
				Intakes	16	100.00			
				10" tile drain	439 ft.	1.00			
				12" tile drain	50 ft.	1.25			
				Intakes	2	40.00	141,756.24	Apprvd.	12-27-20
Worth	134		J. A. Dunkel	Crush gravel	12,641 cu. yds.	.40	5,056.40	Apprvd.	11-7-21
Worth	134		J. A. Dunkel	Gravel 1 mi. haul	12,641 cu. yds.	.39			
				Gravel 1/2 mi. unit	38,350 U.	.10	7,617.30	Apprvd.	9-30-21
Worth	134		Louis Moe	6" tile labor	46,135 ft.	.19			
				8" tile labor	4,653 ft.	.12			
				12" tile labor	70 ft.	.15			
				Intakes	23	35.00	5,087.24	Apprvd.	5-19-21
Worth	134		National Clay Works	6" tile mat'l.	46,135 ft.	.099			
				8" tile mat'l.	4,652 ft.	.1025			
				12" tile mat'l.	70 ft.	.288	3,680.31	Apprvd.	3-17-21
Worth	134		J. A. Dunkel	Excavation	58,728 cu. yds.	.48	28,189.44	Apprvd.	3-11-21
Worth	161		Mason City Brick & Tile Co.	6" tile mat'l.	55,617 ft.	.048			
				8" tile mat'l.	48,900 ft.	.05			
				10" tile mat'l.	18,328 ft.	.046			
				12" tile mat'l.	62,800 ft.	.047			
				8" tile labor	4,800 ft.	.077			
				10" tile labor	1,800 ft.	.075			
				12" tile labor	1,100 ft.	.074	9,499.51	Apprvd.	8-25-21
Worth	161		N. C. Jensen	6" tile labor	62,800 ft.	.099			
				8" tile labor	1,000 ft.	.09			
				Intakes	12	15.00	4,403.20	Apprvd.	8-25-21
Worth	161		J. W. Cox	6" tile labor	122,933 ft.	.075			
				8" tile labor	6,700 ft.	.09			
				Intakes	3	30.00			
				Intakes	16	25.00	313.13	Apprvd.	8-25-21
Wright	19		E. S. Camden	6" tile labor	65,105 ft.	.072			
				8" tile labor	1,100 ft.	.10			
				10" tile labor	1,000 ft.	.15			
				Intakes	51	25.00	6,251.56	Apprvd.	6-21-21
Wright	19		W. A. Sprague	6" tile mat'l.	12,500 ft.	.072			
				8" tile mat'l.	1,000 ft.	.192			
				10" tile mat'l.	51,605 ft.	.073			
				12" tile mat'l.	1,100 ft.	.109	5,089.58	Apprvd.	6-30-21
Wright	19		Wisely & Sons	Excavation	107,933 cu. yds.	.39	42,094.65	Apprvd.	6-8-21
Wright	19		H. C. Wiser	Gravel 1 mi. haul	5,800 cu. yds.	.55			
				Gravel 1/2 mi. unit	8,638 U.	.33	4,343.04	Apprvd.	9-23-21
Wright	19		Conger & Whyte	Gravel mat'l.	5,800 cu. yds.	.40	2,340.00	Apprvd.	9-23-21
Wright	19		H. C. Wiser	Strip. pit		.25		Apprvd.	10-6-21

IOWA STATE HIGHWAY COMMISSION

ROAD ADMINISTRATION

Total 431 contracts approved amounting to \$7,917,932.48.

One contract not approved amounting to \$1,226.03.

87

# SCHEDULE NO. THIRTEEN

SECONDARY ROAD CONTRACTS APPROVED ASIDE FROM SECONDARY ROAD DISTRICT CONTRACTS.

County	Contractor	Item	Estimated Quantity	Unit Price	Amount of Contract	Action by Com.	Date
Boone	J. M. White	6" tile labor	1,818.2 rods	\$ 1.00	\$ 1,818.20	Apprvd.	3-26-21
Boone	Vincent Clay Product Co.	6" tile material	4,000 ft.	6.9c			
Boone	E. H. Birdsell	8" tile material	3,000 ft.	11.5c	3,105.00	Apprvd.	4-15-21
Boone	C. Lackey	Graveling		63c cu. yd.		Apprvd.	6-24-21
Boone	H. Moody	Gravel		14c unit	1,860.00	Apprvd.	7-9-21
Boone	Pestotnik Bros.	Graveling	3,000 cu. yds.	62c	12,500.00	Apprvd.	7-9-21
Bremer	Nels Debel	10" drain	560 ft.	45-14c			
		8" drain	700 ft.	33c			
		6" drain	5,730 ft.	25c			
		6" drain	2,100 ft.	20c			
		Intakes	4	19c			
		Bulkhead	2 cu. yds.	27.00	2,064.78	Apprvd.	5-16-21
Bremer	Lamoreaux Bros.	Excavation	30,000 cu. yds.	25.00			
		Excavation	8,574 cu. yds.	53c			
		Excavation	700 cu. yds.	58c			
		Excavation	736 cu. yds.	2.50	24,897.00	Apprvd.	4-11-21
		Excavation	12,000 cu. yds.	1.50	4,198.80	Apprvd.	8-25-21
Carroll	L. J. Bedard	Excavation	17,000 ft.	34.00c			
Cerro Gordo	J. W. Cox	6" tile labor	17,000 ft.	7c	1,280.00	Apprvd.	8-16-21
Cerro Gordo	Hughes Const. Co.	12" tile labor	600 ft.	15c			
		Excavation	38,327 cu. yds.	33c			
		Gravel haul	13,500 cu. yds.	50c	26,532.25	Apprvd.	7-7-21
Floyd	Nelson and Paulsen	8" tile labor	1,590 ft.	11.5c			
		7" tile labor	15,800 ft.	8c	1,464.00	Apprvd.	6-13-21
		7" tile labor	1,000 ft.	8c	8,640.00	Apprvd.	7-8-21
Floyd	Rockford Brick and Tile Co.	The material					
Floyd	Louving and Brogaard	7" tile labor	3,200 ft.	8c			
		6" tile labor	23,570 ft.	7.7c	2,105.54	Apprvd.	6-13-21
		7" tile labor	430 ft.	7.7c			
Floyd	S. C. Nielsen	8" tile labor	1,000 ft.	8c			
		7" tile labor	8,450 ft.	8c	966.00	Apprvd.	6-13-21
		7" tile labor	2,800 ft.	7.5c			
Floyd	J. H. Enghausen	6" tile labor	10,000 ft.		880.00	Apprvd.	6-13-21
		8" tile labor	1,000 ft.	8c			
Floyd	O. H. Ehling	8" tile labor	4,000 ft.	8c	2,192.00	Apprvd.	7-23-21
Floyd	N. Jacobsen	7" tile labor	23,400 ft.	8c			
		6" tile labor	255 ft.	7c			
		6" tile labor	37,070 ft.	7c			
		7" tile labor	6,150 ft.	8c			
		8" tile labor	4,000 ft.	8c	3,564.85		
		Intakes	6	23.00			
Franklin	Northern Road Const. Co.	Gravel 1 mi. haul	4,900 cu. yds.	35c			
		Gravel 1/2 mi. haul	27,300 units	9c			
		Gravel screen	4,000 cu. yds.	5c			
		Gravel 1 mi. haul	4,300 cu. yds.	40c			
		Gravel 1/2 mi. haul	10,300 units	14c			
		Gravel screen	4,300 cu. yds.	10c			
		Gravel 1 mi. haul	3,150 cu. yds.	40c			
		Gravel 1/2 mi. haul	18,900 units	11c	11,641.00	Apprvd.	9-24-21
		Gravel screen	3,150 cu. yds.	10c			
Hardin	L. C. Wood and Co.	Excavation	83,612 cu. yds.	44c			
		Culvert pipe	1,444 ft.	10c			
		Fence	132 rod	50c			
		Trees	240 rod	2.00	37,779.68	Apprvd.	5-6-21
		Grubbing	1 acre	300.00			
Hardin	W. Fitzgerald	6" tile labor	65,800 ft.	6.7c			
		8" tile labor	6,240 ft.	7.5c	5,226.60	Apprvd.	7-25-21
		Intakes	10	35.00			
Hardin	Engle Tile and Fuel Co.	6" tile material	65,800 ft.	6c	4,572.00	Apprvd.	7-25-21
		8" tile material	6,240 ft.	10c			
Hardin	L. C. Wood and Co.	Culvert pipe	400 ft.	10c	4,518.28	Apprvd.	7-12-21
		Excavation	12,453 cu. yds.	36c			
		Excavation	16,016 cu. yds.	34c	19,642.50	Apprvd.	8-10-21
Hardin	D. H. Lamb	Excavation	16,016 cu. yds.	29.5c	10,900.00	Apprvd.	5-27-21
		Excavation	48,127 cu. yds.	38c	15,324.77	Apprvd.	7-27-21
Hamilton	Brinolf-Johnson	Graveling					
Humboldt	J. Cosgrove	Excavation	25,639 cu. yds.	43c			
Humboldt	J. Curran	Excavation	16,434 cu. yds.	39.5c	12,363.56	Apprvd.	7-27-21
		Excavation	15,639 cu. yds.	37.5c			
		Excavation	7,550 cu. yds.	21c	8,422.50	Apprvd.	11-8-21
Mitchell	Butler and Carroll	Gravel 1 mi. haul	62,250 units	11c			
		Gravel 1/2 mi. haul	6,000 cu. yds.	25c			
Mitchell	Harrison Transportation Co.	Excavation	27,000 units	12.5c	4,885.00	Apprvd.	10-10-21
		Excavation	47,650 cu. yds.	30c	14,295.00	Apprvd.	9-14-21
Osecola	W. W. McColloch	Gravel 1 mi. haul	9,000 cu. yds.	70c			
		Gravel 1/2 mi. haul	47,250 units	12.5c	12,240.00	Apprvd.	7-27-21
Palo Alto	A. R. Eno	Gravel 1 mi. haul	4,305 cu. yds.	40c			
		Excavation	15,068 units	15c	3,682.20	Apprvd.	8-25-21
Palo Alto	W. Donovan	Gravel 1/2 mi. haul	14,948 cu. yds.	37c	5,530.76	Apprvd.	9-19-21
Palo Alto	Russell Condon	Gravel 1 mi. haul	10,762 cu. yds.	40c			

## Schedule No. Thirteen—Continued

County	Contractor	Item	Estimated Quantity	Unit Price	Amount of Contract	Action by Com.	Date
Palo Alto	W. D. Donovan	Gravel $\frac{1}{2}$ mi. haul	30,125 units	11c	7,619.65	Apprvd.	10-31-21
Palo Alto	A. R. Eno	Gravel 1 mi. haul	5,740 cu. yds.	44c	5,305.90	Apprvd.	10-31-21
Plymouth	G. F. Brown	Excavation	25,880 units	11c	5,098.32	Apprvd.	11-10-21
Pocahontas	Kelly, Straight and White	Excavation	31,677 cu. yds.	19c	4,824.00	Apprvd.	9-23-21
Pocahontas	L. J. Hartman	Excavation	13,400 cu. yds.	30c	6,319.44	Apprvd.	9-23-21
Pocahontas	S. Krusen	6" tile labor	60,350 ft.	5.8c			
		7" tile labor	62,300 ft.	6.5c			
		Intakes	12	24.00	7,812.40	Apprvd.	6-24-21
Pocahontas	A. Scharffenberg	7" tile labor	24,700 ft.	6.3c			
		8" tile labor	1,300 ft.	7.5c			
		Intakes	2	20.00	1,713.00	Apprvd.	6-25-21
Pocahontas	Vincent Clay Products Co.	7" tile material	60,350 ft.	6.7c			
Pocahontas	Kalo Brick and Tile Co.	7" tile material	62,300 ft.	6c	4,043.45	Apprvd.	6-25-21
Pocahontas	Herman and Wood	7" tile material	940 ft.	7.37c	3,866.34	Apprvd.	6-25-21
Pocahontas	Hartman-Peterson	8" tile material	24,700 ft.	6.4c			
Polk	Pewick Bros.	Excavation	68,472 cu. yds.	30c	1,703.00	Apprvd.	6-25-21
Polk	Ja. Pipe and Tile	Guard rail	2,630 ft.	40c	28,704.47	Apprvd.	7-23-21
Polk	Bradley and Sons	Miscellaneous tile			1,274.00	Apprvd.	3-19-21
		24" tile material	20 ft.	1.40	1,617.23	Apprvd.	4-15-21
		18" tile material	20 ft.	8c			
		6" tile labor	4,550 ft.	8c			
		7" tile labor	4,650 ft.		408.00	Apprvd.	4-15-21
		3" tile labor	900 ft.				
		Catch basins					
Scott	Littig Const. Co.	Excavation	31,600 ft.	39c	2,202.50	Apprvd.	4-15-21
Scott	Martin and Sons	Culvert pipe	784 ft.	50c			
		9" tile material	11,885 ft.	10c	12,718.34	Apprvd.	4-27-21
		8" tile material	800 ft.	15c			
		12" tile material	395 ft.	32.5c			
		7" tile labor	11,885 ft.	10.8c	1,436.88	Apprvd.	4-27-21
		8" tile labor	800 ft.	12c			
		12" tile labor	395 ft.	30c			
		Intakes	6	10.00			
		Excavation	117,600 cu. yds.	38.5c	1,518.38	Apprvd.	4-27-21
Story	C. O. Mitchell	Gravel	5,375 cu. yds.	1.50	45,275.00	Apprvd.	4-4-21
Webster	Humboldt Gravel and Tile Co.	Graveling	3,705 cu. yds.	65-25c	5,366.25	Apprvd.	7-6-21
Wright	H. C. Schroeder	Excavation	62,100 cu. yds.	50c	8,000.00	Apprvd.	3-14-21
Wright	C. E. Bradfield	Excavation	30,149 cu. yds.	52.5c	34,155.00	Apprvd.	3-10-21
Wright	E. W. Beeman	Excavation	12,000 cu. yds.	43c			
		Excavation	62,000 cu. yds.	50c	52,228.00	Apprvd.	5-7-21
Wright	J. Welch	Graveling				Apprvd.	9-23-21
Wright	Belmond Const. Co.	Gravel	4,500 cu. yds.	2.10	9,450.00	Apprvd.	10-6-21

Total—58 contracts approved amounting to \$539,035.69.

SCHEDULE NO. FOURTEEN  
SECONDARY ROAD DISTRICT CONTRACTS APPROVED.

County	Dist. No.	Contractor	Item	Estimated Quantity	Unit Price	Amount of Contract	Action by Com.	Date
Buena Vista	5	Crissey Bros.	Gravel 1 mi. haul	5,700 cu. yds.	30c			
			Gravel $\frac{1}{2}$ mi. haul	26,600 units	12.5c	\$ 5,042.50	Apprvd.	10-25-21
Dallas	4	N. M. Strouse	Gravel 1 mi. haul	3,750 cu. yds.	40c			
			Gravel $\frac{1}{2}$ mi. haul	26,250 units	11c			
			Gravel 1 mi. haul	3,750 cu. yds.	41c			
			Gravel $\frac{1}{2}$ mi. haul	2,625 units	11c	8,812.50	Apprvd.	10-18-21
Dallas	7	Miller Const. Co.	Gravel 1 mi. haul	5,500 cu. yds.	42.5c			
			Gravel $\frac{1}{2}$ mi. haul	48,150 units	10.9c			
			Gravel screen	5,500 cu. yds.	7c	7,905.60	Apprvd.	8-30-21
Dallas	8	N. M. Strouse	Gravel 1 mi. haul	2,250 cu. yds.	40c			
			Gravel $\frac{1}{2}$ mi. haul	13,500 units	11c	2,385.00	Apprvd.	10-18-21
Dallas	8	Rose and Son	Gravel 1 mi. haul	3,750 cu. yds.	40c			
			Gravel $\frac{1}{2}$ mi. haul	18,750 units	11c	3,562.50	Apprvd.	10-18-21
Dallas	9	M. Jungmann	Gravel 1 mi. haul	3,000 cu. yds.	40c			
			Gravel $\frac{1}{2}$ mi. haul	12,000 units	11.5c	2,580.00	Apprvd.	9-28-21
Dallas	10	N. M. Strouse	Gravel 1 mi. haul	4,650 cu. yds.	42c			
			Gravel $\frac{1}{2}$ mi. haul	13,080 units	12c	3,484.80	Apprvd.	9-28-21
Dallas	12	Rose and Son	Gravel 1 mi. haul	10,000 cu. yds.	40c			
			Gravel $\frac{1}{2}$ mi. haul	34,601 units	11c	7,816.01	Apprvd.	10-18-21



## Schedule No. Fourteen—Continued

92

County	Dist. No.	Contractor	Item	Estimated Quantity	Unit Price	Amount of Contract	Action by Com.	Date
Dallas	14	N. M. Strouse	Gravel 1 mi. haul	1,500 cu. yds.	44c			
Delaware	1	C. F. Chaney	Gravel 1/2 mi. haul	4,200 units	13c	1,506.00	Apprvd.	9-28-21
Emmet	2	O. M. Bond	Graveling	15,000 cu. yds.	58c	8,700.00	Apprvd.	9-23-21
Emmet	4	I. A. Knight	Graveling		38c	3,675.00	Apprvd.	6-7-21
Hancock	1	C. A. and M. Wilson	Graveling		45c	1,350.00	Apprvd.	8-5-21
Linn	1	Sayers and Co.	Graveling	8,900 cu. yds.	2.25	8,775.00	Apprvd.	4-7-21
Linn	1	H. Z. Calhoun	8" tile	17,041 ft.	8c			
Linn	1	H. Z. Calhoun	8" tile	1,430 ft.	10c	1,508.28	Apprvd.	4-13-21
Linn	1	H. Z. Calhoun	8" tile	17,041 ft.	7.7c			
Linn	1	Herbert and Sons	Y-Connection	2	60c	1,499.55	Apprvd.	4-13-21
Linn	1	Herbert and Sons	Excavation	20,400 cu. yds.	35c			
Linn	1	Herbert and Sons	Loose rock excav.	125 cu. yds.	1.00			
Linn	1	Herbert and Sons	Solid rock excav.	125 cu. yds.	2.00			
O'Brien	1	J. Haney	Gravel 1 mi. haul	13,500 cu. yds.	58c	8,127.00	Apprvd.	4-13-21
Polk	1	Hughes Const. Co.	Gravel 1/2 mi. haul	42,000 units	19c	14,550.00	Apprvd.	4-27-21
Polk	1	Hughes Const. Co.	Gravel 1 mi. haul	12,000 cu. yds.	74c			
Polk	1	Hughes Const. Co.	Gravel 1/2 mi. haul	48,000 units	34c	20,520.00	Apprvd.	12-3-20
Polk	6	W. Neimier	Gravel	900 cu. yds.	74.75c	692.72	Apprvd.	12-20-20
Sac	4	McBride and Rasmussen	Gravel 1 mi. haul	4,330 cu. yds.	75c			
Sac	4	McBride and Rasmussen	Gravel 1/2 mi. haul	8,135 units	22 1/2c	5,077.88	Apprvd.	3-8-21
Sac	5	A. B. Toepke	Gravel 1 mi. haul	8,750 cu. yds.	80c			
Sac	5	A. B. Toepke	Gravel 1/2 mi. haul	31,435 units	23c	14,207.05	Apprvd.	3-8-21
Sac	6	Weaver and Wood	Gravel 1 mi. haul	5,625 cu. yds.	79c			
Sac	6	Weaver and Wood	Gravel 1/2 mi. haul	18,225 units	22c	7,375.35	Apprvd.	3-8-21
Sac	7	Crissey Bros.	Gravel 1 mi. haul	4,000 cu. yds.	35c			
Sac	7	Crissey Bros.	Gravel 1/2 mi. haul	14,900 units	15c			
Sac	7	Crissey Bros.	Grading	4 mi.	35.00	4,515.00	Apprvd.	6-30-21
Sac	8	E. Nelson	Gravel 1 mi. haul	2,250 cu. yds.	73c			
Sac	8	E. Nelson	Gravel 1/2 mi. haul	3,000 units	15c			
Sac	8	E. Nelson	Grading	2.35 mi.	25.00	2,148.75	Apprvd.	6-30-21
Sioux	1	Miller Const. Co.	Graveling	4,500 cu. yds.	17c			
Sioux	2	Miller Const. Co.	Graveling		25c	6,870.00	Apprvd.	3-30-20
Sioux	2	Miller Const. Co.	Graveling	4,500 cu. yds.	77c			
Sioux	2	Miller Const. Co.	Strip	450 cu. yds.	25c			
Sioux	2	Miller Const. Co.	Strip	450 cu. yds.	80c	8,330.00	Apprvd.	3-30-20
Story	2	J. J. Galbreath	Gravel	3,400 cu. yds.	80c	2,720.00	Apprvd.	4-15-21
Story	2	A. M. McHone	Graveling	1,500 cu. yds.	1.30			
Story	2	A. M. McHone	Graveling	1,500 cu. yds.	0.80			
Story	2	A. M. McHone	Graveling	375 cu. yds.	0.60			
Story	3	Cook and Bryant	Gravel	1,500 cu. yds.	3.00	3,375.00	Apprvd.	3-6-21
Story	14	Galbreath and Son	Gravel 1 mi. haul	6,900 cu. yds.	54c			
Story	14	Galbreath and Son	Gravel 1/2 mi. haul	24,000 units	13c	6,120.00	Apprvd.	1-10-21
Story	25	N. M. Swanson	Graveling	375 cu. yds.	2.58			
Story	25	N. M. Swanson	Graveling	750 units	2.35			
Story	25	N. M. Swanson	Graveling	1,500 units	2.00			
Story	25	N. M. Swanson	Graveling	1,500 units	1.65			
Story	25	N. M. Swanson	Graveling	600 units	1.40			
Story	25	N. M. Swanson	Graveling	1,300 units	1.10			
Story	25	N. M. Swanson	Graveling	1,300 units	1.40	10,845.00	Apprvd.	1-16-21
Story	25	Vangness and Carpenter	Gravel material	2,520 cu. yds.	45c			
Story	25	Vangness and Carpenter	Gravel 1 mi. haul	4,850 cu. yds.	16c			
Story	25	Vangness and Carpenter	Gravel 1/2 mi. haul	10,000 units	7c	7,484.50	Apprvd.	8-22-21
Story	25	Vangness and Carpenter	Gravel 1/4 mi. haul	4,700 units	16c			
Story	25	Vangness and Carpenter	Gravel 1/8 mi. haul	1,500 cu. yds.	30c			
Story	25	Vangness and Carpenter	Gravel 1/4 mi. haul	1,875 units	9.5c	628.12	Apprvd.	10-3-21
Story	25	Vangness and Carpenter	Gravel 1/8 mi. haul	1,500 cu. yds.	1.55	2,325.00	Apprvd.	10-3-21
Story	28	A. Cox	Gravel material	1,500 cu. yds.	1.55			
Story	28	A. Cox	Gravel 1 mi. haul	3,450 cu. yds.	42c			
Story	28	A. Cox	Gravel 1/2 mi. haul	18,750 units	10.5c	3,417.75	Apprvd.	10-3-21
Story	28	A. Cox	Gravel material	3,450 cu. yds.	1.55	5,347.50	Apprvd.	10-3-21

IOWA STATE HIGHWAY COMMISSION

ROAD ADMINISTRATION

Total—36 contracts approved amounting to \$207,529.25.

\*This contract in Linn county replaces a contract for \$15,200.00 previously awarded.

93

## SCHEDULE NO. FIFTEEN

SECONDARY ROAD DISTRICTS ESTABLISHED BY RESOLUTION OF BOARD OF SUPERVISORS.

County	Dist. No.	Type of surfacing	Length in miles	Approx. area in district	Date established	Date filed with commission
Boone	10	Gravel	6.75	5,900	2-11-21	2-12-21
Boone	20	Gravel	4.00	2,560	12-20-20	12-22-20
Boone	28	Gravel	2.00	1,020	3-11-21	3-12-21
Boone	29	Gravel	2.00	1,020	11-26-20	12-4-20
Boone	30	Gravel	2.00	1,020	1-5-21	1-17-21
Boone	32	Gravel	2.00	1,280	2-7-21	2-8-21
Boone Vista	1	Gravel	8.50	5,440	4-12-21	7-12-21
Boone Vista	2	Gravel	4.00	2,560	6-23-21	7-12-21
Boone Vista	3	Gravel	1.00	640	6-23-21	7-12-21
Boone Vista	4	Gravel	1.50	640	6-23-21	7-12-21
Boone Vista	5	Gravel	5.50	3,520	7-19-21	8-25-21
Boone Vista	6	Gravel	1.00	640	7-19-21	8-25-21
Boone Vista	7	Gravel	2.25	1,400	7-19-21	8-25-21
Boone Vista	8	Gravel	2.00	1,280	8-12-21	8-25-21
Boone Vista	9	Gravel	1.10	640	8-12-21	8-25-21
Boone Vista	10	Gravel	4.75	3,040	8-12-21	8-25-21
Boone Vista	11	Gravel	3.50	2,240	8-12-21	8-25-21
Boone Vista	12	Gravel	2.00	1,280	8-12-21	8-25-21
Boone Vista	13	Gravel	4.00	2,560	8-12-21	8-25-21
Calhoun	17	Gravel	2.00	3,760	8-2-21	8-4-21
Calhoun	31	Gravel	5.00	6,400	8-2-21	8-4-21
Cerro Gordo	1	Gravel	9.00	14,720	9-6-21	9-12-21
Dallas	3	Gravel	1.00	1,280	3-15-20	1-28-21
Dallas	4	Gravel	5.00	7,040	3-15-20	1-28-21
Dallas	5	Gravel	2.50	5,120	5-19-20	1-28-21
Dallas	8	Gravel	4.00	2,840	8-8-21	9-12-21
Dallas	9	Gravel	2.50	1,760	8-8-21	9-12-21
Dallas	10	Gravel	3.80	2,680	8-8-21	9-12-21
Dallas	11	Gravel	3.00	3,200	8-8-21	9-12-21
Dallas	12	Gravel	8.00	4,000	8-8-21	9-12-21
Dallas	13	Gravel	6.02	4,000	8-8-21	9-12-21
Dallas	14	Gravel	1.25	820	8-8-21	9-12-21
Floyd	4	Gravel	9.00	11,820	3-14-21	4-11-21
Floyd	5	Gravel	2.00	3,840	3-14-21	4-11-21
Floyd	9	Gravel	2.00	2,560	3-14-21	4-11-21
Floyd	10	Gravel	4.00	6,220	3-14-21	4-11-21
Floyd	12	Gravel	5.00	9,600	3-14-21	4-11-21
Franklin	13	Gravel	3.25	5,200	12-24-20	2-28-21
Greene	2	Gravel	4.75	3,360	12-20-20	1-3-21
Greene	3	Gravel	2.00	2,560	12-20-20	1-3-21
Greene	5	Gravel	2.00	1,280	9-7-21	9-26-21
Hancock	1	Gravel	2.65	4,800	9-23-20	4-1-21
Hardin	18	Gravel	6.00	7,680	11-8-20	11-1-20
Oacola	1	Gravel	13.25	25,000	1-3-20	12-6-20
Oacola	3	Gravel	3.25	6,640	10-5-20	12-6-20
Oacola	4	Gravel	3.00	5,760	12-1-20	12-6-20
Palo Alto	9	Gravel	6.00	4,160	5-4-21	5-6-21
Polk	2	Gravel	2.00	1,280	4-5-20	12-0-20
Polk	3	Gravel	8.15	13,000	8-30-20	12-3-20
Polk	5	Gravel	2.50	1,600	4-5-20	12-0-20
Polk	6	Gravel	4.80	5,360	11-22-20	12-0-20
Polk	7	Gravel	0.75	450	12-1-20	12-3-20
Sac	4	Gravel	7.00	4,480	4-5-20	3-8-21
Sac	5	Gravel	7.00	4,480	4-5-20	3-8-21
Sac	6	Gravel	4.50	2,880	4-5-20	3-8-21
Sac	7	Gravel	4.00	3,760	12-1-20	3-8-21
Sac	8	Gravel	2.25	1,440	6-6-21	6-11-21
Story	35	Gravel	4.75	3,040	12-13-20	1-6-21
Story	36	Gravel	4.00	2,840	6-30-21	7-1-21
Story	38	Gravel	1.00	640	8-12-21	8-25-21
Story	39	Gravel	2.50	1,440	8-12-21	8-25-21
Webster	2	Gravel	2.00	2,840	2-8-21	2-16-21
Winneshiek	1	Gravel	8.50	9,760	12-6-20	12-20-20
Totals	62		250.87	257,490		

## CHAPTER VII

## Department of Road Design

## Summary.

Previous to 1921 the total mileage of primary road surveys was 2,584 miles. During the 1921 season surveys were made on 1,005 miles, bringing the grand total mileage of surveys on the primary road system to 3,589, or approximately 55 per cent of the total state primary road system. Previous to 1921 plans had been completed for 1,768 miles. During 1921 plans were prepared for 1,455, bringing the grand total of mileage of plans prepared to 3,223 miles. The 1921 survey mileage would reach three and one-half times across Iowa on the Sioux City-Dubuque Air Line and the 1921 plan mileage would cover this same air line distance five times. In addition to the plan mileage above indicated the department checked and approved plans for 263.6 miles submitted by county engineers for county and township road work.

## Duties.

The duties of the department are to make all road surveys and road plans for the improvement of the primary road system and to check and approve all county and township road plans submitted by the county engineers.

The survey force is necessarily somewhat elastic and is increased or decreased to suit the needs of the program. As the 1921 season advanced it was found desirable to increase the survey program so that at the close of the season there were at work thirteen parties of seven men each and three parties of four men each. The survey men work under the direct supervision of the district engineer, although they are finally held responsible to this department.

The survey work so carried out during the 1920 season proved to be very satisfactory and it was decided to continue the 1920 party organization.

As in the previous year whenever it was found necessary to make use of the county engineering organizations pay rolls and expenses of such parties were paid by the Highway Commission.



The plan force is handled on the squad system. In the central office each squad consists of from two to five men, one of whom, the squad chief, is responsible to the head of the department for all work assigned to the squad. In the district offices the district road designer, working under the district engineer, is responsible for the preparation of plans. Through the summer months the district force is small, there being in most cases only one or two helpers for the designer.

At the close of the field season such men on the survey and construction forces as it is necessary to keep to complete the necessary mileage of road plans are moved to their respective district offices where they assist on the plan work until the field season opens in the spring.

The women's drafting division assists in both the road and bridge work. The division is developed by bringing in as apprentices, young women who wish to learn office engineering work. Through the apprentice period they are paid a nominal salary which is increased as they develop in usefulness. At the close of the apprentice period, the length of which depends on the ability of the apprentices, they are classed as draftswomen and given regular assignments on road or bridge work, at the central office, or with one of the district offices where they work under the district road designer. The work of this division has proved to be very satisfactory. Quite a number of the women have shown surprising aptitude on engineering work and the great majority of drawings made by the Commission's force is the work of the women.

The bulk of the plan work is done in the district offices. After all computations are made, but before the grade lines and estimates of quantities are permanently placed on the plan sheets, an examination is made of the project by the district engineer, county engineer, an engineer from the central office, and in the case of a Federal Aid project, an engineer from the office of the Federal District Engineer. The plans are carefully compared with existing conditions on the road and all errors, omissions and recommendations are noted. The plans are then completed in the central office in accordance with the field notations and are submitted to the various officials whose approved signatures are required.

#### Surveys.

Prior to December 1, 1920, surveys had been completed on 2,584 miles of the primary road system. During the 1921 season surveys were completed on seventy-six projects for a total of 936.65 miles (see Schedule No. 16) and surveys were begun but not completed on twelve projects, totaling 248.8 miles (see Schedule No. 17), of which 152.2 miles were completed. The total mileage of primary roads surveyed during 1920 was 1,005 miles.

#### Primary Road Plans.

Prior to December 1, 1920, plans had been completed for 1,768 miles. During 1921 plans were completed for 1,455 miles, bringing the grand total of plans completed on the primary road system to 3,223 miles. (See Schedule No. 18.) Plans were begun but not completed on forty-six projects, totaling 520.5 miles of which 323.1 miles were completed (see Schedule No. 19).

#### Secondary Road Plans.

During the year this department checked and approved plans for 263.6 miles of county and township roads which were submitted by the county engineers for approval. The following data in regard to such plans handled during 1921 is of interest:

Miles of plans checked and approved.....	263.55
Average original maximum grade.....	6.16 %
Average final maximum grade.....	3.46 %
Average original rise and fall.....	53.63 ft.
Average final rise and fall.....	41.55 ft.
Total earthwork .....	1,548,782 cu. yds.
Average earthwork per mile.....	5,876.60 cu. yds.

#### SCHEDULE NO. SIXTEEN

PROJECTS ON WHICH SURVEYS WERE COMPLETED IN 1921.

County	Project Number	Mileage
Floyd .....	P63	2.0 Relocation at Nora Springs
Plymouth .....	P68	5.0 Relocation Wren to Merrill
Plymouth .....	P74	13.7
Woodbury .....	P119	7.5
Pottawattamie .....	P21	20.0
Pottawattamie .....	P22	10.0
Cass .....	P47	17.0
Jefferson .....	P129	7.0
Bremer .....	F88	5.0 Resurveys
Humboldt .....	F117	10.0 Resurveys and completion
Dallas .....	P119	9.0 Dexter-Redfield
Winnebago .....	P. R. System	5.0 Odd jobs
Sioux .....	P83	22.0
Van Buren .....	P118	18.0
Keokuk .....	P. R. System	27.0 Keokuk-Washington Investigation



## Schedule No. Sixteen—Continued

County	Project Number	Mileage
Clarke	P131	15.0
Henry	P135	13.0
Wapello	P134	18.0
Davis	P112	12.0
Boone	P134	6.5
Groene	P135	8.5
Cass	P130	4.5
Adair	P162	4.0
Guthrie	P162	2.0
Clinton	P125	17.5
Allamakee	P156	8.4
Jasper	P14	7.0 Relocations
Franklin	P105	1.0 Relocations at railroad crossings
Woodbury	P117	8.0
Woodbury	P145	3.5 Relocations
Union	F83	8.0
Jones	P81	21.0 15 miles previously surveyed
Jackson	P165	13.0
Allamakee	P155	16.0
Dallas	P110	11.0
Hancock	P106	25.0
Wayne	P127	10.75
Wayne	F91	5.0 Relocations and topog. surveys
Poweshiek	P137	24.0
Chickasaw	P121	19
Cherokee	P151	23
Adubon	P130	2.5
Lee	P149	55
Jackson	P166	12
Winnebago	F98	5 Reloc. and stadia surveys
Allamakee	P167	14
Allamakee	P150	2 Relocations
Jasper	P64	8.0 Relocations
Butler	P107	18.5
Lyon	P140	12.5
Osceola	P107	16.5
Clayton	F74	5.5 Relocations
Wright	P200	9.5
Franklin	P168	12.0
Plymouth	P189	19.5
Shelby	P154	13.5
Madison	P173	18.5
Washington	P130	29.0
Iowa	P130	25.1
Scott	F185	3.2
Winnebago	P121	18.0
Fayette	P142	8.5
Taylor	F81 B	7.0 Relocations between New Market and Bedford
Mitchell	P128	13.0
Crawford	P209	4.5
Monona	P28	1.5
Louisa	P75	11.0
Scott	F135	3.5 Add. topog. surveys to be made for Wapsie bridge
Scott	P204	5.0
Fayette	P145	15.0
Dubuque	F17	1.5 Extension into city of Dubuque
Clayton	F70	12.5 Relocations
Des Moines	P136	17.0
Tama	P140	29.0
Crawford	F8	17.0
Polk	P115	4.0
Total		930.65

## SCHEDULE NO. SEVENTEEN

## PROJECTS ON WHICH SURVEYS WERE BEGUN BUT NOT COMPLETED DURING 1921.

County	Project No.	Total Length	Mileage of Surveys Completed
Harrison	P172	16.0	12.8
Worth	P215	25.0	17.2
Howard	P105	22.0	22.4
Sioux	P223	16.0	12.8
Guthrie	P192	27.0	22.9
Page	P171	27.0	24.5
Louisa	P179	7.0	5.5
Jefferson	P229	19.0	7.5
Dubuque	P144	4.0	5.4
Grundy	F148	15.5	8.8
Cedar	P123	24.0	18.0
Cedar	P114	32.5	1.7
Total		248.5	192.2

## SCHEDULE NO. EIGHTEEN

## PROJECTS ON WHICH PLANS WERE COMPLETED IN 1921.

County	Project Number	Miles
Kossuth	P68 A	11.5
Louisa	F35	25.2
Marion	P75 ABC	14.0
Fayette	F59	37.0
Allamakee	P113	3.5
Cherokee	P98	11.5
Buena Vista	P95	4.0
Cass	F44	19.0
Worth	F124	8.5
Clayton	F74 BDE	27.2
Page	P27	24.0
Jackson	F21	18.2
Shelby	F42 B	13.0
Warren	F11	16.4
Tama	F47	30.0
Pocahontas	P90	15.0
Madison	P26	22.5
Calhoun	P107	7.2
Calhoun	P56	21.1
Webster	P111	7.0
Webster	F108	5.2
Sac	F105	18.9
Poweshiek	P41 A	15.9
Story	F72 A	9.75
Greene	P24 ABCD	16.0
Sac	F86	1.5
Monona	P28 B	12.1
Calhoun	P96	22.75
Webster	F25	9.9
Jasper	F64 C & D	12.1
Howard	F93	11.0
Pocahontas	P61	14.78
Chickasaw	F76	14.5
Mitchell	F45	18.5
Dallas	P23 C & D	16.05
Polk	P40	0.75
Monona	P28 C	19.8
Wright	F19	8.25
Iowa	P90	26.0
Cedar	F27	22.55
Taylor	F21 A	5.68
Sioux	P97	1.0

Schedule No. Eighteen—Continued

County	Project Number	Miles
Mahaska	P70 B & C	17.5
Lee	P68	8.57
Grundy	P48	19.44
Bremer	P88	17.8
Johnson	P38	18.0
Jones	P80	2.07
Delaware	P109	12.44
Dubuque	P147 A	23.40
Humboldt	P117	40.75
Jones	P86	24.33
Audubon	P22 B & C	17.31
Hardin	P88	26.14
Washington	P4	8.96
Pottawattamie	P71	21.84
Carroll	P92	9.95
Floyd	P141	21.40
Winneblesh	P83 A	2.5
Kossuth	P08 A & B	14.0
Delaware	P6 A	11.0
Cass	P150	12.6
Adair	P150	3.13
Boone	P132	3.28
Marshall	P134	6.9
Appanoose	P13 A & B	6.95
Muscatine	P76	10.5
Monroe	P87	20.0
Pottawattamie	P78 B & C	6.0
Scott	P81	20.1
Jefferson	P50 A & B	12.8
Pottawattamie	P130	6.8
Harrison	P22 B	9.2
Crawford	P34	18.1
Plymouth	P8	15.4
Worth	P38 A	12.1
Winnebago	P161	52.4
Hancock	P120	22.4
Story	P178	0.5
Adair	P72 B	12.0
Plymouth	P28 B	4.1
Clay	P29	29.4
Clarke	P55	6.4
Lyon	P51	12.1
Butler	P85	16.3
Warren	P71	11.4
Ida	P4 B & C	8.5
Franklin	P101	13.1
Oceola	P105 B	0.5
Grundy	P160	10.5
Black Hawk	P163	8.2
Floyd	P164	7.9
Hamilton	P65 A	5.6
Polk	P79	19.0
Franklin	P115	4.1
Pottawattamie	P190	10.6
Jasper	P22 A	11.2
Ringgold	P77 A & B	10.6
Clinton	P123 A,B,C	8.8
Humboldt	P117	16.7
Adair	P117	1.0
Lyon	P102	1.0
Allamakee	P174	23.0
Webster	P169	0.5
Oceola	P94	16.0
Fayette	P201	0.5
Ida	P143 B	5.3
Buchanan	P93	9.8
Lucas	P53	11.3
Plymouth	P63 E	16.0
Grundy	P71	13.2
Jasper	P19	1.8
Hamilton	P180	12.1
Dallas	P196	14.9
	P194	16.0

Schedule No. Eighteen—Continued

County	Project Number	Miles
Dallas	P195	11.0
Adair	P28	0.6
Kossuth	P6 B	13.1
Adams	P90	12.7
Union	P81	0.5
Carroll	P14	0.75
Scott	P55 C	3.9
Scott	P55 B	14.0
Warren	P44 A	7.9
Woodbury	P119	7.0
Greene	P153	8.5
Total		1,011.35

## SCHEDULE NO. NINETEEN

PROJECTS ON WHICH PLANS WERE BEGUN BUT NOT COMPLETED DURING 1921.

County	Project No.	Total Length	Mileage of Plans Completed
Marion	P75 D & E	9.0	8.1
Mahaska	P70 A	12.5	10.6
Guthrie	P21 B	8.0	8.5
Miller	P37	8.0	8.5
Dubuque	P17	1.3	1.1
Sioux	P83	22.0	18.7
Scott	P124	5.2	4.9
Winneblesh	P08 C & D	13.2	11.2
Hancock	P139	25.8	21.4
Osceola	P22	17.0	15.3
Cass	P47	17.0	9.8
Scott	P124 B	7.0	6.0
Wapello	P54	17.0	15.3
Wayne	P91 E	4.7	4.0
Wayne	P127	15.5	7.7
Monroe	P78 A	2.0	1.7
Monroe	P58 D	9.8	0.7
Taylor	P81 B	13.0	11.0
Scott	P135	3.0	2.0
Clayton	P74 A & C	4.4	3.7
Jasper	P77 C & D	16.5	1.7
Jasper	P64 A & B	8.7	.9
Jasper	P64 E	9.6	7.7
Poweshiek	P41 B	7.5	1.5
Poweshiek	P137	15.0	0.7
Marshall	P13	7.0	5.8
Chickasaw	P131	19.1	2.1
Floyd	P86	2.55	2.2
Cerro Gordo	P80	5.5	4.7
O'Brien	P69	28.3	15.3
Monroe	P28 C	1.5	0.3
Audubon	P28 C	8.0	3.6
Montgomery	P65	15.0	12.5
Fremont	P84	15.0	12.7
Shelby	P154	10.0	0.5
Guthrie	P52	14.0	11.9
Keokuk	P122		
Van Buren	P118	16.0	13.6
Henry	P125	8.5	5.7
Davis	P112	12.0	4.8
Jones	P81	21.5	10.8
Clayton	P70	24.3	7.3
Winneblesh	P121	14.86	8.9
Fayette	P143	2.5	1.9
Kossuth	P6 C	12.0	9.0
Union	P83	13.2	5.3
Total		520.52	323.1



## CHAPTER VIII

## Department of Road Construction

This department has charge of Federal Aid, Primary Road, Primary Bridge Projects, all construction and maintenance work on State Institutional roads, and the receipt, storage and distribution of excess war equipment assigned to this state by the federal government.

On December 1, 1920, work was under construction on ninety-seven projects located in sixty-seven counties. Additional contracts were let and work placed under construction as the season progressed until on December 1, 1921, work was under way on one hundred and fifty-one projects in ninety-two counties. In addition fifty-four projects in thirty counties had been completed and retired from the books during the year. One project had been completed and retired previous to December 1, 1920, making a total of fifty-five projects completed and retired to date.

The work has been so distributed that every county in the state, except one, has had one or more projects completed, or has one or more under way.

During 1921 the following construction work was completed on Federal Aid and Primary Road Projects:

Paving .....	165.36 miles
Graveling .....	367.69 miles
Grading .....	1,050.88 miles
Tiling .....	5,416,528 feet

On the State Institutional roads 49,009 square yards of paving, or the equivalent of 4.65 miles of eighteen-foot roadway, were laid; 4.75 miles of roadway were resurfaced with gravel; 2,100 lineal-feet of guard rail were constructed, and 22 miles maintained under the patrol system.

Of the paving built at state institutions, 36,819 square yards were built in accordance with Chapter 207, Acts of the Thirty-ninth General Assembly, which provides for the construction of such pavement within cities.

Government equipment to the value of \$510,186.42 was received during 1921. The total value of equipment received from the Government up to December 1, 1921, is \$2,820,088.00.

During the year the counties have been allotted equipment valued at \$563,425.00. The Executive Council and the Board of Control have been allotted trucks and equipment valued at \$13,000.00.

## Conditions Affecting Construction Work.

Contract prices on all construction work have been materially lower than in 1920. Grading prices are fully 50 per cent lower than in 1920 and paving prices from 10 to 25 per cent lower.

All classes of labor have been plentiful, more efficient and cheaper than in 1920. At no time during the season has there been a shortage of sand, gravel or cement, or freight cars for hauling the same. In fact, during the entire season delays caused by shortage of cars or materials has been almost negligible.

At the beginning of the season a maximum construction program was outlined consisting of 165 miles of paving, 800 to 1,000 miles of grading and 250 miles of graveled roads. Conditions have been so favorable that the anticipated program has been exceeded.

## Construction Work Carried Over Into 1921.

On December 1, 1920, work was under construction on ninety-seven projects located in sixty-seven counties. These projects involved the following uncompleted work:

Paving .....	112.9 miles
Graveling .....	119.5 miles
Grading .....	423.8 miles
Tile drains .....	1,212,000 lin. ft.

Work on these projects was continued in 1921 and practically all of them were completed and retired.

## Construction Work Completed During 1921—(Refer to Schedule No. Twenty).

During 1921 the following construction work was completed on Federal Aid and Primary Road projects:

Paving .....	165.36 miles
Graveling .....	367.69 miles
Grading .....	1,050.88 miles
Tiling .....	5,352,238 lin. ft.

## Construction Work Carried Over Into 1922.

During 1921 contracts were let on 109 Federal Aid and Primary Road projects. (Refer to Schedule Eleven and Twelve.) Contracts for graveling work were let more rapidly than the work was completed. Contracts for grading were let at about the same rate that the work was completed. Very few contracts were let for paving. On December 1, 1921, construction work was under way on one hundred and fifty-one projects located in ninety-two counties. These projects included the following uncompleted work:



Paving .....	5.68 miles
Graveling .....	142.67 miles
Grading .....	413.27 miles
Tile drains .....	520,381.00 lin. ft.

This work is being carried over into the 1922 working season.

#### Projects Completed and Retired.

Since the inception of roadwork under the Primary Road Law of 1917, there has been completed and retired fifty-five federal aid and primary projects. All these projects, except Federal Aid No. 1, in Cerro Gordo County, were retired during the year 1921, although in several instances the major part of the work was done prior to this year.

The retired projects are as follows:

County	Project Number	Mileage	Nature of Work
Black Hawk	F-25	4.06	Grading, paving and draining
Black Hawk	P-51		Draining only
Black Hawk	F-62		Draining only
Boone	P-61		Draining only
Buena Vista	P-1	24.52	Grading, graveling and draining
Buena Vista	F-37	12.84	Graveling and draining
Calhoun	P-5	4.00	Graveling and draining
Calhoun	P-16	10.00	Graveling and draining
Calhoun	F-10	18.30	Graveling and draining
Carroll	P-141		Draining only
Cerro Gordo	F-1	4.07	Grading and paving
Cerro Gordo	F-61	6.06	Grading, paving and draining
Cerro Gordo	P-115	22.07	Grading, paving and draining
Cherokee	P-98	11.50	Grading, graveling and draining
Cherokee	F-116	14.03	Grading
Chickasaw	F-35	13.17	Grading, graveling and draining
Dallas	P-12	16.89	Grading and draining
Des Moines	P-36	2.35	Grading, paving and draining
Dickinson	P-55	1.59	Grading and draining
Emmet	F-49		Grading only
Floyd	F-41	12.30	Grading, paving and draining
Floyd	F-73		Draining only
Fremont	P-84	1.00	Grading
Hamilton	P-17	5.04	Graveling and draining
Hancock	P-178	0.49	Grading, paving and drainage
Lyon	P-110	22.81	Grading
Montgomery	P-16	16.50	Grading
Oscola	P-15	22.54	Grading
Pocahontas	P-7	5.87	Grading and draining
Pocahontas	P-20	12.00	Grading, graveling and draining
Pocahontas	P-90	9.91	Grading, graveling and draining
Pocahontas	P-91	15.34	Grading, graveling and draining
Polk	P-3	4.25	Grading
Polk	F-104	0.52	Grading, paving and draining
Polk	F-122	6.35	Grading
Pottawattamie	F-46	2.65	Grading
Poweshiek	P-41	15.92	Grading and draining
Sac	P-30	7.15	Graveling and draining
Sac	P-11	11.24	Graveling and draining
Sac	P-12	14.17	Graveling and draining
Sac	P-20	1.50	Graveling and draining
Scott	F-54	8.45	Grading and draining
Scott	F-114	17.24	Grading, paving and draining
Sioux	P-26	3.50	Grading, paving and draining
Sioux	F-28	24.20	Grading
Sioux	F-67	3.00	Grading

County	Project Number	Mileage	Nature of Work
Sioux	F-94	2.94	Grading and paving
Story	P-62		Draining only
Story	P-133	4.50	Graveling
Webster	F-13	6.00	Grading, graveling and draining
Webster	P-108	2.50	Graveling and draining
Webster	P-111	7.03	Graveling
Winnebago	P-2	15.44	Grading, graveling and draining
Winnebago	F-30	7.45	Grading, graveling and draining
Wright	F-29	14.67	Grading, graveling and draining

#### Projects Ready to be Retired.

On the following forty projects which are still carried on the active list, the actual work of construction has all been finished and the projects will be retired as soon as they are inspected and accepted by the representatives of the United States Bureau of Public Roads.

County	Project Number	Mileage	Nature of the Work
Adams	F-26	9.95	Grading
Appanoose	F-27	11.00	Grading
Benton	F-28	17.80	Grading, paving and draining
Boone	F-45	22.08	Grading, graveling and draining
Calhoun	P-95	4.00	Grading, graveling and draining
Calhoun	P-97	5.20	Graveling and grading
Carroll	F-99	8.96	Grading and draining
Clarke	F-33	8.45	Grading and draining
Davis	F-50	10.22	Grading and draining
Deauster	P-8	0.80	Grading
Delaware	F-4	12.62	Grading and draining
Des Moines	F-21	4.80	Grading, paving and draining
Dickinson	F-68	4.80	Grading, paving and draining
Dubuque	P-17	21.20	Grading and draining
Dubuque	P-147		Draining only
Emmet	P-57		Draining only
Fremont	F-77	18.07	Grading
Greene	F-57	6.47	Grading, paving and draining
Hancock	P-94	9.20	Grading, paving and draining
Harrison	F-14	15.01	Grading
Henry	F-56	20.02	Grading and draining
Howard	F-31	10.48	Grading, graveling and draining
Jasper	F-44	12.11	Grading and draining
Jefferson	F-3	19.78	Grading and draining
Johnson	F-9	11.10	Grading and paving
Johnson	F-158	2.54	Grading and paving
Keokuk	P-34	11.63	Grading and draining
Linn	F-25	7.20	Grading, paving and draining
Linn	F-96	12.40	Grading and draining
Marion	F-7	* 77.30	Grading
Monroe	F-29	8.25	Grading
Muscatine	F-40	19.20	Grading and draining
O'Brien	F-43	22.45	Grading, paving and draining
Palo Alto	F-100	17.35	Grading, paving and draining
Polk	P-40	4.78	Grading, paving and draining
Polk	P-80	7.35	Grading, paving and draining
Union	F-80	14.50	Grading and draining
Wapello	F-42	10.50	Grading
Webster	P-25	16.00	Grading and draining
Woodbury	P-45	14.00	Grading, paving and draining

**Government Equipment Received.**

In a former report attention was called to a law passed by Congress in February, 1919, authorizing the war department to distribute to the State Highway Departments such surplus war equipment as was not needed for use of the army. The 1920 Annual Report listed in Schedule Twenty-two the total amount of equipment and material received. During 1921 Iowa received, under this law, equipment valued at \$510,186.42. A complete list of equipment received during the year will be found in Schedule Twenty-one.

**Cost of Government Equipment to the State.**

The cost of transporting such equipment to the state is paid by the Executive Council from the general state fund. The cost of erecting the necessary buildings, unloading, storing and handling was paid by the Highway Commission from its maintenance fund. These expenditures for the year December 1, 1920, to December 1, 1921, were as follows:

Executive Council for freight and packing...	\$19,248.48
Highway Commission for buildings and improvements .....	15,442.18
Highway Commission for unloading and storing .....	903.50
Total .....	\$35,594.16

**Assignment of Government Equipment.**

The Commission has continued the distribution of the government equipment started in 1919. During 1921 a total of eighty-seven trucks, valued at \$294,000.00 and forty-two tractors valued at \$162,000.00 were received by the state.

Eighty-seven trucks valued at \$386,900, forty-six tractors valued at \$168,000.00 and wagons to the value of \$8,500.00 have been distributed to the counties of the state. Two trucks valued at \$4,000.00 and fifty sets of double harness have been assigned for work at state institutions, and two trucks valued at \$6,500.00 have been assigned to the Executive Council.

All trucks and tractors assigned to the counties during the past year are used for primary road and bridge maintenance only. Schedule Twenty-two shows the general assignment of equipment made during the year.

**Storage for Government Equipment.**

In 1919 four storage buildings were erected for the purpose of providing shelter for unassigned equipment allotted the state by the Federal Government. As anticipated, these buildings provided about half the space actually required so that it became necessary to construct two additional buildings. During the season six aeroplane hangars were received from the Government, three of which have been erected to provide storage space equivalent, approximately, to two storage buildings. This additional storage space is still inadequate to care for all material to be stored and it is contemplated that the three remaining hangars will be erected next season.

Some improvements and additions have been made in connection with the buildings erected in 1919. A repair shop in one building has been equipped with modern machinery some of which was allotted by the Federal Government, the balance purchased by the state. Very few of the counties of the state are adequately equipped to repair the trucks assigned them. Many of these county trucks are repaired and put in first class condition before sending them out. The expense of this repair is borne by the county to which the truck is assigned.

**Equipment Released—(Refer to Schedule No. Twenty-three).**

During the year ten trucks and one tractor which had heretofore been assigned to the counties or to other state departments were released by the officials to whom they had been assigned. Two of these trucks had become unserviceable. Others were not required or were unsuited to the work. Seven of these trucks were re-assigned to other counties, the other four are stored at the truck sheds at Ames. The Commission issued to the Executive Council two Nash Quad two-ton trucks in exchange for the two Federal three and one-half ton trucks which have been used for the past two years on the Capitol grounds.



## SCHEDULE NO. TWENTY

WORK DONE IN 1921

County	Project	Work Done in 1921							Per Cent Completed	
		Tiling		Grading		Graveling		Paving		
		Ln. Ft.	Miles	Cu. Yds.	Miles	Cu. Yds.	Miles	Sq. Yds.		
Adair	P-28	22,167	11.15	157,100					84.3	
Adair	P-102		3.25	95,400					72.4	
Adams	25		3.29	87,100					100.0	
Allamakee	P-29	10,972	2.30	22,750					84.3	
Allamakee	P-112	2,705	3.38	27,775					35.2	
Appanoose	27		0.54						100.0	
Ashtabula	28		2.86	69,000					16.4	
Benton	26	34,431	19.37	92,729			8.88	94,073	100.0	
Black Hawk	P-51	9,415							100.0	
Black Hawk	62	7,348							100.0	
Black Hawk	P-164	38,344	4.18	84,242					59.5	
Boone	63	48,981	5.20	12,321	10.06	19,301			100.0	
Boone	P-124	82,327	13.69	71,258	12.30	18,486			96.0	
Boone	P-134	51,307	6.90	45,417	8.15	4,814			71.7	
Bremer	86	71,811	8.07	65,565					82.2	
Buchanan	8	29,150							41.8	
Buchanan	P-91	873							4.9	
Buena Vista	P-18	45,325	.55	2,450	19.74	24,232			100.0	
Buena Vista	27	8,768		2.66	9,000				100.0	
Buena Vista	P-60	25,510		3.48	5,306				89.0	
Butler	80	65,178	8.08	26,073	11.32	16,982			87.3	
Butler	P-71	9,405							4.8	
Calhoun	70	4,501			.52	9,288			100.0	
Calhoun	P-16				4.00	8,782			100.0	
Calhoun	P-92	57,157	2.99	16,722	4.00	7,562			100.0	
Calhoun	P-96	53,630		5.50	7,000				100.0	
Calhoun	P-107	21,840	2.81	4,700					67.4	
Carroll	99	2,700	8.95	112,000					100.0	
Carroll	P-14	240	9.45	90,000					84.1	
Carroll	P-141	38,750							100.0	
Cass	P-150		2.46	62,700					100.0	
Cerro Gordo	61	44,583	9.92	9,719					66.8	
Cerro Gordo	113		9.80	28,337			13.14	138,677	100.0	
Cherokee	136	4,915	11.00	71,064					100.0	
Cherokee	P-98	18,209	1.00	6,968	11.50	16,425			100.0	
Chickasaw	25	5,206			2.27	1,541			100.0	
Chickasaw	70	87,884	14.32	114,220	11.56	21,233			94.9	
Clarke	P-21	6,559	0.95	12,800					8.0	
Clarke	26	2,973	3.15	35,000					100.0	
Clay	P-36		.10	3,500					3.9	
Clayton	74	42,320	30.00	125,300					74.4	
Clinton	18	39,384	14.26	68,329			17.35	179,058	99.0	
Clinton	P-125	39,960	3.66	69,050					50.0	
Crawford	P-8	448	.49	10,000					4.2	
Dallas	12	9,307							100.0	
Dallas	P-32	88,085	15.08	98,962	7.14	10,709			98.0	
Dallas	P-106				16.32	24,486			97.0	
Dallas	P-194				19.39	11,911			97.7	
Dallas	P-196	53,000							60.9	
Davis	50		10.22	147,444					100.0	
Delaware	4	7,444	.12	693					100.0	
Delaware	103	32,080	5.04	23,583					29.7	
Delaware	P-159		8.55	36,365	9.40	11,838			74.4	
Des Moines	P-35	4,264	4.70	17,074			4.80	22,561	100.0	
Des Moines	P-55		0.10				2.36	24,800	100.0	
Dickinson	P-98		4.80	9,620			4.80	51,651	100.0	
Dubuque	17	60,603	10.70	71,341					100.0	
Dubuque	P-147	79,180							100.0	
Emmet	P-57	87,604		6,700					100.0	
Fayette	20	216,345	29.49	134,150			0.97	10,700	94.4	
Floyd	41	420	.32	4,000					100.0	
Floyd	P-72	9,143							100.0	
Floyd	P-62	30,003	5.56	36,601			5.45	57,501	99.8	
Franklin	P-46	54,115	9.61	45,908					94.0	

## Schedule No. Twenty—Continued

County	Project	Work Done in 1921						Per Cent Completed		
		Tiling		Grading		Graveling			Paving	
		Lin. Ft.	Miles	Cu. Yds.	Miles	Cu. Yds.	Miles		Sq. Yds.	
Franklin	104	52,425		9.20	58,750	0.67	1,121		89.3	
Fremont	77			11.27	122,715				100.0	
Fremont	P-84			.39	11,798				100.0	
Greene	P-24	41,000		6.92	53,224				94.0	
Greene	39	4,025		1.56	4,244			5.42	56,072	
Grundy	10	43,843		12.17	62,169				86.0	
Grundy	P-48	96,150		12.80	118,800				72.2	
Grundy	P-163			12.30	200,000	3.45	5,180		59.7	
Guthrie	31	17,923		12.30					100.0	
Hamilton	P-17	27,656				4.52	6,843		100.0	
Hamilton	67	42,218		11.09	55,784				98.3	
Hamilton	P-79	35,649							10.0	
Hancock	94	92,591		16.05	49,298			9.80	104,420	
Hancock	P-178	2,591		.49	1,350			0.49	5,171	
Hardin	P-4	48,559		5.94	32,575	4.46	7,513		96.0	
Hardin	P-88	504,750		.61	6,900	30.25	38,940		100.0	
Harrison	14			1.45	32,849				100.0	
Henry	56	79,964		14.61	70,229				100.0	
Howard	31	70,111				4.16	8,070		100.0	
Howard	90			10.96	68,375	0.76	1,334		71.0	
Humboldt	45			0.90	9,301	0.48	861	0.25	27.32	
Humboldt	117	182,708		9.06	58,135	4.43	6,650		97.5	
Ia	80	12,000		10.48	90,025				96.0	
Ia	P-203					7.44	7,436		96.0	
Iowa	90	49,394		13.60	139,300				95.7	
Jackson	21	140		14.19	161,701				84.0	
Jaeger	64	22,500		12.11	95,611				100.0	
Johnson	9			1.53	10,847			1.10	13,371	
Johnson	P-35	13.60		107,678					74.4	
Johnson	P-97			1.49	31,901				95.8	
Johnson	128			1.08	6,980			2.54	27,145	
Jones	86	28,900		7.62	81,500				27.4	
Keeokuk	34	1,867		1.70	22,973				100.0	
Kossuth	P-6	75,000		10.98	54,816				90.3	
Kossuth	66	125,200		33.75	168,678				96.9	
Kossuth	111	77,520		.13	4,800				98.7	
Lee	P-68			5.00	40,000	6.04	18,120		71.8	
Linn	22			6.50	22,904			4.84	52,279	
Linn	90	21,467		6.82	32,888				100.0	
Louisia	58	71,000		20.00	301,000				98.6	
Lucas	P-65	5,000		9.21	180,560				96.0	
Lyon	60	4,066							2.8	
Lyon	110	45,005		22.47	105,710				100.0	
Lyon	P-174					11.50	17,254		45.2	
Madison	P-30			8.50	190,000				85.0	
Madaska	70	60,320		12.19	104,500				82.2	
Marion	75	8,795		13.45	197,300				99.0	
Marshall	P-13	9,250		5.22	29,000				49.7	
Marshall	22			5.08	11,900			5.90	62,670	
Mills	15			10.60	944,625				98.2	
Mitchell	45	133,872		18.19	122,340	15.55	20,500		96.7	
Monona	P-38			2.59	34,500				25.3	
Monroe	30			0.50	8,640				100.0	
Monroe	P-78			4.17	77,537				71.0	
Muscatine	46	23,546		12.61	134,154				100.0	
Muscatine	87	11,929		2.50	12,500	0.29	438		38.4	
O'Brien	43	42,419		20.11	69,980			21.49	227,240	
Osceola	P-15	25,868		13.50	58,562				100.0	
Osceola	P-100					5.60	8,400		79.7	
Page	P-27			21.83	371,000				96.0	
Palo Alto	109	63,518		1.65	16,150			9.01	93,704	
Plymouth	35	9,570		25.53	247,978				94.5	
Plymouth	P-74			2.04	18,500				100.0	
Pocahontas	P-7	44,800							99.6	
Pocahontas	P-30	64,331		3.88	30,441	10.75	17,225		100.0	
Pocahontas	P-90	115,445		9.61	45,362	4.05	6,347		100.0	
Pocahontas	P-91	87,275		1.00	8,096	15.96	24,170		100.0	



Schedule No. Twenty—Continued

County	Project	Work Done In 1921						Per Cent Completed
		Tiling	Grading		Graveling	Paving		
		Lin. Ft.	Miles	Cu. Yds.	Miles	Sq. Yds.	Miles	
Polk	P-1	2,050	0.34	4,300		0.96	11,224	58.4
Polk	P-3		0.50					100.0
Polk	P-40		4.78	14,494		4.78	56,538	100.0
Polk	P-59		3.55	17,543				100.0
Polk	P-72		1.00	3,510				90.0
Polk	80		7.35	11,091		5.90	65,205	100.0
Polk	P-122				6.33	10,352		100.0
Polk	104		2.05	6,742		1.42	16,670	100.0
Pottawattamie	46		0.18	4,321				100.0
Poweshiek	P-41	45,279	15.92	125,304				100.0
Ringgold	6		1.00	1,400				100.0
Sac	P-10				6.10	9,355		100.0
Sac	P-11	25,290			8.09	13,701		100.0
Sac	P-12	27,200						100.0
Sac	P-86	9,170			1.50	2,337		100.0
Sac	P-106	33,829			8.85	13,605		98.0
Scott	P-50	2,945	6.58	30,894		1.32	13,819	25.8
Scott	55	65,539	10.97	62,222				100.0
Scott	114		6.76	19,400		12.32	119,886	100.0
Shelby	P-42		14.38	295,033				88.6
Sioux	P-26	3,800	2.20	7,305		2.20	23,193	100.0
Sioux	28	7,142	5.80	43,708				100.0
Sioux	P-67		3.00	33,951				100.0
Sioux	84		0.26	3,220		1.03	11,150	100.0
Story	P-62	263,063						100.0
Story	72	117,882	2.08	23,000	4.15	6,254		48.3
Story	P-133				4.00	4,000		100.0
Tama	47	56,850	14.77	107,200				40.1
Taylor	81		5.59	94,170				95.0
Union	80	11,250	14.50	189,000				100.0
Van Buren	69	33,468	2.41	19,500				100.0
Wapello	42		2.40	22,616				100.0
Warren	11	9,600	11.70	145,000				72.4
Washington	71	24,321	12.80	105,503				62.3
Wayne	91	2,000	10.25	120,115				88.1
Webster	13	34,984		38,550	6.00	10,373		100.0
Webster	P-25	121,045	10.22	80,307				100.0
Webster	P-64	1,709						14.2
Webster	P-108	26,712			2.50	4,133		100.0
Webster	P-111				7.03	11,447		100.0
Winnebago	P-2	56,124	14.09	12,651	17.96	28,646		100.0
Winnebago	30	5,123			6.59	11,691		100.0
Winnebago	P-120	29,359						27.6
Winnebago	98	42,406	4.22	48,800				34.2
Woodbury	2		0.06	5,197				95.0
Woodbury	P-45	512	14.00	54,000		14.00	164,591	100.0
Woodbury	78		2.42	19,000		2.73	82,140	99.3
Worth	134	69,695	7.50	60,000				90.9
Worth	P-161	171,381						96.9
Wright	P-19	64,800	7.65	100,500	3.36	5,068		94.0
Wright	29	29,882	1.99	10,053	14.18	21,326		100.0
Total		5,416,528	1,050.88	8,859,805	397.69	575,699	165.36	1,787,811

SCHEDULE NO. TWENTY-ONE

DETAIL OF ASSIGNMENT OF GOVERNMENT EQUIPMENT, DECEMBER 1, 1920, TO DECEMBER 1, 1921 INCLUSIVE.

Location	Description	Value	
		Items	Total
Adair	1 F. W. D. truck	\$ 4,600	
Adair	1 Convoy wagon	100	\$ 4,700
Adams	1 F. W. D. truck	4,600	4,600
Allamakee	1 F. W. D. truck	4,600	
Allamakee	1 Holt tractor	4,600	
Allamakee	1 set wagon wheels	100	8,700
Appanoose	1 F. W. D. truck	4,600	
Appanoose	1 Convoy wagon	100	4,700
Benton	1 Holt tractor	4,600	4,600
Boone	1 F. W. D. truck	4,600	4,600
Bremner	1 Holt tractor	4,600	4,600
Buchanan	1 F. W. D. truck	4,600	4,600
Buena Vista	1 F. W. D. truck	4,600	
Buena Vista	1 set wagon wheels	100	4,700
Butler	1 F. W. D. truck	4,600	
Butler	1 Gray tractor	2,000	6,600
Calhoun	1 F. W. D. truck	4,600	
Calhoun	1 Packard truck	3,300	7,900
Carroll	1 Holt tractor	4,600	4,600
Cass	1 F. W. D. truck	4,600	
Cass	1 Holt tractor	4,600	
Cass	1 Convoy wagon	100	
Cass	1 set wagon wheels	100	8,800
Cerro Gordo	1 Lumber wagon	200	200
Cherokee	1 F. W. D. truck	4,600	
Cherokee	1 set wagon wheels	100	4,700
Cedar	1 Lumber wagon	200	200
Chickasaw	2 F. W. D. trucks	9,200	
Chickasaw	1 Nash Quad truck	2,500	
Chickasaw	1 Holt tractor	4,600	
Chickasaw	4 set wagon wheels	400	16,100
Clarke	1 F. W. D. truck	4,600	
Clarke	1 Convoy wagon	100	
Clarke	1 set wagon wheels	100	
Clarke	1 Lumber wagon	200	5,000
Clay	1 F. W. D. truck	4,600	
Clay	1 Holt tractor	4,600	8,600
Clayton	1 F. W. D. truck	4,600	
Clayton	1 Holt tractor	4,600	8,600
Clinton	1 F. W. D. truck	4,600	
Clinton	1 Holt tractor	4,600	
Clinton	2 Lumber wagons	400	9,000
Crawford	2 F. W. D. trucks	9,200	9,200
Dallas	1 F. W. D. truck	4,600	
Dallas	1 White truck	4,300	
Dallas	1 Holt tractor	4,600	12,900
Davis	1 F. W. D. truck	4,600	
Davis	1 Holt tractor	4,600	
Davis	1 Convoy wagon	100	
Davis	1 set wagon wheels	100	8,800
Decatur	1 Holt tractor	4,600	
Decatur	1 Lumber wagon	200	
Decatur	1 set of wagon wheels	100	4,300
Delaware	1 F. W. D. truck	4,600	4,600
Des Moines	1 F. W. D. truck	4,600	
Des Moines	1 Lumber wagon	200	4,800
Dickinson	1 F. W. D. truck	4,600	
Dickinson	1 Holt tractor	4,600	8,600
Dubuque	1 F. W. D. truck	4,600	
Dubuque	1 Holt tractor	4,600	8,600
Fayette	1 F. W. D. truck	4,600	4,600
Floyd	1 Packard truck	3,300	
Floyd	1 Peerless truck	2,700	
Floyd	1 Lumber wagon	200	
Floyd	1 set wagon wheels	100	6,300
Fremont	1 F. W. D. truck	4,600	4,600

## Schedule No. Twenty-one—Continued

Location	Description	Value	
		Items	Total
Greene	1 F. W. D. truck	4,000	4,000
Guthrie	1 F. W. D. truck	4,000	4,000
Hamilton	1 F. W. D. truck	4,000	4,000
Hancock	1 Holt tractor	4,000	
Hancock	1 Convoy wagon	100	4,100
Hardin	1 F. W. D. truck	4,000	
Hardin	1 Mogul tractor	1,000	
Hardin	1 Convoy wagon	100	
Hardin	1 set wagon wheels	100	5,300
Harrison	1 Four wheel drive truck	4,000	
Henry	1 Holt tractor	4,000	8,000
Henry	1 Holt tractor	4,000	
Henry	1 Convoy wagon	100	
Henry	1 set wagon wheels	100	4,200
Howard	1 F. W. D. truck	4,000	
Howard	1 Holt tractor	4,000	
Howard	1 Lumber wagon	200	
Ida	1 set wagon wheels	100	8,000
Iowa	1 F. W. D. truck	4,000	4,000
Jackson	1 F. W. D. truck	4,000	4,000
Jackson	1 Holt tractor	4,000	
Jackson	1 set wagon wheels	100	3,700
Jasper	1 F. W. D. truck	4,000	
Jasper	1 Holt tractor	4,000	8,000
Jefferson	1 Lumber wagon	200	
Jefferson	1 set wagon wheels	100	300
Johnson	1 F. W. D. truck	4,000	
Johnson	1 Lumber wagon	200	
Johnson	1 Forge	25	4,825
Jones	1 F. W. D. truck	4,000	4,000
Keokuk	1 F. W. D. truck	4,000	
Keokuk	1 Holt tractor	4,000	
Keokuk	1 Lumber wagon	200	
Keokuk	1 set wagon wheels	200	
Keokuk	1 Commerce truck	1,700	10,000
Kossuth	1 F. W. D. truck	4,000	
Kossuth	1 Holt tractor	4,000	8,000
Lee	1 Lumber wagon	200	300
Lee	1 set wagon wheels	100	
Linn	1 F. W. D. truck	4,000	
Linn	1 White truck	4,300	
Linn	1 Holt tractor	4,000	12,300
Louis	1 F. W. D. truck	4,000	
Louis	1 Lumber wagon	200	
Louis	1 set wagon wheels	100	4,300
Lucas	1 Convoy wagon	100	100
Lyon	2 F. W. D. trucks	9,200	
Lyon	1 Holt tractor	4,000	
Lyon	1 Convoy wagon	100	13,300
Madison	1 F. W. D. truck	4,000	
Madison	1 Convoy wagon	100	4,700
Mahaska	1 F. W. D. truck	4,000	
Mahaska	1 Convoy wagon	100	4,700
Marion	1 F. W. D. truck	2,000	2,000
Mitchell	1 Gray tractor	2,000	2,000
Monona	1 Convoy wagon	100	
Monona	1 Holt tractor	4,000	5,300
Monroe	1 Lumber wagon	200	
Monroe	1 Convoy wagon	100	
Monroe	1 set wagon wheels	100	4,400
Montgomery	1 Nash Quad truck	2,500	
Montgomery	1 Holt tractor	4,000	
Montgomery	1 set wagon wheels	100	6,700
Muscatine	1 Nash Quad truck	2,500	
Muscatine	1 Holt tractor	4,000	
Muscatine	1 Lumber wagon	200	6,700

## Schedule No. Twenty-one—Continued

Location	Description	Value	
		Items	Total
O'Brien	1 Four wheel drive truck	4,000	4,200
Oswella	1 F. W. D. truck	4,000	4,000
Page	1 White truck	4,300	
Page	1 Holt tractor	4,000	
Page	1 Convoy wagon	100	
Page	1 set wagon wheels	100	8,500
Palo Alto	1 F. W. D. truck	4,000	4,000
Plymouth	2 F. W. D. trucks	9,200	
Plymouth	1 F. W. D. truck	4,000	13,000
Pocahontas	1 Holt tractor	4,000	
Pocahontas	1 Denby truck	1,000	6,200
Polk	1 F. W. D. truck	4,000	
Polk	1 White truck	4,300	
Polk	1 Gray tractor	2,000	10,300
Pottawattamie	1 F. W. D. truck	4,000	4,000
Poweshick	1 Holt tractor	4,000	4,000
Sac	1 F. W. D. truck	4,000	
Sac	1 Federal truck	4,300	
Sac	1 White truck	4,300	
Sac	1 Holt tractor	4,000	16,800
Scott	1 F. W. D. truck	4,000	4,000
Shelby	1 F. W. D. truck	4,000	
Shelby	1 Holt tractor	4,000	
Shelby	1 Convoy wagon	100	
Shelby	1 set wagon wheels	100	8,800
Sioux	1 F. W. D. truck	4,000	
Sioux	1 Holt tractor	4,000	
Sioux	1 Convoy wagon	100	8,700
Story	1 F. W. D. truck	4,000	
Story	1 Mogul tractor	1,000	5,000
Taylor	1 F. W. D. truck	4,000	4,000
Van Buren	1 F. W. D. truck	4,000	
Van Buren	1 Holt tractor	4,000	
Van Buren	1 Convoy wagon	100	
Van Buren	1 set wagon wheels	100	8,800
Wapello	1 Lumber wagon	200	
Wapello	1 set wagon wheels	100	300
Warren	1 F. W. D. truck	4,000	4,000
Washington	1 F. W. D. truck	4,000	
Washington	1 Nash Quad truck	2,500	
Washington	1 Lumber wagon	200	7,300
Wayne	1 F. W. D. truck	4,000	
Wayne	1 Holt tractor	4,000	
Wayne	1 Convoy wagon	100	
Wayne	1 set wagon wheels	100	8,800
Webster	1 F. W. D. truck	4,000	4,000
Winnebago	1 Holt tractor	4,000	
Winnebago	1 Titan tractor	2,000	
Winnebago	1 Lumber wagon	200	
Winnebago	1 set wagon wheels	100	6,300
Winnebago	1 F. W. D. truck	4,000	
Winnebago	1 Holt tractor	4,000	
Winnebago	1 set wagon wheels	100	8,700
Woodbury	1 F. W. D. truck	4,000	
Woodbury	1 Holt tractor	4,000	8,000
Worth	1 F. W. D. truck	4,000	4,000
Wright	1 F. W. D. truck	4,000	
Wright	1 Nash Quad truck	2,500	
Wright	1 Holt tractor	4,000	
Wright	1 Titan tractor	2,000	13,100
Edora Hospital	1 Light Aviation truck	2,000	2,000
St. Pleasant Hospital	1 Light Aviation truck	2,000	2,000
Executive Council	2 Nash Quad trucks	5,000	6,500
Board of Control	50 sets double harness	2,500	2,500
Total			\$ 570,425

The above schedule shows assignments made during 1921 only. See Schedule No. 24 of the 1920 Annual Report for assignments made prior to this date.



## SCHEDULE NO. TWENTY-TWO

GOVERNMENT EQUIPMENT RECEIVED DECEMBER 1, 1920 TO DECEMBER 1, 1921, INCLUSIVE.

Released by	Description	Reason	Disposition
Cedar	One Kelly-Springfield 3½-ton	Not required	Reassigned to Mills county
Decatur	One Denby 2-ton	Not required	Reassigned to Pocahontas county
Ida	One Nash Quad 2-ton	Unserviceable	Reassigned to Montgomery county
Keokuk	One Nash Quad 2-ton	Too heavy	Reassigned to Washington county
O'Brien	One Packard 3-ton	Exchanged for F. W. D.	Reassigned to Calhoun county
Pottawattamie	One Sterling 2½-ton	Unserviceable	Retained in reserve
Warren	One Holt 16-ton tractor	Not required	Reassigned to Muscatine county
Washington	One Commerce 1-ton	Too light	Reassigned to Keokuk county
Elkhart School	One Federal 3½-ton	Too heavy exchanged for Light Avia. 1-ton	Retained in reserve
Executive Council	One Federal 3½-ton	Too heavy, exchanged for two Nash Quad 2-ton trucks	Retained in reserve

## SCHEDULE NO. TWENTY-THREE

GOVERNMENT EQUIPMENT RECEIVED DECEMBER 1, 1920 TO DECEMBER 1, 1921, INCLUSIVE.

Description	Quantity	Value
Aprons, carpenters	7	\$ .30
Bars, plow	11	5.50
Bars, wrecking	7	1.75
Bit braces, plain	13	29.50
Bit braces, ratchet	10	20.00
Bits, assorted	75	19.50
Blocks, 8" single pulley	6	12.00
Blocks, 6" double pulley	6	12.00
Blocks, 8" single pulley	6	12.00
Blocks, 8" double pulley	6	12.00
Block, swage, blacksmith	1	10.00
Brace, trench	1	8.00
Caliper, slide pocket	1	.50
Can-hook	48	48.00
Canvas covers, wagons	21	210.00
Canvas covers, tractor	25	1,040.00
Cars, Dodge passenger	24	19,390.00
Chests, steel tool	10	50.00
Chests, floor tool	1	2.00
Chisels, miscellaneous	50	50.00
Chisels, sets carpenter	30	150.00
Chisels, gouge	8	8.00
Chisel handles, leather tipped	24	8.00
Dies and taps, No. 40 sets	9	900.00
Drill braces (Miller Falls)	27	40.50
Emery cloth, sheets	160	3.30
Gauges, feeler	8	16.00
Grinders, tool	8	24.00
Hack-saw frames	24	24.00
Handles, pick	1,309	217.50
Handles, hammer	51	15.00
Handles, hatchet	49	12.00
Handles, saw	27	6.75
Hammers, claw	109	109.00
Hammers, sledge (heads only)	46	46.00

## Schedule No. Twenty-three—Continued

Description	Quantity	Value
Hangars, portable aeroplane	4	5,600.00
Hatchets, claw (heads only)	34	42.00
Hatters, gasoline	1	15.00
Hose, 2" suction, feet	780	780.00
Knives, jack	36	36.00
Lathes, bench	3	30.00
Levels and plumbs	24	170.00
Levels, engineers	5	250.00
Levels, hand	3	15.00
Line, chalk, feet	1,200	9.00
Micrometer, set	1	40.00
Motor, electric, 1 H. P.	5	250.00
Nail puller	2	2.00
Parts, Nash Quad trucks, tons	20	10,000.00
Parts, Packard trucks, tons	1	100.00
Paste for soldering, cans	16	1.00
Pendul, carpenter	82	2.60
Picks and handles	688	1,082.00
Planes, block	10	5.00
Planes, floor 18" iron	1	3.00
Planes, rabbit	1	4.00
Pots, fibre	2	4.00
Pumps, power	1	250.00
Pumps, tire	13	13.00
Pyrene	50	300.00
Rope, coils	20	305.00
Sand paper, sheets	96	15.32
Saws, buck	2	4.00
Saws, hand, 26"	20	140.00
Saws, 28" rip	28	155.00
Saws, 5 point	23	61.00
Saws, key hole	42	21.00
Screw drivers	40	24.50
Sheaves, single 12"	5	5.00
Scarifier	1	900.00
Shovels	600	750.00
Snipe, thinners	23	11.50
Snipe, bolt No. 2	1	3.00
Shellac, quart cans	158	74.00
Spades	400	600.00
Sprinkling wagons (Austin)	1	400.00
Spoke shaves	8	8.00
Squares, steel	54	108.00
Tanks, 15 gal. capacity	14	70.00
Tanks, 8 gal. capacity	6	24.00
Tire setter, hydraulic	1	300.00
Tires, H. B. P. O.	300	4,500.00
Tires, pneumatic casings	47	470.00
Tires, pneumatic tubes	172	344.00
Tongs, pairs	2	1.00
Torches, tinner	2	15.00
Tractors, Holt 10-ton	40	160,000.00
Tractors, Mogul 10-ton	2	2,000.00
Transits, engineers	4	400.00
Trucks, F. W. D. 3-ton, serviceable	17	51,000.00
Trucks, F. W. D. 3-ton, unserviceable	9	9,000.00
Trucks, Liberty 3-ton, serviceable	58	232,000.00
Trucks, Liberty 3-ton, unserviceable	1	2,000.00
Truck spare parts, Liberty, tons	19	5,000.00
Tool, sets carpenter	29	600.00
Wheelbarrows	18	180.00
Wrenches, monkey	75	150.00
Winches, hand	2	100.00
Total		\$ 510,186.42

The above list, together with the list shown in Schedule No. Twenty-two of the 1920 Annual Report comprises the complete list of all Government equipment received to date.



## CHAPTER IX

### Department of Road Maintenance

#### Summary.

During 1921 the primary road law was amended permitting the expenditure of primary road funds for the maintenance of bridges and culverts on the primary road system. The Commission has therefore, endeavored to maintain the primary road bridges and culverts with the same care as they have maintained the primary roads. Aside from this the Commission's policy regarding maintenance is the same as last year. It has endeavored to keep all of the primary roads smooth and safe for travel.

The chief activities of the Commission in road maintenance have been general supervision of the maintenance work on the primary road system; the adjustment of forty-nine complaints; the collection of data for, and the preparation of a map showing the condition of the primary road system December 1, 1921; the adoption of several new maintenance forms; the completion of a full set of corrected maps; the compiling of a maintenance budget of \$2,437,000.00; the compiling of a table showing the use being made by the counties of Government trucks assigned them; the writing of a number of maintenance form letters on vital maintenance points, and the approval of contracts for \$79,445.00 of maintenance work.

#### Complaints.

During the fiscal year fifty-six complaints were filed with the Commission. The complaints were divided among the different road systems as follows:

Primary system .....	11 complaints
County system .....	5 complaints
Township system .....	40 complaints

All the primary road complaints have been adjusted, and only two county road complaints, and five township complaints are now pending. This makes a total of forty-nine complaints investigated and adjusted.

Schedule No. Twenty-four shows the number of complaints filed and adjusted in the different counties. A comparison of the number of complaints filed during the last three years is as follows:

1919 .....	114 complaints
1920 .....	128 complaints
1921 .....	56 complaints

The total number of complaints filed with the Commission since 1913 is one thousand and two.

#### Primary Road Condition Map.

Annually the Commission collects the data for and prepares a map showing the condition of the primary road system on December 1st. The roads are classified as follows: First, paving; second, gravel; third, built to permanent grade; and fourth, not built. The mileage of the primary road system in each of the above named classes was on December 1, 1921, "paving"—two hundred and thirty-six miles, "gravel"—one thousand fifty-six and six-tenths miles, "built to permanent grade"—one thousand four hundred forty-seven and eight-tenths miles, and "not built"—three thousand seven hundred seventy-five and six-tenths. A copy of the condition map is appended hereto. A comparison of this map with the condition map filed with the 1920 report shows graphically the location and the extent of the construction work accomplished during the year.

#### New Maintenance Forms.

Forms number 364 and 365 were adopted during the year and form number 357 was revised. Form number 364 is a Gang Maintenance monthly progress report. Form number 365 is a Summary Maintenance progress report. Due to changes in the Primary Road Law made by the Thirty-eighth General Assembly it was necessary to revise form number 357. New blanks were sent to all counties about April 1, 1921.

#### County Maps.

Early in 1921 the tracings of the county maps were completed. These maps have proved very economical. They are easily corrected and kept up to date. With a correct tracing always on hand it has not been necessary to carry a large stock of maps which become obsolete as soon as changes are made.

After the close of the 1921 construction season blue printed maps were sent the district engineers and all primary road changes due to construction, were shown thereon. The official maps were then corrected to date. The tracings for the ninety-nine county maps cost a total of \$1,245.22 or an average of \$12.58 per county.

**Maintenance Budget.**

The 1921 Maintenance Program was definitely outlined early in the year by the various county engineers and district engineers. These estimates were revised and submitted to the Commission by the maintenance engineer.

On March 31st the final budget was passed, the grand total being \$2,275,000.00. It has since been found necessary to make slight increases in the budget for twenty-eight counties. Schedule No. Twenty-five shows the budget including all additions to December 1, 1921. The total revised budget is \$2,437,000.00.

Note: For a statement of maintenance expenditures from the above budget see Schedule No. Sixty-seven, Chapter XIV. The total amount spent for maintaining the primary road system from November 30, 1920, to November 30, 1921, was \$2,264,692.51.

**County Use of Government Trucks.**

In order to determine exactly what use was being made of the government trucks assigned to the various counties, blanks were sent to the county engineers and a classification of this work was made.

It was found that a number of trucks are not in use. A large part of this idle time is accounted for by bad weather or lay ups for repairs. However, there are about seventy-one trucks which are not being used by the counties to which they were assigned. An endeavor will be made in the near future to re-assign these trucks so that they will be put to good use.

**Maintenance Letters.**

Maintenance inspection trips in different parts of the state impressed upon the maintenance engineer certain common defects in county maintenance. The attention of the county engineers was called to these practices by special maintenance letters with accompanying blue prints. Suggestions for the correction of these defective practices were included in the letters. Four such letters were sent out during the year.

**Contract Approval.**

Most of the maintenance work on the primary system is being done by day labor, but some work has been let by contract by the counties. Contracts have been approved by the Commission for \$79,445.00 of maintenance work.

**CHAPTER X****Work of District Engineers and Assistant District Engineers****Summary.**

During the year the district engineers and assistant district engineers spent 4,931.5 days assisting the various counties in highway work. They attended bridge lettings for the construction of 3,801 bridges, costing \$4,395,000.00. Sixty-four road lettings (other than Federal Aid) for 461 miles of road work, costing \$989,645.00, were attended. Profiles for 258 miles of county road were examined and approved. They attended one hundred sixty-three lettings on Federal Aid or Primary Road projects, for 1,563 miles at which contracts were awarded amounting to \$7,966,859.00. 1,647.5 days were spent on preliminary engineering work; 1,199.5 days on construction engineering work, and 348.5 days on maintenance. Investigation of proposed charges in the county and primary systems required 47.5 days, the elimination of danger at railroad crossings 76.5 days, and general administrative work 1,612.0 days. The district engineers' time for the last three years, classified as to kind of work follows:

	1919	1920	1921
<b>Primary System:</b>			
Preliminary engineering, road work	500	1,085	1,092.5
Construction engineering, road work	105	616	1,078.0
Preliminary engineering, bridge work			278.0
Construction engineering, bridge work			75.5
Alterations in primary road system	35	81	22.0
Maintenance		206	330.5
Railroad crossings			68.0
<b>Secondary System:</b>			
Preliminary engineering, road work	104	104	80.0
Construction engineering, road work	101	23	17.0
Preliminary engineering, bridge work	*305	537	196.0
Construction engineering, bridge work	*163	77	29.0
Alterations in county road system	18	36	25.5
Maintenance	56	22	18.0
Railroad crossings	*21	49	8.5
General administrative work	88	98	1,612.0
Examination of emergency work	2		
<b>Total</b>	<b>1,510</b>	<b>2,994</b>	<b>4,931.5</b>

\*No bridge or railroad crossing work paid from primary funds prior to 1921.



## Organization.

The organization of the district offices is unchanged from 1920. Some changes have been made in the personnel. A. J. Van Sise, Assistant District Engineer in District No. 4, resigned December 15, 1920, and C. D. Weller was appointed to fill the vacancy. H. O. Hickok was appointed Assistant District Engineer in District No. 1, February 1, 1921. The appointment of V. G. Gould as Assistant District Engineer in District No. 9 was made June 16, 1921.

## Summary of Field Work for District Engineers and Assistant District Engineers.

Schedule No. Twenty-six shows the disposition of time spent in each district, classified as to kind of work. A classification of the District Engineer's and the Assistant District Engineer's time as to counties is shown in Schedule No. Twenty-seven.

## SCHEDULE NO. TWENTY-FOUR

## ROAD COMPLAINTS.

County	Filed	Adjusted	County	Filed	Adjusted
Adair	2	2	Hamilton	6	0
Adams	1	1	Hancock	2	2
Allamakee	0	0	Hardin	0	0
Appanoose	1	1	Harrison	1	1
Audubon	0	0	Henry	0	0
Benton	1	1	Howard	0	0
Black Hawk	1	1	Humboldt	0	0
Boone	0	0	Ida	0	0
Bremer	2	2	Iowa	1	1
Buchanan	0	0	Jackson	1	0
Buena Vista	0	0	Jasper	1	0
Butler	0	0	Jefferson	0	0
Calhoun	0	0	Johnson	1	0
Carroll	0	0	Jones	0	0
Cass	0	0	Keokuk	1	1
Cerro Gordo	1	0	Kossuth	0	0
Cherokee	0	0	Lee	0	0
Cedar	1	1	Linn	4	3
Chickasaw	0	0	Louisa	0	0
Clarke	0	0	Lucas	1	1
Clay	0	0	Lyon	0	0
Clayton	0	0	Madison	1	1
Clinton	0	0	Mahaska	1	1
Crawford	0	0	Marion	0	0
Dallas	1	1	Marshall	0	0
Davis	1	1	Mills	0	0
Decatur	0	0	Mitchell	0	0
Delaware	1	1	Monroe	0	0
Des Moines	1	1	Montgomery	2	2
Dickinson	1	1	Montgomery	0	0
Dubuque	0	0	Muscatine	1	1
Emmet	0	0	O'Brien	0	0
Fayette	0	0	Osceola	0	0
Floyd	2	2	Page	0	0
Franklin	1	1	Palo Alto	0	0
Fremont	1	1	Plymouth	0	0
Greene	0	0	Pocahontas	1	1
Grundy	0	0	Polk	2	2
Guthrie	1	1	Pottawattamie	0	0

## Schedule No. Twenty-four—Continued

County	Filed	Adjusted	County	Filed	Adjusted
Poweshiek	2	2	Warren	3	3
Ringgold	1	1	Washington	0	0
Sac	0	0	Wayne	0	0
Scott	0	0	Webster	0	0
Shelby	0	0	Winnebago	0	0
Sioux	1	0	Winneshek	2	2
Story	0	0	Woodbury	0	0
Tama	1	1	Worth	0	0
Taylor	0	0	Wright	1	1
Union	1	1			
Van Buren	1	1	Total	56	49
Wapello	1	1			

## SCHEDULE NO. TWENTY-FIVE

## PRIMARY ROAD MAINTENANCE BUDGET JANUARY 1, 1921 TO JANUARY 1, 1922.

County	Mileage	Budget	County	Mileage	Budget
Adair	56.0	\$ 20,000	Johnson	71.5	40,000
Adams	35.2	13,000	Jones	58.5	18,000
Allamakee	84.3	36,000	Keokuk	90.0	23,000
Appanoose	57.1	20,500	Kossuth	90.1	40,000
Audubon	46.6	12,000	Lee	80.1	30,000
Benton	90.4	30,000	Linn	90.3	50,000
Black Hawk	78.0	31,000	Louisa	50.4	12,000
Boone	77.8	36,000	Lucas	57.2	19,000
Bremer	72.9	24,500	Lyon	67.7	16,000
Buchanan	46.9	13,000	Madison	55.0	21,000
Buena Vista	66.7	39,000	Mahaska	85.7	25,000
Butler	70.2	20,000	Marion	91.2	33,000
Calhoun	72.1	28,000	Marshall	40.7	15,000
Carroll	70.5	37,000	Mills	40.9	26,000
Cass	74.2	31,000	Mitchell	61.0	22,500
Cerro Gordo	54.4	19,500	Monona	77.1	19,000
Cherokee	75.4	20,000	Monroe	55.4	30,000
Cedar	76.1	21,000	Montgomery	91.8	33,000
Chickasaw	45.7	15,500	Muscatine	81.4	36,000
Clarke	45.5	19,000	O'Brien	74.3	20,000
Clay	54.0	33,000	Osceola	41.5	8,000
Clayton	103.2	25,000	Page	50.1	30,000
Clinton	90.5	28,000	Palo Alto	48.9	20,000
Crawford	82.3	22,000	Plymouth	119.0	33,500
Dallas	38.0	33,000	Pocahontas	54.6	15,000
Davis	45.4	21,000	Polk	91.1	36,000
Decatur	51.6	21,000	Pottawattamie	149.9	71,000
Delaware	45.5	12,000	Poweshiek	67.0	23,000
Des Moines	38.8	15,000	Ringgold	52.1	18,000
Dickinson	42.4	16,000	Sac	92.1	45,000
Dubuque	80.1	30,000	Scott	72.1	24,000
Emmet	41.6	20,000	Shelby	50.6	23,000
Fayette	95.9	28,000	Sioux	73.7	15,000
Floyd	67.3	24,000	Story	64.4	62,000
Franklin	41.9	15,000	Tama	70.0	24,000
Fremont	50.9	24,000	Taylor	40.2	16,000
Greene	72.0	25,000	Union	52.7	24,000
Grundy	61.2	16,000	Van Buren	46.0	14,000
Guthrie	73.0	22,000	Wapello	43.6	17,000
Hamilton	67.9	23,000	Warren	88.0	28,000
Hancock	47.5	14,000	Washington	90.0	28,000
Hardin	62.2	24,000	Wayne	33.0	19,000
Harrison	79.9	28,000	Webster	84.5	48,000
Henry	46.0	16,000	Winnebago	48.8	14,000
Howard	50.8	15,000	Winneshek	83.4	36,000
Humboldt	40.9	23,000	Woodbury	124.7	36,000
Ida	49.9	16,000	Worth	60.8	25,000
Iowa	67.4	27,000	Wright	58.0	22,000
Jackson	48.7	17,000			
Jasper	89.9	39,000	Total	6616.0	\$ 2,437,000
Jefferson	47.0	17,500			



## SCHEDULE NO. TWENTY-SIX

DISTRIBUTION OF DISTRICT ENGINEERS' AND ASSISTANT DISTRICT ENGINEERS' TIME ACCORDING TO CLASS OF WORK.

District Number	1 W. F. Beard H. O. Hickok	2 R. R. Zack T. R. Perry	3 E. W. Dunn E. Capel	4 L. M. Martin C. D. Weiler	5 J. S. Morrison W. J. Smith
Primary System:					
Preliminary engineering, road work	94.5	50.0	147.9	101.5	282.5
Construction engineering, road work	158.5	115.5	152.5	141.5	99.5
Preliminary engineering, bridge work	16.5	21.0	32.0	39.0	17.5
Construction engineering, bridge work	4.5	2.0	12.0	14.0	14.5
Alterations in primary road system		6.0	2.5	1.5	1.0
Maintenance	34.5	38.0	34.0	36.0	12.0
Railroad crossings		3.5	4.5	17.5	17.0
Secondary System:					
Preliminary engineering, road work	12.0	16.5	10.5		2.5
Construction engineering, road work	4.0	8.0	1.0		
Preliminary engineering, bridge work	13.0	20.5	34.5	18.0	36.0
Construction engineering, bridge work	2.0	9.0	6.5	4.0	
Alterations in county road system	4.0	4.0	5.5	2.0	2.0
Maintenance	2.0	2.0	1.0	6.0	5.0
Railroad crossings	3.5			1.0	0.5
General administrative work	117.0	272.0	144.5	142.0	112.0
Total	466.0	575.0	588.0	525.0	592.0

## Schedule No. Twenty-six—Continued

DISTRIBUTION OF DISTRICT ENGINEERS' AND ASSISTANT DISTRICT ENGINEERS' TIME ACCORDING TO CLASS OF WORK.

District Number	6 W. M. Lee L. S. Gates	7 J. A. Paulsen I. E. Goodrich	8 J. P. Reynolds A. A. Baustian	9 W. O. Price V. G. Gould	Total
Primary System:					
Preliminary engineering, road work	59.5	144.5	77.0	131.0	1008.5
Construction engineering, road work	112.5	68.0	150.5	78.5	1078.0
Preliminary engineering, bridge work	54.0	54.0	4.0	39.0	238.0
Construction engineering, bridge work	13.0	4.0		11.5	75.5
Alterations in primary road system	3.0	1.0	5.5	1.5	22.0
Maintenance	54.0	21.5	75.0	25.5	339.5
Railroad crossings	8.5	12.5	1.0	3.5	68.0
Secondary System:					
Preliminary engineering, road work	6.0	6.5	24.0	2.0	80.0
Construction engineering, road work		1.0	3.0		17.0
Preliminary engineering, bridge work	20.0	26.0	23.5	14.5	196.0
Construction engineering, bridge work	2.5	1.0	4.0		29.0
Alterations in county road system	1.0	5.0	1.0	1.0	25.5
Maintenance	0.5	1.0		0.5	18.0
Railroad crossings	1.0			2.5	8.5
General administrative work	243.5	229.5	227.5	123.0	1621.0
Total	589.0	575.5	596.0	425.0	4931.5

## SCHEDULE NO. TWENTY-SEVEN

DISTRIBUTION OF DISTRICT ENGINEERS' AND ASSISTANT DISTRICT ENGINEERS' TIME BY COUNTIES.

County	Days	County	Days
Adair	43.0	Johnson	21.0
Adams	27.5	Jones	32.5
Adams	32.0	Kookuk	45.0
Adams	23.0	Kossuth	41.5
Adair	21.0	Lee	40.5
Adair	32.0	Linn	32.5
Adair	34.5	Louis	29.0
Adair	44.0	Lucas	26.0
Adair	18.0	Lyon	28.5
Adair	23.0	Madison	37.0
Adair	33.0	Mahaska	48.0
Adair	26.5	Marion	21.5
Adair	33.0	Marshall	30.5
Adair	26.0	Mills	27.0
Adair	46.0	Mitchell	25.5
Adair	19.5	Monona	60.5
Adair	22.0	Monroe	15.0
Adair	26.0	Montgomery	10.5
Adair	19.5	Muscatine	51.5
Adair	23.0	O'Brien	37.0
Adair	30.5	Osceola	34.0
Adair	30.5	Page	34.0
Adair	47.5	Palo Alto	24.0
Adair	33.5	Plymouth	47.0
Adair	29.5	Pocahontas	45.5
Adair	21.5	Polk	35.0
Adair	13.5	Pottawattamie	54.5
Adair	12.0	Poweshiek	23.0
Adair	23.5	Ringgold	23.5
Adair	31.0	Sae	22.0
Adair	35.0	Scott	33.5
Adair	15.0	Shelby	31.0
Adair	44.0	Sioux	48.0
Adair	42.0	Story	25.0
Adair	24.0	Tama	42.5
Adair	28.5	Taylor	14.0
Adair	32.0	Union	30.5
Adair	29.0	Van Buren	45.0
Adair	39.5	Wapello	71.0
Adair	25.5	Warren	46.5
Adair	35.0	Washington	50.0
Adair	33.0	Wayne	25.5
Adair	31.0	Webster	44.5
Adair	35.5	Winnebago	20.0
Adair	22.5	Winneshek	60.0
Adair	50.5	Woodbury	87.5
Adair	38.0	Worth	34.5
Adair	30.0	Wright	30.0
Adair	45.5	Offices	1,603.0
Adair	39.0		
Adair	20.5	Total	4,931.5

## CHAPTER XI

### Roads at State Institutions

#### Organization.

The Iowa law provides that all roads within and adjacent to state lands shall constitute separate road districts under control and supervision of the Board of Control. The Board of Control of State Institutions has designated the Chief Engineer of the Highway Commission as Supervisor of State Roads, without additional compensation.

There are about seventy miles of road at the different state institutions which are maintained under this law.

#### Summary of Work During 1921.

Very little new work has been undertaken during the past year. Contracts which were unfinished during the preceding year have been completed and the roads have been maintained in as good shape as possible. At Cherokee, Independence, Woodward and Ames, regular patrolmen are employed. At the other institutions men are employed part time on the roads.

The Thirty-ninth General Assembly in Chapter 207 has provided that "whenever any city, town, or county is improving by draining, oiling, paving, or otherwise hard surfacing any street or road which extends through any property owned by the state, and under control of the Board of Education, or State Board of Control, the said property shall be and is hereby made subject to the cost of the improvement through said property. Whenever the state has property under control of either of the above boards abutting on one side of said street or road it shall be subject to not to exceed fifty per cent (50%) of the total cost of the improvement abutting thereon." \* \* \*

This act has been taken advantage of by the cities of Iowa City, Eldora, and Ames, to improve city streets abutting on state property.

#### Iowa State College—Ames.

Roads were maintained under the patrol system. Grading on the Lincoln Way near the Squaw Creek bridge was completed. One and three-quarter miles of road leading to the dairy farm

were given a second coat of gravel. One and a half miles of road were added to the system by the purchase of additional land.

#### Expenditures:

Earth work .....	\$4,294.70
Culvert .....	1,772.60
Surfacing cinders and gravel .....	2,296.40
Equipment, repairs and supplies .....	388.63
Engineering and supervision .....	173.11
Total .....	\$8,925.44

During the summer the City of Ames acting under Chapter 207, Acts of Thirty-ninth General Assembly, laid 28,940 square yards of concrete paving on the Lincoln Way fronting on college property. For this paving, upon approval by the Supervisor of State Roads, there has been paid by the Executive Council, from the general fund the sum of \$71,037.48.

#### State Reformatory—Anamosa.

Mr. H. A. Turner has been appointed as local road supervisor. The roads have been maintained with a tractor and home-made drag.

Dragging .....	\$ 303.44
Blade grader work .....	178.69
Culverts, metal .....	156.40
Equipment, repairs and supplies .....	34.43
Total .....	\$ 672.96

#### State Hospital—Cherokee.

The roads adjacent to state land were maintained under the patrol system. Paving authorized by the Thirty-eighth General Assembly was completed. Considerable extra work was necessary to remove a wet slide which developed on one of the hillsides. A surface ditch was dug to turn drainage water away from the slide. Several lines of tile were laid into the slide and the ditches filled with cinders in an effort to dry out the bank and make it stable.

#### Expenditures:

Paving .....	\$33,922.70
Earthwork .....	1,300.00
Tilling .....	443.60
Extras in connection with paving .....	594.95
Guard rail .....	536.59

Road repairs and surfacing.....	2,222.65
Dragging .....	88.26
Equipment, supplies and repairs.....	109.06
Engineering and supervision.....	1,190.48

Total .....\$40,408.29

#### State School for the Deaf—Council Bluffs.

Only routine work maintaining the roads has been done at this institution.

#### Expenditures:

Dragging .....	\$ 103.95
Repairs .....	336.98

Total .....\$ 440.93

#### Boys' Training School—Eldora.

The roads here have been well cared for by the inmates of the institution.

#### Expenditures:

Road repairs and surfacing.....	\$ 186.46
Engineering and supervision.....	33.62
Repairs .....	4.33

Total .....\$ 224.41

Acting under Chapter 207, Acts of the Thirty-ninth General Assembly, the City of Eldora laid 8,390 square yards of paving fronting on the institution grounds. For this paving, upon approval by the Supervisor of State Roads, there has been paid by the Executive Council, from the general fund the sum of \$21,638.77.

#### State Hospital—Independence.

Cinder roads have been maintained by a patrolman. A county drainage district has provided outlets for road drainage and will materially aid in keeping them in shape. Four new culverts were placed at farm entrances.

#### Expenditures:

Dragging .....	\$1,264.40
Surfacing with cinder.....	981.20
Road repairs .....	55.74
Equipment, repairs and supplies.....	155.60
Engineering and supervision.....	14.52

Total .....\$2,471.45

#### State University—Iowa City.

Two thousand two hundred twenty square yards of brick paving were laid in front of the Children's Hospital on the River-to-River road. This completed the contract with the Wm. Horrabin Company.

#### Expenditures:

Paving .....	\$11,629.98
Engineering and supervision.....	81.66

Total .....\$11,711.84

#### Training School for Girls—Mitchellville.

Roads have been maintained by institution forces.

#### Expenditures:

Surfacing with cinders.....	\$ 121.00
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#### State Hospital—Mount Pleasant.

Roads have been maintained by institution forces.

#### Expenditures:

Dragging .....	\$ 38.40
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#### State Sanitarium—Oakdale.

Roads have been cindered and maintained by institution forces. A survey and estimate are being prepared with a view to opening a road west of the farm which will provide an outlet to the paved road at Coralville.

#### Expenditures:

Surfacing with cinders.....	\$ 150.60
General supervision .....	10.00

Total .....\$ 160.60

#### Women's Reformatory—Rockwell City.

Roads at this institution have been cared for by the institution.

#### Expenditures:

Dragging .....	\$ 39.26
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#### Hospital and Epileptic Colony—Woodward.

Roads are maintained by a patrolman. Considerable gravel has been placed by him on the roads, and plans are under way for graveling three miles by contract.



## Expenditures:

Dragging and repairs.....	\$1,520.00
Surfacing, gravel .....	843.82
Equipment, repairs and supplies.....	109.26
General supervision .....	45.90

Total .....\$2,518.98

At all other institutions no expenditures are reported but roads have been maintained by institution forces.

## CHAPTER XII

## Drainage Investigations

The work of this division consists principally of studying the flow of Iowa's streams to determine reasonable rates of flood run-off to be used in the design of highway bridges and culverts. Other lines of work have been undertaken at times, such as assisting the Executive Council in the drainage of lake beds and on state park work.

## Stream Gaging Work.

A co-operative agreement has been continued by which the stream gaging work formerly carried on by the State Geological Survey, the State Highway Commission, and the United States Geological Survey, has been consolidated under the direction of Mr. E. D. Burchard, Hydraulic Engineer, U. S. Geological Survey, who devotes his entire time to this work in Iowa.

Twenty-seven regular gaging stations as shown by the following list, are maintained on the most important streams, where water stages are measured once or twice a day.

## MISSISSIPPI DRAINAGE

River	Town	County
Upper Iowa .....	Decorah .....	Winneshiek
Turkey .....	Garber .....	Clayton
Maquoketa .....	Maquoketa .....	Jackson
Shell Rock .....	Clarksville .....	Butler
Cedar .....	Janesville .....	Bremer
Cedar .....	Cedar Rapids .....	Linn
Iowa .....	Marshalltown .....	Marshall
Iowa .....	Iowa City .....	Johnson
Iowa .....	Wapello .....	Louis
Squaw Creek .....	Ames .....	Story
Skunk .....	Ames .....	Story
Skunk .....	Coppock .....	Henry
Skunk .....	Augusta .....	Lee
Raccoon .....	Van Meter .....	Dallas
Des Moines .....	Kalo .....	Webster
Des Moines .....	Boone .....	Boone
Des Moines .....	Des Moines .....	Polk
Des Moines .....	Ottumwa .....	Wapello
Des Moines .....	Keosauqua .....	Van Buren
Des Moines .....	Tracy .....	Marion

## MISSOURI DRAINAGE

Little Sioux .....	Correctionville .....	Woodbury
Boyer .....	Logan .....	Harrison
West Br. Nishnabotna .....	White Cloud .....	Mills
East Br. Nishnabotna .....	Red Oak .....	Montgomery
West Br. Nishnabotna .....	Village .....	Montgomery
Nodaway .....	Clarinda .....	Page
Grand .....	Davis City .....	Deatur

At these stations one hundred twenty measurements of the amount of water flowing were made. The daily flow at these stations has been computed and is available to anyone interested in these matters.

Three recording gages have been installed as follows:

Des Moines River at Kalo—Seven-day Gurley Graph.

Skunk River near Ames—Stevens Continuous.

Iowa River at Iowa City—Seven-day Gurley Graph.

Only two short periods of high water occurred during the year. Flood ratings were secured on the Upper Iowa and Turkey Rivers and checked at six other regular stations.

General climatic conditions were unusually warm and precipitation and run-off were somewhat above normal.

A complete census was made of water power plants having a capacity of 100 horsepower or more. Information was tabulated covering the location, head, number and type of wheels, power developed, and use. In all forty-eight plants were listed with a total horsepower rating of 173,200.

#### **Drainage and Sale of Lake Beds.**

At the request of the Executive Council a subdivision survey was made of the bed of Goose Lake in Greene County and descriptions of each tract of land were prepared for use in preparing patents.

#### **State Parks.**

A survey of additional property for the state park at Farmington has been made, advice and equipment furnished for the state park at Anamosa and surveys looking toward the establishment of a park in Wright County have been started.

## **CHAPTER XIII**

### **Department of Materials and Tests**

#### **Duties:**

The functions of this department are, (a) to inspect, test, and make sure that the materials used in all work done under the direction of the Highway Commission comply with the specifications and will produce good work, (b) to make surveys of the natural deposits of construction materials in the state, (c) to assist in the development of such natural resources, (d) to acquire information concerning available resources of raw material, and (e) to conduct experimental work and technical investigations.

During 1921 the department has inspected and tested the materials entering into 165 miles of pavement construction, 1,013 miles of tile drains, and 2,005 bridges and culverts on the primary road system. This has included detailed examination of approximately 3,635 cars of cement, 5,625 cars of sand, 8,819 cars of screened gravel and crushed stone, 5,040 cars of pit run gravel, 425 cars of paving brick, 80 cars of reinforcing steel, and 1,798 cars of drain tile.

In connection with the program of hard surface construction now under way, a principal problem which must be solved is the determination of proper methods of using the materials available within the state to the best advantage. The department of Materials and Tests is co-operating by investigating and assisting in the development of all possible sources of supply, and by carrying on research work to define proper methods of using the various materials found.

#### **Organization.**

The department is organized as follows under the Engineer of Materials and Tests: (a) Laboratory division under an Assistant Engineer of Materials and Tests, (b) Field division, under a Chief Material Inspector, and (c) Research division under the Engineer of Materials and Tests.

During 1921 the Laboratory division has operated permanent testing laboratories at Ames, Des Moines, Mason City, and Davenport, has inspected material at producing plants at Springfield, Albion and Galesburg, Illinois; Muscatine, Eddyville, Mt. Pleas-

ant, Correctionville, Gracettinger and Lake View, Iowa, and has operated portable testing cars in districts 1, 4, 5, and 8.

The Field division has operated temporary testing stations in connection with the Federal Aid and Primary Road projects in Sioux, Palo Alto, O'Brien, Polk, Dickinson, Greene, Marshall, Benton, Clinton, Des Moines, Johnson and Lee counties, has inspected 46 plants manufacturing drain tile and has made material resource surveys in 62 counties (refer to Schedule No. Twenty-eight).

The Research work has been carried on in co-operation with the other divisions and with the construction department. Much valuable data has been accumulated and will be studied during the winter. It is expected that the force of the department of Materials and Tests will be principally employed upon resource surveys and experimental work during the winter months.

#### Tests of Materials.

Tests have been made of 24,335 different samples of material. These tests are classified as follows according to the work on which the material was used:

Primary roads .....	21,080
Secondary roads .....	138
Bridges .....	453
General .....	2,664
Total .....	24,335

Schedule No. Twenty-nine shows the distribution of these tests according to the counties in which the materials were to be used. Schedule No. Thirty shows the laboratories and testing stations at which the various tests were made.

This testing of materials and insistence upon compliance with accepted standard specifications has prevented the inclusion in the work of defective material which would, had its defective character not been detected through careful tests, have been sufficient to spoil four miles of pavement, costing approximately \$140,000.00. The following amounts of different materials were rejected as not up to the accepted standards:

Cement .....	14,188 bbls.
Sand .....	2,199 tons
Gravel .....	4,613 tons
Crushed stone .....	1,320 tons
Steel .....	148 tons
Paving brick .....	360,000
Drain tile .....	317,794 lin. ft.
Pit run gravel .....	110 tons

Although this substantial saving resulted from the careful inspection given all materials still the value of the rejected material amounted to only 2.0 per cent of the value of the materials used. It appears that substantial progress has been made in raising the general quality and securing greater uniformity in the materials produced within the state. It is hoped that this percentage will decrease in coming years.

#### Material Resource Survey.

The survey of the material resources of the state has been actively continued during 1921. Undeveloped deposits have been examined in 62 counties.

During 1920 and 1921 new sources of concrete aggregate were investigated and later developed for eleven of the thirty paving contracts completed in 1920 and 1921. All of these projects have been successfully completed from these sources as originally recommended. Upon some of these contracts an actual money saving to the county can be shown. Upon the others the advantage lay in the accelerated progress of the work. Four of the gravel pits were actually found by the prospecting parties of the Highway Commission. The development of the others was only made possible through the co-operation of the Highway Commission. Three were developed by the counties, five by the paving contractors and three by outside interests.

The average price per mile for 52.93 miles of concrete pavement, upon which an actual money saving can be estimated was \$39,300 was compared with an average price of \$42,000.00 per mile for 111.61 miles let under the same market conditions and using commercial materials. This represents a saving of \$143,000.00 on 52.93 miles of pavement.

#### Experimental Work.

The experimental work carried on is all concerned with the solution of various problems in the design of pavements to better fit our local conditions and in the utilization of the natural resources of the state.

Investigation of the comparative quality and uniformity in the use of various classes of materials and mixtures was continued in 1921 through the making of test specimens from the concrete being used each day upon all paving projects. Six thousand seven hundred eight specimens were made this year.

Study of results of tests upon the specimens made during the



preceding season warrants the following conclusions, (a) that the standard specifications for the use of materials will provide concretes of equivalent crushing strength from the various types of materials of most economic value in each locality; (b) satisfactory uniformity can be secured from the use of unscreened gravel when properly handled.

Problems under investigation at the present time are as follows:

- Methods of testing cement.
- Effect of shale upon concrete.
- Proper method of using fine river sand.
- Methods of testing crushed stone.
- Transverse and tensile strength of various mixes and materials.
- Tests of lubricating oil.
- Tests of paint.
- Quality of concrete mixing water.
- Comparative wearing value of various Iowa materials.

#### Tests of Automobile Headlight Lenses.

In accordance with Chapter 275, Acts of the Thirty-eighth General Assembly, as amended by the Thirty-ninth General Assembly, the Highway Commission examined fifty-seven automobile headlight lenses. Of this number fifty were approved and seven were rejected. The fees collected and credited to the primary road fund amounted to \$1,425.00. While the major part of the work in connection with this work was done by the regular employees of the Commission with equipment borrowed from Iowa State College, it was necessary to pay from Highway Commission funds \$292.83 for extra help and supplies incident to lens testing. Of this amount \$250.00 was paid for the services of an illuminating engineer and \$42.83 for miscellaneous supplies. Time spent by regular employees amounted to approximately one man's time for two and one-half months.

#### SCHEDULE NO. TWENTY-EIGHT

SHOWING SCOPE OF WORK DONE IN INVESTIGATING MATERIAL RESOURCES OF THE STATE.

County	No. of days spent on reconnaissance and special investigations of material resources	No. of sources of supply examined	No. of samples tested
Allamakee	1	6	50
Benton	5	1	1
Black Hawk	1	1	1
Boone	2	2	2
Bremont	4	2	2
Buchanan	1	1	1
Butler	1	4	50
Carroll	2	1	1
Cass	1	1	1
Cedar	2	2	2
Cerro Gordo	1	1	1
Cherokee	1	12	65
Clayton	6	19	105
Clinton	8	1	8
Delaware	2	2	2
Des Moines	10	4	18
Dickinson	4	1	4
Dubuque	7	1	22
Emmet	1	2	15
Fayette	4	8	3
Floyd	6	8	33
Franklin	2	12	82
Fremont	2	1	1
Greene	8	2	8
Grundy	5	2	20
Hancock	9	9	68
Harlan	1	2	5
Harrison	1	2	0
Henry	1	2	4
Howard	1	1	4
Humboldt	5	17	45
Ia	2	7	15
Iowa	2	1	2
Jackson	7	2	53
Jasper	3	1	3
Johnson	3	1	8
Jones	1	3	4
Kossuth	3	11	55
Lee	8	1	8
Lincoln	1	1	1
Lyon	2	3	32
Mahaska	1	1	1
Marshall	3	1	8
Mitchell	2	2	6
Muscatine	1	1	1
O'Brien	10	1	5
Osceola	1	5	28
Palo Alto	2	1	3
Pocahontas	1	1	1
Polk	8	1	12
Sac	6	1	3
Scott	5	1	7
Sioux	4	2	7
Tama	2	6	8
Van Buren	2	1	2
Wapello	2	2	2
Washington	1	2	4
Winnebago	3	12	49
Winnesiek	2	7	29
Woodbury	3	1	6
Worth	1	1	2
Wright	1	1	1
Total	202	210	1,125

**SCHEDULE NO. TWENTY-NINE**  
**TESTS OF MATERIALS ACCORDING TO COUNTIES**

County in Which Used	For Use On				Kind of Material												Total, all materials
	Primary Roads		County or twp. roads	Bridges	General	Cement	Sand	Coarse aggregate	Pit-run gravel	Brick	Drain tile	Reinforcing steel	Corrugated metal	Oils, tars, asphalt	Stone	Paint	
	Project number	Number of samples															
Adair	B20-P29-B64-B23	7		12		4	10	1			2	2					16
Allamakee	P29-113	20			5	3			9		8	1					33
Audubon	B90			51		6	7	30	13		1	4					51
Black Hawk	FA58	1,263			1	158	428	643	18		13	4					1,264
Boone	P164-B77	16		1		2					15						17
Bremer	P33-P134-FA65	31	1		1				1		32						33
Buchanan	P36-FA5	19	2	17		7					30	1					38
Buena Vista	P86-49-P18	38			3			1	2		19						22
Butler	P71-FA85	50			13						41						41
Calhoun	P96-107-95-FA10	53	1		1			4	11		59						74
Carroll	P141	2									88						58
Cass	B61-P47	3															3
Cerro Gordo	Sec. 1 & 2-FA115	1,200	11	2	1	2	2					1					5
Cherokee	FA116-P98	17			1	252	302	641			14	3					1,212
Chickasaw	FA76	38	18		28	22	2	3	5		13						45
Clarke	PP31-FA33	8									56						56
Clay	PR10	16				1		5			7						8
Clayton	FA74	16	5								1						6
Clinton	P125-FA18	971			21			21			16						37
Crawford	B55	4				316		6	589		66	4					971
Dallas	P109-P195-P33	66				4					54						4
Day	FA36	1									1						65
Delaware	FA109	10							7		10						17
Des Moines	P52-FA32	838			7						4	2					838
Dickinson	FA68	650			1	179	228	291			4				139		651
Dubuque	FA147	29			22	181	284	182			29						311
Emmet	P57	35						21	1		29						51
Fayette	P143-FA59	87			1		1				36						36
											97						98
Floyd	P63-Sec. 1-14 FA41- Sec. 1-9	789	49			175	323	265			73	2					835
Franklin	FA105-P40	24				17	5	13			24						24
Fremont	FA77-B6-B1	27		14		17	5	13				5					41
Greene	P24-FA39	501		2		150	13	21	300		19						503
Grundy	FA19-P48-B32	30		8		6			1		19	2					28
Guthrie	B12-FA51	7		2		1		1	1		5	1					9
Hamilton	PP79-FA67	14									14						14
Hancock	PP178-FA94	1,112				272	417	389			32	2					1,112
Hardin	P4 & 88	18	1		5				5		19						24
Henry	FA56	20			4			4			20						24
Howard	FA31-FA66	33	1		1						31	1					34
Humboldt	FA117-FA48	94			6						88						94
Ida	FA80-PP101	10			1			1			9	1					11
Iowa	FA90-B19	97		18		12	2	4	78		16	3					115
Jackson	FA21	3				2									1		3
Jasper	FA64-B34	5		7			1	3			8						12
Johnson	FA9 & 128	511				62	160	205			2	2			80		511
Jones	FA-86-B38	18		6	2	1			6		17	1			1		26
Keokuk	FA34	2									2						2
Kossuth	FA66-PP6	110			4						114						114
Lee	PP68	597			2			2			9						599
Linn	FA82	692	1		79	160	406	3			4				588		694
Louisa	FA53	24			1						25						25
Lucas	FA83	3									3						3
Lyon	P85-FA110	28			7			6	1		29						35
Madison	B5			6			3	2	1								6
Mahaska	FA70-B37	52		9	2	1	1	4	10		46	1					62
Marion	FA75	1									1						1
Marshall	FA33	820			107	213	189				5	2			178		829
Mills	FA15-B11	7		19		12	12	2									29
Mitchell	FA45	61	5								65						66
Monona	B48	9		8	1	7			11								18
Monroe	FA20	2			1			1			2						3
Muscatine	FA57	16			1				1		16						17
O'Brien	PA43	3,238	1		1	404	107	212	1,722		19	9			767		3,240
Osceola	P13	15			2			1	1		15						17
Page				1													1
Palo Alto	FA109	1,175			2	195		1	980		1	1					1,178
Plymouth	FA38	3			1				1		3						4
Pocahontas	P91-90-20 & 7	162									162						162
Polk	FA30-FA104 P50-72-40	1,249		36	281	437	561				3	3					1,285
Pottawattamie	FA46-P21 & 22	3			3												3
Poweshiek	P41	19				4					15						19
Ringgold	B47			3					2								3
Sac	PP166-12-11-P36	49			13			2	9		51						62



## Schedule No. Twenty-nine—Continued

138

IOWA STATE HIGHWAY COMMISSION

County in Which Used	For Use On					Kind of Material											Total, all materials
	Project number	Number of samples	County or twp. roads	Bridges	General	Cement	Sand	Coarse aggregate	Fit-run gravel	Brick	Drain tile	Reinforcing steel	Corrugated metal	Oils, tars, asphalt	Stone	Paint	
Scott.....	P50A-FA114-B18	1,266		40	2	210	290	179	3	425	41	2		23	135		1,308
Shelby.....	B16	33		19		9	10	7	16			1					43
Sioux.....	P-36-FA84	280	4	9	1	81	1		203		5	1				3	294
Story.....	FA72-P32 Ames paving	173		3	313	88	179	190	3		29						480
Tama.....	FA47-B35	46		6	8	4			7		46	3					60
Taylor.....	FA81-B17	8		6		5			7			2					14
Union.....	FA83	5									5						5
Van Buren.....	FA67	2									2						2
Warren.....	FA11	2			1						3						2
Washington.....	FA71	3			4						7						3
Webster.....	P45-64-108	61			2						83						63
Winnebago.....	P120-2-FA30	23									26						26
Winneshek.....	FA98-B53	16									19	3					54
Woodbury.....	P45-FA78	2,075	2	11	25	8	1	21	2		19	3					54
Worth.....	P161-FA134	79			2	389	686	992	1		1	8					2,077
Wright.....	B35-P19	35	30	10	12	10			8		79						79
Miscellaneous.....		7	6	172	2,095	1,037	27	656	322		69						87
Total.....		21,080	138	433	2,684	4,794	4,310	6,174	4,374	425	2,074	91	18	74	1,977	54	24,335
Estimated percentage selected.....						1.83	1.15	3.19	.06	8.01	5.93	11.35			1.94		

## SCHEDULE NO. THIRTY

TESTS MADE IN THE VARIOUS LABORATORIES AND TESTING STATIONS

	For Use On					Kind of Material												Total, all materials
	Number of samples	County or twp. roads	Bridges	General	Cement	Sand	Coarse aggregate	Pit-run gravel	Brick	Drain tile	Reinforcing steel	Corrugated metal	Oils, tars, asphalt	Stone	Paint			
																Primary Roads		
A—Permanent Laboratories																		
Ames .....	939	22	78	1,061	1,136	142	178	240	—	169	91	18	51	31	54	2,100		
Davenport .....	2,280	—	62	117	955	417	538	45	26	85	—	—	23	379	—	2,468		
Des Moines .....	1,739	—	302	788	1,227	536	648	285	—	113	—	—	—	—	—	2,800		
Mason City .....	4,637	116	11	718	1,415	1,106	1,945	1	—	1,075	—	—	—	—	—	5,542		
Totals .....	9,604	138	453	2,604	4,723	2,301	3,309	571	26	1,442	91	18	74	410	54	12,919		
B—Field Testing Stations																		
Benton county .....	558	—	—	—	—	278	275	5	—	—	—	—	—	—	—	558		
Cass county .....	97	—	—	—	—	25	40	32	—	—	—	—	—	—	—	97		
Clinton county .....	531	—	—	—	—	—	5	526	—	—	—	—	—	—	—	531		
Des Moines county .....	405	—	—	—	30	169	145	—	—	—	—	—	—	61	—	405		
Dickinson county .....	551	—	—	—	—	275	279	—	—	—	—	—	—	—	—	551		
Floyd county .....	150	—	—	—	—	75	75	—	—	—	—	—	—	—	—	150		
Greene county .....	311	—	—	—	—	11	13	287	—	—	—	—	—	—	—	311		
Humboldt county .....	28	—	—	—	—	—	28	—	—	—	—	—	—	—	—	28		
Johnson county .....	290	—	—	—	—	28	191	—	—	—	—	—	—	71	—	290		
Lee county .....	424	—	—	—	—	—	—	—	—	—	—	—	—	424	—	424		
Marshall county .....	541	—	—	—	—	203	166	—	—	—	—	—	—	172	—	541		
O'Brien county .....	2,699	—	—	—	—	31	278	1,023	—	—	—	—	—	767	—	2,699		
Palo Alto county .....	968	—	—	—	—	—	1	967	—	—	—	—	—	—	—	968		
Polk county .....	231	—	—	—	—	142	139	—	—	—	—	—	—	—	—	281		
Sioux county .....	197	—	—	—	—	—	—	197	—	—	—	—	—	—	—	197		
Woodbury county .....	757	—	—	—	—	352	405	—	—	—	—	—	—	—	—	757		
Totals .....	8,788	—	—	—	30	1,589	2,037	3,637	—	—	—	—	—	1,465	—	8,788		

DEPARTMENT OF MATERIALS AND TESTS

139



Schedule No. Thirty—Continued

	For Use On			Kind of Material												
	Pri- mary Roads	County or town roads	Bridges	General	Cement	Sand	Concrete aggregate	Pit-run gravel	Brick	Drain tile	Reinforcing steel	Corrugated metal	Oils, tars, asphalt	Stone	Paint	Totals, all materials
C—Plant Testing Stations																
Corbettville	598					302	598									898
Edgemoor	1						11									12
Grading	27							27								27
Lake View	61							61						60		71
Mt. Pleasant	71															71
Muscatine	539				11	218	253	76	43					12		589
Albion, Illinois	43															43
Galesburg, Illinois	253								123							253
Springfield, Illinois	133															133
Totals	1,090				11	580	828	169	309					72		1,090
D—Type Testing Cars																
District No. 1	12									12						12
District No. 2	6									6						6
District No. 3	1									1						1
District No. 4	1															1
District No. 5	23									23						23
District No. 6	27															27
District No. 7	14									14						14
District No. 8	574									574						574
District No. 9	9									9						9
Totals	632								632							632
Total all tests	21,080	138	433	2,064	4,791	4,310	6,174	4,274	425	22,074	91	18	74	3,977	54	24,303

## CHAPTER XIV

## Financial Statement

## Period Covered.

The data contained herein constitutes a statement of the expenditures from the Commission's maintenance fund and from the Federal Aid Engineering Fund for the fiscal year July 1, 1920, to June 30, 1921, and also a statement of expenditures from the Primary Road Fund for the year December 1, 1920, to November 30, 1921.

## Classification of Expenditures.

The expenditures of the Commission are divided into five classes as follows:

- Supervision of County and Township Highway Work and Purchase of Equipment for Primary Road Work.
- Receipt, Storage, and Repair of Government Equipment.
- Federal Aid Engineering Work.
- Construction Work on Primary Road System.
- Maintenance Work on Primary Road System.

## Supervision of County and Township Road Work, and Purchase of Equipment for Primary Road Work.

The total expenditures for supervising county and township road work and purchasing engineering equipment for primary road work for the fiscal year ending June 30, 1921, was \$146,456.30. Rentals to the amount of \$12,505.84 were collected on engineering equipment belonging to the Commission and used on primary road work. These rentals, when deducted from the expenditure for supervising county and township road work and purchasing equipment (\$146,456.30) leaves a net cost of \$133,950.46 for these items.

A comparison of the cost of supervising county and township road work and purchasing equipment for primary road work for the past five years follows: (Refer to Schedule No. Fifty-eight.)

Fiscal year ending June 30, 1917.....	\$ 89,786.84
Fiscal year ending June 30, 1918.....	90,414.58
Fiscal year ending June 30, 1919.....	121,962.05
Fiscal year ending June 30, 1920.....	110,623.04
Fiscal year ending June 30, 1921.....	146,456.30

The increase of \$35,833.26 between 1920 and 1921 is almost wholly due to the purchase of equipment for primary road work. The amount spent for such equipment in 1921 was \$31,816.08 more than in 1920. This increased equipment expenditure was required by the increase in construction work on the primary road system.

#### Receipt, Storage, and Repair of Government Equipment.

For the receipt, storage, and repair of Government equipment during the fiscal year ending June 30, 1921, the Commission spent \$30,304.96. During the same period the Commission collected \$32,377.55 from rentals on some of such Government equipment and the sale of spare parts therefor. Accordingly, this phase of the work netted a profit of \$2,072.59.

#### Federal Aid Engineering Work.

The total expenditure from the Federal Aid Engineering Fund for the fiscal year ending June 30, 1921, for engineering in connection with federal aid and primary road work was \$478,942.02. The following is a classification of this expenditure and a comparison with 1920:

	1920	1921
Reconnaissance and traffic census.....	\$ 14,921.61	\$ 3,846.54
Survey .....	126,510.38	135,900.29
Profiles .....	87,118.80	118,657.88
Specifications, conferences and records.....	38,861.17	73,496.20
Bridge and culvert plans.....	19,890.48	43,839.58
Supervising construction and testing materials .....	25,177.01	103,201.53
Totals .....	\$312,479.45	\$478,942.02

The increase (\$166,462.57) is in the expenditure for profiles, specifications, conferences and records, bridge and culvert plans, and supervision of construction and testing materials. In each of these items the amount of work done has increased in proportion to the increased expenditure. Thus in 1920, profiles or plans were prepared for 1,164 miles, while in 1921, profiles or plans were prepared for 1,455 miles. In 1920 specifications were prepared for eighty-three projects, lettings were held on eighty-six projects, and two hundred seven contracts were checked for approval, while in 1921 specifications were prepared for one hundred thirty-three projects, lettings were held on one hundred

fifty-one projects, and four hundred thirty-three contracts were checked for approval. In 1920 plans were prepared for 1,013 bridges and culverts on the primary road system, while in 1921 plans were prepared for 2,875 of such structures. In 1920 tests and inspections were made of 7,132 carloads of materials and supervision was given to the construction of 46.6 miles of pavement, 102.5 miles of gravel, and 410 miles of grading, while in 1921 tests and inspections were made of 25,422 carloads of materials, and supervision was given to 165.4 miles of paving, 367.7 miles of gravel, and 1,050.9 miles of grading.

The amount expended per unit for each class of work in 1921 is practically the same as in 1920. The total expenditure was greater in 1921 only because more work was done.

#### Construction Work on Primary Road System.

The total expenditure for construction work on the primary road system from December 1, 1920, to November 30, 1921, was \$15,500,523.64. The funds from which these expenditures were made were as follows:

Primary road fund.....	\$10,367,816.75
Primary road bond fund.....	3,138,169.94
Special assessments .....	1,943,417.77
County funds .....	51,119.18
	<hr/>
	\$15,500,523.64

In 1920 the total expenditure was \$4,906,404.96.

This expenditure is classified according to the kind of work, as follows:

Grading .....	\$ 4,645,805.68
Graveling .....	1,186,770.15
Paving .....	6,819,450.00
Draining .....	1,179,940.01
Bridges and culverts.....	1,127,308.89
Machinery and Equipment.....	24,896.51
Engineering .....	516,352.49
	<hr/>
	\$15,500,523.64

The total expenditure for construction on the primary road system since the first federal aid law became effective, to November 30, 1921, was \$21,148,242.33. The funds from which these expenditures were made are as follows:

Primary road fund.....	\$14,477,198.54
Primary road bond fund.....	4,247,549.15
Special assessments .....	2,123,695.96
County funds .....	299,798.68

Total .....\$21,148,242.33

This expenditure is classified according to the kind of work as follows:

Grading .....	\$ 7,079,861.65
Graveling .....	1,559,116.14
Paving .....	9,041,505.67
Draining .....	1,525,360.35
Bridges and culverts.....	1,127,308.80
Machinery and equipment.....	108,833.96
Engineering .....	706,255.76

Total .....\$21,148,242.33

#### Maintenance Work on Primary Road System.

During the year December 1, 1920, to November 30, 1921, the cost of maintaining the primary road system was \$2,264,692.51. Since the system contains a total of 6,616 miles, the maintenance averaged \$342.30 per mile.

#### Summary Statement Primary Road Fund.

Total appropriation to November 30, 1921:

Federal aid funds.....	\$ 7,939,343.14
State funds .....	15,376,363.11

Total .....	\$23,315,706.25
Expenditures .....	17,356,187.76

Balance Nov. 30, 1921.. \$ 5,959,518.49

Of the balance in the Primary Road Fund November 30, 1921 (\$5,959,518.49) \$3,315,306.15 is in the possession of the Federal Government at Washington, D. C. The remaining \$2,644,212.34 is in the hands of the State Treasurer and the various county treasurers of the state of Iowa.

#### SCHEDULE NO. THIRTY-ONE SUMMARY OF EXPENDITURES—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund		Charged to Federal Aid Engineering Fund		Net Cost to Maintenance Fund
	Salary	Expense	Salary	Expense	
Commissioners	\$ 2,359.00	\$ 1,606.45	\$ 1,330.00	\$ 870.08	\$ 2,006.08
Executive department	10,138.40	1,760.23	5,744.10	436.81	5,788.71
Department of purchases and accounts	22,583.52	782.65	1,683.19	258.25	14,711.34
Department of road administration	22,583.52	782.65	1,683.19	258.25	14,711.34
Department of road design—plans	9,413.61	716.31	5,075.27	584.84	4,401.40
Department of road design—surveys	20,102.83	585.01	19,483.20	604.88	584.00
Department of road construction	77,049.63	26,127.19	19,483.20	25,176.01	917.69
Dept. of road construction—mach. and equip. division	14,111.88	2,697.82	70,483.12	2,396.18	2,889.06
Department of road maintenance	29,129.27	1,130.14	12,064.14	27.75	20,304.96
Road department—traffic census	5,397.63	612.22		12.22	5,607.60
Road department—traffic census	50,138.72	1,401.30	289.00		1,691.11
Drainage department	4,443.87	507.47	36,117.21	683.39	4,833.34
Women's drafting department	15,733.27	2.23	11,011.48		4,727.01
Department of materials and tests	55,397.19	5,438.61	80,835.89	5,031.23	750.00
Equipment and supplies	4.75	130,421.63	90,071.90	60,076.31	40,300.10
District offices	136,334.02	21,022.32	94,306.03	10,500.88	42,500.41
Totals	\$ 669,379.27	\$ 195,334.01	\$ 341,705.74	\$ 127,176.28	\$ 475,932.02
					\$ 179,793.26

#### SCHEDULE NO. THIRTY-TWO COMMISSIONERS—JULY 1, 1920 TO JUNE 30, 1921.

J. W. Holden	\$ 1,140.00	\$ 672.47	\$ 610.00	\$ 381.71	\$ 991.71	\$ 820.70
Wm. Collins	1,310.00	728.56	520.00	446.60	966.60	982.90
Asaun Marston		235.43		42.71	42.71	212.71
Totals	\$ 2,350.00	\$ 1,636.45	\$ 1,130.00	\$ 870.08	\$ 2,000.08	\$ 2,006.07



## SCHEDULE NO. THIRTY-THREE

EXECUTIVE DEPARTMENT—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
F. R. White, chief engineer.....	\$ 8,000.00	\$ 1,481.37	\$ 7,481.37	\$ 8,000.00	\$ 405.81	\$ 3,405.81	\$ 4,075.56
T. R. Agg, consulting road engineer.....	900.00	201.02	1,201.02	791.00	.....	791.00	470.22
A. H. Fuller, consulting bridge engineer.....	1,500.00	16.93	1,516.93	750.00	.....	750.00	766.50
May Vanderlinden, secretary.....	1,515.00	.....	1,515.00	1,302.50	.....	1,302.50	312.50
Extra help—road conference.....	143.50	.....	143.50	.....	.....	.....	143.50
Totals.....	\$ 10,138.50	\$ 1,700.22	\$ 11,915.68	\$ 5,744.10	\$ 405.81	\$ 6,149.97	\$ 5,768.71

## SCHEDULE NO. THIRTY-FOUR

DEPARTMENT OF PURCHASES AND ACCOUNTS—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
F. W. Parrott, auditor.....	\$ 2,100.00	\$ 288.07	\$ 2,388.07	\$ 1,000.00	\$ 82.91	\$ 1,082.91	\$ 1,307.16
C. R. Jones, asst. auditor.....	2,100.00	292.16	2,442.16	725.00	133.15	858.15	1,564.01
J. W. Eichinger, bulletin editor.....	2,700.00	173.00	2,873.00	.....	.....	.....	2,973.00
Jo Morrow, stenographer.....	1,250.00	.....	1,250.00	645.00	.....	645.00	645.00
Norma Greer, stenographer.....	281.61	.....	281.61	180.00	.....	180.00	101.61
Fleta Craig, stenographer.....	1,155.00	.....	1,155.00	.....	.....	.....	1,155.00
Vera L. Bovee, stenographer.....	150.00	.....	150.00	81.00	.....	81.00	78.00
Anna S. Lynch, stenographer.....	600.00	.....	600.00	300.00	.....	300.00	300.00
Eva Threlkeld, stenographer.....	600.00	.....	600.00	300.00	.....	300.00	300.00
Yelda Rowland, file clerk.....	1,515.00	.....	1,515.00	737.50	.....	737.50	777.50
Mosley Dressler, blue print clerk.....	1,540.08	7.73	1,567.71	.....	.....	.....	1,567.71
G. R. Burrell, asst. blue print clerk.....	1,308.87	7.59	1,346.26	.....	.....	.....	1,346.26
F. K. Mullins, asst. blue print clerk.....	503.00	.....	503.00	.....	.....	.....	503.00
J. H. Doggett, store room clerk.....	1,524.90	24.04	1,549.03	.....	.....	.....	1,549.03
Lowell Mattox, asst. store room clerk.....	505.16	.....	505.16	.....	.....	.....	505.16
Extra help—stenographic.....	32.60	.....	32.60	.....	.....	.....	32.60
Extra help—miscellaneous.....	47.25	.....	47.25	.....	.....	.....	47.25
Totals.....	\$ 15,242.22	\$ 702.68	\$ 19,034.90	\$ 4,086.50	\$ 236.06	\$ 4,322.56	\$ 14,712.34

## SCHEDULE NO. THIRTY-FIVE

ACCOUNTING DIVISION—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
M. F. Davis, asst. auditor.....	\$ 2,574.96	\$ 68.82	\$ 2,643.78	\$ 2,574.96	\$ 14.04	\$ 2,589.00	\$ 54.78
E. T. Burk, audit clerk.....	1,924.95	.75	1,925.70	1,765.62	.75	1,766.37	158.33
E. E. Axon, audit clerk.....	1,734.94	3.52	1,738.46	1,734.94	.....	1,734.94	3.52
C. W. Ott, bookkeeper.....	1,924.95	.....	1,924.95	1,845.79	.....	1,845.79	79.16
E. F. Mattox, asst. bookkeeper.....	1,529.81	.....	1,529.81	1,529.81	.....	1,529.81	.01
Ruth Haggin, asst. bookkeeper.....	394.84	.....	394.84	214.81	.....	214.81	180.00
C. E. Bennett, asst. bookkeeper.....	1,524.99	.....	1,524.99	1,402.49	.....	1,402.49	62.50
Ross Whitacre, asst. bookkeeper.....	465.00	.....	465.00	465.00	.....	465.00	30.00
Ernest L. Risley, asst. bookkeeper.....	358.06	.....	358.06	358.06	.....	358.06	.....
J. R. Harrison, clerk.....	1,318.54	13.79	1,332.33	1,319.54	13.76	1,333.30	.....
DeVere McNell, clerk.....	1,314.02	.....	1,314.02	1,314.02	.....	1,314.02	.....
Ethelda Swartwood, stenographer.....	301.94	.....	301.94	199.94	.....	199.94	102.00
Ruth Brosi, stenographer.....	1,001.29	.....	1,001.29	850.00	.....	850.00	151.29
Fanny Swanberg, stenographer.....	1,100.00	.....	1,100.00	777.50	.....	777.50	322.50
Nellie Maroney, stenographer.....	1,095.00	.....	1,095.00	1,095.00	.....	1,095.00	.....
Luella M. Niekke.....	714.19	.....	714.19	714.19	.....	714.19	.....
Elna Dressler, stenographer.....	680.00	.....	680.00	680.00	.....	680.00	40.00
Netha Riddiesbarger, stenographer.....	270.00	.....	270.00	270.00	.....	270.00	.....
Hazel Eaton, stenographer.....	278.22	.....	278.22	225.00	.....	225.00	53.22
Thelma Houghan, stenographer.....	58.23	.....	58.23	58.23	.....	58.23	.....
Mildred Porter, stenographer.....	60.66	.....	60.66	58.23	.....	58.23	2.43
Georgia McCarty, stenographer.....	104.52	.....	104.52	104.52	.....	104.52	.....
Myrtle Jorgensen, stenographer.....	449.08	.....	449.08	449.08	.....	449.08	.....
Rocella Carberry, stenographer.....	90.00	.....	90.00	.....	.....	.....	90.00
Martha Barrowman, stenographer.....	180.00	.....	180.00	85.00	.....	85.00	95.00
Extra help—clerical.....	294.60	.....	294.60	8.00	.....	8.00	286.60
Extra help—stenographic.....	39.00	.....	39.00	39.00	.....	39.00	.....
Extra help—miscellaneous.....	33.02	.....	33.02	.....	.....	.....	33.02
Totals.....	\$ 22,013.61	\$ 86.85	\$ 22,100.46	\$ 19,614.71	\$ 28.55	\$ 19,643.26	\$ 2,457.20

## SCHEDULE NO. THIRTY-SIX

DEPARTMENT OF ROAD ADMINISTRATION—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
C. Coykendall, engineer of road administration.....	\$ 4,174.92	\$ 481.00	\$ 4,655.92	\$ 3,229.77	\$15.29	\$ 3,245.06	1,020.46
M. L. Hutton, asst. engineer of road administration.....	2,824.98	224.71	3,049.69	1,795.54	121.55	1,917.09	1,072.80
Anne Vanderlinden, stenographer.....	1,029.00	.....	1,029.00	810.00	.....	810.00	810.00
Mrs. J. A. Paulsen, stenographer.....	338.71	.....	338.71	94.76	.....	94.76	243.95
Myrtle Jorgensen, stenographer.....	455.00	.....	455.00	455.00	.....	455.00	.....
Totals.....	\$ 9,412.61	\$ 716.31	\$ 10,128.92	\$ 6,476.07	\$ 506.84	\$ 6,982.91	\$ 3,147.01

## SCHEDULE NO. THIRTY-SEVEN

DEPARTMENT OF ROAD DESIGN—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
W. E. Jones, engineer of road design.....	\$ 4,099.06	\$ 463.32	\$ 4,562.37	\$ 4,019.61	\$ 373.53	\$ 4,393.14	\$ 149.12
D. B. Clement, road designer.....	1,761.62	.....	1,761.62	1,678.02	.....	1,678.02	88.00
L. L. Clement, road designer.....	2,475.00	225.40	2,700.40	2,467.00	212.27	2,679.27	21.13
E. R. Meredith, road designer.....	800.00	12.63	812.63	800.00	12.63	812.63	.....
J. S. Percival, road designer.....	1,103.22	.....	1,103.22	1,058.27	.....	1,058.27	44.95
W. H. Richards, road designer.....	661.26	7.21	668.47	647.93	.....	647.93	20.54
F. C. Schneider, road designer.....	2,449.98	.....	2,449.98	2,292.65	.....	2,292.65	157.33
H. F. Templeton, road designer.....	1,176.60	.....	1,176.60	1,122.84	.....	1,122.84	53.76
Carl Albaugh, draftsman.....	1,312.00	.....	1,312.00	1,425.37	.....	1,425.37	149.81
W. M. Danielson, draftsman.....	294.39	.....	294.39	294.14	.....	294.14	25
Harold W. Groth, draftsman.....	795.15	.....	795.15	758.06	.....	758.06	36.49
Shun Koo, draftsman.....	108.33	.....	108.33	108.33	.....	108.33	.....
W. P. Lindauer, draftsman.....	1,055.00	.....	1,055.00	993.70	.....	993.70	61.30
F. C. Miller, draftsman.....	315.00	.....	315.00	309.00	.....	309.00	6.00
H. E. Ribbet, draftsman.....	198.44	.....	198.44	193.44	.....	193.44	5.00
J. L. Vannoy, draftsman.....	771.75	.....	771.75	732.75	.....	732.75	39.00
Extra help—drafting.....	532.14	6.45	538.59	544.59	6.45	551.44	7.15
Totals.....	\$ 20,102.83	\$ 685.01	\$ 20,787.84	\$ 19,348.30	\$ 604.88	\$ 19,953.18	\$ 834.66

## SCHEDULE NO. THIRTY-EIGHT

DEPARTMENT OF ROAD SURVEYS—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
Engene Cook, chief of party.....	\$ 210.22	\$ 24.01	\$ 234.23	\$ 209.57	\$ 24.01	\$ 233.58	1.35
C. H. Ford, chief of party.....	113.52	18.58	132.10	113.52	18.58	132.10	.....
F. A. Peterson, chief of party.....	1,163.93	368.33	1,532.26	1,163.03	368.33	1,531.36	.....
F. D. Caldwell, chief of party.....	281.49	31.34	312.83	281.49	31.34	312.83	.....
L. E. Clayton, chief of party.....	1,728.16	284.69	2,012.85	1,728.16	284.75	2,012.91	.....
Chas. M. Colvin, chief of party.....	380.22	106.69	486.91	380.22	106.69	486.91	.....
L. L. Ferguson, chief of party.....	1,310.38	197.38	1,507.76	1,310.38	197.38	1,507.76	.....
D. M. Finley, chief of party.....	354.02	113.36	467.38	354.02	113.36	467.38	.....
A. F. Fraker, chief of party.....	392.49	52.51	445.00	392.49	52.51	445.00	.....
C. L. Gleason, chief of party.....	1,375.00	244.28	1,619.28	1,347.50	244.28	1,591.78	127.50
E. W. Hahn, chief of party.....	913.34	381.31	1,294.65	913.34	381.31	1,294.65	.....
W. J. Hunter, chief of party.....	969.89	110.67	1,080.56	969.89	110.67	1,080.56	.....
H. A. Mandole, chief of party.....	627.50	198.84	826.34	627.50	198.84	826.34	.....
L. B. Mathews, chief of party.....	1,300.00	124.63	1,424.63	1,300.00	124.63	1,424.63	.....
Robt. W. Merritt, chief of party.....	254.92	378.19	633.11	254.92	378.19	633.11	.....
A. F. Miller, chief of party.....	226.66	.....	226.66	226.66	.....	226.66	.....
S. W. O'Brien, chief of party.....	1,103.12	372.57	1,475.69	1,103.12	372.57	1,475.69	.....
F. K. Preston, chief of party.....	1,574.66	419.14	2,093.80	1,574.66	419.14	2,093.80	.....
Amiel Reichstein, chief of party.....	32.28	32.28	64.56	32.28	32.28	64.56	.....
P. W. Riedel, chief of party.....	240.73	23.54	264.27	240.73	23.54	264.27	.....
T. E. Riley, chief of party.....	1,488.50	567.60	2,056.10	1,488.50	567.60	2,056.10	.....
S. A. Schacke, chief of party.....	252.49	58.44	310.93	252.49	58.44	310.93	.....
Chas. W. Schafer, chief of party.....	461.71	120.44	582.15	461.71	120.44	582.15	.....
Don L. Teal, chief of party.....	256.25	.....	256.25	256.25	.....	256.25	.....
Andrew Walukait, chief of party.....	495.00	139.67	634.67	495.00	139.67	634.67	.....
V. L'E. Watson, chief of party.....	492.49	80.51	573.00	492.49	80.51	573.00	.....
C. D. Welser, chief of party.....	135.23	128.07	263.30	135.23	128.07	263.30	.....
George Dean, chief of party.....	370.00	.....	370.00	370.00	.....	370.00	.....
Albert McKee, chief of party.....	220.16	.....	220.16	220.16	.....	220.16	.....
G. M. Griffith, chief of party.....	333.83	38.67	372.50	333.83	38.67	372.50	.....
A. D. Barnes, instrument man.....	430.54	107.55	538.09	430.54	107.55	538.09	.....
Chester R. Benta, instrument man.....	966.81	.....	966.81	966.81	.....	966.81	.....
J. C. Brandt, instrument man.....	943.68	144.67	1,088.35	943.68	144.67	1,088.35	.....
W. F. Carlson, instrument man.....	440.75	138.28	579.03	440.75	138.28	579.03	.....
E. B. Carson, instrument man.....	.....	.....	.....	.....	.....	.....	.....



## Schedule No. Thirty-eight—Continued

150

IOWA STATE HIGHWAY COMMISSION

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
Perry Collins, instrument man.....	749.49	422.97	1,172.46	699.49	422.97	1,122.46	50.00
R. E. Copeland, instrument man.....	975.00	187.00	1,162.00	975.00	187.00	1,162.00	
L. A. Davidson, instrument man.....	361.39	61.63	423.02	361.39	61.63	423.02	
Percy H. Fagen.....	225.00	33.25	258.25	225.00	33.25	258.25	
Joe R. Gibson, instrument man.....	308.72	44.99	353.68	308.72	44.99	353.68	
Walter Handy, instrument man.....	776.56	170.44	947.00	776.56	170.44	947.00	
C. M. Heavey, instrument man.....	995.70	15.32	1,011.02	995.70	15.32	1,011.02	38.71
G. B. Henely, instrument man.....	1,519.12	307.72	1,826.84	1,519.12	307.72	1,826.84	
A. L. Hertz, instrument man.....	355.00	47.33	402.33	355.00	47.33	402.33	
C. M. Ingleson, instrument man.....	151.63	90.07	241.70	151.63	90.07	241.70	
Jorgen Jacobson, instrument man.....	874.32	120.67	994.99	874.32	120.67	994.99	
Harold A. Kennedy, instrument man.....	661.23	299.31	960.53	661.23	299.31	960.53	
H. E. Klingman, instrument man.....	450.58	129.25	579.83	450.58	129.25	579.83	13.18
Glen Kringie, instrument man.....	294.29	61.84	356.13	294.29	61.84	356.13	
C. P. Lechner, instrument man.....	900.02	200.28	1,100.30	900.02	200.28	1,100.30	60.71
F. J. Looger, instrument man.....	1,046.29	494.04	1,540.33	1,046.29	494.04	1,540.33	
Carroll C. McCarthy, instrument man.....	1,158.67	270.60	1,429.27	1,158.67	270.60	1,429.27	
J. G. McFadden, instrument man.....	833.16	130.67	963.83	833.16	130.67	963.83	
W. W. McVey, instrument man.....	241.00	21.55	262.55	241.00	21.55	262.55	1.45
Ernest Nelson, instrument man.....	1,345.63	228.07	1,573.70	1,345.63	228.07	1,573.70	
E. C. Neudecker, instrument man.....	965.40	109.01	1,074.41	965.40	109.01	1,074.41	
J. O. Orr, instrument man.....	289.16	42.67	331.83	289.16	42.67	331.83	19.33
R. E. Riblet, instrument man.....	313.34	45.03	358.37	313.34	45.03	358.37	
Sewell Ropes, instrument man.....	156.97	21.34	178.31	156.97	21.34	178.31	
T. R. Shupe, instrument man.....	734.59	182.00	916.59	734.59	182.00	916.59	
Harold C. Smith, instrument man.....	308.80	41.01	349.81	308.80	41.01	349.81	
Fred M. Thul, instrument man.....	231.23	26.67	257.90	231.23	26.67	257.90	
K. F. Trotter, instrument man.....	1,073.82	304.48	1,378.30	1,073.82	304.48	1,378.30	
R. E. White, instrument man.....	607.07	100.68	707.75	607.07	100.68	707.75	
R. H. Williams, instrument man.....	1,795.05	232.55	2,027.60	1,795.05	232.55	2,027.60	
C. W. Schaffer, instrument man.....	430.00	31.89	461.89	430.00	31.89	461.89	
E. L. Bierbaum, instrument man.....	418.50	66.30	484.80	418.50	66.30	484.80	
Geo. Staley, instrument man.....	546.00	66.30	612.30	546.00	66.30	612.30	
John J. Holland, instrument man.....	189.00	189.00	378.00	189.00	189.00	378.00	
Geo. L. Dolph, instrument man.....	202.75	40.10	242.85	202.75	40.10	242.85	
Wm. Harris, instrument man.....	394.29		394.29	394.29		394.29	
Robert Anderson, rod man.....	77.00	33.34	110.34	77.00	33.34	110.34	

Ross Armstrong, rod man.....	179.54	120.86	300.40	179.54	120.86	300.40	
L. F. Bailey, rod man.....	225.01	151.98	376.99	225.01	151.98	376.99	
M. P. Jarentson, rod man.....	244.32	163.34	407.66	244.32	163.34	407.66	
R. F. Barnard, rod man.....	78.33	78.33	156.66	78.33	78.33	156.66	
Geo. Betham, rod man.....	577.41	577.41	1,154.82	577.41	577.41	1,154.82	
Joe. Bish, rod man.....	89.68	61.67	151.35	89.68	61.67	151.35	
E. F. Blair, rod man.....	74.99	75.01	150.00	74.99	75.01	150.00	
A. A. Blinks, rod man.....	214.99	143.34	358.33	214.99	143.34	358.33	
Geo. A. Brandrig, rod man.....	247.09	136.01	383.10	247.09	136.01	383.10	
Roy S. Brown, rod man.....	83.34	73.34	156.68	83.34	73.34	156.68	
L. W. Burns, rod man.....	112.01	75.10	187.11	112.01	75.10	187.11	
Mansel Burns, rod man.....	105.00	130.00	235.00	105.00	130.00	235.00	
F. L. Burrows, rod man.....	159.16	103.34	262.50	159.16	103.34	262.50	
G. B. Carter, rod man.....	108.12	73.33	181.45	108.12	73.33	181.45	
C. C. Case, rod man.....	188.40	161.63	350.03	188.40	161.63	350.03	
Floyd Caslens, rod man.....	89.39	61.68	151.07	89.39	61.68	151.07	
William K. Chantry, rod man.....	290.05	263.37	553.42	290.05	263.37	553.42	
George Christiansen, rod man.....	464.54	333.10	797.64	464.54	333.10	797.64	
M. L. Clement, rod man.....	548.55	292.09	840.64	548.55	292.09	840.64	
Frank S. Clyde, rod man.....	129.33	81.44	210.77	129.33	81.44	210.77	
J. L. Cummings, rod man.....	73.38	73.39	146.77	73.38	73.39	146.77	
E. D. Davis, rod man.....	105.88	71.53	177.41	105.88	71.53	177.41	
D. F. Doty, rod man.....	94.37	60.07	154.44	94.37	60.07	154.44	
W. M. Dunagan, rod man.....	132.90	88.34	221.24	132.90	88.34	221.24	
Wm. Ebert, rod man.....	250.00	187.48	437.48	250.00	187.48	437.48	
S. B. Espe, rod man.....	764.61	454.67	1,219.28	764.61	454.67	1,219.28	
R. J. Fessenden, rod man.....	329.26	180.82	510.08	329.26	180.82	510.08	
G. A. Foster, rod man.....	129.33	81.44	210.77	129.33	81.44	210.77	
L. E. Frink, rod man.....	73.38	73.39	146.77	73.38	73.39	146.77	
Max Funk, rod man.....	847.50	140.95	988.45	847.50	140.95	988.45	
V. A. Gollveaux, rod man.....	464.54	333.60	798.14	464.54	333.60	798.14	
M. L. Harding, rod man.....	222.00	135.05	357.05	222.00	135.05	357.05	
Milo Harper, rod man.....	172.49	115.01	287.50	172.49	115.01	287.50	12.60
Chester Havig, rod man.....	279.37	188.37	467.74	279.37	188.37	467.74	
H. E. Haywood, rod man.....	223.83	181.67	405.50	223.83	181.67	405.50	
C. J. Healey, rod man.....	129.33	100.00	229.33	129.33	100.00	229.33	
F. M. Healey, rod man.....	160.00	2.19	162.19	160.00	2.19	162.19	
Frank Healey, rod man.....	144.25	93.24	237.49	144.25	93.24	237.49	
W. T. Hemphill, rod man.....	631.47	399.88	1,031.35	631.47	399.88	1,031.35	
W. H. Henely, rod man.....	649.38	429.79	1,079.17	649.38	429.79	1,079.17	
Thos. Horn, rod man.....	139.99	94.42	234.41	139.99	94.42	234.41	.30
Wm. Alfred Irwin, rod man.....	341.17	221.14	562.31	341.17	221.14	562.31	.32
Marion Jackson, rod man.....	178.51	99.88	278.39	178.51	99.88	278.39	
G. H. Johnson, rod man.....	130.13	74.19	204.32	130.13	74.19	204.32	65.32
R. P. Jones, rod man.....	301.85	321.68	623.53	301.85	321.68	623.53	
	243.90	307.81	551.71	243.90	307.81	551.71	
	187.50	125.00	312.50	187.50	125.00	312.50	

FINANCIAL STATEMENT

151



## Schedule No. Thirty-eight—Continued

152

IOWA STATE HIGHWAY COMMISSION

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
Herman Kammeyer, rod man.....	83.00	50.00	133.00	83.00	50.00	133.00	
Dugald Kennedy, rod man.....	91.29	61.67	152.96	91.29	61.67	152.96	
Wilford Kintigh, rod man.....	87.03	60.01	147.04	87.03	60.01	147.04	
Harold W. Klingman, rod man.....	144.00	105.38	250.04	144.00	105.38	250.04	
M. E. Koehnig, rod man.....	859.00	598.90	1,458.45	859.00	598.90	1,458.45	
V. L. Langstrom, rod man.....	111.00	77.89	188.55	111.00	77.89	188.55	
Frank B. Lechner, rod man.....	138.39	138.39	276.78	138.39	138.39	276.78	
J. D. Lee, rod man.....	215.00	143.33	358.33	215.00	143.33	358.33	
Andres Leeseckamp, rod man.....	91.29	61.67	152.96	91.29	61.67	152.96	
G. F. Leonard, rod man.....	116.34	76.67	193.01	116.34	76.67	193.01	
Harlan M. Lester, rod man.....	154.99	105.06	260.05	154.99	105.06	260.05	
Earl McKee, rod man.....	473.79	216.55	690.34	473.79	216.55	690.34	
W. E. Majors, rod man.....	77.99	53.67	131.66	77.99	53.67	131.66	
Carl Mayne, rod man.....	600.98	402.76	1,003.74	600.98	402.76	1,003.74	
Otis Mentor, rod man.....	74.99	75.01	150.00	74.99	75.01	150.00	
H. A. Meyrick, rod man.....	127.01	85.72	212.73	127.01	85.72	212.73	
W. O. Millard, rod man.....	108.12	73.33	181.45	108.12	73.33	181.45	
Harry Miller, rod man.....	197.50	131.67	329.17	197.50	131.67	329.17	16.67
Gilbert Miner, rod man.....	91.29	61.67	152.96	91.29	61.67	152.96	
Roy Morgan, rod man.....	73.38	73.38	146.77	73.38	73.38	146.77	
M. Moss, rod man.....	165.18	88.33	253.51	165.18	88.33	253.51	
L. A. Murphy, rod man.....	177.49	118.34	295.83	177.49	118.34	295.83	
H. C. Nelson, rod man.....	87.18	60.00	147.18	87.18	60.00	147.18	
C. W. Norton, rod man.....	108.12	73.33	181.45	108.12	73.33	181.45	
P. G. Osterholm, rod man.....	188.72	132.05	320.77	188.72	132.05	320.77	
D. L. Pell, rod man.....	270.45	215.45	485.90	270.45	215.45	485.90	
W. B. Peterson, rod man.....	95.56	61.71	157.27	95.56	61.71	157.27	
D. F. Pfister, rod man.....	151.79	102.22	254.01	151.79	102.22	254.01	
H. C. Preston, rod man.....	250.19	165.58	415.77	250.19	165.58	415.77	
B. C. Pringle, rod man.....	141.90	88.34	230.24	141.90	88.34	230.24	
Ray H. Rawlings, rod man.....	87.45	53.34	140.80	87.45	53.34	140.80	
Ernest Reed, rod man.....	145.17	97.30	242.47	145.17	97.30	242.47	
Stanley Ross, rod man.....	102.46	133.34	235.80	102.46	133.34	235.80	
P. G. Ruby, rod man.....	204.41	138.33	342.74	204.41	138.33	342.74	
L. R. Rutledge, rod man.....	148.79	106.99	255.78	148.79	106.99	255.78	
Wm. Samsler, rod man.....	134.47	85.33	219.80	134.47	85.33	219.80	
V. J. Schmidt, rod man.....	291.89	194.65	486.55	291.89	194.65	486.55	
Roy Shupe, rod man.....	296.34	37.83	334.17	296.34	37.83	334.17	
Harry Siekler, rod man.....	249.37	168.37	417.74	249.37	168.37	417.74	
George Stumons, rod man.....	251.32	179.14	430.46	251.32	179.14	430.46	
Howard Smit, rod man.....	250.00	250.00	500.00	250.00	250.00	500.00	
W. M. Smith, rod man.....	119.48	73.35	192.83	119.48	73.35	192.83	
Paul C. Snola, rod man.....	159.16	103.34	262.50	159.16	103.34	262.50	
W. B. Spangler, rod man.....	97.28	80.01	177.29	97.28	80.01	177.29	
G. N. Spinden, rod man.....	159.16	103.34	262.50	159.16	103.34	262.50	
S. F. Sprague, rod man.....	156.61	25.59	182.20	156.61	25.59	182.20	
Paul E. Stephenson, rod man.....	170.00	113.33	283.33	170.00	113.33	283.33	
Harry Tanner, rod man.....	119.70	79.84	199.54	119.70	79.84	199.54	12.10
E. L. Tate, rod man.....	250.78	167.25	418.03	250.78	167.25	418.03	
E. H. Thompson, rod man.....	170.00	113.33	283.33	170.00	113.33	283.33	
James Thompson, rod man.....	127.04	86.67	213.71	127.04	86.67	213.71	
R. W. Thompson, rod man.....	329.11	346.55	675.66	329.11	346.55	675.66	
A. S. Townsend, rod man.....	82.36	54.84	137.20	82.36	54.84	137.20	
Howard Van Kirk, rod man.....	167.22	103.34	270.56	167.22	103.34	270.56	
W. R. Walsh, rod man.....	306.44	294.08	600.52	306.44	294.08	600.52	
H. A. Warnock, rod man.....	114.00	78.34	192.34	114.00	78.34	192.34	
C. V. Watson, rod man.....	402.15	353.04	755.19	402.15	353.04	755.19	38.86
L. G. Wellsbrook, rod man.....	330.00	330.00	660.00	330.00	330.00	660.00	
Harry Wilder, rod man.....	308.06	145.84	453.90	308.06	145.84	453.90	
Roger Williams, rod man.....	283.33	125.34	408.67	283.33	125.34	408.67	
Clifford J. Wilson, rod man.....	281.18	156.13	437.31	281.18	156.13	437.31	
Ed. Winn, rod man.....	127.50	85.00	212.50	127.50	85.00	212.50	
Harry Fidler, rod man.....	177.00	177.00	354.00	177.00	177.00	354.00	
Dean McCauley, rod man.....	348.00	348.00	696.00	348.00	348.00	696.00	
Kenneth Banks, rod man.....	101.75	101.75	203.50	101.75	101.75	203.50	
W. M. Taylor, rod man.....	121.00	121.00	242.00	121.00	121.00	242.00	47.00
John Squire, rod man.....	220.25	220.25	440.50	220.25	220.25	440.50	
L. R. Shilling, rod man.....	251.90	251.90	503.80	251.90	251.90	503.80	51.60
Wm. J. Wearmouth, rod man.....	488.50	46.30	534.80	488.50	46.30	534.80	
Herbert M. Cushman, rod man.....	147.00	50.90	197.90	147.00	50.90	197.90	
R. A. Dawson, rod man.....	126.00	126.00	252.00	126.00	126.00	252.00	
Extra help—survey.....	4,807.45	1,210.67	6,018.12	4,744.40	1,215.74	5,960.14	57.98
Transportation.....		486.97	486.97		332.11	332.11	154.86
Totals.....	\$ 77,049.63	\$ 25,127.19	\$ 102,176.82	\$ 76,482.12	\$ 25,776.01	\$ 102,258.14	\$ 917.68

FINANCIAL STATEMENT

153

## SCHEDULE NO. THIRTY-NINE

DEPARTMENT OF ROAD CONSTRUCTION—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
F. H. Mann, construction engineer	\$ 4,174.92	\$ 576.68	\$ 4,751.60	\$ 4,174.92	\$ 515.40	\$ 4,690.32	\$ 61.28
W. G. Howe, asst. engineer	1,134.68	147.95	1,282.63		87.89	87.89	1,194.83
Kenneth Y. Craig, asst. engineer	384.98		384.98		225.00	225.00	159.98
E. G. Raynor, resident engineer	242.27		242.27		177.22	177.22	65.05
John E. Buck, resident engineer	33.33		33.33				33.33
H. K. Davis, chief inspector	3,049.98	913.17	3,963.15	3,049.98	851.15	3,901.13	62.02
G. S. Foster, general inspector	3,049.98	960.84	4,000.82	3,049.98	982.05	3,982.03	18.79
O. M. Briley, general inspector state roads		69.10	69.10				69.10
R. I. Mount, inspector		6.60	6.60		6.60	6.60	
T. W. Ingemanson, inspector		3.18	3.18		3.18	3.18	
A. E. Jarvis, draftsman	750.00		750.00				750.00
H. E. Spickard, instrument man	97.04		97.04				97.04
Mrs. Lella Vanderhinden, stenographer	1,195.00		1,195.00				1,195.00
Totals	\$ 14,111.58	\$ 2,667.52	\$ 16,779.10	\$ 12,094.14	\$ 2,395.18	\$ 14,489.32	\$ 2,289.78

## SCHEDULE NO. FORTY

DEPARTMENT OF ROAD CONSTRUCTION—MACHINERY AND EQUIPMENT DIVISION—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
A. S. Miller, superintendent	\$ 2,475.00	\$ 75.91	\$ 2,550.91				\$ 2,550.91
Chas. Kinderman, shop foreman	2,700.00	16.80	2,716.80				2,716.80
F. E. Been, storekeeper	1,800.00	16.58	1,816.58		8.06	8.06	1,808.52
J. H. McKinney, watchman	1,290.00		1,290.00				1,290.00
Extra help—mechanics	14,296.26	136.65	14,432.91				14,432.91
Extra help—truckmen	3,392.84	129.84	3,522.68		19.69	19.69	3,503.99
Extra help—carpenter	1,655.25		1,655.25				1,655.25
Extra help—vulcanizer	496.17		496.17				496.17
Extra help—miscellaneous	1,107.05	12.27	1,119.32				1,119.32
Buildings and grounds		763.00	763.00				763.00
Totals	\$ 29,182.57	\$ 1,180.14	\$ 30,362.71		\$ 27.75	\$ 27.75	\$ 30,364.96

## SCHEDULE NO. FORTY-ONE

DEPARTMENT OF ROAD MAINTENANCE—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
W. H. Root, engineer of road maintenance	\$ 4,099.95	\$ 619.22	\$ 4,719.17		\$ 12.22	\$ 12.22	\$ 4,696.95
O. M. Briley, maintenance superintendent	252.68		252.68				252.68
Norma Greer, stenographer	285.00		285.00				285.00
Millie Oswald, stenographer	760.00		760.00				760.00
Totals	\$ 5,397.63	\$ 619.22	\$ 6,016.85		\$ 12.22	\$ 12.22	\$ 5,994.63

## SCHEDULE NO. FORTY-TWO

ROAD DEPARTMENT—TRAFFIC CENSUS—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
A. A. Kelso, traffic enumerator	\$ 80.00		\$ 80.00	\$ 80.00		\$ 80.00	
Paul Ebersole, traffic enumerator	80.00		80.00	80.00		80.00	
T. B. Carlton, traffic enumerator	80.00		80.00	80.00		80.00	
Totals	\$ 240.00		\$ 240.00	\$ 240.00		\$ 240.00	

## SCHEDULE NO. FORTY-THREE

BRIDGE DEPARTMENT—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
J. H. Ames, bridge engineer	\$ 4,099.96	\$ 511.05	\$ 4,611.01	\$ 2,050.02		\$ 2,050.02	\$ 2,560.99
E. W. Blumenschein, asst. bridge engineer	3,234.99	333.95	3,568.94	1,622.48	53.59	1,715.97	1,852.97
J. A. Paulsen, asst. bridge engineer	1,549.98	148.96	1,698.94	1,359.70	91.50	1,381.20	297.74
Harry Bowman, railroad crossing engineer	2,599.92	181.30	2,781.22	2,143.25	109.13	2,252.38	528.84
F. D. Caldwell, resident engineer	309.92		309.92	298.79		298.79	70.83
B. J. Conlon, resident engineer	515.48		515.48	504.75		504.75	10.73
Eugene Cook, resident engineer	375.00	5.64	380.64	367.00	5.63	372.63	8.01
D. M. Finley, resident engineer	438.37	26.63	464.40	423.27	19.63	442.90	21.50
L. G. Krull, resident engineer	463.69		463.69	448.35		448.35	15.34
C. R. Livingston, resident engineer	265.05	10.01	275.06	245.72	10.01	255.73	19.33
P. W. Shive, resident engineer	413.97	3.22	417.19	396.51	3.22	399.73	18.99
Don L. Teal, resident engineer	575.96	18.18	594.14	559.37	18.18	577.55	16.00
W. P. Nichols, field engineer	2,024.94	251.11	2,276.05	2,465.62	347.78	2,813.40	162.65
R. C. Fye, instrument man	357.10		357.10	348.90		348.90	8.20
John L. Anderson, inspector	525.00		525.00	448.00		448.00	77.00
J. C. Clark, inspector	23.58		23.58				23.58
W. D. Griffen, inspector	635.00		635.00	625.90		625.90	9.00
W. D. Tomlinson, inspector	602.15		602.15	516.01		516.01	86.14
W. N. Adams, bridge designer	2,994.94	24.00	3,018.94	2,497.78	14.78	2,512.56	506.38
R. E. Braun, bridge designer	2,584.95	5.59	2,590.54	1,639.46		1,639.46	951.08
M. G. Spangler, bridge designer	2,434.99		2,434.99	1,401.59		1,401.59	1,033.40
L. G. Wallis, bridge designer	1,401.61	14.85	1,416.46	1,186.81	14.85	1,201.66	214.80
Paul Barnard, draftsman	2,049.93		2,049.93	1,772.57		1,772.57	277.36
J. H. Bell, draftsman	494.50		494.50	367.08		367.08	127.42
R. A. Caughey, draftsman	532.50		532.50	370.13		370.13	162.37
C. H. Cook, draftsman	2,299.92		2,299.92	1,717.28		1,717.28	582.64
H. E. Crosby, draftsman	535.60		535.60	411.75		411.75	123.85
R. J. DeLaune, draftsman	2,049.93		2,049.93	1,575.76		1,575.76	474.17
H. A. Hanson, draftsman	1,924.95		1,924.95	1,414.92		1,414.92	510.03
J. W. Hewes, draftsman	480.64		480.64	369.00		369.00	111.64
J. E. Hilland, draftsman	2,049.93		2,049.93	1,758.27		1,758.27	291.66
John Hyneman, draftsman	665.31		665.31	531.99		531.99	133.32
A. E. Jarvis, draftsman	730.00		730.00	675.00		675.00	55.00
C. E. Lippert, draftsman	1,589.28		1,589.28	1,468.93		1,468.93	114.35

J. C. Nichols, draftsman	582.25		582.25	458.72		458.72	123.53
Hubert Schmidt, draftsman	2,049.93		2,049.93	1,699.01		1,699.01	350.92
F. B. Howell, clerk	1,024.95		1,024.95				1,024.95
Mrs. J. A. Paulsen, stenographer	56.45		56.45				56.45
Marie Govey, stenographer	1,230.00		1,230.00				1,230.00
Extra help—drafting	143.02		143.02	143.02		143.02	
Totals	\$ 50,138.73	\$ 1,621.89	\$ 51,760.62	\$ 36,117.21	\$ 688.80	\$ 36,806.51	\$ 14,954.11

## SCHEDULE NO. FORTY-FOUR

DRAINAGE DEPARTMENT—JULY 1, 1931 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
R. W. Clyde, drainage engineer	\$ 2,700.00	\$ 92.80	\$ 2,792.80				\$ 2,792.80
E. D. Burchard, asst. drainage engineer	1,329.81	414.67	1,744.48				1,744.48
Netha Riddiesbarger, stenographer	84.19		84.19				84.19
Gauge readers	337.87		337.87				337.87
Totals	\$ 4,445.87	\$ 507.47	\$ 4,953.34				\$ 4,953.34



## SCHEDULE NO. FORTY-FIVE

WOMEN'S DRAFTING DEPARTMENT—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
W. T. Ide, superintendent.....	\$ 2,549.37		\$ 2,549.37	\$ 1,411.88		\$ 1,411.88	\$ 1,137.49
Jessie Brooks, draftsman.....	1,350.00		1,350.00	833.20		833.20	516.80
Carlotta Howard, draftsman.....	1,230.00		1,230.00	951.20		951.20	278.80
Margaret Lysinger, draftsman.....	1,230.00		1,230.00	738.70		738.70	491.30
Frances McCall, draftsman.....	286.00		286.00	261.25		261.25	24.75
Violet Roberson, draftsman.....	1,385.00		1,385.00	978.64		978.64	406.36
Dorothy Twitchell, draftsman.....	311.94		311.94	192.43		192.43	119.51
Edna Unger, tracer.....	340.00		340.00	251.08		251.08	88.92
Ruth Winters, tracer.....	112.00		112.00	81.49		81.49	30.51
Ruth Stiglitz, tracer.....	900.00		900.00	816.42		816.42	83.58
Enid Huston, tracer.....	405.00		405.00	307.90		307.90	97.10
H. W. Schneider, tracer.....	445.50		445.50	388.25		388.25	67.25
Helen Scott, tracer.....	52.68		52.68	49.33		49.33	3.35
Sarah McElroy, tracer.....	555.39	\$ 2.22	558.11	485.00		485.00	103.11
Rowena Merritt, tracer.....	640.00		640.00	478.42		478.42	161.58
E. R. Morden, tracer.....	78.55		78.55	67.29		67.29	11.26
Mrs. J. C. Nichols, tracer.....	650.00		650.00	634.36		634.36	15.64
Rose Roberson, tracer.....	107.87		107.87	87.64		87.64	20.23
Lucy Lancaster, tracer.....	65.81		65.81	42.68		42.68	23.13
Isaphene Dawson, tracer.....	55.00		55.00	39.87		39.87	15.13
June Erickson, tracer.....	660.00		660.00	733.92		733.92	216.08
Evelyn Compton, tracer.....	705.00		705.00	501.39		501.39	203.61
Ethel Smith, apprentice.....	173.87		173.87	92.35		92.35	81.52
Extra help—drafting.....	735.79		735.79	586.10		586.10	149.69
Totals.....	\$ 15,736.37	\$ 2.22	\$ 15,738.49	\$ 11,011.48		\$ 11,011.48	\$ 4,727.01

## SCHEDULE NO. FORTY-SIX

DEPARTMENT OF MATERIALS AND TESTS—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
R. W. Crum, engineer of materials and tests.....	\$ 3,822.50		\$ 3,822.50	\$ 3,822.50	\$ 907.91	\$ 4,730.41	\$ 223.00
Bert Myers, asst. engineer of materials and tests.....	2,000.94	165.39	2,166.33	2,000.94	165.10	2,166.04	.29
Millie Oswalt, stenographer.....	400.00		400.00	400.00		400.00	
John L. Anderson, inspector.....	990.58	32.66	1,023.24	990.58	82.66	1,073.24	
S. B. Espe, inspector.....	553.36	34.64	588.00	533.36	34.64	568.00	20.00
H. R. Goyke, inspector.....	490.00	457.34	947.34	441.00	474.40	915.40	31.94
Clyde Mason, inspector.....	290.32	95.02	385.34	290.32	92.88	383.20	2.14
Mark Morris, inspector.....	175.00		175.00	175.00		175.00	
L. M. Atkinson, field assistant.....	225.00	9.03	234.03	225.00	9.68	234.68	
Material Resource Division—							
P. J. Preston, assistant engineer of materials and tests.....	2,509.05	661.09	3,170.14	2,509.05	640.33	3,149.38	20.76
Ralph Clover, inspector.....	773.50	9.28	782.78	773.50	9.28	782.78	
W. H. Douglas, inspector.....	833.30	566.94	1,400.24	833.30	566.91	1,400.21	.03
H. L. Holbrook, inspector.....	495.00	7.59	502.59	495.00	7.59	502.59	
Chas. S. Meyer, inspector.....	210.00		210.00	210.00		210.00	
Mark Morris, inspector.....	1,257.48	203.13	1,460.61	1,257.48	178.96	1,436.44	24.17
H. D. Suson, inspector.....	281.29		281.29	281.29		281.29	
Geo. M. Allen, field assistant.....	216.67	6.25	222.92	216.67	6.25	222.92	
Frederick Bender, field assistant.....	535.00	15.44	550.44	555.00	15.44	570.44	20.44
R. M. Combs, field assistant.....	978.32	10.09	988.41	978.32	10.09	988.41	
W. J. Combs, field assistant.....	820.61	7.47	828.08	820.61	7.47	828.08	
W. J. Combs, field assistant.....	1,026.74	77.19	1,103.93	1,026.74	77.19	1,103.93	
Fred E. Gulick, field assistant.....	1,272.58	66.10	1,338.68	1,272.58	66.10	1,338.68	
G. A. Pugsey, field assistant.....	1,076.82	35.06	1,111.88	1,076.82	35.06	1,111.88	
W. E. Pugsey, field assistant.....	200.00		200.00	200.00		200.00	
Joe Shepard, field assistant.....							
Ames Laboratory—							
Paul Critz, laboratory chief.....	2,434.99	96.61	2,531.60	2,434.99	95.13	2,530.12	11.48
Jay Elliott, laboratory assistant.....	1,300.00	35.49	1,335.49	1,300.00	35.49	1,335.49	
L. G. Banner, laboratory assistant.....	750.00	11.69	761.69	750.00		750.00	11.69
Alfred Faul, laboratory assistant.....	125.00		125.00	125.00		125.00	
Robert Jones, laboratory assistant.....	375.00		375.00	375.00		375.00	
W. McCrory, laboratory assistant.....	167.74		167.74	167.74		167.74	
W. McCrory, laboratory assistant.....	712.55		712.55	712.55		712.55	
Ted Russell, laboratory assistant.....	135.48		135.48	135.48		135.48	
Joe Shepard, laboratory assistant.....	125.00	20.47	145.47	125.00	20.47	145.47	
J. E. Jackson, laboratory assistant.....	125.00		125.00	125.00		125.00	
H. C. Morris, laboratory assistant.....	254.57	7.04	261.61	254.57	7.04	261.61	
Frederick Bender, laboratory assistant.....							

## IOWA STATE HIGHWAY COMMISSION

IOWA STATE HIGHWAY COMMISSION

LAURENCE J. MCG. CHICAGO, ILL.

**SCHEDULE NO. FORTY-EIGHT**  
DISTRICT OFFICE NO. 1—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
W. F. Beard, district engineer.....	\$ 3,075.00	\$ 1,285.11	\$ 4,360.11	\$ 1,461.00	\$ 1,008.98	\$ 2,469.98	\$ 1,890.13
H. O. Hickok, assistant district engineer.....	1,149.00	232.22	1,441.22	1,095.00	248.51	1,343.51	98.94
H. S. Leicht, road designer.....	2,424.00	85.38	2,510.37	2,295.84	84.78	2,380.62	129.75
Dorothy Twitchell, draftsman.....	875.00	—	875.00	391.26	—	391.26	483.74
Enid Ruston, draftsman.....	510.00	—	510.00	460.00	—	460.00	50.00
J. L. Vannoy, draftsman.....	675.00	—	675.00	582.00	—	582.00	93.00
Kenneth Y. Craig, draftsman.....	225.00	—	225.00	—	—	—	225.00
John L. McGrane, draftsman.....	445.16	—	445.16	421.16	—	421.16	24.00
H. E. Spickard, draftsman.....	158.33	—	158.33	148.83	—	148.83	9.50
Burton R. Smith, draftsman.....	413.71	45.41	459.12	409.21	45.41	454.62	4.50
G. A. Foster, draftsman.....	567.37	—	567.37	457.10	—	457.10	80.27
L. G. Krull, draftsman.....	139.78	41.41	181.19	139.78	41.41	181.19	—
M. L. Clement, draftsman.....	258.06	30.00	288.06	240.06	30.00	270.06	18.00
Thos. Jennings, draftsman.....	316.13	—	316.13	302.13	—	302.13	14.00
J. A. Karr, draftsman.....	423.29	150.45	582.84	395.39	150.45	545.84	28.00
Chas. H. Stout, draftsman.....	101.61	—	101.61	60.85	—	60.85	31.76
Extra help—clerical.....	976.00	—	976.00	807.98	—	807.98	168.02
Totals.....	\$ 12,765.12	\$ 1,309.98	\$ 14,075.10	\$ 9,757.25	\$ 1,618.64	\$ 11,375.89	\$ 2,699.21

**SCHEDULE NO. FORTY-NINE**  
DISTRICT OFFICE NO. 2—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
R. R. Zack, district engineer.....	\$ 3,075.00	\$ 401.05	\$ 3,476.05	\$ 1,810.13	\$ 191.61	\$ 2,001.74	\$ 1,474.30
T. R. Perry, assistant district engineer.....	2,649.00	643.10	3,292.03	904.60	311.45	1,216.05	2,076.02
E. R. Meredith, road designer.....	1,564.29	52.00	1,616.29	1,476.00	42.64	1,518.64	97.74
Vera O'Donnell, stenographer.....	1,140.00	—	1,140.00	577.70	—	577.70	562.30
E. B. Gordon, draftsman.....	225.00	11.94	236.94	225.00	—	225.00	11.94
Henry J. Kassel, draftsman.....	744.22	—	744.22	737.22	—	737.22	7.00
Amel Reichstein, draftsman.....	419.35	—	419.35	419.35	—	419.35	—
Harold Wilson, draftsman.....	505.10	—	505.10	505.10	—	505.10	—
R. I. Mount, draftsman.....	465.54	42.74	508.28	448.50	42.74	491.24	17.04
Worth D. Ross, draftsman.....	889.97	—	889.97	889.97	—	889.97	—
W. D. Tomlinson, draftsman.....	307.28	9.72	317.00	307.28	4.43	311.71	5.29
Express.....	—	3.39	3.39	—	—	—	3.39
Freight and drayage.....	—	8.90	8.90	—	—	—	8.90
Postage.....	—	3.14	3.14	—	1.14	1.14	2.00
Telegraph.....	—	1.64	1.64	—	—	—	1.64
Telephone.....	—	252.10	252.10	—	2.35	2.35	249.75
Office rental.....	—	949.84	949.84	—	—	—	949.84
Miscellaneous supplies.....	—	196.36	196.36	—	—	—	196.36
Extra help—clerical.....	415.25	32.10	447.35	415.25	20.90	436.15	6.14
Totals.....	\$ 12,490.05	\$ 2,379.15	\$ 14,869.20	\$ 8,895.16	\$ 822.34	\$ 9,717.50	\$ 5,151.70



**SCHEDULE NO. FIFTY**  
DISTRICT OFFICE NO. 3—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
E. W. Dunn, district engineer.....	\$ 3,324.99	\$ 1,308.86	\$ 4,633.85	\$ 1,612.38	\$ 828.79	\$ 2,441.17	\$ 2,192.68
E. Capel, assistant district engineer.....	2,649.93	844.18	3,494.11	1,673.27	566.96	2,240.23	1,233.89
I. E. Odendahl, road designer.....	523.65	6.33	529.98	443.00	6.33	449.33	80.65
H. E. Spiekard, road designer.....	1,174.98		1,174.98	1,015.49		1,015.49	158.49
Belle Courtney draftsman.....	937.10		937.10	621.48		621.48	315.62
Edna Eckert, stenographer.....	1,250.00		1,250.00	285.60		285.60	964.40
P. W. Reidesel, draftsman.....	434.37		434.37	251.34		251.34	183.03
S. A. Schackel, draftsman.....	1,153.54	34.03	1,187.57	1,074.11	34.03	1,108.14	80.43
E. D. Carson, draftsman.....	493.55		493.55			493.55	30.00
Perry Collins, draftsman.....	540.11	2.29	542.40	533.21	2.29	535.50	7.90
Holgar Jacobson, draftsman.....	322.25	4.00	326.25	295.25	4.00	299.25	27.00
Newell Ropes, draftsman.....	343.55		343.55	313.55		313.55	30.00
F. S. Clyde, draftsman.....	351.29	3.14	354.43	329.29	3.14	332.43	22.00
Geo. Christianson, draftsman.....	386.70		386.70	361.03		361.03	24.67
L. E. Frink, draftsman.....	180.17	5.13	185.30	182.17	5.13	187.30	4.00
Wilton Kintigh, draftsman.....	248.65	13.68	262.33	218.65	13.68	232.33	30.00
C. V. Watson, draftsman.....	359.03		359.03	321.03		321.03	38.00
S. F. Sprague, draftsman.....	479.38		479.38	446.58		446.58	32.80
H. C. Smith, draftsman.....	1,012.76	9.19	1,021.95	958.33	3.14	961.47	60.48
C. E. Ellerbrook, draftsman.....	156.75	6.77	163.52	22.58		22.58	140.94
Charles H. York, draftsman.....	195.89	6.77	202.66	185.88		185.88	16.78
Express.....		1.06	1.06				1.06
Freight and drayage.....		11.43	11.43				11.43
Telephone.....		10.22	10.22		7.07	7.07	3.15
Miscellaneous supplies.....		106.85	106.85		5.05	5.05	101.80
Extra help—clerical.....		461.80	461.80				461.80
		17.62	608.44		582.82	582.82	14.77
Totals.....	\$ 16,824.96	\$ 2,854.01	\$ 19,678.97	\$ 12,361.09	\$ 1,491.05	\$ 13,752.14	\$ 5,926.83

**SCHEDULE NO. FIFTY-ONE**  
DISTRICT OFFICE NO. 4—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
L. M. Martin, district engineer.....	\$ 3,324.99	\$ 841.00	\$ 4,165.99	\$ 1,450.21	\$ 453.25	\$ 1,903.46	\$ 2,262.53
A. J. Van Sise, assistant district engineer.....	1,188.13	685.15	1,873.28	351.82	327.58	679.40	1,193.88
C. D. Weller, assistant district engineer.....	908.22	295.93	1,204.15	405.01	139.19	544.20	659.95
E. H. Irwin, road designer.....	2,383.29		2,383.29	1,991.13		1,991.13	392.16
E. Irene Higley, draftsman.....	1,240.00		1,240.00	1,153.50		1,153.50	86.50
Vera Wilson, draftsman.....	1,270.00		1,270.00	1,185.10		1,185.10	84.90
H. L. Frost, janitor.....	129.00		129.00				129.00
John E. Buck, draftsman.....	129.03	5.39	134.42	129.03	5.39	134.42	
B. J. Conlon, draftsman.....	129.96		129.96	129.96		129.96	
J. L. Motrane, draftsman.....	385.59		385.59	353.33		353.33	32.26
F. D. Caldwell, draftsman.....	169.44		169.44	169.44		169.44	
Joe Gibson, draftsman.....	270.00		270.00	256.50		256.50	13.50
C. D. Weller, draftsman.....	416.00		416.00	383.34		383.34	32.66
W. F. Carlson, draftsman.....	517.26		517.26	491.26		491.26	26.00
W. A. Griffith, draftsman.....	532.24		532.24	498.71		498.71	33.53
Glen A. Kring, draftsman.....	644.35		644.35	544.35		544.35	100.00
J. G. McFadden, draftsman.....	335.54	5.97	341.51	319.47		319.47	22.04
T. E. Martin, draftsman.....	479.51		479.51	400.22		400.22	79.29
T. B. Shupe, draftsman.....	422.42		422.42	395.42		395.42	27.00
Ray F. Meyer, draftsman.....	304.63		304.63	259.81		259.81	44.82
P. G. Osterholm, draftsman.....	305.30		305.30	287.79		287.79	17.51
D. L. Paul, draftsman.....	394.30		394.30	372.30		372.30	22.00
Harry B. Siedler, draftsman.....	225.80		225.80	200.80		200.80	25.00
Wm. E. White, draftsman.....	100.00		100.00				100.00
Express.....		5.94	5.94				5.94
Freight and drayage.....		10.30	10.30				10.30
Postage.....		2.00	2.00		1.00	1.00	1.00
Telephone.....		21.64	21.64		4.90	4.90	16.74
Miscellaneous supplies.....		162.05	162.05		8.70	8.70	153.35
Extra help—clerical.....		196.85	196.85				196.85
		49.00	185.12		144.40	144.40	13.72
Totals.....	\$ 16,330.83	\$ 2,183.91	\$ 18,514.74	\$ 12,009.56	\$ 967.15	\$ 12,976.71	\$ 5,538.03

SCHEDULE NO. FIFTY-TWO  
DISTRICT OFFICE NO. 5—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
J. S. Morrison, district engineer.....	\$ 3,399.96	\$ 700.07	\$ 4,100.03	\$ 2,412.69	\$ 564.89	\$ 2,977.58	\$ 1,300.74
W. J. Smith, assistant district engineer.....	2,649.92	385.05	3,034.97	2,455.31	383.13	2,838.44	1,092.11
Geo. H. Mack, road designer.....	2,434.99	41.88	2,476.87	2,433.99	41.88	2,475.87	8.80
Victoria Darrell, stenographer.....	170.00		170.00	170.00		170.00	
Elythe R. Addy, stenographer.....	512.75	512.75	1,025.50	565.95	565.95	1,131.90	6.80
Ethel Smith, stenographer.....	350.00		350.00	346.40		346.40	3.60
H. E. Horner, draftsman.....	350.00		350.00	343.00		343.00	7.00
J. C. Bush, draftsman.....	210.48		210.48	205.03		205.03	4.35
R. W. Nelson, draftsman.....	335.48		335.48	335.48		335.48	
R. W. Nelson, draftsman.....	325.00		325.00	316.00		316.00	9.00
W. P. Nelson, draftsman.....	400.00		400.00	378.31		378.31	21.69
S. R. Espe, draftsman.....	313.21		313.21	308.51		308.51	4.40
Don A. McNaughton, draftsman.....	685.21		685.21	685.21		685.21	
R. C. Fye, draftsman.....	179.04	28.51	207.55	179.04	28.51	207.55	49.00
E. C. Stevens, draftsman.....	137.74		137.74	137.74		137.74	
E. D. Davis, draftsman.....	131.40		131.40	131.40		131.40	
Earl Russell, draftsman.....	312.50	92.05	404.55	350.00	95.05	445.05	62.50
Express and drayage.....		5.46	5.46		2.94	2.94	2.50
Postage.....		4.22	4.22		1.02	1.02	3.20
Telephone.....		3.47	3.47		21.53	21.53	18.00
Miscellaneous supplies.....		105.23	105.23		1.80	1.80	172.55
Extra help—clerk.....	438.06	13.53	451.59	391.00	13.53	404.53	80.48
Totals.....	\$ 13,391.57	\$ 1,844.14	\$ 15,235.71	\$ 12,005.46	\$ 1,088.36	\$ 13,093.82	\$ 2,141.89

SCHEDULE NO. FIFTY-THREE

DISTRICT OFFICE NO. 9—JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
W. M. Lee, district engineer.....	\$ 3,109.97	\$ 700.39	\$ 3,810.36	\$ 1,342.31	\$ 592.83	\$ 1,935.14	\$ 2,174.19
L. S. Gates, assistant district engineer.....	2,699.50	535.14	3,234.64	2,675.64	570.80	3,246.44	2,098.87
Sarah McElroy, draftswoman.....	255.00	3.22	258.22	227.67	3.22	230.89	22.33
Rowena C. Merritt, draftswoman.....	255.00	3.22	258.22	250.53	3.22	253.75	35.47
Oval M. Foster, stenographer.....	1,420.00		1,420.00	363.25		363.25	850.75
J. W. Brandt, draftsman.....	2,434.99	18.35	2,453.34	2,292.99	8.90	2,301.89	107.40
R. E. Riley, draftsman.....	780.24		780.24	787.75		787.75	1.49
R. E. Riley, draftsman.....	780.00		780.00	782.00		782.00	7.00
F. A. Peterson, draftsman.....	735.45	21.35	756.80	744.35	21.35	765.70	56.00
John G. Butler, draftsman.....	344.99		344.99	344.99		344.99	
H. D. Carothers, draftsman.....	754.10		754.10	429.15		429.15	324.95
Frank M. Thul, draftsman.....	554.45	94.17	648.62	549.05		549.05	99.57
K. F. Trotter, draftsman.....	677.42	12.08	689.50	675.42	13.03	688.45	5.40
J. B. Buchanan, draftsman.....	322.72		322.72	315.05		315.05	7.00
A. M. Miller, draftsman.....	242.74		242.74	235.74		235.74	61.05
V. D. Myers, draftsman.....	100.00	36.95	136.95	100.00	38.95	138.95	14.00
G. H. Justin, draftsman.....	190.00		190.00	169.00		169.00	
R. M. Griffith, draftsman.....	170.00		170.00	270.00		270.00	
J. F. Sproat, draftsman.....	185.00		185.00	185.00		185.00	
Express.....		7.75	7.75				7.75
Freight and drayage.....		5.82	5.82		3.63	3.63	2.19
Office rental.....		540.00	540.00				540.00
Telephone.....		3.73	3.73		1.22	1.22	2.51
Miscellaneous supplies.....		316.61	316.61		13.25	13.25	302.36
Extra help—clerk.....	604.12	225.10	829.22	592.34		592.34	236.88
Totals.....	\$ 17,154.46	\$ 2,905.81	\$ 20,060.27	\$ 12,372.59	\$ 900.88	\$ 13,273.47	\$ 6,486.40

**SCHEDULE NO. FIFTY-FOUR**  
DISTRICT OFFICE NO. 7—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
J. A. Paulsen, district engineer.....	\$ 1,599.00	\$ 277.98	\$ 1,877.97	\$ 516.33	\$ 129.98	\$ 646.31	\$ 1,231.66
J. W. Mercer, district engineer.....	1,549.98	337.34	1,887.32	439.15	163.14	602.29	1,285.03
I. E. Goodrich, assistant district engineer.....	2,649.93	380.37	3,030.30	2,542.35	273.02	2,815.37	214.93
O. L. Huffman, road designer.....	2,083.30	13.00	2,096.30	1,795.83	11.43	1,807.26	289.13
Lena Alt, draftsman.....	1,300.00	—	1,300.00	1,190.10	—	1,190.10	109.90
Dorothy Twitchell, draftsman.....	270.00	2.71	272.71	212.55	2.71	215.26	57.45
Floy Foss, stenographer.....	730.00	—	730.00	553.95	—	553.95	176.05
C. L. Gleason, draftsman.....	109.98	8.72	118.40	109.98	8.72	118.40	—
F. A. Patzer, draftsman.....	637.90	—	637.90	594.47	—	594.47	43.43
E. W. Hahn, draftsman.....	638.70	—	638.70	605.71	—	605.71	32.99
H. E. Kingman, draftsman.....	580.62	—	580.62	543.93	—	543.93	36.69
C. P. Lechner, draftsman.....	300.51	—	300.51	190.38	—	190.38	110.13
F. B. Schmidt, draftsman.....	492.10	—	492.10	454.72	—	454.72	37.38
Glade Butterfield, draftsman.....	397.85	—	397.85	368.05	—	368.05	29.80
C. L. Gleason, draftsman.....	425.00	—	425.00	382.50	—	382.50	42.50
Express.....	—	2.32	2.32	—	—	—	2.32
Freight and drayage.....	—	8.80	8.80	—	—	—	8.80
Office rental.....	—	330.00	330.00	—	—	—	330.00
Telegraph.....	—	5.44	5.44	—	2.13	2.13	3.31
Telephone.....	—	230.75	230.75	—	2.80	2.80	227.95
Miscellaneous supplies.....	—	172.98	172.98	—	2.10	2.10	170.88
Extra help—clerical.....	237.45	—	237.45	92.50	—	92.50	144.95
<b>Totals.....</b>	<b>\$ 13,886.01</b>	<b>\$ 1,770.50</b>	<b>\$ 15,656.51</b>	<b>\$ 10,571.23</b>	<b>\$ 596.03</b>	<b>\$ 11,167.26</b>	<b>\$ 4,489.25</b>

**SCHEDULE NO. FIFTY-FIVE**  
DISTRICT OFFICE NO. 8—JULY 1, 1929 TO JUNE 30, 1931.

Name	Paid from Maintenance Fund			Charged to Federal Aid Engineering Fund			Net Cost to Maintenance Fund
	Salary	Expense	Total	Salary	Expense	Total	
J. F. Reynolds, district engineer.....	\$ 3,249.93	\$ 1,938.67	\$ 5,188.60	\$ 1,473.23	\$ 1,539.27	\$ 3,012.50	\$ 2,176.10
A. A. Baustian, assistant district engineer.....	2,649.93	650.17	3,300.10	970.05	443.45	1,413.50	1,886.60
M. E. Johnson, road designer.....	2,424.99	28.79	2,453.78	2,211.50	28.77	2,240.27	213.51
D. H. Jansen, draftsman.....	—	7.46	7.46	—	7.46	7.46	—
Hazel Brandt, draftsman and stenographer.....	943.55	—	943.55	577.42	—	577.42	366.13
Grace Baustian, stenographer.....	313.71	—	313.71	79.40	—	79.40	234.31
Edna Unger, stenographer.....	118.71	—	118.71	58.71	—	58.71	59.99
J. L. Gells, resident engineer.....	529.88	—	529.88	510.83	—	510.83	19.05
S. W. O'Brien, chief of party.....	630.02	—	630.02	570.21	—	570.21	69.81
R. L. Buford, resident engineer.....	208.87	—	208.87	184.48	—	184.48	24.39
E. C. Neudecker, instrument man.....	678.63	1.61	680.24	645.30	1.61	646.91	33.33
H. R. Goyke, inspector.....	960.00	31.23	991.23	930.00	31.23	961.23	30.00
R. E. Riblet, inspector.....	146.66	—	146.66	146.66	—	146.66	—
Express.....	—	10.47	10.47	—	—	—	10.47
Freight and drayage.....	—	24.08	24.08	—	—	—	24.08
Office rental.....	—	360.00	360.00	—	—	—	360.00
Postage.....	—	44.90	44.90	—	—	—	44.90
Telegraph.....	—	6.84	6.84	—	1.20	1.20	5.64
Telephone.....	—	195.28	195.28	—	8.05	8.05	187.23
Miscellaneous supplies.....	—	55.03	55.03	—	—	—	55.03
Extra help—clerical.....	158.64	24.90	183.54	158.64	14.08	172.72	10.82
<b>Totals.....</b>	<b>\$ 12,984.12</b>	<b>\$ 3,379.43</b>	<b>\$ 16,363.55</b>	<b>\$ 8,516.32</b>	<b>\$ 2,075.12</b>	<b>\$ 10,591.44</b>	<b>\$ 5,772.11</b>



## SCHEDULE NO. FIFTY-SIX

DISTRICT OFFICE NO. 9-JULY 1, 1920 TO JUNE 30, 1921.

Name	Paid from Maintenance Fund		Charged to Federal Aid Engineering Fund		Net Cost to Maintenance Fund
	Salary	Expense	Salary	Expense	
W. O. Price, district engineer.....	\$ 2,294.00	\$ 1,510.73	\$ 1,680.85	\$ 1,084.70	\$ 2,091.16
V. G. Gould, road designer.....	543.03	2.40	543.03	3.00	546.03
W. M. Richards, Jr., road designer.....	1,074.38	56.51	1,030.71	49.38	1,080.07
Susie Wright, stenographer.....	1,185.00		713.82		471.68
L. C. Whitten, janitor.....	130.00				130.00
C. H. Ford, draftsman.....	416.00		416.00		416.00
W. S. Langer, draftsman.....	440.22		238.82		201.40
W. S. Langer, draftsman.....	230.33		177.08		153.25
Harold A. Kennedy, draftsman.....	174.65		174.65		174.65
M. Moss, draftsman.....	213.80		201.66		12.14
Wm. M. Samples, draftsman.....	144.34		144.34		144.34
James H. Sears, draftsman.....	181.35		181.35		181.35
Thos. S. Horns, draftsman.....	331.53		290.66		34.87
Roy S. Brown, draftsman.....	131.61		134.81		3.20
Harold E. Kennedy, draftsman.....	177.09		177.09		177.09
Ralph E. Kennedy, draftsman.....	285.04		285.04		285.04
Hugo Benedel, draftsman.....	300.46		300.46		300.46
E. H. Albright, draftsman.....		4.65			4.65
Express.....		4.95			4.95
Freight and drayage.....		44.00			44.00
Postage.....		3.55			3.55
Telephone.....		104.71		1.75	1.75
Miscellaneous supplies.....		173.29		1.50	1.50
Extra help—General.....	104.80		146.03		146.03
Totals.....	\$ 10,519.02	\$ 1,905.39	\$ 8,084.79	\$ 1,140.31	\$ 2,299.21

## SCHEDULE NO. FIFTY-SEVEN

APPROPRIATION—STATE HIGHWAY COMMISSION, JULY 1, 1920, TO JUNE 30, 1921.  
DEBITS

Unexpended appropriation on July 1, 1920.....	\$ 78,791.09
Tax collected July, 1920.....	2,558.84
Tax collected August, 1920.....	6,320.88
Tax collected September, 1920.....	8,067.74
Tax collected October, 1920.....	6,947.08
Tax collected November, 1920.....	4,999.25
Tax collected December, 1920.....	1,165.81
Tax collected January, 1921.....	57,079.83
Tax collected February, 1921.....	49,897.03
Tax collected March, 1921.....	52,947.72
Tax collected April, 1921.....	13,064.59
Tax collected May, 1921.....	12,346.18
Tax collected June, 1921.....	11,875.72
Refunds—Miscellaneous.....	44,880.29
Refund—Federal aid engineering expense.....	478,942.02
	\$ 829,378.17
CREDITS	
Warrants issued in July, 1920.....	\$ 90,068.67
Warrants issued in August, 1920.....	53,715.08
Warrants issued in September, 1920.....	49,265.40
Warrants issued in October, 1920.....	42,305.81
Warrants issued in November, 1920.....	53,511.52
Warrants issued in December, 1920.....	46,891.80
Warrants issued in January, 1921.....	68,562.98
Warrants issued in February, 1921.....	52,625.60
Warrants issued in March, 1921.....	65,101.62
Warrants issued in April, 1921.....	20,742.78
Warrants issued in May, 1921.....	38,456.12
Warrants issued in June, 1921.....	52,628.17
Balance, June 30, 1921.....	173,674.89
	\$ 829,378.17

**SCHEDULE NO. FIFTY-EIGHT**  
**COMPARISON OF EXPENDITURES FOR SIX YEARS.**

Item	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920	1920-1921
1 Commissioners .....	\$ 2,500.22	\$ 2,809.63	\$ 2,127.27	\$ 2,295.08	\$ 2,298.82	\$ 2,015.37
2 Administrative department .....	12,127.98	12,479.78	15,417.65	15,431.07	14,506.57	Note 1
3 Executive department .....	Note 2	Note 2	Note 2	Note 2	Note 2	5,768.71
4 Department purchases and accounts .....	Note 3	Note 3	Note 3	Note 3	Note 3	14,712.34
5 Accounting department .....	Note 4	Note 4	Note 4	Note 4	4,222.17	2,457.30
6 Road department .....	11,186.35	11,139.89	16,444.05	Note 5	Note 5	Note 5
7 Department of road administration .....	Note 6	Note 6	Note 6	4,235.83	5,342.88	3,147.01
8 Department of road design—Plans .....	Note 6	Note 6	Note 6	4,719.24	778.09	884.06
9 Department of road design—Surveys .....	Note 6	Note 6	Note 6	19,325.05	1,236.37	917.68
10 Department of road construction .....	Note 6	Note 6	Note 6	Note 7	1,144.42	2,289.08
11 Department of machinery and equipment .....				9,328.16	86,053.83	30,304.96
12 Department of road maintenance .....					4,401.65	5,997.63
13 Traffic census .....				46.83	24.79	
14 Bridge department .....	7,944.33	9,139.02	19,631.08	25,943.02	17,021.80	14,955.11
15 Drainage department .....		882.31	2,785.11	4,913.90	4,684.47	4,953.34
16 Drafting department .....	10,300.20	12,453.25	Note 8	Note 8	Note 8	Note 8
17 Women's drafting department .....	5,300.07	3,886.58	2,192.90	7,302.79	4,301.11	4,727.01
18 Department of material and tests .....					997.52	759.89
19 Equipment and supplies .....	14,900.30	13,476.72	20,229.03	19,968.06	8,544.08	40,300.16
20 District offices .....	13,711.09	14,386.51	13,587.49	17,281.43	33,187.80	42,560.41
21 Bridge patent litigation .....	1,855.90					
22 State institution roads .....	3,225.54	2,032.37	Note 9	Note 10	Note 11	Note 11
23 R. R. crossings—Surveys and plans .....	2,031.30	2,076.58	Note 12	Note 12	Note 12	Note 12
24 Lake bed survey .....	5,535.00	4,814.19				
Totals .....	\$ 90,821.34	\$ 89,786.84	\$ 90,414.58	\$ 121,902.05	\$ 187,392.87	\$ *176,761.26
Deduct on account of receiving Government equipment .....					78,769.87	*30,304.96
Net totals .....	\$ 90,821.34	\$ 89,786.84	\$ 90,414.58	\$ 121,902.05	\$ 110,623.04	\$ 146,456.30

Note 1—Divided under Items 3 and 4.

Note 2—Previously included in Item 2.

Note 3—Previously included in Item 2.

Note 4—Previously included in Item 2.

Note 5—Divided under Items 7, 8, 9, 10.

Note 6—Previously included in Item 6.

Note 7—Included in Item 9 for year 1918-1919.

Note 8—Divided into Items 8 and 14.

Note 9—Included in Item 6 for year 1917-1918.

Note 10—Included in Item 8 for year 1918-1919.

Note 11—Included in Item 10 for years 1919-1920 and 1920-1921.

Note 12—Included in Item 14 since 1917.

\*Deducting \$30,304.96 expended on account of receipt and operation of equipment from the Federal Government, the total cost of maintaining the highway Commission for the year ended June 30, 1921 was \$146,456.30.

## SCHEDULE NO. FIFTY-NINE

APPROPRIATION FEDERAL AID ENGINEERING FUND—JULY 1, 1920 TO JUNE 30, 1921.  
DEBITS.Unexpended appropriation July 1, 1920..... \$ 218,511.17  
Appropriation April 6, 1921..... 450,000.00

## CREDITS.

Expended in July 1920.....	\$ 42,202.76
Expended in August 1920.....	40,082.57
Expended in September 1920.....	35,010.60
Expended in October 1920.....	36,184.53
Expended in November 1920.....	36,568.21
Expended in December 1920.....	38,123.84
Expended in January 1921.....	55,465.08
Expended in February 1921.....	43,390.20
Expended in March 1921.....	39,230.80
Expended in April 1921.....	15,838.14
Expended in May 1921.....	62,836.82
Expended in June 1921.....	33,911.14
Balance June 30, 1921.....	\$ 280,569.15

\$ 741,115.992

## SCHEDULE NO. SIXTY

STATEMENT OF EXPENDITURES FEDERAL AID ENGINEERING FUND, JULY 1, 1920, TO JUNE 30, 1921.

County	Project No.	Miles	Reconnaissance and traffic census	Survey	Profile	Specifications, quantities and records	Bridge and Culvert plans	Construction and testing material	Total
Adair	P-28	15.00		50.25	1,000.51		157.35	237.72	1,395.06
Adair	P-110	11.00	30.25	579.78	247.60		95.39		863.04
Adair	P-102	3.78		251.29	152.63			1,023.09	1,023.09
Adair	P-101	9.98		263.32	100.39	8.24			369.03
Adair	P-40	14.00		733.33	694.65	8.51	30.43		1,466.92
Adair	P-103	11.00	37.20	200.00	158.90	40.43	14.05	298.12	972.13
Adair	P-112	28.80	37.20	200.00	158.90	40.43	14.05	298.12	972.13
Adair	P-113	15.00	33.15	550.62	40.57	137.19	220.15		1,078.40
Adair	P-154	6.50		507.05	11.73				518.78
Adair	P-157	13.00	10.57	9.81		137.19		22.23	2,071.01
Adair	P-158	10.58		1,390.11	1,127.23	38.80		34.03	3,041.01
Adair	P-159	10.45	22.07	1,117.49	1,052.14	145.07	225.08	235.15	2,891.84
Adair	P-160	58.25			1,052.14	35.00	1,024.29	13.76	3,510.56
Adair	P-161	17.82		82.77	540.89	503.55	576.87	1,022.13	2,672.35
Adair	P-162	6.18		35.07	41.34	35.54		89.08	175.35
Adair	P-163	14.00		35.07	37.23				40.30
Adair	P-164	14.08		2,772	10.80			14.29	25.99
Adair	P-165	17.17		2,772	10.80			14.29	25.99
Adair	P-166	22.50		82.46	598.14	924.04	45.85	304.55	1,300.40
Adair	P-167	15.00	5.08	156.45	197.07	9.28		315.09	2,417.48
Adair	P-168	15.00	21.32	671.98	680.96	101.83	176.81	114.09	2,771.48
Adair	P-169	15.00	5.38	156.45	197.07	9.28		315.09	2,417.48
Adair	P-170	8.50		7.71	5.17		42.17		478.11
Adair	P-171	6.50		908.43	534.64	50.03	88.37	14.81	1,577.23
Adair	P-172	15.40		902.44	1,404.08	25.23	430.23		2,865.97
Adair	P-173	15.56		10.17	662.87			130.11	190.58
Adair	P-174	11.25	5.00	971.93	250.96	23.82	7.49		1,015.11
Adair	P-175	12.84		107.09	250.96	18.98		254.02	772.55
Adair	P-176	4.00	85.06	45.91	2.10				133.07



## Schedule No. Sixty—Continued

176

IOWA STATE HIGHWAY COMMISSION

County	Project No.	Miles	Reconnaissance and traffic census	Survey	Profile	Specifications, estimates and records	Bridge and Culvert plans	Construction and testing material	Total
Buena Vista	P-18	24.52	7.59	65.09				1,944.07	2,016.75
Buena Vista	P-49	25.30							4.36
Buena Vista	P-63	4.00				133.91		161.74	484.58
Butler	85	15.62		44.77	60.23	15.30		508.30	629.40
Butler	P-71	12.78	5.36	1,456.54	1,132.00	149.16			2,788.06
Calhoun	10	18.36	89.00	11.01				701.96	792.37
Calhoun	P-5	4.00	65.74					33.72	100.46
Calhoun	P-13	10.60	5.11					179.11	173.22
Calhoun	P-55	18.00	38.58	609.62	55.82	30.75	58.10	719.61	1,512.50
Calhoun	P-66	6.50	22.31	59.42	489.11		46.61	53.57	682.85
Calhoun	P-107	5.25	19.36		14.22	39.91	5.28	79.06	145.58
Carroll	99	8.88		7.69	184.43	59.91	9.24	54.90	315.85
Carroll	P-9	23.50	41.97	944.76	511.92	14.19	8.73		1,521.17
Carroll	P-14	11.00	10.49	246.29	307.47	134.05	388.66	95.62	1,463.58
Carroll	P-141	22.50	15.93		73.77	7.40			97.17
Cass	44	19.90		150.32	502.42	228.80	1,068.81		1,990.35
Cass	P-47	17.00		1,439.54	305.07	134.77	66.09		1,947.37
Cass	P-150	4.25	49.11		53.30	423.26	58.07	178.66	1,481.00
Cedar	87	24.20		1,491.92	2,349.33	1,320.00	813.02	7.89	5,973.73
Cedar	P-114	29.00		12.18	5.48	15.43	1.13		84.22
Cerro Gordo	61	6.05			6.15	455.05		733.36	1,195.06
Cerro Gordo	115	22.07		14.56	28.49	117.98	18.24	1,235.55	1,414.82
Cerro Gordo	P-89	5.00		675.02	171.01	908.25	28.80	9.09	1,793.57
Oberkirk	116	14.00	29.88	85.11	651.09	43.17	509.04	297.94	1,587.03
Oberkirk	P-151	17.50	73.22	53.60	149.41		7.79	170.01	4,066.03
Cherokee	P-151	22.50	30.66	8.50		137.19		113.58	
Chickasaw	56	13.17		4.72		307.39		97.51	409.82
Chickasaw	76	13.59		240.17	980.08	70.28	446.55	25.43	1,772.53
Chickasaw	P-131	18.00	26.31		22.95				49.26
Clarke	32	8.45		10.90	67.72	47.74	10.23	334.60	471.34
Clarke	P-31	14.25	12.70	1,864.47	1,250.59	135.19	9.07		3,272.72

Clay	P-32	7.07	14.71	43.82	156.32			32.76	214.86
Clay	P-96	7.00		1,004.07	998.77	13.47		869.84	2,009.07
Clay	74	32.20		630.05	1,606.58	35.29		136.47	3,361.13
Clayton	P-70	21.50	27.57	2,538.19	413.92	142.61		15.78	3,396.56
Clinton	18	17.58			234.71	12.34		1,069.76	1,493.22
Clinton	P-125	17.50		1,436.94	37.70	16.55		7.98	1,499.17
Clinton	P-8	17.00	41.45	1,846.88	1,848.88	12,292.49	162.09		15,601.59
Crawford	P-65				9.60				9.60
Crawford	12	16.50				16.02	6.40	104.33	127.04
Dallas	P-53	22.25	33.48	1,405.73	1,842.62	161.62	672.87	281.79	4,368.61
Dallas	P-100	16.82	21.52		37.56	226.49		289.96	385.50
Dallas	P-119	41.75			56.67	153.96			190.63
Dallas	50	10.50			8.19	158.10	129.30	143.89	2,618.67
Davis	P-112	11.75	51.22	1,841.18	118.35	154.42			2,175.17
Davis	8	9.83				15.14	42.41	121.33	196.88
Decatur	122	10.00		44.34	250.82	37.88	614.90		947.94
Decatur	4	12.62			21.03	20.88	5.09	195.40	242.40
Delaware	103	13.30		170.23	1,271.25	32.54	206.09	24.02	1,794.13
Delaware	P-150	12.62			40.00	169.73			256.73
Des Moines	32	4.89			17.38	175.67		1,649.82	4,271.89
Des Moines	P-53	2.35			29.37	41.06		1,393.28	2,009.24
Dickinson	68	4.80		15.36	13.19	20.07		1,586.56	1,646.01
Dickinson	P-93	7.00	80.00	1,305.38	7.73		12.94	1,406.08	
Dickinson	P-53	1.50	49.70	8.00		59.95		85.25	203.80
Dickinson	17	21.69	15.19	174.05	382.50	68.07	379.09	3,426.94	4,443.03
Dubuque	P-147	20.04		11.99	14.41	43.36	109.07		178.83
Dubuque	49	3.94			5.79				73.77
Emmet	P-57	38.70	13.50	8.50	5.80			8,819.25	3,884.80
Emmet	59	36.85		134.29	1,294.35	143.42		199.58	1,671.64
Fayette	P-143	9.50		35.97	58.36	17.09			111.43
Fayette	P-144	14.00						8.73	8.73
Fayette	P-145	27.25						11.43	11.43
Fayette	41	12.40		10.71	34.48	4,900.37		1,356.32	6,302.08
Floyd	P-63	8.50	9.00	1,240.24	1,071.71	385.92	176.73	90.05	2,963.64
Floyd	P-73	5.40		5.99		3.17		19.56	28.74
Floyd	P-122				6.81		5.99		9.80
Franklin	106	9.75		166.21	284.07	19.05	144.38	187.54	862.05
Franklin	P-49	10.50		2.85	217.69	165.35	115.87	5.33	510.39
Franklin	77	18.20		25.61	226.87	20.51	1,662.63	608.67	2,364.41
Fremont	P-84	15.00		1,134.33	612.73	115.61	36.40	6.64	1,896.31
Fremont	P-126	14.00			9.78			18.00	27.78
Fremont	B-1						23.27	30.66	53.93
Fremont	39	7.41			55.04	159.42	39.60	2,097.23	2,341.89
Greene	P-24	36.50		783.49	1,463.23	3,293.43	249.36	143.03	5,915.56
Greene	P-133			971.35	5.25	7.40		14.83	966.84
Grundy	19	14.11		37.54	30.27	4.36	212.21	417.05	710.43
Grundy	P-48	19.50	4.83	1,443.07	1,613.21	66.27	400.43	67.22	3,566.03

FINANCIAL STATEMENT

177

## IOWA STATE HIGHWAY COMMISSION

Schedule No. Sixty—Continued

County	Project No.	Miles	Reconnaissance and traffic census	Survey	Profile	Specifications, conferences and records	Bridge and Culvert plans	Construction and testing material	Total
Geithrie	51	20.00	35.14	39.00	428.19	52.40	524.36	254.25	1,592.41
Guthrie	54	15.50	26.21	1,320.00	211.25	115.60	45.00	132.72	2,061.51
Sanitelle	67	20.50	26.14	1,320.00	272.85	178.10	192.02	281.81	2,413.71
Hamilton	P-17	6.50	20.14	5.45	19.25	141.60		25.84	258.24
Hamilton	P-79	17.00	22.21	900.81	801.00	6.70		25.84	1,472.68
Hamilton	P-80	24.00	22.21	900.81	170.54	445.53	90.32	770.21	1,739.88
Hancock	P-84	24.00	103.05	170.83	11.55	252.18		312.68	464.05
Hardin	P-88	45.80	67.01	227.05	198.21	132.21	10.80	14.81	870.40
Harrison	P-88	15.00	127.68	400.55		13.00		415.05	431.59
Harrison	P-34	19.00	29.97	4.91	1,165.20	17.78	381.88	4.70	4,500.81
Henry	P-34	15.00	14.11	2,035.00	81.62	1,525.00	7.70	3,110.32	5,110.32
Henry	P-102	20.00	14.11	1,198.68	132.62	490.03		286.25	2,405.59
Howard	P-102	9.00	20.73	35.20	838.06	147.05	455.17	67.43	1,344.23
Howard	P-81	11.00	20.73		6.35	118.61	10.00		134.73
Howard	P-102	1.00			115.61	115.61	2.49		234.70
Howard	P-102	1.00			9.35	9.35			18.84
Humboldt	P-102	1.00			137.00	137.00			274.00
Humboldt	P-104	40.80	22.31	1,427.31	11.45	333.85	333.42	2.84	4,300.27
Humboldt	P-104	6.00	22.31	97.43	40.53	333.85	333.42	2.84	2,772.81
Idaho	P-104	30.00	101.31	1,000.65	516.84	187.01	10.72	503.22	3,050.22
Idaho	P-101	14.20			809.97				1,609.97
Iowa	B-44	20.20		100.08	2,440.15	800.29	1,043.84	11.81	4,499.07
Iowa	P-100	20.20		7.40			46.83		54.23
Iowa	P-100			19.05			8.73		28.00
Jackson	P-105	16.00		530.00	1,281.32	65.36	1,307.95	131.75	3,495.04
Jackson	P-160	11.08		7.63					536.00
Jackson	P-64	43.50	161.88	2,445.91	2,727.40	421.04	1,131.79	684.54	7,497.43
Lincoln	P-77	10.00	73.11	506.63		14.82	43.31		1,456.94
Lincoln	P-59	26.00	15.00	15.00	21.79				57.77

[illegible]



## Schedule No. Sixty—Continued

180

IOWA STATE HIGHWAY COMMISSION

County	Project No.	Miles	Reconnaissance and traffic census	Survey	Profile	Specifications, conferences and records	Bridge and Culvert plans	Construction and testing material	Total
Osceola	P-15	11.00	19.73	24.52	106.27	1,369.38	8.19	373.83	1,901.92
Osceola	P-160	10.45			1.50				1.50
Page	P-27	23.25		290.83	1,867.79	48.25	1,425.49	196.35	3,782.72
Palo Alto	109	11.05			10.38	1,788.76		2,914.70	4,713.84
Plymouth	38	27.35	40.18	303.56	1,155.39	146.23	477.23	97.69	2,220.18
Plymouth	P-39	27.50	20.71	1,910.53	1,455.43	103.63	131.05	38.99	3,663.24
Plymouth	P-74	13.75		749.53	579.66	173.67	74.68		1,574.84
Pocahontas	B-35							3.71	3.71
Pocahontas	P-7			33.79	55.97			571.87	659.88
Pocahontas	P-20	10.75	114.29	716.78	96.04	87.79		1,350.65	2,965.55
Pocahontas	P-90	15.00	12.75	33.58	949.02	57.35	290.17	135.68	1,479.06
Pocahontas	P-91	21.00		104.78	43.02	18.98		413.82	580.60
Polk	89	7.22			33.83	37.15		1,898.39	1,969.37
Polk	104	6.57		15.33	49.16	47.53		1,568.39	1,710.32
Polk	P-1	1.00			15.63				15.63
Polk	P-3	4.35						13.97	13.97
Polk	P-40	29.33	25.92	24.30	457.33	86.42	87.13	44.36	603.45
Polk	P-59	3.50	31.88	23.46	49.15	373.61	2.08	22.75	499.93
Polk	P-72	15.13		27.54	8.07	152.76		130.42	318.79
Polk	P-115	3.75		634.80	1.55		5.20	15.88	657.43
Polk	P-122	6.25		3.06	22.33	221.45	7.40	35.25	289.49
Polk	P-148	16.03				137.19			137.19
Pottawattamie	46	2.65		4.45			4.96	348.69	358.40
Pottawattamie	P-21	20.00	49.82	2,225.23	1,592.87	115.61	211.78	40.48	4,235.79
Pottawattamie	P-22	22.55		2,400.48	1,301.07	314.92			4,435.82
Pottawattamie	P-92	10.00		2,590.65	677.29	115.61			3,763.81
Poweshiek	P-41	24.00	71.77	631.87	1,701.65	48.74	697.36	124.56	3,275.95
Poweshiek	P-137	15.50			8.65		.93		9.58
Poweshiek	B-15					9.79			9.79
Ringgold	6	12.00		5.53	37.77	32.72	7.70	306.33	390.65
Ringgold	123	12.00		1,051.89	582.87				1,634.76

Sac.	P-10	7.15				3.20	8.29	357.65	357.65
Sac.	P-11	11.24						924.82	924.82
Sac.	P-12	13.17						180.27	180.27
Sac.	P-89	1.50	5.97	7.48	8.34	37.28		240.97	296.06
Sac.	P-106	15.00	55.99		16.77	37.59		243.49	361.72
Sac.	94	5.43			4.25			273.75	278.60
Scott	56	19.13		2,494.96	775.30	27.49	323.68	135.59	3,757.35
Scott	114	17.34		8.00	135.26	50.51	311.74	12,571.37	13,087.88
Scott	P-50	26.55	72.13	1,988.07	2,084.50	280.79	111.55	6,108.63	10,706.04
Scott	P-124	14.00		7.96	5.63				16.62
Shelby	P-42	23.75		178.23	615.06	83.29	1,503.13	504.78	2,945.09
Shelby	28	24.40	12.36		10.95			149.04	172.35
Sioux	84	12.94	6.58		2.04	22.69		1,707.10	1,708.41
Sioux	P-25	2.19		10.17	2.45			49.06	61.68
Sioux	P-67	3.00	27.39	533.06	302.39	62.46	46.40	32.97	1,094.57
Sioux	P-83	33.30	29.64	1,356.58	874.49	139.64	21.19	12.40	2,435.03
Sioux	72	20.50	10.19	547.34	1,081.20	89.65	79.06	1,274.52	2,681.96
Story	P-62	43.80	48.67	483.36	239.18	56.48	6.85	862.30	1,110.53
Story	P-100	.50		36.78	65.10		11.64		90.67
Story	P-132	9.50			12.64		.57	14.81	28.02
Story	P-133	4.00						42.09	4,611.91
Story	47	30.00	7.75	619.17	1,964.03	57.35	1,921.32		15.70
Tama	P-140	26.00				7.24	5.46		2,919.27
Tama	81	19.25		1,022.91	1,534.19	44.04	252.70		2,941.97
Taylor	83	24.80		2,175.31	699.33	187.73	772.42	161.13	2,639.81
Union	60	11.10			353.69	1,703.37	406.06	173.67	2,239.33
Van Buren	P-43	15.50		182.98	196.78	193.00	240.82	5.22	798.75
Van Buren	P-118	16.30	107.12	3,483.23	605.62	629.53			4,823.50
Van Buren	B-37						4.67	23.07	27.74
Wapello	42	10.50		8.70	54.22	3,235.56	27.03	173.35	3,478.96
Wapello	P-54	17.00	92.79	2,068.28	949.35	715.04		16.41	3,841.87
Wapello	11	15.50		98.98	1,208.15	137.90	745.75	88.55	2,229.33
Warren	P-44	15.30		1,829.09	1,080.61	5.34	27.62		2,951.60
Warren	71	22.00	108.41	1,871.04	2,050.19	1,669.99	504.02	67.87	6,280.52
Washington	P-139	7.50		104.37	34.65				138.42
Washington	91	17.80		23.28	344.78				1,132.41
Wayne	P-127	16.00	13.56	587.79	14.92	151.70	534.66	77.89	616.27
Webster	13	12.15			1.67	25.42		1,784.10	1,811.19
Webster	P-25	19.00		35.91	319.27	92.80	18.12	301.87	867.97
Webster	P-64	15.85	10.55	15.35	647.41	9.20	8.30	2.25	984.76
Webster	P-108	7.00	12.93	2.55	8.73	7.12	2.30	15.49	55.59
Webster	P-111	7.00		2.55	11.70	23.05		158.02	180.56
Webster	30	7.45		9.44	13.20			79.51	213.83
Winnebago	P-2	18.87		4.48	72.35				142.06
Winnebago	P-37	21.05		5.60	21.35	115.61			1,090.47
Winnebago	P-120	22.00	27.63	754.69	265.89		2.24		

FINANCIAL STATEMENT

181





## Schedule No. Sixty-one—Continued

County	Project No.	Length in miles	Total cost of plans	Cost of plans per mile	Estimated cost of project as per project agreement	Cost of plans % of estimated cost of project
Monona	P-38 Sec. B & C	22.9	3,300.00	406.11	119,578.37	.6777
Page	P-27	24.0	5,501.23	229.27	189,081.36	.6295
Plymouth	38 Sec. B & C	25.9	6,532.84	252.23	128,137.57	.6608
Pocahontas	P-30	12.5	1,032.07	82.57	81,140.78	.6127
Pocahontas	P-30	15.0	1,053.20	70.21	101,875.29	.6103
Pocahontas	P-91	14.8	166.78	11.27	87,870.42	.0018
Pottawattamie	P-92	9.9	3,382.55	341.67	75,357.58	.0449
Poweshiek	P-41 Sec. A	15.9	3,709.00	233.79	75,353.08	.0491
Sac	P-85	1.5	58.09	38.73	6,333.25	.0061
Sac	P-105	18.9	118.23	6.26	84,705.11	.0011
Shelby	P-42 Sec. B	23.5	6,000.81	257.91	250,104.36	.0242
Sioux	P-67	3.0	925.20	308.40	14,191.52	.0661
Story	72 Sec. A	9.7	2,871.11	296.61	121,112.30	.0257
Tama	47	30.0	7,629.02	254.30	93,298.96	.0817
Taylor	81 Sec. A	18.08	5,499.54	198.55	98,279.10	.0326
Union	31 Sec. A, B, C & D	14.5	5,000.00	344.82	111,494.84	.0448
Warren	11	10.4	6,304.90	384.45	103,731.43	.0608
Washington	71	21.8	6,533.80	300.64	75,834.82	.0894
Webster	91 Sec. B, C & D	11.0	3,388.82	328.26	79,604.41	.0450
Webster	P-35	9.9	2,128.07	214.93	50,076.12	.0424
Webster	P-108	9.5	31.36	3.41	19,834.65	.0025
Webster	P-111	7.0	37.30	5.33	19,834.65	.0018
Winneshiek	98 Sec. A & B	14.0	5,100.00	364.29	94,318.80	.0540
Worth	134	8.5	1,419.42	166.99	77,794.50	.0182
Wright	P-19	8.2	1,989.41	241.88	97,949.83	.0292
Totals		61,233.34	\$264,264.33	\$ 216.02	\$ 7,571,532.03	.0649

## SCHEDULE NO. SIXTY-TWO

STATEMENT OF PRIMARY ROAD FUND—NOVEMBER 30, 1921.  
FUNDS ALLOTTED TO IOWA COUNTIES.

## FEDERAL FUNDS.

July 31, 1916	\$ 146,175.60
July 1, 1917	292,351.20
July 1, 1918	434,653.61
March 1, 1919	1,443,943.39
July 1, 1919	577,218.45
July 1, 1919	2,164,569.31
July 1, 1920	720,332.18
July 1, 1920	2,160,996.56

\$ 7,069,343.14

## STATE FUNDS.

August 1, 1917	\$ 146,175.60
August 1, 1917	292,351.20
April 1, 1918	217,326.81
August 1, 1918	217,326.80
April 1, 1919	288,699.24
August 1, 1919	288,699.24
April 1, 1920	4,479,693.66
June 3, 1920	1,321,118.55
December 31, 1920	923,851.26
December 31, 1920	66,509.25
March 1, 1921	22,023.80
May 10, 1921	15,783.50
June 23, 1921	6,195,117.39
July 2, 1921	336,179.88
July 2, 1921	11,220.82
August 30, 1921	399,433.92
October 1, 1921	104,662.68
November 1, 1921	77,409.53

\$15,370,363.11 \$ 23,315,706.24

## FUNDS EXPENDED.

July 4—December 31, 1917	\$ 15,100.62
January 1—December 31, 1918	75,863.12
January 1—December 31, 1919	423,775.13
January 1—December 31, 1920	5,196,839.94
January 1—November 30, 1921	11,639,617.96

\$17,566,187.76

5,959,515.49

Balance November 30, 1921

\$ 23,315,706.25

## SCHEDULE NO. SIXTY-THREE

## STATEMENT OF PRIMARY ROAD FUND—NOVEMBER 30, 1921.

## ALLOTMENTS BY COUNTIES.

County	No. of Sq. Mi. in county	Total allotment to Nov. 30, 1921	Expended previous to 1921	Expended Jan. 1 to Nov. 30, 1921	Total expended	Balance
Adair	573	\$ 237,945.00	\$ 42,178.48	\$ 141,739.87	\$ 183,918.35	\$ 54,026.65
Adams	427	177,316.79	90,513.82	42,730.64	133,244.46	44,072.33
Allamakee	671	278,640.70	24,361.61	71,183.07	95,544.68	183,096.02
Appanoose	513	213,029.31	70,506.84	34,324.82	104,831.66	108,197.65
Audubon	443	183,061.00	4,672.07	39,002.36	43,704.43	140,196.57
Benton	712	265,666.41	38,931.56	378,829.74	417,461.30	*121,794.89
Black Hawk	595	235,033.19	140,701.21	38,129.65	178,831.27	50,116.92
Boone	573	240,021.33	121,035.21	247,583.04	368,588.25	*128,569.92
Bremer	434	180,223.64	17,033.17	44,887.33	61,920.50	118,303.14
Buchanan	597	235,433.94	6,850.64	8,373.39	15,224.03	220,209.91
Buena Vista	580	240,851.83	136,215.84	145,402.17	281,618.01	*40,233.82
Butler	577	239,606.06	27,131.70	74,123.97	101,255.67	138,350.39
Calhoun	671	237,114.50	156,450.09	131,063.34	288,113.43	*50,908.06
Carroll	572	237,529.79	10,716.53	161,829.52	172,546.05	64,983.74
Cass	594	234,297.68	17,243.50	54,599.77	71,843.27	162,454.41
Cedar	578	240,021.32	7,522.22	17,002.85	24,525.08	215,496.24
Cerro Gordo	575	238,775.53	317,321.94	9,374.40	326,696.34	*88,120.81
Cherokee	573	237,945.01	17,872.19	126,456.01	144,328.20	93,577.81
Chickasaw	497	206,385.12	106,284.88	127,372.43	233,657.31	*27,272.19
Clarke	428	177,732.05	60,089.01	53,081.51	113,170.52	64,561.53
Clay	573	237,945.01	11,661.38	28,464.50	40,125.97	197,819.04
Clayton	700	328,056.81	7,350.34	120,454.02	127,813.36	200,243.45
Clinton	709	294,420.60	36,450.56	206,413.22	242,863.78	51,556.82
Crawford	715	286,912.19	8,975.95	21,815.25	30,791.20	256,120.99
Dallas	592	245,385.02	107,737.48	137,450.47	245,187.95	*35,332.06
Davis	592	208,461.46	10,064.50	112,308.40	122,402.90	86,058.56
Decatur	533	221,334.55	137,587.94	137,887.33	275,475.27	45,859.28
Delaware	571	237,114.50	46,047.18	43,463.32	89,510.50	147,604.00

Des Moines	429	178,147.34	16,918.42	252,240.29	269,167.71	*91,026.37
Dickinson	411	170,672.92	16,982.90	167,881.57	184,864.47	*14,191.55
Dubuque	616	235,801.29	84,313.38	118,485.06	202,798.44	63,002.85
Emmet	417	173,164.18	58,593.31	67,970.78	126,564.09	46,600.09
Fayette	724	300,849.56	14,130.64	147,223.83	161,404.47	139,245.09
Floyd	496	205,554.02	254,993.89	10,852.69	265,846.58	*60,251.96
Franklin	578	240,021.32	15,885.02	92,000.97	108,404.99	131,616.33
Fremont	522	216,766.68	71,973.08	240,127.65	312,100.73	*85,334.05
Greene	576	239,190.81	99,474.47	179,685.58	279,160.05	*39,009.24
Grundy	591	208,040.18	17,028.88	119,616.08	136,644.96	71,401.22
Guthrie	567	247,011.39	11,341.74	175,082.43	186,424.17	60,587.22
Hamilton	579	236,600.22	24,509.70	102,670.23	127,179.93	109,420.29
Hancock	572	237,945.02	10,569.59	354,713.50	365,283.18	*127,338.18
Hardin	509	236,283.95	17,097.80	144,515.37	162,513.17	73,770.78
Harrison	712	265,666.41	82,908.77	43,806.60	126,804.37	168,862.04
Henry	427	177,316.80	35,065.36	79,608.85	114,674.21	62,642.59
Howard	438	194,342.51	32,305.32	105,456.71	137,762.03	56,580.48
Humboldt	434	180,223.64	72,557.58	82,028.48	154,586.06	25,637.58
Ia	439	178,562.57	51,278.28	90,017.19	141,896.47	36,666.10
Iowa	583	242,067.65	24,464.30	139,312.21	163,776.41	88,291.24
Jackson	649	299,504.36	10,205.84	145,573.52	155,779.36	143,725.00
Jasper	739	303,141.13	14,028.55	70,516.21	85,444.76	217,696.37
Jefferson	431	178,977.85	90,092.31	22,634.05	112,726.36	66,251.49
Johnson	611	253,724.98	20,528.91	210,244.52	230,773.43	22,951.55
Jones	509	236,283.95	5,335.70	70,020.25	75,355.95	160,928.00
Keokuk	578	240,021.33	91,421.49	33,701.50	125,123.05	114,898.28
Kossuth	974	404,465.02	36,149.28	202,564.79	228,714.07	175,750.95
Lee	545	235,317.69	13,273.38	117,369.74	131,233.12	95,084.57
Linn	717	297,742.71	221,225.01	374,907.31	496,132.32	*198,589.61
Louis	426	176,901.54	8,072.88	178,351.72	186,427.60	*9,536.05
Lucas	432	179,330.12	56,268.12	154,158.65	180,426.77	*1,033.65
Lyon	582	241,622.37	8,090.78	96,493.92	104,584.70	140,037.67
Madison	563	233,792.42	9,001.37	168,990.96	178,001.33	55,791.09
Mahaska	575	238,775.53	14,532.55	87,157.69	101,690.24	137,085.29
Marion	577	239,606.06	63,651.07	158,021.83	221,672.90	17,933.16
Marshall	572	237,329.79	74,187.39	225,581.53	299,768.92	*62,239.13
Mills	447	185,022.05	38,500.31	233,640.33	272,149.64	*12,877.59
Mitchell	469	192,396.19	22,835.90	149,569.37	172,405.27	19,990.92
Monona	708	294,005.37	14,049.59	23,277.53	37,327.12	256,678.25
Monroe	433	179,808.37	94,797.58	48,644.78	143,442.36	36,366.01
Montgomery	424	176,071.00	225,905.90	23,272.11	249,178.01	*73,107.01
Muscatine	456	188,944.13	41,469.49	100,340.19	141,809.68	47,134.45
O'Brien	509	236,283.95	63,478.48	148,437.75	211,916.23	24,367.72
Osceola	396	151,028.43	23,392.61	83,977.81	107,375.62	43,652.81
Pago	531	230,504.05	10,280.65	86,822.96	97,103.61	133,400.44
Palo Alto	572	237,529.79	172,539.28	297,136.80	439,676.08	*202,117.09



## Schedule No. Sixty-three—Continued

County	In county	Total allotment to Nov. 30, 1921	Expended previous to 1921	Expended Jan. 1 to Nov. 30, 1921	Total expended	Balance
Plymouth.....	861	357,540.44	12,899.37	162,351.60	165,220.97	192,319.47
Pocahontas.....	580	240,851.87	56,409.75	235,179.93	291,589.68	*50,737.81
Polk.....	595	247,496.03	171,709.59	63,270.21	234,979.80	12,516.23
Pottawattamie.....	968	397,820.83	72,573.59	75,362.86	148,076.33	249,744.47
Poweshiek.....	580	240,851.87	15,499.32	95,581.44	111,080.76	129,771.11
Ringgold.....	540	234,241.36	82,947.25	54,253.17	137,200.42	87,065.94
Sac.....	576	239,190.81	102,564.98	161,580.65	266,145.63	*26,964.77
Scott.....	470	195,173.05	110,909.08	99,910.10	207,519.18	*12,646.13
Shelby.....	589	244,539.24	66,258.13	198,320.49	264,578.62	*19,889.38
Sioux.....	760	315,509.00	149,797.43	161,516.32	311,313.75	4,285.25
Story.....	567	235,453.48	49,367.30	127,573.84	177,241.14	58,212.34
Tama.....	720	298,988.35	6,392.46	113,630.35	129,022.81	178,965.74
Taylor.....	534	221,749.80	5,331.27	56,587.46	61,948.73	159,801.07
Union.....	427	177,316.79	12,166.38	119,833.30	132,049.68	45,267.11
Van Buren.....	490	213,478.27	59,027.02	36,530.65	95,557.67	107,920.60
Wapello.....	438	181,884.69	79,135.13	48,468.84	127,603.97	54,280.72
Warren.....	571	237,114.50	9,872.54	57,519.74	67,392.28	169,722.22
Washington.....	559	232,131.39	19,975.10	70,057.28	90,032.38	142,099.01
Wayne.....	524	217,597.19	12,408.82	63,782.96	75,183.78	141,410.41
Webster.....	723	300,234.31	152,489.17	191,309.03	344,358.20	*44,123.89
Winnebago.....	399	165,689.50	48,709.03	140,239.70	188,968.73	*23,279.23
Winnesiek.....	685	284,869.61	19,091.87	83,092.74	102,094.61	182,775.00
Woodbury.....	878	364,569.87	122,272.67	188,437.75	310,710.42	53,859.45
Worth.....	399	165,689.50	5,943.27	75,732.31	80,775.58	84,913.92
Wright.....	573	240,021.33	53,953.96	159,846.67	243,890.60	*5,779.27
Total.....	56,147	\$23,315,706.25	\$ 5,715,569.81	\$11,619,617.95	\$17,356,187.75	\$ 5,569,518.49

\*Overdrawn in anticipation of future allotments and certificates issued and deposited with State Treasurer in accordance with Chapter 188-39 G. A.

## SCHEDULE NO. SIXTY-FOUR

## EXPENDITURES FOR BRIDGE AND CULVERT AND ROAD CONSTRUCTION ON PRIMARY ROADS.

County	Project	Total primary road funds expended	County funds expended	Special assessment funds expended	Primary road bond fund expended	County contribution fund expended	Total
Cerro Gordo.....	1	\$ 44,907.50	\$ 46,794.12				\$ 91,701.62
Woodbury.....	2	115,933.78	54,511.13		\$ 1,122.78		171,567.69
Jefferson.....	3	97,608.12					97,608.12
Delaware.....	4	50,727.48					50,727.48
Buchanan.....	5		2,238.65				2,238.65
Ringgold.....	6	112,940.02					112,940.02
Marion.....	7	45,963.70	29,005.86				74,969.56
Decatur.....	8	131,337.76					131,337.76
Johnson.....	9	39,231.62	69,366.77	\$ 13,836.42			112,464.81
Calhoun.....	10	109,592.95					109,592.95
Warren.....	11	23,994.58					23,994.58
Dallas.....	12	*54,521.54					*54,521.54
Webster.....	13	169,405.49					169,405.49
Harrison.....	14	194,572.61					194,572.61
Mills.....	15	166,064.95					166,064.95
Montgomery.....	16	216,680.43					216,680.43
Dubuque.....	17	154,338.06					154,338.06
Clinton.....	18	210,257.64		157,500.67	425,000.00		792,758.31
Grundy.....	19	55,003.96					55,003.96
Monroe.....	20	86,419.19					86,419.19
Jackson.....	21	65,351.76					65,351.76
Linn.....	22	*74,633.86		101,506.14			*176,139.99
Marshall.....	23	258,064.46		56,738.54			314,803.00
Black Hawk.....	25	95,136.28	87,714.15				182,850.43
Adams.....	26	115,636.98					115,636.98
Appanoose.....	27	67,162.81					67,162.81
Sioux.....	28	95,891.79					95,891.79
Wright.....	29	170,731.15					170,731.15
Winnebago.....	30	*99,022.80					*99,022.80

Schedule No. Sixty-four—Continued

County	Project	Total primary road funds expended	County funds expended	Special assessment funds expended	Primary road bond funds expended	County contribution funds expended	Total
Howard	13	79,583.25					79,583.25
Des Moines	32	178,555.90		57,889.77			236,445.67
Clarke	33	70,554.03					70,554.03
Keokuk	34	107,305.70					107,305.70
Chickasaw	35	*101,647.79	178.00				101,825.79
Boona Vista	37	103,396.83					103,396.83
Plymouth	38	71,855.74					71,855.74
Greene	39	224,254.08		56,675.27			280,929.35
Muscatine	40	107,654.29		140,021.00	270,123.43		517,802.72
Joyt	41	219,575.17					219,575.17
Wapello	42	109,342.50					109,342.50
Clinton	43	104,516.92		194,011.05	611,858.31		910,386.28
Mitchell	45	154,054.92					154,054.92
Pottawattamie	46	54,059.27					54,059.27
Tama	47	63,131.56					63,131.56
Humboldt	48	85,337.51					85,337.51
Emmet	49	7,896.04					7,896.04
Davis	50	97,350.14					97,350.14
Guthrie	51	102,819.10					102,819.10
Andrew	52	113,028.77					113,028.77
Louis	53	113,570.41					113,570.41
Scott	54	27,572.50			1,723.80		29,296.30
Henry	55	31,645.38			49,688.05		81,333.43
Benton	56	93,914.57					93,914.57
Fayette	58	830,527.35		108,547.72			939,075.07
Van Buren	59	135,032.21					135,032.21
Cerro Gordo	60	71,872.53					71,872.53
Black Hawk	61	85,266.51					85,266.51
Lucas	62	23,000.65					23,000.65
Wapara	63	130,045.70					130,045.70
Jasper	64	20,675.25					20,675.25

Boone	65	178,725.45					178,725.45
Kossuth	66	147,500.74					147,500.74
Hamilton	67	52,396.67					52,396.67
Dickinson	68	127,437.39		37,214.29			164,651.68
Manassah	70	40,009.09					40,009.09
Washington	71	36,228.14					36,228.14
Story	72	89,112.52					89,112.52
Clinton	73	137,712.08					137,712.08
Chickasaw	75	108,937.47					108,937.47
Fremont	77	152,490.59					152,490.59
Woodbury	78	2,545.07		6,095.25	108,871.59		117,511.91
Ida	80	98,154.34					98,154.34
Taylor	81	37,000.54					37,000.54
Union	83	71,356.82					71,356.82
Sioux	84	111,415.55		29,621.58			141,037.13
Rutler	85	90,917.48					90,917.48
Jones	86	23,775.55					23,775.55
Moscatine	87	4,617.30					4,617.30
Broner	88	22,688.77					22,688.77
Iowa	89	6,008.01		87,159.16	251,801.40		344,968.57
Wayne	90	90,973.27					90,973.27
Howard	91	44,014.01					44,014.01
Harmon	92	58,107.24					58,107.24
Franklin	94	231,852.69					231,852.69
Winnebago	96	37,492.59		100,380.69			137,873.28
Winnebago	98	37,492.59					37,492.59
Delaware	100	15,009.29					15,009.29
Polk	104	128,200.90					128,200.90
Franklin	105	56,900.23					56,900.23
Palo Alto	109	*24,407.58		105,716.40	194,492.49		324,616.47
Kossuth	111	29,332.53					29,332.53
Scott	114	104,726.03					104,726.03
Cerro Gordo	115	179,809.31		363,818.87	801,081.14		1,344,715.32
Cherokee	116	55,038.71		231,332.32	505,235.04		791,611.07
Humboldt	117	42,000.78					42,000.78
Johnson	118	96,839.47					96,839.47
Worth	124	42,988.96		28,422.13			71,411.09
Polk	P-1	384.82					384.82
Winnebago	P-2	102,857.09					102,857.09
Polk	P-3	10,771.44					10,771.44
Garfield	P-4	29,044.23					29,044.23
Gallison	P-5	20,077.02					20,077.02
Kossuth	P-6	30,117.08					30,117.08



## Schedule No. Sixty-four—Continued

192

IOWA STATE HIGHWAY COMMISSION

County	Project	Total primary road funds expended	County funds expended	Special assessment funds expended	Primary road bond fund expended	County contribution fund expended	Total
Pocahontas.....	P-7	42,009.21					42,009.21
Crawford.....	P-8	352.20					352.20
Sac.....	P-10	36,632.56					36,632.56
Sac.....	P-11	57,084.85					57,084.85
Marshall.....	P-12	70,687.79					70,687.79
Carroll.....	P-13	12,769.00					12,769.00
Osceola.....	P-14	38,058.36					38,058.36
Calhoun.....	P-15	96,433.51					96,433.51
Hamilton.....	P-16	56,794.84					56,794.84
Buena Vista.....	P-17	33,991.24					33,991.24
Wright.....	P-18	108,913.10					108,913.10
Pocahontas.....	P-19	36,632.56					36,632.56
Dickinson.....	P-20	80,829.00					80,829.00
Greene.....	P-21	2,750.00					2,750.00
Webster.....	P-24	30,647.49					30,647.49
Sioux.....	P-25	76,771.93					76,771.93
Page.....	P-26	89,415.30		13,690.94			97,106.24
Adair.....	P-27	84,306.01					84,306.01
Allamakee.....	P-28	115,326.25					115,326.25
Clarke.....	P-29	13,475.39					13,475.39
Clay.....	P-31	2,839.73					2,839.73
Dallas.....	P-32	1,100.00					1,100.00
Johnson.....	P-33	125,540.25					125,540.25
Madison.....	P-36	38,825.57					38,825.57
Monona.....	P-30	80,685.05					80,685.05
Polk.....	P-38	66.95					66.95
Poweshiek.....	P-40	5,860.91		29,249.40	149,929.88		185,027.19
Shelby.....	P-41	65,571.25					65,571.25
Woodbury.....	P-43	*199,967.95					*199,967.95
Franklin.....	P-45	144,425.88		112,645.37	359,204.70		612,336.95
	P-46	33,269.39					33,269.39



Triple arch concrete bridge over Des Moines river at Humboldt on route No. 19, Humboldt county.





Rock crushing plant near Marshalltown, Iowa. Owned and operated by Marshall county



Gravel washing, screening and crushing plant at Correctionville, Iowa. Owned by Woodbury county



Concrete pavement and standard concrete box culvert on route No. 19, O'Brien county.

Grundy.....	P-48	45,738.02			45,738.02
Scott.....	P-50	2,006.78		51,357.60	53,364.38
Black Hawk.....	P-51	15,215.13			15,215.13
Des Moines.....	P-52	77,425.41	22,818.78		99,244.19
Dickinson.....	P-55	9,945.29			9,945.29
Clay.....	P-56	1,250.27			1,250.27
Emmet.....	P-57	81,090.96			81,090.96
Boone.....	P-58	113,585.16			113,585.16
Polk.....	P-59	5,316.50			5,316.50
Story.....	P-62	54,778.99			54,778.99
Floyd.....	P-63	25.00			25,808.55
Webster.....	P-64	5,658.25	54,637.45	139,641.11	5,658.25
Sioux.....	P-67	10,851.80			10,851.80
Lee.....	P-68	85,225.72			85,225.72
Butler.....	P-71	2,373.52			2,373.52
Polk.....	P-72	12,852.34		55,669.71	68,522.25
Floyd.....	P-73			5,156.89	5,156.89
Plymouth.....	P-74	363.25			363.25
Monroe.....	P-78	21,716.28			21,716.28
Hamilton.....	P-79	5,781.53			5,781.53
Fremont.....	P-84	18,397.01			18,397.01
Lyon.....	P-85	25.00			25.00
Sac.....	P-86	5,701.53			5,701.53
Hardin.....	P-88	103,808.74			103,808.74
Pocahontas.....	P-90	56,470.10			56,470.10
Pocahontas.....	P-91	70,703.80			70,703.80
Buena Vista.....	P-93	14,595.63			14,595.63
Calhoun.....	P-95	35,439.57			35,439.57
Calhoun.....	P-96	28,682.46			28,682.46
Johnson.....	P-97	11,887.53			11,887.53
Cherokee.....	P-98	44,473.63			44,473.63
Sac.....	P-100	33,893.29			33,893.29
Calhoun.....	P-107	6,839.82			6,839.82
Webster.....	P-108	16,944.34			16,944.34
Dallas.....	P-109	47,915.37			47,915.37
Webster.....	P-111	21,671.77			21,671.77
Allamakee.....	P-113	25,637.45			25,637.45
Winnebago.....	P-120	194.30			194.30
Polk.....	P-122	14,532.25		22.50	14,554.75
Clinton.....	P-125	5,380.62			5,380.62
Chickasaw.....	P-131	505.75			505.75
Story.....	P-133	12,003.13			12,003.13
Boone.....	P-134	19,588.78			19,588.78
Mitchell.....	P-138	80.10			80.10
Carroll.....	P-141	5,990.39			5,990.39
Dubuque.....	P-147	13,564.07			13,564.07

Schedule No. Sixty-four—Continued

County	Project	Total primary road funds expended	County funds expended	Special assessment funds expended	Primary road bond fund expended	County contribution fund expended	Total
Cass	P-150	10,866.34					10,866.34
Delaware	P-159	10,653.56					10,653.56
Osceola	P-160	1,506.77					1,506.77
Worth	P-161	17,390.85					17,390.85
Adair	P-162	12,653.25					12,653.25
Black Hawk	P-163	4,422.40					4,422.40
Lyon	P-174	8,727.76					8,727.76
Hancock	P-178	15,460.80					15,460.80
Jasper	P-180	7,277.31		4,850.00			12,127.31
Dallas	P-194	7,889.37					7,889.37
Dallas	P-195	4,801.48					4,801.48
Osceola	P-203	16.86					16.86
Franklin	P-211	1,296.33					1,296.33
Franklin	P-212	111,620.33					111,620.33
Lee	P-2	6,201.53					6,201.53
Jackson	P-3	62,088.70					62,088.70
Louisia	P-4	56,710.31					56,710.31
Madison	P-5	71,294.40					71,294.40
Cherokee	P-7	23,074.17					23,074.17
Lucas	P-8	22,029.89					22,029.89
Hamilton	P-9	4,600.80					4,600.80
Monroe	P-10	64,828.41					64,828.41
Guthrie	P-11	50,168.08					50,168.08
Wayne	P-12	6,750.00					6,750.00
Carroll	P-13	23,501.63					23,501.63
Poweshiek	P-14	21,166.59					21,166.59
Shelby	P-15	40,035.51					40,035.51
Taylor	P-17	17,477.60					17,477.60
Scott	P-18	17,466.44					17,466.44

## FINANCIAL STATEMENT

Town	B-19	42,897.00					42,897.00
Adair	B-20	4,301.43					4,301.43
Worth	B-21	5,314.45					5,314.45
Adair	B-22	22,310.06					22,310.06
Deatur	B-23	17,071.26					17,071.26
Tama	B-24	24,284.20					24,284.20
Wright	B-25	21,003.39					21,003.39
Mahaska	B-26	19,435.37					19,435.37
Monroe	B-27	13,011.21					13,011.21
Monroe	B-28	10,865.96					10,865.96
Appanoose	B-29	9,925.08					9,925.08
Story	B-30	20,827.09					20,827.09
Grundy	B-31	49,200.25					49,200.25
Plymouth	B-32	3,806.67					3,806.67
Clay	B-33	8,600.64					8,600.64
Van Buren	B-34	22,785.30					22,785.30
Jones	B-35	13,837.80					13,837.80
Washington	B-36	12,635.45					12,635.45
Washington	B-37	27,894.07					27,894.07
Union	B-38	19,104.68					19,104.68
Iowa	B-39	7,535.98					7,535.98
Monona	B-40	4,180.62					4,180.62
Muscatine	B-41	74.75					74.75
Marshall	B-42	8,430.55					8,430.55
Marshall	B-43	21,475.18					21,475.18
Winnebago	B-44	21,005.77					21,005.77
Winnebago	B-45	14,148.57					14,148.57
Clinton	B-46	12,854.91					12,854.91
Clinton	B-47	12,808.78					12,808.78
Adair	B-48	4,681.34					4,681.34
Adair	B-49	9,778.83					9,778.83
Lyon	B-50	1,900.71					1,900.71
Black Hawk	B-51	8,266.30					8,266.30
Black Hawk	B-52	6,280.60					6,280.60
Howard	B-53	228.17					228.17
Howard	B-54	3,501.00					3,501.00
Clarke	B-55	1,100.00					1,100.00
Osceola	B-56						
Palo Alto General	B-57						
Total		\$14,477,106.54	\$ 279,706.06	\$ 2,125,095.06	\$ 4,247,549.15	\$ 19,000.00	\$ 23,148,541.32

\*Does not include refunds.



SCHEDULE NO. SIXTY-FIVE  
CLASSIFICATION OF EXPENDITURES FOR ROAD CONSTRUCTION ON PRIMARY ROADS.

County	Project No.	Excavation	Graveling	Paving	Tilling	Machinery and equipment	Engineering	Total
Cerro Gordo	1	\$ 7,476.98		\$ 83,808.64	\$ 6.00		\$ 415.00	\$ 91,701.02
Woodbury	2	165,897.92			432.15		5,237.62	171,567.69
Jefferson	3	80,012.40			7,631.60		3,964.12	97,608.12
Delaware	4	44,999.37			5,796.51		21.60	50,727.48
Buchanan	5				2,238.65			2,238.65
Ringgold	6	109,439.33					3,500.00	112,940.02
Marion	7	73,308.74			760.82			74,069.56
Decatur	8	127,061.91			547.91		3,727.94	131,337.76
Johnson	9	62,243.32		45,834.73			1,356.76	112,434.81
Calhoun	10	832.70	\$ 103,329.94		3,432.34		1,777.97	109,592.95
Warren	11	18,732.88			1,427.26		3,814.44	23,974.58
Dallas	12	46,067.45			7,169.19		1,284.90	54,521.54
Webster	13	54,302.72	81,633.41		23,088.01		1,382.35	160,406.49
Harrison	14	95,763.52	237.87		2,675.50		5,966.72	104,573.61
Mills	15	158,939.47			123.50		7,010.98	166,064.95
Montgomery	16	207,434.21			497.45	\$ 94.79	8,654.07	216,480.43
Dubuque	17	123,433.62			22,916.38		7,988.06	154,338.06
Clinton	18	127,828.73		639,042.25	12,653.15		15,234.18	792,758.31
Grundy	19	31,369.53		19,258.98	19,258.98		4,384.45	55,003.96
Monroe	20	85,810.02			609.17			86,419.19
Jackson	21	57,897.03			288.67		7,166.06	65,351.76
Linn	22	75,555.50		388,171.56	20,000.33		12,442.61	496,230.00
Marshall	23	12,799.53		241,331.97	761.39	53,506.49	56,147.62	314,803.00
Black Hawk	24	33,841.93		159,944.27	2,781.24		4,882.97	180,950.41
Adams	26	107,299.59					5,427.39	115,436.98
Appanoose	27	66,909.35					753.46	67,662.81
Sioux	28	86,322.65			2,132.56		7,436.53	95,891.79
Wright	29	46,964.21	97,503.15		21,344.16		4,969.63	170,781.15
Winnebago	30	29,317.21	26,319.84		11,256.21		9,029.54	69,022.80
Howard	31	21,142.28	45,992.17		8,586.32		3,032.46	79,583.23
Des Moines	32	19,990.73		163,670.60	16,822.56		5,029.85	206,413.73
Clarke	33	73,949.78			977.17		4,627.08	79,554.03
Keokuk	34	101,285.89			1,260.66		4,899.15	107,395.70
Chickasaw	35	37,791.94	39,241.97		9,512.97	11,973.49	3,697.31	101,825.79
Buena Vista	37		95,577.86		6,139.91		1,688.06	103,396.83
Plymouth	38	65,372.82			1,344.50		5,238.42	71,855.74
Greene	39	47,131.05	25,095.41	196,380.84	2,217.03		9,475.02	280,890.35
Muscatine	40	84,486.80			15,224.77		7,943.63	107,655.20
Floyd	41	78,141.84		552,360.28	16,749.55		13,359.60	660,612.00
Wapello	42	108,830.92					5,711.58	109,542.50
O'Brien	43	63,049.40		903,169.07	17,708.54		18,464.27	1,002,388.28
Mitchell	45	64,964.66	37,427.62		37,119.19	8,905.00	5,464.37	133,904.84
Pottawattamie	46	52,450.63					1,590.74	54,041.37
Tama	47	49,800.54			9,207.61		4,113.41	63,121.56
Humboldt	48	19,459.82	1,072.68	59,842.23	2,027.06		2,855.72	85,297.51
Emmet	49				7,896.04			7,896.04
Davis	50	92,123.10			637.80		4,579.18	97,340.14
Guthrie	51	83,819.83			13,691.83		5,307.38	102,819.10
Audubon	52	10,164.62					2,864.15	13,028.77
Louisa	53	91,774.94			16,066.68		5,791.79	113,573.41
Scott	54	20,779.07			6,159.55		2,399.08	29,337.70
Sevier	55	20,707.42			33,419.36		7,315.65	81,532.43
Henry	56	60,857.77			27,190.19		8,866.61	95,914.57
Benton	58	86,963.13		379,660.15	8,632.24		13,889.50	489,075.08
Fayette	59	71,796.16			45,875.32		125,052.21	192,723.69
Van Buren	60	48,507.79			17,975.27		4,780.47	71,273.53
Cerro Gordo	61	26,422.54		242,481.38	4,110.19		4,441.92	277,436.03
Black Hawk	62				22,309.95		1,308.71	23,600.66
Lucas	63	131,538.95			1,490.26		3,919.49	136,948.70
Jasper	64	25,000.37			3,589.99		4,384.77	33,975.33
Boone	65	44,881.30	109,692.87		21,709.54		1,480.74	178,765.45
Kossuth	66	105,737.93			35,542.14		6,289.67	147,569.74
Hamilton	67	32,038.74			15,912.53		4,200.40	52,151.67
Dickinson	68	8,015.60		179,722.87	1,438.38		5,474.83	194,651.68
Mahaska	70	31,598.05			10,445.35		4,315.69	46,359.09
Washington	71	27,166.96			5,004.84		4,036.94	36,228.74
Story	72	7,499.36	8,888.55		19,327.34		1,217.00	36,742.25
Clayton	74	69,391.34			10,240.63		6,431.55	86,113.52
Marion	75	125,223.61			3,185.96		6,303.48	137,712.06
Chickasaw	76	69,453.59	19,092.42		18,551.13		4,943.33	107,940.47
Fremont	77	143,803.92			184.55		8,472.12	152,461.59
Woodbury	78	17,438.40		97,615.78	2,443.50		1,615.23	119,112.91
Ida	80	90,013.62			3,288.20		4,842.52	98,154.34
Taylor	81	25,576.21					1,424.23	27,000.44
Union	82	64,629.34			2,833.30		3,933.18	71,395.82

## Schedule No. Sixty-Five—Continued

County	Project No.	Excavation	Graveling	Paving	Tilling	Machinery and equipment	Engineering	Total
Sioux	84	15,098.71		110,882.65	573.10		5,484.58	141,037.13
Butler	85	31,699.02	34,445.22		30,193.50		4,699.14	96,917.48
Jones	86	25,607.05			5,196.61		2,881.39	37,775.35
Muscatine	87	1,289.11			731.38		1,896.83	4,017.50
Bremers	88	12,210.15			8,752.17		1,736.42	22,698.77
Polk	89	14,191.00		225,313.45	1,813.54		8,686.47	350,014.57
Iowa	90	45,342.07			10,418.91		4,212.29	59,973.27
Wayne	91	42,225.34					2,588.07	44,813.41
Howard	92	37,482.10	63.75		12,893.42		3,757.97	55,107.24
Hancock	94	36,352.41	23.00	367,545.59	19,000.87		9,193.78	432,175.65
Linn	96	36,269.63		17,560.52	8,658.53		4,964.29	57,452.90
Winnebago	98	23,138.12			4,121.70		2,186.44	30,445.26
Carroll	99	65,440.39			772.29		1,847.91	71,962.99
Delaware	103	11,249.21			3,132.28		717.70	15,099.29
Polk	104	35,650.23		330,782.98	5,835.30		9,440.90	371,709.47
Franklin	105	33,818.50	2,194.03		17,250.55		3,690.15	56,960.23
Palo Alto	109	50,720.17	7.08	412,969.70	15,199.69	34,000.90	13,282.14	527,183.68
Lyon	110	62,411.25			6,990.28		3,477.28	72,877.81
Kossuth	111	2,379.71			25,064.22		1,188.30	29,532.23
Scott	114	124,390.52		1,009,565.79	16,983.58		22,379.05	1,170,228.94
Cerro Gordo	115	97,737.87		873,032.06	19,323.65		16,190.69	1,006,284.27
Cherokee	116	52,392.70			398.05		2,977.96	55,698.71
Humboldt	117	17,449.33	4,322.09		16,531.37		2,766.90	42,069.73
Johnson	125	9,879.90		105,001.39	1,022.98		5,369.23	121,261.40
Worth	134	24,277.39	1,525.76		12,756.95		4,388.36	42,988.96
Polk	P-1	1,777.50		15,246.15			384.82	17,408.47
Winnebago	P-2	11,368.58	72,945.07		15,582.80		3,062.44	102,867.60
Polk	P-3	10,771.44						10,771.44
Hardin	P-4	2,823.75	16,586.83		5,052.57		681.57	25,164.72
Calhoun	P-5		15,596.34		4,350.97		459.71	20,407.02
Kossuth	P-6	21,830.00			9,542.40		2,244.39	33,616.79

Pocahontas	P-7	27,759.78			12,618.51		2,250.92	42,629.21
Crawford	P-8						392.29	392.29
Sac	P-10	49.90	30,560.63		4,408.25		1,621.88	36,630.56
Sac	P-11	805.40	47,182.07		6,053.06		2,984.32	57,084.85
Marshall	P-12	1,887.54	32,201.90		12,359.27		3,219.08	50,687.79
Marshall	P-13	11,026.58			1,061.48		380.94	13,749.00
Carroll	P-14	35,388.17			327.44		2,332.75	38,046.46
Oceola	P-15	80,282.12			11,372.06		3,579.33	95,233.51
Calhoun	P-16	28,590.49	22,121.37		5,655.46		1,027.52	56,794.84
Hamilton	P-17		22,794.85		8,861.07		2,435.32	33,981.24
Buena Vista	P-18	12,428.70	63,709.98		27,276.14		5,438.28	108,913.10
Wright	P-19	12,961.54	3,965.32		8,102.73		1,925.70	26,955.29
Pocahontas	P-20	16,070.20	48,101.32		21,960.30		3,668.08	89,739.90
Dickinson	P-23				2,750.09			2,750.09
Greene	P-24	20,308.78			7,071.39		3,272.41	30,652.49
Webster	P-25	48,975.37			24,788.92		3,923.54	76,771.83
Sioux	P-26	6,912.09		87,656.19	1,943.30		2,994.25	97,103.84
Page	P-27	77,878.61					6,427.40	84,306.01
Adair	P-28	100,877.35			6,425.37		8,023.53	115,326.25
Allamakee	P-29	8,717.52			3,011.15		1,746.72	13,475.39
Clarke	P-31	887.50			994.59		957.58	2,879.67
Clay	P-32				1,100.00			1,100.00
Dallas	P-33	76,081.36	20,572.45		23,382.90		4,133.64	124,168.35
Johnson	P-35	35,416.97					2,469.50	37,886.47
Madison	P-36	79,328.71					6,327.36	85,656.07
Monona	P-38				929.98		66.95	996.93
Polk	P-40	36,055.57	27,449.40	113,246.18	492.27		4,876.77	185,027.19
Poweshiek	P-41	50,884.44			9,218.36		6,368.43	66,471.23
Shelby	P-42	188,276.05			1,426.00		10,205.30	199,907.35
Woodbury	P-45	48,808.08		372,568.12	11,001.95		9,843.69	442,321.85
Franklin	P-46	17,275.21			14,159.04		1,835.14	33,269.39
Grundy	P-48	22,911.65			9,605.71		2,390.66	34,908.02
Scott	P-50	15,798.69		35,559.00			2,894.79	53,252.48
Black Hawk	P-51				14,694.23		819.90	15,514.13
Des Moines	P-53	11,680.47		76,801.20	2,601.37		5,131.20	95,214.27
Dickinson	P-55	5,428.29			1,905.00			7,333.29
Clay	P-56	369.10					981.17	1,350.27
Emmet	P-57	2,801.94	3,650.50		74,292.52			81,000.96
Boone	P-58	42,604.22	43,585.30		23,976.38		4,121.06	114,286.96
Polk	P-59	3,316.50						3,316.50
Story	P-60				53,115.25		1,969.79	55,085.04
Floyd	P-62	24,154.04		187,565.42	7,841.90		4,741.60	224,303.96
Webster	P-64				5,655.00			5,655.00
Sioux	P-67	10,321.67					539.13	10,860.80
Lee	P-68	70,906.58			6,772.52		5,546.02	83,225.12
Butler	P-71				1,683.96		739.67	2,423.63

## Schedule No. Sixty-Five—Continued

200

IOWA STATE HIGHWAY COMMISSION

County	Project No.	Excavation	Graveling	Paving	Tiling	Machinery and equipment	Engineering	Total
Polk	P-72	62,624.34			3,591.42		2,006.49	68,222.25
Floyd	P-73				5,156.80			5,156.80
Plymouth	P-74						393.25	393.25
Monroe	P-78	20,206.40			411.06		1,068.85	21,716.28
Hamilton	P-79				2,898.37		975.19	3,873.56
Fremont	P-84	17,900.22					317.69	18,217.91
Lyon	P-85						23.00	23.00
Sac	P-86		3,897.23		1,702.60		103.70	5,703.53
Hardin	P-88		25,340.40	53,650.53	21,813.16		3,104.65	103,898.74
Pocahontas	P-90	17,828.39	15,147.16		21,455.38		2,539.17	56,970.10
Pocahontas	P-91	2,901.40	55,279.92		9,540.77		2,922.11	70,703.80
Buena Vista	P-93		9,163.43		5,007.71		274.49	14,508.63
Calhoun	P-95	6,017.86	14,431.10		14,632.02		358.59	35,459.57
Calhoun	P-96	429.30	17,544.77		9,968.96		449.25	28,082.46
Johnson	P-97	11,821.31					355.00	12,176.31
Cherokee	P-98	5,113.19	33,148.65		3,436.87		796.95	44,475.66
Sac	P-100	1,205.90	24,880.31		6,517.76		1,549.90	33,953.87
Calhoun	P-107	3,143.80			3,715.99			6,859.82
Webster	P-108	843.10	9,274.56		6,053.35		769.13	16,944.34
Dallas	P-109		46,437.90				1,477.47	47,915.37
Webster	P-111	225.00	20,239.00				607.77	21,071.77
Allamakee	P-113	20,351.48			1,565.65		1,720.29	22,637.42
Winnebago	P-120						352.00	352.00
Polk	P-122		14,302.75					14,302.75
Clinton	P-125	5,353.05			229.50		798.07	6,380.62
Chickasaw	P-131	294.25					241.50	535.75
Story	P-133	669.50	11,076.53				257.10	12,003.13
Boone	P-134	7,809.29	3,718.39		5,068.88		2,102.22	18,698.78
Mitchell	P-138						80.10	80.10
Carroll	P-141				5,906.39			5,906.39
Dubuque	P-147				11,943.22		1,220.85	13,164.07

Cass	P-150	9,493.27					1,461.07	10,954.34
Delaware	P-159		10,103.12			500.47		10,603.59
Osceola	P-160		1,409.45				90.22	1,500.77
Worth	P-161				16,467.32		736.32	17,203.64
Adair	P-162	10,973.38					1,080.94	12,054.32
Grundy	P-163	216.00	2,515.99				108.90	2,840.89
Black Hawk	P-164	1,929.50			1,497.77		1,035.13	4,462.40
Lyon	P-174		8,727.79					8,727.79
Hancock	P-178	1,561.36		17,782.90	358.04		607.22	20,310.52
Jasper	P-180		7,377.31					7,377.31
Dallas	P-184		7,869.37					7,869.37
Dallas	P-195				4,447.53		445.95	4,893.48
Osceola	P-201						16.80	16.80
Ida	P-203		1,283.32					1,283.32
Palo Alto General					1,100.00			1,100.00
Total		\$ 7,079,801.65	\$ 1,359,116.14	\$ 9,041,505.07	\$ 1,325,390.35	\$ 108,833.99	\$ 901,292.92	\$ 20,005,880.69

FINANCIAL STATEMENT

201



SCHEDULE NO. SIXTY-SIX  
CLASSIFICATION OF EXPENDITURES FOR BRIDGE AND CULVERT CONSTRUCTION FROM PRIMARY ROAD FUND.

County	Project number	Concrete culverts, arch box, circular, arch and pipe	Culverts (enlightened)	Concrete slab bridge	"T" beam spans	Pony truss	High steel truss	Miscellaneous and permanent repairs	Engineering	Total
Premont	B-1	\$ 85,372.30	\$ 1,335.08			\$ 15,581.85		\$ 7,202.45	\$ 7,302.33	\$ 111,866.01
Lee	B-2	6,090.83						202.20		6,293.03
Jackson	B-3	55,715.70	215.31							56,931.01
Clinton	B-4	1,445.00								1,445.00
Lincoln	B-5	29,048.87	1,445.00							30,493.87
Cherokee	B-7	11,906.29	615.17							12,521.46
Lowell	B-8	182,135.10	1,759.29							183,894.39
Hamilton	B-9	2,960.35								2,960.35
Madison	B-10	2,960.35								2,960.35
Mills	B-11	54,874.17	633.11							55,507.28
Geary	B-12	49,394.14	2,839.37							52,233.51
Wayne	B-13	31,477.05	2,894.37							34,371.42
Polk	B-14	36,622.05	2,185.02							38,807.07
Des Moines	B-15	13,394.77	1,935.00							15,329.77
Shelby	B-16	12,611.00	1,935.00							14,546.00
Taylor	B-17	22,702.40	2,252.47							24,954.87
Scott	B-18	4,900.43								4,900.43
Adair	B-19	2,218.80	2,055.86							4,274.66
Warren	B-21	2,405.07	2,055.86							4,460.93
Adair	B-22	21,727.05	1,175.36							22,902.41
Franklin	B-23	1,336.00	742.20							2,078.20
Tama	B-24	1,336.00	742.20							2,078.20
Wright	B-25	1,336.00	742.20							2,078.20
Marshall	B-26	1,336.00	742.20							2,078.20
Madison	B-27	1,336.00	742.20							2,078.20
Marshall	B-28	1,336.00	742.20							2,078.20
Marshall	B-29	1,336.00	742.20							2,078.20
Marshall	B-30	1,336.00	742.20							2,078.20
Marshall	B-31	1,336.00	742.20							2,078.20
Marshall	B-32	1,336.00	742.20							2,078.20
Marshall	B-33	1,336.00	742.20							2,078.20
Marshall	B-34	1,336.00	742.20							2,078.20
Marshall	B-35	1,336.00	742.20							2,078.20
Marshall	B-36	1,336.00	742.20							2,078.20
Marshall	B-37	1,336.00	742.20							2,078.20
Marshall	B-38	1,336.00	742.20							2,078.20
Marshall	B-39	1,336.00	742.20							2,078.20
Marshall	B-40	1,336.00	742.20							2,078.20
Marshall	B-41	1,336.00	742.20							2,078.20
Marshall	B-42	1,336.00	742.20							2,078.20
Marshall	B-43	1,336.00	742.20							2,078.20
Marshall	B-44	1,336.00	742.20							2,078.20
Marshall	B-45	1,336.00	742.20							2,078.20
Marshall	B-46	1,336.00	742.20							2,078.20
Marshall	B-47	1,336.00	742.20							2,078.20
Marshall	B-48	1,336.00	742.20							2,078.20
Marshall	B-49	1,336.00	742.20							2,078.20
Marshall	B-50	1,336.00	742.20							2,078.20
Marshall	B-51	1,336.00	742.20							2,078.20
Marshall	B-52	1,336.00	742.20							2,078.20
Marshall	B-53	1,336.00	742.20							2,078.20
Marshall	B-54	1,336.00	742.20							2,078.20
Marshall	B-55	1,336.00	742.20							2,078.20
Marshall	B-56	1,336.00	742.20							2,078.20
Marshall	B-57	1,336.00	742.20							2,078.20
Marshall	B-58	1,336.00	742.20							2,078.20
Marshall	B-59	1,336.00	742.20							2,078.20
Marshall	B-60	1,336.00	742.20							2,078.20
Marshall	B-61	1,336.00	742.20							2,078.20
Marshall	B-62	1,336.00	742.20							2,078.20
Marshall	B-63	1,336.00	742.20							2,078.20
Marshall	B-64	1,336.00	742.20							2,078.20
Marshall	B-65	1,336.00	742.20							2,078.20
Marshall	B-66	1,336.00	742.20							2,078.20
Marshall	B-67	1,336.00	742.20							2,078.20
Marshall	B-68	1,336.00	742.20							2,078.20
Marshall	B-69	1,336.00	742.20							2,078.20
Marshall	B-70	1,336.00	742.20							2,078.20
Marshall	B-71	1,336.00	742.20							2,078.20
Marshall	B-72	1,336.00	742.20							2,078.20
Marshall	B-73	1,336.00	742.20							2,078.20
Marshall	B-74	1,336.00	742.20							2,078.20
Marshall	B-75	1,336.00	742.20							2,078.20
Marshall	B-76	1,336.00	742.20							2,078.20
Marshall	B-77	1,336.00	742.20							2,078.20
Marshall	B-78	1,336.00	742.20							2,078.20
Marshall	B-79	1,336.00	742.20							2,078.20
Marshall	B-80	1,336.00	742.20							2,078.20
Marshall	B-81	1,336.00	742.20							2,078.20
Marshall	B-82	1,336.00	742.20							2,078.20
Marshall	B-83	1,336.00	742.20							2,078.20
Marshall	B-84	1,336.00	742.20							2,078.20
Marshall	B-85	1,336.00	742.20							2,078.20
Marshall	B-86	1,336.00	742.20							2,078.20
Marshall	B-87	1,336.00	742.20							2,078.20
Marshall	B-88	1,336.00	742.20							2,078.20
Marshall	B-89	1,336.00	742.20							2,078.20
Marshall	B-90	1,336.00	742.20							2,078.20
Marshall	B-91	1,336.00	742.20							2,078.20
Marshall	B-92	1,336.00	742.20							2,078.20
Marshall	B-93	1,336.00	742.20							2,078.20
Marshall	B-94	1,336.00	742.20							2,078.20
Marshall	B-95	1,336.00	742.20							2,078.20
Marshall	B-96	1,336.00	742.20							2,078.20
Marshall	B-97	1,336.00	742.20							2,078.20
Marshall	B-98	1,336.00	742.20							2,078.20
Marshall	B-99	1,336.00	742.20							2,078.20
Marshall	B-100	1,336.00	742.20							2,078.20

Grundy	B-32	9,828.80	1,984.30							11,813.10
Greymouth	B-33	12,417.00	2,987.26							15,404.26
CHRY	B-36	5,115.07	77.75							5,192.82
CHRY	B-39	14,678.18	1,690.34							16,368.52
CHRY	B-39	4,355.00	600.15							4,955.15
Washington	B-39	4,355.00	600.15							4,955.15
Warren	B-40	11,693.84	277.20							11,971.04
Idaho	B-42	24,205.28	4,789.60							28,994.88
Idaho	B-44	24,205.28	4,789.60							28,994.88
Minnesota	B-44	5,797.81	1,787.87							7,585.68
Nevada	B-48	2,396.00	347.80							2,743.80
Nevada	B-49	2,396.00	347.80							2,743.80
Marshall	B-54	7,244.56	795.80							8,040.36
Winnebago	B-55	9,471.64	9,251.00							18,722.64
Renner	B-58	2,646.44	1,157.50							3,803.94
California	B-60	1,908.07	3,127.80							5,035.87
California	B-61	1,908.07	3,127.80							5,035.87
Clayton	B-62	11,908.87	942.64							12,851.51
Ashtabun	B-63	4,693.14								4,693.14
Lynn	B-63									
Blackton	B-70									
Black Hawk	B-70	2,130.78	1,195.75							3,326.53
Honolulu	B-77	2,696.10								2,696.10
Clark	B-82									
Clark	B-83									
Oreana	B-87									
Total		219,098.26	59,726.15	6,033.05	84,424.81	896,665.26	46,135.18	8,607.00	15,052.84	3,142,363.54

# SCHEDULE NO. SIXTY-SEVEN

EXPENDITURES FROM PRIMARY ROAD FUND MAINTENANCE JULY 1, 1920, TO NOVEMBER 30, 1921.

County	Amount Expended On					
	Earth Roads	Gravel Roads	Paved Roads	Bridges	Special Cases	Total
Adair.....	\$ 25,727.64			\$ 214.30	\$ 245.12	\$ 26,186.96
Adams.....	17,406.15				201.22	17,607.37
Allamakee.....	57,000.10				752.77	57,752.87
Appanoose.....	26,017.29				122.61	26,139.90
Audubon.....	8,223.39				50	8,273.39
Benton.....	32,428.74	\$ 1,079.54	\$ 589.75	412.05	2,423.25	36,933.29
Black Hawk.....	34,123.36	868.26	3,428.34	469.00	531.40	39,419.35
Boone.....	13,002.92	43,046.22			618.72	56,667.86
Bremet.....	27,281.35	4,097.30			4,049.14	35,427.79
Buchanan.....	15,049.59	35.90			138.84	15,224.33
Buena Vista.....	1,055.57	48,168.87		1,100.41	3,970.29	54,395.14
Butler.....	7,457.37				306.70	7,764.07
Calhoun.....	6,744.49	24,011.33			400.95	31,156.77
Carroll.....	15,757.15	16,116.61			2,023.43	33,897.19
Cass.....	38,909.30				7,886.06	46,795.36
Cedar.....	22,348.27				2,305.81	24,654.08
Cerro Gordo.....	11,500.52		4,800.00		356.50	16,756.02
Cherokee.....	19,444.57	885.35			848.77	21,178.69
Chickasaw.....	8,305.95	14,247.00			263.35	22,816.30
Clarke.....	39,369.14			2.00	278.45	39,649.59
Clay.....	1,519.15	32,358.90			94.00	33,972.05
Clayton.....	15,554.08	100.23			121.84	15,776.15
Clinton.....	23,833.93	1,197.00	718.16		681.43	25,750.52
Crawford.....	30,300.90				138.10	30,439.00
Dallas.....	25,866.53	11,114.43			3,426.98	40,407.94
Davis.....	24,860.91				138.85	25,000.76
DeKalb.....	27,884.45			526.52	363.20	28,774.17
Des Moines.....	11,966.32	1,093.32				13,059.64
Dickinson.....	16,778.74	806.60			130.00	17,715.34
Dubuque.....	782.53	16,416.08	191.02		344.19	17,733.79
Emmet.....	11,623.38	18,941.48	4,905.02		728.35	36,198.23
Fayette.....	30,594.72	54.40		254.37	2,700.14	33,343.63

Floyd.....	8,301.81	3,060.00	1,503.15		2,340.45	16,205.41
Franklin.....	13,865.06	4,040.01			330.30	18,235.37
Freemont.....	29,103.91				240.31	29,344.22
Grundy.....	8,776.37	16,378.35			1,253.76	26,408.48
Guthrie.....	11,743.70	108.60			381.90	12,234.20
Hamilton.....	30,294.13				735.36	31,029.49
Hancock.....	9,216.55	20,613.90			4,208.27	34,038.72
Hardin.....	13,179.17	4,011.71			128.45	17,319.33
Harrison.....	17,577.99	15,434.75			520.97	33,533.71
Henry.....	21,063.43				245.33	21,308.76
Howard.....	30,150.64					30,150.64
Humboldt.....	12,539.15	2,590.24			471.47	15,600.86
Ia.....	7,745.37	16,489.88	2.81		3,029.71	27,267.77
Iowa.....	22,832.41	6.72		22.00	458.00	23,329.13
Jackson.....	51,382.35			27.60	185.00	51,594.95
Jasper.....	30,800.82	4,615.96		507.55	1,093.50	36,017.83
Jefferson.....	31,518.28	539.00			367.00	32,424.28
Johnson.....	21,118.24					21,118.24
Jones.....	47,343.15		115.33		200.96	47,659.44
Keokuk.....	17,235.78	316.92			842.31	18,395.01
Kossuth.....	16,473.34				1,354.01	17,827.35
Lee.....	10,477.54	8,284.11			61.07	18,722.72
Linn.....	28,604.45	11,805.65			1,905.77	41,315.87
Louis.....	45,424.21	14,092.45	697.15		2,681.65	63,305.47
Lucas.....	15,020.76		41.58		494.54	15,556.88
Lyons.....	15,920.11			120.70	212.43	16,253.24
Lyon.....	9,223.31				253.09	9,476.40
Madison.....	10,337.77			58.50	624.32	11,020.59
Mahaska.....	34,967.85			327.00	400.63	35,695.48
Marion.....	36,887.77				2,069.37	38,957.14
Marshall.....	16,330.80	1,216.99	95.41		2,061.71	19,704.91
Mills.....	42,060.84				165.44	42,226.28
Monroe.....	10,010.04	8,219.49			180.80	18,410.33
Monona.....	27,771.52		431.75		1,321.22	29,524.49
Monroe.....	29,342.73				432.87	29,775.60
Montgomery.....	21,446.61				1,050.97	22,497.58
Muscatine.....	25,514.37	874.00	29.35		600.24	26,418.96
Muskegon.....	15,378.37	224.00	803.57	314.80	478.37	16,990.01
Osceola.....	6,910.28					6,910.28
Page.....	11,797.00					11,797.00
Palo Alto.....	9,430.00	116.50	534.32		4,419.59	14,500.41
Plymouth.....	32,630.68				5,573.72	38,204.40
Pocahontas.....	5,887.09	36,335.40			354.18	42,576.67
Polk.....	26,741.94	17,811.04	3,373.37		1,816.08	49,742.43
Portawattamie.....	98,974.70				951.29	99,925.99
Poweshiek.....	21,475.39				2,886.53	24,361.92

County	Amount Expended On					Total
	Earth Roads	Gravel Roads	Paved Roads	Bridges	Special Cases	
Ringgold.....	23,532.18	44,175.19	.....	.....	703.23	24,235.40
Sac.....	17,165.88	.....	.....	.....	1,002.39	62,342.49
Scott.....	14,215.54	6,380.00	1,137.61	.....	2,134.90	23,777.17
Shelby.....	25,302.45	.....	.....	.....	622.41	24,574.86
Sioux.....	9,236.14	.....	.....	.....	436.11	60,729.79
Story.....	41,695.04	47,317.04	.....	.....	601.67	23,017.03
Taylor.....	19,119.47	.....	.....	.....	230.87	10,370.29
Union.....	32,446.57	.....	.....	.....	313.22	32,759.79
Van Buren.....	15,368.33	.....	.....	41.88	234.26	18,634.50
Wapello.....	19,061.47	.....	.....	.....	592.98	18,061.47
Warren.....	25,196.61	.....	.....	.....	581.25	25,992.59
Washington.....	37,385.19	.....	.....	.....	1,770.19	21,866.44
Wayne.....	34,465.18	.....	.....	.....	1,770.19	21,866.44
Webster.....	35,338.01	38,428.28	.....	.....	1,569.88	45,336.17
Winnebago.....	8,200.19	7,823.59	.....	.....	1,569.88	16,893.66
Winnebuck.....	45,385.38	.....	.....	126.48	1,383.99	34,172.17
Woodbury.....	9,139.21	11,074.25	.....	.....	1,383.99	46,895.69
Worth.....	17,659.51	6,729.00	.....	.....	309.31	20,598.77
Wright.....	.....	.....	.....	.....	90.00	24,428.37
Total.....	\$ 2,139,498.78	\$ 698,006.31	\$ 23,770.71	\$ 4,516.09	\$ 101,607.46	\$ 2,875,999.22

## PART TWO

# Summary of Annual Reports of County Engineers



## INTRODUCTION

This summary is prepared from the annual reports of the county engineers of the ninety-nine counties of Iowa and submitted in accordance with the provisions of Section 1527-s2, S. S. 1915.

The county engineers' reports include detailed statements of all county expenditures for road and bridge work. Efforts were made by the county engineers to secure detailed reports of township expenditures. Out of 1,606 townships, reports were secured from 1,359 up to the time of tabulating this report.

Statements of expenditures are based on warrants issued by the county auditors for the year 1921. The county engineers obtain the information contained in their reports from following sources:

- (a) Total expenditures from County Bridge, County Motor Vehicle Road, and County Road Cash Funds, from County Auditor's Warrant Register; Detailed classification of these expenditures from County Engineer's Claim Register.
- (b) Financial statement of the receipts and disbursements in above named funds, from County Treasurer's Ledger.
- (c) Statement of county's indebtedness from records of County Auditor and County Treasurer.
- (d) Statement of classified expenditures from all township funds, and financial statement of receipts and disbursements in said funds, from annual reports of township clerks.
- (e) All data as to receipts and disbursements of Primary Road Funds and tables showing expenditures for Construction and Maintenance on Primary Road System have been compiled from the records of the Highway Commission.

This report includes a general summary of the activities of the ninety-nine counties, paragraph summaries of the road and bridge expenditures of the individual counties, and thirty-two summary tables showing in detail the expenditures for road and bridge work from all funds and the present financial condition of the several counties.

## Summary of Financial Statement for Entire State

## ANNUAL REPORTS OF COUNTY ENGINEERS

JANUARY 1, 1921, TO JANUARY 1, 1922

## Total Expenditure.

From January 1, 1921, to January 1, 1922, the counties and townships spent \$38,741,627.53 for road and bridge work on the 104,100 miles of road in the primary, county and township road systems. The total expenditure for both road and bridge work is an average of \$372.15 per mile on the total mileage above named. The total expenditure is \$10,716,682.28 or 38.2 per cent more than the total expenditure reported for 1920. The expenditures are classified as follows:

Bridge work, on all roads.....	\$ 9,305,352.11
Road work on primary system.....	16,996,806.68
Road work on county system.....	5,766,483.50
Road work on township roads.....	6,672,985.24
<b>Total .....</b>	<b>\$38,741,627.53</b>

The expenditure for bridge work alone averaged \$89.38 per mile on the entire mileage of roads.

The expenditure for road work on the primary system averaged \$2,569.04 per mile. For road work on the county system an average of \$539.76 per mile and on the township road system \$76.80 per mile.

The following schedule compares expenditures for the past several years, according to purpose for which spent and according to the fund from which derived.

## TOTAL EXPENDITURES FOR ROAD AND BRIDGE WORK.

	1917	1918	1919	1920	1921
Bridge work on both county and township roads.....	\$ 7,466,706.66	\$ 6,806,818.16	\$ 6,854,722.43	\$ 9,804,213.40	\$ 5,020,387.09
Bridge work on primary roads.....					1,378,965.92
Road work on primary roads.....			440,008.53	7,483,973.34	10,990,806.68
Road work on county roads.....	4,140,340.36	3,856,051.88	4,817,415.77	5,759,533.54	5,760,483.90
Road work on township roads.....	3,558,338.51	3,430,822.57	4,041,871.72	4,577,304.77	6,672,985.24
<b>Totals .....</b>	<b>\$15,165,475.70</b>	<b>\$14,065,792.61</b>	<b>\$16,154,078.43</b>	<b>\$28,024,945.25</b>	<b>\$38,741,627.53</b>

## TOTAL EXPENDITURES FROM SEVERAL FUNDS.

	1917	1918	1919	1920	1921
County bridge fund.....	\$ 6,549,024.06	\$ 5,808,809.46	\$ 5,827,432.14	\$ 9,119,498.77	\$ 7,907,738.40
Primary road fund.....	18,109.62	75,853.12			
Primary road bond fund.....			440,008.53		
Primary road special assessments.....				1,189,670.16	3,136,602.17
County road cash fund.....	3,730,383.02	3,514,325.57	4,418,288.10	6,905,825.84	1,993,609.40
Motor vehicle road fund.....	1,225,746.06	1,215,981.72	1,330,384.10	564,789.18	6,003,004.21
Secondary road special assessments.....					100,898.68
Township funds.....	3,558,338.51	3,396,309.50	4,008,751.55	36,329.60	22,976.11
All other sources.....	105,881.52	84,822.34	129,214.03	4,891,137.38	6,529,652.37
<b>Totals .....</b>	<b>\$15,165,475.70</b>	<b>\$14,065,792.61</b>	<b>\$16,154,078.43</b>	<b>\$28,024,945.25</b>	<b>\$38,741,627.53</b>

## Cash Balances January 1, 1922.

On January 1, 1922, there were cash balances on hand in the county and township road and bridge funds amounting to \$2,133,719.65 as follows:

County bridge fund .....	\$ 877,814.84
County road cash fund.....	318,030.18
County motor vehicle road fund.....	141,409.20
<b>Total county balance .....</b>	<b>\$1,337,254.22</b>
Township road, drag and drainage funds.....	796,465.43
<b>Total .....</b>	<b>\$2,133,719.65</b>

## Indebtedness.

On January 1, 1922, there were outstanding bonds, for road and bridge work, amounting to \$21,342,136.82 as follows:

Bridge bonds outstanding .....	\$13,871,663.72
Road bonds outstanding .....	7,470,473.10
<b>Total bonds outstanding .....</b>	<b>\$21,342,136.82</b>

## Bonds issued during 1921:

Bridge bonds .....	\$3,217,894.01
Road bonds .....	3,069,975.20

**Total .....** **\$6,227,869.21**

## Bonds retired during 1921:

Bridge bonds .....	\$ 368,478.32
Road bonds .....	128,490.29

**Total .....** **\$ 496,968.61**

**Net increase in bonds outstanding.....** **\$5,730,900.60**

## TOTAL INDEBTEDNESS FOR ROAD AND BRIDGE WORK.

## COUNTY BRIDGE FUND.

	January 1, 1918	January 1, 1919	January 1, 1920	January 1, 1921	January 1, 1922
Outstanding bills .....	\$ 122,436.34	\$ 157,910.05	\$ 128,068.05	\$ 122,641.65	\$ 117,027.27
Outstanding warrants .....	2,414,748.15	2,081,701.72	1,894,278.45	2,080,018.52	1,242,097.97
Outstanding bonds .....	6,398,041.35	7,954,380.13	9,101,876.74	11,109,020.76	15,871,063.72
Total bridge indebtedness .....	\$ 8,875,225.84	\$10,193,891.90	\$11,225,118.34	\$13,911,680.93	\$15,231,088.96

## COUNTY ROAD FUND.

	January 1, 1918	January 1, 1919	January 1, 1920	January 1, 1921	January 1, 1922
Outstanding bills .....	\$ 36,709.12	\$ 114,530.96	\$ 81,914.96	\$ 108,608.25	\$ 132,431.32
Outstanding warrants .....	1,174,430.27	837,157.90	1,307,540.14	2,050,472.49	1,860,424.23
Outstanding bonds .....	1,554,643.79	2,554,020.55	2,665,531.08	4,697,737.60	7,470,479.19
Total road indebtedness .....	\$ 2,315,783.18	\$ 3,505,689.41	\$ 4,115,006.18	\$ 6,869,818.34	\$ 9,013,328.63
Total indebtedness .....	\$11,181,001.02	\$13,700,581.31	\$15,340,124.52	\$20,781,499.27	\$24,245,017.61

## EQUIPMENT AND TOOLS ON HAND

Reports of county engineers show that the several counties owned equipment and tools for road and bridge work valued on January 1, 1922, at \$1,008,230.00. A summary of the principal items of equipment reported is as follows:

Items	Number	Estimated Value
Tractors .....	221	\$ 315,450.00
Trucks .....	89	104,242.00
Concrete Mixers .....	117	21,861.00
Pile Drivers .....	75	8,275.00
Blade Graders .....	351	143,830.00
Wheeled Scrapers .....	1,039	24,139.00
Slip Scrapers .....	1,272	8,137.00
Road Drags .....	3,846	42,676.00
Frenos .....	162	2,647.00
Road Maintainers .....	1,047	145,383.00
Plows .....	507	6,321.00
Camp Equipment .....		21,304.00
Small Tools and Miscell...		162,965.00
Total .....		\$1,008,230.00

A detailed statement of the inventory of equipment in each county is given in Summary Table No. 34, Parts I and 2.

This does not include equipment owned by townships which consists principally of blade graders, tractors, drags, wheeled scrapers, slip scrapers, plows, and small tools.

## SUMMARY OF BRIDGE WORK AND EXPENDITURES FOR ENTIRE STATE

January 1, 1921, to January 1, 1922

The total expenditure for bridges and culverts in the state during 1921 was \$9,305,352.11 or \$498,861.29 less than the total expenditure for like purpose in 1920.

Below is a comparison of the classified expenditures for each of the past five years including 1921, a comparison of permanent and temporary construction and a statement of the amounts spent for the various types of construction for the past four years.

The amounts given were expended on work classified as shown.

Permanent bridges and culverts include only structures composed entirely of masonry or steel construction. If a part of the work is of a temporary nature, the structure is classified under the heading of temporary construction. Pipe culverts not provided with masonry bulk heads are classified as temporary construction.

Chapter 20, Acts of the Thirty-ninth General Assembly, permitting the paying for railway crossings, bridges and culverts on the primary road system from primary road funds became effective March 10, 1921. Between March 10, 1921, and January 1, 1922, \$1,278,965.02 was expended from the primary road fund for construction and maintenance of bridges and culverts on primary roads.



## COMPARISON OF CLASSIFIED BRIDGE EXPENDITURES

## AMOUNTS

Classification	1917	1918	1919	1920	1921	Total Five Year Period
Permanent bridges and culverts—County	\$ 4,485,781.23	\$ 3,578,451.05	\$ 3,827,081.17	\$ 5,407,243.64	\$ 4,396,104.29	\$ 21,694,661.38
Bridges—Primary					1,270,920.85	1,270,920.85
Temporary bridges and culverts	603,490.24	598,426.88	577,741.33	824,261.37	757,990.98	3,351,840.80
Repairs—County	1,029,591.95	1,027,326.00	1,187,365.80	1,646,527.13	1,345,071.79	6,245,882.67
Repairs—Primary					8,044.17	8,044.17
Culverts purchased for townships	463,553.59	410,171.73	370,651.19	514,146.30	422,436.09	2,181,916.47
Equipment and unused material	356,255.98	350,984.96	391,728.43	684,392.24	345,155.53	2,428,517.14
Filling bridges and culverts	592,319.27	385,118.02	329,335.46	420,188.15	337,646.25	1,804,607.15
Special cases	166,004.43	166,139.52	170,819.05	307,454.57	402,594.59	1,199,012.16
Totals	\$ 7,466,736.69	\$ 6,808,818.16	\$ 6,854,722.43	\$ 8,804,213.40	\$ 9,305,352.11	\$ 40,239,002.79

## PERCENTAGES.

Classification	1917	1918	1919	1920	1921	Total Five Year Period
Permanent bridges and culverts—County	60.08	52.60	55.83	55.15	47.23	55.90
Bridges—Primary			8.43	8.41	13.66	8.16
Temporary bridges and culverts	8.08	8.78	8.43	8.41	8.14	8.36
Repairs—County	13.91	15.08	17.32	18.79	14.45	15.52
Repairs—Primary					0.09	0.02
Culverts purchased for townships	6.20	6.02	5.41	5.34	4.54	5.42
Equipment and unused material	4.78	5.15	5.71	6.08	3.71	6.04
Filling bridges and culverts	4.85	5.65	4.81	4.29	3.54	4.61
Special cases	2.09	2.32	2.49	3.14	4.34	2.97
Totals	100.00	100.00	100.00	100.00	100.00	100.00

## COMPARISON OF EXPENDITURES FOR PERMANENT AND TEMPORARY BRIDGE CONSTRUCTION

	1917 Expenditures	%	1918 Expenditures	%	1919 Expenditures	%
Permanent bridges and culverts—County	\$ 4,485,781.23	80.77	\$ 3,578,451.05	78.00	\$ 3,827,081.17	80.14
Permanent bridges and culverts—Primary						
Temporary bridges and culverts	603,490.24	10.88	598,426.88	13.05	577,741.33	12.11
Culvert materials furnished townships	463,553.59	8.35	410,171.73	8.95	370,651.19	7.75
Total	\$ 5,552,825.06	100.00	\$ 4,587,049.66	100.00	\$ 4,775,473.69	100.00

	1920 Expenditures	%	1921 Expenditures	%	Five Year Period Expenditures	%
Permanent bridges and culverts—County	\$ 5,407,243.64	80.16	\$ 4,396,104.29	64.20	\$ 21,694,661.38	79.10
Permanent bridges and culverts—Primary						
Temporary bridges and culverts	824,261.37	12.22	757,990.98	11.07	3,351,840.80	11.79
Culvert materials furnished townships	514,146.30	7.62	422,436.09	6.17	2,181,916.47	7.63
Total	\$ 6,745,651.31	100.00	\$ 5,576,531.36	100.00	\$ 25,508,418.65	100.00

## COMPARISON OF CLASSIFIED PERMANENT BRIDGE AND CULVERT CONSTRUCTION

No.	Type	1917 Amount	1918 Amount	1919 Amount
1	Concrete culverts (Box, Cir., Arch and Pipe)			
2	Masonry culverts	\$ 2,148,970.33	\$ 1,860,686.88	\$ 2,186,306.58
3	Headwalls and culverts lengthened	15,035.18	7,593.47	4,308.52
4	Concrete slab bridges	23,340.37	27,937.17	15,967.20
5	Concrete arch bridges	230,371.61	260,548.84	290,805.16
6	Concrete abutments	79,805.47	90,904.29	47,189.61
7	Concrete thru girders	60,077.83	55,356.27	39,572.29
8	Concrete deck girders	30,986.38	32,540.83	21,716.54
9	Retaining walls	179,948.34	227,477.16	158,526.27
10	I-beam spans—Concrete abutments	7,423.99	5,421.17	6,408.02
11	Steel girders—Concrete abutments	684,115.55	289,078.16	342,037.19
12	Pony truss—Concrete abutments	1,389.14	4,693.29	12,143.36
13	High steel trusses—Concrete abutments	737,498.19	442,032.94	404,593.00
14	Deck trusses—Concrete abutments	158,313.77	64,475.66	128,554.57
	Total	42,532.84		197.90
		\$ 4,409,814.51	\$ 3,465,018.13	\$ 3,627,488.18

## COMPARISON OF CLASSIFIED TEMPORARY BRIDGE AND CULVERT CONSTRUCTION

No.	Type	1917 Amount	1918 Amount	1919 Amount
1	Concrete pipe culverts			
2	Corrugated pipe culverts	\$ 299,154.25	\$ 168,572.25	\$ 183,305.53
3	I-beam spans—Piling abutments	549,498.05	81,089.74	4,287.47
4	Pony truss on piling—Wood floor	45,172.49	33,644.66	25,646.57
5	Wood pile bridges	41,955.07	85,945.41	55,424.93
6	Miscellaneous temporary bridges and culverts	274,484.28	355,142.69	328,653.12
	Total	27,745.18	17,762.65	51,419.96
	Grand total	\$ 1,143,910.25	\$ 711,859.80	\$ 651,028.52
		\$ 5,552,825.06	\$ 4,176,877.93	\$ 4,288,518.70

## COMPARISON OF CLASSIFIED PERMANENT BRIDGE AND CULVERT CONSTRUCTION—Continued.

No.	Type	1920 Amount	1921 Amount	Five Year Period Amount
1	Concrete culverts (Box, Cir., Arch and Pipe)	\$ 2,917,790.00	\$ 2,905,006.04	\$ 12,021,770.23
2	Masonry culverts	10,942.47		37,450.04
3	Headwalls and culverts lengthened	106,226.33	205,800.99	376,247.66
4	Concrete slab bridges	336,722.90	179,176.14	1,355,824.05
5	Concrete arch bridges	90,990.16	112,921.25	424,418.78
6	Concrete abutments	59,574.21	52,042.29	250,222.88
7	Concrete thru girders	49,274.00	20,845.98	177,163.70
8	Concrete deck girders	185,200.21	95,926.44	844,396.40
9	Retaining walls	2,582.28	5,209.13	29,901.64
10	I-beam spans—Concrete abutments	448,718.58	539,547.23	2,386,406.71
11	Steel girders—Concrete abutments	35,716.45	57,118.50	111,351.74
12	Pony truss—Concrete abutments	889,788.49	1,064,207.23	526,019.76
13	High steel trusses—Concrete abutments	229,345.54	390,581.33	11,170.37
14	Deck trusses—Concrete abutments			40,559.74
15	Miscellaneous permanent construction	36,159.50	42,872.90	80,032.49
	Total	\$ 5,497,243.64	\$ 5,937,055.14	\$ 22,586,589.90

## COMPARISON OF CLASSIFIED TEMPORARY BRIDGE AND CULVERT CONSTRUCTION

No.	Type	1920 Amount	1921 Amount	Five Year Period Amount
1	Concrete pipe culverts	\$ 78,472.70	\$ 43,292.90	\$ 64,797.65
2	Corrugated pipe culverts	109,240.69	145,619.70	871,736.53
3	I-beam spans—Piling abutments	39,027.72	78,674.11	226,165.53
4	Pony truss on piling—Wood floor	78,669.63	72,827.49	304,515.53
5	Wood pile bridges	472,648.53	373,641.64	1,804,870.26
6	Miscellaneous temporary bridges and culverts	55,212.01	42,869.24	195,966.38
	Total	\$ 824,251.87	\$ 737,929.98	\$ 4,088,089.92
	Grand total	\$ 6,321,505.51	\$ 6,674,985.12	\$ 26,674,679.82

## CULVERT MATERIAL PURCHASED FOR TOWNSHIPS

Operating under the law which provides that counties may furnish townships with the materials for temporary culverts, the 1,606 townships were furnished material in 1921 at a total cost to the counties of \$422,943.66.

A summary of the cost of material of various classes furnished in 1919, 1920 and 1921 is as follows:

	1919	1920	1921
Corrugated pipe .....	\$ 240,429.40	\$ 356,838.65	\$ 290,277.87
Concrete pipe .....	84,411.00	65,600.86	47,265.67
Lumber .....	41,229.92	72,719.36	68,406.14
Miscellaneous material .....	24,581.27	18,921.43	10,994.98
Total .....	\$ 370,651.19	\$ 514,140.30	\$ 422,496.66

## SUMMARY OF ROAD WORK AND EXPENDITURES FOR ENTIRE STATE

January 1, 1921, to January 1, 1922

## Primary and County Road Expenditures.

During the year 1921 the total expenditure for road work on the primary and county roads was \$22,763,290.18. A division of this expenditure by road systems and the average amount spent per mile of road is shown by the following table:

Road System	Number Miles in System	Amount Expended	Average Per Mile
Primary .....	\$ 6,616.00	\$16,996,806.68	\$ 2,569.05
County .....	10,681.15	5,766,483.50	539.91
Total .....	\$ 17,297.15	\$22,763,290.18	\$ 1,316.01

The above total expenditure on roads does not include items amounting to \$357,046.25 listed under bridge work for filling of bridges and culverts but paid for out of county road cash fund.

The classification of work, amount and percentage of entire expenditure spent for construction, maintenance and special cases is shown below:

Road System	Construction		Maintenance		R. R. Cross Special Cases	
	Amount	%	Amount	%	Amount	%
Primary .....	\$14,812,063.97	87	\$ 2,065,323.00	12	\$ 89,419.71	1
County .....	2,174,794.45	38	2,367,315.71	44	1,024,407.34	18
Total .....	\$16,986,858.42		\$ 4,432,638.71		\$ 1,113,827.05	

A total of 2,399.91 miles of primary and county roads were constructed during 1921, as follows:

Class of Construction	Miles of Primary System	Miles of County System	Total Number Miles
Built to permanent grade .....	\$ 1,068.47	\$ 320.16	\$ 1,388.63
Gravel surfaced .....	403.79	435.15	842.94
Hard surfaced .....	158.34		158.34
Totals .....	\$ 1,640.60	\$ 759.31	\$ 2,399.91



Condition of the primary and county road systems January 1, 1922, was as follows:

Condition	Primary	County
Miles earth road not built	5,775.90	5,405.16
Miles earth road built to permanent grade	1,447.80	904.20
Miles surfaced with gravel	1,156.60	1,180.78
Miles paved	236.00	2.01
Total miles in system	6,615.90	10,492.15

Total expenditure for repairing and maintaining primary roads was \$2,095,323.00 of which \$1,153,604.84 was spent for patrol maintenance, \$612,520.88 for gang maintenance, and \$329,197.28 for equipment and tools, or a total average cost of \$316.69 per mile.

The total expenditure for repairing and maintaining county roads was \$2,567,315.71, of which \$1,224,835.98 was spent for patrol maintenance including dragging, \$808,104.42 for gang maintenance, and \$534,375.31 for equipment and tools, or an average of \$240.36 per mile.

The comparative cost of maintenance of earth, gravel and paved roads of the primary and county systems for the years 1920 and 1921, is shown by the following table:

	Primary System		County System	
	No. of Miles	Ave. Cost Per Mile	No. of Miles	Ave. Cost Per Mile
Earth				
1921	5,700.0	\$ 224.47	5,705.58	\$ 254.84
1920	5,223.4	297.28	9,428.36	240.62
Gravel				
1921	792.3	364.20	846.28	219.11
1920	1,156.6	450.82	1,180.78	228.40
Paved				
1921	68.5	79.44	1.01	389.06
1920	236.0	89.28	1.01	137.96

#### Township Road Work.

Reports from 1,359 of the 1,606 townships were received. Average expenditures for the 247 townships which did not report are included in tabulations in this report.

The 1,359 townships reporting show a total road expenditure of \$5,646,691.78 or an average of \$4,155.03 per township. In 1920

the average township expenditure was \$3,692.28. The township road work for 1921 is classified as follows:

Construction	\$ 1,372,381.08	19%
Maintenance	5,332,371.08	79%
Special cases	148,332.31	2%
Total	\$ 6,672,985.34	100%

The township expenditures reported are shown in detail in Summary Tables Nos. 4, 27 and 33.

#### ADAIR COUNTY.

##### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$116,027.12, of which \$64,374.73 or 55.4% was spent for permanent bridges and culverts; \$7,402.43 or 6.4% for temporary bridges and culverts; \$13,222.94 or 11.4% for repairs; \$8,595.99 or 7.3% for culvert material for townships; \$7,399.78 or 6.4% for equipment and unused materials; \$12,236.73 or 10.6% for filling bridges and culverts and \$2,884.52 or 2.5% for special cases.

Of the total amount, \$71,777.16, spent for new bridges and culverts, \$64,374.73 or 89.6% was spent for permanent work and \$7,402.43 or 10.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$42,293.72; head walls and culverts lengthened, \$3,769.26; I-beam spans-piling abutments, \$2,620.83; pony truss-concrete abutments, \$18,165.06; concrete pipe, \$3,104.74; wood trestle bridge, \$1,676.86 and miscellaneous permanent bridges and culverts, \$146.60.

##### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$152,814.54 of which \$134,771.50 or 88.2% was spent for construction, \$17,976.79 or 11.76% for maintenance and \$65.95 or 0.04% for special cases. \$36,424.37 was spent on bridges and culverts.

56 miles earth road, the entire system, were maintained at a cost of \$17,460.79 or an average of \$311.79 per mile.

During the year of 1921, 14.4 miles were built to permanent grade. On January 1, 1922, the county had 37.3 miles of earth road not built and 18.7 miles of earth road built to permanent grade.

##### 2. County Roads.

The total county road expenditure was \$40,140.95 of which \$510.13 or 1.2% was spent for construction, \$37,611.21 or 93.5% for maintenance and \$12,619.62 or 29.8% for special cases. The total amount spent for filling and drainage was \$510.13.

109.4 miles of earth road, the entire system, were dragged and maintained at a cost of \$27,611.21 or an average of \$252.20 per mile. The total average expenditure per mile of county road was \$366.50.

##### 3. Township Roads.

The total expenditure of township roads as shown by reports from all townships was \$57,398.97.

## ADAMS COUNTY.

## Bridges.

The total expenditures from county funds for bridges and culvert work during 1921 were \$82,553.15 of which \$39,892.72 or 48.3% was spent for permanent bridges and culverts; \$14,549.64 or 17.6% for temporary bridges and culverts; \$6,977.38 or 8.5% for repairs; \$8,638.66 or 10.5% for culvert material for townships; \$5,980.40 or 7.2% for equipment and unused materials; \$2,299.71 or 2.8% for filling bridges and culverts and \$4,223.64 or 5.1% for special cases.

Of the total amount, \$54,442.36 spent for new bridges and culverts, \$39,892.72 or 73.3% was spent for permanent work and \$14,549.64 or 26.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$21,522.25; pony truss-concrete abutments, \$18,370.47; concrete pipe, \$2,621.80; corrugated pipe, \$320.00 and wood trestle bridges, \$11,607.84.

## 1. Primary System.

The total expenditure was \$95,851.38 of which \$53,213.89 or 56.8% was spent for construction and \$12,637.58 or 13.2% for maintenance.

35.2 miles of earth road, the entire system, were maintained at a cost of \$12,637.58 or an average of \$359.02 per mile.

During the year of 1921, 3.29 miles were built to permanent grade. On January 1, 1922, the county had 25.2 miles of earth roads not built and 10.0 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$19,918.63 of which \$16,947.43 or 85.1% was spent for maintenance and \$2,971.20 or 14.9% for special cases.

106.25 miles of earth road, the entire system, were dragged and maintained at a cost of \$16,947.43 or an average of \$159.50 per mile. The total average expenditure per mile of County Road was \$187.40.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$32,228.94.

## ALLAMAKEE COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$77,673.18, of which \$39,957.50 or 51.4% was spent for permanent bridges and culverts; \$4,971.76 or 6.4% for temporary bridges and culverts; \$24,248.75 or 31.2% for repairs; \$2,138.88 or 2.7% for culvert material for townships; \$1,429.07 or 1.8% for equipment and unused materials; \$4,469.72 or 5.7% for filling bridges and culverts and \$385.50 or 0.48% for special cases.

Of the total amount, \$44,029.26, spent for new bridges and culverts, \$39,957.50 or 90.7% was spent for permanent work and \$4,971.76 or 11.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$18,979.60; concrete slab bridges, \$571.59; concrete arch bridges, \$5,848.45; retaining walls, \$2,510.22; steel concrete abutments, \$10,988.98; corrugated pipe, \$2,841.53; high steel trusses-concrete abutments, \$881.92; wood truss bridges, \$1,057.28 and miscellaneous bridges and culverts, \$2,149.69.

## 1. Primary System.

The total expenditure was \$79,388.69 of which \$42,038.25 or 52.9% was spent for construction, \$36,010.44 or 45.37% for maintenance and \$340.00 or 0.43% for special cases.

44.2 miles of earth road, the entire system, were maintained at a cost of \$36,010.44 or an average of \$427.17 per mile.

During the year of 1921, 6.24 miles were built to permanent grade. On January 1, 1922, the county had 78.3 miles of earth road not built and 5.5 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$28,694.36, of which \$24,801.56 or 86.4% was spent for maintenance and \$3,892.80 or 13.6% for special cases.

107.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$24,801.56 or an average of \$230.79 per mile. The total average expenditure per mile for county road was \$266.90.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from eight of the eighteen townships was \$30,192.42.

## APPANOOSE COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$97,343.42, of which \$53,992.77 or 55.5% was spent for permanent bridges and culverts; \$8,416.53 or 8.7% for temporary bridges and culverts; \$11,044.26 or 11.4% for repairs; \$10,829.71 or 11.1% for culvert material for townships; \$994.43 or 1.0% for equipment and unused materials; \$11,491.37 or 11.8% for filling bridges and culverts and \$674.35 or 0.6% for special cases.

Of the total amount \$62,409.30, spent for new bridges and culverts, \$53,992.77 or 86.5% was spent for permanent work and \$8,416.53 or 13.5% was spent for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$11,361.12; retaining walls, \$227.43; I-beam spans-concrete abutments, \$21,417.02; corrugated pipe, \$3,167.57; pony truss-concrete abutments, \$26,987.20; I-beam spans-piling abutments, \$1,486.75; wood trestle bridges, \$3,697.21 and miscellaneous temporary bridges and culverts, \$65.00.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$38,779.94 of which \$18,109.47 or 46.7% was spent for construction, \$20,260.72 or 52.2% for maintenance and \$409.75 or 1.1% for special cases; \$11,148.96 was spent on bridges and culverts.

57.1 miles of earth road, the entire system, were maintained at a cost of \$20,260.72 or an average of \$354.93 per mile.

During the year of 1921, 1.38 miles were built to permanent grade, and \$11,148.96 was spent on bridges and culverts. On January 1, 1922, the county had 46.1 miles of earth roads not built and 11.0 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$47,062.89, of which \$39,228.44 or 83.4% was spent for maintenance and \$7,834.45 or 16.6% for special cases.

115.25 miles of earth road, the entire system, were dragged and maintained at a cost of \$39,228.44 or an average of \$340.38 per mile. The total average expenditure per mile of county road was \$408.39.

### 3. Township Roads.

The total expenditures of township roads as shown by reports from all townships was \$42,887.39.

## AUDUBON COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$29,302.97, of which \$2,555.38 or 8.7% was spent for permanent bridges and culverts; \$19,856.47 or 67.7% for temporary bridges and culverts; \$2,210.15 or 7.5% for repairs; \$4,047.88 or 13.8% for culvert material for townships; \$534.89 or 1.84% for equipment and unused materials; \$78.20 or .27% for filling bridges and culverts and \$20.00 or .07% for special cases.

Of the total amount, \$22,411.55, spent for new bridges and culverts, \$2,555.38 or 11.3% was spent for permanent work and \$19,856.47 or 88.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$2,555.38; corrugated pipe, \$149.90; concrete pipe, \$55.25; pony truss on piling, \$2,123.29 and wood trestle bridges, \$17,537.12.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$49,709.53, of which \$45,551.71 or 91.4% was spent for construction, \$4,157.32 or 8.36% for maintenance and \$.50 for special cases; \$24,932.88 was spent on bridges and culverts.

46.6 miles of earth road, the entire system, were maintained at a cost of \$4,157.32 or an average of \$89.21 per mile.

During the year of 1921, 2.36 miles were built to permanent grade. On January 1, 1922, the county had 43.3 miles of earth roads not built, and 3.3 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$22,469.12, of which \$16,404.52 or 72.9% was spent for maintenance and \$6,064.60 or 27.1% for special cases.

96.9 miles of earth road, the entire system, were dragged and maintained at a cost of \$16,404.52 or an average of \$169.30 per mile. The total average expenditure per mile of county road was \$232.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 8 of the 12 townships was \$31,259.00.

## BENTON COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$146,471.25, of which \$113,023.46 or 77.1% was spent for permanent bridges and culverts; \$7,306.37 or 5.0% for temporary bridges and culverts; \$12,849.98 or 8.8% for repairs; \$5,676.08 or 3.9% for culvert material for townships; \$4,318.06 or 2.9% for equipment and unused materials; \$2,370.22 or 1.6% for filling bridges and culverts and \$927.08 or 0.6% for special cases.

materials; \$2,370.22 or 1.6% for filling bridges and culverts and \$927.08 or 0.6% for special cases.

Of the total amount \$120,329.83, spent for new bridges and culverts, \$113,023.46 or 93.9% was spent for permanent work and \$7,306.37 or 6.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$63,417.95; concrete slab bridges, \$2,670.49; I-beam spans-concrete abutments, \$5,379.14; steel concrete abutments, \$28,905.78; pony truss-concrete abutments, \$12,651.09; corrugated pipe, \$2,364.56; I-beam span-piling abutments, \$1,823.81 and wood truss bridges, \$2,618.00.

### 1. Primary System.

The total expenditure was \$596,745.47 of which \$481,110.13 or 80.4% was spent for construction, \$23,756.81 or 4.0% for maintenance and \$1,878.53 or 0.31% for special cases; \$412.66 was spent on bridges and culverts.

79.6 miles of earth road were maintained at a cost of \$22,976.53 or an average of \$288.65 per mile; 10.8 miles of paved road were maintained at a cost of \$267.62 or an average of \$34.60 per mile; 90.4 miles, the entire system, were maintained at a cost of \$23,344.15 or an average of \$257.86 per mile.

During the year of 1921, 19.45 miles were built to permanent grade and 8.88 miles were paved. On January 1, 1922, the county had 67.6 miles of earth roads not built, 12.0 miles of earth road built to permanent grade and 10.8 miles paved.

### 2. County Roads.

The total county road expenditure was \$50,980.32, of which \$2,753.73 or 5.4% was spent for construction, \$46,468.04 or 91.2% for maintenance and \$1,758.55 or 3.4% for special cases. The total amount spent for tilling and drainage was \$2,753.73.

151.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$46,468.04 or an average of \$306.60 per mile. The total average expenditure per mile of county road was \$336.50.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 20 townships was \$56,989.76.

## BLACK HAWK COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$56,441.90 of which \$41,964.85 or 74.4% was spent for permanent bridges and culverts; \$2,154.84 or 3.8% for temporary bridges and culverts; \$4,436.41 or 7.7% for repairs; \$1,788.35 or 3.2% for culvert material for townships; \$318.16 or 0.56% for equipment and unused materials; \$1,661.73 or 2.94% for filling bridges and culverts and \$3,117.56 or 5.5% for special cases.

Of the total amount \$45,119.69, spent for new bridges and culverts, \$41,964.85 or 93.0% was spent for permanent work and \$3,154.84 or 7.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$10,871.51; head walls and culverts lengthened, \$160.50; concrete abutments, \$3,812.03; concrete pipe, \$40.80; I-beam spans-concrete abutments, \$21,800.53; corrugated pipe, \$826.30; pony truss-concrete abutments, \$5,164.00; I-beam span-piling abutments, \$311.25; wood trestle bridges, \$1,868.65 and miscellaneous bridges and culverts, \$251.51.



### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$57,628.44 of which \$26,287.06 or 45.6% was spent for construction, \$30,936.78 or 53.7% for maintenance and \$404.60 or 0.7% for special cases; \$6,531.80 was spent on bridges and culverts.

79.3 miles of earth road were maintained at a cost of \$29,439.61 or an average of \$418.77 per mile; 3.6 miles of gravel road were maintained at a cost of \$157.81 or an average of \$210.50 per mile; 4.1 miles of paved road were maintained at a cost of \$269.46 or an average of \$65.80 per mile; 78.9 miles, the entire system, were maintained at a cost of \$30,466.88 or an average of \$390.58 per mile.

During the year of 1921, 4.18 miles were built to permanent grade. On January 1, 1922, the county had 88.3 miles of earth roads not built, 2.0 miles of earth road built to permanent grade, 3.6 miles surfaced with gravel, and 4.1 miles paved.

### 2. County Roads.

The total county road expenditure was \$44,412.42 of which \$10,740.47 or 24.2% was spent for construction, \$32,682.00 or 73.5% for maintenance and \$989.95 or 2.3% for special cases; 2.0 miles were surfaced with gravel at a cost of \$6,323.06. The total amount spent for tiling and drainage was \$2,179.39 and the total amount spent for equipment and tools was \$2,238.21.

102.9 miles of earth road were dragged and maintained at a cost of \$29,060.98 or an average of \$282.50 per mile; 8.0 miles of gravel road were dragged and maintained at a cost of \$3,821.02 or an average of \$453.00 per mile; 110.9 miles, the entire system, were dragged and maintained at a cost of \$32,682.00 or an average of \$295.00 per mile. The total average expenditure per mile of county road was \$401.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 18 townships was \$52,945.05.

## BOONE COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$52,875.78 of which \$31,357.28 or 60.2% was spent for permanent bridges and culverts; \$3,348.04 or 6.3% for temporary bridges and culverts; \$5,683.43 or 10.6% for repairs; \$78.09 or 0.15% for culvert material for townships; \$5,065.22 or 9.6% for equipment and unused materials; \$5,263.80 or 9.95% for filling bridges and culverts, and \$1,579.92 or 3.0% for special cases.

Of the total amount, \$35,205.32, spent for new bridges and culverts, \$31,557.28 or 90.5% was spent for permanent work and \$3,348.04 or 9.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$30,303.28; concrete slab bridges, \$200.00; concrete deck girders, \$1,354.00 and corrugated pipe, \$3,348.04.

### 1. Primary System.

The total expenditure was \$270,592.20 of which \$234,905.21 or 86.8% was spent for construction, and \$35,687.99 or 13.2% for maintenance.

18.4 miles of earth road were maintained at a cost of \$4,461.03 or an average of \$273.00 per mile. 61.4 miles of gravel road were maintained at a cost of \$31,236.96 or an average of \$508.58 per mile. 77.8 miles, the

entire system, were maintained at a cost of \$35,687.99 or an average of \$458.70 per mile.

During the year of 1921, 25.79 miles were built to permanent grade and 29.35 miles were surfaced with gravel. On January 1, 1922, the county had 12.9 miles of earth roads not built, 2.5 miles of earth road built to permanent grade, and 61.4 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$117,502.51 of which \$28,894.90 or 24.6% was spent for construction; \$43,388.74 or 36.9% for maintenance and \$45,219.87 or 38.5% for special cases. 22.5 miles were surfaced with gravel at a cost of \$31,312.86, and the total amount spent for tiling and drainage was \$27,551.14.

51.25 miles of earth road were dragged and maintained at a cost of \$26,562.63 or an average of \$518.20 per mile. 45.50 miles of gravel road were dragged and maintained at a cost of \$16,825.11 or an average of \$361.90 per mile. 97.75 miles, the entire system, were dragged and maintained at a cost of \$43,388.74 or an average of \$447.50 per mile. The total average expenditure per mile of county road was \$1,202.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of the 17 townships was \$83,410.24.

## BREMER COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$79,490.56 of which \$50,850.11 or 63.9% was spent for permanent bridges and culverts; \$3,260.98 or 4.1% for temporary bridges and culverts; \$13,472.21 or 17.0% for repairs; \$4,771.31 or 6.0% for culvert material for townships; \$1,189.68 or 1.5% for equipment and unused materials; \$115.60 or 0.14% for filling bridges and culverts and \$2,830.67 or 3.56% for special cases.

Of the total amount, \$54,111.09, spent for new bridges and culverts, \$50,850.11 or 94.0% was spent for permanent work and \$3,260.98 or 6.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$25,219.58; head walls and culverts lengthened, \$1,022.50; concrete slab bridges, \$10,559.80; concrete thru girders, \$5,374.03; pony truss-concrete abutments, \$5,674.20; wood trestle bridges, \$1,871.22 and corrugated pipe, \$1,332.76.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds, was \$74,296.34 of which \$49,848.15 or 67.1% was spent for construction; \$18,564.78 or 25.0% for maintenance, and \$5,883.41 or 7.9% for special cases. \$11,553.28 was spent for bridges and culverts.

70.0 miles of earth road were maintained at a cost of \$15,206.28 or an average of \$217.09 per mile. 2.0 miles of gravel road were maintained at a cost of \$358.50 or an average of \$179.75 per mile and 72.0 miles, the entire system, were maintained at a cost of \$15,564.78 or an average of \$217.83 per mile.

During the year of 1921, 8.07 miles were built to permanent grade. On January 1, 1922, the county had 59.2 miles of earth roads not built, 10.3 miles of earth road built to permanent grade and 2.0 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$65,126.76 of which \$43,831.29 or 67.4% was spent for construction, \$14,222.87 or 21.7% for maintenance and \$7,072.60 or 10.9% for special cases.

9.964 miles were built to finish grade standard section at a cost of \$37,895.47. One mile was surfaced with gravel at a cost of \$2,704.05 and the total amount spent for tiling and drainage was \$3,231.68.

57.0 miles of earth road were dragged and maintained at a cost of \$13,976.36 or an average of \$245.00 per mile. 3.5 miles of gravel road were dragged and maintained at a cost of \$246.51 or an average of \$70.40 per mile. 60.5 miles, the entire system, were dragged and maintained at a cost of \$14,222.87 or an average of \$233.50 per mile. The total average expenditure per mile of county road was \$1,977.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 16 of the 14 townships was \$40,591.97.

**BUCHANAN COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921 were \$43,052.57 of which \$17,785.31 or 41.3% was spent for permanent bridges and culverts; \$3,412.73 or 7.93% was spent for temporary bridges and culverts; \$16,444.03 or 38.20% for repairs; \$4,945.44 or 11.5% for culvert material for townships; \$70.62 or 0.16% for equipment and unused materials; \$130.85 or 0.31% for filling bridges and culverts, and \$260.59 or 0.60% for special cases.

Of the total amount \$21,198.04 spent for new bridges and culverts, \$17,785.31 or 83.9% was spent for permanent work and \$3,412.73 or 16.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$15,114.76; retaining walls, \$253.35; I-beam spans—concrete abutments, \$2,417.20; corrugated pipe, \$1,677.76; wood trestle bridges, \$1,718.00, and miscellaneous temporary bridges and culverts, \$16.97.

**1. Primary System.**

The total expenditure, including bridges paid for from the primary road fund, was \$13,121.00 of which \$2,227.03 or 16.7% was spent for construction; \$10,755.08 or 81.9% was spent for maintenance and \$138.84 or 1.4% for special cases. \$1,100.41 was spent on bridges and culverts.

46.0 miles of earth road, the entire system, were maintained at a cost of \$10,755.08, or an average of \$233.81 per mile.

On January 1, 1922, the county had 36.0 miles of earth roads not built, and 10.0 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$34,245.60 of which \$1,272.40 or 3.8% was spent for construction; \$31,743.20 or 92.6% for maintenance and \$1,230.00 or 3.6% for special cases. The total amount spent for tiling and drainage was \$1,272.40.

135.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$31,743.20, or an average of \$235.50 per mile. The total expenditure per mile of county road was \$252.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 15 of the 16 townships, was \$54,112.65.

**BUENA VISTA COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$32,486.24 of which \$22,261.84 or 68.5% was spent for permanent bridges and culverts; \$136.00 or 0.4% for temporary bridges and culverts; \$3,132.96 or 9.6% for repairs; \$3,676.51 or 11.3% for culvert material for townships; \$1,648.42 or 5.1% for equipment and unused materials; \$619.65 or 2.0% for filling bridges and culverts, and \$1,010.86 or 3.1% for special cases.

Of the total amount \$22,397.84, spent for new bridges and culverts, \$22,261.84 or 99.4% was spent for permanent work and \$136.00 or 0.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$15,320.33; head walls and culverts lengthened, \$493.79; retaining walls, \$379.30; I-beam spans—concrete abutments, \$2,692.47, and corrugated pipe, \$136.00; and miscellaneous permanent bridges and culverts \$2,375.95.

**1. Primary System.**

The total expenditure was \$154,398.45, of which \$114,768.14 or 74.3% was spent for construction; \$35,780.25 or 23.2% for maintenance, and \$3,850.06 or 2.5% for special cases.

66.7 miles of gravel road, the entire system, were maintained at a cost of \$34,679.84 or an average of \$519.94 per mile.

During the year 1921, .55 of a mile was built to permanent grade, and 26.0 miles were surfaced with gravel.

On January 1, 1922, the county had 66.7 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$55,856.98 of which \$44,070.96 or 78.7% was spent for construction; \$10,828.32 or 19.4% for maintenance and \$1,058.30 or 1.9% for special cases; 28.01 miles were surfaced with gravel at a cost of \$40,151.77. The total amount spent for tiling and drainage was \$3,477.47 and the total amount spent for equipment and tools was \$441.12.

17.0 miles of earth road were dragged and maintained at a cost of \$1,462.82 or an average of \$86.00 per mile; 88.05 miles gravel road were dragged and maintained at a cost of \$9,265.50 or an average of \$106.30 per mile; 105.05 miles, the entire system, were dragged and maintained at a cost of \$10,828.32 or an average of \$103.10 per mile. The total average expenditure per mile of county road was \$532.30.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 11 of the 17 townships, was \$56,280.24.

**BUTLER COUNTY****Bridges.**

The total expenditures from county funds, for bridge and culvert work during 1921 were \$74,439.94, of which \$22,887.53 or 30.7% was spent for permanent bridges and culverts; \$11,258.62 or 15.1% for temporary bridges and culverts; \$14,645.34 or 19.7% for repairs; \$2,272.25 or 3.0% for culvert material for townships; \$5,115.36 or 6.8% for equipment and unused materials; \$2,023.20 or 2.7% for filling bridges and culverts and \$15,237.64 or 20.7% for special cases.



Of the total amount, \$34,146.15, spent for new bridges and culverts, \$22,887.53 or 67.0% was spent for permanent work and \$11,258.62 or 33.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$19,298.35; concrete slab bridges, \$3,589.18, and miscellaneous temporary bridges and culverts, \$11,258.62.

#### 1. Primary System.

The total expenditure was \$121,533.93, of which \$104,728.54 or 86.2% was spent for construction and \$16,805.39 or 13.8% for maintenance.

58.3 miles of earth road were maintained at a cost of \$15,587.11 or an average of \$267.36 per mile; 11.9 miles of gravel road were maintained at a cost of \$1,218.26 or an average of \$102.37 per mile, and 70.2 miles, the entire system, were maintained at a cost of \$16,805.39 or an average of \$239.39 per mile.

During the year 1921, 8.08 miles were built to permanent grade and 12.75 miles were surfaced with gravel.

On January 1, 1922, the county had 53.8 miles of earth roads not built; 4.5 miles of earth road built to permanent grade and 11.9 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$52,884.77, of which \$11,994.77 or 22.6% was spent for construction, and \$40,890.00 or 77.4% for maintenance. 2.0 miles were surfaced with gravel at a cost of \$4,102.29. The total amount spent for tiling and drainage was \$7,892.48; 122.0 miles earth road were dragged and maintained at a cost of \$39,322.67 or an average of \$322.50; 9.5 miles gravel road were dragged and maintained at a cost of \$1,567.33 or an average cost of \$164.99 per mile; 131.5 miles, the entire system, were dragged and maintained at a cost of \$40,890.00, or an average of \$311.00 per mile. The total average expenditure per mile of county road was \$402.50.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$57,864.57.

### CALHOUN COUNTY

#### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921 were \$112,514.05 of which \$95,430.12 or 84.8% was spent for permanent bridges and culverts; \$5,001.24 or 4.5% for temporary bridges and culverts; \$2,428.90 or 2.1% for repairs; \$2,146.00 or 1.9% for culvert material for townships; \$5,103.87 or 4.5% for equipment and trussed materials; \$691.92 or 0.6% for filling bridges and culverts and \$1,812.03 or 1.6% for special cases.

Of the total amount, \$100,431.35, spent for bridges and culverts, \$95,430.12 or 95.0% was spent for permanent work and \$5,001.24 or 5.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$5,902.75; concrete abutments, \$3,100.00; concrete pipe, \$75.14; I-beam spans-concrete abutments, \$19,068.66; I-beam spans-piling abutments, \$869.75; pony truss-concrete abutments, \$67,358.08; pony truss on piling wood floor, \$2,890.25; wood trestle bridges, \$749.11 and miscellaneous temporary bridges and culverts, \$416.89.

#### 1. Primary System.

The total expenditure was \$137,651.97, of which \$111,725.60 or 81.2% was spent for construction and \$25,926.37 or 18.8% for maintenance.

9.7 miles of earth road were maintained at a cost of \$4,264.75 or an average of \$439.66 per mile; 62.4 miles of gravel road were maintained at a cost of \$21,661.62 or an average of \$347.14 per mile; 72.1 miles, the entire system, were maintained at a cost of \$25,926.37 or an average of \$359.63 per mile.

During the year of 1921, 9.24 miles were built to permanent grade and 10.82 miles were surfaced with gravel. On January 1, 1922, the county had 9.7 miles of earth road built to permanent grade and 62.4 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$137,204.97, of which \$101,670.74 or 73.9% was spent for construction, \$14,573.47 or 10.6% for maintenance and \$20,959.86 or 15.5% for special cases; 10.0% miles were built to finished grade standard section, at a cost of \$22,232.62; 14.0 miles were surfaced with gravel at a cost of \$70,635.25. The total amount spent for tiling and drainage was \$3,364.11 and the total amount spent for equipment and tools was \$5,428.73.

81.8 miles of earth road was dragged and maintained at a cost of \$5,880.70 or an average of \$95.00 per mile; 38.5 miles of gravel road were dragged and maintained at a cost of \$8,693.27 or an average of \$225.90 per mile, and 100.4 miles, the entire system, were dragged and maintained at a cost of \$14,573.47 or an average of \$145.00 per mile. The total average expenditure per mile of county road was \$126.80.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$70,005.93.

### CARROLL COUNTY

#### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921 were \$52,580.06, of which \$26,542.81 or 50.4% was spent for permanent bridges and culverts; \$10,641.02 or 20.2% for repairs; \$4,526.62 or 8.6% for culvert material for townships; \$5,988.47 or 9.7% for equipment and trussed materials; \$1,962.16 or 3.8% for filling bridges and culverts, and \$2,818.98 or 5.4% for special cases.

Of the total amount, \$26,542.81, spent for new bridges and culverts, \$26,542.81 or 100.0% was spent for permanent work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$26,542.81.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$139,770.64, of which \$150,240.21 or 75.5% was spent for construction; \$26,387.82 or 19.2% for maintenance and \$1,142.61 or 1.3% for special cases; \$23,376.28 was spent on bridges and culverts.

46.5 miles earth road were maintained at a cost of \$12,242.68 or an average of \$263.28 per mile; 24.0 miles gravel road were maintained at a cost of \$24,145.14 or an average of \$1,006.05 per mile; 70.5 miles, the entire system, were maintained at a cost of \$26,387.82 or an average of \$116.12 per mile.

During the year 1921, 18.41 miles were built to permanent grade.



On January 1, 1922, the county had 25.5 miles of earth roads not built; 21.0 miles of earth road built to permanent grade and 24.0 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$35,450.23 of which \$4,731.63 or 13.4% was spent for construction; \$30,718.60 or 86.6% for maintenance and \$377.64 or 1.1% for special cases.

2.0 miles were built to finished grade, standard section, at a cost of \$4,376.13. The total amount spent for tiling and drainage was \$355.50; 113.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$30,718.60 or an average of \$267.20 per mile.

The total average expenditure per mile of county road was \$312.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 16 townships was \$55,321.29.

### CASS COUNTY

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$79,346.42, of which \$22,971.44 or 28.9% was spent for permanent bridges and culverts; \$20,989.59 or 26.4% for temporary bridges and culverts; \$15,689.56 or 19.7% for repairs; \$2,148.42 or 2.7% for equipment and unused materials; \$6,405.30 or 8.0% for filling bridges and culverts, and \$11,135.61 or 14.3% for special cases.

Of the total amount, \$43,961.03, spent for new bridges and culverts, \$22,971.44 or 52.2% was spent for permanent work and \$20,989.59 or 47.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$22,943.44; concrete pipe, \$2,154.03; corrugated pipe, \$69.90; pony truss on piling—wood floor, \$3,145.00; wood trestle bridge, \$7,975.47; wood truss bridge, \$7,626.44, and miscellaneous bridges and culverts, \$46.75.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$71,301.73, of which \$41,749.37 or 58.5% was spent for construction; \$21,917.39 or 30.8% for maintenance and \$7,634.97 or 10.7% for special cases. \$23,715.85 was spent on bridges.

73.7 miles earth road were maintained at a cost of \$21,917.39 or an average of \$297.33 per mile. In addition to the above, the county had .5 of a mile of paved road; 74.2 miles, the entire system, were maintained at a cost of \$21,917.39 or an average of \$295.37 per mile.

During the year 1921, 2.46 miles were built to permanent grade. On January 1, 1922, the county had 70.4 miles of earth roads not built; 3.3 miles of earth road built to permanent grade, and .5 of a mile paved.

## 2. County Roads.

The total county road expenditure was \$34,830.83, of which \$24,886.65 or 71.4% was spent for maintenance and \$9,944.18 or 28.6% for special cases.

77.75 miles earth road were dragged and maintained at a cost of \$24,886.65 or an average of \$320.09 per mile. In addition to the above, the county had .5 of a mile of paved road; 78.25 miles, the entire system, were dragged and maintained at a cost of \$24,886.65 or an average of \$318.10 per mile.

The total average expenditure per mile of county road was \$445.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$60,590.20.

### CEDAR COUNTY

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$101,792.78, of which \$86,949.09 or 85.4% was spent for permanent bridges and culverts; \$342.50 or 0.34% for temporary bridges and culverts; \$12,706.15 or 12.5% for repairs; \$190.20 or 0.19% for culvert material for townships; \$744.84 or 0.73% for filling bridges and culverts, and \$860.00 or 0.84% for special cases.

Of the total amount, \$87,291.59, spent for new bridges and culverts, \$86,949.09 or 99.6% was spent for permanent work and \$342.50 or 0.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$60,047.72; concrete abutments, \$5,437.63; I-beam spans, concrete abutments, \$14,725.38; pony truss-concrete abutments, \$6,737.98, and corrugated pipe, \$342.50.

#### 1. Primary System.

The total expenditure was \$19,857.65, of which \$17,558.19 or 88.4% was spent for maintenance and \$2,299.46 or 11.6% for special cases.

75.1 miles earth road were maintained at a cost of \$17,558.19 or an average of \$233.79 per mile; 1.0 mile of gravel road was maintained without cost; 76.1 miles, the entire system, were maintained at a cost of \$17,558.19 or an average of \$230.67 per mile.

On January 1, 1922, the county had 66.1 miles of earth roads not built; 9.0 miles of earth road built to permanent grade, and 1.0 mile surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$20,121.08, of which \$560.14 or 2.8% was spent for construction; \$17,155.85 or 85.3% for maintenance and \$2,405.09 or 11.9% for special cases.

.365 of a mile was surfaced with gravel at a cost of \$32.50. The total amount spent for tiling and drainage was \$526.64.

35.90 miles earth road were dragged and maintained at a cost of \$17,155.85 or an average of \$479.90 per mile; 1.70 miles gravel road were dragged and maintained without cost; 37.60 miles, the entire system, were dragged and maintained at a cost of \$17,155.85 or an average of \$457.70 per mile. The total average expenditure per mile of county road was \$229.36.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of the 17 townships, was \$84,007.70.

### CERRO GORDO COUNTY

#### Bridges.

The total expenditure from county funds for bridge and culvert work during 1921, was \$55,756.61, of which \$37,342.13 or 66.9% was spent for permanent bridges and culverts; \$3,114.49 or 5.6% for temporary bridges and culverts; \$9,329.77 or 16.8% for repairs; \$1,616.53 or 2.9% for culvert material for townships; \$3,912.62 or 7.0% for equipment and unused materials; \$292.95 or 0.53% for filling bridges and culverts, and \$148.12 or 0.27% for special cases.

Of the total amount, \$40,456.62 spent for new bridges and culverts, \$37,242.13 or 92.3% was spent for permanent work and \$3,114.49 or 7.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$14,038.39; head walls and culverts lengthened, \$2,602.95; concrete slab bridges, \$14,409.00; retaining walls, \$1,269.45; I-beam spans, concrete abutments, \$4,158.54; I-beam span, piling abutments, \$997.99; corrugated pipe, \$2,116.50 and miscellaneous permanent bridges and culverts, \$863.80.

#### 1. Primary System.

The total expenditure was \$566,492.65, of which \$556,199.62 or 98.2% was spent for construction; \$10,182.13 or 1.79% for maintenance and \$110.90 or 0.01% for special cases.

20.7 miles earth road were maintained at a cost of \$7,019.72 or an average of \$339.11 per mile; 32.7 miles paved road were maintained at a cost of \$3,162.41 or an average of \$93.84 per mile; 54.4 miles, the entire system, were maintained at a cost of \$10,182.13 or an average of \$187.15 per mile.

During the year 1921, 9.81 miles were built to permanent grade, and 13.14 miles were paved.

On January 1, 1922, the county had 20.7 miles of earth roads not built, and 33.7 miles paved.

#### 2. County Roads.

The total county road expenditure was \$85,668.72 of which \$42,972.00 or 50.2% was spent for construction; \$38,927.72 or 44.4% for maintenance and \$4,669.00 or 5.4% for special cases.

8.0 miles were built to finished grade, standard section, at a cost of \$11,850.30; 7.25 miles were surfaced with gravel at a cost of \$12,027.37. The total amount spent for tiling and drainage was \$19,694.33.

102.55 miles earth road were dragged and maintained at a cost of \$37,964.22 or an average of \$366.00 per mile; 7.25 miles gravel road were dragged and maintained without cost; .74 of a mile of paving was maintained at a cost of \$63.50 or an average cost of \$85.80 per mile; 111.54 miles, the entire system, were dragged and maintained at a cost of \$38,927.72 or an average of \$341.00 per mile. The total average expenditure per mile of county road was \$768.69.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of the 16 townships was \$85,053.08.

#### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$99,895.40, of which \$69,210.12 or 69.3% was spent for permanent bridges and culverts; \$5,338.74 or 5.3% for temporary bridges and culverts; \$10,198.12 or 10.2% for repairs; \$9,395.67 or 9.4% for culvert material for townships; \$1,208.79 or 1.2% for equipment and unused materials; \$2,290.98 or 2.3% for filling bridges and culverts, and \$4,352.98 or 4.4% for special cases.

Of the total amount, \$72,448.86 spent for new bridges and culverts, \$69,210.12 or 95.6% was spent for permanent work and \$3,238.74 or 4.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$53,540.54; head walls and culverts lengthened, \$1,006.65; concrete slab bridges, \$2,087.34; retaining walls, \$240.06; I-beam spans, concrete abutments, \$4,975.85; concrete pipe, \$12.00; pony truss, concrete abutments, \$7,359.68; corrugated pipe, \$1,553.26; pony truss on piling, wood floor, \$1,650.02; and miscellaneous temporary bridges and culverts, \$23.46.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$128,744.82, of which \$116,134.76 or 90.3% was spent for construction; \$11,972.44 or 9.3% for maintenance, and \$637.62 or 0.5% for special cases; \$23,974.17 was spent on bridges and culverts.

60.4 miles earth road were maintained at a cost of \$10,331.02 or an average of \$179.32 per mile; 17.5 miles gravel road were maintained at a cost of \$1,141.42 or an average of \$65.22 per mile; .5 of a mile of paved road was maintained without cost; 78.4 miles, the entire system, were maintained at a cost of \$11,972.44 or an average of \$152.71 per mile.

During the year 1921, 12.0 miles were built to permanent grade and 11.5 miles were surfaced with gravel. On January 1, 1922, the county had 31.9 miles of earth roads not built; 29.4 miles of earth road built to permanent grade; 17.5 miles surfaced with gravel, and .5 of a mile paved.

#### 2. County Roads.

The total county road expenditure was \$18,529.11, of which \$278.21 or 1.5% was spent for construction; \$17,752.06 or 95.3% for maintenance and \$598.34 or 3.2% for special cases.

The total amount spent for tiling and drainage was \$278.21. 101.0 miles, the entire system, were dragged and maintained at a cost of \$17,752.06 or an average of \$175.70 per mile. The total average expenditure per mile of county road was \$184.40.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 16 townships was \$48,457.23.

### CHICKASAW COUNTY

#### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$116,347.51, of which \$78,339.37 or 67.3% was spent for permanent bridges and culverts; \$17,794.62 or 15.3% for temporary bridges and culverts; \$11,572.03 or 10.0% for repairs; \$2,242.00 or 1.9% for culvert material for townships; \$2,566.39 or 2.2% for equipment and unused materials; \$3,942.50 or 3.4% for filling bridges and culverts.

Of the total amount, \$96,034.59, spent for new bridges and culverts, \$78,339.37 or 81.5% was spent for permanent work and \$17,794.62 or 18.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$13,144.75; concrete arch bridges, \$6,812.15; high steel trusses, concrete abutments, \$58,283.07; corrugated pipe, \$2,517.08 and wood trestle bridges \$15,277.54.

#### 1. Primary System.

The total expenditure was \$136,100.43, of which \$110,387.36 or 80.7% was spent for construction and \$16,733.07 or 12.3% for maintenance.

17.5 miles earth road were maintained at a cost of \$5,200.54 or an average of \$293.82 per mile; 23.0 miles gravel road were maintained at a cost of \$11,532.51 or an average of \$411.37 per mile, 45.7 miles, the en-



tire system, were maintained at a cost of \$16,732.67 or an average of \$366.13 per mile.

During the year 1921, 14.32 miles were built to permanent grade and 13.85 miles were surfaced with gravel. On January 1, 1922, the county had 17.7 miles of earth roads not built, and 28.0 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$38,308.95 of which \$17,595.43 or 45.8% was spent for construction; \$17,212.37 or 45.0% for maintenance and \$2,500.25 or 6.2% for special cases.

1.25 miles were built to finished grade, standard section, at a cost of \$1,010.00; 11.00 miles were surfaced with gravel at a cost of \$6,804.85. The total amount spent for tiling and drainage was \$8,389.28, and the total amount spent for equipment and tools was \$1,391.30.

87.5 miles earth road were dragged and maintained at a cost of \$12,574.85 or an average of \$143.76 per mile; 29.5 miles gravel road were dragged and maintained at a cost of \$4,637.51 or an average of \$157.20 per mile; 117.0 miles, the entire system, were dragged and maintained at a cost of \$17,212.37 or an average of \$147.20 per mile. The total average expenditure per mile of county road was \$227.40.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$55,516.85.

## CLARKE COUNTY

### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$64,273.57, of which \$29,670.58 or 46.1% was spent for permanent bridges and culverts; \$5,044.16 or 7.9% for temporary bridges and culverts; \$6,616.19 or 10.3% for repairs; \$4,462.93 or 6.8% for culvert material for township; \$5,758.64 or 8.9% for equipment and unused materials; \$16,793.56 or 26.0% for filling bridges and culverts; and \$1,988.41 or 3.1% for special cases.

Of the total amount, \$34,714.74, spent for new bridges and culverts, \$29,670.58 or 85.5% was spent for permanent work and \$5,044.16 or 14.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$12,317.53; head walls and culverts lengthened, \$393.96; corrugated pipe, \$86.40; I-beam spans, concrete abutments, \$966.25; I-beam spans, piling abutments, \$1,046.28; pony truss, concrete abutments, \$15,740.00; pony truss on piling, wood floor, \$2,028.50; wood trestle bridges, \$346.95, and miscellaneous bridges and culverts, \$288.87.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$59,378.32, of which \$40,321.68 or 67.9% was spent for construction and \$19,056.64 or 32.1% for maintenance; \$2,502.37 was spent on bridges.

45.5 miles earth road, the entire system, were maintained at a cost of \$19,054.64 or an average of \$418.78 per mile.

During the year 1921, 4.09 miles were built to permanent grade. On January 1, 1922, the county had 20.7 miles of earth roads not built and 14.8 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$52,022.54, of which \$19,938.28 or 38.3% was spent for maintenance and \$32,084.26 or 61.7% for special cases.

79.85 miles earth road, the entire system, were dragged and maintained at a cost of \$19,938.28 or an average of \$249.70 per mile. The total average expenditure per mile of county road was \$651.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$34,388.43.

## CLAY COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$46,141.45, of which \$28,259.69 or 61.2% was spent for permanent bridges and culverts; \$3,703.72 or 8.0% for repairs; \$4,561.00 or 9.9% for culvert material for townships; \$2,302.20 or 5.0% for equipment and unused materials; \$699.90 or 1.5% for filling bridges and culverts and \$6,616.94 or 14.4% for special cases.

Of the total amount, \$28,259.69, spent for new bridges and culverts, \$28,259.69 or 100.0% was spent for permanent work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$22,363.69 and I-beam spans-concrete abutments, \$5,896.00.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$47,949.96 of which \$16,230.65 or 33.9% was spent for construction and \$31,719.31 or 66.1% for maintenance; \$12,816.62 was spent on bridges and culverts.

6.6 miles of earth road were maintained at a cost of \$705.88 or an average of \$106.95 per mile; 47.4 miles of gravel road were maintained at a cost of \$31,012.43 or an average of \$654.29 per mile and 54.0 miles, the entire system, were maintained at a cost of \$31,719.31 or an average of \$587.36 per mile.

During the year of 1921, .19 miles were built to permanent grade. On January 1, 1922, the county had 6.6 miles of earth road built to permanent grade and 47.4 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$84,196.51, of which \$67,740.05 or 80.5% was spent for construction; \$7,913.69 or 9.4% for maintenance and \$8,542.77 or 10.1% for special cases; 1.0 miles were built to finished grade standard section at a cost of \$1,078.70; 52.0 miles were surfaced with gravel at a cost of \$66,558.70 and the total amount spent for tiling and drainage was \$102.65.

34.0 miles of earth road were dragged and maintained at a cost of \$1,582.71 or an average of \$46.60 per mile; 67.0 miles of gravel road were dragged and maintained at a cost of \$6,330.98 or an average of \$94.50 per mile; 101.0 miles, the entire system, were dragged and maintained at a cost of \$7,913.69 or an average of \$78.40 per mile. The total average expenditure per mile of county road was \$833.50.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$135,593.58.



## CLAYTON COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$81,112.15, of which \$67,335.02 or 83.0% was spent for permanent bridges and culverts; \$1,730.59 or 2.1% for temporary bridges and culverts; \$4,342.28 or 5.4% for repairs; \$3,312.43 or 4.1% for culvert material for townships; \$2,994.90 or 3.7% for equipment and unused materials; \$308.75 or 0.38% for filling bridges and culverts and \$1,070.21 or 1.32% for special cases.

Of the total amount, \$69,081.61, spent for new bridges and culverts; \$67,353.02 or 97.5% was spent for permanent work and \$1,730.59 or 2.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$15,906.54; head walls and culverts lengthened, \$1,425.33; concrete slab bridges, \$1,583.16; I-beams spans-concrete abutments, \$8,357.13; corrugated pipe, \$656.78; pony truss-concrete abutments, \$35,447.71; I-beam span-piling abutment, \$261.68; wood truss bridges, \$572.13; miscellaneous bridges and culverts, \$873.15.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$130,105.19, of which \$115,823.46 or 89.0% was spent for construction and \$14,281.73 or 11.0% for maintenance; \$15,874.14 was spent on bridges and culverts.

103.2 miles of earth road were maintained at a cost of \$14,135.83 or an average of \$135.22 per mile; 1.0 miles of gravel road were maintained at a cost of \$145.90 or an average of \$145.90 per mile; 103.2 miles, the entire system, were maintained at a cost of \$14,281.73 or an average of \$138.48 per mile.

During the year 1921, 30.0 miles were built to permanent grade. On January 1, 1922, the county had 85.1 miles of earth roads not built, 17.1 miles of earth road built to permanent grade, and 1.0 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$39,653.54, of which \$37,471.51 or 94.5% was spent for maintenance and \$2,182.03 or 5.5% for special cases.

120.3 miles of earth road, the entire system, were dragged and maintained at a cost of \$37,471.51 or an average of \$287.30 per mile. The total average expenditure per mile of county road was \$304.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 18 of the 22 townships was \$71,962.58.

## CLINTON COUNTY

## Bridges.

The total expenditures for bridge and culvert work during 1921 were \$98,831.49, of which \$75,833.70 or 76.7% was spent for permanent bridges and culverts; \$1,990.82 or 2.0% for temporary bridges and culverts; \$4,932.71 or 5.0% for repairs; \$6,587.97 or 6.7% for culvert material for townships; \$4,260.05 or 4.3% for equipment and unused materials; \$2,731.51 or 2.8% for filling bridges and culverts and \$1,605.03 or 1.6% for special cases.

Of the total amount, \$77,914.23, spent for new bridges and culverts, \$75,833.70 or 97.4% was spent for permanent work and \$1,990.82 or 2.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$26,953.60; head walls and culverts lengthened, \$925.73; I-beam spans-concrete abutments, \$23,439.58; corrugated pipe, \$1,458.65; pony truss-concrete abutments, \$11,151.34; high steel trusses-concrete abutments, \$12,561.00; wood trestle bridges, \$531.84 and miscellaneous permanent bridges and culverts \$791.35.

## 1. Primary System.

The total expenditure was \$815,966.71 of which \$795,769.82 or 97.53% was spent for construction, \$19,536.44 or 2.4% for maintenance and \$610.45 or 0.07% for special cases.

71.0 miles of earth road were maintained at a cost of \$17,205.22 or an average of \$242.32 per mile; 2.0 miles of gravel road were maintained at a cost of \$242.00 or an average of \$121.00 per mile; 17.5 miles of paved roads were maintained at a cost of \$2,139.22 or an average of \$122.24 per mile; 55.5 miles, the entire system, were maintained at a cost of \$19,586.44 or an average of \$205.08 per mile.

During the year of 1921, 22.48 miles were built to permanent grade and 17.35 miles were paved. On January 1, 1922, the county had 58.3 miles of earth roads not built, 12.7 miles of earth road built to permanent grade, 2.0 miles surfaced with gravel and 17.5 miles paved.

## 2. County Roads.

The total county road expenditure was \$68,852.04 of which \$12.40 or 0.02% was for construction; \$25,816.15 or 37.49% for maintenance and \$43,053.49 or 62.49% for special cases. The total amount spent for tilling and drainage was \$12.40.

122.23 miles of earth road were dragged and maintained at a cost of \$25,049.05 or an average of \$204.50 per mile; 5.77 miles of gravel road were dragged and maintained at a cost of \$767.10 or an average of \$133.20 per mile; 128.00 miles, the entire system, were dragged and maintained at a cost of \$25,816.15 or an average of \$201.94 per mile. The total average expenditure per mile of county road was \$531.00.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 19 of the 20 townships was \$91,445.56.

## CRAWFORD COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$90,780.09, of which \$5,971.68 or 6.58% was spent for permanent bridges and culverts; \$8,344.91 or 9.2% for temporary bridges and culverts; \$50,306.09 or 55.4% for repairs; \$12,756.24 or 14.1% for culvert material for townships; \$2,000.00 or 2.2% for equipment and unused materials; \$161.00 or 0.18% for filling bridges and culverts and \$1,234.17 or 1.37% for special cases.

Of the total amount, \$14,322.59, spent for new bridges and culverts, \$5,971.68 or 41.7% was spent for permanent work and \$8,344.91 or 58.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$5,919.18; pony truss-concrete abutments, \$58.50; concrete pipe, \$169.12; corrugated pipe, \$2,093.32 and wood trestle bridges, \$6,082.47.

**1. Primary System.**

The total expenditure was \$22,991.92 of which \$1,438.87 or 6.3% was spent for construction and \$21,453.05 or 93.7% for maintenance.

82.3 miles of earth road were maintained at a cost of \$21,453.05 or an average of \$260.79 per mile.

During the year of 1921, .49 miles were built to permanent grade. On January 1, 1922, the county had 15.2 miles of earth roads not built and 67.1 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$71,994.29 of which \$10,596.87 or 14.7% was spent for construction, \$51,875.19 or 72.2% for maintenance and \$9,432.23 or 13.1% for special cases. 3.0 miles were built to finished grade standard section at a cost of \$10,596.87.

75.6 miles of earth road, the entire system, were dragged and maintained at a cost of \$51,875.19 or an average of \$685.00 per mile. The total average expenditure per mile of county road was \$950.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all townships was \$74,395.64.

**DALLAS COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921 were \$83,697.45 of which \$53,638.36 or 64.1% was spent for permanent bridges and culverts; \$2,589.23 or 3.08% for temporary bridges and culverts; \$18,757.05 or 22.4% for repairs; \$4,731.06 or 5.7% for culvert material for townships; \$854.28 or 1.02% for equipment and unused materials; \$1,796.70 or 2.2% for filling bridges and culverts and \$1,330.90 or 1.6% for special cases.

Of the total amount, \$56,327.49, spent for new bridges and culverts, \$53,638.36 or 95.4% was spent for permanent work and \$2,589.23 or 4.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$32,520.79; head walls and culverts lengthened, \$10,198.15; concrete slab bridges, \$280.00; high steel trusses-concrete abutments, \$10,639.32; concrete pipe, \$1,290.65 and corrugated pipe \$1,193.58.

**1. Primary System.**

The total expenditure was \$201,332.63 of which \$165,569.23 or 82.24% was spent for construction, \$32,015.64 or 15.9% for maintenance and \$3,747.76 or 1.86% for special cases.

46.2 miles of earth road were maintained at a cost of \$17,676.53 or \$382.61 per mile. 41.8 miles of gravel road were maintained at a cost of \$14,339.11 or an average of \$343.04 per mile and \$8.0 miles, the entire system, were maintained at a cost of \$32,015.64 or an average of \$343.80 per mile.

During the year of 1921, 15.8 miles were built to permanent grade and 38.68 miles were surfaced with gravel. On January 1, 1922, the county had 37.2 miles of earth roads not built, 9.0 miles of earth road built to permanent grade and 41.8 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$61,284.37 of which \$24,425.13 or 40.0% was spent for construction, \$20,219.38 or 32.8% for maintenance

and \$16,639.86 or 27.2% for special cases. .50 miles were built to finished grade standard section at a cost of \$413.49. 13.27 miles were surfaced with gravel at a cost of \$20,050.27. The total amount spent for tiling and drainage was \$3,516.36 and the total amount spent for equipment and tools was \$445.01.

55.54 miles of earth road were dragged and maintained at a cost of \$14,666.35 or an average of \$263.90 per mile. 31.28 miles of gravel road were dragged and maintained at a cost of \$5,553.03 or an average of \$162.00 per mile. In addition to the above, the county had .25 miles of paved road. 96.07 miles, the entire system, were dragged and maintained at a cost of \$20,219.38 or an average of \$224.50 per mile. The total average expenditure per mile of county road was \$480.70.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all townships was \$125,782.10.

**DAVIS COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921 were \$141,689.20 of which \$95,206.17 or 69.31% was spent for permanent bridges and culverts; \$1,405.49 or 0.99% for temporary bridges and culverts; \$24,108.67 or 17.0% for repairs; \$2,294.72 or 1.6% for culvert material for townships; \$6,032.73 or 4.3% for equipment and unused materials; \$7,493.42 or 5.3% for filling bridges and culverts and \$2,148.00 or 1.5% for special cases.

Of the total amount, \$95,611.66, spent for new bridges and culverts, \$95,206.17 or 98.8% was spent for permanent work and \$1,405.49 or 1.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$38,274.29; I-beam spans-concrete abutments, \$1,065.75; steel concrete abutments, \$24,060.22; concrete pipe, \$287.78; high steel trusses-concrete abutments, \$24,865.91; corrugated pipe, \$37.00, and miscellaneous temporary bridges and culverts, \$1,060.71.

**1. Primary System.**

The total expenditure was \$117,107.74 of which \$96,882.50 or 82.73% was spent for construction; \$20,195.15 or 17.25% for maintenance and \$10.09 or 0.02% for special cases.

45.4 miles of earth road, the entire system, were maintained at a cost of \$20,195.15 or an average of \$444.82 per mile.

During the year of 1921, 10.32 miles were built to permanent grade. On January 1, 1922, the county had 36.4 miles of earth roads not built, and 9.0 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$25,361.30 of which \$23,421.60 or 92.4% was spent for maintenance and \$1,939.70 or 7.6% for special cases. 127.675 miles of earth road, the entire system, were dragged and maintained at a cost of \$23,421.60 or an average of \$183.40 per mile. The total average expenditure per mile of county road was \$198.50.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all townships was \$45,347.20.



## DECATUR COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$53,574.15 of which \$2,614.35 or 4.9% was spent for permanent bridges and culverts; \$2,378.02 or 4.4% for temporary bridges and culverts; \$22,542.67 or 42.1% for repairs; \$6,824.27 or 12.8% for culvert material for townships; \$4,264.29 or 8.0% for equipment and unused materials; \$11,097.53 or 20.7% for filling bridges and culverts and \$2,853.02 or 5.3% for special cases.

Of the total amount, \$5,992.37, spent for new bridges and culverts, \$3,614.35 or 60.3% was spent for permanent work and \$2,378.02 or 39.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$3,567.94; head walls and culverts lengthened, \$106.41; concrete pipe, \$655.84 and corrugated pipe, \$1,722.15.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$44,042.10 of which \$25,028.32 or 56.8% was spent for construction and \$19,013.78 or 43.2% for maintenance. \$17,899.80 was spent on bridges and culverts.

51.6 miles of earth road, the entire system, were maintained at a cost of \$15,477.26 or an average of \$358.08 per mile.

On January 1, 1922, the county had 41.8 miles of earth roads not built and 9.8 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$27,082.24 of which \$24,363.41 or 89.9% was spent for maintenance and \$2,718.83 or 10.1% for special cases.

113.23 miles of earth road, the entire system, were dragged and maintained at a cost of \$24,363.41 or an average of \$215.00 per mile. The total average expenditure per mile of county road was \$239.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 9 of the 16 townships was \$17,625.84.

## DELAWARE COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$162,120.09 of which \$77,364.25 or 47.8% was spent for permanent bridges and culverts; \$7,276.97 or 4.5% for temporary bridges and culverts; \$10,355.81 or 6.4% for repairs; \$4,827.41 or 3.0% for culvert material for townships; \$1,608.75 or 1.0% for equipment and unused materials; \$496.50 or 0.3% for filling bridges and culverts, and \$190.00 or 0.1% for special cases.

Of the total amount, \$84,541.22, spent for new bridges and culverts, \$77,364.25 or 91.4% was spent for permanent work; and \$7,276.97 or 8.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$11,927.89; head walls and culverts lengthened, \$1,317.00; concrete slab bridges, \$2,696.88; concrete arch bridges, \$44,192.36; I-beam spans-concrete abutments, \$17,230.12; corrugated pipe, \$643.60; wood trestle bridges, \$3,846.80; and wood truss bridges, \$2,986.57.

## 1. Primary System.

The total expenditure was \$51,343.44 of which \$42,865.42 or 83.5% was spent for construction and \$8,478.01 or 16.5% for maintenance.

32.8 miles of earth road were maintained at a cost of \$7,343.79 or an average of \$223.90 per mile. 12.7 miles of gravel road were maintained at a cost of \$1,134.22 or an average of \$89.31 per mile and 45.5 miles, the entire system, were maintained at a cost of \$8,478.01 or an average of \$186.21 per mile.

During the year 1921, 3.16 miles were built to permanent grade and 12.0 miles were surfaced with gravel. On January 1, 1922, the county had 28.1 miles of earth roads not built, 4.7 miles of earth road built to permanent grade, and 12.7 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$61,750.02 of which \$33,269.55 or 53.9% was spent for construction; \$24,655.47 or 40.0% for maintenance and \$3,795.00 or 6.1% for special cases; 10.75 miles were built to finished grade standard section at a cost of \$881.29; 13.75 miles were surfaced with gravel at a cost of \$23,453.45. The total amount spent for tilling and drainage was \$4,220.21 and the total amount spent for equipment and tools was \$4,714.60.

112.75 miles of earth road were dragged and maintained at a cost of \$22,687.91 or an average of \$199.50 per mile; 25.0 miles of gravel road were dragged and maintained at a cost of \$1,997.56 or an average of \$79.50 per mile and \$138.75 miles, the entire system, were dragged and maintained at a cost of \$24,685.47 or an average of \$177.90 per mile. The total average expenditure per mile of county road was \$445.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 16 townships was \$50,818.52.

## DES MOINES COUNTY

## Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921 were \$47,618.60 of which \$27,996.94 or 58.8% was spent for permanent bridges and culverts; \$1,288.72 or 2.7% for temporary bridges and culverts; \$3,877.72 or 8.1% for repairs; \$6,617.43 or 13.9% for culvert material for townships; \$5,783.24 or 12.1% for equipment and unused materials; \$170.50 or 0.36% for filling bridges and culverts and \$1,884.05 or 4.0% for special cases.

Of the total amount, \$29,285.66, spent for new bridges and culverts, \$27,996.94 or 95.8% was spent for permanent work and \$1,288.72 or 4.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$19,514.09; head walls and culverts lengthened, \$852.54; concrete through girders, \$4,396.46; I-beam spans-concrete abutments, \$2,832.85; concrete pipe, \$41.00; corrugated pipe, \$435.92 and miscellaneous temporary bridges and culverts, \$811.80.

## 1. Primary System.

The total expenditure was \$315,404.15 of which \$202,600.73 or 64.3% was spent for construction and \$112,803.42 or 35.7% for maintenance.

25.5 miles of earth road were maintained at a cost of \$11,853.34 or an average of \$415.91 per mile; 2.0 miles of gravel road were maintained at a cost of \$795.35 or an average of \$397.67 per mile; 8.3 miles of paved



road were maintained at a cost of \$154.72 or an average of \$18.64 per mile and 38.8 miles, the entire system, were maintained at a cost of \$12,803.42 or an average of \$329.97 per mile.

of earth roads not built; .5 miles of earth road built to permanent grade; and 7.24 miles were paved. On January 1, 1922, the county had 28.0 miles of earth roads not built; .5 miles of earth road built to permanent grade; 2.0 miles surfaced with gravel, and 8.3 miles paved.

## 2. County Roads.

The total county road expenditure was \$23,613.03 of which \$22,324.18 or 94.5% was spent for maintenance and \$1,288.85 or 5.5% for special cases.

47.75 miles, the entire system, were dragged and maintained at a cost of \$22,324.18 or an average of \$467.50 per mile. The total average expenditure per mile of county road was \$494.00.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$43,675.26.

## DICKINSON COUNTY

### Bridges.

The total expenditures for bridge and culvert work during 1921, were \$16,769.98 of which \$7,742.61 or 46.2% was spent for permanent bridges and culverts; \$5,331.78 or 31.8% for temporary bridges and culverts; \$2,851.38 or 17.0% for repairs; \$270.21 or 1.6% for culvert material for townships; \$306.00 or 1.77% for equipment and unused materials; \$24.00 or 0.14% for filling bridges and culverts and \$250.00 or 1.49% for special cases.

Of the total amount, \$13,074.39, spent for new bridges and culverts, \$7,742.61 or 59.2% was spent for permanent work and \$5,331.78 or 40.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$7,420.26; head walls and culverts lengthened, \$322.35; concrete pipe, \$380.93; wood trestle bridges, \$4,791.00; and miscellaneous temporary bridges and culverts, \$153.85.

### 1. Primary System.

The total expenditure was \$227,646.45 of which \$212,790.13 or 93.5% was spent for construction; \$14,799.43 or 6.48% for maintenance and \$56.89 or 0.02% for special cases.

37.3 miles of gravel road were maintained at a cost of \$14,216.44 or an average of \$383.32 per mile; 5.1 miles of paved road were maintained at a cost of \$240.63 or an average of \$47.18 per mile, and 42.4 miles, the entire system, were maintained at a cost of \$14,799.43 or an average of \$349.03 per mile.

During the year of 1921, 4.9 miles were built to permanent grade, and 4.8 miles were paved. On January 1, 1922, the county had 37.3 miles surfaced with gravel and 5.1 miles paved.

## 2. County Roads.

The total county road expenditure was \$23,645.12 of which \$8,159.85 or 34.5% was spent for construction; \$13,985.11 or 59.0% for maintenance and \$1,500.16 or 6.4% for special cases; 2.0 miles were surfaced with gravel at a cost of \$5,354.66.

38.6 miles of earth road were dragged and maintained at a cost of \$6,255.90 or an average of \$16.20 per mile; 32.0 miles of gravel road were dragged and maintained at a cost of \$7,729.21 or an average of \$241.50

per mile, and 70.6 miles, the entire system, were dragged and maintained at a cost of \$13,985.11 or an average of \$197.70 per mile. The total average expenditure per mile of county road was \$334.50.

## 2. County Roads.

The total expenditure on township roads as shown by reports from 9 of the 12 townships was \$38,216.87.

## DUBUQUE COUNTY

### Bridges.

The total expenditures for bridge and culvert work during 1921 were \$71,598.28 of which \$37,787.09 or 52.8% was spent for permanent bridges and culverts; \$2,029.06 or 2.83% for temporary bridges and culverts; \$23,228.89 or 32.5% for repairs; \$5,282.98 or 7.38% for culvert material for townships; \$1,171.33 or 1.6% for equipment and unused materials; \$1,160.01 or 1.6% for filling bridges and culverts, and \$639.12 or 0.89% for special cases.

Of the total amount, \$39,816.14, spent for new bridges and culverts, \$37,787.09 or 94.9% was spent for permanent work and \$2,029.06 or 5.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$8,147.34; concrete slab bridges, \$5,608.00; concrete arch bridges, \$512.80; concrete abutments, \$7,441.00; concrete deck girders, \$7,667.20; I-beam spans-concrete abutments, \$150.00; pony truss-concrete abutments, \$8,240.75 and concrete pipes, \$2,029.05.

### 1. Primary System.

The total expenditure was \$133,430.12 of which \$100,340.58 or 72.4% was spent for construction; \$37,126.10 or 26.9% for maintenance and \$963.45 or 0.7% for special cases.

44.4 miles of earth road were maintained at a cost of \$14,192.43 or an average of \$319.65 per mile; 32.2 miles of gravel road were maintained at a cost of \$21,449.90 or an average of \$666.14 per mile; 3.5 miles of paved road were maintained at a cost of \$1,483.72 or an average of \$423.92 per mile and 86.1 miles, the entire system, were maintained at a cost of \$37,126.10 or an average of \$463.48 per mile.

During the year of 1921, 2.05 miles were built to permanent grade. On January 1, 1922, the county had 23.4 miles of earth roads not built; 21.0 miles of earth road built to permanent grade; 32.2 miles surfaced with gravel and 3.5 miles paved.

## 2. County Roads.

The county road expenditure was \$34,674.55 of which \$27,317.97 or 78.7% was spent for maintenance and \$7,356.58 or 21.3% for special cases.

87.65 miles of earth road were dragged and maintained at a cost of \$22,878.31 or an average of \$261.00 per mile; 4.00 miles of gravel road were dragged and maintained at a cost of \$4,433.66 or an average of \$1,109.00 per mile and 91.65 miles, the entire system, were dragged and maintained at a cost of \$27,317.97 or an average of \$298.80 per mile. The total average expenditure per mile of county road was \$378.60.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 9 of the 17 townships was \$31,334.17.

## EMMET COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$26,128.09 of which \$9,500.56 or 36.4% was spent for permanent bridges and culverts; \$104.00 or 0.41% for temporary bridges and culverts; \$13,523.53 or 51.2% for repairs; \$1,241.61 or 4.94% for culvert material for townships; \$437.84 or 1.7% for equipment and unused materials; \$86.00 or 0.32% filling bridges and culverts, and no expenditures for special cases.

Of the total amount, \$10,004.56, spent for new bridges and culverts, \$9,900.56 or 9.9% was spent for permanent work and \$104.00 or 1.0% for temporary work.

Concrete culverts, costing \$8,375.44; head walls and culverts lengthened, \$1,925.12 and wood trestle bridges, \$104.00.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$73,712.53 of which \$40,555.95 or 55.0% was spent for construction, \$32,945.96 or 44.6% for maintenance and \$216.62, or 0.3% for special cases; \$295.44 was spent on bridges and culverts.

41.6 miles of gravel road were maintained at a cost of \$32,650.12 or an average of \$784.87 per mile; 41.6 miles, the entire system, were maintained at a cost of \$32,650.12 or an average of \$784.87 per mile.

On January 1, 1922, the county had 41.6 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$24,688.22 of which \$8,553.08 or 34.7% was spent for construction; \$11,056.18 or 44.8% for maintenance and \$5,079.96 or 20.5% for special cases; 11.75 miles were surfaced with gravel at a cost of \$7,635.81 and the total amount spent for tilling and drainage was \$917.47.

7.75 miles of earth road were dragged and maintained at a cost of \$278.70 or an average of \$35.99 per mile; 55.50 miles of gravel road were dragged and maintained at a cost of \$10,777.48, or an average of \$194.00 per mile; 63.25 miles, the entire system, were dragged and maintained at a cost of \$11,056.18 or an average of \$174.50 per mile. The total average expenditure per mile of county road was \$299.90.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$52,528.29.

## Bridges.

## FAYETTE COUNTY

The total expenditures from county funds for bridge and culvert work during 1921, were \$102,471.52 of which \$59,473.83 or 57.1% was spent for permanent bridges and culverts; \$198.90 or 0.2% was spent for temporary bridges and culverts; \$18,191.57 or 17.7% for repairs; \$5,524.28 or 5.4% for culvert material for townships; \$7,290.24 or 7.1% for equipment and unused materials; \$9,217.76 or 9.0% for filling bridges and culverts, and \$3,575.14 spent for temporary work.

Of the total amount, \$58,672.73, spent for new bridges and culverts, \$58,473.83 or 99.7% was spent for permanent work, and \$198.90 or 0.3% was spent for temporary.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$23,782.46; head walls and culverts lengthened, \$3,240.19; concrete slab bridges, \$5,576.82; concrete abutments, \$2,758.-

62; concrete deck girders, \$13,264.65; pony truss-concrete abutments, \$2,069.-00; corrugated pipe, \$198.90 and miscellaneous permanent bridges and culverts, \$2,782.09.

## 1. Primary System.

The total expenditure was \$159,402.50 of which \$133,104.20 or 83.5% was spent for construction; \$25,744.95 or 14.9% was for maintenance and \$2,553.35 or 1.6% for special cases.

95.0 miles of earth road were maintained at a cost of \$23,744.95 or an average of \$249.95 per mile; 95.0 miles, the entire system, were maintained at a cost of \$23,744.95 or an average of \$249.95 per mile.

During the year 1921, 29.4 miles were built to permanent grade and 1.03 miles were surfaced with gravel. On January 1, 1922, the county had 69.4 miles of earth roads not built, and 25.6 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$78,294.09 of which \$21,643.04 or 27.7% was spent for construction; \$47,570.69 or 60.7% for maintenance and \$9,080.36 or 11.6% for special cases; 3.86 miles were built to finished grade standard section at a cost of \$19,303.27. The total amount spent for tilling and drainage was \$1,196.38, and the total amount spent for equipment and tools was \$1,143.39.

118.35 miles of earth road, the entire system, were dragged and maintained at a cost of \$47,570.69 or an average of \$401.70 per mile. The total average expenditure per mile of county road was \$661.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 19 of the 20 townships was \$73,538.21.

## FLOYD COUNTY

## Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921 were \$75,454.32, of which \$34,965.61 or 46.3% was spent for permanent bridges and culverts; \$12,143.68 or 16.1% for temporary bridges and culverts; \$16,436.67 or 21.8% for repairs; \$1,856.16 or 2.5% for culvert material for townships; \$4,101.37 or 5.5% for equipment and unused materials; \$1,141.45 or 1.6% for filling bridges and culverts and \$1,809.38 or 2.5% for special cases.

Of the total amount, \$48,109.29 spent for new bridges and culverts, \$34,965.61 or 72.7% was spent for permanent work and \$13,143.68 or 27.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$16,907.57; head walls and culverts lengthened, \$2,145.66; concrete slab bridges, \$1,848.78; concrete abutments, \$2,237.69; pony truss-concrete abutments, \$12,026.80; corrugated pipe, \$26.00 and wood trestle bridges, \$13,107.65.

## 1. Primary System.

The total expenditure was \$126,000.18 of which \$10,524.63 or 8.3% was spent for construction; \$112,135.10 or 89.0% for maintenance and \$3,340.45 or 2.7% for special cases.

42.8 miles of earth road were maintained at a cost of \$8,725.78 or an average of \$203.87 per mile; 9.5 miles of gravel road were maintained at a cost of \$2,391.79 or an average of \$251.77 per mile; 15.6 miles of paved road were maintained at a cost of \$2,017.53 or an average of \$129.50 per

mile; 67.3 miles, the entire system, was maintained at a cost of \$12,135.10 or an average of \$155.16 per mile.

During the year of 1921, 5.79 miles were built to permanent grade and 6.42 miles were paved. On January 1, 1922, the county had 42.8 miles of earth roads not built, 9.5 miles surfaced with gravel and 15.0 miles paved.

## 2. County Roads.

The total county road expenditure was \$102,765.94 of which \$65,872.45 or 64.1% was spent for construction; \$34,577.59 or 33.6% for maintenance and \$2,315.90 or 2.3% for special cases.

6.67 miles were built to finished grade standard section at a cost of \$12,380.92 and 8.88 miles were surfaced with gravel at a cost of \$18,787.97. The total amount spent for tilling and drainage was \$25,116.13 and the total amount for equipment and tools was \$9,587.43.

72.34 miles of earth road were dragged and maintained at a cost of \$27,142.55 or an average of \$374.40 per mile; 18.44 miles of gravel road were dragged and maintained at a cost of \$7,134.74 or an average of \$387.50 per mile. 91.78, the entire system, was dragged and maintained at a cost of \$34,577.59 or an average cost of \$376.70 per mile. The total average expenditure per mile of county road was \$1,119.30.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 10 of the 12 townships was \$55,536.17.

### FRANKLIN COUNTY

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$56,951.27 of which \$36,729.00 or 64.5% was spent for temporary bridges and culverts; \$2,804.51 or 4.9% for temporary bridges and culverts; \$12,561.57 or 22.03% for repairs; \$2,613.44 or 4.6% for culvert material for townships; \$1,575.04 or 2.8% for equipment and unused materials; \$448.96 or 0.79% for filling bridges and culverts and \$218.75 or 0.38% for special cases.

Of the total amount, \$39,532.51, spent for new bridges and culverts, \$26,729.00 or 67.3% was for permanent work and \$2,804.51 or 7.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$8,094.21; head walls and culverts lengthened, \$1,813.29; concrete slab bridges, \$3,445.74; I-beam spans-concrete abutment, \$2,295.72; pony truss-concrete abutments, \$21,975.04; corrugated pipe, \$2,548.38 and miscellaneous temporary bridges and culverts, \$256.13.

#### 1. Primary System.

The total expenditure was \$109,472.99 of which \$99,186.37 or 90.6% was spent for construction and \$10,286.61 or 9.4% for maintenance.

21.0 miles of earth road were maintained at a cost of \$8,256.67 or an average of \$393.17 per mile; 20.9 miles of gravel road were maintained at a cost of \$2,035.94 or an average of \$97.41 per mile, 41.9 miles, the entire system, were maintained at a cost of \$10,286.61 or an average of \$245.63 per mile.

During the year 1921, 18.91 miles were built to permanent grade and .67 miles were surfaced with gravel. On January 1, 1922, the county had 11.5 miles of earth roads not built, 9.5 miles of earth road built to permanent grade and 20.9 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$175,671.72 of which \$124,708.90 or 70.9% was spent for construction; \$42,052.31 or 24.0% for maintenance and \$8,909.51 or 5.1% for special cases.

18.0 miles were built to finished grade standard section at a cost of \$38,294.54; 49.5 miles were surfaced with gravel at a cost of \$61,802.40; the total amount spent for tilling and drainage was \$20,394.30 and the total amount for equipment and tools was \$4,217.66.

116.50 miles of earth road were dragged and maintained at a cost of \$28,276.56 or an average of \$242.60 per mile; 42.75 miles of gravel road were dragged and maintained at a cost of \$13,776.75 or an average of \$322.00 per mile and 159.25 miles, the entire system, was dragged and maintained at a cost of \$42,052.31 or an average of \$265.99 per mile. The total average expenditure per mile of county road was \$1,103.00.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 13 of the 16 townships was \$60,224.91.

### FREMONT COUNTY

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$76,523.99, of which \$28,323.47 or 37.0% was spent for permanent bridges and culverts; \$3,579.03 or 4.7% for temporary bridges and culverts; \$16,478.12 or 21.5% for repairs; \$2,322.50 or 3.0% for culvert material for townships; \$5,377.42 or 7.0% for equipment and unused materials; \$2,193.65 or 2.9% for filling bridges and culverts and \$18,245.75 or 23.9% for special cases.

Of the total amount, \$31,902.55, spent for new bridges and culverts, \$28,323.47 or 88.8% was spent for permanent work and \$3,579.03 or 11.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$28,056.73; head walls and culverts lengthened, \$266.75; concrete pipe, \$586.90; corrugated pipe, \$209.63; wood trestle bridges, \$2,349.55 and miscellaneous temporary bridges and culverts, \$183.00.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$263,374.48 of which \$240,425.88 or 91.3% was spent for construction; \$22,761.80 or 8.64% for maintenance and \$186.80 or 0.07% for special cases. \$116,180.22 was spent on bridges and culverts.

59.0 miles of earth road, the entire system, was maintained at a cost of \$22,761.80 or an average of \$455.24 per mile.

During the year 1921, 11.66 miles were built to permanent grade. On January 1, 1922, the county had 31.9 miles of earth roads not built and 18.1 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$21,063.45 of which \$3,619.02 or 17.2% was spent for construction; \$11,462.49 or 54.5% for maintenance and \$5,981.94 or 28.3% for special cases.

2.0 miles were built to finished grade standard section at a cost of \$2,619.02.

114.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$11,462.49 or an average of \$100.56 per mile. The total average expenditure per mile of county road was \$184.50.



**3. Township Roads.**

The total expenditure on township roads as shown by reports from all the townships was \$37,797.27.

**GREENE COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921 were \$70,150.45 of which \$25,290.57 or 36.1% was spent for permanent bridges and culverts; \$1,426.31 or 2.0% for temporary bridges and culverts; \$18,855.38 or 26.87% for repairs; \$4,837.94 or 6.9% for culvert material for townships; \$92.40 or .13% for equipment and unused materials; \$13,717.20 or 19.5% for filling bridges and culverts, and \$5,920.35 or 8.5% for special cases.

Of the total amount, \$26,717.16, spent for new bridges and culverts, \$25,290.57 or 94.7% was spent for permanent work, and \$1,426.31 or 5.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$6,605.87; head walls and culverts lengthened, \$34.40; concrete slab bridges, \$9,474.00; concrete deck girders, \$176.00; pony truss-concrete abutments, \$9,000.00; concrete pipe, \$551.31; wood trestle bridges, \$750.00, and miscellaneous temporary bridges and culverts, \$125.00.

**1. Primary System.**

The total expenditure was \$225,968.79, of which \$236,354.78 or 92.4% was spent for construction; \$19,023.77 or 7.4% for maintenance, and \$590.24 or 0.3% for special cases.

40.2 miles of earth road were maintained at a cost of \$6,409.46 or an average of \$159.14 per mile; 24.3 miles of gravel road were maintained at a cost of \$12,211.58 or an average of \$502.50 per mile; 7.5 miles of paved road were maintained at a cost of \$402.33 or an average of \$53.64 per mile, and 72.0 miles, the entire system, were maintained at a cost of \$19,023.77 or an average of \$264.21 per mile.

During the year of 1921, 8.48 miles were built to permanent grade, and 5.42 miles were paved. On January 1, 1922, the county had 29.2 miles of earth roads not built, 11.0 miles of earth road built to permanent grade, 24.2 miles surfaced with gravel, and 7.5 miles paved.

**2. County Roads.**

The total county road expenditure was \$42,089.62 of which \$10,170.22 or 24.1% was spent for construction; \$14,240.51 or 33.8% for maintenance, and \$17,678.79 or 42.1% for special cases; 4.5 miles were built to finished grade standard section at a cost of \$6,459.78, and 2.5 miles were surfaced with gravel at a cost of \$4,643.55. The total amount spent for tiling and drainage was \$35.20. Equipment and tools, \$31.71.

47.25 miles of earth road were dragged and maintained at a cost of \$3,585.96 or an average of \$203.00 per mile; 22.75 miles of gravel road were dragged and maintained at a cost of \$4,051.85 or an average of \$196.00 per mile, and 71.00 miles, the entire system, were dragged and maintained at a cost of \$14,240.61 or an average of \$201.00 per mile. The total average expenditure per mile of county road was \$592.06.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all townships was \$70,370.54.

**GRUNDY COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$70,514.68 of which \$41,569.92 or 58.8% was spent for permanent bridges and culverts; \$2,282.39 or 3.3% for temporary bridges and culverts; \$8,372.37 or 11.8% for repairs; \$2,014.56 or 2.9% for culvert material for townships; \$4,938.17 or 7.0% for filling bridges and culverts and \$11,398.26 or 16.2% for special cases.

Of the total amount, \$43,793.32 spent for new bridges and culverts, \$41,569.92 or 94.8% for permanent work and \$2,223.39 or 5.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$20,454.32; I-beam spans concrete abutments \$12,056.27; pony truss-concrete abutments \$8,999.24; corrugated pipe, \$504.00; wood trestle bridges \$868.95 and miscellaneous temporary bridges and culverts \$910.34.

**1. Primary System.**

The total expenditure, including bridges paid for from primary funds, was \$130,425.17 of which \$119,384.71 or 91.4% was spent for construction; \$10,758.56 or 8.3% for maintenance and \$381.90 or 0.3% for special cases; \$22,036.72 was spent for bridges and culverts.

57.2 miles of earth road were maintained at a cost of \$10,758.56 or an average of \$188.00 per mile; 4.0 miles of gravel road were maintained without cost and the entire system, 61.2 miles was maintained at a cost of \$10,758.56 or an average of \$175.78.

During the year 1921, 26.97 miles were built to permanent grade and 5.75 miles were surfaced with gravel. On January 1, 1922, the county had 37.7 miles of earth roads not built, 19.5 miles of earth road built to permanent grade and 4.0 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$53,485.47, of which \$40,737.30 or 76.2% was spent for construction; \$18,076.12 or 33.8% for maintenance and \$672.05 or 1.1% for special cases.

11.0 miles were built to finished grade standard section at a cost of \$28,475.56 and 6.0 miles were surfaced with gravel at a cost of \$7,525.04. The total amount spent for tiling and drainage was \$4,722.90.

114.50 miles of earth road were dragged and maintained at a cost of \$18,076.12 or an average of \$157.90 per mile; 6.0 miles of gravel road were dragged and maintained without cost and 120.50 miles, the entire system, was dragged and maintained at a cost of \$18,076.12 or an average of \$150.10 per mile. The total average expenditure per mile of county road was \$483.70.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all of the townships was \$56,478.70.

**GUTHRIE COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$100,245.95, of which \$52,680.04 or 52.6% was spent for permanent bridges and culverts; \$13,422.49 or 13.4% for temporary bridges and culverts; \$21,737.27 or 21.7% for repairs; \$2,951.77 or 2.9% for culvert material for townships; \$5,970.12 or 5.0% for equipment and unused ma-

terials; \$2,821.06 or 2.8% for filling bridges and culverts and \$1,603.20 or 1.6% for special cases.

Of the total amount, \$66,102.53, spent for new bridges and culverts, \$52,680.04 or 79.8% was spent for permanent work and \$13,422.49 or 20.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing, \$26,978.28; retaining walls, \$580.77; pony truss-concrete abutments, \$36,120.99; corrugated pipe, \$110.00; wood truss bridges \$6,165.34 and miscellaneous temporary bridges and culverts, \$7,147.15.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$234,412.15, of which \$212,230.55 or 90.5% was spent for construction; \$22,028.03 or 9.4% for maintenance and \$143.57 or 0.1% for special cases; \$50,465.98 was spent on bridges and culverts.

69.3 miles of earth road were maintained at a cost of \$22,030.03 or an average of \$317.89 per mile; 3.7 miles of gravel road were maintained at a cost of \$8.00 or an average of \$2.16 per mile and 73.0 miles of road, the entire system, were maintained at a cost of \$22,038.03 or an average of \$301.88 per mile.

During the year of 1921, 12.29 miles were built to permanent grade. On January 1, 1922, the county had 56.3 miles of earth roads not built; 13.0 miles of earth road built to permanent grade and 3.7 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$69,054.35 of which \$6,522.05 or 9.4% was spent for construction; \$53,339.87 or 77.3% for maintenance and \$9,192.43 or 13.3% for special cases.

25 miles of road were built to finished grade standard section at a cost of \$980.00. The total amount spent for tiling and drainage was \$5,342.05 and the amount spent for equipment and tools was \$200.00.

122.45 miles of earth road were dragged and maintained at a cost of \$52,551.52 or an average of \$425.89 per mile; 2.0 miles of gravel road were dragged and maintained at a cost of \$788.35 or an average of \$263.00 per mile and 126.45 miles, the entire system, were dragged and maintained at a cost of \$53,339.87 or an average of \$422.00 per mile. The total average expenditure per mile of county road was \$646.00.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$70,109.12.

### HAMILTON COUNTY

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$55,828.32, of which \$42,509.65 or 75.9% was spent for permanent bridges and culverts; \$3,756.47 or 7.0% for temporary bridges and culverts; \$5,418.00 or 10.1% for repairs; \$632.10 or 0.99% for filling bridges and culverts and \$1,621.10 or 3.01% for special cases.

Of the total amount, \$46,267.12, spent for new bridges and culverts, \$42,509.65 or 92.2% was spent for permanent work and \$3,756.47 or 7.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$15,699.15; head walls and culverts lengthened, \$751.09; concrete slab bridges, \$2,581.60; concrete deck girders, \$1,950.00;

1-beam spans concrete abutments, \$117.22; pony truss-concrete abutments, \$3,713.56; corrugated pipe, \$3,611.62, and miscellaneous bridges and culverts, \$1,285.78.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary fund, was \$121,040.02, of which \$99,716.88 or 82.6% was spent for construction; \$17,186.52 or 14.2% for maintenance and \$4,137.52 or 3.4% for special cases; \$2,969.50 was spent on bridges and culverts.

35.2 miles of earth road were maintained at a cost of \$6,228.41 or an average of \$176.05 per mile; 28.8 miles of gravel road were maintained at a cost of \$10,958.11 or an average of \$380.49 per mile and 67.0 miles of road, the entire system, were maintained at a cost of \$17,186.52 or an average of \$256.50 per mile.

During the year 1921, 11.09 miles were built to permanent grade and 4.23 miles were surfaced with gravel. On January 1, 1922, the county had 25.3 miles of earth road not built; 12.9 miles of earth road built to permanent grade and 28.8 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$113,031.18 of which \$81,030.07 or 71.7% was spent for construction; \$23,262.87 or 20.6% for maintenance and \$8,740.24 or 7.7% for special cases.

7.2 miles of road were built to finished grade, standard section, at a cost of \$23,413.51 and 15.5 miles were surfaced with gravel at a cost of \$45,266.95. The total amount spent for tiling and drainage was \$12,349.61.

50.0 miles of earth road were dragged and maintained at a cost of \$9,410.49 or an average of \$186.70 per mile; 98.1 miles of gravel road were dragged and maintained at a cost of \$13,852.35 or an average of \$141.10 per mile and 148.5 miles, the entire system, were dragged and maintained at a cost of \$23,262.87 or an average of \$156.60 per mile. The total average expenditure per mile of county road was \$761.00.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 18 townships was \$66,542.44.

### HANCOCK COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$51,612.49 of which \$36,341.25 or 70.4% was spent for permanent bridges and culverts; \$3,688.90 or 7.2% for temporary bridges and culverts; \$7,449.84 or 14.4% for repairs; \$3,111.60 or 6.2% for culvert material for townships; \$49.10 or 0.09% for equipment and unused materials; \$221.80 or 0.43% for filling bridges and culverts and \$750.00 or 1.45% for special cases.

Of the total amount \$40,030.15, spent for new bridges and culverts, \$36,341.25 or 90.8% was spent for permanent work and \$3,688.90 or 9.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$25,508.25; concrete slab bridges \$1,890.00; concrete deck girders \$2,780.00; I-Beam Spans-concrete abutments \$6,163.00; concrete pipe \$630.00 and wood trestle bridges \$3,058.90.

#### 1. Primary System.

The total expenditure was \$508,181.19 of which \$497,053.28 or 97.8% was spent for construction and \$11,127.91 or 2.2% for maintenance.



24.5 miles of earth road were maintained at a cost of \$8,102.11 or an average of \$330.70 per mile; 12.5 miles of gravel road were maintained at a cost of \$2,739.45 or an average of \$219.15 per mile; 10.3 miles of paved road were maintained at a cost of \$286.35 or an average of \$27.80 per mile and 47.3 miles of road, the entire system, were maintained at a cost of \$11,127.91 or an average of \$235.25 per mile.

During the year 1921, 10.54 miles were built to permanent grade and 10.32 miles were paved. On January 1, 1922, the county had 24.5 miles of earth roads not built; 12.5 miles surfaced with gravel and 10.3 miles paved.

## 2. County Roads.

The total county road expenditure was \$42,464.29, of which \$25,269.84 or 59.5% was spent for construction and \$17,194.45 or 40.5% for maintenance.

2.6 miles were built to finished grade standard section at a cost of \$1,060.10 and 3.6 miles were surfaced with gravel at a cost of \$13,891.77. The total amount spent for tiling and drainage was \$10,407.97.

111.4 miles of earth road were dragged and maintained at a cost of \$16,493.95 or an average of \$147.90 per mile; 11.6 miles of gravel road were dragged and maintained at a cost of \$700.50 or an average of \$60.30 per mile, and 123.0 miles, the entire system, were dragged and maintained at a cost of \$17,194.45 or an average of \$139.80 per mile. The total average expenditure per mile of county road was \$345.10.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 10 of the 16 townships was \$49,676.61.

### HARDIN COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$194,633.01, of which \$152,836.50 or 78.5% was spent for permanent bridges and culverts; \$13,807.61 or 7.1% for temporary bridges and culverts; \$14,750.67 or 7.6% for repairs; \$1,320.00 or 0.57% for culvert material for townships; \$2,362.97 or 1.21% for equipment and unused materials; \$6,437.86 or 3.31% for filling bridges and culverts, and \$3,317.40 or 1.71% for special cases.

Of the total amount \$166,544.11, spent for new bridges and culverts, \$152,836.50 or 91.7% was spent for permanent work and \$13,807.61 or 8.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing, \$77,359.46; head walls and culverts lengthened \$2,993.70; concrete slab bridges, \$3,546.56; concrete arch bridges \$3,349.68; concrete thru girders, \$21,075.49; concrete deck girders, \$1,826.25; I-Beam spans-concrete abutments, \$23,416.12; pony truss-concrete abutments \$18,340.02; corrugated pipe \$3,846.67 and wood trestle bridges \$9,896.89, miscellaneous bridges and culverts \$1,053.47.

## 1. Primary System.

The total expenditure was \$196,189.84 of which \$182,558.40 or 92.19% was spent for construction; \$15,415.24 or 7.7% for maintenance and \$2,216.20 or 0.11% for special cases.

12.4 miles of earth road were maintained at a cost of \$7,964.17 or an average of \$642.27 per mile; 49.8 miles of gravel road were maintained at a cost of \$7,451.07 or an average of \$149.62 per mile and 32.3 miles of road, the entire system, were maintained at a cost of \$15,415.24 or an average of \$477.82.

During the year 1921, 6.55 miles were built to permanent grade and 34.71 miles were surfaced with gravel. On January 1, 1922, the county had 2.4 miles of earth roads not built, 18.0 miles of earth road built to permanent grade and 49.8 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$115,398.69 of which \$67,725.46 or 57.2% was spent for construction; \$28,870.71 or 22.9% for maintenance and \$18,802.52 or 9.9% for special cases.

12.36 miles were built to finished grade, standard section, at a cost of \$26,685.70 and 11.28 miles were surfaced with gravel at a cost of \$19,112.21. The total amount spent for tiling and drainage was \$18,163.86 and the total amount for equipment and tools, \$3,463.69.

82.2 miles of earth road were dragged and maintained at a cost of \$34,883.64 or an average of \$302.70 per mile; 42.8 miles of gravel road were dragged and maintained at a cost of \$13,987.07 or an average of \$326.50 and 125.0 miles, the entire system, were dragged and maintained at a cost of \$28,870.71 or an average of \$311.00 per mile. The total average expenditure per mile of county road was \$247.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 12 of the 15 townships was \$52,975.02.

### HARRISON COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$52,958.68 of which \$6,495.34 or 12.3% was spent for permanent bridges and culverts; \$10,249.01 or 19.35% for temporary bridges and culverts; \$26,639.44 or 50.3% for repairs; \$3,368.79 or 6.3% for culvert material for townships; \$4,343.09 or 8.2% for equipment and unused materials; \$443.55 or 0.85% for filling bridges and culverts and \$1,414.46 or 2.7% for special cases.

Of the total amount \$16,744.25 spent for new bridges, and culverts, \$6,495.34 or 38.5% was spent for permanent work and \$10,249.01 or 61.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete abutments \$6,495.34 corrugated pipe \$5,421.11; pony truss on piling wood floor, \$1,287.59 and wood trestle bridges \$3,440.21.

## 1. Primary System.

The total expenditures were \$47,712.22 of which \$27,271.85 or 57.1% was spent for construction; \$20,253.31 or 42.5% for maintenance and \$187.06 or 0.4% for special cases.

79.9 miles of earth road were maintained at a cost of \$20,253.31 or an average of \$253.48 per mile. This comprises the entire mileage of the primary road system in this county.

During the year 1921, 1.45 miles were built to permanent grade. On January 1, 1922, the county had 63.9 miles of earth roads not built and 16.0 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$21,797.70, of which \$2,047.02 or 9.3% was spent for construction; \$15,734.58 or 72.3% for maintenance and \$4,015.80 or 18.5% for special cases.

The total amount spent for tiling and drainage \$2,047.02.



94.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$15,734.88 or an average of \$166.50 per mile. The total average expenditure per mile of county road was \$230.79.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of 29 townships was \$51,766.33.

## HENRY COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$66,568.46 of which \$43,806.72 or 65.8% was spent for permanent bridges and culverts; \$2,053.40 or 3.2% for temporary bridges and culverts; \$7,309.34 or 11.0% for repairs; \$2,412.29 or 3.6% for culvert material for townships; \$3,674.99 or 5.5% for equipment and unused materials; \$2,227.45 or 3.3% for filling bridges and culverts, and \$5,084.27 or 7.6% for special cases.

Of the total amount \$45,860.12 spent for bridges and culverts; \$43,806.72 or 95.5% for permanent work and \$2,053.40 or 4.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$25,853.95; head walls and culverts lengthened \$593.72; concrete abutments \$2,678.92; retaining walls \$219.78; I-beam spans, concrete abutments \$4,045.74; pony truss-concrete abutments \$10,414.61; corrugated pipe \$748.89; and wood trestle bridges \$1,304.51.

### 1. Primary System.

The total expenditure was \$43,885.01 of which \$67,740.63 or 80.8% was spent for construction and \$16,144.38 or 19.2% for maintenance.

46.0 miles of earth road were maintained at a cost of \$16,144.38 or an average of \$350.96 per mile. 46.0 miles, or the entire system was maintained at a cost of \$16,144.38 or an average of \$350.96 per mile.

During the year of 1921, 14.57 miles were built to permanent grade. On January 1, 1922, the county had 25.6 miles of earth roads not built and 20.4 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$25,314.09 of which \$355.74 or 1.4% was spent for construction; \$23,435.59 or 92.5% for maintenance, and \$1,522.96 or 6.1% for special cases. The total amount spent for tilling and drainage was \$355.74.

96.0 miles of earth road were dragged and maintained at cost of \$23,435.59 or an average of \$244.00 per mile. 96.0 miles, or the entire system, were dragged and maintained at a cost of \$23,435.59 or an average of \$244.00 per mile. The total average expenditure per mile of county road was \$263.90.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from eight of the twelve townships was \$31,674.12.

## HOWARD COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$56,758.71 of which \$31,644.21 or 55.7% was spent for permanent bridges and culverts; \$11,076.10 or 19.5% for temporary bridges



Danger Hill on the Lincoln Highway three miles west of Jefferson, Greene county.



Triple span 70' steel through girder bridge on Lincoln Highway over Squaw Creek at Ames, Story County.

and culverts; \$4,520.10 or 8.0% for repairs; \$1,093.80 or 1.9% for culvert material for townships; \$4,525.60 or 8.0% for equipment and unused materials; \$1,018.05 or 1.8% for filling bridges and culverts and \$2,860.35 or 5.1% for special cases.

Of the total amount \$42,720.31 spent for new bridges and culverts; \$31,644.21 or 74.1% for permanent work and \$11,076.10 or 25.9% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$6,935.86; head walls and culverts lengthened costing \$5,479.96; I-beam spans-concrete abutments costing \$12,669.47; pony truss-concrete abutments costing \$4,558.92; wood trestle bridges \$9,501.41 and miscellaneous temporary bridges and culverts \$1,574.69.

#### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$108,958.69 of which \$96,809.08 or 88.8% was spent for construction; \$12,149.61 or 11.2% for maintenance, and \$6,280.60 was spent on bridges and culverts.

31.6 miles of earth road were maintained at a cost of \$9,832.49 or an average of \$311.15 per mile; 19.2 miles of gravel road were maintained at a cost of \$2,317.12 or an average of \$117.02 per mile. 50.8 miles or the entire system was maintained at a cost of \$12,149.61 or an average of \$239.15 per mile.

During the year of 1921, 10.95 miles were built to permanent grade and 7.72 miles were surfaced with gravel. On January 1, 1922, the county had 26.6 miles of earth road not built; 5.0 miles of earth road built to permanent grade and 19.2 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$18,601.47 of which \$7,840.71 or 42.1% was spent for construction; \$10,619.76, or 57.2% for maintenance and \$141.00 or 0.7% for special cases. The total amount spent for filling and drainage was \$7,714.98. The total amount spent for equipment and tools was \$125.73.

71.68 miles of earth road were dragged and maintained at a cost of \$19,249.27 or an average of \$143.10 per mile. 5.00 miles of gravel road were dragged and maintained at a cost of \$370.49 or an average of \$73.90 per mile. 76.68 miles or the entire system were dragged and maintained at a cost of \$19,619.76 or an average of \$138.50 per mile. The total average expenditure per mile of county road was \$242.50.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from 10 of the 12 townships was \$35,615.54.

### HUMBOLDT COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$26,589.73 of which \$13,268.66 or 64.4% was spent for permanent bridges and culverts; \$2,030.57 or 9.8% for temporary bridges and culverts; \$1,121.86 or 5.5% for repairs; \$1,809.76 or 8.8% for culvert material for townships; \$1,154.33 or 5.6% for equipment and unused materials; \$1,177.45 or 5.7% for filling bridges and culverts and \$27.05 or 0.12% for special cases.

Of the total amount \$15,299.23 spent for new bridges and culverts, \$13,268.66 or 86.7% was spent for permanent work and \$2,030.57 or 13.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$9,243.96; head walls and culverts lengthened \$299.80; concrete slab bridges \$566.47; retaining walls \$209.14; steel concrete abutments \$2,482.85; pony truss-concrete abutments \$366.44; corrugated pipe \$1,819.20 and wood trestle bridges \$211.37.

### 1. Primary System.

The total expenditure was \$95,073.72 of which \$72,992.08 or 76.8% was spent for construction; \$18,959.26 or 19.9% for maintenance and \$3,122.38 or 3.3% for special cases.

19.0 miles of earth road were maintained at a cost of \$6,985.53 or an average of \$367.66 per mile; 21.9 miles of gravel road were maintained at a cost of \$11,973.73 or an average of \$546.74 per mile and 40.9 miles, entire system, were maintained at a cost of \$18,959.26 or an average of \$463.54 per mile.

During the year of 1921, 9.59 miles were built to permanent grade, 4.91 miles were surfaced with gravel, and 8.22 miles were paved. On January 1, 1922, the county had 19.0 miles of earth road built to permanent grade; 21.9 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$48,024.52 of which \$27,918.87 or 58.1% was spent for construction, \$19,557.75 or 40.7% for maintenance and \$2,507.90 or 5.2% for special cases.

16.25 miles were built to finished grade standard section at cost of \$26,316.70; and 3.00 miles were surfaced with gravel at a cost of \$1,846.93. Total amount spent for tiling and drainage was \$9,755.24.

36.75 miles of earth road were dragged and maintained at a cost of \$7,054.03 or an average of \$124.30 per mile; 37.85 miles of gravel road were dragged and maintained at a cost of \$141.72 or an average of \$3.74 per mile and 94.60 miles, entire system, were dragged and maintained at a cost of \$7,195.75 or an average of \$75.96 per mile. The total average expenditure per mile of county road was \$507.50.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$63,368.99.

## IDA COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$52,482.58 of which \$20,788.61 or 39.6% was spent for permanent bridges and culverts; \$6,052.71 or 9.6% for temporary bridges and culverts; \$12,903.15 or 24.6% for repairs; \$2,595.74 or 5.0% for culvert material for townships; \$9,315.77 or 17.7% for equipment and unused materials; \$1,567.00 or 3.0% for filling bridges and culverts and \$259.60 or 0.49% for special cases.

Of the total amount \$25,341.32 spent for new bridges and culverts, \$20,788.61 or 80.5% for permanent work and \$4,552.71 or 19.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$17,394.09; head walls and culverts lengthened, \$133.37; concrete slab bridges, \$3,261.15; concrete pipe \$4,575.59; corrugated pipe, \$382.80; and miscellaneous temporary bridges and culverts \$93.32.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds was \$195,975.65 of which \$92,501.22 or 47.2% was spent for construction; and \$12,474.43 or 6.4% for maintenance, \$21,477.15 was spent on bridges and culverts.

41.2 miles of earth road were maintained at a cost of \$12,371.41 or an average of \$297.85 per mile. 8.7 miles of gravel road were maintained at a cost of \$181.02 or an average of \$20.81 per mile. 49.9 miles, the entire system, were maintained at a cost of \$12,452.42 or an average of \$249.54 per mile.

During the year 1921, 10.48 miles were built to permanent grade, 7.44 miles were surfaced with gravel. On January 1, 1922, the county had 30.7 miles of earth roads not built, 16.5 miles of earth road built to permanent grade and 8.7 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$28,705.16 of which \$19,816.22 or 69.1% was spent for maintenance and \$8,894.94 or 30.9% was spent for special cases.

30.6 miles of earth roads were dragged and maintained at a cost of \$19,816.22 or an average of \$247.00. 80.0 miles, the entire system, was dragged and maintained at a cost of \$19,816.22 or an average of \$247.00.

The total average expenditure per mile of county road was \$359.50.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 10 of the 12 townships was \$35,785.67.

## IOWA COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$77,847.48 of which \$27,982.25 or 35.9% was spent for permanent bridges and culverts; \$6,944.16 or 8.9% for temporary bridges and culverts; \$6,621.26 or 8.5% for repairs; \$22,369.83 or 28.7% for culvert material for townships; \$813.06 or 1.0% for equipment and unused materials; \$1,144.53 or 1.5% for filling bridges and culverts; \$11,972.39 or 15.4% for special cases.

Of the total amount \$24,926.41 spent for new bridges and culverts, \$27,982.25 or 80.2% for permanent work and \$6,944.16 or 19.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$18,781.33; headwalls and culverts lengthened, \$2,771.52; I-beam spans-concrete abutments, \$4,075.00; pony truss-concrete abutments, \$2,354.40; pony truss on piling-wood floor, \$4,645.00; wood trestle bridges, \$2,274.16, and miscellaneous temporary bridges and culverts \$25.00.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$132,104.59, of which \$104,134.09, or 78.8% was spent for construction, \$27,784.03, or 21.0% for maintenance and \$185.40 or 0.15% for special cases, \$42,266.10 was spent for bridges and culverts.

87.4 miles of earth road were maintained at a cost of \$27,757.30 or an average of \$411.83 per mile. This comprises the entire mileage of the primary road system.

During the year 1921, 14.30 miles were built to permanent grade. On January 1, 1922, the county had 48.9 miles of earth roads not built and 15.4 miles of earth roads built to permanent grade.



**2. County Roads.**

The total county road expenditure was \$47,545.30 of which \$35,651.35 or 75.0% was spent for maintenance and \$11,893.95 or 25.0% for special cases. 108.4 miles of earth roads were dragged and maintained at a cost of \$35,651.35 or an average of \$328.10 per mile. This comprises the entire mileage of the county road system.

The total average expenditure per mile of county road was \$437.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all of the townships was \$43,409.72.

**JACKSON COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$63,970.36 of which \$1,201.83 or 1.9% was spent for permanent bridges and culverts; \$10,902.15 or 16.9% for temporary bridges and culverts; \$19,422.28 or 30.4% for repairs; \$4,138.65 or 6.5% for equipment and unused materials and \$19,674.78 or 30.8% for special cases.

Of the total amount, \$12,103.98, spent for new bridges and culverts, \$1,201.83 or 9.9% for permanent work and \$10,902.15 or 90.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$878.35; head walls and culverts lengthened, \$323.45; corrugated pipe \$4,283.12; I-beam spans piling abutments, \$4,334.00; pony truss on piling, wood floor \$368.69; wood trestle bridges, \$459.74 and miscellaneous temporary bridges and culverts, \$1,456.00.

**1. Primary System.**

The total expenditure including bridges paid for from primary funds was \$159,059.25 of which \$142,426.96 or 89.5% was spent for construction; \$15,730.98 or 9.9% for maintenance and \$901.34 or 0.6% for special cases.

\$66,817.26 was spent for bridges and culverts.

45.2 miles of earth road were maintained at a cost of \$13,258.90 or an average of \$293.34 per mile; 2.5 miles of gravel road were maintained at a cost of \$1,914.20 or an average of \$546.91 per mile and 48.7 miles, the entire system, were maintained at a cost of \$15,173.10 or an average of \$311.55 per mile.

During the year of 1921, 14.55 miles were built to permanent grade. On January 1, 1922, the county had 27.2 miles of earth roads not built, 18.0 miles of earth road built to permanent grade, and 3.5 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$29,047.69 of which \$29,047.69 or 100.0% was spent for maintenance.

113.0 miles of earth road were dragged and maintained at a cost of \$27,979.43 or an average of \$247.50 per mile; 2.0 miles of gravel road were dragged and maintained at a cost of \$1,068.26 or an average of \$533.90 per mile and 115.0 miles, entire system, were dragged and maintained at a cost of \$29,047.69 or an average of \$252.50 per mile. The total average expenditure per mile of county road was \$252.60.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all of the townships was \$54,897.12.

**JASPER COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$153,096.63 of which \$112,309.47 or 73.4% was spent for permanent bridges and culverts; \$857.47 or 0.55% for temporary bridges and culverts; \$24,214.02 or 15.8% for repairs; \$1,278.28 or 0.83% for culvert material for townships; \$3,551.72 or 2.6% for equipment and unused materials; \$10,460.75 or 6.8% for filling bridges and culverts; \$30.00 or 0.02% for special cases.

Of the total amount, \$113,166.94, spent for new bridges and culverts, \$112,309.47 or 99.3% for permanent work and \$857.47 or 0.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$68,454.55, head walls and culverts lengthened \$527.90; concrete slab bridges, \$13,931.40; concrete arch bridges, \$1,512.10; retaining walls \$425.28; I-beam spans-concrete abutments \$100.00; pony truss-concrete abutments \$27,258.24, concrete pipe \$857.47.

**1. Primary System.**

The total expenditure including bridges paid for from primary funds was \$84,410.36 of which \$60,472.26 or 71.6% was spent for construction, \$23,938.10 or 28.4% for maintenance and \$12,047.24 was spent for bridges and culverts.

53.9 miles of earth road were maintained at a cost of \$23,301.58 or an average of \$276.54 per mile, and 6.0 miles of gravel road was maintained at a cost of \$736.52 or an average of \$122.75 per mile; 59.9 miles, or the entire system, was maintained at a cost of \$23,938.10 or an average of \$269.25 per mile.

During the year 1921, 12.11 miles were built to permanent grade and 8.0 miles were surfaced with gravel. On January 1, 1922, the county had 71.9 miles of earth roads not built, 12.0 miles of earth road built to permanent grade and 6.0 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$51,545.69 of which \$7,447.80 or 12.2% was spent for construction, \$36,998.26 or 71.8% for maintenance and \$7,099.63 or 13.9% for special cases.

1.25 miles were built to finished grade standard section at cost of \$6,354.50; 1.50 miles were surfaced with gravel at a cost of \$1,061.17. The total amount spent for filling and drainage is \$32.13.

126.9 miles of earth road were dragged and maintained at a cost of \$36,998.26 or an average of \$291.30 per mile and 1.5 miles of gravel road were dragged and maintained without cost; 128.4 miles, or the entire system were dragged and maintained at a cost of \$36,998.26 or an average of \$288.10 per mile.

The total average expenditure per mile of county road was \$480.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 12 of the 19 townships was \$66,818.49.

**Bridges.****JEFFERSON COUNTY**

The total expenditures from county funds for bridge and culvert work during 1921 were \$38,393.18 of which \$7,183.45 or 18.5% was spent for permanent bridges and culverts; \$559.54 or 1.7% for temporary bridges and culverts, \$9,448.16 or 24.6% for repairs; \$7,586.49 or 19.8% for culvert ma-

terial for townships; \$3,876.28 or 11.6% for equipment and unused material; \$1,492.67 or 4.5% for filling bridges and culverts; and \$2,916.59 or 8.7% for special cases.

Of the total amount, \$8,072.99, spent for new bridges and culverts, \$7,183.45 or 89.0% for permanent work and \$889.54 or 11.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$7,183.45; concrete pipe, \$98.40; wood trestle bridges, \$791.14.

### 1. Primary System.

The total expenditure was \$25,713.47 of which \$8,090.30 or 31.5% was spent for construction; and \$17,623.17 or 68.5% for maintenance.

47.0 miles of earth road were maintained at a cost of \$17,623.17 or an average of \$374.96 per mile. This comprises the entire system.

During 1921, .58 miles were built to permanent grade. On January 1, 1922, the county had 26.1 miles of earth roads not built, and 20.9 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$27,556.32 of which \$24,811.12 or 90.3% was spent for maintenance and \$2,675.00 or 9.7% for special cases.

93.0 miles of earth road were dragged and maintained at cost of \$26,881.32 or an average of \$287.60 per mile. This comprises the entire system.

The total average expenditure per mile of county road was \$296.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$61,140.11.

## JOHNSON COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$77,703.10, of which \$40,780.41 or 52.5% was spent for permanent bridges and culverts, \$2,048.97 or 2.6% for temporary bridges and culverts; \$18,196.06 or 23.4% for repairs; \$6,783.18 or 8.7% for culvert material for townships; \$5,102.18 or 6.6% for equipment and unused material; \$1,747.80 or 2.3% for filling bridges and \$3,044.50 or 3.9% for special cases.

Of the total amount, \$42,329.38, spent for new bridges and culverts, \$40,780.41 or 95.2% for permanent work, \$2,048.97 or 4.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$39,338.09; head walls and culverts lengthened, \$1,542.32; corrugated pipe, \$241.44 and miscellaneous temporary bridges and culverts \$1,807.53.

### 1. Primary System.

The total expenditure was \$299,307.72 of which \$258,939.02 or 86.5% was spent for construction, and \$40,368.70 or 13.5% for maintenance.

68.5 miles of earth road were maintained at a cost of \$39,459.74 or an average cost of \$583.35 per mile, 3.0 miles of paved road were maintained at a cost of \$408.94, or an average of \$136.31 per mile and 71.5 miles of the entire system, was maintained at a cost of \$40,368.70, or an average of \$564.58 per mile.

## ROAD AND BRIDGE EXPENDITURES

During the year of 1921, 18.06 miles were built to permanent grade and 2.64 miles were paved. On January 1, 1922, the county had 34.3 miles of earth roads not built and 34.2 miles of earth road built to permanent grade and 2.0 miles paved.

### 2. County Roads.

The total county road expenditure was \$46,138.17 of which \$19,749.05 or 42.8% was spent for construction, \$22,219.07 or 48.2% for maintenance, and \$4,170.05 or 9.0% for special cases.

.7 miles were built to finished grade standard section at a cost of \$2,837.80 and .7 miles were surfaced with gravel at a cost of \$15,693.76. The total amount spent for tiling and drainage was \$1,217.49.

107.5 miles of earth road were dragged and maintained at a cost of \$22,219.07 or an average of \$206.70 per mile, 0.7 miles of gravel road were dragged and maintained at a cost of nothing per mile, and 108.2, or the entire mileage of the county road system, was dragged and maintained at a cost of \$22,219.07 or an average of \$206.30 per mile.

The total average expenditure per mile of county road was \$426.40.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 21 townships was \$43,397.17.

## JONES COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$51,411.83 of which \$25,038.40 or 48.7% was spent for permanent bridges and culverts, \$2,913.50 or 5.7% for temporary bridges and culverts, \$18,766.59 or 36.5% for repairs, \$3,495.54 or 6.8% for culvert material for townships and \$1,197.80 or 2.3% for special cases.

Of the total amount, \$27,951.90, spent for new bridges and culverts, \$25,038.40 or 89.6% for permanent work and \$2,913.50 or 10.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$20,032.87; headwalls and culverts lengthened, \$172.50; concrete girders, \$35.00; I-beam spans concrete abutments, \$4,798.03; corrugated pipe, \$2,850.50 and miscellaneous temporary bridges and culverts, \$63.00.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$77,591.22 of which \$62,939.71, or 81.2% was spent for construction, \$13,920.57 or 17.9% for maintenance and \$720.94 or 0.9% for special cases. \$22,980.28 was spent for bridges and culverts.

55.5 miles of earth road were maintained at a cost of \$13,613.65 or an average of \$245.30 per mile; 3.0 miles of gravel road were maintained at a cost of \$316.92 or an average of \$105.64 per mile; 58.5 miles, or the entire system, was maintained at a cost of \$12,920.57 or an average of \$223.12 per mile.

During the year 1921, 8.08 miles were built to permanent grade. On January 1, 1922, the county had 47.6 miles of earth roads not built, and 7.9 miles of earth road built to permanent grade and 3.0 miles of road were surfaced with gravel.



**2. County Roads.**

The total county road expenditure was \$46,105.28 of which \$3,949.28 or 8.5% was spent on construction, \$31,554.94 or 68.4% on maintenance, \$10,601.08 or 23.1% on special cases.

1.0 mile was surfaced with gravel at a cost of \$3,814.51. The total amount spent for tiling and drainage was \$134.75.

139.6 miles of earth road was dragged and maintained at a cost of \$30,657.58 or an average of \$221.00 per mile; 3.0 miles of gravel road were dragged and maintained at a cost of \$897.36 or an average of \$299.00 per mile; 142.6 miles of the entire system were dragged and maintained at a cost of \$31,554.94 or an average of \$221.30 per mile.

The total average expenditure per mile of county road was \$325.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 13 of the 16 townships was \$49,308.55.

**KEOKUK COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921 were \$82,638.93 of which \$48,827.67 or 59.1% was spent for permanent bridges and culverts, \$3,272.56 or 4.0% for temporary bridges and culverts, \$6,292.11 or 7.6% for repairs, \$4,547.99 or 5.5% for culvert material for townships, \$3,145.87 or 3.8% for equipment and unused materials, \$7,309.04 or 8.8% for filling bridges and culverts and \$9,252.89 or 11.2% for special cases.

Of the total amount, \$52,100.01, spent for new bridges and culverts, \$48,827.67 or 93.8% for permanent work and \$3,272.36 or 6.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$47,308.89; head walls and culverts lengthened, \$1,518.78; corrugated pipe, \$930.04; pony truss on piling—wood floor, \$479.22; wood trestle bridges, \$673.60; and miscellaneous temporary bridges and culverts, \$1,189.50.

**1. Primary System.**

The total expenditure was \$35,826.93 of which \$24,797.39 or 69.2% was spent for construction, \$10,426.75 or 29.1% for maintenance and \$602.79 or 1.7% for special cases; \$149.38 was spent on bridges and culverts.

80.0 miles of earth road was maintained at a cost of \$10,277.37 or an average of \$128.47 per mile. The comprises the entire system.

During the year 1921, .94 miles were built to permanent grade. On January 1, 1922, the county had 68.5 miles of earth roads not built and 11.5 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$24,608.56 of which \$1,753.56 or 7.2% was spent for construction, \$21,902.24, or 89.0% for maintenance and \$947.86 or 3.8% for special cases.

.378 miles were built to finished grade standard section at cost of \$1,601.43.

135.6 miles of earth road were dragged and maintained at a cost of \$21,902.24, or an average of \$174.30 per mile. This comprised the entire system.

The total average expenditure per mile of county road was \$195.80.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 14 of the 17 townships was \$54,587.51.

**KOSSUTH COUNTY****Bridges.**

This total expenditures from county funds for bridge and culvert work during 1921, were \$98,738.38 of which \$35,026.15 or 35.5% was spent for permanent bridges and culverts; \$34,971.35 or 35.4% for temporary bridges and culverts; \$19,511.96 or 19.7% for repairs; \$5,556.36 or 5.6% for culvert material for townships; \$2,818.56 or 2.7% for filling bridges and culverts and \$1,194.00 or 1.1% for special cases.

Of the total amount, \$69,897.50, spent for new bridges and culverts, \$35,026.15 or 50.02% was spent for permanent work and \$34,971.35 or 49.98% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$12,996.35; concrete arch bridges, \$22,719.80; corrugated pipe \$8,619.11, and wood trestle bridges, \$15,352.24.

**1. Primary System.**

The total expenditure was \$237,298.68 of which \$189,474.43 or 79.84% was spent for construction; \$47,496.07 or 20.03% for maintenance and \$328.18 or 0.14% for special cases.

68.6 miles of earth road were maintained at a cost of \$24,756.20 or an average of \$371.72 per mile; 23.5 miles of gravel road was maintained at a cost of \$22,739.77 or an average of \$967.65 per mile, and 90.1 miles, the entire system, were maintained at a cost of \$47,496.07 or an average of \$527.14 per mile.

During the year of 1921, 44.88 miles were built to permanent grade. On January 1, 1922, the county had 8.7 miles of earth roads not built, 57.9 miles of earth road built to permanent grade and 23.5 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$134,118.69 of which \$95,114.19 or 70.9% was spent for construction; \$18,863.29 or 13.8% for maintenance and \$23,141.21 or 17.3% for special cases.

50.0 miles were built to finished grade standard section at a cost of \$85,188.45. The total amount spent for tiling and drainage was \$9,925.74.

181.5 miles of earth road were dragged and maintained at a cost of \$16,304.52, or an average of \$84.30 per mile; 13.5 miles of gravel road were dragged and maintained at a cost of \$558.77 or an average of \$41.30 per mile, and 195.0 miles, the entire system, were dragged and maintained at a cost of \$16,863.29 or an average of \$81.30 per mile. The total average expenditure per mile of county road was \$688.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 12 of the 28 townships was \$109,575.54.

**LEE COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$46,716.33 of which \$9,942.54 or 21.2% was spent for permanent bridges and culverts; \$1,857.23 or 3.9% for temporary bridges and culverts; \$19,506.27 or 41.8% for repairs; \$2,275.73 or 4.9% for culvert material for townships; \$8,564.02 or 18.3% for equipment and unused materials; \$5,520.43 or 11.8% for filling bridges and culverts and \$50.00 or 0.01% for special cases.



Of the total amount, \$10,799.87, spent for new bridges and culverts, \$8,942.65 or 82.8% was spent for permanent work and \$1,857.22 or 17.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$7,530.33; head walls and culverts lengthened, \$1,412.21 and corrugated pipe, \$1,857.22.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$129,855.93 of which \$109,368.46 or 84.2% was spent for construction; \$29,279.67 or 20.9% for maintenance and \$1,267.80 or 1.9% for special cases. \$7,679.74 was spent for bridges and culverts.

75.9 miles of earth road were maintained at a cost of \$21,213.91 or an average of \$279.59 per mile, 13.3 miles of gravel roads were maintained at a cost of \$8,065.76, or an average of \$611.94 per mile; 89.1 miles, or the entire system, was maintained at a cost of \$29,279.67 or an average of \$328.59 per mile.

During the year 1921 5.3 miles were built to permanent grade, 7.65 miles were surfaced with gravel. On January 1, 1922, the county had 75.9 miles of earth roads not built, and 13.2 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$47,795.19 of which \$47,270.19, or 98.9% was spent for maintenance and \$525.00 or 1.0% for special cases.

53.0 miles of earth roads were dragged and maintained at a cost of \$38,567.75 or an average of \$464.50 per mile and 19.5 miles of gravel road were dragged and maintained at a cost of \$8,702.44 or an average of \$446.30 per mile; 93.5 miles, or the entire system, was dragged and maintained at a cost of \$47,270.19 or an average of \$505.50 per mile.

The total average expenditure per mile of county road was \$511.10.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 15 townships was \$41,773.34.

## LINN COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$108,822.91 of which \$52,834.35 or 48.5% was spent for permanent bridges and culverts; \$13,262.91 or 12.3% for temporary bridges and culverts; \$31,990.97 or 29.2% for repairs; \$4,545.18 or 4.2% for culvert material for townships; \$3,083.79 or 2.8% for equipment and unused materials; \$7,401.07 or 6.8% for filling bridges and culverts and \$5,794.64 or 5.2% for special cases.

Of the total amount, \$64,097.26, spent for new bridges and culverts, \$52,834.35 or 79.3% was spent for permanent work; and \$13,262.91 or 20.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$13,395.98; head walls and culverts lengthened, \$4,373.11; concrete slab bridges, \$6,496.84; concrete deck girders, \$4,215.42; I-beam spans-concrete abutments, \$3,750.82; pony truss-concrete abutments, \$8,787.56; high steel trusses, concrete abutments, \$11,215.52; corrugated pipe, \$4,345.17 and wood trestle bridges, \$8,717.74.

### 1. Primary System.

The total expenditure was \$400,761.39 of which \$347,202.30 or 86.6% was spent for construction; \$49,862.94 or 12.5% for maintenance and \$3,696.65 or 0.9% for special cases.

82.3 miles of earth road were maintained at a cost of \$39,226.39 or an average of \$476.63 per mile; 8.2 miles of gravel road were maintained at a cost of \$5,735.80 or an average of \$1,065.71 per mile; 8.8 miles of paved road were maintained at a cost of \$1,897.75 or an average of \$215.66 per mile and 99.3 miles, the entire system, were maintained at a cost of \$49,862.94 or an average of \$502.13 per mile.

During the year of 1921, 12.35 miles were built to permanent grade and 4.84 miles were paved. On January 1, 1922, the county had 79.0 miles of earth roads not built, 12.3 miles of earth road built to permanent grade, 8.2 miles surfaced with gravel, and 8.8 miles paved.

### 2. County Roads.

The total county road expenditure was \$75,757.13 of which \$4,842.84 or 6.4% was spent for construction; \$44,396.22 or 58.5% for maintenance and \$26,618.07 or 35.1% for special cases. The total amount spent for filling and drainage was \$4,842.84.

95.0 miles of earth road were dragged and maintained at a cost of \$10,529.51 or an average of \$110.70 per mile; 17.0 miles of gravel road were dragged and maintained at a cost of \$23,866.71 or an average of \$1,395.00 per mile and 112.0 miles, the entire system, were dragged and maintained at a cost of \$44,396.22 or an average of \$396.30 per mile. The total average expenditure per mile of county road was \$677.50.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$93,025.46.

## LOUISA COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$31,583.66 of which \$10,734.05 or 34.0% was spent for permanent bridges and culverts; \$2,918.47 or 9.3% for temporary bridges and culverts; \$8,745.21 or 27.6% for repairs; \$5,903.52 or 18.7% for culvert material for townships; \$2,922.64 or 9.3% for equipment and unused materials; \$321.95 or 1.0% for filling bridges and culverts and \$37.82 or 0.12% for special cases.

Of the total amount, \$13,652.52, spent for new bridges and culverts, \$10,734.05 or 78.6% was spent for permanent work and \$2,918.47 or 21.4% for temporary.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$6,594.07; pony truss, concrete abutments, \$4,062.60; high steel trusses-concrete abutments, \$77.33; concrete pipe, \$1,536.21, and corrugated pipe, \$1,882.26.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$187,048.69 of which \$175,412.64 or 93.4% was spent for construction and \$8,636.05 or 4.6% for maintenance; \$56,805.31 was spent for bridges and culverts.

49.1 miles of earth road were maintained at a cost of \$8,594.47 or an average of \$175.04 per mile. 1.3 miles of paved road were maintained at a cost of \$41.58 or an average of \$31.98 per mile and 50.4 miles, the entire system, were maintained at a cost of \$8,636.05 or an average of \$171.34 per mile.

During the year of 1921, 20.81 miles were built to permanent grade. On January 1, 1922, the county had 25.2 miles of earth roads not built, 23.9 miles of earth road built to permanent grade, and 1.3 miles paved.

**2. County Roads.**

The total county road expenditure was \$33,909.45 of which \$12,100.20 or 35.7% was spent for maintenance and \$21,809.25 or 64.3% for special cases. 70.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$12,100.20 or an average of \$171.50 per mile. The total average expenditure per mile of county road was \$481.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 8 of the 12 townships was \$35,283.71.

**LUCAS COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$76,344.11 of which \$45,721.05 or 59.9% was spent for permanent bridges and culverts; \$4,923.22 or 6.5% for temporary bridges and culverts; \$11,257.87 or 14.7% for repairs; \$6,098.58 or 8.0% for culvert material for townships; \$1,916.83 or 2.6% for equipment and unused materials; \$5,231.47 or 6.8% for filling bridges and culverts and \$1,165.09 or 1.5% for special cases.

Of the total amount, \$50,644.37, spent for new bridges and culverts, \$45,721.05 or 90.3% was spent for permanent work, and \$4,923.22 or 9.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$11,730.17; head walls and culverts lengthened, \$1,185.84; I-beam spans-concrete abutments, \$50.00; concrete pipe, \$159.80; pony truss, concrete abutments, \$20,600.27; high steel trusses, concrete abutments, \$12,154.77; corrugated pipe, \$563.42 and I-beam spans-piling abutments, \$4,200.00.

**1. Primary System.**

The total expenditure including bridges paid for from primary funds was \$171,833.17 of which \$158,656.63 or 92.34% was spent for construction; \$13,023.68 or 7.58% for maintenance and \$142.86 or 0.08% for special cases; \$30,739.63 was spent for bridges and culverts.

57.2 miles of earth road, the entire system, were maintained at a cost of \$12,557.78 or an average of \$219.54 per mile.

During the year of 1921, 10.36 miles were built to permanent grade. On January 1, 1922, the county had 44.5 miles of earth roads not built and 12.7 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$30,172.15 of which \$1,782.00 or 5.8% was spent for construction; \$17,854.09 or 59.2% for maintenance and \$10,556.06 or 35.0% for special cases; 0.25 miles were built to finished grade standard section at a cost of \$1,782.00.

96.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$17,854.09 or an average of \$186.00 per mile. The total average expenditure per mile of county road was \$314.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 10 of the 12 townships was \$41,012.53.

**LYON COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$68,356.19 of which \$30,739.26 or 45.0% was spent for permanent bridges and culverts; \$10,377.83 or 15.2% for temporary bridges and culverts; \$18,712.86 or 27.4% for repairs; \$4,228.65 or 6.2% for culvert material for townships; \$3,065.10 or 4.5% for equipment and unused materials; \$722.19 or 1.0% for filling bridges and culverts and \$456.30 or 0.7% for special cases.

Of the total amount, \$41,167.09, spent for new bridges and culverts, \$30,739.26 or 74.8% was spent for permanent work and \$10,377.83 or 25.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$25,588.28; concrete slab bridges, \$4,058.00; I-beam spans-concrete abutments, \$1,088.30; pony truss-concrete abutments, \$54.15; corrugated pipe, \$39.58; and wood trestle bridges, \$10,338.25.

**1. Primary System.**

The total expenditure including bridges paid for from primary funds was \$109,711.98 of which \$102,004.95 or 93.0% was spent for construction; \$7,604.61 or 6.91% for maintenance and \$102.41 or 0.09% for special cases; \$10,925.18 was spent for bridges and culverts.

56.7 miles of earth road were maintained at a cost of \$7,381.41 or an average of \$130.18 per mile; 11.0 miles of gravel road were maintained at a cost of \$225.20 or an average of \$20.39 per mile and 67.7 miles, the entire system, were maintained at a cost of \$7,604.61 or an average of \$112.32 per mile.

During the year of 1921, 22.47 miles were built to permanent grade and 21.75 miles were surfaced with gravel. On January 1, 1922, the county had 43.1 miles of earth roads not built, 13.5 miles of earth road built to permanent grade, and 11.0 miles surfaced with gravel.

**2. County Roads.**

The total county road expenditure was \$20,895.00 of which \$9,655.75 or 46.2% was spent for construction; \$11,184.83 or 53.5% for maintenance and \$54.42 or 0.3% for special cases; 8.0 miles were surfaced with gravel at a cost of \$5,073.93. The total amount spent for tiling and drainage was \$4,581.82.

117.24 miles of earth road were dragged and maintained at a cost of \$16,235.50 or an average of \$87.50 per mile; 5.00 miles of gravel road were dragged and maintained at a cost of \$949.31 or an average of \$118.70 per mile, and 125.24 miles, the entire system, were dragged and maintained at a cost of \$11,184.83 or an average of \$89.50 per mile. The total average expenditure per mile of county road was \$166.80.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 14 of the 18 townships was \$31,993.11.

**MADISON COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$68,126.00 of which \$13,591.97 or 19.9% was spent for permanent bridges and culverts; \$16,290.17 or 23.9% for temporary bridges and culverts; \$23,993.88 or 35.2% for repairs; \$2,759.20 or 4.1% for culvert material for townships; \$2,856.44 or 4.2% for equipment and unused ma-



materials; \$5,599.02 or 8.2% for filling bridges and culverts, and \$2,035.32 or 4.5% for special cases.

Of the total amount, \$29,882.14, spent for new bridges and culverts, \$13,591.97 or 45.5% was spent for permanent work, and \$16,290.17 or 54.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$13,591.97; concrete pipe, \$339.70; corrugated pipe, \$9,599.38; and wood trestle bridges, \$6,360.09.

### 1. Primary System.

The total expenditures from county funds for bridge and culvert work was \$203,441.80 of which \$183,482.63 or 90.19% was spent for construction; \$19,734.73 or 9.7% for maintenance, and \$224.44 or 0.11% for special cases; \$71,352.99 was spent for bridges and culverts.

55.0 miles of earth road, the entire system, were maintained at a cost of \$19,676.14 or an average of \$357.75 per mile.

During the year of 1921, 10.20 miles were built to permanent grade. On January 1, 1922, the county had 43.7 miles of earth roads not built, and 11.3 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$43,287.22 of which \$32,932.92 or 74.0% was spent for maintenance and \$11,254.30 or 26.0% for special cases.

120.6 miles of earth road, the entire system, were dragged and maintained at a cost of \$32,632.92 or an average of \$266.80 per mile. The total average expenditure per mile of county road was \$360.80.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 11 of the 16 townships was \$35,487.27.

## MAHASKA COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$73,943.05 of which \$49,874.69 or 67.4% was spent for permanent bridges and culverts; \$1,104.59 or 1.5% for temporary bridges and culverts; \$5,838.62 or 7.9% for repairs; \$6,659.86 or 9.0% for culvert material for townships; \$3,290.77 or 4.4% for equipment and unused materials; \$2,285.23 or 3.1% for filling bridges and culverts and \$1,789.33 or 2.4% for special cases.

Of the total amount, \$50,979.28, spent for new bridges and culverts, \$48,874.69 or 97.8% was spent for permanent work, and \$1,104.59 or 2.2% for temporary work.

Concrete culverts, costing \$24,227.53; head walls and culverts lengthened, \$2,720.59; I-beam spans-concrete abutments, \$2,141.70; high steel trusses-concrete abutments, \$20,784.88 and corrugated pipe, \$1,104.59.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$97,580.93 of which \$74,838.82 or 76.7% was spent for construction; \$22,341.18 or 22.9% for maintenance, and \$400.93 or 0.4% for special cases; \$26,226.58 was spent for bridges and culverts.

85.7 miles of earth road, the entire system, were maintained at a cost of \$21,814.18 or an average of \$254.54 per mile.

During the year 1921, 11.35 miles were built to permanent grade. On January 1, 1922, the county had 62.0 miles of earth roads not built and 23.7 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$40,494.87 of which \$165.33 or 0.4% was spent for construction; \$23,446.62 or 57.9% for maintenance and \$16,882.92 or 41.7% for special cases. The total amount spent for tilling and drainage was \$165.33.

76.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$23,446.62 or an average of \$305.50 per mile. The total average expenditure per mile of county road was \$532.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$73,404.34.

## MARION COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$108,915.92 of which \$66,462.42 or 60.9% was spent for permanent bridges and culverts; \$9,120.70 or 8.4% for temporary bridges and culverts; \$7,581.49 or 7.0% for repairs; \$1,979.40 or 1.9% for culvert material for townships; \$10,136.35 or 9.3% for equipment and unused materials; \$12,771.64 or 11.7% filling bridges and culverts; and, \$862.50 or 0.8% for special cases.

Of the total amount, \$75,584.12, spent for new bridges and culverts, \$66,462.42 or 87.9% for permanent work, and \$9,120.70 or 12.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts \$46,904.05; head walls and culverts lengthened \$3,989.46; corrugated pipe \$998.50; I-beam spans-concrete abutments \$6,643.50; I-beam span-piling abutments \$1,286.40; pony truss-concrete abutments \$9,826.40; pony truss on piling-wood floor \$679.50; wood trestle bridges \$4,116.00; and miscellaneous temporary bridges and culverts \$40.00.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$179,534.37, of which \$149,442.80 or 83.2% was spent for construction; \$27,485.58 or 15.3% maintenance; and, \$2,626.01 or 1.5% for special cases; \$9,661.05 was spent for bridges and culverts.

91.2 miles of earth road were maintained at a cost of \$27,401.16 or an average of \$300.45 per mile. This comprises the entire mileage of the primary road system in this county.

During the year 1921, 13.31 miles were built to permanent grade. On January 1, 1922, the county had 60.4 miles of earth roads not built, and 30.8 miles of earth road built to permanent grade.

The total county road expenditure was \$55,491.06, of which \$64.65 or 0.1% was spent for construction; \$27,931.82 or 50.3% for maintenance; \$27,494.59 or 49.6% for special cases.

The total amount spent for tilling and drainage \$64.65.

98.82 miles of earth road were dragged and maintained at a cost of \$27,931.82 or an average of \$282.80 per mile. .06 miles of gravel road was maintained without cost. 98.88 miles of the entire system were dragged and maintained at a cost of \$27,931.82 or an average of \$282.80 per mile. The total average expenditure per mile of county road was \$561.20.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 11 of the 15 townships was \$75,288.02.



## MARSHALL COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$102,637.97 of which \$67,991.86 or 65.6% was spent for permanent bridges and culverts; \$8,159.33 or 7.9% for temporary bridges and culverts; \$8,141.08 or 7.9% for repairs; \$3,949.67 or 3.8% for culvert material for townships; \$1,192.98 or 1.1% for equipment and unused materials; \$8,630.28 or 8.3% for filling bridges and culverts, and \$5,671.77 or 5.4% for special cases.

Of the total amount, \$76,151.19, spent for new bridges and culverts, \$67,991.86 or 88.3% was spent for permanent work, and \$8,159.33 or 10.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$49,279.82; concrete slab bridges, \$7,449.57; corrugated pipe, \$2,336.33; I-beam spans-piling abutments, \$1,529.56; I-beam spans-concrete abutments, \$135.00; wood trestle bridges, \$2,266.47; pony truss-concrete abutments, \$9,567.47; high steel trusses-concrete abutments, \$10,660.00; wood truss bridges, \$1,917.10, and miscellaneous temporary bridges and culverts, \$269.87.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$293,963.61, of which \$277,171.93 or 94.6% was spent for construction; \$13,152.36 or 4.4% for maintenance, and \$2,739.32 or 0.93% for special cases. \$8,535.18 was spent on bridges and culverts.

21.9 miles of earth road were maintained at a cost of \$12,863.85 or an average of \$586.77 per mile, 7.8 miles of paved road were maintained at a cost of \$298.51 or an average of \$38.27 per mile, and 49.7 miles, the entire system, were maintained at a cost of \$13,152.36 or an average of \$264.63 per mile.

During the year of 1921, 9.34 miles were built to permanent grade, and 5.93 miles were paved. On January 1, 1922, the county had 23.1 miles of earth roads not built, 18.8 miles of earth road built to permanent grade and 7.8 miles paved.

## 2. County Roads.

The total county road expenditure was \$41,273.14 of which \$4,057.22 or 9.8% was spent for construction; \$30,940.22 or 75.0% for maintenance, and \$6,275.70 or 15.2% for special cases. 4.75 miles were surfaced with gravel at a cost of \$1,439.02. The total amount spent for filling and drainage was \$1,968.83, and the total amount spent for equipment and tools was \$649.37.

131.40 miles of earth road were dragged and maintained at a cost of \$27,628.81 or an average of \$210.20 per mile. 11.75 miles of gravel road were dragged and maintained at a cost of \$3,311.41 or an average of \$302.00 per mile, and 143.15 miles, the entire system, were dragged and maintained at a cost of \$30,940.22 or an average of \$214.60 per mile. The total average expenditure per mile of county road was \$288.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 18 townships was \$63,846.41.

## MILLS COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$125,683.30 of which \$77,760.66, or 61.9% was spent for permanent bridges and culverts; \$16,728.35 or 13.3% for temporary bridges

and culverts; \$12,420.30 or 9.9% for repairs; \$2,826.30 or 2.2% for culvert material for townships; \$10,935.70 or 8.7% for equipment and unused materials; \$3,620.30 or 2.9% for filling bridges and culverts, and \$1,378.75 or 1.1% for special cases.

Of the total amount, \$94,488.95, spent for new bridges and culverts, \$77,760.66 or 82.3% was spent for permanent work, and \$16,728.35 or 17.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$28,464.94; head walls and culverts lengthened, \$8,380.80; concrete pipe, \$862.40, corrugated pipe, \$1,200.20; I-beam spans-concrete abutments, \$10,517.04; pony truss on piling wood floor, \$9,323.00; pony truss-concrete abutments wood trestle bridges, \$5,250.50, and miscellaneous temporary bridges and culverts, \$62.25.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$237,043.64 of which \$205,714.55 or 86.8% was spent for construction, and \$32,328.76 or 13.6% for maintenance, \$4,868.41 was spent on bridges and culverts.

49.9 miles of earth road, the entire system, were maintained at a cost of \$28,328.76 or an average of \$567.71 per mile.

During the year of 1921, 10.45 miles were built to permanent grade. On January 1, 1922, the county had 37.1 miles of earth roads not built, and 12.8 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$70,001.92 of which \$41,474.18 or 59.2% was spent for maintenance and \$28,527.74 or 40.8% for special cases. 67.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$41,474.18 or an average of \$618.80 per mile. The total average expenditure per mile of county road was \$1,045.90.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 11 of the 13 townships was \$47,360.03.

## MITCHELL COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$75,842.58 of which \$58,910.53 or 77.7% was spent for permanent bridges and culverts; \$11,804.98 or 15.5% for repairs; \$1,117.40 or 1.5% for culvert material for townships; \$1,266.27 or 1.7% for equipment and unused materials; \$1,322.90 or 1.7% for filling bridges and culverts, and \$1,210.50 or 1.6% for special cases.

Of the total amount, \$58,910.53, spent for new bridges and culverts, \$58,910.53 or 100.0% was spent for permanent work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$29,316.26; concrete slab bridges, \$4,995.00; concrete arch bridges, \$9,591.72; I-beam spans-concrete abutments, \$3,512.48; pony truss-concrete abutments, \$12,094.07.

## 1. Primary System.

The total expenditure was \$176,561.28 of which \$154,483.21 or 87.4% was spent for construction; \$22,016.87 or 12.56% for maintenance, and \$61.20 or 0.03% for special cases.

26.2 miles of earth road were maintained at a cost of \$10,459.07 or an average of \$399.20 per mile, 34.8 miles of gravel road were maintained at a cost of \$11,557.80 or an average of \$332.12 per mile, and 61.1 miles, the entire system, were maintained at a cost of \$22,016.87 or an average of \$360.91 per mile.

During the year of 1921, 18.19 miles were built to permanent grade, and 15.65 miles were surfaced with gravel. On January 1, 1922, the county had 26.2 miles of earth road not built, and 34.8 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$97,842.01 of which \$48,168.77 or 49.2% was spent for construction; \$28,646.65 or 29.3% for maintenance, and \$21,027.59 or 21.5% for special cases. 9.0 miles were built to finished grade standard section at a cost of \$31,311.95, and 4.9 miles were surfaced with gravel at a cost of \$1,717.36. The total amount spent for tiling and drainage was \$15,078.86.

85.2 miles of earth road were dragged and maintained at a cost of \$27,279.39 or an average of \$320.20 per mile, 5.25 miles of gravel road were dragged and maintained at a cost of \$1,367.26 or an average of \$260.40 per mile, and 90.45 miles, the entire system, were dragged and maintained at a cost of \$28,646.65 or an average of \$316.80 per mile. The total average expenditure per mile of county road was \$1,081.90.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of the 16 townships was \$47,158.36.

### MONONA COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$81,331.52 of which \$27,238.18 or 33.5% was spent for permanent bridges and culverts; \$16,855.93 or 20.7% for temporary bridges and culverts; \$16,579.35 or 20.4% for repairs; \$1,487.59 or 1.8% for culvert material for townships; \$489.74 or 0.6% for equipment and unused materials; \$9,477.59 or 11.7% for filling bridges and culverts, and \$9,203.44 or 11.3% for special cases.

Of the total amount, \$44,094.11, spent for new bridges and culverts, \$27,238.18 or 61.8% was spent for permanent work, and \$16,855.93 or 38.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$26,438.80; head walls and culverts lengthened, \$799.88; concrete pipe, \$239.60; corrugated pipe, \$372.30; I-beam spans-piling abutments, \$2,885.89; pony truss on piling wood floor, \$11,069.80; wood trestle bridges, \$2,273.19, and miscellaneous temporary bridges and culverts, \$15.25.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds was \$46,479.76 of which \$26,600.08 or 57.2% was spent for construction; \$18,694.67 or 40.2% for maintenance, and \$1,185.01 or 2.6% for special cases. \$22,281.12 was spent on bridges and culverts.

71.1 miles of earth road, the entire system, were maintained at a cost of \$18,694.67 or an average of \$242.46 per mile.

During the year of 1921, 3.59 miles were built to permanent grade. On January 1, 1922, the county had 68.5 miles of earth roads not built, and 8.6 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$31,926.01 of which \$5,141.13 or 16.1% was spent for construction; \$18,770.92 or 58.8% for maintenance, and \$8,013.96 or 25.1% for special cases. 8.11 miles were built to finished grade standard section at a cost of \$5,141.13.

59.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$18,770.92 or an average of \$209.70 per mile. The total average expenditure per mile of county road was \$356.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 12 of the 15 townships was \$38,215.45.

### MONROE COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$35,376.65 of which \$12,096.32 or 34.2% was spent for permanent bridges and culverts; \$1,496.98 or 4.2% for temporary bridges and culverts; \$16,228.36 or 45.89% for repairs; \$2,320.18 or 6.5% for culvert material for townships; \$2.35 or 0.005% for equipment and unused materials; \$1,342.63 or 3.8% for filling bridges and culverts, and \$1,889.33 or 5.4% for special cases.

Of the total amount, \$13,593.30, spent for new bridges and culverts, \$12,096.32 or 89.0% was spent for permanent work, and \$1,496.98 or 11.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$6,565.62; head walls and culverts lengthened, \$2,209.95; high steel trusses-concrete abutments, \$744.00; corrugated pipe, \$1,496.98, and miscellaneous permanent bridges and culverts, \$2,273.75.

## 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$62,980.54 of which 42,826.94 or 68.0% was spent for construction; \$19,774.18 or 31.4% for maintenance, and \$379.42 or 0.6% for special cases. \$10,135.05 was spent on bridges and culverts.

55.4 miles of earth road, the entire system, were maintained at a cost of \$19,774.18 or an average of \$355.93 per mile.

During the year of 1921, 5.06 miles were built to permanent grade. On January 1, 1922, the county had 49.7 miles of earth roads not built, and 14.7 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$41,588.63 of which \$25,859.47 or 62.2% was spent for maintenance, and \$15,729.16 or 37.8% for special cases.

115.25 miles of earth road, the entire system, were dragged and maintained at a cost of \$25,859.47 or an average of \$224.20. The total average expenditure per mile of county road was \$358.20.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 11 of the 12 townships was \$37,207.18.



## MONTGOMERY COUNTY.

## Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$48,951.07 of which \$4,329.60 or 8.9% was spent for permanent bridges and culverts; \$15,778.23 or 32.2% for temporary bridges and culverts; \$10,778.12 or 22.0% for repairs; \$5,232.41 or 10.68% for culvert material for townships; \$661.94 or 1.35% for equipment and unused materials; \$4,917.21 or 10.0% for filling bridges and culverts, and \$7,252.56 or 14.8% for special cases.

Of the total amount, \$20,107.83 spent for new bridges and culverts, \$4,329.60 or 21.5% was spent for permanent work and \$15,778.23 or 78.5% for temporary work.

The amounts last above referred to were spent on the following construction.

Concrete culverts costing \$2,597.89; head walls and culverts lengthened, \$703.21; concrete pipe, \$2,922.31; corrugated pipe, \$656.91; I-beam span, piling abutments, \$1,935.00; pony truss on piling, wood floor, \$993.40; wood trestle bridges, \$8,467.00, and miscellaneous bridges and culverts, \$1,532.11.

## 1. Primary System.

The total expenditure was \$31,375.60 of which \$5,979.59 or 19.1% was spent for construction; \$23,576.01 or 75.1% for maintenance and \$1,820.00 or 5.8% for special cases.

51.8 miles earth road, the entire system, were maintained at a cost of \$23,576.01 or an average of \$453.13 per mile.

On January 1, 1922, the county had 36.3 miles of earth roads not built and 15.5 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$22,135.96 of which \$3,955.92 or 17.9% was spent for construction; \$16,606.26 or 75.0% for maintenance and \$1,573.78 or 7.1% for special cases.

.85 of a mile was built to finished grade, standard section, at a cost of \$2,993.10. The total amount spent for tiling and drainage was \$143.75 and the total amount spent for equipment and tools was \$814.07.

77.5 miles earth road, the entire system, were dragged and maintained at a cost of \$16,606.26 or an average of \$214.30 per mile. The total average expenditure per mile of county road was \$285.70.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$34,116.13.

## MUSCATINE COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$99,946.13 of which \$74,984.00 or 75.0% was spent for permanent bridges and culverts; \$1,387.26 or 1.4% for temporary bridges and culverts; \$10,134.00 or 10.1% for repairs; \$1,595.19 or 1.6% for culvert material for townships; \$1,741.32 or 1.8% for equipment and unused materials; \$798.89 or 0.8% for filling bridges and culverts; and \$9,303.75 or 9.3% for special cases.

Of the total amount \$76,371.26 spent for new bridges and culverts, \$74,984.00 or 98.2% was spent for permanent work and \$1,387.26 or 1.8% for temporary work.

## ROAD AND BRIDGE EXPENDITURES

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$31,132.86; head walls and culverts lengthened \$298.40; concrete slab bridges \$8,811.25; I-beam spans-concrete abutments \$2,968.84; concrete pipe \$352.67; pony truss-concrete abutments, \$13,018.99; high steel trusses-concrete abutments, \$18,652.56; corrugated pipe \$1,002.62; miscellaneous temporary bridges and culverts, \$31.37.

## 1. Primary System.

The total expenditures, including bridges paid for from primary funds, was \$110,857.13, of which \$91,060.49 or 82.1% was spent for construction; \$19,423.89 or 17.5% for maintenance and \$372.75 or 0.4% for special cases. \$4,218.23 was spent on bridges and culverts.

69.5 miles earth road were maintained at a cost of \$18,672.79 or an average of \$268.68 per mile, 11.0 miles gravel road were maintained at a cost of \$720.42 or an average of \$65.49 per mile; 0.9 miles paved road were maintained at a cost of \$29.63 or an average of \$32.98 per mile; and 81.4 miles entire system were maintained at a cost of \$19,423.89 or an average of \$238.61 per mile.

During the year 1921, 15.06 miles were built to a permanent grade and .29 of a mile was surfaced with gravel.

On January 1, 1922, the county had 48.9 miles of earth roads not built, 20.6 miles of earth road built to permanent grade and 11.0 miles surfaced with gravel, and 0.9 of a mile paved.

## 2. County Roads.

The total county road expenditure was \$65,862.18, of which \$19,189.24 or 29.2% was spent for construction, \$32,977.31 or 50.0% for maintenance and \$13,695.63 or 20.8% for special cases.

3.34 miles were built to finished grade standard section at a cost of \$18,472.83. The total amount spent for tiling and drainage was \$716.41.

65.61 miles earth road dragged and maintained at a cost of \$21,993.20 or an average of \$488.40 per mile; 8.04 miles gravel road dragged and maintained at a cost of \$984.11 or an average of \$122.90 per mile; and 73.55 miles, entire system, dragged and maintained at a cost of \$32,977.31 or an average of \$448.00 per mile.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$47,792.01.

## O'BRIEN COUNTY.

## Bridges.

The total expenditures from county funds for bridges and culvert work during 1921, were \$67,953.62 of which \$35,595.45 or 52.4% for permanent bridges and culverts; \$4,340.36 or 6.3% for temporary bridges and culverts; \$17,044.02 or 25.1% for repairs; \$1,812.63 or 2.7% for culvert material for townships; \$3,909.17 or 5.7% for equipment and unused materials; \$883.37 or 1.3% for filling bridges and culverts and \$3,764.96 or 5.5% for special cases.

Of the total amount \$40,539.41 spent for new bridges and culverts, \$35,595.45 or 87.7% was spent for permanent work and \$4,943.96 or 12.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$21,305.27; concrete slab bridges \$474.39; I-beam spans-concrete abutments \$7,816.97; concrete pipe \$3,175.40; pony



truss concrete abutments \$6,001.82; corrugated pipe, \$25.00; wood trestle bridges, \$1,722.21 and miscellaneous temporary bridges and culverts \$5.35.

#### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$366,233.92 of which \$254,263.58 or 69.7% was spent for construction and \$111,970.34 or 30.3% for maintenance. \$314.80 was spent on bridges.

51.5 miles of earth road were maintained at a cost of \$10,582.20 or an average of \$204.31 per mile; 22.5 miles of paved road were maintained at a cost of \$1,072.34, or an average of \$476.59 per mile. 74.3 miles, the entire system, was maintained at a cost of \$11,655.54, or an average of \$156.85 per mile.

During the year of 1921, 19.56 miles were built to permanent grade and 21.49 miles were paved.

On January 1, 1922, the county had 37.8 miles of earth roads not built and 14.0 miles of earth road built to permanent grade, and 22.5 miles paved.

#### 2. County Roads.

The total county road expenditure was \$46,326.91 of which \$15,353.83 or 33.1% was spent for construction, \$17,268.15 or 37.3% was spent for maintenance, \$7,704.83 or 16.6% for special cases.

2.0 miles were built to finished grade standard section at a cost of \$2,003.97 and 9.0 miles were surfaced with gravel at a cost of \$9,956.78. The total amount spent for tiling and drainage was \$3,394.02.

114.0 miles of earth road were dragged and maintained at a cost of \$17,141.65 or an average of \$151.00 per mile; 9.0 miles of gravel road were dragged and maintained at a cost of \$126.50 or \$14.00 per mile. 123.0 miles, or the entire system were dragged and maintained at a cost of \$17,268.15 or an average of \$140.40 per mile.

The total average expenditure per mile of county road was \$328.00.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$61,559.56.

### OSCEOLA COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$34,646.17 of which \$20,495.72 or 59.3% was spent for permanent bridges and culverts; \$9,068.95 or 26.2% for temporary bridges and culverts; \$190.31 or 0.5% for repairs; \$946.91 or 2.7% for culvert material for townships; \$129.63 or 0.37% for equipment and unused materials; \$1,951.51 or 5.6% for filling bridges and culverts and \$1,953.71 or 5.6% for special cases.

Of the total amount \$29,474.76, spent for new bridges and culverts, \$20,495.72 or 69.4% was spent for permanent work and \$9,068.98 or 31.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$15,233.96; head walls and culverts lengthened, \$49.67; concrete slab bridges \$5,038.37; concrete pipe, \$210.60; wood trestle bridges \$8,753.28 and miscellaneous permanent bridges and culverts \$83.72.

#### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$95,371.91 of which \$89,402.95 or 93.7% was spent for construction, \$5,968.96 or 6.3% for maintenance.

\$3,501.00 was spent on bridges and culverts.

39.5 miles of earth road were maintained at a cost of \$5,819.37 or an average of \$149.81 per mile and 11.0 miles of gravel roads were maintained at a cost of \$149.39, or an average of \$13.58 per mile. 41.5 miles, or the entire system were maintained at a cost of \$5,968.96 or an average of \$143.61 per mile.

During the year of 1921, 13.5 miles were built to permanent grade and 6.55 miles were surfaced with gravel.

On January 1, 1922, the county had 9.1 miles of earth roads not built; 21.4 miles of earth road built to permanent grade and 11.0 miles surfaced with gravel.

#### 2. County Roads.

The total county road expenditure was \$24,826.39 of which \$11,550.55 or 46.5% was spent for construction; \$8,376.17 or 33.3% for maintenance and \$4,899.67 or 19.7% for special cases.

3.6 miles were built to finished grade, standard section, at a cost of \$6,508.01.

102.5 miles of earth road were dragged and maintained at a cost of \$8,161.37 or an average of \$78.60 per mile, 1.0 miles of gravel road were dragged and maintained at a cost of \$214.80 or an average of \$214.80 per mile. 103.5, the entire system, was maintained and dragged at a cost of \$8,376.17 or an average of \$80.90 per mile.

The total average expenditure per mile of county road was \$239.80. The total amount spent for tiling and drainage was \$5,042.54.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from 8 of the 11 townships was \$29,398.48.

### PAGE COUNTY.

#### Bridges.

The total expenditures for bridges and culvert work from county funds during 1921, were \$274,950.28 of which \$170,432.41 or 62.0% was spent for permanent bridges and culverts; \$7,718.25 or 2.8% for temporary bridges and culverts; \$32,185.89 or 11.7% for repairs, \$7,690.71 or 2.8% for culvert material for townships, \$2,460.33 or 0.9% for equipment and unused materials, \$35,004.31 or 12.7% for filling bridges and culverts, and \$19,458.58 or 7.1% for special cases.

Of the total amount \$178,150.66 spent for new bridges and culverts, \$170,432.41 or 95.7% was spent for permanent work and \$7,718.25 or 4.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$96,122.20; head walls and culverts lengthened \$11,875.47; concrete pipe, \$2,782.00; pony truss-concrete abutments \$62,003.54; corrugated pipe, \$1,942.32; wood trestle bridges \$978.93; and miscellaneous bridges and culverts \$2,446.20.

#### 1. Primary System.

The total expenditure was \$130,691.62, of which \$117,243.96 or 89.7% was spent for construction, and \$13,447.66 or 10.3% was for maintenance. 59.1 miles earth road, entire system, were maintained at a cost of \$13,447.66 or an average of \$227.55 per mile.

During the year 1921, 22.4 miles were built to a permanent grade. On January 1, 1922, the county had 36.6 miles of earth roads not built, 22.5 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$52,007.94, of which \$5,746.51 or 10.9% was spent for construction, \$24,792.97 or 46.8% for maintenance, and \$22,468.46 or 42.3% for special cases.

The total amount spent for equipment and tools was \$5,746.51.

123.71 miles earth road dragged and maintained at a cost of \$24,792.97 or an average of \$201.60 per mile, and 123.71 miles entire system were dragged and maintained at a cost of \$24,792.97, an average of \$201.60 per mile. The total average expenditure per mile of county road was \$428.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all of the townships was \$51,308.07.

**Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$70,277.63 of which \$56,607.34 or 80.6% was spent for permanent bridges and culverts; \$615.01 or 0.9% for temporary bridges and culverts; \$3,928.51 or 5.6% for repairs; \$3,945.02 or 5.6% for culvert material for townships; \$245.14 or 0.3% for equipment and unused materials; \$1,637.60 or 2.3% for filling bridges and culverts and \$2,399.06 or 4.7% for special cases.

Of the total amount \$57,222.35 spent for new bridges and culverts, \$56,607.34 or 98.9% was spent for permanent work and \$615.01 or 1.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$14,410.12; concrete slab bridges, \$6,926.40; I-beam spans-concrete abutments, \$10,637.80; pony truss-concrete abutments, \$25,233.52, and corrugated pipe, \$615.01.

**1. Primary System.**

The total expenditure was \$372,574.56 of which \$360,922.15 or 96.9% was spent for construction, \$7,396.08 or 2.0% for maintenance and \$4,256.33 or 1.1% for special cases.

26.7 miles of earth road were maintained at a cost of \$6,727.45 or an average of \$133.31 per mile, 1.2 miles of gravel road were maintained at a cost of \$116.50 or an average of \$97.08 per mile, 11.0 miles of paved road were maintained at a cost of \$552.12 or an average of \$50.19 per mile, and 48.9 miles, the entire system, were maintained as a cost of \$7,396.08 or an average of \$151.24 per mile.

During the year of 1921, 1.65 miles were built to permanent grade and 2.61 miles were paved. On January 1, 1922, the county had 5.6 miles of earth roads not built, 21.1 miles of earth road built to permanent grade; 1.2 miles surfaced with gravel and 11.0 miles paved.

**2. County Roads.**

The total county road expenditure was \$140,852.26 of which \$114,378.35 or 81.2% was spent for construction, \$13,316.50 or 9.5% for maintenance and \$13,157.41, or 9.3% for special cases.

4.93 miles were built to finished grade standard section at a cost of \$20,648.71 and 39.15 miles were surfaced with gravel at a cost of \$75,316.23. The total amount spent for tiling and drainage was \$8,874.91. The total amount spent for equipment and tools was \$144.50.

72.04 miles of earth road were dragged and maintained at a cost of \$10,337.71 or an average of \$143.60 per mile; 42.25 miles of gravel road were dragged and maintained at a cost of \$2,978.85 or an average of \$70.50 per mile; 114.29 miles, the entire system, was dragged and maintained at a cost of \$13,316.50 or an average of \$116.50 per mile.

The total average expenditure per mile of county road was \$1,232.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 7 of the 16 townships was \$26,143.68.

**PLYMOUTH COUNTY****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$131,285.77 of which \$41,509.81 or 31.6% was spent for permanent bridges and culverts, \$23,473.21 or 24.7% for temporary bridges and culverts, \$20,217.37 or 15.4% for repairs; \$6,064.15 or 4.6% for culvert material for townships; \$19,138.57 or 14.6% for equipment and unused materials; \$5,485.61 or 4.2% for filling bridges and culverts and \$6,397.05 or 4.9% for special cases.

Of the total amount, \$73,983.02, spent for new bridges and culverts, \$41,509.81 or 56.1% was spent for permanent work and \$32,473.21 or 43.9% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$41,509.81; corrugated pipe costing \$11,720.61; I-beam spans-piling abutments, \$4,510.80; pony truss on piling wood floor \$16,399.78 and wood trestle bridges \$848.02.

**1. Primary System.**

The total expenditure, including bridges paid for from primary funds, was \$171,949.98 of which \$136,145.66 or 79.2% was spent for construction; \$27,716.48 or 16.1% for maintenance and \$5,087.82 or 4.7% for special cases; \$53,360.98 was spent for bridges and culverts.

119.0 miles of earth road were maintained at a cost of \$27,716.48 or an average of \$232.91 per mile. This comprises the entire mileage of the primary road system in this county.

During the year 1921, 27.93 miles were built to permanent grade. On January 1, 1922, the county had 91.8 miles of earth roads not built and 27.2 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$84,018.00 of which \$44,186.76 or 52.6% was spent for construction; \$29,604.54 or 35.2% for maintenance and \$10,226.70 or 12.2% for special cases.

7.0 miles of road were built to finished grade standard section at a cost of \$34,273.12. The total amount spent for tiling and drainage was \$9,912.62.

116.0 miles of earth road were dragged and maintained at a cost of \$29,604.54 or an average of \$255.20. This comprises the entire mileage of county roads in this county. The total average expenditure per mile of county road was \$724.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 18 of the 24 townships was \$71,447.25.

## POCAHONTAS COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$114,606.97, of which \$87,348.21 or 76.7% was spent on permanent bridges and culverts; \$6,699.57 or 5.8% for temporary bridges and culverts; \$8,387.95 or 7.3% for repairs; \$2,072.04 or 1.9% for culvert material for township; \$3,367.62 or 2.9% for filling bridges and culverts and \$2,366.95 or 2.1% for special cases.

Of the total amount, \$94,547.75, spent for new bridges and culverts, \$87,848.21 or 92.9% was spent for permanent work and \$6,699.57 or 7.1% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$19,171.76; head walls and culverts lengthened, \$154.00; concrete slab bridges, \$795.00; concrete deck girders, \$306.50; I-beam spans-concrete abutments, \$24,939.45; pony truss-concrete abutments, \$41,979.50; corrugated pipe, \$3,222.46; wood trestle bridges, \$2,862.55 and miscellaneous temporary bridges and culverts, \$674.53.

## 1. Primary System.

The total expenditure was \$244,235.47 of which \$219,444.07 or 89.9% was spent for construction; \$24,195.52 or 9.9% for maintenance and \$595.88 or 0.2% for special cases; \$533.86 was spent on bridges and culverts.

11.6 miles of earth road were maintained at a cost of \$3,422.71 or an average of \$311.15 per mile; 53.6 miles of gravel road were maintained at a cost of \$19,918.95 or an average of \$371.62 per mile and 64.6 miles, the entire system, were maintained at a cost of \$23,341.66 or an average of \$361.31 per mile.

During the year 1921, 14.49 miles were built to permanent grade and 50.17 miles were surfaced with gravel. On January 1, 1922, the county had 1.0 miles of earth roads not built; 10.0 miles of earth road built to permanent grade and 53.6 miles surfaced with gravel.

## 2. County Roads.

The total county road expenditure was \$191,585.69 of which \$150,460.22 or 78.5% was spent for construction; \$28,268.81 or 14.7% for maintenance and \$12,916.66 or 6.8% for special cases.

12.5 miles were built to finished grade standard section at a cost of \$56,663.38 and 23.75 miles were surfaced with gravel at a cost of \$67,488.67. The total amount spent for tilling and drainage was \$24,210.27.

32.2 miles of earth road were dragged and maintained at a cost of \$3,672.16 or an average of \$114.10 per mile; \$6.95 miles of gravel road were maintained at a cost of \$24,536.63 or an average of \$282.30 per mile and 119.15 miles, the entire system, were dragged and maintained at a cost of \$28,268.81 or an average of \$236.60 per mile. The total average expenditure per mile of county road was \$1,605.90.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 19 townships was \$70,246.40.

## POLK COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$177,619.40 of which \$127,227.89 or 71.6% was spent for permanent bridges and culverts; \$5,029.15 or 2.8% for temporary bridges and culverts; \$17,042.55 or 9.6% for repairs; \$9,558.49 or 5.4%

for culvert material for townships; \$2,129.59 or 1.2% for equipment and unused materials; \$16,506.79 or 9.29% for filling bridges and culverts and \$125.00 or .07% for special cases.

Of the total amount, \$132,256.95, spent for new bridges and culverts, \$127,227.89 or 96.2% for permanent work and \$5,029.15 or 3.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$50,712.61; head walls and culverts lengthened \$12,648.19; concrete slab bridges \$5,993.00; concrete deck girders \$23,552.76; retaining walls, \$709.56; I-beam spans-concrete abutments \$10,928.46; pony truss-concrete abutments \$5,749.22; high steel trusses-concrete abutments \$16,822.00 and corrugated pipe \$5,029.15.

## 1. Primary Systems.

The total expenditure was \$626,318.58 of which \$588,883.63 or 94.0% was spent for construction; \$35,619.27 or 5.7% for maintenance and \$1,816.68 or 0.3% for special cases.

31.9 miles of earth road were maintained at a cost of \$15,960.73 or an average of \$500.33 per mile; 33.9 miles of gravel road were maintained at a cost of \$16,912.77 or an average of \$472.35 per mile and 25.3 miles of paved roads were maintained at a cost of \$3,945.77 or an average of \$50.19 per mile; 91.1 miles, the entire system, were maintained at a cost of \$35,619.27 or an average of \$390.38 per mile.

During the year 1921, 18.62 miles were built to permanent grade, 6.33 miles were surfaced with gravel and 13.06 miles were paved. On January 1, 1922, the county had 11.2 miles of earth roads not built; 20.7 miles of earth road built to permanent grade, 33.9 miles surfaced with gravel and 25.3 miles paved.

## 2. County Roads.

The total county road expenditure was \$210,589.58, of which \$150,600.40 or 71.5% was spent for construction; \$43,010.79 or 20.4% for maintenance and \$16,978.39 or 8.1% for special cases.

20.8 miles were built to finished grade standard section at a cost of \$71,202.74 and 21.0 miles were surfaced with gravel at a cost of \$58,774.04. The total amount spent for tilling and drainage was \$20,623.82.

94.2 miles of earth road were dragged and maintained at a cost of \$30,034.55 or an average of \$318.30 per mile; 44.10 miles of gravel road were dragged and maintained at a cost of \$12,763.03 or an average of \$289.50 per mile; 5.0 miles of paved road were maintained at a cost of \$213.21 or an average of \$426.40 per mile; 138.8 miles, the entire system, were dragged and maintained at a cost of \$43,010.79 or an average of \$309.70 per mile. The total expenditure per mile of county road was \$1,517.99.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 18 of the 19 townships was \$69,246.74.

## POTTAWATTAMIE COUNTY

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$269,384.36, of which \$70,593.77 or 26.2% was spent for permanent bridges and culverts; \$81,992.51 or 30.1% for temporary bridges and culverts; \$16,861.27 or 6.1% for repairs; \$4,995.88 or 1.8% for culvert material for townships; \$15,792.29 or 5.8% for equipment and unused materials; \$5,218.07 or 1.9% for filling bridges and culverts and \$14,120.57 or 5.2% for special cases.



Of the total amount \$152,496.28, spent for new bridges and culverts, \$70,503.77 or 46.2% was spent for permanent work and \$81,992.51 or 53.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$56,975.81; head walls and culverts lengthened, \$6,599.85; concrete pipe \$96.25; corrugated pipe \$1,217.09; I-beam spans, piling abutments \$15,591.92; pony truss on piling wood floor \$12,508.17; high steel trusses concrete abutments \$12,928.11; wood trestle bridges \$51,839.04 and miscellaneous temporary bridges and culverts, \$740.04.

### 1. Primary System.

The total expenditure was \$87,356.13 of which \$13,098.41 or 15.02% was spent for construction; \$73,475.78 or 84.2% for maintenance and \$681.94 or 0.78% for special cases.

143.0 miles of earth road were maintained at a cost of \$73,475.78 or an average of \$513.82 per mile; 2.5 miles of gravel road were maintained without cost; 1.1 miles paved road was maintained without cost and 146.9 miles, the entire system, were maintained at a cost of \$73,475.78 or an average of \$500.16 per mile.

During the year 1921, .18 mile was built to permanent grade. On January 1, 1922, the county had 138.9 miles of earth roads not built, 4.1 miles of earth road built to permanent grade, 2.8 miles surfaced with gravel and 1.1 miles paved.

### 2. County Roads.

The total county road expenditure was \$54,634.57 of which \$52,620.87 or 96.3% was spent for maintenance and \$2,013.70 or 3.7% for special cases.

146.72 miles of earth road were dragged and maintained at a cost of \$52,620.87 or an average of \$358.60 per mile; .02 mile paved road was maintained without cost and 146.74 miles, the entire system, were dragged and maintained at a cost of \$52,620.87 or an average of \$358.60 per mile. The total average expenditure per mile of county road was \$372.30.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 15 of the 28 townships was \$69,842.26.

## POWESHIEK COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$93,778.31 of which \$48,390.95 or 51.6% was spent for permanent bridges and culverts; \$2,164.40 or 2.31% for temporary bridges and culverts; \$29,622.01 or 31.6% for repairs; \$10,983.70 or 10.7% for culvert material for townships; \$849.91 or 0.9% for equipment and unused materials; \$1,771.87 or 1.88% for filling bridges and culverts and \$896.37 or 0.96% for special cases.

Of the total amount, \$50,555.35, spent for new bridges and culverts, \$48,390.95 or 96.7% was spent for permanent work; \$2,164.40 or 4.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$25,558.55; I-beam spans-concrete abutments, \$1,938.00; high steel trusses-concrete abutments, \$20,893.97, and corrugated pipe, \$2,164.40.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$102,822.05 of which \$95,678.69 or 93.4% was spent for construction; \$11,154.81 or 10.7% for maintenance and \$2,988.55 or 2.9% for special cases; \$22,756.37 was spent for bridges and culverts.

67.0 miles of earth road, the entire system, were maintained at a cost of \$11,154.81 or an average of \$166.48 per mile.

During the year 1921, 15.92 miles were built to permanent grade. On January 1, 1922, the county had 56.7 miles of earth roads not built and 16.3 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$44,953.22 of which \$1,172.05 or 2.6% was spent for construction; \$38,306.14 or 85.2% for maintenance and \$5,475.00 or 12.1% for special cases.

The total amount spent for tiling and drainage was \$1,172.05. 91.9 miles of earth road, the entire system, were dragged and maintained at a cost of \$38,306.14 or an average of \$417.56 per mile. The total average expenditure per mile of county road was \$493.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 13 of the 16 townships was \$56,092.48.

## RINGGOLD COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$67,690.57 of which \$2,259.48 or 3.3% was spent for permanent bridges and culverts; \$11,693.75 or 17.2% for temporary bridges and culverts; \$29,490.10 or 43.6% for repairs; \$4,514.85 or 6.6% for culvert material for townships; \$15,006.69 or 22.3% for equipment and unused materials; \$2,981.17 or 4.4% for filling bridges and culverts, and \$1,744.53 or 2.6% for special cases.

Of the total amount, \$12,953.23, spent for new bridges and culverts, \$2,259.48 or 16.3% was spent for permanent work, and \$11,693.75 or 83.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$2,259.48; concrete pipe, \$2,115.45; corrugated pipe, \$2,227.50; wood truss bridges, \$7,340.80.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$62,937.28 of which \$48,945.66 or 77.9% was spent for construction; \$14,572.27 or 22.8% for maintenance, and \$466.35 or 0.7% for special cases. \$6,936.40 was spent on bridges and culverts.

52.1 miles of earth road, the entire system, were maintained at a cost of \$14,572.27 or an average of \$279.70 per mile.

During the year of 1921, 1.97 miles were built to permanent grade. On January 1, 1922, the county had 39.7 miles of earth roads not built, and 12.4 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$29,611.81 of which \$25,449.29 or 86.1% was spent for maintenance, and \$4,162.52 or 13.9% for special cases.

139.55 miles of earth road were dragged and maintained at a cost of \$25,449.29 or an average of \$203.50 per mile. This comprises the entire

system. The total average expenditure per mile of county road was \$211.60.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 6 of the 16 townships was \$32,426.41.

## SAC COUNTY

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921 were \$34,234.09 of which \$61,764.54 or 73.3% was spent for permanent bridges and culverts; \$1,506.79 or 1.8% for temporary bridges and culverts; \$4,467.06 or 5.3% for repairs; \$4,654.28 or 5.6% for culvert materials for townships; \$2,005.27 or 2.4% for equipment and unused materials; \$1,351.34 or 1.6% for filling bridges and culverts and \$5,494.30 or 10.1% for special cases.

Of the total amount, \$42,271.25 spent for new bridges and culverts, \$61,764.54 or 97.6% was spent for permanent work and \$1,506.79 or 2.4% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$25,232.62; head walls and culverts lengthened \$241.65; I-beam spans concrete abutments \$12,310.63; pony truss-concrete abutments \$24,979.25; corrugated pipe \$140.12; I-beam spans-piling abutments, \$1,167.30 and wood trestle bridges \$199.37.

### 1. Primary System.

The total expenditure was \$172,119.40 of which \$127,521.58 or 74.1% was spent for construction; \$44,264.22 or 25.7% for maintenance and \$331.60 or .02% for special cases.

25.3 miles of earth road were maintained at a cost of \$5,907.16 or an average of \$352.06 per mile; 66.8 miles of gravel road were maintained at a cost of \$35,357.06 or an average of \$529.30 per mile, and 92.1 miles of road, the entire system, were maintained at a cost of \$44,264.22 or an average of \$480.60 per mile.

During the year 1921, 24.03 miles were surfaced with gravel. On January 1, 1922, the county had 35.3 miles of earth road built to permanent grade and 66.8 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$51,779.19 of which \$32,869.06 or 63.4% was spent for construction; \$17,979.48 or 34.8% for maintenance and \$920.65 or 1.8% for special cases.

16.06 miles of road were surfaced with gravel at a cost of \$32,793.24. The total amount spent for tilling and drainage was \$69.82.

16.36 miles of earth road were dragged and maintained at a cost of \$5,951.67 or an average of \$376.20 per mile; 42.86 miles of gravel road were dragged and maintained at a cost of \$12,937.81 or an average of \$299.70 per mile and 58.72 miles, the entire system, were dragged and maintained at a cost of \$17,979.48 or an average of \$306.30 per mile. The total average expenditure per mile of county road was \$552.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships was \$37,462.60.

## SCOTT COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$88,019.09 of which \$4,731.23 or 5.4% was spent for permanent bridges and culverts; \$6,032.81 or 6.9% for temporary bridges and culverts; \$2,144.32 or 2.4% for repairs; \$2,044.08 or 2.4% for culvert material for townships; \$4,481.56 or 5.1% for equipment and unused materials; \$2,021.70 or 2.3% for filling bridges and culverts; and, \$1,489.45 or 1.7% for special cases.

Of the total amount \$76,815.94 spent for new bridges and culverts, \$64,731.23 or 84.4% for permanent work, and \$6,032.81 or 7.9% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, \$39,761.81; head walls and culverts lengthened, \$1,163.50; concrete slab bridges, \$6,340.98; concrete arch bridges \$5,615.50; I-beam spans-concrete abutments \$5,766.89; pony truss-concrete abutments \$141.45; and corrugated pipe \$6,032.81.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$970,882.38, of which \$959,024.92 or 98.8% was spent for construction; \$9,840.75 or 1.0% for maintenance; and, \$2,017.71 or 0.2% for special cases. \$21,527.77 was spent for bridges and culverts.

41.2 miles of earth road were maintained at a cost of \$5,588.02 or an average of \$87.09 per mile. 14.4 miles of gravel road were maintained at a cost of \$4,518.10 or an average of \$313.76 per mile. 16.5 miles paved road were maintained at a cost of \$1,734.63 or an average of \$105.13 per mile. 72.1 miles of the entire system were maintained at a cost of \$9,840.75 or an average of \$136.48 per mile.

During the year 1921, 22.20 miles were built to permanent grade and 16.62 miles were paved. On January 1, 1922, the county had 4.3 miles of earth roads not built, 36.9 miles of earth road built to permanent grade, 14.4 miles surfaced with gravel, and 16.5 miles paved.

### 2. County Roads.

The total county road expenditure was \$53,724.55, of which \$17,506.77 or 32.6% was spent for construction; \$24,658.08 or 45.9% for maintenance; and \$11,559.70 or 21.5% for special cases.

5.91 miles were built to finished grade standard section at a cost of \$12,776.22.

The total amount spent for tilling and drainage \$4,736.54. 65.43 miles of earth road were dragged and maintained at a cost of \$9,296.81 or an average of \$142.60 per mile. 15.40 miles gravel road were dragged and maintained at a cost of \$15,261.27 or an average of \$991.69 per mile. 80.83 miles of the entire system were dragged and maintained at a cost of \$24,658.08 or an average of \$305.00 per mile. The total average expenditure per mile of county road was \$366.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from all townships was \$52,862.97.

## SHELBY COUNTY

### Bridges.

The total expenditures from county funds for bridges and culverts during 1921, were \$122,832.26 of which \$54,681.15 or 44.5% was spent for

permanent bridges and culverts; \$42,374.50 or 32.0% for temporary bridges and culverts; \$13,475.95 or 10.2% for repairs; \$5,529.40 or 4.4% for culvert material for townships; \$2,732.54 or 2.1% for equipment and unused materials; \$1,980.85 or 1.5% for filling bridges and culverts and \$6,746.83 or 5.0% for special cases.

Of the total amount, \$95,055.65 spent for new bridges and culverts, \$56,681.15 or 57.2% was spent for permanent work and \$42,374.50 or 42.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing, \$21,349.22; head walls and culverts lengthened, \$2,597.00; concrete slab bridges, \$8,760.27; concrete arch bridges, \$1,537.55; concrete deck girders, \$24.36; pony truss, concrete abutments, \$21,562.72; corrugated pipe, \$1,836.10; I-beam span, piling abutments, \$27,529.57 and wood trestle bridges, \$13,017.83.

#### 1. Primary System.

The total expenditure, including bridges and culverts paid for from primary funds, was \$206,541.22 of which \$189,978.85 or 91.60% was spent for construction; \$16,796.84 or 8.13% for maintenance and \$970.66 or 0.27% for special cases. \$40,205.81 was spent for bridges and culverts.

50.6 miles earth road, the entire system, were maintained at a cost of \$16,796.84 or an average of \$331.35 per mile.

During the year 1921, 14.38 miles were built to permanent grade. On January 1, 1922, the county had 30.8 miles of earth roads not built and 19.8 miles of earth road built to permanent grade.

#### 2. County Roads.

The total county road expenditure was \$45,234.18 of which \$6,097.20 or 14.8% was spent for construction; \$29,385.35 or 65.0% for maintenance and \$9,151.63 or 20.2% for special cases.

.53 of a mile was built to finished grade, standard section, at a cost of \$2,636.30. The total amount spent for tiling and drainage was \$4,061.30.

107.15 miles earth road, the entire system, were dragged and maintained at a cost of \$29,385.35 or an average of \$274.20 per mile. The total average expenditure per mile of county road was \$422.20.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$76,675.96.

#### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$67,670.05, of which \$31,393.86 or 46.4% was spent for permanent bridges and culverts; \$17,047.03 or 25.2% for temporary bridges and culverts; \$6,848.00 or 10.1% for repairs; \$8,995.16 or 13.3% for culvert material for townships; \$2,549.47 or 3.8% for equipment and unused materials; \$519.40 or 0.77% for filling bridges and culverts and \$1,217.23 or 1.8% for special cases.

Of the total amount, \$48,440.89 spent for new bridges and culverts, \$21,393.86 or 44.8% was spent for permanent work and \$17,047.03 or 35.2% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$10,979.22; head walls and culverts lengthened, \$1,982.74; concrete slab bridges, \$2,251.96; concrete deck girders, \$4,022.39;

I-beam spans, concrete abutments, \$3,956.74; concrete pipe, \$277.60; pony truss, concrete abutments, \$6,778.20; corrugated pipe, \$2,943.69; wood trestle bridges, \$12,888.12 and miscellaneous bridges and culverts, \$1,410.90.

#### 1. Primary System.

The total expenditure was \$23,559.79 of which \$20,106.83 or 85.03% was spent for construction; \$10,512.83 or 45.6% for maintenance and \$946.13 or 0.14% for special cases.

69.2 miles earth road were maintained at a cost of \$10,399.92 or an average of \$150.29 per mile; 4.5 miles paved road were maintained at a cost of \$112.91 or an average of \$25.09 per mile. 73.7 miles, the entire system, were maintained at a cost of \$10,512.83 or an average of \$142.63 per mile.

During the year 1921, 11.27 miles were built to permanent grade and 3.23 miles were paved. On January 1, 1922, the county had 38.6 miles of earth roads not built; 30.6 miles of earth road built to permanent grade and 4.5 miles paved.

#### 2. County Roads.

The total county road expenditure was \$60,822.30 of which \$25,701.32 or 42.2% was spent for construction; \$19,772.12 or 32.5% for maintenance and \$15,348.86 or 25.3% for special cases.

.5 of a mile was built to finished grade, standard section, at a cost of \$1,059.00, and 7.0 miles were surfaced with gravel at a cost of \$22,425.71. The total amount spent for tiling and drainage was \$2,216.61.

168.25 miles earth road were dragged and maintained at a cost of \$19,171.60 or an average of \$113.90 per mile; 7.00 miles gravel road were dragged and maintained at a cost of \$609.52 or an average of \$85.88 per mile. The total average expenditure per mile of county road was \$347.00.

#### 3. Township Roads.

The total expenditure on township roads as shown by reports from all of the townships, was \$75,339.65.

#### STORY COUNTY.

#### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$75,940.72 of which \$54,867.52 or 72.2% was spent for permanent bridges and culverts; \$12,765.79 or 16.8% for repairs; \$2,294.00 or 3.03% for culvert material for townships; \$361.50 or 0.47% for filling bridges and culverts, and \$5,661.91 or 7.5% for special cases.

Of the total amount, \$54,867.52 spent for new bridges and culverts, \$54,867.52 or 100.0% was spent for permanent work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$7,306.13; I-beam spans, concrete abutments, \$10,166.78; steel concrete abutments, \$12,928.80 and high steel trusses, concrete abutments, \$23,465.81.

#### 1. Primary System.

The total expenditure, including bridges and culverts paid for from primary funds, was \$149,825.59 of which \$95,608.36 or 64.50% was spent for construction; \$50,192.24 or 33.4% for maintenance and \$2,449 or 0.92% for special cases. \$14,312.40 was spent on bridges and culverts.

29.8 miles earth road were maintained at a cost of \$15,157.10 or an average of \$508.71 per mile; 43.6 miles gravel road were maintained at a cost of \$35,035.14 or an average of \$803.55 per mile. 64.4 miles, the entire



system, were maintained at a cost of \$50,192.24 or an average of \$779.37 per mile.

During the year 1921, 2.68 miles were built to permanent grade and 8.15 miles were surfaced with gravel. On January 1, 1922, the county had 6.7 miles of earth roads not built; 14.1 miles of earth road built to permanent grade and 43.6 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$168,260.95 of which \$131,358.46 or 78.1% was spent for construction; \$24,999.66 or 14.8% for maintenance and \$2,902.83 or 1.6% for special cases.

21.5 miles were surfaced with gravel at a cost of \$56,415.29. The total amount spent for tiling and drainage was \$74,152.65 and the total amount spent for equipment and tools was \$789.52.

57.25 miles earth road were dragged and maintained at a cost of \$18,564.26 or an average of \$324.30 per mile; 75.25 miles gravel road were dragged and maintained at a cost of \$15,524.40 or an average of \$206.29 per mile; 132.5 miles, the entire system, were dragged and maintained at a cost of \$34,090.66 or an average of \$257.20 per mile. The total average expenditure per mile of county road was \$1,269.09.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 16 townships was \$78,482.89.

## TAMA COUNTY.

### Bridges.

The total expenditures from county funds, for bridge and culvert work during 1921, were \$129,266.95 of which \$74,548.61 or 57.7% was spent for permanent bridges and culverts; \$12,717.78 or 9.8% was spent for temporary bridges and culverts; \$26,145.11 or 20.2% for repairs; \$5,392.97 or 4.2% for culvert material for townships; \$2,332.98 or 1.8% for equipment and unused materials; \$1,679.60 or 1.3% for filling bridges and culverts and \$6,450.80 or 5.0% for special cases.

Of the total amount, \$87,266.39 spent for new bridges and culverts, \$74,548.61 or 85.4% was spent for permanent work and \$12,717.78 or 14.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$42,385.86; head walls and culverts lengthened, \$6,529.62; retaining walls, \$389.80; I-beam spans, concrete abutments, \$4,190.16; pony truss, concrete abutments, \$20,652.17; corrugated pipe, \$2,976.69; wood trestle bridges, \$9,226.13 and miscellaneous temporary bridges and culverts, \$629.96.

### 1. Primary System.

The total expenditure, including bridges and culverts paid for from primary funds, was \$127,153.07 of which \$109,159.14 or 85.9% was spent for construction; \$17,849.43 or 14.0% for maintenance and \$14.50 or 0.09% for special cases. \$39,031.79 was spent for bridges and culverts.

70.9 miles earth road, the entire system, were maintained at a cost of \$17,849.43 or an average of \$254.99 per mile.

During the year 1921, 14.77 miles were built to permanent grade. On January 1, 1922, the county had 44.1 miles of earth roads not built and 25.9 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$60,156.89 of which \$1,119.80 or 1.9% was spent for construction; \$41,208.09 or 68.5% for maintenance and \$17,829.00 or 29.6% for special cases.

140 miles earth road, the entire system, were dragged and maintained at a cost of \$41,208.09 or an average of \$294.39 per mile. The total average expenditure per mile of county road was \$420.00. The total amount spent for tiling and drainage was \$1,119.80.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 19 of the 21 townships, was \$79,372.92.

## TAYLOR COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$81,480.17 of which \$29,642.86 or 36.4% was spent for permanent bridges and culverts; \$7,328.46 or 9.0% for temporary bridges and culverts; \$17,194.40 or 21.1% for repairs; \$1,424.12 or 1.7% for culvert material for townships; \$11,953.03 or 14.7% for equipment and unused materials; \$13,067.97 or 16.0% for filling bridges and culverts; and \$869.33 or 1.1% for special cases.

Of the total amount \$36,981.32 spent for new bridges and culverts, \$29,642.86 or 80.3% was spent for permanent work and \$7,338.46 or 19.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$29,642.86; concrete pipe, \$72.08; wood trestle bridges \$7,360.38.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds was \$57,701.96, of which \$42,578.44 or 73.8% was spent for construction and \$15,123.52 or 26.2% was spent for maintenance. \$15,577.90 was spent for bridges and culverts.

49.2 miles earth road were maintained at a cost of \$15,123.52 or an average of \$307.39 per mile.

During the year 1921, 5.59 miles were built to a permanent grade.

On January 1, 1922, the county had 43.9 miles of earth roads not built and 5.3 miles of earth road built to a permanent grade.

### 2. County Roads.

The total county road expenditure was \$29,282.12 of which \$1,141.60 or 3.9% was spent for construction; \$19,039.68 or 65.1% for maintenance and \$9,100.84 or 31.0% for special cases.

.62 of a mile was built to a finished grade standard section at a cost of \$1,141.60.

127.0 miles earth road were dragged and maintained at a cost of \$19,039.68 or an average of \$138.90 per mile.

The total average expenditure per mile of county road was \$213.90.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 17 townships was \$47,164.78.

## UNION COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$80,836.55 of which \$46,626.02 or 57.7% was spent for permanent bridges and culverts; \$10,875.64 or 13.4% for temporary bridges and culverts; \$3,001.89 or 3.7% for repairs; \$7,264.86 or 9.0% for culvert material for townships; \$483.33 or 0.59% for equipment and unused materials and \$8.10, or .01% for filling bridges and culverts, and \$12,577.05 or 15.6% for special cases.

Of the total amount \$57,501.66 spent for new bridges and culverts, \$46,626.02 or 81.1% was spent for permanent work and \$10,875.64 or 18.9% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$19,366.30; head walls and culverts lengthened \$1,317.68; concrete pipe \$4,295.10; corrugated pipe \$838.00; I-beam spans-concrete abutments \$4,555.15; steel concrete abutments \$1,712.09; pony truss-concrete abutments \$17,363.90; I-beam spans piling abutments \$976.80; pony truss on piling—wood floor \$2,116.00; miscellaneous bridges and culverts, \$4,967.54.

## 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$146,877.28 of which \$123,631.40 or 84.4% was spent for construction and \$23,745.88 or 15.6% for maintenance. \$31,551.44 was expended for bridges and culverts.

52.7 miles of earth road were maintained at a cost of \$22,745.88 or an average of \$431.61 per mile. This covers the entire system.

During the year of 1921, 14.5 miles were built to permanent grade. On January 1, 1922, the county had 37.0 miles of earth roads not built and 15.7 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$34,297.60 of which \$32,093.78 or 93.6% was spent for maintenance and \$2,203.82 or 6.4% for special cases.

104.0 miles of earth road were dragged and maintained at a cost of \$32,093.78 or an average of \$308.50 per mile. This covers the entire system.

The total average expenditure per mile of county road was \$329.50.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 12 of the 12 townships was \$38,243.26.

## VAN BUREN COUNTY.

## Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$18,222.29 of which \$2,189.46 or 12.0% was spent for permanent bridges and culverts; \$790.40 or 4.4% for temporary bridges and culverts and \$7,920.53 or 43.4% for repairs; \$900.00 or 4.9% for culvert material for townships; \$2,167.00 or 11.9% for equipment and unused materials; \$222.55 or 1.2% for filling bridges and culverts and \$3,940.29 or 21.6% for special cases.

Of the total amount \$2,970.86 spent for new bridges and culverts \$2,189.46 or 73.4% was spent for permanent work and \$790.40 or 26.6% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$2,078.46; retaining walls \$102.00 and miscellaneous temporary bridges and culverts \$790.40.

## 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$41,934.18 of which \$29,721.01 or 70.8% was spent for construction and \$12,213.17 or 29.2% for maintenance. \$10,184.02 was spent for bridges and culverts.

49.0 miles of earth road were maintained at a cost of \$10,679.79 or an average of \$217.74 per mile. This comprises the entire system.

During the year of 1921, 2.69 miles of road were built to permanent grade.

On January 1, 1922, the county had 36.4 miles of earth roads not built and 9.6 miles of earth road built to permanent grade.

## 2. County Roads.

The total county road expenditure was \$20,441.94 of which \$19,883.94 or 97.3% was spent for maintenance and \$558.00 or 2.7% was spent for special cases.

98.75 miles of earth road were dragged and maintained at a cost of \$19,883.94 or an average of \$201.30 per mile. This comprises the entire system.

The total average expenditure, per mile of county road was \$207.00.

## 3. Township Roads.

The total expenditure on township roads as shown by reports from 12 of the 14 townships was \$27,867.35.

## WAPELLO COUNTY.

## Bridges.

The total expenditure for bridges and culvert work, during 1921, were \$46,753.38 of which \$28,810.77 or 61.6% was spent for permanent bridges and culverts; \$2,260.65 or 4.8% for temporary bridges and culverts; \$7,510.41 or 16.3% for repairs, \$4,896.98 or 10.5% for culvert material for townships; \$2,099.78 or 4.5% for equipment and unused materials; \$91.04 or 0.19% for filling bridges and culverts and \$1,683.77 or 3.6% for special cases.

Of the total amount \$31,071.42 spent for new bridges and culverts, \$28,810.77 or 92.7% was spent for permanent work and \$2,260.65 or 7.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$6,614.15; head walls and culverts lengthened \$3,748.48; retaining walls \$761.99; I-beam spans-concrete abutments \$696.73; pony truss-concrete abutments \$16,889.50; corrugated pipe \$173.40; wood trestle bridges \$1,989.65; miscellaneous temporary bridges and culverts \$93.60.

## 1. Primary System.

The total expenditure was \$56,638.62 of which \$39,419.20 or 69.6% was spent for construction and \$17,219.42 or 30.4% was spent for maintenance.

43.6 miles of earth road were maintained at a cost of \$17,219.42 or an average of \$394.94 per mile. This comprises the entire system.

During the year 1921, 1.85 miles were built to permanent grade. On January 1, 1922, the county had 35.4 miles of earth roads not built and 10.2 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$23,452.73 of which \$2,645.32 or 11.3% was spent for construction and \$17,005.21 or 72.4% for maintenance. \$3,822.70 or 16.3% was spent for special cases.

Total amount spent for filling and drainage \$2,645.32.

100.25 miles of earth road were dragged and maintained at a cost of \$17,005.21 or an average of \$170.00 per mile. This comprises the entire system.

The total average expenditure per mile of county road was \$234.80.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from all of the townships was \$49,200.61.

**WARREN COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$97,899.25 of which \$23,798.40 or 24.3% was spent for permanent bridges and culverts; \$9,041.22 or 9.2% for temporary bridges and culverts; \$13,281.63 or 13.6% for repairs; \$4,275.57 or 4.4% for culvert material for townships; \$3,902.89 or 4.0% for equipment and unused materials; \$10,718.87 or 10.9% for filling bridges and culverts and \$32,880.67 or 33.6% for special cases.

Of the total amount \$32,839.62, spent for new bridges and culverts, \$23,798.40 or 72.5% was spent for permanent work and \$9,041.22 or 27.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$23,798.40; concrete pipe, \$118.00; corrugated pipe, \$455.52; wood trestle bridges, \$7,029.88 and miscellaneous temporary bridges and culverts, \$1,439.82.

**1. Primary System.**

The total expenditure, including bridges paid for from primary funds, was \$94,740.80 of which \$70,362.79 or 74.2% was spent for construction; \$23,798.40 or 25.1% for maintenance and \$583.73 or 0.6% for special cases. \$22,165.57 was spent for bridges and culverts.

55.0 miles of earth road were maintained at a cost of \$23,794.28 or an average of \$286.68 per mile, and 83.0 miles, the entire system, were maintained at a cost of \$23,794.28 or an average of \$286.68 per mile.

During the year 1921, 11.7 miles were built to permanent grade. On January 1, 1922, the county had 74.3 miles of earth roads not built and 8.7 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$51,552.84 of which \$32.25 or 0.01% was spent for construction; \$15,614.36 or 30.09% for maintenance and \$32,855.23 or 63.9% for special cases. Amount spent for filling and drainage, \$83.25.

32.25 miles of earth road were maintained at a cost of \$15,614.36 or an average of \$201.80, and 92.25 miles, the entire system, were maintained at a cost of \$15,614.36 or an average of \$201.80 per mile. The total average expenditure per mile of county road was \$558.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 13 of 16 townships was \$41,357.71.

**WASHINGTON COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$75,323.31 of which \$31,890.60 or 42.1% was spent for permanent bridges and culverts; \$1,499.14 or 2.0% for temporary bridges and culverts; \$27,663.44 or 36.5% for repairs; \$2,797.86 or 3.7% for culvert material for townships; \$2,228.55 or 2.9% for equipment and unused materials; \$2,045.60 or 2.7% for filling bridges and culverts, and \$7,698.12 or 10.1% for special cases.

Of the total amount, \$32,389.74 spent for new bridges and culverts, \$31,890.60 or 95.5% was spent for permanent work, and \$1,499.14 or 4.5% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$24,292.25; head walls and culverts lengthened, \$996.45; I-beam spans-concrete abutments, \$6,601.90; corrugated pipe, \$1,049.60 and wood trestle bridges, \$449.54.

**1. Primary System.**

The total expenditure, including bridges paid for from primary funds, was \$78,215.44 of which \$53,072.02 or 67.9% was spent for construction and \$25,143.42 or 32.1% for maintenance. \$15,827.80 was spent for bridge and culverts.

90.0 miles of earth road, the entire system, were maintained at a cost of \$25,143.42 or an average of \$279.39 per mile.

During the year 1921, 14.87 miles were built to permanent grade. On January 1, 1922, the county had 72.9 miles of earth roads not built, and 17.1 miles of earth road built to permanent grade.

**2. County Roads.**

The total county road expenditure was \$29,642.50 of which \$212.53 or 0.7% was spent for construction, \$21,183.09 or 71.5% for maintenance and \$8,246.88 or 27.8% for special cases. Total amount spent for filling and drainage, \$212.53.

110.0 miles of earth road, the entire system, were dragged and maintained at a cost of \$21,183.09 or an average of \$192.60 per mile. The total average expenditure per mile of county road was \$269.00.

**3. Township Roads.**

The total expenditure on township roads as shown by reports from 8 of the 15 townships was \$46,113.61.

**WAYNE COUNTY.****Bridges.**

The total expenditures from county funds for bridge and culvert work during 1921, were \$69,851.20 of which \$39,678.73 or 56.8% was spent for permanent bridges and culverts; \$5,568.04 or 12.3% for temporary bridges and culverts; \$7,637.43 or 10.9% for repairs; \$5,585.00 or 12.3% for culvert material for townships; \$4,273.12 or 6.1% for equipment and unused materials; \$693.52 or 0.8% for filling bridges and culverts; and \$502.06 or 0.7% for special cases.

Of the total amount \$48,246.77 spent for new bridges and culverts, \$39,678.73 or 82.2% was spent for permanent work and \$8,568.04 or 17.8% for temporary work.

The amounts last above referred to were spent on the following construction:



Concrete culverts, costing \$22,708.41; head walls and culverts lengthened, \$1,286.26; I-beam spans concrete abutments, \$5,684.07; concrete pipe, \$1,654.36; corrugated pipe, \$1,411.21 and wood trestle bridges, \$5,502.47.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$76,509.54 of which \$62,957.07 or 81.1% was spent for construction and \$14,452.77 or 18.9% for maintenance. \$6,750.00 was spent on bridges.

63.0 miles of earth road were maintained at a cost of \$14,452.77 or an average of \$229.41 per mile. 63.0 miles of earth road, the entire system, were maintained at a cost of \$14,452.77 or an average of \$229.41 per mile.

During the year 1921, 10.52 miles were built to permanent grade. On January 1, 1922, the county had 51.7 miles of earth road not built, and 11.3 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$28,307.22 of which \$3,782.24 or 13.4% was spent for construction; \$17,460.27 or 61.7% for maintenance, and \$7,064.71 or 24.9% for special cases. 1.5 miles were built to finished grade at a cost of \$3,782.24.

116.5 miles of earth road, the entire system, were dragged and maintained at a cost of \$17,460.27 or an average of \$149.80 per mile. The total average expenditure per mile of county road was \$243.90.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 16 of the 16 townships was \$34,760.66.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$47,140.84 of which \$18,712.18 or 39.7% was spent for permanent bridges and culverts; \$1,186.78 or 2.53% for temporary bridges and culverts; \$16,613.85 or 35.2% for repairs; \$6,270.04 or 13.3% for culvert material for townships; \$441.21 or 0.93% for equipment and unused materials; \$1,830.70 or 3.92% for filling bridges and culverts, and \$2,986.98 or 6.34% for special cases.

Of the total amount \$19,898.95 spent for new bridges and culverts, \$18,712.18 or 94.0% was spent for permanent work and \$1,186.78 or 6.0% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$7,597.56; head walls and culverts lengthened, \$456.23; concrete slab bridges, \$2,702.44; pony truss-concrete abutments, \$7,355.85, and corrugated pipe, \$1,186.78.

### 1. Primary System.

The total expenditure, was \$207,957.22 of which \$159,025.92 or 76.4% was spent on construction; \$47,834.19 or 23.0% on maintenance and \$1,097.03 or 0.53% on special cases.

43.1 miles of earth road were maintained at a cost of \$16,635.90 or an average of \$387.14 per mile. 41.4 miles of gravel road were maintained at a cost of \$31,148.29 or an average of \$752.37 per mile, and 84.5 miles, the entire system, were maintained at a cost of \$47,834.19 or an average of \$566.07 per mile.

During the year 1921, 10.22 miles were built to permanent grade and 15.53 miles were surfaced with gravel. On January 1, 1922, the county

had 22.6 miles of earth roads not built; 20.5 miles of earth road built to permanent grade and 41.4 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$51,469.92 of which \$56,042.41 or 88.8% was spent for construction, \$24,616.32 or 36.2% for maintenance and \$809.69 or 1.6% for special cases. 9.5 miles were built to finished grade at a cost of \$7,927.45, 8.5 miles were surfaced with gravel at a cost of \$11,944.64, total amount spent for tiling and drainage, \$16,851.58, and total amount spent for equipment and tools, \$319.74.

94.75 miles of earth road were dragged and maintained at a cost of \$23,489.79 or an average of \$248.98 per mile. 8.50 miles of gravel road were dragged and maintained at a cost of \$1,029.05 or an average of \$120.80 per mile, and 103.25 miles, entire system, were dragged and maintained at a cost of \$24,616.32 or an average of \$238.30 per mile. The total average expenditure per mile of county road was \$788.70.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 21 of the 22 townships was \$102,747.21.

## WINNEBAGO COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$11,121.65 of which \$5,777.34 or 51.9% was spent for permanent bridges and culverts; \$524.50 or 4.7% for temporary bridges and culverts; \$928.63 or 8.4% repairs; \$2,823.74 or 25.4% for culvert material for townships; \$549.94 or 5.0% for equipment and unused materials; and, \$517.50 or 4.7% for filling bridges and culverts.

Of the total amount \$6,301.84 spent for new bridges and culverts, \$5,777.34 or 91.7% for permanent work and \$524.50 or 8.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts \$3,425.04; concrete slab bridges \$1,047.05; concrete abutments \$1,241.25; wood truss bridges \$27.00; concrete pipe \$497.50; and, miscellaneous permanent bridges and culverts \$64.00.

### 1. Primary System.

The total expenditure was \$150,091.52, of which \$136,116.91 or 90.7% was spent for construction; and \$13,974.61 or 9.3% for maintenance.

22.5 miles of earth road were maintained at a cost of \$5,021.41 or an average of \$223.17 per mile. 26.3 miles of gravel road were maintained at a cost of \$8,953.29 or an average of \$340.42 per mile. 48.8 miles of the entire system were maintained at a cost of \$13,974.61 or an average of \$286.35 per mile.

During the year 1921, 14.69 miles were built to permanent grade. 21.08 miles were surfaced with gravel. On January 1, 1922, the county had 5.0 miles of earth roads not built, 17.5 miles of earth road built to permanent grade and 26.3 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$33,933.65 of which \$12,944.97 or 38.2% was spent for construction; \$14,177.03 or 41.8% for maintenance; and \$6,811.65 or 20.0% for special cases.

1.0 miles were built to finished grade standard section at a cost of \$9,837.04. 2.0 miles were surfaced with gravel at a cost of \$677.01.

The total amount spent for tiling and drainage \$2,450.92.

95.75 miles of earth road were dragged and maintained at a cost of \$14,177.03 or an average of \$148.10 per mile. 3.0 miles of gravel road maintained without cost. 98.75 miles of the entire system were dragged and maintained at a cost of \$14,177.03 or an average of \$143.60 per mile. The total average expenditure per mile of county road was \$343.70.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 12 of the 12 townships was \$51,480.79.

## WINNESHIEK COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$78,193.19 of which \$41,106.56 or 52.6% was spent for permanent bridges and culverts; \$4,699.85 or 6.0% for temporary bridges and culverts; \$21,840.94 or 27.9% for repairs; \$2,133.25 or 4.0% for culvert material for townships; \$1,709.53 or 2.2% for equipment and unused materials; \$2,096.89 or 2.6% for filling bridges and culverts and \$3,006.17 or 3.8% for special cases.

Of the total amount spent, \$45,806.41 for new bridges and culverts, \$41,106.56 or 89.7% was for permanent work and \$4,699.85 or 10.3% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts costing \$25,421.62; head walls and culverts lengthened \$230.96; concrete abutments \$10,377.52; I-beam spans concrete abutments \$4,856.46; I-beam spans-piling abutments \$537.73; wood trestle bridges \$1,841.28; wood truss bridge \$43.62 and miscellaneous bridges and culverts \$2,397.22.

### 1. Primary System.

The total expenditure including bridges paid for from primary funds was \$90,707.63 of which \$80,351.65 or 88.4% was spent for construction and \$10,355.98 or 11.6% for maintenance. \$37,475.18 was spent for bridges and culverts.

53.4 miles earth road were maintained at a cost of \$16,355.98 or an average of \$196.11 per mile. This comprises the entire mileage of the primary road system in this county.

During the year 1921, 6.20 miles were built to permanent grade. On January 1, 1922, the county had 79.4 miles of earth roads not built and 4.0 miles of earth road built to permanent grade.

### 2. County Roads.

The total county road expenditure was \$24,146.08 of which \$32,802.38 or 96.1% was spent for maintenance and \$1,343.70 or 3.9% for special cases.

119.73 miles of earth road, the entire system, were dragged and maintained at a cost of \$32,802.38 or an average of \$274.00 per mile. The total average expenditure per mile of county road was \$311.00.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 17 of the 20 townships was \$64,538.41.

## WOODBURY COUNTY.

### Bridges.

The total expenditures from county funds for bridge and culvert work during 1921, were \$102,018.09 of which \$26,033.44 or 25.5% was spent for permanent bridges and culverts; \$17,827.89 or 17.5% for temporary bridges and culverts; \$27,617.86 or 27.1% for repairs; \$6,950.80 or 6.8% for culvert material for townships; \$12,938.71 or 12.7% for equipment and unused materials; \$1,661.39 or 1.6% for filling bridges and culverts and \$7,998.18 or 7.8% for special cases.

Of the total amount \$43,861.24 spent for new bridges and culverts, \$26,033.44 or 59.3% was spent for permanent work and \$17,827.80 or 40.7% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$4,646.22; head walls and culverts lengthened \$4,160.48; concrete arch bridges \$5,529.14; I-beam spans-concrete abutments \$7,255.75; concrete pipe \$915.67; pony truss-concrete abutments \$1,441.75; I-beam span-piling abutments \$2,779.19; pony truss on piling wood floor \$2,026.27 and wood trestle bridges \$12,106.67.

### 1. Primary System.

The total expenditures including primary funds expended for bridges was \$90,916.84 of which \$87,193.55 or 96.8% was spent for construction \$27,557.71 or 3.04% for maintenance and \$1,427.58 or 0.16% for special cases. \$136.48 was spent on bridges.

198.2 miles of earth were maintained at a cost of \$27,100.27 or an average of \$250.46 per mile; 16.5 miles of paved road were maintained at a cost of \$320.96 or an average of \$19.45 per mile and 124.7 miles, entire system, were maintained at a cost of \$27,421.23 or an average of \$219.90 per mile.

During the year of 1921, 16.68 miles were built to permanent grade, and 16.73 miles were paved. On January 1, 1922, the county had 52.3 miles of earth roads not built, 55.9 miles of earth road built to permanent grade, and 16.5 miles paved.

### 2. County Roads.

The total county road expenditure was \$191,978.95 of which \$13,832.37 or 7.3% was spent for construction; \$22,347.73 or 11.6% for maintenance and \$155,798.85 or 81.1% for special cases.

6.44 miles were built to finished grade standard section at a cost of \$11,796.32; .58 miles were surfaced with gravel at a cost of \$1,937.45 and the total amount spent for tilling and drainage was \$98.40.

89.92 miles of earth road were dragged and maintained at a cost of \$22,319.23 or an average of \$248.50 per mile; .53 miles of gravel road were dragged and maintained at a cost of \$28.59 or an average of \$49.13 per mile and 90.5 miles, entire system, were dragged and maintained at a cost of \$22,347.73 or an average of \$247.00 per mile. The total average expenditure per mile of county road was \$212.90.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 19 of the 23 townships was \$77,806.20.

## WORTH COUNTY

### Bridges.

The total expenditures for bridge and culvert work during 1921, were \$45,958.55 of which \$43,213.96 or 94.0% was spent for permanent bridges and

culverts; \$2,602.49 or 5.7% for repairs; \$54.87 or 0.1% for equipment and unused materials and \$87.13 or 0.2% for special cases.

The total amount, \$43,213.96, expended for new bridges and culverts, was all for permanent work and was spent on the following construction:

Concrete culverts, costing \$10,286.15; concrete slab bridges, \$748.50; I-beam spans-concrete abutments, \$9,406.16; pony truss-concrete abutments, \$9,589.60 and high steel trusses-concrete abutments, \$13,183.55.

### 1. Primary System.

The total expenditure was \$90,370.51, of which \$73,337.57 or 81.7% was spent for construction; \$16,149.03 or 17.87% for maintenance and \$323.91 or 0.4% for special cases.

32.4 miles of earth road were maintained at a cost of \$5,994.88 or an average of \$185.03 per mile; 28.4 miles of gravel road were maintained at a cost of \$10,154.15 or an average of \$357.54 per mile, and 60.8 miles, entire system, were maintained at a cost of \$16,149.03 or an average of \$265.59 per mile.

During the year of 1921, 7.5 miles were built to permanent grade, and 2.15 miles were surfaced with gravel. On January 1, 1922, the county had 27.4 miles of earth roads not built, 5.6 miles of earth road built to permanent grade, and 28.4 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$24,057.00 of which \$1,545.70 or 6.4% was spent for construction, \$20,154.66 or 83.5% for maintenance and \$2,356.64 or 9.8% for special cases.

69.24 miles of earth road were dragged and maintained at a cost of \$16,897.15 or an average of \$244.00 per mile; 10.00 miles of gravel road were dragged and maintained at a cost of \$3,257.51 or an average of \$325.75 per mile and 79.24 miles, entire system, were dragged and maintained at a cost of \$20,154.66 or an average of \$254.30 per mile. The total average expenditure per mile of county road was \$303.60.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 11 of the 12 townships was \$38,296.98.

## WRIGHT COUNTY

### Bridges.

The total expenditure for bridge and culvert work from county funds during 1921, were \$119,388.53 of which \$87,071.20 or 72.9% was spent for permanent bridges and culverts; \$2,480.94 or 2.1% for temporary bridges and culverts; \$25,329.19 or 21.2% for repairs, \$1,963.36 or 1.6% for culvert material for townships; \$114.63 or 0.09% for equipment and unused materials; \$1,027.54 or 0.86% for filling bridges and culverts; and \$1,400.87 or 1.2% for special cases.

Of the total amount, \$89,552.14, spent for new bridges and culverts, \$87,071.20 or 97.2% was spent for permanent work and \$2,480.94 or 2.8% for temporary work.

The amounts last above referred to were spent on the following construction:

Concrete culverts, costing \$26,762.52; head walls and culverts lengthened \$877.00; concrete abutments, \$6,441.28; concrete deck girders, \$24,250.00; I-beam spans-concrete abutments, \$18,740.40; and corrugated pipe, \$2,480.94.

### 1. Primary System.

The total expenditure, including bridges paid for from primary funds, was \$201,661.15, of which \$78,948.97 or 39.2% was spent for construction; \$22,652.18 or 11.27% was spent for maintenance and \$60.00 or 0.03% for special cases; \$26,392.65 was spent for bridges and culverts.

29.7 miles of earth road were maintained at a cost of \$12,671.32 or an average of \$426.96 per mile; 19.2 miles of gravel road were maintained at a cost of \$9,980.83 or an average of \$519.83 per mile; and 58.9 miles, entire system, were maintained at a cost of \$22,652.18 or an average of \$384.58 per mile.

During the year 1921, 3.16 miles were built to a permanent grade, and 17.11 miles were surfaced with gravel.

On January 1, 1922, the county had 31.6 miles of earth roads not built, 8.1 miles of earth road built to a permanent grade, and 19.2 miles surfaced with gravel.

### 2. County Roads.

The total county road expenditure was \$221,338.65 of which \$158,776.56 or 71.7% was spent for construction, \$31,280.59 or 14.1% for maintenance and \$31,281.50 or 14.2% for special cases.

49.02 miles were built to finished grade standard section at a cost of \$107,965.55; and 17.25 miles were surfaced with gravel at a cost of \$27,601.44. The total amount spent for filling and drainage was \$24,109.57.

103.95 miles of earth road were dragged and maintained at a cost of \$25,645.43 or an average of \$246.70 per mile; 17.25 miles gravel road were dragged and maintained at a cost of \$5,535.16 or an average of \$320.59 per mile; 121.2 miles, entire system, were dragged and maintained at a cost of \$31,280.59 or an average of \$258.20 per mile.

### 3. Township Roads.

The total expenditure on township roads as shown by reports from 14 of the 16 townships was \$79,799.79.



## Summary of Road and Bridge Expenditures by Counties

January 1, 1921, to January 1, 1922

SUMMARY TABLE NO. 1

Expenditures for Bridge and Road Work Primary, County and Township Roads.

County	Bridges and Culverts	Primary System	County Road	Township Roads	Total
Adair	\$ 116,027.12	\$ 182,804.54	\$ 40,140.96	\$ 57,398.97	\$ 396,371.59
Adams	82,582.15	97,861.28	29,918.61	22,228.94	232,590.98
Altamaha	77,073.18	79,888.09	28,804.35	20,192.42	215,958.04
Appling	97,543.42	32,779.94	47,002.80	42,887.30	220,213.46
Ardur	29,302.97	49,709.63	22,469.12	31,259.00	132,740.72
Benton	145,471.25	509,745.47	50,980.32	56,989.79	703,190.83
Black Hawk	56,441.93	57,098.44	44,412.42	52,948.05	211,900.84
Boone	52,475.28	270,508.29	117,500.54	85,419.21	525,903.32
Bremer	79,460.54	74,306.34	65,136.76	49,361.57	268,265.21
Burbanck	43,052.57	12,121.00	34,245.67	54,113.08	144,532.32
Buena Vista	22,480.24	154,368.45	55,566.98	56,389.21	289,231.91
Butler	74,439.94	121,563.00	52,884.77	57,864.57	306,752.21
Calhoun	112,514.08	137,031.97	137,504.07	70,005.96	457,056.08
Carroll	52,980.00	188,770.66	35,450.20	55,321.29	332,522.24
Cass	70,340.42	71,701.73	34,890.83	60,500.29	246,063.27
Cedar	101,292.78	79,807.92	20,131.08	84,007.79	225,239.57
Cerro Gordo	55,756.61	569,409.05	85,608.72	88,058.08	795,832.46
Cherokee	99,805.40	128,744.82	18,620.11	48,457.33	265,726.56
Chickasaw	116,347.51	136,100.43	58,308.05	56,514.83	347,270.82
Clarke	64,278.57	99,078.32	50,022.84	34,388.43	210,000.81
Clay	49,141.45	47,940.99	84,190.51	135,569.58	316,852.53
Clayton	81,112.18	130,105.19	20,681.54	71,002.58	302,901.49
Clinton	98,821.49	815,996.71	98,882.04	91,445.56	1,075,145.80
Crawford	90,780.09	221,901.02	71,904.29	74,395.64	568,981.04
Dallas	83,697.48	201,323.63	61,284.37	125,782.19	471,087.67
Davis	141,089.29	117,107.74	25,361.30	45,347.29	329,905.44
Decatur	52,574.13	44,042.10	27,682.24	17,665.64	142,368.11
DeKalb	102,129.59	31,345.44	67,730.02	50,818.52	252,023.57
De Motte	47,618.09	315,474.15	27,612.06	43,828.38	430,533.68
Dickinson	16,709.98	227,646.45	23,645.12	38,216.87	305,228.42
Dubuque	71,568.28	138,430.13	34,674.55	31,234.17	276,907.13
Emmet	55,129.09	73,718.53	24,688.22	32,528.29	186,064.13
Fayette	102,471.32	159,402.50	78,294.09	73,538.21	413,706.12
Floyd	73,434.32	326,000.18	107,763.04	55,581.17	567,880.71
Franklin	56,591.27	199,472.56	175,671.72	60,324.61	492,439.16
Freemont	76,521.59	293,374.48	21,063.45	57,797.27	418,756.39
Greene	70,150.45	355,908.79	43,089.62	70,270.54	489,419.40
Grundy	70,514.98	130,425.17	59,485.47	56,478.79	316,904.02
Guthrie	100,285.06	254,412.05	49,054.25	70,109.12	473,861.50
Hamilton	52,828.23	121,000.92	113,033.18	66,543.44	354,405.78
Hancock	51,012.32	208,115.19	42,461.29	49,676.61	351,265.41
Hardin	194,653.01	198,159.84	118,308.69	69,975.03	581,096.57
Harrison	52,058.68	47,712.42	21,707.70	51,790.33	174,268.13
Henry	66,568.46	83,885.01	55,314.00	31,674.12	237,441.58
Howard	55,738.71	168,068.00	18,091.47	35,615.54	219,513.72
Humboldt	20,589.73	96,073.72	48,054.52	51,368.59	216,086.56
Ida	52,482.58	165,975.83	28,795.16	35,785.87	282,949.44
Irwin	77,847.48	132,104.59	47,545.39	68,499.72	325,997.18
Jackson	67,979.36	159,069.25	29,047.69	54,827.12	301,923.42
Jasper	133,696.06	84,419.38	61,615.68	49,818.49	329,551.21
Jefferson	33,282.18	55,713.47	27,556.32	61,140.11	147,892.08
Johnson	77,706.19	299,307.72	46,138.17	43,397.17	466,549.25
Jones	51,411.82	77,591.22	46,196.28	49,308.59	224,518.91
Keeokuk	81,628.30	165,975.83	24,098.68	54,587.51	327,290.32
Kossuth	98,758.58	237,298.98	134,118.68	169,973.84	599,150.08
Lee	46,716.32	130,855.90	47,795.19	41,772.54	267,240.79
Linn	108,822.91	400,701.80	75,857.13	90,025.46	675,407.30

SUMMARY TABLE NO. 1—Continued

County	Bridges and Culverts	Primary System	County Road	Township Roads	Total
Louis	31,582.60	182,048.89	33,900.48	25,281.71	287,813.54
Lucas	76,544.11	171,832.17	20,172.15	41,012.50	319,561.93
Lyon	68,556.19	105,711.98	29,865.00	20,069.28	224,202.45
Madison	68,126.00	203,441.89	43,287.22	25,487.27	340,342.38
Mahaska	78,943.08	97,580.02	40,494.87	73,404.34	289,422.31
Marion	108,015.02	179,594.37	55,491.02	75,288.03	419,229.38
Marshall	103,077.97	265,953.61	41,273.14	60,849.41	571,153.13
Mills	125,883.29	277,043.64	70,091.92	47,360.16	480,389.01
Mitchell	75,842.58	176,562.28	97,843.01	47,158.39	397,406.25
Monona	81,331.82	46,479.76	31,926.01	38,215.43	197,953.04
Monroe	25,376.65	61,980.54	41,288.63	37,307.18	175,953.00
Montgomery	48,061.07	31,375.07	22,135.96	34,116.13	136,688.23
Muscatine	96,945.13	110,837.13	65,822.18	47,792.01	321,456.45
O'Brien	67,955.07	966,233.32	49,236.91	81,689.56	1,105,114.86
Oceola	54,664.17	95,271.91	24,820.35	29,308.48	184,064.91
Page	274,550.28	130,092.02	53,007.94	51,368.07	509,018.31
Palo Alto	70,377.68	372,574.50	149,808.23	126,448.68	629,209.10
Plymouth	131,385.77	171,948.90	88,018.00	71,447.25	462,800.92
Pocahontas	114,505.97	244,235.47	101,585.09	70,240.49	536,567.03
Polk	177,619.49	629,318.98	219,589.58	90,246.74	1,097,774.79
Pottawattamie	269,284.36	87,259.13	54,624.37	60,842.25	472,010.11
Poweshiek	95,778.31	103,821.68	44,052.22	56,092.48	200,744.69
Ringgold	67,690.57	43,587.28	29,611.81	31,459.41	139,749.07
Sac	84,234.09	172,119.40	51,779.19	87,402.00	395,535.68
Scott	88,019.09	970,883.28	53,724.15	20,563.97	1,033,190.49
Shelby	132,532.26	206,341.45	45,234.18	76,675.96	454,784.85
Sioux	77,670.09	239,559.79	60,822.30	75,239.05	444,291.23
Story	75,940.71	149,825.69	108,200.05	78,182.89	412,149.34
Tama	129,296.06	127,133.07	60,156.90	79,372.92	396,958.95
Taylor	81,400.17	57,701.96	29,382.12	47,164.78	215,639.03
Union	90,836.89	116,377.28	34,207.60	28,243.30	269,768.07
Van Buren	15,222.29	41,934.18	20,441.94	27,307.00	104,905.41
Wapello	46,733.48	66,838.62	22,481.73	49,390.61	185,444.44
Warren	97,409.35	94,749.89	51,592.84	44,357.71	288,109.79
Washington	75,823.31	78,315.44	29,642.50	46,113.01	229,994.36
Wayne	69,853.29	76,554.84	30,377.22	34,799.60	211,686.92
Webster	47,140.84	207,567.23	81,409.92	102,747.31	439,865.29
Winnebago	11,121.05	150,001.92	33,923.65	51,490.79	246,537.41
Winnebush	79,139.19	95,707.65	34,146.08	64,588.41	273,561.33
Woodbury	106,018.09	169,078.84	101,978.06	77,896.33	455,971.32
Worth	45,668.56	90,279.51	24,557.09	28,356.95	188,862.11
Wright	119,388.53	391,661.15	221,328.65	79,799.79	621,188.12
Total reported	\$ 8,929,387.00	\$18,275,771.70	\$ 5,766,483.50	\$ 5,946,091.79	\$37,715,334.07
Temp. not reported estimated				\$ 1,096,294.46	\$ 1,096,294.46
Grand total	\$ 8,929,387.00	\$18,275,771.70	\$ 5,766,483.50	\$ 7,042,386.25	\$38,711,628.53

## SUMMARY TABLE

Expenditures for Bridges, Culverts, Road Construction and  
Funds Annual Report

County	Bridges and Culverts				Total
	Bridge Fund	Motor Vehicle Fund	Road Fund	All Other Sources	
Adair	\$ 86,068.63		\$ 15,121.25	\$ 14,837.24	\$ 116,027.12
Adams	79,564.89		2,988.23		82,553.12
Adams	76,494.44		1,129.42	142.32	77,766.18
Appanoose	85,862.05			11,491.27	97,353.32
Arden	39,332.07				39,332.07
Benton	144,701.00		2,370.22		147,071.22
Black Hawk	56,441.90				56,441.90
Boone	59,294.28		581.50		60,875.78
Bremner	79,374.96		115.60		79,490.56
Buchanan	43,029.57				43,029.57
Buena Vista	32,489.24				32,489.24
Butler	74,439.94				74,439.94
Calhoun	112,514.08				112,514.08
Carroll	82,560.06				82,560.06
Cass	66,835.52		12,894.90		79,730.42
Cedar	101,792.78				101,792.78
Cerro Gordo	56,736.61				56,736.61
Cherokee	86,270.22		6,025.18		92,295.40
Chickasaw	116,347.52				116,347.52
Clarke	55,771.43				55,771.43
Clay	41,394.12		4,280.99	38.34	45,713.45
Clinton	66,442.16	\$ 11,925.98	2,640.12	97.91	81,112.18
Clinton	92,934.98		1,440.10		94,375.08
Crawford	90,619.00		101.00		90,720.00
Dallas	81,697.48				81,697.48
Davis	133,151.40	1,044.38	7,693.42		141,889.20
Decatur	42,476.62		11,097.52		53,574.14
Delaware	87,129.58		496.90	14,493.51	102,120.00
Dickinson	16,078.29		601.75		16,679.04
Des Moines	38,291.02	9,227.58			47,518.60
Dubuque	71,568.28				71,568.28
Emmet	25,690.58		1,435.51		27,126.09
Fayette	98,854.67		1,190.12	7,446.72	107,481.51
Floyd	73,312.87		1,141.43		74,454.30
Franklin	55,061.27				55,061.27
Fremont	76,529.99				76,529.99
Greene	56,477.92		13,672.53		70,150.45
Grundy	34,270.71		4,910.32	11,033.41	50,214.44
Guthrie	100,285.95				100,285.95
Hamilton	51,204.22		582.19		51,786.41
Hancock	51,612.49				51,612.49
Hardin	198,195.15		6,437.89		204,633.04
Harrison	51,569.88		511.39	886.50	52,968.77
Henry	69,525.20				69,525.20
Howard	56,758.71	4,093.26			60,851.97
Humboldt	20,589.73				20,589.73
Ia	32,482.55				32,482.55
Iowa	77,847.45				77,847.45
Jackson	95,070.36				95,070.36
Jasper	142,766.94		10,330.75		153,097.69
Jefferson	23,990.51		1,492.67		25,483.18
Johnson	77,391.90		311.20		77,703.10
Jones	51,380.80		25.00		51,405.80
Keokuk	69,972.90		12,695.94		82,668.84
Kossuth	98,789.38				98,789.38
Lee	88,674.84	2,321.05	5,530.43		96,526.32

## NO. 2

Maintenance County and Township Road System Shown by  
of County Engineers.

County Roads						
County Road Cash	Motor Vehicle Fund	Bridge Fund	Secondary Road District Special Assessments	All Other Sources	Total	Grand Total
\$ 28,889.56	\$ 3.19			\$ 1,748.21	\$ 49,140.96	\$ 156,168.08
19,918.83					19,918.83	102,471.78
24,841.55		\$ 3,839.83		12.98	28,694.36	106,367.54
47,062.80					47,062.80	144,466.31
22,469.12					22,469.12	81,772.00
50,980.52					50,980.52	107,451.57
44,412.42					44,412.42	100,854.82
109,036.92			\$ 7,576.59		117,593.51	170,379.29
85,490.23					85,490.23	144,617.32
34,245.00					34,245.00	77,298.17
55,714.98	242.00				55,956.98	88,443.22
51,294.75	1,500.02				52,794.77	127,354.71
137,264.97					137,264.97	249,718.15
35,450.23					35,450.23	88,000.29
34,820.83					34,820.83	114,171.25
20,121.08					20,121.08	121,913.86
85,698.72					85,698.72	141,425.33
18,028.56		.75			18,029.31	118,554.51
39,286.07					39,286.07	164,056.56
44,749.72	5,944.30			2,022.26	52,724.28	116,296.11
78,818.65		5,347.86			84,166.51	180,337.96
30,633.54					30,633.54	120,705.72
67,779.79	1,102.25				68,882.04	107,713.58
71,994.29					71,994.29	102,694.38
57,786.23			1,891.37	1,007.77	61,284.37	144,061.86
35,361.80					35,361.80	107,050.50
22,028.96	5,944.29				27,973.25	80,556.39
61,305.22	444.80				61,750.02	163,870.11
25,645.12					25,645.12	40,415.10
29,613.00					29,613.00	71,231.62
34,374.55				300.00	34,674.55	106,272.83
34,158.22				530.60	34,688.82	49,814.51
77,129.41			198.34		78,327.75	180,736.61
109,705.04				1,098.54	110,803.58	270,219.36
173,671.72					173,671.72	327,692.99
21,068.45					21,068.45	97,502.44
42,089.62					42,089.62	112,240.07
54,784.87				4,700.40	59,485.27	120,000.15
61,185.60				5,868.75	67,054.35	129,340.30
112,022.18					112,022.18	196,811.59
38,860.55			3,570.54		42,431.09	94,078.78
117,928.69	79.00			400.00	118,398.69	313,051.70
39,540.41				1,257.29	40,797.70	74,756.38
25,901.63	3,112.37				29,014.00	91,862.55
16,817.47					16,817.47	75,360.18
48,024.52					48,024.52	68,614.25
28,705.18					28,705.18	81,187.74
47,545.30					47,545.30	125,392.78
38,829.23	2,218.36				41,047.59	95,018.06
6,645.69					6,645.69	214,742.33
27,316.66	6,039.37				33,356.03	60,969.50
48,465.73			782.45		49,248.18	125,841.27
44,235.78			1,869.59		46,105.37	97,617.11
31,688.68					31,688.68	107,347.59
134,118.09					134,118.09	232,907.07
47,796.19					47,796.19	94,511.92
29						

## SUMMARY TABLE

County	Bridges and Culverts				
	Bridge Fund	Motor Vehicle Fund	Road Fund	All Other Sources	Total
Linn	96,319.53		9,090.35	3,413.03	108,822.91
Louis	31,583.66				31,583.66
Lucas	71,115.94		5,231.47		76,347.41
Lyon	66,356.19				66,356.19
Madison	62,025.77		5,995.45		68,021.22
Mahaska	73,733.88		219.70		73,953.58
Marion	97,314.95		11,600.97		108,915.92
Marshall	100,247.11	180.35	2,200.85	11.76	102,629.07
Mills	114,147.50		11,536.10		125,683.60
Mitchell	74,791.13		1,081.40		75,872.53
Monona	81,331.82				81,331.82
Monroe	24,004.02		1,342.61		25,346.63
Montgomery	44,063.86		4,917.21		48,981.07
Muscatine	90,612.00		319.39	13.14	90,944.53
O'Brien	67,963.02				67,963.02
Osceola	33,751.61		894.56		34,646.17
Page	230,945.97		25,004.31		255,950.28
Palo Alto	90,433.76		925.92		91,359.68
Plymouth	129,350.11	1,935.60			131,285.71
Pocahontas	113,206.22		1,229.75		114,435.97
Polk	191,112.61		16,506.79		207,619.40
Pottawattamie	209,384.36				209,384.36
Poweshiek	92,666.44		1,771.87		94,438.31
Ringgold	64,857.05		2,853.52		67,710.57
Sac	81,670.84		560.25		82,231.09
Scott	88,019.09				88,019.09
Shelby	132,150.05		382.20		132,532.25
Sioux	72,242.07	604.80	2,823.16		75,670.03
Story	75,940.72				75,940.72
Tama	127,798.05			1,468.90	129,266.95
Taylor	68,422.30		13,067.97		81,490.27
Union	80,806.90				80,806.90
Van Buren	16,421.46	1,800.80			18,222.26
Wapello	46,753.38				46,753.38
Warren	87,180.38		10,718.87		97,899.25
Washington	75,823.31				75,823.31
Wayne	69,551.30				69,551.30
Webster	47,140.84				47,140.84
Winnebago	11,121.65				11,121.65
Winnebuck	76,977.74	135.73	1,079.72		78,193.19
Woodbury	89,580.14	6,800.91	5,377.04		101,758.09
Worth	45,068.55				45,068.55
Wright	119,388.33				119,388.33
Total	\$7,627,221.95	\$ 44,879.91	\$300,251.82	\$ 34,063.41	\$8,006,417.09

## NO. 2—Continued

County	County Roads					Total	Grand Total
	County Road Cash	Motor Vehicle Fund	Bridge Fund	Secondary Road District Special Assessments	All Other Sources		
Linn	75,548.77				308.80	75,857.57	184,680.04
Louis	33,900.48					33,900.48	65,493.14
Lucas	30,172.15					30,172.15	106,516.26
Lyon	29,827.59					29,827.59	80,251.19
Madison	42,822.72		484.59		97.90	43,405.21	111,413.22
Mahaska	27,310.32		13,184.55			40,494.87	114,437.95
Marion	55,491.05					55,491.05	164,406.98
Marshall	37,831.95	1,678.86	430.37		1,337.25	41,273.14	144,911.11
Mills	70,091.92					70,091.92	156,585.22
Mitchell	31,926.01					31,926.01	173,685.59
Monona	37,653.76					37,653.76	113,257.83
Monroe	17,705.75	4,427.21				22,132.96	76,765.28
Montgomery	63,911.91	1,900.37				65,812.28	165,007.51
Muscatine	40,326.91					40,326.91	108,280.53
O'Brien	40,326.91					40,326.91	50,469.56
Osceola	21,536.55	3,281.84				24,818.39	327,956.22
Page	63,007.94					63,007.94	211,135.94
Palo Alto	136,511.73	4,340.48				140,852.21	211,135.94
Plymouth	81,638.91		1,379.34			83,018.25	215,303.77
Pocahontas	100,413.17	380.30	792.22			101,585.69	306,091.66
Polk	219,580.58					219,580.58	388,338.98
Pottawattamie	54,634.57					54,634.57	364,018.96
Poweshiek	44,963.22					44,963.22	138,231.52
Ringgold	27,290.67	2,321.14				29,611.81	97,302.38
Sac	43,301.43			5,477.76		48,779.19	136,013.28
Scott	57,724.53					57,724.53	141,743.64
Shelby	45,234.18					45,234.18	177,796.44
Sioux	47,368.09	11,820.32	625.57		1,018.12	59,832.10	155,422.29
Story	168,200.05					168,200.05	244,140.77
Tama	80,156.80					80,156.80	189,423.84
Taylor	29,282.15					29,282.15	110,772.29
Union	34,297.60					34,297.60	115,134.49
Van Buren	20,441.94					20,441.94	38,064.23
Wapello	22,480.73					22,480.73	70,237.11
Warren	51,532.84					51,532.84	149,423.96
Washington	29,642.59					29,642.59	105,465.81
Wayne	28,337.22					28,337.22	98,158.42
Webster	81,409.96					81,409.96	128,610.76
Winnebago	35,933.65					35,933.65	45,955.30
Winnebuck	34,146.08					34,146.08	112,339.27
Woodbury	191,248.50		730.45			191,978.95	266,097.04
Worth	24,067.00					24,067.00	70,015.55
Wright	210,621.90		19,716.75			230,338.65	340,777.18
Total	\$1,601,836.37	\$ 36,018.77	\$ 40,516.45	\$ 21,516.06	\$ 46,066.85	\$5,706,483.50	\$11,792,870.59



## SUMMARY TABLE NO. 3

Expenditures for Road and Bridge Construction and Maintenance on Primary Road System Shown by Funds.

[illegible][illegible]

SUMMARY TABLE NO. 3—Continued

County	Primary Roads				Primary Bridges			
	Primary Road Fund	Special Assessment Fund	Road Bond Fund	All Other Sources	Total	Primary Road Fund	All Other Sources	Total
Pottawattamie	87,235.13				87,235.13			
Poweshiek	83,005.71				83,005.71	22,783.37		22,783.37
Ringgold	37,000.88				37,000.88	6,000.40		6,000.40
Sac	172,119.40				172,119.40			
Scott	85,041.24	205,818.87	607,449.32		998,309.43	17,027.77	4,000.00	21,027.77
Shelby	160,135.54				160,135.54	40,305.81		40,305.81
Sioux	174,142.31	54,417.48			228,559.79			
Story	188,131.28				188,131.28	14,312.40		14,312.40
Taylor	43,134.06				43,134.06	17,131.70		17,131.70
Union	114,825.81				114,825.81	31,531.44		31,531.44
Van Buren	31,720.16				31,720.16	10,184.02		10,184.02
Wapello	56,638.61				56,638.61	22,105.57		22,105.57
Warren	72,375.23				72,375.23	15,807.80		15,807.80
Washington	62,377.64				62,377.64	6,790.00		6,790.00
Wayne	60,120.84				60,120.84			
Winnebago	120,001.22				120,001.22	37,475.18		37,475.18
Winnebago	30,222.45				30,222.45	136.48		136.48
Woodbury	103,004.97	181,942.18	825,232.31		1,110,179.46	36,300.65		36,300.65
Worth	90,370.51				90,370.51			
Wright	175,367.50				175,367.50			
Total	\$11,210,475.00	\$1,560,606.40	\$1,122,000.17	\$51,119.15	\$13,904,190.72	\$1,274,965.02	\$4,000.00	\$1,278,965.02
								\$13,904,190.72

SUMMARY TABLE NO. 4  
Expenditures for Road Construction and Maintenance on Township Road System Shown by Funds—Annual Report of County Engineers.

County	No. Twp. in county	No. Twp. reporting	Township road fund	Township drag fund	Township drainage fund	County funds on township roads	Secondary road district special assessment	All other sources	Total
Adair	19	19	29,588.75	\$1,617.17	\$1,461.45	\$2,051.05		\$1,780.52	\$7,200.97
Adams	12	12	21,835.01	5,290.31					27,125.32
Albany	18	18	34,217.22	9,149.91	4,135.05				43,502.18
Appanoose	17	17	32,335.66	5,739.70	3,384.01				41,459.37
Auburn	20	20	20,117.27	14,488.48	8,384.01				42,989.76
Benton	18	18	38,982.63	15,559.87	7,04.55				51,585.05
Black Hawk	14	14	47,700.14	16,131.03	28,215.02				92,046.19
Boone	15	15	25,328.74	10,165.00	2,629.53				38,123.27
Bureau	11	11	25,214.17	7,272.42	1,717.16				34,203.75
Bumby Vista	10	10	32,810.18	11,051.10	11,051.10				54,912.38
Butler	16	16	35,750.74	16,101.39	18,063.80				69,915.92
Calhoun	14	14	38,350.81	11,343.33	5,727.15				55,421.29
Carroll	16	16	43,961.31	15,392.85	2,046.04				61,390.20
Cedar	17	17	67,378.83	17,759.65	6,98.92				91,127.40
Cedar Grove	16	16	50,822.14	12,168.00	35,480.22				98,470.36
Chickasaw	14	14	36,362.14	10,376.97	1,718.43				48,458.54
Chickasaw	12	12	46,025.09	8,419.23	2,088.35				56,532.67
Clatsop	12	12	52,652.02	8,419.23	2,088.35				63,159.60
Clay	22	22	59,298.77	10,374.48	25,466.87				95,140.12
Clayton	19	19	72,416.00	10,374.48	1,076.37				83,866.85
Clinton	20	20	63,344.90	16,947.10	2,047.11				82,339.11
Crawford	16	16	60,365.89	16,900.67	27,167.58				104,434.14
Dallas	15	15	35,866.08	9,251.00	1,597.12				46,714.20
DeWaver	16	16	40,135.83	12,803.30	1,597.12				54,536.25
Delaware	14	14	40,135.83	12,803.30	1,597.12				54,536.25
Des Moines	13	13	30,459.63	12,178.63	300.47				43,078.73

SUMMARY TABLE NO. 4—Continued

County	No. Twp. in county	No. Twp. reporting	Township road fund	Township drag fund	Township drainage fund	County funds on township roads in secondary district	Secondary road district actual assessment funds	All other sources	Total
Dickinson	12	9	30,004.08	4,291.81	9,880.37			4,940.71	38,216.87
Dubuque	17	9	35,410.93	5,923.25					31,534.17
Emmet	12	12	22,005.07	7,661.52	13,374.04	8,686.08			52,588.25
Fayette	20	10	55,653.98	17,894.23					73,548.21
Floyd	12	10	35,734.83	10,908.00	5,882.31				53,586.17
Franklin	16	12	35,481.50	11,728.02	13,112.10				60,321.61
Frederick	13	13	45,541.94	12,056.00	539.42				57,797.37
Greene	15	15	51,360.73	10,968.79	8,041.02				70,370.54
Grundy	14	14	41,385.78	12,500.12	2,822.80				56,478.70
Guthrie	17	17	50,535.55	14,470.08	4,994.56				70,100.13
Hamilton	16	14	21,982.98	15,361.58	19,198.88				66,543.44
Hardin	18	10	29,076.61	7,238.36	13,261.64				49,676.61
Harrison	15	15	31,337.35	12,835.49	9,002.10				53,975.03
Henry	20	15	33,267.34	11,017.35	6,783.44				51,766.33
Howard	12	8	22,073.23	9,368.80					31,471.12
Howell	12	10	27,531.36	5,178.22	2,905.96				35,615.54
Humboldt	12	12	29,804.29	14,587.02	16,212.18	2,797.49			65,398.99
Ia	12	12	28,284.87	7,500.80					35,785.67
Iowa	16	16	48,045.48	19,808.17	556.07				68,409.72
Jackson	18	18	42,156.24	12,710.88					54,867.12
Jasper	19	12	49,871.41	12,944.71	4,002.87				66,818.49
Jefferson	12	12	44,442.24	15,200.57	1,480.90				61,140.11
Johnson	21	10	28,888.98	10,201.23	4,616.54				43,707.17
Jones	16	13	38,071.31	11,182.89	51.35				49,308.55
Keokuk	17	14	41,895.94	12,851.52	40.35				54,887.51
Kossuth	28	12	54,527.35	14,248.36	41,100.13				109,875.84
Lee	15	14	26,834.31	14,013.76	935.27				41,773.34
Linn	20	20	68,403.53	20,700.87	3,903.06				93,025.46
Louis	12	8	24,154.75	10,642.46	480.50				35,282.71
Lucas	12	10	31,844.18	9,168.35					41,012.53
Lyon	18	14	24,261.42	7,691.00					31,952.11
Madison	16	11	27,336.35	8,190.92					35,527.27
Mahaska	18	18	43,873.82	12,095.49	9,429.00				75,288.03
Marion	15	11	51,266.34	12,842.16	7,749.53				63,858.03
Marshall	18	16	45,520.66	17,052.32	1,273.43				63,846.41
Mills	13	11	33,739.25	9,573.41	1,222.40		2,704.88		47,300.03
Mitchell	16	19	33,207.33	6,315.76	7,087.27				47,158.36
Monona	19	12	38,047.09	8,177.33	1,001.01				47,225.43
Monroe	12	11	24,902.35	7,613.79	4,801.13				37,317.27
Montgomery	12	12	35,096.34	5,643.54	446.25				41,186.13
Muscatine	14	14	34,380.61	9,282.60			4,148.80		47,792.01
Muskegon	16	16	44,078.25	13,219.23	2,713.30	979.58			61,580.56
O'Brien	11	8	18,822.37	5,333.26	5,242.72				29,398.48
Oceola	16	10	38,250.55	11,704.05	656.04			605.45	51,308.07
Pace	16	7	12,826.20	4,406.82	7,900.99				25,133.98
Palo Alto	24	18	55,073.17	16,874.08					71,947.25
Plymouth	19	16	36,330.22	14,786.05	19,101.03				70,217.30
Pocahontas	19	18	49,971.76	15,093.41	2,571.57				67,636.74
Polk	28	18	55,937.67	13,302.51	822.08				69,862.26
Pottawattamie	18	12	30,874.96	11,772.91	4,444.41				46,092.48
Poweshiek	19	6	24,642.18	8,825.22					33,467.40
Ringgold	16	16	54,665.29	17,522.95	9,608.83	5,702.17	443.45		87,492.00
Sac	15	15	41,852.76	11,301.17	109.04				53,563.97
Scott	16	16	50,735.94	18,920.23	5,009.98			1,280.84	76,075.06
Shelby	23	23	57,249.36	17,606.09	424.30				75,279.75
Sioux	16	14	40,030.65	14,746.67	23,705.07				78,482.89
Story	21	19	55,700.53	15,224.63	4,387.76				75,312.92
Tama	17	10	27,119.53	9,845.45					37,194.78
Taylor	12	12	29,782.64	8,689.62					38,472.26
Union	14	12	31,007.51	6,209.55					37,217.06
Van Buren	14	14	33,799.42	9,880.48	2,581.04			3,700.07	49,300.61
Wapello	16	13	33,185.85	9,100.96					44,537.71
Warren	15	8	34,375.18	11,654.30	80.53				46,113.01
Washington	16	10	24,256.36	9,306.43	1,107.87				34,760.66
Wayne	23	21	54,802.33	22,417.88	25,437.10				102,717.31
Webster	12	12	28,300.75	8,820.35	14,559.90				51,680.79
Winnebago	20	17	49,308.01	15,146.40					64,454.41
Winchester	23	19	55,309.95	15,377.05	2,949.23			2,978.99	77,606.20
Woodbury	12	11	28,270.99	5,497.97	9,618.06				38,386.98
Worth	16	14	32,804.92	11,608.94	33,370.12			1,754.81	79,799.79
Wright									
Total reported	1,006	1,329	\$1,806,318.45	\$1,161,685.32	\$56,399.46	\$8,437.69	\$1,235.50	\$3,615.42	\$5,646,091.78
Not reported, estimated		247	\$91,621.31	\$11,137.83	\$101,489.83		\$24.56		\$1,095,232.46
Grand total	1,006	1,606	\$1,897,939.76	\$1,172,823.15	\$66,889.29	\$10,905.02	\$1,460.06	\$3,640.84	\$6,741,324.24





SUMMARY TABLE NO. 5—Continued

County	Permanent culverts and bridges	Temporary bridges and culverts	Repair work	Culvert material purchased for township	Equipment and unused material	Pulling bridges and culverts	Special cases	Total
Plymouth	41,590.51	22,473.21	20,217.27	6,004.15	19,138.57	6,455.01	6,397.05	131,286.77
Pocahontas	57,845.21	5,009.52	8,357.05	2,072.04	3,907.03	2,071.00	2,135.40	177,019.40
Polk	137,227.80	5,029.15	17,042.58	9,468.48	15,729.89	10,518.07	14,130.57	259,284.36
Portsmouth	70,850.77	81,002.51	10,891.17	10,085.29	840.01	2,771.87	865.27	93,774.31
Preble	3,159.48	11,144.00	22,460.10	4,314.85	15,005.69	2,993.17	1,514.55	67,060.57
Scott	61,724.55	1,400.79	4,467.05	4,654.28	2,005.27	1,353.84	8,484.30	84,234.09
Shelby	64,721.22	6,085.81	5,146.93	2,004.08	6,483.20	2,021.70	1,489.45	88,012.09
Sioux	56,061.15	42,574.50	13,475.05	8,309.40	2,733.56	1,893.85	6,746.85	132,533.26
Story	51,392.86	17,047.03	16,848.00	8,006.10	2,549.47	519.40	1,217.35	77,970.00
Tama	54,867.52	11,717.78	13,750.79	2,504.00	2,832.08	1,870.70	5,601.91	78,960.72
Taylor	74,546.61	7,288.46	50,445.11	5,332.97	11,487.00	1,075.91	6,809.32	132,000.17
Tioga	29,016.80	10,700.40	11,094.00	7,004.98	11,487.00	1,075.91	6,809.32	51,409.17
Union	1,189.40	700.40	7,500.41	100.00	487.55	9.10	13,277.05	90,850.89
Wapello	38,810.77	2,393.65	7,530.41	4,856.98	2,107.00	232.55	2,104.29	58,252.29
Warren	25,795.40	9,041.82	13,251.82	4,375.57	5,000.78	10,718.87	1,681.77	64,754.35
Washington	81,800.60	1,000.14	27,063.44	2,797.50	2,002.50	2,015.83	22,880.67	97,800.25
Wayne	30,679.72	8,506.04	7,617.43	8,508.00	4,275.12	693.82	7,062.12	75,823.21
Webster	18,712.18	1,188.78	16,613.85	6,370.04	441.21	1,830.70	2,081.08	60,851.20
Winnebago	4,777.24	804.90	2,827.74	2,827.74	3,400.04	217.56	2,081.08	47,140.84
Winnow	41,699.86	1,183.35	2,827.74	1,183.35	3,400.04	217.56	2,081.08	47,140.84
Woodbury	50,031.44	17,867.80	27,617.80	6,100.89	37,085.71	1,653.30	7,062.12	102,018.00
Wright	43,511.91	2,480.94	25,329.19	1,903.89	114.63	1,027.84	1,400.87	45,668.55
Total	\$1,396,104.39	\$79,290.68	\$1,345,071.79	\$422,406.46	\$345,155.23	\$287,046.25	\$402,394.59	\$8,026,287.09

SUMMARY TABLE NO. 6—PART I

Classification of Permanent Bridge and Culvert Construction for which warrants were issued in 1921—Primary, County and Township Roads—Annual Report of County Engineers.

County	Concrete culverts	Head walls on structural and culverts lengthened	Concrete slab bridges	Concrete arch bridges	Concrete abutments	Concrete thru girders	Concrete deck cantilever girders
Adair	42,330.72	3,709.20					
Adams	21,022.35						
Allamakee	18,079.00			5,848.45			
Appanoose	11,391.12		571.59				
Ashtabula	2,550.38						
Benton	62,417.05	196.50	2,670.49				
Black Hawk	20,875.31		900.00				
Boone	25,551.58	1,023.50	10,500.80				
Bremer	35,213.58						
Buchanan	15,114.76						
Butler	15,320.33	493.79	3,989.15				
Calhoun	10,296.35				2,109.60		
Carroll	6,002.78						
Cass	20,841.81						
Cedar	22,941.44						
Cedar Rapids	14,035.25						
Cherokee	50,540.54	2,032.05	14,409.00		5,477.03		
Chickasaw	13,144.75	1,006.65	2,097.34				
Clarke	22,337.53	333.06		6,512.15			
Clay	22,362.09						
Clayton	18,906.54	2,425.33	1,583.16				
Clinton	26,963.60	953.73					
Crawford	26,709.18		289.00				
Dallas	28,571.29	10,186.13					
Decatur	8,567.94	105.41					
Delaware	11,927.50	1,317.00	3,900.88	44,139.59			

SUMMARY TABLE NO. 6—PART I—Continued

County	Concrete culverts	Head walls connected culverts lengthened	Concrete slab bridges	Concrete arch bridges	Concrete abutments	Concrete thru girders	Concrete deck cantilever girders
Des Moines	19,014.09	853.54				4,306.48	
Dickinson	7,439.26	322.35					
Dubuque	8,147.34		5,008.00	512.80	7,461.00		7,067.20
Emmet	8,875.44	1,025.12					
Fayette	23,782.46	8,240.19	5,376.82		2,758.62		13,264.65
Floyd	16,907.57	2,145.00	1,818.78		2,227.60		
Franklin	8,004.21	1,818.29	3,445.74				
Fremont	28,056.72	266.75					
Greene	6,005.57	24.40	9,474.60				176.00
Grundy	30,454.32						
Guthrie	26,978.28						
Hamilton	15,039.15	751.09	2,583.89				1,969.00
Hancock	25,508.25		1,800.00				2,730.00
Hardin	77,359.46	2,993.70	3,546.36	3,349.68		21,075.49	1,826.25
Harrison					6,406.34		
Henry	25,803.95	503.72			2,678.92		
Howard	6,605.86	5,479.06					
Humboldt	9,243.95	399.89					
Ida	17,394.09	133.37	566.47				
Iowa	18,781.33	2,771.52	3,261.15				
Jackson	878.38	323.45					
Jasper	68,454.55	627.90	13,931.40	1,512.10			
Jefferson	7,183.45						
Johnson	39,238.09	1,542.32					
Jones	30,003.87	173.60					35.00
Keokuk	47,308.89	1,518.78					
Kossuth	12,906.35			22,119.80			
Lee	7,530.33	1,412.31					
Linn	13,905.08	4,373.11	6,406.34				4,215.42
Louisa	6,594.07						
Lucas	11,739.17	1,185.84					

Lyon	25,538.28		4,058.00				
Madison	13,591.97						
Mahaska	24,227.53	3,730.50					
Marion	46,904.06	3,089.46					
Marshall	40,279.82		7,449.57				
Mills	25,494.34	5,389.80					
Mitchell	29,316.35		4,095.00	9,301.72			
Monona	26,438.30	799.88					
Monroe	6,838.62	2,209.95					
Montgomery	2,897.89	703.21					
Muscatine	31,133.85	398.40	8,811.35				
O'Brien	21,305.27		474.39				
Oswego	15,233.06	49.67	5,038.37				
Page	66,125.20	11,875.47					
Palo Alto	14,410.12		6,026.40				
Plymouth	41,509.81						
Pocahontas	19,171.76	156.00	795.00				806.50
Polk	50,713.61	13,648.19	5,098.00				23,553.76
Pottawattamie	50,975.81	6,599.85					
Poweshiek	25,558.08						
Ringgold	2,259.48						
Sac	25,233.08	241.05					
Scott	39,795.61	1,160.50	6,340.96	8,613.50			
Shelby	21,349.22	3,567.09	8,769.27	1,337.55			24.38
Sioux	10,828.33	1,982.74	3,251.06				4,023.30
Story	7,399.13						
Tama	42,885.86	6,529.62					
Taylor	29,642.86						
Union	19,300.59	1,317.68					
Van Buren	2,078.46						
Wapello	6,814.15	5,748.40					
Warren	23,798.49						
Washington	24,292.35	996.45					
Wayne	32,708.41	1,286.25					
Webster	7,597.56	456.23	2,702.44				
Winnebago	3,425.04		1,047.05		1,241.25		
Winnebuck	25,421.62	330.95			10,377.52		
Woodbury	4,646.22	4,100.48		8,629.14			
Worth	10,383.15		748.50				
Wright	26,762.52	877.09			6,441.28		34,250.00
Total	\$2,290,086.59	\$ 149,651.83	\$ 163,267.48	\$ 112,621.23	\$ 32,942.29	\$ 39,845.98	\$ 95,926.44



## SUMMARY TABLE NO. 6—PART II

Classification of Permanent Bridge and Culvert Construction for which warrants were issued in 1931—Primary,  
County and Township Roads—Annual Report of County Engineers.

County	Retaining walls	I-Beam spans, Con- crete abutments	Steel girders, Con- crete abutments	Pony truss, Con- crete abutments	High steel trusses, Concrete abutments	Deck trusses, Concrete abutments	Miscd. permanent bridges and culverts	Total
Adair.....				\$ 18,165.06			\$ 140.80	\$ 64,374.73
Adams.....				18,379.47				39,822.72
Allamakee.....	\$ 2,519.22		\$ 10,088.66		\$ 881.92		1,076.74	39,067.50
Appanoose.....	227.43	21,417.02		20,987.39				53,992.77
Audubon.....								2,565.38
Benton.....		5,379.14	28,906.73	12,861.00				113,023.46
Black Hawk.....		21,800.53		5,104.00			149.68	41,964.85
Boone.....								21,867.28
Bremer.....				8,674.20				50,550.11
Buchanan.....	283.35	2,417.39						17,785.31
Buena Vista.....	279.39	5,691.47					2,375.56	22,561.84
Butler.....								22,887.53
Calhoun.....		19,098.66		67,358.98				96,457.64
Carroll.....								36,542.81
Cass.....							28.00	22,971.44
Cedar.....		14,725.86		6,737.98				86,949.00
Cerro Gordo.....	1,269.45	4,158.54					803.80	37,342.13
Cherokee.....	240.06	4,975.85		7,359.68				69,210.12
Chickasaw.....					58,289.67			78,229.97
Clarke.....		960.25		15,710.00				29,670.58
Clay.....		5,860.00					192.84	28,259.00
Clayton.....		8,387.13		35,447.71			633.15	67,333.03
Clinton.....		23,430.68		11,151.34	12,561.00			75,823.70
Crawford.....				59.50				5,977.93
Dallas.....					10,639.32			53,638.36
David.....		1,065.75		24,060.22	24,805.91			98,206.17
Decatur.....								2,614.35

Delaware.....		17,230.13						77,364.25
Des Moines.....		2,842.85						27,996.94
Dickinson.....		190.00		8,340.75				7,742.61
Dubuque.....								37,787.00
Emmet.....				2,000.00			2,782.00	9,900.56
Fayette.....				12,026.60				58,473.81
Floyd.....				21,075.04				34,965.61
Franklin.....		9,205.72						36,729.00
Fremont.....				9,000.00				28,321.47
Greene.....				8,909.24				25,290.87
Grundy.....		12,056.37		25,120.00				41,509.93
Guthrie.....	280.77	117.22		16,847.10	2,713.56		1,140.93	52,680.04
Hamilton.....		6,163.00						42,500.65
Hancock.....		23,416.12		18,340.02			929.42	36,241.23
Hardin.....								152,835.50
Harrison.....								6,495.34
Henry.....	219.73	4,045.74		10,414.61				45,856.73
Howard.....		12,939.47		6,568.92				51,644.31
Humboldt.....	209.14		2,482.85	956.41				13,208.66
Ia.....				2,354.40				20,788.61
Iowa.....		4,075.00						27,882.25
Jackson.....		100.00		27,538.24				1,201.83
Jasper.....	455.28							112,309.47
Jefferson.....								7,182.45
Johnson.....		4,796.00						49,789.41
Jones.....								25,028.49
Keokuk.....								48,827.67
Kossuth.....								35,028.15
Lee.....								8,942.64
Linn.....		3,790.22		5,787.55	11,215.52			52,834.33
Louis.....		50.00		4,062.00	77.28			10,734.05
Lucas.....		1,088.80		30,600.37	12,154.77			45,721.06
Lyon.....				54.18				30,789.26
Mallison.....								12,591.67
Mahaska.....		2,141.70			20,784.88			49,874.69
Marion.....		6,643.50		9,836.40	10,563.00			66,462.42
Marshall.....		135.00		9,567.47				62,991.80
Mills.....		10,517.04		8,442.00	21,955.82			77,760.60
Mitchell.....		5,813.45		12,964.97				38,919.53
Monona.....								27,238.18
Monroe.....								12,096.32
Montgomery.....							2,379.75	4,329.60
Muscatine.....		2,068.84		13,018.09	18,632.56			74,084.00
O'Brien.....		7,816.97		6,001.82				35,595.45
Osceola.....							83.72	30,465.72
Page.....							431.30	170,432.41

SUMMARY TABLE NO. 6—PART II—Continued

County	Retaining walls	I-Beam spans, Concrete abutments	Steel bridges, Concrete abutments	Pony truss, Concrete abutments	High steel trusses, Concrete abutments	Deck trusses, Concrete abutments	Miscellaneous permanent bridges and culverts	Total
Palo Alto		10,037.30		35,233.52				55,070.82
Plymouth								41,509.81
Pocahontas		24,939.45		41,979.50				87,848.21
Polk	709.56	10,938.46		5,749.22	16,822.00			127,227.80
Pottawattamie					12,028.11			79,501.77
Poweshiek		1,958.00			39,861.97			45,350.95
Ringgold								5,259.48
Sac		12,219.63		24,979.35				61,764.56
Scott		8,786.89		141.45				64,731.23
Shelby				21,522.75				58,881.15
Sioux		3,966.74		6,778.20			473.89	31,806.86
Story		10,186.78	13,928.80		27,495.81			54,817.52
Tama	330.80	4,100.16		30,682.17				74,548.61
Taylor								29,642.86
Union		4,556.15	1,712.09	17,863.00			2,317.80	46,655.02
Van Buren	102.00							2,180.46
Wapello	761.09	696.75		16,989.50				28,810.77
Warren								23,798.40
Washington		6,601.90						31,890.00
Wayne		5,684.07						20,678.73
Webster				7,965.85				18,712.18
Winnebago		4,856.46					64.00	5,777.34
Winneshiek		7,855.75					120.00	41,106.56
Woodbury				1,441.75				29,034.44
Worth		9,496.15		9,580.00	15,183.55			43,313.66
Wright		18,740.40						87,071.50
Total	\$ 8,990.13	\$ 411,017.90	\$ 57,118.50	\$ 774,211.45	\$ 304,380.15		\$ 17,837.30	\$ 4,396,104.29

SUMMARY TABLE NO. 7

Classification of Temporary Bridge and Culvert Construction for which warrants were issued in 1921—Primary, County and Township Roads—Annual Report of County Engineers.

County	Concrete Pipe	Corrugated Pipe	I-Beam Spans Piling Abutments	Pony Trusses on Piling Wood Floor	Wood Truss Bridges	Wood Truss Bridges	Miscellaneous Temporary Bridges and Culverts	Total
Adair	\$ 3,104.74		\$ 2,830.83		\$ 1,676.90			\$ 7,692.43
Adams	2,621.50	320.00			11,007.84			14,549.64
Allamakee		2,841.53			1,007.28		1,072.95	4,971.76
Appanoose		3,367.57	1,486.75		5,067.31		65.00	8,416.53
Archibald	55.35	140.50		\$ 2,125.30	17,557.12			19,856.47
Benton		2,866.56	1,823.81			\$ 2,618.00		7,308.37
Black Hawk	46.80	836.30	311.26		1,808.55		101.83	3,154.84
Boone		2,348.04						3,848.04
Bremer		1,382.76			1,878.22			3,260.98
Buchanan		1,677.70			1,718.00		16.97	3,412.73
Boona Vista		138.00						138.00
Butler		75.14					11,238.62	11,313.76
Calhoun			860.75	\$ 2,800.35	749.11		419.89	5,001.24
Carroll								
Cass	2,154.03	60.90		3,145.00	7,975.47	7,636.44	15.75	20,980.59
Cedar		342.50						342.50
Cerro Gordo		2,115.50	997.99					3,114.49
Cherokee	12.00	1,503.36		1,650.02			23.46	3,236.74
Chickasaw		2,517.08			15,277.54			17,794.62
Clarke		986.40	1,046.28	2,028.04	946.95		35.01	5,044.16
Clay								
Clayton		650.78	201.68			572.13	245.50	1,730.59
Clinton		1,458.68			531.84			1,990.52
Crawford	160.12	2,092.32			6,082.47			8,344.91
Dallas	1,390.65	1,198.56						2,589.21
Davis	287.78	37.00					1,080.71	1,405.49
Decatur	656.84	1,722.18						2,378.02
Delaware		649.00			5,646.80	2,086.57		7,375.97

SUMMARY TABLE NO. 7—Continued

County	Concrete Pipe	Corrugated Pipe	I-Beam Spans Filling Abut- ments	Box Trusses on Piers Wood Floor	Wood Trestle Bridges	Wood Truss Bridges	Miscellaneous Temporary Bridges and Chverts.	Total
Des Moines	41.00	485.92					811.80	1,288.72
Dickinson	386.90				4,791.00		153.85	5,331.75
Dubuque	2,029.05							2,029.05
Emmet					104.00			104.00
Fayette		198.90						198.90
Floyd		35.00			13,107.66			13,142.66
Franklin		2,548.38					256.13	2,804.51
Freemont	836.90	299.63			2,449.55		181.00	3,576.08
Greene	551.51				750.00		125.00	1,426.51
Grundy		504.00			868.00		910.34	2,282.34
Guthrie		110.00				6,165.34	7,147.15	13,422.49
Hamilton		3,611.62					144.85	3,756.47
Hancock	630.00				3,058.90			3,688.90
Hardin		3,846.67			9,836.89		124.05	13,807.61
Harrison		5,421.11		1,387.50	3,440.31			10,349.01
Henry		748.89			1,904.51			2,653.40
Howard					9,501.41		1,574.89	11,076.30
Humboldt		1,819.33			211.37			2,030.70
Ia	4,575.50	883.80						5,459.30
Iowa				4,045.00	2,274.10		25.00	6,944.10
Jackson		4,282.12	4,334.60	368.09	459.74		1,456.00	10,902.15
Jasper	897.47							897.47
Jefferson	98.40				791.14			889.54
Johnson		241.44					1,807.53	2,048.97
Jones		2,850.50					63.00	2,913.50
Kookuk		800.04		479.22	673.69		1,189.99	2,722.94
Kossuth		8,619.11			26,562.24			35,181.35
Lee		1,857.23						1,857.23
Linn		4,545.17			8,717.74			13,262.91
Louis	1,536.21	1,382.20						2,918.41
Lucas	159.80	563.42	4,200.00					4,923.22
Lyon		39.58			10,338.25			10,377.83
Madison	330.70	9,599.38			6,360.09			16,290.17
Mahaska		1,104.59			6,116.00			7,220.59
Marion		968.80	1,589.40	679.50			40.00	2,637.70
Marshall		2,239.33	1,529.56		2,306.47	1,917.10	209.97	8,159.33
Mills	882.40	1,300.30		9,323.00	5,280.50		62.25	16,738.45
Mitchell								
Monona	239.50	372.30	2,885.89	11,060.80	2,273.19		15.25	16,855.93
Monroe		1,496.98						1,496.98
Montgomery	2,922.31	656.91	1,955.00	968.40	8,467.00		808.61	15,778.23
Muscatine	352.67	1,092.62					31.97	1,477.26
O'Brien	3,175.40	35.00			1,722.21		8.35	4,940.96
Osceola	310.00				8,758.38			9,068.38
Page	2,782.00	1,942.32			978.93		2,015.00	7,718.25
Palo Alto		615.01						615.01
Plymouth		11,729.61	4,510.80	15,383.78	848.02			32,473.21
Pocahontas		2,222.46			2,802.58		674.53	6,009.57
Polk		5,029.15						5,029.15
Pottawattamie	96.25	1,217.09	15,591.92	12,508.17	51,839.94		740.94	81,992.51
Poweshiek		2,164.40				7,340.80		9,505.20
Ringgold	2,115.45	2,237.50	1,167.30		199.37			11,690.75
Sac		149.12						1,506.79
Scott		6,083.81						6,083.81
Shelby		1,836.10			15,017.83			16,853.93
Sioux	277.00	2,943.69	27,829.57		12,888.13		938.21	42,374.50
Story								17,047.03
Tama		2,876.69			9,220.13			12,096.82
Taylor	72.08				7,366.38			7,438.46
Union	4,296.10	838.90	976.80	2,116.00			2,619.74	10,875.54
Van Buren							790.40	790.40
Wapello		178.40			1,988.66		93.00	2,260.06
Warren	118.00	455.52			7,029.88		1,437.82	9,041.22
Washington		1,049.60			449.54			1,499.14
Wayne	1,054.56	1,411.21			5,992.47			8,458.04
Webster		1,185.73						1,185.73
Winnebago	497.50							497.50
Winnebuck			597.73		1,841.25	27.00		2,465.98
Woodbury	915.67		2,779.19	2,026.27	13,106.67	43.02	2,277.22	17,877.90
Worth								
Wright		2,480.94						2,480.94
Total	\$ 43,392.80	\$ 145,619.70	\$ 78,674.11	\$ 72,837.49	\$ 344,344.61	\$ 29,297.00	\$ 45,835.24	\$ 707,920.98



## SUMMARY TABLE NO. 8

Showing Cost of Repairs on Bridges and Culverts and Culvert Material Purchased for Townships—Annual Report of county Engineers.

County	Cost of Repairs					Culverts for Townships				
	Wooden bridges and culverts	Temporary steel bridges and culverts	Permanent bridges and culverts	Miscellaneous repairs	Total cost repairs	Corrugated pipe	Concrete pipe	Lumber	Miscellaneous material	Total township material
Adair	\$ 13,222.94				\$ 13,222.94		\$ 7,542.91	\$ 902.08		\$ 8,506.00
Adams	5,183.28	1,791.10			6,974.38	\$ 2,021.00	4,052.04	1,633.22	32.40	8,638.66
Allamakee	14,506.70	273.02	842.70	8,305.73	24,348.75		2,161.08	975.80		3,136.88
Appanoose	6,088.17	4,008.34	287.19		11,044.30	8,361.88		1,409.30	5,908.53	10,899.71
Ashtabula	1,532.51		358.30	419.44	2,310.25	4,047.88				4,047.88
Benton	11,801.92		1,458.06		13,260.98	5,139.12		456.96	80.00	5,676.08
Black Hawk	2,450.20	605.07	147.53	1,213.59	4,416.41	1,788.33				1,788.33
Boone	2,630.70	2,401.88	558.55	5,593.43	11,094.56		61.05		13.14	74.19
Brenner	7,002.64	936.14	5,032.92	460.59	13,472.21	3,378.18		1,300.44	86.09	4,771.31
Buchanan	12,456.79		5,067.24	16,444.03	28,968.06	4,889.09			58.75	4,948.44
Buena Vista	1,903.72	56.90	1,348.53	180.78	3,490.93	2,647.19			29.32	3,076.51
Butler	12,149.80	847.25	402.90	1,245.33	14,645.28	107.00		1,306.48	298.77	2,712.25
Calhoun	126.77	2,100.50	125.03	2,426.30	4,753.60		2,146.00			2,146.00
Carroll	8,007.90	925.44	1,890.47	87.15	10,914.96	188.80	261.34	4,000.53	75.95	4,336.62
Cass	5,818.79	2,501.89	8,964.70	404.18	15,690.56					
Cedar		1,150.47		11,555.98	12,706.45	190.30				190.30
Cerro Gordo	4,777.02	4,502.75			9,279.77	1,299.30		308.73	10.50	1,618.53
Cherokee	6,428.02	3,741.46	8.20	19.84	10,197.52	9,364.02		31.15		9,395.17
Chickasaw	11,572.03				11,572.03			2,243.00		2,243.00
Clarke	5,092.11	498.40	741.40	314.28	6,646.19	4,375.47		24.00	2.50	4,402.00
Clay	2,331.47	180.73	1,335.80		4,848.00	5,709.72		177.49	134.00	5,961.21
Clayton	971.73	2,844.00	306.46		4,122.19	2,255.88		51.55		2,307.43
Clinton	2,700.94	1,341.73	701.44	188.00	4,932.11	6,355.74		139.62	72.61	6,567.97
Crawford	49,933.99	372.10			50,306.09	12,756.24				12,756.24
Dallas	10,002.10	8,009.74	4.75	90.40	18,107.05	3,986.09	2,144.07			4,731.05
Davis	22,162.22	564.55	970.05	411.75	24,108.67	804.00	1,430.72			2,234.72
Decatur	17,558.55	4,760.15	220.97		22,540.67	5,701.78		368.87	163.67	5,834.32
Delaware	6,354.45	2,296.50	415.46	1,009.40	10,075.81	4,629.55		197.56		4,827.11
Des Moines	469.50	470.32	2,380.75	547.46	3,870.03	5,617.43				5,617.43
Dickinson	407.40	303.68	1,005.18	505.12	2,821.38			270.21		270.21
Dubuque	10,181.11	10,100.83	2,184.70	96.43	22,573.07	6,292.98				6,292.98
Emmet	7,906.72	503.54	5,183.21	658.61	13,652.09		1,341.61			1,341.61
Fayette	15,092.76	2,956.04			18,048.80	8,934.58				8,934.58
Floyd	2,182.24	6,880.24	2,070.78	4,296.46	15,430.92			1,812.56	43.90	1,856.46
Franklin	11,256.10	170.83	985.87	142.71	12,555.51	2,613.47				2,613.47
Frederick	10,832.67	4,750.23	883.71	6.51	16,473.12	104.00		2,136.00	32.50	2,332.50
Greene	18,303.13		310.70	379.55	18,993.38		4,807.94			4,807.94
Grundy	3,090.83			4,073.55	7,164.38	8,737.37	2,014.56			2,014.56
Guthrie	10,878.70	4,807.62	2,824.45	3,116.44	21,737.21	1,837.89	989.40		173.48	2,061.77
Hamilton	2,488.51	2,029.49			4,518.00					
Hancock	5,110.83	109.01	2,329.01	439.83	7,988.68	3,111.00				3,111.00
Hardin	8,752.64		5,388.14		14,140.78	1,139.60				1,139.60
Harrison	22,982.02	2,407.30	21.00	279.38	25,690.44	3,308.70				3,308.70
Henry	7,309.34	1,400.31	307.42	189.31	9,206.38	1,070.29		17.50		1,087.79
Humboldt	2,074.05	12.40	1,071.56	1,121.81	4,280.82	1,800.78				1,800.78
Ia	5,961.00	989.43	508.58	2,733.54	10,000.55		1,415.38	946.08	233.50	2,595.74
Iowa	5,435.18	81.39	508.82	709.59	6,735.00	7,341.85		14,449.11	978.87	15,427.92
Jackson	10,280.43	7,942.81			18,223.24	2,082.89				2,082.89
Jasper	22,131.02		2,078.00	7.00	24,216.02	4,043.04			186.32	4,229.36
Jefferson	2,307.44	2,444.89	2,017.72	615.11	9,445.15	5,614.55		1,971.94		7,586.49
Johnson	7,497.88	5,802.68	2,751.59	2,063.91	18,106.06	5,234.09		1,420.06	129.13	6,783.18
Jones	16,879.49	915.00	980.41		18,775.90	2,024.39		871.15		2,895.54
Keeok	4,192.98	1,815.64	552.80	30.00	6,591.42	3,777.92		770.07		4,547.99
Kossuth	11,734.88	2,459.37	5,927.81		19,122.06	5,544.36	12.00			5,556.36
Lac	15,034.08	4,181.10			19,215.18	2,275.73				2,275.73
Linn	8,730.01	11,840.72	1,701.08	1,623.13	22,900.94	4,545.18				4,545.18
Louis	2,201.10	4,060.04	194.77	2,233.24	8,690.15	8,874.12		89.40		8,963.52
Lucas	6,325.00	4,008.21	621.87	12.79	11,077.87	6,008.58				6,008.58
Lyon	16,737.02	1,018.54	307.70		18,063.26	5,945.41	10.50	1,192.70	83.04	7,231.15
Madison	21,814.84	637.43		1,541.61	23,993.88	3,759.30				3,759.30
Mahaska	5,032.63	3,000.19		605.76	8,638.58	6,023.81		3.00	32.00	6,060.81
Marion	5,683.68	500.00		497.81	7,681.49	590.10		1,359.30	40.00	1,439.40
Marshall	5,078.10		5,022.06		10,100.16	3,093.62		194.64	61.41	3,349.67
Mills	7,801.10	2,708.30	545.70		11,055.10	1,000.75				1,000.75
Mitchell		2,085.59		9,719.39	11,804.98	1,117.49				1,117.49
Monona	11,351.00	4,800.00	290.32	7.50	16,449.82	1,487.50				1,487.50
Monroe	15,490.71		725.65		16,216.36	3,320.18				3,320.18
Montgomery	4,289.50	6,938.40		351.13	11,579.03	1,007.00			691.71	1,698.71
Neosho	780.76	8,245.84	634.55	302.94	10,064.09	1,004.00			36.63	1,040.63
O'Brien	14,137.11	1,725.70		30.00	16,092.81		1,800.65	122.05		1,922.70
Osceola		137.99			137.99		989.56	7.38		996.94
Page	36,397.24	5,594.90	150.00	43.32	42,185.46	5,021.42	2,400.80		302.49	7,000.71

SUMMARY TABLE NO. 8—Continued

County	Cost of Repairs					Culverts for Townships				
	Wooden bridges and culverts	Temporary steel bridges and culverts	Permanent bridges and culverts	Miscellaneous repairs	Total repairs	Corrugated pipe	Concrete pipe	Lumber	Miscellaneous material	Total township material
Palo Alto	3,111.35	684.97	1,149.14	332.44	5,077.88	3,025.51	1,080.27	850.75	9.00	5,045.53
Plymouth	15,227.21	831.02	1,149.14	332.44	17,539.81	20,217.37	2,673.80	2,192.85		20,410.22
Pocahontas	2,632.01	835.02	1,044.14	304.88	4,816.05	8,237.95	3,083.00			11,320.95
Polk	7,632.11	1,044.14	1,044.14	304.88	10,025.27	14,578.15	1,820.65			16,398.80
Pottawattamie	13,771.11	735.20	3,129.97	162.00	17,798.28	14,578.15	1,820.65	40.00	297.27	16,736.07
Pottawamie	25,271.11	1,488.80	3,922.01	432.23	31,114.15	29,824.01	10,581.70			42,405.71
Poweshiek	27,468.25	1,509.02	298.70	432.23	30,408.20	29,409.10	1,167.20	3,337.85	9.50	33,866.65
Ringgold	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Sac	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Scott	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Shelby	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Sioux	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Story	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Taylor	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Union	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Van Buren	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Wapello	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Warren	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Washington	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Wayne	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Webster	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Winnebago	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Winnebago	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Winneshiek	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Woodbury	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Worth	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Wright	2,353.51	1,702.60	298.70	432.23	5,786.04	4,407.05	1,064.08	64.91	5.15	5,541.23
Total	\$677,300.35	\$35,263.90	\$195,200.00	\$6,867.11	\$914,631.36	\$906,277.80	\$7,352.56	\$68,465.14	\$10,004.98	\$1,022,490.48

SUMMARY TABLE NO. 9

Bridge Equipment Unused Material—Filling Bridges and Culverts and Special Cases—Annual Report of County Engineers.

County	Equipment and Material		Total		Special Cases				
	Equipment and repairs	Material purchased and not used	Equipment and repairs	Material purchased and not used	Right of way	Moving and erecting old spans	Channel change	Miscellaneous	Total
Adair	7,300.78	5,371.10	7,300.78	5,371.10	12,236.73	2,681.02			2,884.22
Adams	1,429.07	1,429.07	1,429.07	1,429.07	2,200.71	205.15	106.95	112.46	4,255.34
Allamakee	294.44	294.44	294.44	294.44	4,400.72	368.50			4,769.24
Appanoose	528.89	528.89	528.89	528.89	1,478.00	20.00	194.35		1,692.24
Ashtabula	1,777.60	2,540.97	4,318.56	2,540.97	2,270.23		777.58	150.00	927.58
Black Hawk	353.44	353.44	353.44	353.44	1,601.73	135.00	5,099.56		7,154.69
Boone	1,75	5,098.47	5,098.47	5,098.47	5,098.47	60.00	1,510.02	1,510.02	1,510.02
Bremer	2,455.47	1,754.21	4,209.68	1,754.21	135.00	135.00	1,100.45	1,602.22	2,809.67
Buchanan	70.62	70.62	70.62	70.62	130.85	200.00			330.47
Bureau Vista	1,225.70	1,225.70	1,225.70	1,225.70	1,019.65		350.00	450.00	2,019.35
Bridger	2,917.15	2,917.15	2,917.15	2,917.15	3,021.00		1,267.14		4,184.14
Calhoun	801.60	4,194.87	5,098.47	4,194.87	1,000.00	1,872.68	880.45	400.00	7,853.58
Cass	2,145.42	2,145.42	2,145.42	2,145.42	1,400.15	135.01	7,300.10	400.00	11,151.03
Cedar	2,069.28	1,843.24	3,912.52	1,843.24	6,406.82	135.01	7,300.10	720.00	14,581.23
Cerro Gordo	394.43	984.36	1,378.79	984.36	744.84	100.00	142.12	4,337.98	6,663.91
Cherokee	586.29	2,000.00	2,586.29	2,000.00	2,590.58	15.00			2,605.58
Chickasaw	908.22	1,843.24	2,751.46	1,843.24	10,000.00	5.00	1,008.41	6,432.94	14,047.41
Clarke	27.45	2,967.43	2,994.88	2,967.43	358.75	60.00	542.50	412.71	1,050.65
Clayton	27.45	2,967.43	2,994.88	2,967.43	358.75	60.00	542.50	412.71	1,050.65
Clinton	2,000.00	2,000.00	2,000.00	2,000.00	8,731.51		96.00	867.78	11,534.17
Crawford	230.70	854.28	1,084.98	854.28	1,191.00	36.00	4,029.21	6,877.78	11,534.17
Dallas	623.68	230.70	854.38	230.70	1,700.70	100.00	1,019.33	220.27	2,180.00
Davis	5,428.25	600.48	6,028.73	600.48	7,400.42		900.85	1,341.15	9,670.22

SUMMARY TABLE NO. 9—Continued

County	Equipment and Material		Special Cases					
	Equipment and repairs	Material purchased and not used	Total	Right of way	Moving and re-erection old spans	Channel change	Miscellaneous	Total
Decatur	1,002.76	7,761.53	4,394.29	11,007.83				2,833.02
Dela	54.04	1,354.71	1,008.75	495.60	190.00			190.00
De Kalb	4,801.04	1,182.30	5,788.34	170.59	125.00	60.00	222.00	1,884.00
Douglas	1,137.53	800.00	1,937.53	1,100.00	350.00		254.13	658.13
Elbert			447.84	8.00				
Fayette	4,371.86	2,918.36	7,590.54	9,317.76	668.00	2,863.04	14.10	2,375.14
Floyd	1,652.72	3,447.05	1,141.45	1,141.45	5.00	906.00	869.38	1,859.38
Franklin	1,975.04	1,975.04	448.98	448.98	143.00			218.75
Ga. P. & N.	1,747.43	5,477.42	2,065.60	2,065.60	1,461.20	16,694.55	320.00	18,480.75
Gwinnett	99.40	37.00	32.40	37.00	250.00			11,893.36
Grady			4,838.17	382.85		11,033.41		
Guthrie	2,870.12	2,100.00	5,070.12	1,073.00		530.50		1,003.50
Hamilton	49.10		49.10	502.10	1,000.00	80.50		1,621.10
Haralson	286.97	2,971.00	2,971.00	231.80	750.00			750.00
Hawkins	1,625.99	2,862.67	5,437.89	5,437.89	694.00		318.90	3,317.40
Henry	2,845.00	2,741.90	2,741.90	277.45	1,069.21	303.25	14,144.00	5,783.49
Howard	1,005.54	2,929.00	4,535.60	1,018.05			5,094.27	2,860.25
Howell	37.32	1,006.50	1,154.28	1,177.45	1,802.10	310.75	27.05	
Humboldt	5,540.08	3,775.69	9,315.77	1,567.00			748.00	
Iboma	815.08	8,015.00	8,830.08	48.00		211.63		250.63
Jackson	468.28	8,595.57	9,063.85	11,972.39	10,000.00		11,972.39	19,674.78
Jasper	3,639.71	3,500.57	7,140.28	39.00				
Jefferson		3,576.55	1,492.67	-		105.25		2,916.59
Johnson	1,311.99	1,311.99	5,102.18	87.11	9,029.84			2,044.50
Knox				118.50				1,197.40
Koosa				25.00				9,252.50
Kruth	1,251.48	1,251.48	1,747.80	1,747.80				9,187.50
Laurens	4,795.94	8,145.57	7,397.04	7,397.04				2,574.00
Lee	5,840.99	4,795.94	8,145.57	5,298.45	320.00			1,740.00

[illegible]



## SUMMARY TABLE NO. 10

Comparison of Bridge and Culvert Construction, 1916, 1917, 1918, 1919, 1920, 1921—Annual Report of County Engineers.

County	Jan. 1, 1916 to Jan. 1, 1917	Jan. 1, 1917 to Jan. 1, 1918	Jan. 1, 1918 to Jan. 1, 1919	Jan. 1, 1919 to Jan. 1, 1920	Jan. 1, 1920 to Jan. 1, 1921	Jan. 1, 1921 to Jan. 1, 1922	Total county and primary funds 1921
Adair	\$ 76,673.06	\$ 60,781.88	\$ 50,356.53	\$ 50,551.48	\$ 108,912.61	\$ 116,027.12	\$ 151,935.49
Adams	40,380.49	42,529.93	37,673.18	49,165.98	109,265.95	82,553.15	82,553.15
Allamakee	74,588.87	89,159.24	43,218.53	41,010.98	52,134.87	77,073.13	77,073.13
Appanoose	41,670.33	71,867.42	50,398.79	32,773.38	84,331.44	11,148.98	108,002.38
Audubon	52,006.07	85,581.09	50,231.63	67,584.30	67,409.10	29,302.97	64,235.85
Benton	100,511.72	106,838.92	109,331.64	110,775.58	176,535.49	148,471.25	146,471.25
Black Hawk	58,933.50	60,557.39	54,074.56	57,597.70	213,086.42	56,441.00	62,503.80
Boone	61,134.69	55,825.49	82,729.43	110,501.77	180,927.99	52,875.78	52,875.78
Bremser	50,105.27	46,545.79	41,018.54	70,242.30	64,135.41	79,400.56	91,043.76
Buchanan	69,505.00	69,490.21	37,468.87	58,820.89	67,307.30	43,052.57	43,052.57
Buena Vista	142,578.84	51,899.17	28,519.05	39,342.70	24,516.43	32,486.24	32,486.24
Butler	67,840.92	104,242.82	37,906.11	48,972.03	56,787.09	74,439.94	74,439.94
Calhoun	58,509.34	76,876.48	47,003.49	25,546.30	35,567.53	112,514.08	112,514.08
Carroll	61,392.73	83,106.61	69,203.79	64,860.80	94,545.25	62,580.05	22,676.28
Cass	75,523.98	80,736.02	83,701.40	107,368.51	369,526.35	79,450.42	108,056.27
Cedar	72,800.18	57,061.23	29,553.88	70,080.62	158,956.05	101,792.78	101,792.78
Cerro Gordo	47,946.87	97,178.47	60,178.07	61,742.92	68,015.59	55,756.61	55,756.61
Cherokee	117,548.21	201,310.00	96,271.33	175,827.59	165,904.23	99,805.40	122,999.57
Chickasaw	82,876.52	43,847.49	57,297.36	34,089.49	54,835.28	116,347.51	116,347.51
Clarke	57,696.35	56,519.47	43,935.36	35,399.41	94,000.28	64,273.57	66,773.94
Clay	92,388.02	165,412.09	69,819.70	48,229.12	39,940.49	46,141.45	58,958.07
Clayton	56,477.81	76,739.87	65,971.13	60,025.89	91,055.05	81,112.18	96,989.23
Clinton	71,682.90	76,094.79	51,858.65	89,334.24	67,292.29	98,831.49	98,831.49
Crawford	128,929.70	215,743.16	178,265.74	292,347.17	189,078.88	90,730.00	90,730.00
Dallas	129,400.96	97,065.19	76,046.06	51,623.87	66,758.25	83,697.48	83,697.48
Dayle	49,649.72	55,573.12	31,707.58	49,820.29	105,813.81	141,689.29	141,689.29
Decatur	44,802.68	37,011.45	50,141.05	111,194.10	112,922.83	53,574.15	77,373.28
Delaware	50,030.01	44,829.07	36,808.01	50,626.71	59,008.04	102,130.09	102,130.09

Des Moines	32,775.07	30,807.38	30,965.98	30,261.73	30,842.47	47,618.90	47,618.90
Dickinson	35,278.75	85,000.08	41,061.54	18,329.70	18,324.07	16,709.98	16,709.98
Dubuque	107,796.43	107,067.39	47,119.99	59,431.05	29,467.07	71,686.25	71,686.25
Emmet	41,825.69	23,815.98	19,900.75	30,950.81	30,915.62	35,126.00	35,126.00
Euclid	103,875.60	104,411.45	60,521.75	77,682.56	139,985.42	102,471.52	102,471.52
Floyd	86,477.17	56,071.78	42,671.61	57,551.92	71,132.66	73,454.32	73,454.32
Franklin	55,837.18	67,364.73	54,150.95	49,309.07	70,467.16	56,051.27	56,051.27
Fremont	64,325.75	76,873.15	60,530.32	61,925.12	121,267.67	75,559.09	116,180.22
Greene	39,777.44	42,738.36	66,799.80	137,335.68	394,560.19	70,150.45	70,150.45
Grundy	61,515.12	57,138.70	163,119.42	150,131.41	150,514.68	70,514.68	21,066.72
Guthrie	52,794.11	128,969.08	85,499.50	71,759.36	139,071.15	100,951.95	50,488.98
Hamilton	95,129.10	78,864.48	70,873.73	78,026.64	94,496.40	53,828.32	2,609.80
Hancock	28,004.85	43,639.91	59,212.60	20,705.83	21,441.13	51,612.49	51,612.49
Hardin	88,757.39	78,147.29	104,082.01	150,638.70	73,241.71	194,613.01	194,613.01
Harrison	176,500.05	105,411.99	73,698.35	73,017.36	125,720.66	52,998.68	52,998.68
Henry	29,749.62	45,096.71	33,314.63	42,929.64	61,662.05	66,568.46	66,568.46
Howard	60,071.06	46,576.56	40,465.87	35,780.01	46,734.74	56,758.71	6,280.00
Humboldt	46,235.32	44,699.73	50,518.54	19,663.78	41,112.02	30,589.73	30,589.73
Iowa	56,738.71	57,039.63	50,322.49	67,582.02	131,431.51	52,482.58	21,486.18
Jackson	77,286.47	77,406.16	101,465.13	117,105.29	137,068.14	77,817.48	42,236.50
Jasper	55,275.30	107,507.67	66,898.55	39,245.01	42,438.29	62,370.36	65,229.41
Jessie	96,550.58	95,078.48	156,044.64	138,791.91	187,107.08	153,066.69	12,947.24
Jefferson	80,190.69	68,800.02	41,028.46	77,279.06	48,769.81	33,306.18	33,306.18
Johnson	69,652.92	71,806.16	60,421.78	70,622.76	66,062.61	77,708.10	77,708.10
Jones	56,297.35	67,549.99	50,219.76	45,558.45	83,275.14	51,411.83	23,080.28
Keokuk	65,569.02	55,396.55	86,007.09	71,494.38	54,416.04	82,338.03	82,338.03
Kossuth	98,454.83	65,580.98	67,620.42	54,425.45	109,314.40	98,788.38	98,788.38
Linn	31,755.09	37,375.30	46,342.75	49,983.96	67,233.83	46,716.33	7,679.76
Louis	72,092.79	82,844.37	79,864.48	110,738.07	124,062.88	108,822.91	108,822.91
Louisa	59,378.15	39,686.07	30,347.29	44,441.18	79,041.40	31,588.66	82,339.47
Lucas	39,481.17	70,790.10	54,044.04	83,451.34	114,014.23	76,344.11	109,607.84
Lyon	56,011.62	109,339.63	60,883.19	33,080.80	97,761.82	68,126.09	79,281.27
Madison	44,028.58	50,338.61	68,029.49	63,400.61	75,328.22	68,126.09	71,294.40
Mahaska	58,737.22	58,046.80	55,470.44	62,300.42	54,925.17	73,943.08	25,069.68
Marion	146,137.39	62,056.94	70,189.34	42,566.34	70,182.37	105,015.92	9,096.65
Marshall	132,224.80	162,138.13	102,354.69	132,640.41	304,999.29	105,015.92	8,535.18
Mills	59,261.00	66,639.89	90,194.32	88,205.83	128,275.40	125,681.99	64,366.41
Mitchell	87,592.12	68,051.43	65,314.86	71,731.17	51,063.07	75,848.58	75,848.58
Monona	72,490.67	69,032.27	74,287.37	50,873.06	82,908.99	81,331.82	22,281.12
Monroe	52,006.57	56,781.27	49,365.71	67,076.00	62,864.80	35,678.05	10,135.05
Montgomery	53,562.96	75,094.77	76,089.61	188,635.16	220,192.79	48,951.07	48,951.07
Muscatine	46,374.19	31,845.24	37,539.23	42,577.49	45,814.40	90,945.13	104,238.26
O'Brien	60,528.47	50,545.58	76,544.14	73,630.40	194,550.08	67,933.62	67,933.62
Oswego	54,729.33	74,138.68	47,028.42	68,073.73	95,010.75	34,046.17	35,147.17
Page	83,753.97	90,443.18	91,769.07	81,168.39	134,468.53	274,950.25	274,950.25
Palo Alto	81,510.25	84,484.90	48,349.83	87,123.75	50,632.37	70,277.65	70,277.65



SUMMARY TABLE NO. 11—Continued

County	Construction	Maintenance	Special Cases	Total
Mahaska	195.33	25,446.63	16,592.92	42,234.88
Marion	64.05	27,001.82	27,494.59	54,556.46
Marshall	4,057.22	30,949.22	6,575.70	41,572.14
Mill		41,474.18	28,527.74	70,001.92
Monona	48,108.77	28,616.65	21,087.59	97,812.01
Monroe	5,141.13	18,772.92	8,015.95	31,929.00
Montgomery		28,859.47	12,529.16	41,388.63
Muscatine	3,055.92	16,895.26	1,073.78	21,024.96
O'Brien	29,189.24	32,977.31	13,666.93	75,833.48
O'Brien	15,352.98	17,258.15	7,704.89	40,316.02
Osceola	11,559.54	8,278.17	4,861.67	24,699.38
Pace	5,746.51	24,792.97	22,468.45	53,007.94
Palo Alto	114,378.35	13,316.56	13,762.35	141,457.26
Plymouth	44,156.73	29,694.54	10,226.70	84,078.00
Pocahontas	150,400.32	28,298.81	12,916.56	191,615.69
Polk	199,600.49	43,019.79	14,958.39	257,578.67
Pottawattamie		52,459.97	2,015.70	54,475.67
Poweshiek	1,172.05	38,309.14	5,475.09	44,956.28
Ringgold		28,449.29	1,781.52	30,230.81
Sac	22,809.00	17,979.48	900.65	41,689.13
Scott	17,506.77	24,658.08	11,559.70	53,724.55
Shelby	6,007.29	29,885.35	9,151.63	45,044.27
Sioux	35,701.32	19,772.72	15,848.86	70,322.90
Story	131,558.45	24,099.66	2,750.95	158,409.06
Tama	1,119.80	41,368.09	17,329.00	60,116.89
Taylor	1,141.99	19,039.68	9,700.84	29,882.51
Union		22,060.78	2,393.82	24,454.60
Van Buren		19,889.94	558.09	20,448.03
Wapello	2,643.82	17,905.21	3,822.70	24,371.73
Warren	83.25	18,614.96	22,855.23	41,554.44
Washington	212.53	21,181.00	8,246.88	29,640.41
Wayne	5,789.34	17,499.27	7,094.71	29,383.32
Webster	50,043.41	24,619.82	869.69	75,532.92
Winnebago	12,944.97	14,177.03	6,811.66	33,933.66
Winnebago		22,302.38	1,343.79	23,646.17
Woodbury	15,832.37	22,547.73	155,798.85	194,179.95
Worth	1,543.79	30,154.96	2,366.64	34,065.39
Wright	158,776.56	31,389.39	12	190,166.05
Total	\$ 2,174,794.45	\$ 2,567,315.71	\$ 1,024,460.34	\$ 5,766,570.50

SUMMARY TABLE NO. 12  
Classified Road Expenditure—Construction County Roads—Annual Report of County Engineers.

County	Finished Grade Standard Section	Gravel, Macadam & Sand Clay Surfacing	Paving	Equipment and Tools	Total expenditures
Adair					\$ 510.13
Adams					
Allamakee					
Appanoose					
Audubon					
Benton					
Black Hawk					
Bremer					
Buchanan					
Buena Vista					
Butler					
Calhoun					
Carroll					
Cedar					
Cerro Gordo					
Cherokee					
Chickasaw					
Clarke					
Clay					
Clinton					
Crawford					
Dallas					
Davis					
Decatur					
Delaware					



SUMMARY TABLE NO. 12—Continued

County	Finished Grade Standard Section		Gravel, Macadam & Sand Clay Surfacing		Paving		Tiling and drainage assessments	Equipment and tools	Total expenditures
	Miles built	Total warrants issued	Miles built	Total warrants issued	Miles built	Total warrants issued			
Des Moines			3.00	5,354.06			2,809.12		5,159.85
Dickinson									
Dubuque			11.75	7,635.61			917.47		8,553.08
Emmet	3.86	19,303.27					1,196.28	1,142.30	21,643.04
Fayette	6.67	12,380.92	8.88	18,787.97			25,116.13	9,087.43	60,872.45
Floyd	18.00	38,394.54	49.50	61,805.40			20,394.30	4,217.66	124,708.90
Franklin	2.00	5,619.02							5,619.02
Fremont	4.50	5,450.76	2.30	4,843.55			35.26	81.71	10,179.22
Greene	11.00	28,472.38	6.00	7,535.04			4,739.90		40,737.30
Grundy		990.00					5,343.05	200.00	6,323.05
Guthrie		25,413.51		45,266.95			12,349.81		81,030.27
Hamilton	3.60	1,000.10	3.60	13,301.77			10,407.97		25,209.84
Hancock	12.36	36,685.70	11.28	19,112.21			18,463.60	3,462.96	67,735.46
Hardin							2,047.02		2,047.02
Harrison							355.74		355.74
Henry							7,714.98	125.73	7,840.71
Howard							9,735.24		27,918.87
Humboldt	15.25	26,316.70	3.00	1,846.93					
Ia									
Iowa									
Jackson									
Jasper	1.25	6,354.50	1.50	1,001.17			32.13		7,447.80
Jefferson									
Johnson	.70	2,807.80	.70	15,603.78			1,217.48		19,749.06
Jones			1.00	2,814.51			124.75		2,939.26
Keokuk	.28	1,601.43					157.13		1,758.56
Kossuth	50.00	85,189.45					9,925.74		95,115.19
Lee									
Linn							4,842.84		4,842.84
Louis									
Lucas	.25	1,702.00							1,702.00
Lyon			8.00	5,073.03			4,581.82		9,655.78
Madison									
Mahaska							165.23		165.23
Marion							64.95		64.95
Marshall		98.88	4.75	1,459.02			1,869.95	949.37	4,067.22
Mills	9.00	31,311.95	4.00	1,717.93			15,078.86		48,108.77
Mitchell	.73	5,141.13							5,141.13
Monona									
Monroe	.85	2,900.10					148.75	814.07	3,053.92
Montgomery	2.24	19,472.83					716.41		19,189.24
Muscatine	2.00	2,000.07	9.00	9,950.78			5,394.03		15,353.88
O'Brien	3.00	6,508.01					5,942.54		11,550.55
Oscola								5,746.51	5,746.51
Pace	6.91	30,048.71	30.15	75,310.23			8,874.91	144.50	114,378.35
Palo Alto	7.00	34,373.13					9,913.63		44,186.76
Plymouth	13.50	56,063.38	23.75	67,486.67			36,210.27		150,460.32
Pocahontas	30.80	71,302.74	21.00	58,774.04			30,623.62		150,900.40
Polk									
Pottawattamie							1,172.05		1,172.05
Poweshiek									
Ringgold			16.96	32,790.24			39.82		32,830.06
Sac							4,730.54		17,506.77
Scott	5.91	15,776.23					4,061.90		6,097.20
Shelby	.83	2,815.30					2,216.61		25,701.32
Sioux	.50	1,069.00	7.00	22,425.71			74,153.65	789.02	131,268.46
Story			21.50	56,415.29			1,119.80		1,119.80
Tama									1,141.00
Taylor	.63	1,141.00							
Union									
Van Buren							2,945.82		2,945.82
Vapello							81.25		81.25
Warren							212.33		212.33
Washington	1.50	3,792.24							3,792.24
Wayne	9.50	7,027.45	8.50	31,844.64			16,861.28	319.74	56,043.41
Webster	1.00	9,877.04	2.00	677.01			2,430.92		12,944.97
Winnebago									
Winneke	6.44	11,796.52	.58	1,967.45			98.40		13,852.37
Woodbury							1,545.70		1,545.70
Worth	49.05	107,065.55	17.55	27,601.44			24,109.57		158,776.50
Wright									
Total	339.16	739,902.73	479.15	883,972.39			456,965.81	41,902.45	2,174,764.45

SUMMARY TABLE NO. 13  
Showing Cost of Maintenance—County Roads—Annual Report of County Engineers.

County	Miles county road system	Patrol		Gang		Equipment and Tools		Total cost maintenance	Average cost per mile
		Earth	Gravel	Earth	Gravel	Earth	Gravel		
Adair	108.40	4,696.14		14,500.39		5,474.71		27,611.21	\$252.89
Adams	110.35	8,700.42		9,038.11		9,275.75		16,947.43	159.50
Adams & Adams	107.40	11,700.45		9,038.11		5,504.60		34,800.56	320.70
Apolon	115.25	10,558.56		12,588.00		16,681.18		39,228.44	340.39
Arden	95.00	8,549.20		6,715.00		1,440.10		16,404.52	169.20
Benton	131.50	12,462.87		7,514.71	3,439.60	16,413.67	617.10	46,408.04	306.00
Black Hawk	110.90	12,436.87	2,407.30	10,681.75	4,900.35	1,213.72	1,213.72	32,088.74	296.00
Boone	97.75	6,730.52	10,182.34	15,687.18	3,167.27	4,196.33	3,500.30	44,722.57	447.00
Bremer	60.90	9,007.53		2,970.60		2,988.15	70.21	11,722.57	232.50
Buchanan	132.00	15,688.07		7,718.00		1,075.87		23,481.94	177.00
Butler	117.50	27,083.17		8,498.40		747.14		36,328.67	309.00
Calhoun	100.40	5,274.53	7,612.81	8,498.40		2,816.19	2,729.49	19,828.22	193.19
Cass	113.50	9,657.61		16,696.34		3,223.91		40,800.03	311.00
Cedar	78.25	9,218.63		13,006.84		2,601.28		30,340.96	387.20
Cerro Gordo	87.00	10,081.98		10,459.75		3,822.22		24,886.93	281.10
Cherokee	111.54	14,980.55		10,459.75	46.50	3,315.87	*15.00	17,156.65	156.70
Chickasaw	101.00	9,900.70		3,463.11		3,630.30		35,027.72	341.00
Chickasaw	110.00	2,114.87		9,681.44		2,477.02		17,192.33	156.30
Clay	101.00	1,135.25	5,338.59	831.00	100.74	128.37	831.68	19,038.28	249.70
Clayton	130.80	17,093.44		10,575.50		9,855.57		37,471.51	287.20
Crawford	128.00	8,985.14		8,823.68		7,227.33		25,816.15	201.00
Dallas	75.00	45,844.09				6,000.90		54,879.19	688.00
Davis	90.07	6,861.94	3,302.85	1,322.24	97.63	6,281.17	2,132.50	20,219.38	224.50
DeWitt	127.07	11,250.48		6,116.39		6,008.81		35,421.69	273.40
Delaware	132.25	18,794.48		2,717.75		6,540.30		24,053.01	181.00
Des Moines	138.25	15,407.40	590.02	681.05	1,404.94	6,540.30		34,683.47	277.00
Don Mills	47.75	17,497.75		1,913.27		2,911.10		22,284.18	467.50

## ANNUAL REPORTS OF COUNTY ENGINEERS

341

Dubois	70.00	2,234.40	3,335.39	1,597.17	1,231.30	1,954.38	3,863.92	13,385.11	197.70
Dubuque	97.00	2,319.70	8,806.46	5,405.16	236.61	4,771.30	7,403.00	27,317.97	286.80
Emmet	65.25	1,319.70				1,045.20		47,570.09	719.70
Fayette	118.25	16,059.80		55,442.10		5,805.70	5,645.26	34,577.50	298.70
Floyd	93.78	8,270.81	397.05	11,345.00	1,251.53	7,530.14	5,645.26	42,053.31	305.00
Franklin	139.25	15,881.85	11,338.11	6,575.02	1,045.24	1,629.36	1,354.40	14,460.41	203.00
Fremont	114.00	6,082.85	2,580.36	3,140.27	903.36	2,081.83	1,090.03	18,076.12	159.10
Greene	71.00	3,779.46		2,227.07		3,601.19		38,459.87	422.00
Grundy	130.00	9,711.52	152.35	6,335.41		9,126.53	2,752.40	15,704.45	120.00
Guilford	120.00	1,140.00	9,815.98	1,311.62	1,280.91	777.02	76.11	17,104.45	139.00
Hamilton	148.50	3,640.54	694.38	1,784.08		3,340.74	4,207.20	38,570.71	311.00
Hancock	123.00	14,307.40	8,301.15	2,455.50	588.63	777.12		15,734.88	169.50
Hardin	94.50	7,045.13		7,555.62		4,431.96		25,455.39	244.00
Harrison	94.00	14,778.95		4,224.53		3,597.13	54.76	10,019.70	138.50
Henry	75.08	4,862.61	315.73	2,779.33		180.02	91.00	1,195.75	75.00
Howard	94.00	4,887.68		1,693.32	50.63	4,239.96		19,810.22	247.00
Humboldt	92.00	2,515.45		5,668.84		2,390.96		25,081.45	228.10
Iowa	198.50	25,715.40		10,581.80		1,681.58		39,068.28	208.10
Jackson	115.00	7,515.60	307.50	1,591.80	890.70	9,482.16		24,881.32	207.60
Jasper	128.40	26,792.55		1,553.29		9,034.85		22,219.07	205.30
Jefferson	93.00	13,888.08		4,100.85		9,428.51	48.50	31,354.94	221.30
Johnson	108.30	15,020.61	292.11	7,067.57	556.45	8,471.04		21,992.24	174.39
Jones	142.00	14,015.87		4,650.20		10,000.00		12,863.59	81.30
Keokuk	125.07	10,767.31		13,166.02		1,600.00	1216.08	17,870.19	266.50
Keosauqua	70.00		3,663.15	1,505.82		2,673.53		44,270.00	399.00
Lea	112.00	17,426.02		1,205.87		760.00		12,100.20	171.00
Lee	112.00	24,164.94		1,205.87		760.00		17,851.00	156.00
Linn	70.00	10,011.21		10,331.11		1,344.17	40.35	11,134.83	80.20
Louis	96.00	6,861.78		3,635.63	501.08	9,171.30		22,002.02	209.80
Lyon	125.24	5,360.70	208.00	18,519.48		8,703.77		27,446.63	238.50
Madison	120.00	6,039.49		5,097.50		4,397.94		27,081.83	228.80
Marion	78.00	9,135.29		11,400.91		1,897.10		41,471.18	314.00
Marshall	143.15	1,456.25	2,871.45	10,715.82		1,890.10	919.50	28,646.65	336.80
Mills	67.00	20,375.35		10,715.82		11,997.64	513.50	18,700.92	299.70
Mitchell	90.45	4,440.25	255.75	10,447.22		2,010.81		16,000.20	214.30
Monona	89.20	6,656.47		3,596.31		2,649.59		38,850.47	250.20
Monroe	77.50	9,467.07		5,128.40		16,775.32	98.52	32,977.31	448.00
Montgomery	115.25	9,797.07	363.44	4,211.51	112.15	6,714.00		19,588.15	166.40
Muskegon	123.00	30,385.17		156.50		4,602.50		36,570.17	290.00
Muskegon	123.00	4,704.98		214.80		4,602.50		32,316.56	261.00
Osceola	103.71	9,078.55		10,761.99		3,510.68	595.11	25,604.54	255.20
Pace	128.00	6,727.13	9,075.00	100.50	68.70	7,381.43			
Palo Alto	114.25								
Plymouth	118.00	10,032.80		12,170.82					



SUMMARY TABLE NO. 13—Continued

County	Miles county road system	Patrol		Gage		Equipment and Tools		Total maintenance	Average cost per mile
		Earth	Gravel	Earth	Gravel	Earth	Gravel		
Pocahontas	119.10	2,897.76	14,506.29	5,413.46	5,482.84	774.40	4,847.55	28,276.81	236.00
Pottawattamie	125.00	12,810.85	110,572.83	15,413.46	250.50	8,884.17	22,115.91	43,000.79	345.00
Poweshiek	146.74	16,894.89	110,572.83	15,413.46	250.50	8,884.17	22,115.91	43,000.79	295.00
Prairie	91.03	16,894.89	110,572.83	15,413.46	250.50	8,884.17	22,115.91	43,000.79	411.30
Ringgold	139.85	8,093.85	8,830.33	19,123.80	2,260.74	1,256.57	—	39,449.29	283.30
Sac	158.72	2,993.04	8,830.33	1,628.87	2,260.74	439.76	840.84	17,979.43	263.30
Scott	81.85	2,993.04	8,830.33	1,628.87	2,260.74	439.76	840.84	17,979.43	263.30
Shellsburg	107.15	15,131.11	883.85	5,449.45	11,134.08	2,650.11	5,251.34	31,695.08	295.00
Shoemaker	122.50	15,131.11	883.85	5,449.45	11,134.08	2,650.11	5,251.34	31,695.08	295.00
Story	122.50	4,409.47	15,281.35	5,829.44	2,435.05	2,755.15	786.51	31,695.08	295.00
Tama	140.00	34,091.56	4,718.02	4,718.02	2,435.05	12,425.00	—	41,335.00	293.30
Taylor	137.00	8,974.81	7,862.07	7,862.07	2,435.05	2,435.05	—	19,609.68	138.90
Union	104.00	6,507.17	22,902.22	22,902.22	1,604.30	1,604.30	—	32,000.78	295.50
Van Buren	98.70	2,918.53	8,439.61	8,439.61	5,535.83	5,535.83	—	19,885.94	201.30
Wadena	102.25	9,295.56	5,397.41	5,397.41	8,111.35	8,111.35	—	17,511.31	169.50
Washington	110.00	10,673.00	814.00	4,829.00	2,267.75	2,267.75	—	17,511.31	169.50
Wayne	103.25	15,345.40	814.00	4,829.00	2,267.75	2,267.75	—	21,410.82	208.20
Webster	116.50	10,668.87	5,417.80	5,417.80	2,267.75	2,267.75	—	17,511.31	169.50
Winnebago	86.75	8,706.81	18,763.05	18,763.05	2,267.75	2,267.75	—	14,177.00	163.00
Woodbury	100.25	8,220.79	28.50	18,763.05	2,267.75	2,267.75	—	22,037.78	214.00
Woodworth	79.24	1,631.40	482.08	5,397.21	1,775.10	4,205.50	1,597.33	20,154.95	254.30
Wright	121.20	24,080.98	5,394.58	5,397.21	1,775.10	1,591.45	941.03	31,283.59	258.30
Total	10,681.10	\$1,074,572.03	\$150,283.82	\$744,984.53	\$65,119.87	\$152,695.28	\$1,460.08	\$1,507,316.71	\$140.36

\*On paved road—Cerro Gordo county.

†Indicates minus quantity.

‡Patrol, \$60.00 equipment and tools, \$100.00—Paved road, Polk county.

SUMMARY TABLE NO. 14  
Showing Miscellaneous Items County Expenditures—Special Cases—Annual Report of County Engineers.

County	R. R. Crossings Improved		Gravel Pits Purchased		Right of Way	Channel Changes	Miscellaneous	Total Special Cases
	No.	Cost	No.	Cost				
Adair	—	—	—	—	\$ 12,019.03	—	—	12,019.03
Adams	—	—	—	—	2,971.30	—	—	2,971.30
Allamakee	—	—	—	—	3,802.80	—	—	3,802.80
Appanoose	2	478.50	—	—	5,870.85	\$ 1,000.03	422.77	7,874.45
Ashtabula	—	—	—	—	2,624.30	1,798.40	642.00	6,094.00
Bandana	—	—	—	—	1,758.55	—	—	1,758.55
Black Hawk	—	—	2	319.40	180.00	—	—	360.00
Boone	—	—	—	—	8,895.17	—	—	8,895.17
Bremer	1	1,000.00	9	885.00	2,815.00	—	—	4,690.00
Buchanan	—	—	4	1,000.00	540.30	—	—	1,540.30
Bureau Vista	—	—	1	150.00	—	—	—	150.00
Butler	—	—	—	—	—	—	—	—
Carroll	—	—	11	12,606.00	286.51	—	—	12,892.51
Cass	—	—	—	—	144.91	—	—	144.91
Cedar	—	—	—	—	9,944.18	—	—	9,944.18
Cerro Gordo	—	—	1	1,350.00	—	2,309.29	—	3,659.29
Cherokee	—	—	—	—	309.00	—	—	309.00
Chickasaw	—	—	4	900.00	2,000.55	—	—	2,900.55
Clarke	—	—	2	2,680.45	30,188.30	1,800.06	—	34,668.81
Clatsop	—	—	3	2,680.45	2,171.00	160.00	—	5,011.45
Clinton	—	—	1	300.39	82,650.70	—	—	82,951.09
Crawford	—	—	1	300.39	8,926.68	—	—	9,227.07
Dallas	1	2,560.32	15	8,041.36	1,394.39	615.50	—	11,909.70
Decatur	—	—	—	—	2,718.81	—	—	2,718.81
Des Moines	—	—	3	9,700.00	1,005.00	—	—	10,705.00
Dickinson	—	—	1	975.00	443.00	—	—	1,418.00
Dubuque	—	—	—	—	940.03	—	—	940.03
Emmet	—	—	3	3,500.00	4,500.00	—	—	8,000.00
Fayette	—	—	—	—	5,877.11	—	—	5,877.11
Floyd	—	—	4	2,350.00	—	—	—	2,350.00



SUMMARY TABLE NO. 14—Continued

County	R. R. Crossings Improved		Gravel Pits Purchased		Right of Way	Channel Changes	Miscellaneous	Total Special Cases
	No.	Cost	No.	Cost				
Franklin			5	6,063.48	789.25	1,000.72	1,070.00	8,909.51
Fremont					5,981.94			5,981.94
Greene			4	5,141.33	11,200.20	1,000.00	138.26	17,678.79
Grundy					553.10		118.95	672.05
Guthrie					9,192.43			9,192.43
Hamilton					2,290.35			2,290.35
Hancock	1	251.50	1	650.00			5,548.49	6,450.99
Hardin					6,543.00		5,258.92	11,801.92
Harrison					4,015.80			4,015.80
Henry					1,482.61		40.35	1,522.96
Howard					50.00	91.00		141.00
Humboldt					2,500.00			2,500.00
Ia					7,785.89	1,101.05		8,886.94
Iowa					11,809.95			11,809.95
Jackson								
Jaeger					19,592.53	607.10		17,199.63
Jefferson					2,675.00			2,675.00
Johnson					3,406.40	730.65	31.00	4,170.05
Jones			+1	500.00	10,201.08			10,801.08
Keokuk					637.20		310.65	947.85
Kossuth			2	600.00	14,051.50		8,489.71	23,141.21
Lee					325.00			325.00
Linn					1,005.00	8,546.75	19,556.32	26,618.07
Louisia					21,809.28			21,809.28
Lowa					6,671.85	5,845.30	88.91	12,596.06
Lyon					54.42			54.42
Madison					11,254.30			11,254.30
Mahaska					16,882.92			16,882.92
Marion					26,090.97		833.62	27,094.59
Marshall	1	9.00			5,415.94		850.76	6,275.70
Mills					39,527.74			39,527.74
Mitchell			2	2,027.50	17,840.59		1,112.50	21,080.59
Monona					7,238.20		75.00	8,013.96
Monroe					10,375.87	439.88	1,603.41	12,419.16
Montgomery					260.00	127.00		387.00
Muscatine					10,050.29		5,915.37	15,965.66

O'Brien	1	1,300.00	2,023.70	4,381.12	7,704.88
Oscola	3	2,847.00	1,115.21	661.46	4,663.67
Page			17,705.16	3,845.65	21,550.81
Palo Alto	6	13,083.35	100.00		13,183.35
Plymouth			9,918.50		9,918.50
Pocahontas	5	6,000.16	5,066.00		11,066.16
Polk	2	6,124.00	10,833.40		16,957.40
Pottawattamie			82.75	1,929.95	2,012.70
Poweshiek			5,475.00		5,475.00
Ringgold			1,192.52		1,192.52
Sac			324.55	406.10	730.65
Scott			11,381.25	88.50	11,469.75
Shelby			9,012.78	138.85	9,151.63
Sioux			7,436.02	5,576.60	13,012.62
Story			2,500.00		2,500.00
Tama			17,100.70		17,100.70
Taylor			8,732.39		8,732.39
Union			1,517.30	680.52	2,197.82
Van Buren			558.00		558.00
Vapor			3,315.12		3,315.12
Warren			32,258.62	450.00	32,708.62
Washington			8,243.88		8,243.88
Wayne			7,954.71		7,954.71
Webster	1	400.00	321.00	177.69	898.69
Winnebago	10	5,971.75	1,239.90		7,211.65
Winnebuck			1,343.70		1,343.70
Woodbury	1	3,000.00	8,837.25	1,273.29	13,110.54
Worth			800.00		800.00
Wright			10,716.75		10,716.75
Total	6	4,328.82	111	\$ 87,736.01	\$ 638,740.40
				\$ 36,618.85	\$ 259,979.25
					\$ 1,024,436.34

SUMMARY TABLE NO. 15  
Progress and Condition Report—County Road System—Annual Report of County Engineers.

County	Construction Completed 1921			Condition of County Road System January 1, 1922		
	Built to permanent grade	Gravel macadam or sand clay	Paved	Not built	Permanent grade not surfaced	Gravel macadam or sand clay
Adair				108.40	1.00	
Adams				106.25		
Albany				96.50	11.00	
Appanoose				115.25		
Audubon				98.40	3.50	
Benton				102.50		
Black Hawk		2.00		102.50		8.00
Boone		14.00		81.25		40.50
Buchanan		1.00		112.10	9.75	8.50
Bureau		1.00		138.10	7.00	33.00
Butler		38.01			17.00	88.05
Calhoun		3.00		121.00		9.50
Carroll	11.00	14.00		109.40	42.50	28.50
Cass	1.00			96.00	17.50	
Cedar Rapids				74.75	3.00	
Cerro Gordo				84.00	1.00	1.70
Cherokee	8.00	7.25		67.50	1.25	7.25
Chickasaw				67.50	33.50	
Clarke	1.25	11.00		87.50	29.50	
Clay	1.00	35.00		79.50		
Clayton				130.20	34.00	67.00
Clinton				94.42	27.81	5.77
Crawford	2.08			10.02	65.58	
Crawford		6.00		18.15	7.37	
Decatur				127.67		24.28
Delaware				113.25		.25
Des Moines		12.00		113.75	5.75	
Des Moines				42.00		

Total miles in county system

DeKalb	28.00	22.00				
DeKalb	87.60	4.00				
DeKalb	55.30					
DeKalb	114.40	7.50				
DeKalb	11.75	1.50				
DeKalb	18.44	18.44				
DeKalb	130.35	42.75				
DeKalb	114.00					
DeKalb	58.35	11.00	23.75			
DeKalb	91.75	92.75	5.00			
DeKalb	130.20	3.25	3.00			
DeKalb	42.80	2.00	196.10			
DeKalb	90.90	11.00	11.00			
DeKalb	95.28	19.02	42.80			
DeKalb	95.00					
DeKalb	64.68	7.00	5.00			
DeKalb	35.80	20.50	27.85			
DeKalb	80.00					
DeKalb	100.55	5.25				
DeKalb	113.00					
DeKalb	112.15	14.75	2.00			
DeKalb	105.50		1.50			
DeKalb	139.50	1.98	2.00			
DeKalb	121.25	4.37	2.00			
DeKalb	88.30	1.98	2.00			
DeKalb	85.00	7.25				
DeKalb	80.00	7.25				
DeKalb	108.10	8.65	8.00			
DeKalb	119.35	4.75				
DeKalb	94.75	4.00				
DeKalb	107.65	25.75				
DeKalb	87.50	5.00				
DeKalb	87.40	1.70				
DeKalb	112.55	3.00				
DeKalb	76.65	25.04				
DeKalb	29.47	5.00				
DeKalb	107.10	8.00				
DeKalb	180.00	22.50				
DeKalb	121.10	67.04				
DeKalb	3.00	13.25				
DeKalb	30.15					
DeKalb	6.00					
DeKalb	7.00					

Total miles in county system

County	Construction Completed 1921			Condition of County Road System January 1, 1922			
	Built to Permanent Grade	Gravel medium or sand clay	Paved	Not built	Permanent grade not surfaced	Gravel medium or sand clay	Paved
Adair	12.50			21.20	11.30	89.95	
Adams	20.50	21.00		12.70	20.50	41.10	.50
Allamakee				10.00			.02
Appanoose				10.00	1.00		
Audubon				139.85			
Benton				4.50	11.30	42.85	
Black Hawk				51.19	14.24	15.40	
Boone				100.32	.83		80.83
Bremner				108.00	10.25	7.00	307.16
Buchanan				43.25	14.00	75.25	175.25
Buena Vista		21.50		126.23	6.75		132.90
Butler				104.00	.37		137.00
Calhoun				104.00			104.00
Carroll				98.75			98.75
Cass				66.25	1.00		100.25
Cedar				92.25			92.25
Cerro Gordo				109.50	.50		110.00
Cherokee				113.50	8.00		116.50
Chickasaw		8.00		71.50	24.25	8.00	128.25
Clarke				119.75			119.75
Clay				75.50	14.42	.55	90.50
Clayton		.55		67.24	2.00	10.00	79.24
Clinton		17.25		46.65	68.27	17.25	121.30
Crawford							
Dallas							
Davis							
Decatur							
Delaware							
Des Moines							
Dickinson							
Dubuque							
Emmet							
Fayette							
Floyd							
Franklin							
Fremont							
Greene							
Grundy							
Guthrie							
Hamilton							
Hancock							
Hardin							
Harrison							
Henry							
Howard							
Humboldt							
Ida							
Iowa							
Jackson							
Jasper							
Jefferson							
Johnson							
Jones							
Keokuk							
Kossuth							
Lee							
Linn							
Louis							
Lucas							
Lyon							
Madison							
Total	297.82	394.58		5,465.16	504.20	1,180.78	2.01
Total							10,681.35

County

SUMMARY TABLE NO. 16

Showing Number and Value of Gravel Pits Owned by Counties January 1, 1922—Annual Report of County Engineers.

County	Number	Value
Adair		
Adams		
Allamakee	1	2,000.00
Appanoose	1	
Audubon		
Benton	1	150.00
Black Hawk	14	2,100.00
Boone		
Bremner	8	2,500.00
Buchanan	15	3,882.40
Buena Vista	16	2,150.00
Butler	13	2,500.00
Calhoun	25	20,000.00
Carroll		
Cass		
Cedar		
Cerro Gordo	9	5,550.00
Cherokee		
Chickasaw	23	9,000.00
Clarke		
Clay	32	10,364.50
Clayton		
Clinton	2	1,400.00
Crawford		
Dallas	35	6,000.00
Davis		
Decatur		
Delaware	10	4,500.00
Des Moines		
Dickinson	9	3,500.00
Dubuque	1	500.00
Emmet	7	12,200.00
Fayette	3	856.05
Floyd	12	3,700.00
Franklin	21	20,000.00
Fremont		
Greene	3	700.00
Grundy	1	2,000.00
Guthrie		
Hamilton	2	1,000.00
Hancock	7	1,100.00
Hardin	7	1,000.00
Harrison		
Henry		
Howard	9	4,079.20
Humboldt	4	2,000.00
Ida		
Iowa		
Jackson	1	250.00
Jasper		
Jefferson		
Johnson		
Jones	1	300.00
Keokuk		
Kossuth	19	5,550.00
Lee	7	3,000.00
Linn		
Louis		
Lucas	3	1,000.00
Lyon		
Madison		



SUMMARY TABLE NO. 16—Continued

County	Number	Value
Mahaska	1	1,000.00
Marion	2	1,500.00
Marshall		
Mitchell	6	5,077.50
Monona		
Monroe		
Montgomery	2	1,800.00
Muscatine	1	325.00
O'Brien	6	9,280.00
Oscoda		
Pago	5	5,000.00
Palo Alto		
Plymouth	10	7,300.00
Pocahontas	2	1,500.00
Polk		
Pottawattamie		
Poweshiek	2	900.00
Ringgold	1	9,000.00
Sac		
Scott		
Shelby		
Sioux	7	2,000.00
Story		
Tama		
Taylor		
Union		
Van Buren		
Wapello		
Warren		
Washington		
Wayne	10	5,971.75
Webster		
Winnebago	2	4,825.00
Winnesiek	6	6,000.00
Woodbury	1	500.00
Wright		
Total	392	\$ 194,421.40

SUMMARY TABLE NO. 17

Classification Road and Bridge Work on Primary Road System January 1, 1921 to January 1, 1922.

County	Roads		Bridges		Special Cases	Total Expenditures Primary System
	Construction	Maintenance	Construction	Maintenance		
Adair	98,885.43	17,400.79	\$ 35,908.37	\$ 516.00	65.95	192,811.54
Adams	82,213.50	17,667.35				99,880.85
Adair	4,000.00	20,226.72	11,148.96		342.00	35,577.68
Appanoose	6,901.81	30,618.81	34,922.88		400.75	72,844.25
Archer	10,618.81	4,137.32		413.00	.50	49,795.53
Benton	481,110.13	23,344.15	504,454.29	400.00	1,878.53	506,745.47
Black Hawk	30,285.16	30,490.88	50,020.04		37,935.44	118,711.52
Boone	234,005.21	33,687.69	270,692.90		270,692.90	541,385.80
Buchanan	38,254.96	18,564.78	56,819.75		13,302.15	106,941.59
Bureau	2,257.08	10,755.08	12,012.16		13,302.15	24,314.31
Buena Vista	114,788.14	34,679.84	149,467.98		121,401.00	270,869.00
Calhoun	111,725.00	35,094.37	146,819.37		13,631.07	171,550.44
Carroll	136,001.80	21,917.30	157,919.10		188,770.00	346,689.10
Cass	138,004.02	21,917.30	159,921.32		1,301.73	161,223.05
Cedar	606,109.62	17,568.19	623,677.81		19,857.00	643,534.81
Cerro Gordo	10,182.13	10,182.13	20,364.26		566,402.00	586,948.41
Cherokee	11,973.44	105,081.05	116,054.49		119,590.00	235,644.49
Chickasaw	16,753.07	136,160.43	152,913.50		136,160.43	319,073.93
Chickadee	27,851.31	19,664.64	47,515.95		39,275.82	86,791.77
Clarke	96,199.32	14,251.71	110,451.03		130,195.11	240,646.14
Clinton	795,709.85	19,586.44	815,296.29		815,296.29	1,630,592.58
Crawford	1,458.87	21,463.05	22,921.92		616.45	23,538.37
Dallas	105,549.35	32,015.84	137,565.19		201,322.43	338,887.62
Davis	96,386.30	30,196.15	126,582.45		117,507.74	244,090.19
Decatur	7,605.04	18,477.36	26,082.40		44,041.30	70,123.74
Delaware	42,385.43	8,478.01	50,863.44		51,343.44	102,206.88
Des Moines	382,600.72	12,863.42	395,464.14		815,464.15	890,928.29
Dickinson	100,549.35	27,196.15	127,745.50		127,745.50	255,491.00
Dubuque	49,555.95	22,630.32	72,186.27		132,714.53	204,901.77
Emmet	132,104.20	23,744.95	155,849.15		2,558.55	158,407.70
Fayette						



**SUMMARY TABLE NO. 18**  
**Classified Road Expenditures—Primary System January 1, 1921 to January 1, 1922.**

County	Grading	Graveling, macadam, sand, clay	Paving, curb and gutter	Tilling and drainage assessments	Guard rail	Machinery and equipment, including repairs	Engineering	Total construction expenditures
Adair	83,045.90			7,508.38	4,908.45		7,540.00	98,803.43
Adams	74,741.38				5,787.84		2,684.58	83,213.80
Adams	34,515.45			4,576.80			3,943.00	43,035.25
Appanoose	5,919.84				1,349.67			6,000.51
Audubon	19,836.73			632.28			3,337.30	23,817.61
Benton	75,235.33		380,815.45	8,602.24			13,303.61	481,110.13
Black Hawk	9,725.30			8,949.08			1,546.88	20,225.16
Boone	60,665.82	113,253.50		43,024.09			11,001.20	224,945.21
Bremer	27,008.00			8,792.17			2,471.18	38,271.35
Buchanan				2,088.45			138.63	2,227.08
Buena Vista	4,700.00	86,104.48		20,390.64			3,580.02	114,785.14
Butler	28,367.46	23,744.29		17,715.07			4,961.74	104,728.56
Calhoun	12,258.44	60,471.54		31,236.50			1,389.09	111,735.20
Carroll	114,522.80			7,493.05			4,047.97	136,063.83
Cass	19,454.75						1,579.27	18,034.02
Cedar								
Cerro Gordo	42,670.33		305,441.52	790.48			7,587.29	356,190.62
Cherokee	49,738.17	35,148.65		4,887.25			3,286.22	93,060.29
Chickasaw	79,321.45	23,907.13		18,678.28			5,778.04	127,685.10
Clarke	30,089.23			1,971.76	601.36		3,885.19	37,671.31
Clay	888.00			1,000.00	2,433.13		1,426.00	3,414.08
Clayton	60,391.34		627,733.55	10,240.61			7,418.67	67,060.54
Clinton	135,807.54			14,877.05			17,591.68	168,276.27
Crawford	966.81			24,535.50			481.06	25,043.43
Dallas	69,508.24	75,199.72		574.91	5,618.76		5,215.71	150,507.63
Davis	91,808.92			6,707.38			4,906.97	103,423.27
Decatur	1,496.37			13,046.41			1,804.20	16,347.04
Delaware	21,075.12	19,878.63					11,694.00	52,647.75
Des Moines	27,994.77		250,054.65					277,049.42
Dickinson	8,761.84		194,375.12	4,370.90			3,480.57	213,790.15
Dubuque	59,382.96			23,448.48	972.00		6,037.14	109,840.58
Emmet	7,790.34	3,380.25		84,376.46				95,547.05
Fayette	73,820.97			61,038.79			5,194.44	139,104.20
Floyd	44,584.70		319,960.01	9,444.01	151.19		6,994.72	519,534.63
Franklin	61,299.07	7,021.56		55,238.44			4,811.30	124,359.37
Fremont	114,385.75			184.55	3,587.74		5,137.82	124,545.96
Greene	34,063.87	24,323.31	169,049.13	8,549.18			9,990.29	236,985.78
Grundy	60,061.78	4,437.56		23,439.87			6,321.48	94,240.79
Guthrie	135,214.49			19,470.46	2,051.97		4,954.05	161,701.97
Hamilton	49,191.59	19,548.99		29,415.59			7,087.91	96,244.08
Hancock	35,357.47	23.00	410,630.12	23,504.76	306.45		10,531.48	497,053.28
Hardin	11,290.73	62,834.79	72,650.33	81,793.36			5,919.97	182,586.40
Harrison	38,686.89	227.87			847.35		199.75	39,114.86
Henry	43,232.22			18,995.45	1,324.00		3,997.96	67,549.63
Howard	37,405.29	20,073.06		20,632.56			5,727.66	90,838.48
Humboldt	25,713.48	8,525.72	11,087.84	22,536.45			4,998.50	72,962.08
Ia	53,986.16	12,066.57		3,298.20			2,705.11	72,046.04
Iowa	46,484.17			10,436.31			4,016.11	61,936.59
Jackson	60,161.05	389.06		329.75	1,061.09		8,344.74	79,107.55
Jasper	25,000.57	13,907.67		4,211.18			5,835.01	48,955.02
Jefferson	4,706.50				8,335.41		48.39	8,090.30
Johnson	86,645.83		159,545.14	1,092.79	101.45		9,552.81	248,299.02
Jones	29,000.05			6,385.56			3,070.81	38,456.42
Keokuk	16,191.69			1,799.66	5,768.82		1,699.22	24,759.39
Kossuth	128,589.73			60,896.41	968.70		9,289.59	189,474.43
Lake	97,689.09			6,772.32			7,237.16	111,698.70
Linn	38,990.92		367,940.81	9,544.21	1,073.34		9,570.82	447,920.23
Louis	92,834.23			19,341.03	2,709.05		6,662.54	121,548.85
Lucas	118,135.60			1,875.11	4,017.30		2,745.65	126,773.66
Lyon	62,498.58	19,079.92		8,164.27			4,339.91	94,079.78
Madison	99,390.15			1,113.89	4,424.94		7,290.36	112,989.23
Mahaska	31,699.63			12,601.64			4,837.07	49,139.24
Marion	129,601.11			3,185.99			7,039.05	139,826.15
Marshall	47,510.32		319,590.24	5,024.08		11,049.85	7,584.09	394,230.52
Mills	138,115.19			121.50	3.00		6,694.78	145,946.47
Mitchell	65,132.46	46,008.94		37,119.19	222.92		5,999.70	154,483.21
Monona	3,312.00						1,006.96	4,318.96
Monroe	37,990.36			411.03	2,500.15		1,440.25	42,941.79
Montgomery	3,302.74			195.05	1,835.05		506.75	3,839.59
Muscatine	67,915.09		806,083.75	11,839.06	144.08		7,990.06	89,742.29
O'Brien	67,510.32			11,250.00			19,188.09	97,948.41
Osceola	61,892.81	6,247.08		12,517.98	2,969.78		85,591.05	164,212.72
Page	109,638.00						7,017.87	117,655.87
Palo Alto	19,982.01		333,300.83	9,897.68		8,399.70	7,041.54	369,922.15
Plymouth	74,825.08			1,776.88			6,582.72	83,184.68



SUMMARY TABLE NO. 18—Continued

County	Grading	Graveling, macadam, sand, clay	Paving, curb and gutter	Tiling and drainage assessments	Guard rail	Machinery and equipment, including repairs	Engineering	Total construction expenditures
Pocahontas.....	39,828.86	114,077.09		55,835.21			9,712.91	219,444.07
Polk.....	31,701.98	41,749.15	449,858.80	6,943.72			14,359.14	588,883.63
Pottawattamie.....	8,409.42				3,270.84			13,680.41
Poweshiek.....	50,884.44				2,837.74		1,851.25	57,573.43
Ringgold.....	31,636.27			10,264.14			5,743.74	66,824.32
Sac.....	2,299.36	98,013.93			8,837.15		1,541.84	109,682.28
Scott.....	98,746.80		796,299.47	22,838.53			4,849.76	1,222,634.56
Shelby.....	137,535.04			27,548.26			19,962.62	185,045.92
Sioux.....	61,178.23		145,217.02	1,215.00	2,620.70		7,307.30	215,138.25
Story.....	12,257.75			1,829.66			6,881.32	21,068.73
Tama.....	54,611.80	25,831.75		49,495.19			2,711.87	130,650.61
Taylor.....	25,576.21			10,518.81			5,026.74	41,121.76
Union.....	80,894.58			3,822.55			1,424.33	85,141.46
Van Buren.....	7,034.50			10,510.21			4,474.46	21,919.17
Wapello.....	31,685.59				6,236.13		2,235.56	40,157.28
Warren.....	49,832.18			1,588.76	1,101.20		1,467.48	52,990.62
Washington.....	27,385.91			5,004.84			4,675.05	37,065.80
Wayne.....	12,289.88			246.50			4,883.47	17,420.85
Webster.....	53,419.79	48,698.84		60,621.11			2,779.89	165,519.63
Winnebago.....	8,081.53	18,876.23		8,834.51			1,839.68	35,629.95
Winneshek.....	41,366.37	68,857.92		904.50			6,513.05	111,131.84
Woodbury.....	134,455.07		694,801.51	14,663.22	2,110.50		12,661.31	849,092.61
Worth.....	31,198.80	1,900.18		35,469.71	15,000.44		5,178.79	83,648.92
Wright.....	29,370.43	97,739.40		20,343.56			5,101.93	152,555.32
Total.....	\$ 4,955,985.25	\$ 1,232,044.92	\$ 6,729,969.08	\$ 1,185,848.29	\$ 109,912.54	\$ 2,850.15	\$ 532,563.77	\$ 14,812,063.97

SUMMARY TABLE NO. 19

Showing Total and Relative Cost of Maintenance of Earth, Gravel and Paved Roads by Counties—County Road System.

County	Earth			Gravel			Paved			Total cost maintenance earth, gravel, paved roads
	Number of miles	Cost of maintenance	Average cost per mile	Number of miles	Cost of maintenance	Average cost per mile	Number of miles	Cost of maintenance	Average cost per mile	
Adair.....	109.40	\$ 27,611.21	\$ 252.29							\$ 27,611.21
Adams.....	106.25	16,947.43	159.50							16,947.43
Allamakee.....	107.50	24,891.53	230.70							24,891.53
Appanoose.....	115.25	30,228.44	340.30							30,228.44
Audubon.....	96.90	16,404.52	169.30							16,404.52
Benton.....	131.50	46,498.04	360.60							46,498.04
Black Hawk.....	102.00	29,000.98	282.50	8.00	\$ 3,621.02	\$ 453.00				32,622.00
Boone.....	51.25	29,563.63	575.20	46.50	16,825.11	361.90				46,388.74
Bremer.....	85.90	15,976.30	185.90	3.50	246.51	70.40				16,222.81
Buchanan.....	135.00	31,743.20	235.50							31,743.20
Buena Vista.....	17.00	1,492.82	88.00	88.00	9,365.50	106.30				10,858.32
Butler.....	122.00	39,322.67	322.50	9.50	1,567.33	164.90				40,890.00
Calhoun.....	61.00	5,880.20	95.00	38.50	8,666.27	225.90				14,546.47
Carroll.....	113.50	30,340.05	267.20							30,340.05
Cass.....	77.75	24,885.65	320.00							24,885.65
Cedar.....	75.00	17,155.65	228.75	1.70						17,157.35
Cerro Gordo.....	108.55	37,964.22	349.00	7.55						38,021.72
Cherokee.....	101.00	17,752.06	175.70							17,752.06
Chickasaw.....	87.50	13,574.86	155.30	29.50	4,687.51	157.20				18,262.37
Clarke.....	79.85	19,908.28	249.70							19,908.28
Clay.....	34.00	1,582.71	46.50	67.00	6,330.98	94.50				7,913.69
Clayton.....	180.20	37,471.51	207.30							37,471.51
Clinton.....	122.25	25,049.05	204.50	5.77	767.10	133.20				25,816.15
Crawford.....	75.00	51,875.19	691.00							51,875.19
Dallas.....	55.54	14,699.35	264.90	84.25	5,558.03	162.60				20,257.38
Davis.....	127.68	33,421.60	262.40							33,421.60
Decatur.....	113.25	24,363.41	215.00							24,363.41
Delaware.....	113.75	23,687.91	208.50	25.00	1,997.56	79.80				25,685.47

SUMMARY TABLE NO. 19—Continued

County	Earth			Gravel			Paved			Total cost maintenance earth, gravel and paved roads
	Number of miles	Cost of maintenance	Average cost per mile	Number of miles	Cost of maintenance	Average cost per mile	Number of miles	Cost of maintenance	Average cost per mile	
Des Moines	47.75	22,324.18	467.50							22,324.18
Dickinson	38.00	6,255.90	162.20	32.00	7,729.21	241.50				13,985.11
Dubuque	87.65	25,878.31	294.00	4.00	4,439.93	109.00				30,318.24
Emmet	7.75	278.70	35.90	55.50	10,777.48	194.00				11,056.18
Fayette	118.35	47,570.69	401.70							47,570.69
Floyd	73.34	27,442.85	374.40	18.44	7,134.74	387.50				34,577.59
Franklin	116.50	28,276.56	242.60	42.75	13,776.73	322.00				42,053.29
Fremont	114.00	11,402.49	100.50							11,402.49
Greene	47.25	9,588.96	203.00	23.75	4,651.65	196.00				14,240.61
Grueney	114.50	18,076.12	157.80	6.00						18,076.12
Guthrie	123.45	53,551.52	425.80	3.00	788.25	263.00				53,339.87
Hamilton	50.40	9,410.49	186.70	98.10	13,832.38	141.10				23,242.87
Hancock	111.40	16,403.55	147.90	11.60	700.50	60.30				17,104.45
Hardin	82.20	24,832.94	299.70	42.80	13,087.07	306.50				38,920.71
Harrison	94.50	15,734.88	166.50							15,734.88
Henry	96.00	23,435.39	244.00							23,435.39
Howard	71.68	10,249.27	143.10	5.00	370.49	72.90				10,619.76
Humboldt	56.75	7,054.00	124.30	37.85	141.72	3.74				7,195.75
Ia	80.00	19,810.22	247.00							19,810.22
Iowa	108.30	35,631.35	328.10							35,631.35
Jackson	113.00	27,909.43	246.90							27,909.43
Jasper	126.90	36,608.56	289.30	2.00	1,068.26	534.00				37,676.82
Jefferson	96.00	24,881.32	258.00	1.50						24,882.82
Johnson	107.50	22,219.07	206.70	7.00						22,226.07
Jones	139.60	30,657.58	220.00	3.00	897.98	299.00				31,555.56
Kossuth	125.60	21,902.24	174.30							21,902.24
Lee	181.50	15,304.32	84.30	13.50	558.77	41.30				15,863.09
Lee	83.00	28,967.75	349.00	10.50	5,702.44	538.00				34,670.19
Linn	95.00	19,259.31	202.70	17.00	3,896.71	229.00				23,156.02
Louisia	70.50	22,190.39	313.30							22,190.39
Lucas	96.00	17,854.00	186.00							17,854.00
Lyon	117.24	10,235.59	87.50	8.00	949.33	118.70				11,184.92
Madison	120.00	32,082.92	266.80							32,082.92
Mahaska	76.00	23,446.02	308.50	.00						23,446.02
Marion	98.82	27,081.83	273.80	11.75	3,311.41	282.50				30,393.24
Marshall	141.40	27,628.81	195.30							27,628.81
Mills	67.00	41,474.18	618.80	5.25	1,067.25	203.40				42,541.43
Mitchell	85.20	27,279.39	320.20							27,279.39
Monona	80.10	18,770.92	234.50							18,770.92
Monroe	115.25	28,869.47	250.20							28,869.47
Montgomery	77.50	16,676.26	214.30							16,676.26
Muscatine	65.51	31,690.29	483.40	6.04	984.11	163.00				32,674.40
O'Brien	114.00	17,141.65	150.30	9.00	126.50	14.00				17,268.15
Oceola	102.50	8,161.37	79.60	1.00	214.80	214.80				8,376.17
Page	123.71	24,792.97	200.00							24,792.97
Palo Alto	72.04	10,337.71	143.60	42.25	4,978.85	70.50				15,316.56
Plymouth	116.00	29,604.54	255.20							29,604.54
Pocahontas	32.20	3,672.16	114.10	86.95	24,536.65	282.30				28,208.81
Polk	94.25	30,034.55	318.80	44.10	12,769.03	289.30	.50	213.21	426.40	31,017.79
Polk	146.72	32,620.87	222.50				.02			32,620.87
Pottawattamie	91.00	28,396.14	312.50							28,396.14
Poweshiek	129.85	28,449.29	219.00							28,449.29
Ringgold										
Sae	15.85	5,051.67	318.20	42.80	12,027.81	280.70				17,079.48
Scott	65.43	9,306.81	143.60	15.40	15,261.37	991.00				24,568.08
Shelby	107.15	29,386.35	274.20							29,386.35
Sioux	108.25	19,171.60	177.00	7.00	600.52	85.80				19,772.12
Story	57.25	18,564.36	324.30	75.25	15,526.40	206.30				34,090.76
Tama	140.00	41,208.00	294.30							41,208.00
Taylor	137.00	19,000.66	138.60							19,000.66
Union	104.00	32,000.75	307.70							32,000.75
Van Buren	98.75	19,883.94	201.30							19,883.94
Wapello	100.25	17,005.21	170.00							17,005.21
Warren	92.25	18,614.36	201.80							18,614.36
Washington	110.00	21,181.09	192.60							21,181.09
Wayne	116.50	17,460.27	149.80	8.50						17,468.77
Webster	94.75	23,580.77	248.90	3.00	1,027.05	190.80				24,607.82
Winnebago	66.75	14,177.03	212.40							14,177.03
Winnebago	119.73	32,802.28	274.00							32,802.28
Woodbury	99.22	22,319.23	225.80	58	28.50	49.13				22,347.73
Worth	69.24	16,897.15	244.00	10.60	3,257.51	307.75				20,154.66
Wright	103.95	25,645.47	246.70	17.25	5,635.16	326.50				31,280.59
Total	9,480.36	\$2,283,394.38	\$240.62	1,189.78	\$283,644.62	\$238.40	2.01	\$776.71	\$387.06	\$2,567,815.71







SUMMARY TABLE NO. 20—Continued

County	Earth Road			Gravel Road			Paved Road			Total cost earth, gravel and paving maintenance
	Number of miles	Total cost maintenance	Average cost per mile	Number of miles	Total cost maintenance	Average cost per mile	Number of miles	Total cost maintenance	Average cost per mile	
Pymouth	119.0	\$7,716.48	282.91							\$7,716.48
Pocahontas	11.0	3,422.71	311.15							33,341.69
Pottawatomie	121.9	19,990.72	200.83	53.60	19,938.95	371.62				33,619.27
Rocky Mountaineer	32.9	11,453.88	348.15	32.90	16,012.77	472.35				31,112.63
Rushville	42.0	11,453.88	348.15	2.90						14,872.37
Russell	56.1	14,872.37	272.79							44,391.23
Sac	55.3	8,007.19	292.63	60.80	35,357.06	582.30				44,391.23
Scott	41.2	3,188.02	87.09							9,346.84
Shelby	56.6	16,796.84	331.45	14.40	4,318.10	313.79	16.50	1,734.63	105.13	16,796.84
Sioux	69.2	30,399.00	450.29							10,512.83
Stark	20.8	15,167.10	728.71							10,192.24
Story	49.2	15,167.10	308.29							15,167.10
Taylor	49.2	15,167.10	308.29	43.60	35,005.14	801.55	4.50	111.91	25.09	32,745.88
Union	32.7	22,745.88	431.61							10,679.79
Van Buren	46.9	10,679.79	228.17							17,319.41
Washington	44.6	11,219.43	294.94							33,794.28
Wayne	85.0	23,794.28	280.68							25,143.42
Winnebago	90.9	25,143.42	279.37							14,402.77
Winthrop	63.0	14,402.77	229.41	41.40	31,168.29	752.37				17,694.19
Woodbury	82.5	9,099.83	109.17	36.80	31,593.29	347.42				16,355.68
Woodworth	83.4	16,355.68	196.11							37,431.23
Wright	108.2	37,109.27	290.46							10,149.03
Worth	32.4	5,064.83	156.03	38.40	10,154.15	264.54	16.50	330.06	19.45	37,431.23
Wright	30.7	1,920.75	62.56	19.20	9,999.83	510.83				22,462.15
Total	5,223.4	\$51,532,877.15	\$97.27	1,156.00	\$31,654.91	\$273.81	253.00	\$3,771.94	\$14.92	\$2,065,327.00

SUMMARY TABLE NO. 21  
Showing Cost of Maintenance—Primary Roads.

[illegible]

SUMMARY TABLE NO. 21—Continued.

County	No. miles primary system	Patrol		Gang		Equipment and Tools		Total cost primary road maintenance	Average cost per mile
		Total cost	Average per mile	Total cost	Average per mile	Total cost	Average per mile		
Des Moines	38.80	10,525.25	271.50	1,100.32	28.36	1,177.85	30.35	12,806.42	329.97
Dickinson	42.40	5,587.28	131.77	6,099.17	143.90	3,132.98	74.96	14,799.43	349.08
Dubuque	80.10	14,017.33	174.99	17,054.29	212.91	6,054.48	75.88	37,126.10	463.48
Eumet	41.00	9,316.56	223.95	20,746.33	498.70	2,587.63	62.20	32,650.52	784.85
Fayette	95.00	14,901.01	157.80	7,161.35	75.38	1,592.59	16.76	23,744.95	249.94
Floyd	67.80	6,205.41	92.20	3,542.81	52.64	3,883.88	50.82	13,135.10	195.16
Franklin	41.90	4,907.25	119.26	1,242.29	29.64	4,053.07	96.73	10,292.61	245.63
Freemont	50.00	14,597.01	291.98	4,376.92	87.54	3,816.92	76.34	22,791.89	455.34
Greene	73.00	14,372.43	196.61	3,408.37	47.54	1,242.97	17.20	19,023.77	261.21
Grundy	61.20	6,849.80	111.92	2,892.16	46.18	1,086.60	17.73	10,728.56	175.28
Guthrie	73.00	16,236.94	222.42	5,126.20	42.82	2,674.89	36.64	22,038.03	301.88
Hamilton	67.00	4,505.36	67.34	7,419.91	110.74	5,281.25	78.52	17,186.52	256.50
Hancock	47.30	9,964.48	210.66	727.15	15.37	436.28	9.22	11,127.91	235.35
Hardin	62.20	10,270.22	165.11	295.27	4.79	4,849.75	77.99	15,415.24	247.82
Harrison	79.00	12,336.45	154.27	5,881.04	73.00	2,045.82	25.60	20,253.31	253.47
Howard	48.00	15,128.87	315.28	532.51	11.07	483.00	10.80	16,144.38	336.06
Howell	50.80	8,470.02	166.73	2,171.99	42.75	1,507.61	29.67	12,149.61	239.15
Humboldt	40.50	6,183.34	151.18	5,315.73	129.90	7,460.19	182.40	18,959.30	468.54
Ida	49.00	9,111.16	182.58	2,108.13	42.25	1,233.14	24.71	12,452.43	249.54
Iowa	67.40	9,788.45	145.22	10,069.10	149.24	7,909.75	117.35	27,757.30	411.81
Jackson	48.70	10,585.25	217.35	2,977.37	61.13	1,610.48	38.07	15,173.10	311.55
Jasper	80.90	18,773.22	231.17	1,507.07	16.13	3,637.80	41.14	23,908.10	296.26
Jefferson	40.00	7,704.78	193.93	5,309.40	132.66	4,008.99	98.06	17,023.17	374.96
Johnson	71.50	16,474.78	230.41	10,825.63	151.40	13,088.29	182.77	40,368.70	544.58
Jones	58.50	8,732.58	149.27	5,188.75	88.32	2,005.24	34.29	15,926.57	272.15
Keokuk	80.00	6,441.04	80.51	2,448.58	30.60	1,887.75	17.84	10,277.37	128.45
Kossuth	90.10	29,905.59	332.58	13,680.88	150.73	3,949.00	43.83	47,495.07	527.14
Lee	80.10	19,009.65	238.68	9,244.02	106.74	965.00	11.17	29,279.67	365.59
Linn	90.30	27,384.65	275.77	20,583.54	227.28	1,894.75	19.98	49,862.94	552.13
Louis	50.40	7,619.21	151.17	820.48	16.28	199.36	3.89	8,636.05	171.34
Lucas	37.30	4,055.81	108.25	4,177.97	108.60	2,304.30	40.38	12,537.78	319.53
Madison	37.70	3,067.50	81.31	5,415.33	143.64	2,124.03	56.37	7,606.81	199.20
Mahaska	35.00	13,755.06	393.01	3,047.33	86.40	2,827.97	80.25	19,628.14	560.66
Marion	85.70	13,145.76	153.40	3,392.45	39.58	5,274.97	61.55	21,814.18	254.50
Marshall	91.30	16,320.33	178.05	6,380.30	69.83	4,711.53	51.06	27,401.16	300.44
Mills	49.70	8,078.29	162.41	1,164.32	23.43	3,306.90	66.59	13,552.30	272.63
Mitchell	49.00	11,865.00	242.37	13,390.57	273.24	3,173.10	63.58	28,328.76	577.09
Monroe	61.00	15,506.56	254.69	4,493.06	73.65	1,087.25	17.82	22,016.87	361.91
Monroe	77.10	8,354.87	107.97	4,914.86	63.74	5,484.94	70.75	18,694.67	242.46
Monroe	55.40	14,994.59	270.11	3,811.29	69.15	978.89	17.66	19,774.18	356.92
Montgomery	51.80	19,124.57	369.20	2,424.05	46.79	5,037.89	97.13	23,576.01	455.12
Muscatine	81.40	10,009.19	123.03	3,306.47	40.67	5,308.23	65.21	19,423.89	238.61
O'Brien	74.30	6,633.29	89.27	2,674.75	35.99	2,347.59	31.59	11,655.54	156.80
Osceola	41.50	3,384.13	81.54	2,281.08	54.96	303.75	7.31	5,968.96	143.81
Pace	59.10	12,808.66	216.72	76.10	1.28	592.90	9.92	13,447.66	227.52
Palo Alto	48.90	5,196.51	106.04	1,857.57	37.98	402.00	8.22	7,396.08	151.24
Plymouth	119.00	12,947.65	108.80	12,502.87	105.09	2,235.09	19.04	27,716.48	232.90
Pocahontas	64.60	13,653.74	209.07	4,502.47	70.02	5,755.45	89.62	23,914.66	369.31
Polk	91.10	26,300.35	289.68	5,190.05	57.00	4,055.87	44.80	35,619.27	390.98
Pottawattamie	146.00	44,672.40	304.10	22,248.76	151.45	6,554.62	44.61	73,475.78	500.16
Poweshiek	67.00	8,446.42	126.06	1,439.00	21.47	1,269.00	18.94	11,154.51	166.47
Ringgold	52.10	7,932.28	152.27	3,304.88	63.43	5,334.11	63.00	14,572.27	279.09
Sac	92.10	27,175.34	295.06	13,076.90	141.98	4,011.98	43.55	44,264.22	480.90
Salt Lake	72.10	6,456.05	89.64	3,808.91	52.68	513.21	7.12	9,870.15	136.48
Schuyler	50.80	10,213.70	200.95	4,368.99	85.84	2,369.15	46.60	18,796.84	369.65
Sioux	73.70	4,544.04	61.65	4,377.59	59.30	1,591.20	21.59	10,512.83	142.63
Story	61.40	16,086.32	262.75	23,198.04	407.78	5,612.88	91.81	40,192.24	779.37
Tama	70.00	9,798.94	139.98	2,047.91	29.25	6,002.58	85.75	17,849.43	254.98
Taylor	49.20	10,763.84	218.77	640.78	13.02	3,718.90	75.58	15,123.52	307.37
Union	32.70	11,334.57	346.32	1,845.85	56.46	9,765.46	185.30	22,745.88	431.00
Van Buren	46.00	9,308.29	202.66	505.24	10.94	716.16	15.57	10,679.79	232.17
Vapello	43.00	12,641.14	294.06	4,053.88	94.20	314.40	7.32	17,219.42	394.92
Varen	83.00	12,135.07	145.02	4,514.04	54.38	6,944.61	83.87	25,794.38	309.67
Washington	90.00	12,168.31	135.21	9,012.76	100.15	3,999.83	44.00	25,143.42	279.36
Wayne	62.00	7,754.22	125.08	4,315.05	69.49	2,383.50	37.83	14,452.77	233.40
Webster	84.50	26,507.39	313.78	13,972.66	165.35	7,394.14	87.50	47,834.19	566.07
Winnebago	48.80	9,724.50	199.27	651.66	13.35	5,306.45	73.73	13,974.61	286.35
Winnesiek	83.40	8,545.36	102.45	4,680.90	56.12	3,129.65	37.52	16,355.98	196.10
Woodbury	124.70	12,345.47	99.00	11,174.57	89.61	3,901.19	31.29	27,421.23	219.90
Worth	60.80	6,582.33	107.76	4,663.37	76.69	4,733.33	77.85	16,149.63	265.39
Wright	58.90	18,818.61	319.50	942.40	16.00	2,891.17	49.08	22,662.18	384.58
Total		\$1,133,604.84	\$174.36	\$12,520.88	\$2.58	\$329,197.28	\$49.75	\$2,065,323.00	\$319.69

## SUMMARY TABLE NO. 22

Showing Construction Work Contemplated in 1921 and Condition Primary Road System, January 1, 1922.

County	Number Miles Constructed 1921			Condition Primary Road System January 1, 1922				
	Built to permanent grade	Surfaced with gravel, macadam or sand clay	Paved	Earth road not built	Earth road built to permanent grade	Surfaced gravel, macadam or sand clay	Paved	Total miles in primary system
Adair	14.40			37.3	18.7			56.0
Adams	3.29			25.2	10.0			35.2
Allamakee	6.24			78.8	5.5			84.3
Appanoose	1.38			46.1	11.0			57.1
Audubon	2.89			43.3	3.3			46.6
Benton	19.45		8.88	67.6	12.0		10.8	90.4
Black Hawk	4.18			68.3	2.0	2.6	4.1	78.0
Boone	25.79	29.35		13.9	2.3	61.4		77.8
Bremer	8.07			50.2	10.8	2.0		72.0
Buchanan				36.0	10.0			46.0
Buena Vista	.55	26.00				96.7		63.7
Butler	8.08	12.79		53.8	4.5	11.9		70.2
Calhoun	9.24	10.02			9.7	62.4		72.1
Carroll	18.41			25.5	21.0	24.0		70.5
Cass	2.46			70.4	3.3		.5	74.2
Cedar				66.1	9.0	1.0		76.1
Cerro Gordo	9.81		13.14	20.7			33.7	54.4
Cherokee	12.00	11.50		31.0	29.4	17.5	.5	78.4
Chickasaw	14.32	13.85		17.7		28.9		45.7
Clarke	4.09			30.7	14.8			45.5
Clay	.19				6.6	47.4		54.0
Clayton	20.00			86.1	17.1	1.0		103.2
Clinton	22.48		17.35	68.3	12.7	2.0	17.5	90.5
Crawford	.49			15.2	67.1			82.3
Dallas	15.80	38.68		37.2	9.0	41.8		88.0
Davis	10.82			36.4	9.0			45.4
Deaatur				41.8	9.8			51.6
Delaware	2.16	12.00		28.1	4.7	12.7		45.5

Des Moines	12.71		7.34	38.0	.5	3.0	8.3	38.8
Dickinson	4.90		4.80			37.5	5.1	42.4
Dubuque	9.05			22.4	21.0	32.2	3.5	89.1
Emmet						41.6		41.6
Eyette	29.40	.03		69.4	25.6			95.0
Floyd	5.79		6.42	43.8		9.5	15.0	67.3
Franklin	13.91	.67		11.5	9.5	20.9		41.9
Fremont	11.93			31.9	18.1			50.0
Greene	8.48		5.42	29.2	11.0	34.3	7.5	72.0
Grundy	20.97	5.79		37.7	19.5	4.0		61.2
Guthrie	12.39			59.3	14.0	3.7		73.0
Hamilton	11.69	4.23		23.3	13.9	28.8		67.0
Hancock	10.54		10.22	24.5		12.3	19.3	47.3
Hardin	6.35	24.71		8.4	19.0	49.8		62.2
Harrison	1.45			63.9	16.0			79.9
Henry	14.57			25.6	20.4			46.0
Howard	10.95	7.72		29.6	5.0	19.2		50.8
Humboldt	9.50	4.91	.29		19.0	21.9		40.9
Ida	10.48	7.44		30.7	10.5	8.7		49.9
Iowa	14.50			48.0	19.4			67.4
Jackson	14.35			27.2	15.0	3.5		46.7
Jasper	12.11	5.00		71.9	12.0	6.0		89.9
Jefferson	.58			26.1	20.9			47.0
Johnson	18.06		2.64	34.3	34.2		3.0	71.5
Jones	8.08			47.6	7.9	3.0		58.5
Kookuk	.94			68.5	11.5			80.0
Kossuth	44.88			8.7	57.9	23.5		90.1
Linn	5.80	7.05		75.9	13.2			89.1
Louis	13.35		4.84	70.0	12.3	8.2	8.8	90.3
Louisa	20.81			25.2	23.9		1.5	50.4
Lucas	10.36			44.5	12.7			57.2
Lyon	22.47	21.75		43.1	13.9	11.0		67.7
Madison	10.20			43.7	11.3			55.0
Mahaska	17.35			62.0	23.7			85.7
Marion	13.51			60.4	30.8			91.2
Marshall	8.24		5.93	22.1	14.8		7.8	49.7
Mills	10.45			37.1	12.8			49.9
Mitchell	18.19	15.65		30.2		34.8		61.0
Monona	3.50			93.5	8.6			77.1
Monroe	5.05			40.7	14.7			55.4
Montgomery				39.3	15.5			51.8
Muscatine	15.05	.29		48.9	20.6	11.0	.9	81.4
O'Brien	19.55		21.49	37.8	14.0		22.5	74.3
Osceola	13.50	6.85		9.1	21.4	11.0		41.5
Pace	22.40			36.0	22.5			58.1
Palo Alto	1.65		9.01	5.6	31.1	1.2	11.0	48.9



SUMMARY TABLE NO. 22—Continued

County	Number Miles Constructed 1921			Condition Primary Road System January 1, 1922				
	Built to permanent grade	Surfaced with gravel, macadam or sand clay	Paved	Earth road not built	Earth road built to permanent grade	Surfaced gravel, macadam or sand clay	Paved	Total miles in primary system
Plymouth	37.06			91.8	27.2			119.0
Pocahontas	14.49	30.17		1.0	10.0	53.8		64.6
Polk	18.02	8.33	13.05	11.2	20.7	33.9	25.3	91.1
Pottawattamie	.18			128.9	4.1	2.8		146.9
Poweshiek	15.92			50.7	16.3			67.0
Ringgold	1.97			39.7	12.4			52.1
Sac		34.06			25.3	66.8		92.1
Scott	22.29		16.02	4.3	36.9	14.4	16.5	72.1
Shelby	14.33			30.8	19.8			50.6
Sioux	11.27		3.52	28.6	20.6			75.7
Story	2.68	8.15		6.7	14.1	43.6	4.5	64.4
Tama	14.77			44.1	23.9			70.0
Taylor	5.59			43.9	5.3			49.2
Union	14.50			37.0	15.7			52.7
Van Buren	2.09			36.4	9.6			46.0
Wapello	1.85			33.4	10.2			43.6
Warren	11.70			74.3	5.7			83.0
Washington	14.87			72.9	17.1			90.0
Wayne	10.53			51.7	11.3			63.0
Winnebago	10.23	15.33		22.6	29.5	41.4		84.5
Winnebuck	14.09	21.08		5.0	17.5	35.3		48.8
Woodbury	6.20			79.4	4.0			83.4
Worth	16.68		16.73	52.3	55.9		16.5	124.7
Wright	7.50	5.15		27.4	5.0	28.4		69.8
	9.18	17.11		31.6	8.1	19.2		58.9
Total	1,068.47	403.79	168.34	3,775.6	1,447.8	1,156.6	236.9	6,616.0

SUMMARY TABLE NO. 23

Classification of Permanent Bridge and Culvert Construction Paid from Primary Road Funds in 1921.

County	Project No.	Concrete culverts	Head walls constructed and culverts lengthened	Concrete slab bridges	Timber beam bridges	Pony truss	High steel truss	Miscellaneous	Engineering	Total
Adair	B-20	\$ 6,832.74						\$ 18.14		\$ 6,850.88
Adair	B-23	8,499.97	\$ 5,939.57			\$ 7,574.40		759.77		22,517.71
Adair	B-64	5,108.58	1,411.30							6,519.78
Appanoose	B-30	5,268.69	931.00		\$ 4,370.10			679.17		11,148.96
Audubon	B-60	18,236.81	3,127.59					639.40		22,004.10
Audubon	B-63					12,898.78				12,898.78
Black Hawk		2,130.78	1,106.78		2,835.34					6,033.00
Bremer	B-58	4,575.10	2,135.59	\$ 1,896.89	2,992.89					11,595.37
Carroll	B-14	21,477.02	2,024.61							23,501.63
Carroll	B-52	74.75								74.75
Cass	B-61	2,806.57			20,067.83				759.45	23,713.85
Cherokee	B-7	11,005.29	618.17		3,725.91	7,724.80				23,074.17
Clarke	B-83	2,272.20							228.17	2,500.37
Clay	B-36	2,123.07				10,699.55				12,812.62
Clayton	B-62	12,430.51	949.64							13,380.15
Clayton	B-85	2,496.19								2,496.19
Decatur	B-24						\$ 17,573.28	\$ 7,302.45	2,398.90	115,755.06
Fremont	B-1	89,169.75	1,235.08			15,081.85				115,755.06
Fremont	B-6									395.16
Grundy	B-33	10,698.48	1,934.30			9,465.94				22,098.72
Guthrie	B-12	40,304.14	2,826.37			7,128.57			209.90	50,468.98
Hamilton	B-9	2,969.80								2,969.80
Howard	B-83					6,197.04			83.56	6,280.60
Ia	B-44	14,521.98	4,789.40							19,311.38
Ia	B-92	2,143.80								2,143.80
Iowa	B-19	23,702.40	2,522.47			5,493.48			1,329.15	42,238.50
Jackson	B-3	24,338.86	213.31			15,928.90	23,465.50		812.13	64,758.79
Jackson	B-70						1,500.71			1,500.71
Jasper	B-29	10,091.52	2,045.72							12,137.24
Jones	B-38	14,578.18	1,040.34			7,135.00			1,226.76	23,980.28
Lee	B-2	6,339.52			874.19			496.05		7,679.76

SUMMARY TABLE NO. 23—Continued

County	Project No.	Concrete culverts	Head walls constructed and culverts lengthened	Concrete slab bridges	T-beam bridges	Pony truss	High steel truss	Miscellaneous	Engineering	Total
Louisiana	B-4	10,294.47	150.00		19,175.14	6,800.20	19,700.00		533.00	56,865.81
Lucas	B-8	15,132.10	1,739.25		5,005.00					22,599.23
Lucas	B-10	4,302.33	435.11							4,695.44
Lyon	B-66			5,006.03	5,710.80					9,778.83
Lyon	B-34	779.90	416.45							1,146.35
Madison	B-5	39,048.87	1,445.00		5,890.33	8,000.00	17,000.00			71,394.40
Mahaska	B-27	24,000.61	850.77							25,000.58
Marion	B-119	7,370.72	770.50		647.79	907.64		239.30		9,006.05
Marshall	B-54	7,437.04	712.64						158.70	8,335.18
Mills	B-11	24,874.17			236.80					25,110.97
Monona	B-43	15,093.33	1,767.87		7,584.48	32,400.70				54,839.41
Monroe	B-28	4,270.76	2,592.00		3,272.29	5,452.92				22,391.12
Muscatine	B-49	3,536.00	247.62		400.00					10,135.05
Oswego	B-37								128.61	4,318.23
Plymouth	B-35	12,417.80	3,042.96	2,953.83		8,801.00				3,501.00
Poweshiek	B-31	4,100.70				29,856.63				40,950.33
Poweshiek	B-15	15,301.81		3,180.62						4,160.70
Ringgold	B-17	6,830.49								22,786.87
Scott	B-18	7,751.47	172.07							6,606.40
Shelby	B-16	15,394.77				11,100.00				21,527.77
Story	B-31	3,306.31	3,785.39		13,195.99	11,442.05				40,236.81
Tama	B-25	24,170.12	1,179.96		12,490.30	6,793.00				44,312.40
Taylor	B-17	12,613.90	1,906.00						1,191.51	29,031.79
Union	B-42	25,013.40	287.80					864.00	195.00	15,577.90
Van Buren	B-37	1,184.81	72.75		5,801.34	7,393.98			449.00	31,551.44
Warren	B-40	16,384.30								8,630.64
Warren	B-21	3,213.80	2,006.83						466.61	19,850.91
Washington	B-39	4,355.00	500.15		3,706.00		7,008.69			5,314.66
Wayne	DB-13					6,750.00				15,837.80
Winnebago	B-55	6,471.64	2,221.00			28,782.54				6,750.00
Wright	B-25	1,538.00				31,837.65				37,475.18
Total		\$375,920.05	\$45,158.16	\$ 7,908.05	\$119,529.33	\$30,365.78	\$6,195.18	\$ 6,971.70	\$17,338.90	\$1,270,923.85

SUMMARY TABLE NO. 24

Amount of Bridge and Road Work Planned by and Constructed Under Supervision of County Engineers During 1921—Annual Report of County Engineers

County	Bridges		Roads		Number Miles County and Township Roads			
	Planned	Constructed	Planned	Constructed	Surveyed	Platted	Grade lines located District Engr.	Profile surveyed commission
Adair	\$ 45,182.50	\$ 116,027.12	\$ 15,681.35	\$ 40,149.96	4.00	5.00		
Adams	21,251.42	65,000.00	3,000.00					
Allamakee	23,780.00	32,000.00		23,500.00				
Appanoose	34,549.00	130,175.72		57,644.55				
Audubon	16,959.00	27,139.86		27,500.00				
Benton	32,377.50	135,000.00		30,000.00				
Black Hawk	31,953.59	49,556.10		72,394.17	6.00	3.00		
Boone	33,301.20	52,875.78		102,282.74				
Brainerd	61,680.91	79,490.56	15,500.00	65,139.76	3.00	3.00	2.50	2.50
Duchaux	14,967.50	21,772.55	10,000.00	8,751.10	3.50	3.50	2.50	
Buena Vista	22,000.00	32,486.24		54,231.69	27.50	27.50	6.75	6.75
Butler	18,603.10	41,791.29	12,500.00	35,563.00	2.00	3.00	3.00	
Calhoun	31,500.00	102,890.25	28,000.00	101,670.74	2.00	6.00	13.00	8.00
Carroll	25,432.00	22,580.00	3,600.00	35,450.53	1.00	1.00		1.00
Cass	22,971.44	77,192.00						
Cedar	5,155.00	66,770.00		1,000.00				
Cerro Gordo	34,219.45	49,286.29	73,094.00	71,479.30	9.50	9.50	9.00	9.00
Cherokee	64,517.48	85,000.00		18,600.00				
Chickasaw	15,277.54	107,606.02	7,814.85	308.05	8.00			
Clarke	10,700.25	38,900.00		16,500.00				
Clay	27,060.00	39,271.25	40,000.00	73,633.74	30.00	30.00	17.00	
Clayton	25,579.00	75,000.00		39,630.54	3.30			
Clinton	47,888.30	80,000.00	60,000.00	14.00		3.00		
Crawford	1,105.00	50,000.00		40,000.00	2.68	2.68		
Dallas	16,844.00	65,000.00	80,470.00	147,000.00	44.00	6.00	21.00	21.00
Davis	37,900.00	123,720.33		18,000.27				

SUMMARY TABLE NO. 24—Continued

County	Bridges		Roads		Number Miles County and Township Roads			
	Planned	Constructed	Planned	Constructed	Surveyed	Platted	Grade Line approved District Engr.	Prohibes construction
Decorah	1,626.00	83,574.15		77,082.34	2.25	2.25		
Delaware	19,592.80	85,000.00		23,000.00				
Des Moines	19,592.80	85,000.00		23,000.00				
Dickinson	10,000.00	22,571.67		22,571.67				
Dubuque	10,000.00	10,000.00		10,000.00				
Emmet	11,313.00	52,133.95		52,133.95				
Fayette	84,007.88	76,884.00	60,000.00	60,000.00	46.25	46.25	8.50	8.50
Floyd	21,055.62	72,093.14	25,000.00	25,000.00	13.16	13.16	13.25	13.25
Franklin	40,800.00	26,000.00	38,294.54	38,294.54	3.00	20.00	24.25	14.25
Franklin	2,382.00	48,400.00		75,025.54	7.50	7.50	5.50	5.50
Greene	6,008.92	47,000.12		35,070.77				
Grundy	10,758.00	90,585.30		40,945.00	40.00			
Hamilton	15,500.00	43,244.18	6,000.00	105,750.00	1.25	1.25		
Hancock	18,962.00	53,614.49	5,000.00	47,664.20	2.00	6.00	6.00	6.00
Harrison	102,494.35	128,294.00	80,000.00	110,000.00	5.60	4.36	14.77	14.77
Harrison	7,000.00	44,485.00		26,708.63	2.00			
Henry	24,225.00	99,568.46		29,790.00				
Howard	15,777.00	96,735.71		29,485.72	1.00	1.00		
Humboldt	30,000.00	36,735.44	37,015.87	30,011.22	8.00	9.00	20.25	10.25
Iowa	72,481.00	43,000.00		35,000.00				
Jackson	83,181.50	140,843.87	5,000.00	50,450.00	1.00	1.00		
Jasper	6,735.75	17,321.15	30,000.00	46,138.17			2.00	2.00
Jefferson	62,858.32	77,000.00	2,500.00	38,110.00	50	50	4.20	4.20
Johnson	20,000.00	30,000.00		21,000.00	1.00	1.00	55.75	55.75
Keosauqua	30,000.00	92,000.00	85,138.43	134,000.00	44.75	30.50		

Lee	7,600.00	46,315.25		47,705.10	2.00	2.00	20.50	20.50
Linn	48,300.00	89,888.25	6,000.00	32,000.00	2.50	1.00		
Louis	1,073.25	1,073.25	5,200.00	32,000.00				
Lowe	14,423.33	30,772.44		35,000.00				
Lyon	23,635.34	32,575.00		19,221.30	3.00	3.00		
Mahaska	17,425.00	17,042.08	38,880.00	22,032.02	8.75	1.75		
Marion	6,106.07	138,015.92		60,000.00	11.00	6.00		
Marshall	94,309.58	36,001.57		34,000.00				
Miller	30,000.00	30,000.00		70,001.00				
Monroe	34,674.20	44,000.00		70,000.00				
Montgomery	11,232.87	34,925.44	7,500.00	27,800.00	7.50	11.00	9.00	9.00
Montgomery	34,410.80	30,000.00		20,000.00				
Moscow	13,888.00	98,717.00	12,000.00	22,000.00	5.00	4.00		
Muscatine	21,304.00	27,287.00	12,000.00	32,000.00	12.75	7.00		
O'Brien	25,896.42	29,000.00	20,000.00	19,000.72	8.00	5.00	14.50	22.10
Oswego	29,000.00	29,000.00	25,000.00	30,000.00	2.00	2.00		
Pace	33,077.33	55,000.00	3,000.00	120,000.00	1.20	1.85	1.85	1.85
Palo Alto	67,792.00	94,300.00	50,000.00	64,847.58	8.00	10.50	5.00	5.00
Plymouth	104,288.70	107,475.29	200,000.00	178,000.00	5.00		17.00	17.00
Polk	159,150.00	177,419.40	74,000.00	150,000.00	20.00	20.00	21.25	21.25
Portsmouth	24,968.00	309,357.55		32,000.00				
Pottawattamie	7,753.88	60,000.00		28,440.20	50	50		
Ringgold	70,000.00	82,000.00	50,000.00	136,700.00	22.75	1.00	0.00	0.00
Ross	48,455.70	82,000.00	8,000.00	65,002.63	6.12	3.71		
Sac	41,881.00	131,530.00	2,515.30	35,900.00	5.00	7.00		
Shelby	17,000.00	60,000.00		100,000.00				
Shelby	36,562.40	97,888.00		34,000.00	1.70	.01	.01	.01
Shelby	42,141.34	74,154.25	3,120.00	34,000.00	27.00			
Union	6,110.00	6,000.00	15,000.00	32,655.11				
Van Buren	5,000.00	58,005.36		13,156.17				
Wapello	36,105.41	65,015.58		6,487.25				
Washington	11,968.30	59,729.50		28,307.22	2.00			
Wayne	24,215.10	60,531.20	4,000.00	31,400.92	10.75	8.25	6.25	6.25
Webster	10,850.00	26,212.51	5,000.00	10,000.00				
Winnebago	44,000.00	82,000.00	17,500.00	36,100.00	5.95	0.95	1.14	1.14
Winnebago	20,800.00	20,800.00		24,000.00	12.00		9.00	9.00
Worth	37,254.00	119,388.33	107,665.56	221,328.56	22.50	22.50	22.00	22.00
Wright								
Total	\$ 3,301,039.77	\$ 6,514,659.71	\$ 1,507,715.16	\$ 4,743,605.37	609.35	425.05	280.29	280.54



SUMMARY TABLE NO. 25

[illegible]

SUMMARY TABLE NO. 25—Continued

376

IOWA STATE HIGHWAY COMMISSION

County	Roads					Bridges					
	County	Engineer	Assistant	Engineer	Total	County	Engineer	Assistant	Engineer	Total	Total Cost of Engineering
	Salary	Expense	Salary	Expense		Salary	Expense	Salary	Expense		
Pottawattamie	1,100.00		2,000.00		3,100.00	2,300.00		1,950.00		3,800.00	6,900.00
Poweshiek	1,000.00	253.05	160.50		1,414.45	1,800.00	456.37	149.00		2,405.37	3,819.82
Ringgold	999.00	251.84	185.47		1,387.31	960.00	251.84	110.00		1,311.84	2,099.13
Sac	1,431.00	405.23	1,409.13	109.34	3,444.70	1,341.50	337.76	513.38	45.00	2,196.64	5,053.34
Scott	1,400.00	220.00	5,074.30	326.39	7,620.73	2,300.00	391.48	1,823.00	105.00	4,499.48	12,140.26
Shelby	1,070.27	610.04	331.42		2,011.73	1,320.73	719.55	460.73		2,510.01	4,321.74
Sioux	1,600.00	400.00	2,238.89	341.50	4,580.39	1,000.00	400.00			2,000.00	6,580.39
Story	3,100.00	1,135.24	2,659.74	310.64	7,305.62	400.00	130.67	1,108.26	340.70	1,979.63	9,373.25
Tama	700.00	276.75	276.40		1,253.15	1,000.00	753.50	1,000.00		3,153.50	4,403.65
Taylor	850.00	183.22	356.60		1,389.82	1,275.02	274.80	356.60		1,906.45	3,206.27
Union	1,000.00		316.96		1,366.65	1,200.00	80.50			1,280.50	3,647.15
Van Buren	1,015.78	771.15	1.25		1,788.16	1,015.78	771.15			1,786.93	3,575.07
Wapello	630.00	420.00			1,050.00	1,381.63	981.02	1,075.47		3,438.12	4,488.12
Warren	528.00	106.01	206.00		840.01	1,872.00	379.00	1,019.29		3,260.29	4,101.11
Washington	365.22	157.62	106.77		748.92	1,185.90	472.80	587.23		2,245.12	3,994.74
Wayne	900.00	548.42	185.42		1,633.84	1,440.00	822.63	278.12		2,540.75	4,174.59
Webster	860.00	440.00	2,050.00	300.00	3,490.00	917.21	308.14	1,036.86	440.79	2,693.00	6,183.00
Winnebago	1,548.00	406.39	1,529.63	562.78	4,136.80	305.00	75.00	195.00	80.00	575.00	4,630.80
Winnechick	600.00	471.00	1,067.00	151.00	2,289.00	1,000.00	815.00	351.00	97.00	2,263.00	5,552.00
Woodbury	2,025.36	658.15	1,050.00	123.70	3,858.21	1,349.34	428.77	613.37	45.02	2,436.48	6,294.61
Worth	1,249.21	386.40	71.20		1,706.81	659.84	223.35	213.55		1,096.74	2,803.55
Wright	1,570.10	560.84	6,350.05		8,480.99	785.16	280.41	2,057.61		3,123.18	11,604.17
Total	\$21,924.05	\$41,689.66	\$140,845.28	\$20,309.05	\$325,058.05	\$125,002.64	\$20,861.13	\$85,206.25	\$8,879.63	\$237,950.35	\$682,050.30

SUMMARY TABLE NO. 26  
Financial Statement—Annual Report of County Engineers.

County	County Bridge Fund					County Motor Vehicle Fund				
	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921	Balance or overdraft Jan. 1, 1922	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921	Balance or overdraft Jan. 1, 1922
Adair	\$1,354.27	\$109,918.01	\$109,563.75	\$102,358.91	\$4,200.11	\$86.48		\$86.48	\$117.09	\$119.37
Adams	7,239.67	134,764.00	142,103.67	138,948.78	3,151.89	314.42	\$1,500.37	\$1,814.69	1,874.69	
Allamakee	456.65	\$5,985.28	\$5,441.96	\$1,674.87	\$20,232.94		\$2,340.33	\$2,340.33	\$2,340.33	
Appanoose	7,678.17	\$5,919.81	73,397.98	\$5,500.75	\$5,962.77	2,868.72	25,555.22	25,453.94	19,902.19	\$4,491.75
Audubon	496.50	\$5,990.90	\$6,487.46	\$5,730.12	737.34					
Benton	\$1,440.88	126,369.65	191,602.72	126,733.00	\$789.37	7,441.33	25,037.81	32,009.34	26,819.18	\$5,220.16
Black Hawk	5,731.46	161,915.95	167,047.41	152,335.25	15,422.18					
Boone	\$4,131.61	159,395.97	155,134.36	127,582.67	27,552.29					
Bremert	6,248.92	64,285.45	70,534.37	68,546.54	7,987.83	2,802.55		2,802.55	2,802.55	
Buchanan	\$2,727.67	73,282.42	60,554.75	38,586.62	11,968.13					
Buena Vista	14,805.17	29,704.80	44,600.03	26,842.77	17,757.26	3,001.09	41,070.58	45,331.67	37,427.11	7,904.56
Butler	30,918.50	80,537.02	101,155.52	70,782.84	25,082.68	617.69	2,414.62	3,032.22	1,705.97	1,326.35
Calhoun	39,070.82	\$7,229.00	66,000.75	94,266.19	2,634.56	3,627.54	28,305.59	31,883.13	23,690.77	\$8,142.36
Carroll	\$10,302.11	74,414.53	77,454.44	66,007.74	\$8,533.30		2,080.27	2,080.27	2,080.27	
Cass	4,389.67	129,626.80	134,015.82	124,305.85	9,609.05					
Cedar	\$280.00	130,006.00	136,445.73	144,397.35	\$7,051.49					
Cerro Gordo	2,796.27	\$5,484.00	68,281.33	\$5,145.72	13,155.54					
Cherokee	3,087.18	140,822.10	143,889.28	140,124.46	3,764.82	7,373.79		7,373.79	7,373.79	
Chickasaw	\$1,029.46	\$5,888.12	\$4,807.66	\$5,432.98	\$506.32					
Clarke	4,563.47	119,603.27	124,165.74	119,380.56	4,786.18	5,944.30		5,944.30	5,944.30	
Clay	\$1,685.11	\$1,117.97	62,432.86	\$1,364.19	11,098.67					
Clayton	10,517.96	\$8,374.49	\$8,800.45	\$8,972.92	\$9,019.53	9,000.38	2,800.27	12,822.65	12,822.65	
Clinton	\$3,180.88	\$9,898.41	\$4,717.12	\$4,717.12	\$4,041.68	3,282.39	2,340.27	5,622.66	5,622.66	
Crawford	9,000.82	180,768.01	190,706.82	161,665.19	29,037.64					
Dallas	6,080.65	69,433.92	75,514.57	72,600.55	2,854.02		25,082.67	25,082.67	22,512.90	\$2,469.77
Davis	2,712.62	150,700.64	152,503.96	151,789.99	713.27	641.96	2,017.45	2,659.43	1,044.58	1,615.05
Decatur	\$5,975.28	124,704.01	118,738.72	115,827.01	2,911.71	148.70	28,508.26	28,656.96	26,002.59	\$2,654.37
Delaware	130.05	118,480.85	118,610.90	115,538.71	3,072.19	4,707.30	1,902.85	6,700.25	1,701.85	\$5,008.40

ANNUAL REPORT OF COUNTY ENGINEERS

377

SUMMARY TABLE NO. 26—Continued

378

IOWA STATE HIGHWAY COMMISSION

ANNUAL REPORTS OF COUNTY ENGINEERS

379

County	County Bridge Fund				County Motor Vehicle Fund				
	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921	Balance or overdraft Jan. 1, 1922	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921
Des Moines	6,027.39	22,121.58	28,148.94	28,201.02	*10,142.08	7,953.18	6,508.45	13,655.63	18,835.50
Dickinson	22,068.02	32,739.39	54,807.41	16,151.24	39,711.04				
Dubuque	1,274.34	69,999.68	71,274.02	136,035.56	*94,479.54				
Emmet	2,532.36	25,259.64	28,552.00	33,824.21	4,728.79	*451.74	24,722.85	24,270.79	31,087.20
Fayette	*9,292.79	168,087.98	164,735.19	165,984.79	*1,249.00				
Floyd	*166.53	38,000.22	38,225.09	57,506.95	828.84		1,815.94	1,515.94	1,815.94
Franklin	*3,054.31	77,732.25	14,698.04	68,407.67	6,290.37	*1,701.58	13,234.68	12,073.05	12,802.16
Freemont	37,739.37	35,294.30	39,054.17	77,478.41	23,837.74	*2.24	1,535.91	1,535.91	1,535.91
Greene	18,493.47	132,994.60	171,086.67	162,147.86	21,977.24				
Grundy	13,700.29	135,678.76	165,379.05	100,364.89	55,814.19	2,338.00	1,829.37	4,158.30	965.50
Harrison	*978.15	127,578.36	139,269.91	122,323.53	14,276.88				
Hawley	2,300.88	92,463.35	96,773.23	68,303.16	27,240.07				
Hamilton	19,512.94	45,109.51	64,712.45	51,973.18	10,739.27				
Hardin	27,361.82	107,339.55	134,645.37	132,589.08	2,256.29	8,975.56	2,075.36	70.00	2,005.36
Harrison	839.48	77,240.40	77,979.88	162,162.82	1,687.18				
Henry	5,036.05	58,414.98	63,451.03	62,414.46	5,036.06	1,511.17	7,145.80	7,145.80	7,145.80
Howard	*518.05	51,729.14	52,247.19	52,078.62	*966.41	1,465.90	1,465.90		1,465.90
Humboldt	37,527.10	56,793.55	94,320.65	21,506.04	71,513.61				
Iowa	547.15	112,140.07	112,787.22	99,401.64	13,385.61				
Jackson	7,838.70	81,400.05	89,238.75	80,216.47	8,882.18				
Jasper	20,469.87	73,925.00	94,425.87	61,320.71	33,105.15		2,905.27	2,905.27	2,224.36
Jefferson	2,221.34	101,073.72	103,295.06	143,891.42	4,400.80	8,058.10	1,600.27	9,886.46	8,552.76
Johnson	830.57	89,197.66	89,818.33	73,107.17	16,710.16				
Jones	19,060.55	75,834.82	94,895.37	78,130.00	16,765.37				
Kearney	1,145.12	114,457.80	115,584.52	99,070.00	15,613.82	3,761.82	2,210.27	5,971.57	5,971.57
Kossuth	4,514.12	80,245.00	84,759.12	72,290.38	12,468.74				
Laurens	*11,323.98	84,227.15	72,903.17	78,500.21	*6,000.00	450.63	3,770.27	4,250.90	79.11
Lee	2,080.34	65,313.48	67,393.82	67,304.15	989.57	379.70	2,210.27	2,590.03	2,585.00
Linn	12,296.46	105,503.01	114,799.47	108,221.85	11,569.62				
Louis	*9,728.07	79,022.01	69,294.84	43,759.77	16,565.07				
Lucas	4,084.97	91,081.07	95,766.04	94,943.71	822.33				
Lyon	66.66	57,800.72	57,436.38	59,592.84	*1,829.55	194.00	2,340.27	2,444.27	2,444.27
Mahoning	1,959.04	66,417.27	68,446.31	64,552.51	11,887.05				
Makoshia	18,822.09	62,487.10	80,309.19	67,593.61	*5,084.45		2,470.27	2,470.27	9.00
Marion	7,910.22	78,511.77	88,482.35	75,449.93	10,041.42	2,599.92	32,504.32	34,804.24	25,541.53
Marshall	*1,820.78	179,114.85	177,294.12	177,294.64	*26.52	3,373.84	3,848.41	7,222.25	4,430.30
Mills	27,000.60	107,822.99	135,513.59	125,073.92	10,439.66				
Mitchell	4,794.02	91,815.87	68,010.49	74,747.78	*6,137.29				
Monona	9,673.78	72,234.71	81,908.47	82,801.46	*804.79				
Monroe	*2,393.43	45,407.73	41,987.30	40,731.90	385.40	3,749.47	22,059.57	25,805.34	21,168.32
Montgomery	539.27	225,082.57	225,721.77	294,772.47	30,972.50	9,009.45	22,014.77	31,021.52	23,658.39
Muscatine	43.89	76,754.75	76,808.64	75,198.63	909.99		1,050.27	1,050.27	1,050.27
O'Brien	5,869.70	134,537.52	140,415.22	119,531.38	20,883.84				
Oceola	*777.81	45,883.54	45,105.73	36,566.81	11,738.70	12,111.70	1,380.27	12,671.97	4,099.24
Page	*14,974.23	212,329.88	198,355.50	171,834.65	25,520.96				
Palo Alto	16,288.55	78,412.38	94,700.93	95,349.16	29,351.49	6,180.31	6,180.31	4,389.48	1,799.83
Plymouth	24,255.34	113,540.72	147,746.55	131,185.00	16,560.55		2,900.27	2,900.27	2,900.27
Pocahontas	*3,402.94	122,421.47	119,018.61	117,060.43	1,958.18				
Polk	8,497.75	188,061.85	196,559.60	172,781.77	7,777.83				
Pottawattamie	2,413.40	880,623.12	883,036.52	842,947.49	40,089.04				
Poweshiek	3,630.97	171,188.13	176,819.10	180,618.84	15,800.75				
Ringgold	*5,215.28	60,414.26	55,198.88	61,002.29	*5,784.41	*16.70	2,340.07	2,223.37	2,321.14
Sac	3,801.64	126,086.16	129,886.16	121,065.05	7,424.75		2,080.27	2,080.27	2,080.27
Scott	*16,688.57	127,579.39	110,890.82	119,413.60	577.22				
Shelby	11,435.49	104,120.00	115,555.49	121,921.49	13,394.48	14,087.55	1,872.24	1,872.24	1,872.24
Sioux	15,014.22	80,492.07	95,516.29	73,018.59	21,507.50				
Story	1,015.64	106,817.84	107,833.48	103,071.05	4,762.43	575.45	37,824.17	38,399.62	33,004.08
Tama	29,327.46	101,479.08	130,806.54	128,444.94	*3,438.12		2,790.27	2,790.27	2,790.27
Taylor	5,432.11	65,205.05	70,717.16	69,019.07	1,701.00				
Union	*2,000.06	84,428.21	81,838.25	94,477.77	*12,639.52				
Van Buren	1,801.18	49,949.07	51,810.25	44,065.25	7,745.00	67.41	1,830.31	1,887.72	1,800.85
Wapello	*11,967.76	118,465.43	106,507.67	109,331.89	6,175.78				
Warren	2,692.88	39,315.90	42,008.78	42,008.78	1,378.10				
Washington	2,391.59	66,877.00	69,268.59	71,161.14	*1,802.25				
Wayne	19,227.37	55,651.01	75,178.29	69,387.99	5,790.21				
Webster	1,900.98	61,425.96	63,326.94	59,010.19	4,322.40				
Winnebago	18,764.54	30,210.11	48,974.65	22,318.01	36,656.44	9,819.94	1,507.31	11,380.25	11,380.25
Winnow	*2,491.34	74,312.03	71,820.69	72,349.98	*928.70	2,117.36	2,205.32	4,641.88	241.64
Woodbury	*31,633.35	211,056.59	179,063.14	161,696.15	18,315.99	2,578.61	4,376.99	6,955.00	6,899.91
Wright	14,825.11	74,731.79	89,556.90	90,223.28	22,746.62				
Total	\$102,541.73	\$7,769,900.33	\$7,872,442.06	\$7,872,442.06	\$77,414.81	\$150,312.95	\$456,844.24	\$907,157.29	\$485,748.09

\*Overdrawn.



**SUMMARY TABLE NO. 27**  
**Financial Statement—Annual Report of County Engineers.**

County	County Road Cash Fund				Township Road, Drag and Drainage Funds			
	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921	Balance or overdraft Jan. 1, 1922	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total
Adair	\$ 4,497.31	\$ 64,375.78	\$ 68,873.09	\$ 56,735.58	\$ 12,146.51	\$ 6,397.06	\$ 45,025.42	\$ 49,026.08
Adams	3,304.16	40,370.09	43,674.25	36,886.14	6,788.11	171.33	32,015.03	32,685.28
Allamakee	*17,974.09	67,229.40	85,203.49	56,775.22	*7,522.91	7,710.17	46,382.15	48,092.42
Appanoose	102.34	72,286.02	72,388.36	82,708.01	*10,504.72	780.50	44,582.55	44,772.13
Ashtabula	27,031.83	35,570.45	62,602.28	29,137.31	34,361.97	3,817.94	32,444.94	35,262.88
Auburn	1,376.98	58,520.82	59,897.80	30,614.88	*17.08	2,317.84	65,417.91	68,255.75
Black Hawk	15,160.99	88,976.89	104,137.88	87,400.71	17,737.17	9,722.37	53,644.18	61,366.55
Boone	44,931.96	175,177.13	220,109.09	203,515.05	16,591.04	7,021.78	82,318.86	89,640.14
Bremer	3,688.26	57,690.36	61,348.62	78,369.34	*17,590.72	3,191.98	35,885.08	38,598.06
Buchanan	*19,300.30	58,447.84	77,748.14	51,495.66	7,451.95	5,712.20	62,292.08	68,007.28
Buena Vista	422.49	127,682.83	128,105.32	124,280.01	*6,275.74	8,435.30	45,917.91	54,353.21
Butler	1,921.55	47,496.45	49,418.00	55,438.61	*6,730.48	6,051.23	55,100.67	61,241.90
Calhoun	3,071.28	242,670.76	245,742.04	229,481.98	16,269.16	35,236.14	75,064.13	110,300.17
Carroll	*35,617.45	70,749.55	106,366.99	78,467.36	*37,964.96	5,149.92	56,127.82	61,277.74
Cass	8,748.78	92,366.78	101,115.56	93,890.91	7,203.65	10,816.90	60,806.02	71,713.01
Cedar	2,914.21	56,699.31	59,613.52	39,485.61	20,128.41	6,875.17	40,706.47	50,581.64
Cerro Gordo	13,042.10	73,343.53	86,385.63	86,194.04	101.59	16,850.97	70,119.21	87,070.18
Cherokee	*1,881.92	65,048.09	66,930.01	69,894.55	3,356.62	3,884.40	48,384.37	52,268.83
Chickasaw	7,012.41	45,873.84	52,886.25	43,380.80	9,507.45	2,289.09	52,703.67	55,000.96
Clarke	9,362.32	105,610.77	114,973.09	100,939.03	14,030.74	2,900.86	34,114.69	37,015.55
Clay	*32,040.61	263,106.26	295,146.87	291,291.35	29,774.40	35,065.21	9,182.14	125,217.35
Clinton	8,168.84	60,361.14	68,529.98	60,736.81	7,733.17	8,054.65	63,337.09	71,392.55
Clintonsburg	4,368.90	68,829.68	73,198.58	58,102.05	15,097.53	4,687.14	60,185.41	64,872.55
Crawford	7,510.38	135,007.30	142,517.68	132,433.39	8,735.41	118.65	76,611.16	76,729.81
Dallas	12,305.62	114,839.82	127,145.44	118,390.22	8,815.22	22,021.92	113,555.94	135,877.86
Davis	4,271.19	77,063.61	81,334.80	77,445.66	4,091.14	2,548.31	45,377.11	47,740.32
Decatur	7,090.04	58,978.37	66,068.41	53,315.09	12,753.32	975.92	18,275.14	19,252.06
Delaware	381.45	81,746.20	82,127.65	78,312.36	3,815.29	1,506.63	51,763.26	53,271.89
Des Moines	11,731.59	34,102.91	45,834.50	39,693.75	15,170.75	5,592.55	45,108.64	50,701.19
Dickinson	*13,130.55	46,828.44	59,958.99	28,482.08	4,713.81	18,281.44	39,371.05	57,652.50
Dubuque	*41,445.46	69,813.64	111,259.10	42,914.49	*21,744.31	4,815.35	27,086.08	31,901.65
Emmet	*944.16	74,314.09	75,258.25	60,219.00	7,450.91	12,882.65	47,530.25	50,141.90
Fayette	3,100.78	112,196.81	115,300.59	114,300.68	915.91	6,767.88	60,770.33	73,538.21
Floyd	*26,172.23	82,910.02	109,082.25	77,616.33	*30,908.54	5,325.63	56,691.91	61,985.54
Franklin	1,352.57	222,008.36	223,360.93	225,329.85	*1,478.92	18,141.88	56,870.94	75,017.92
Fremont	*938.58	45,911.35	46,849.93	43,464.94	1,577.80	3,212.33	56,576.81	57,540.16
Greene	*91.50	81,634.38	81,725.88	75,599.29	5,326.59	14,627.82	83,891.27	98,319.09
Grundy	4,131.31	58,978.37	63,109.68	53,315.09	9,784.61	4,641.76	37,362.33	42,004.11
Guthrie	*947.30	55,541.24	56,488.54	52,235.89	*27,641.85	1,835.59	74,779.39	76,614.98
Hamilton	14,271.45	134,258.38	148,529.83	130,727.43	7,802.40	34,556.16	68,057.04	102,615.20
Hancock	*1,987.45	56,389.63	58,377.08	53,260.60	1,041.58	8,323.35	40,811.16	49,066.61
Hardin	3,007.54	142,072.47	145,080.01	144,329.17	1,159.84	10,892.63	55,888.87	66,771.50
Harrison	6,148.09	60,828.08	66,976.17	44,319.80	22,651.37	6,049.89	50,608.38	61,694.27
Henry	1,889.20	31,017.14	32,906.34	31,674.12	1,231.22	4,415.16	32,190.24	36,605.40
Howard	*14,257.78	30,016.91	44,274.69	31,100.61	*1,138.32	18,983.13	57,740.15	76,723.28
Humboldt	*7,103.06	89,454.06	96,557.12	82,350.40	*9,139.65	2,792.50	39,651.70	42,444.29
Ida	2,627.43	90,222.82	92,850.25	69,901.10	15,949.15	9,548.19	68,420.54	77,968.73
Iowa	15,844.12	97,988.91	113,833.03	80,360.72	*5,484.34	4,918.87	52,120.20	56,709.07
Jackson	8,711.92	48,978.50	57,690.42	45,125.97	12,564.54	8,175.52	64,170.67	72,346.19
Jasper	5,832.64	129,298.90	135,131.54	145,772.72	*11,231.48	4,918.87	52,120.20	56,709.07
Jefferson	780.93	46,061.80	46,842.73	42,454.47	5,030.36	6,061.74	63,369.69	71,429.43
Johnson	*967.83	90,666.25	91,634.08	87,467.97	*1,138.32	4,415.16	32,190.24	36,605.40
Jones	*981.78	41,353.78	42,335.56	42,777.08	*575.08	2,970.88	48,564.07	51,534.95
Knox	900.05	45,032.93	45,932.98	52,046.11	*5,098.13	6,520.43	59,080.89	65,601.32
Kosciusko	*978.58	288,719.85	289,698.43	278,341.27	*10,000.00	15,105.31	94,710.53	109,815.84
Lee	2,040.72	80,960.24	82,999.00	80,690.37	2,309.69	10,580.66	43,484.28	54,068.54
Linn	14,556.00	146,085.95	160,641.95	157,365.76	3,276.19	5,192.31	97,721.09	102,913.40
Louis	6,731.73	30,282.34	37,014.07	34,309.55	2,704.42	3,080.16	34,623.64	38,212.80
Lucas	479.24	62,369.77	62,849.01	67,984.63	*5,139.62	2,249.98	33,314.04	41,564.02
Lyon	*981.83	72,325.37	73,307.20	61,839.39	11,447.96	4,648.97	35,130.30	39,779.27
Madison	*9,902.72	91,221.17	101,123.89	81,308.45	*7,241.97	900.87	39,079.44	40,254.76
Mahaska	3,117.51	64,495.85	67,613.36	64,514.47	2,090.19	7,183.57	71,812.44	78,995.01
Marion	5,300.48	87,200.05	92,500.53	82,114.50	10,476.03	2,732.37	79,955.03	82,687.36
Marshall	*7,911.41	126,361.43	134,272.84	115,010.05	*2,430.97	4,071.87	68,989.17	73,061.04
Mills	25,921.17	46,430.41	72,351.58	67,583.21	4,768.37	4,900.54	37,018.36	42,017.90
Mitchell	*929.17	137,338.38	138,267.55	137,309.43	*1,252.22	6,948.71	46,218.91	53,167.62
Monona	*15,898.24	90,553.51	106,451.75	88,144.80	*5,927.53	14,779.70	39,992.22	47,771.92
Monroe	1,476.39	46,650.56	48,126.95	56,837.14	*8,730.29	2,147.94	38,218.74	40,366.68
Montgomery	249.07	62,721.17	62,970.24	45,844.31	7,272.30	4,880.57	44,634.92	51,516.13
Muscatine	2,329.47	82,466.19	84,795.66	78,020.47	6,767.19	7,702.68	41,471.57	49,174.25
O'Brien	1,100.59	74,004.15	75,104.74	68,738.62	17,368.12	14,048.34	66,283.45	80,331.79
Osceola	*8,784.85	33,212.12	41,996.97	34,297.51	133.77	7,759.29	38,467.79	46,227.08
Page	*4,397.15	96,907.12	101,304.27	95,338.58	*5,828.61	13,632.11	51,577.95	65,210.06
Palo Alto	18,138.98	140,101.40	158,239.38	137,808.54	20,433.84	8,125.37	25,178.74	33,304.11
Plymouth	668.78	58,560.70	59,229.48	58,329.44	9,900.04	10,377.09	65,955.80	77,382.89
Pocahontas	15,597.44	237,881.02	253,478.46	233,488.29	16,640.67	27,701.18	94,291.29	112,092.47

SUMMARY TABLE NO. 27—Continued

County	County Road Cash Fund				Township Road, Drag and Drainage Funds				
	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921	Balance or overdraft Jan. 1, 1922	Balance or overdraft Jan. 1, 1921	Receipts 1921	Total	Disbursements 1921
Polk	20,887.63	296,920.79	323,808.42	545,317.22	*21,508.80	10,000.12	71,457.64	82,449.79	60,599.46
Pottawattamie	1,815.50	128,906.65	130,722.15	100,312.62	27,409.53	7,829.07	69,225.80	77,053.87	60,842.36
Poweshiek	7,441.31	74,079.04	81,490.35	70,005.30	2,455.55	2,770.83	507,800.94	60,621.80	50,002.48
Ringgold	*1,072.61	18,000.21	17,917.70	2,218.25	14,699.45	6,887.16	29,907.01	36,394.17	32,420.41
Sac	6,802.09	165,043.53	171,845.22	161,748.14	10,068.08	18,236.81	82,671.12	100,907.33	83,834.76
Scott	735.00	89,775.96	90,491.59	87,044.96	3,446.60	11,229.63	54,213.31	65,547.94	54,782.01
Shelby	5,922.57	83,173.85	88,893.22	66,837.32	2,000.70	7,800.94	12,710.04	80,300.98	73,286.12
Sioux	*19,016.79	119,079.41	100,853.92	111,319.12	*10,465.50	12,434.32	77,815.44	90,249.70	75,339.59
Story	*62,180.49	231,754.69	169,588.71	163,583.86	6,004.83	14,812.33	88,565.22	103,577.55	88,426.45
Tama	*4,513.69	57,679.07	53,165.47	48,159.80	5,002.67	5,188.06	77,533.84	82,723.86	83,166.38
Taylor	1,797.50	49,318.84	51,116.34	46,432.25	4,993.08	6,932.50	48,000.90	53,833.96	47,602.76
Union	*4,485.12	56,947.22	52,462.00	50,017.56	*6,555.47	3,430.96	34,812.39	38,243.28	34,000.78
Van Buren	4,544.13	29,666.37	33,600.50	33,505.36	95.14	2,984.65	29,289.46	29,284.11	27,357.30
Wapello	*5,333.51	62,229.08	56,995.57	49,315.08	7,889.49	4,981.69	49,328.13	54,399.82	50,204.27
Warren	29,210.46	25,176.37	54,386.83	77,790.34	7,077.33	4,306.73	44,821.58	48,628.31	44,468.59
Washington	649.63	38,900.00	39,549.59	33,965.69	6,184.90	800.80	40,606.30	46,532.16	47,158.54
Wayne	5,779.87	34,531.12	40,324.99	25,015.59	15,309.40	1,619.04	36,011.83	37,690.90	35,165.83
Webster	*5,900.30	154,600.03	148,746.10	145,156.81	3,869.29	32,985.77	101,061.80	124,037.57	105,479.15
Winnebago	*29,392.89	82,437.54	53,045.65	99,204.02	*3,109.27	5,730.03	52,556.13	58,287.00	51,480.79
Winnechick	4,985.42	60,983.65	55,998.23	55,212.25	*214.02	3,904.92	90,373.49	94,538.41	62,544.48
Woodbury	*20,906.59	253,536.57	233,169.78	229,032.25	7,116.43	14,342.14	89,571.02	89,913.16	72,941.48
Worth	*17,710.56	25,176.37	10,465.82	34,057.00	*13,301.08	5,817.02	25,268.44	29,585.46	28,396.08
Wright	*5,044.72	245,108.41	227,063.69	217,917.98	*806.59	20,009.78	78,851.94	90,831.72	78,344.98
Total	\$22,210.62	\$9,061,308.26	\$9,041,851.64	\$8,723,351.45	\$318,035.18	\$92,996.28	\$5,456,207.41	\$7,259,223.69	\$5,402,738.20

\*Overdrawn.

SUMMARY TABLE NO. 28  
Bonded Indebtedness of Counties—Annual Report of County Engineers.

County	Bridge			County Roads		
	Bonds out- standing Jan. 1, 1921	Bonds issued 1921	Bonds paid 1921	Bonds out- standing Jan. 1, 1922	Bonds issued 1921	Bonds paid 1921
Adair	\$ 44,000.00			\$ 44,000.00		
Adams		\$ 27,000.00		85,000.00		
Allamakee	124,000.00		\$ 5,000.00	119,000.00		
Appanoose	44,329.52	10,500.00		54,829.52	\$ 16,000.00	
Audubon	122,500.00		35,500.00	49,795.90	36,400.00	\$ 2,000.00
Benton	160,000.00	90,000.00	5,000.00	87,000.00		
Black Hawk	104,000.00	88,000.00	5,000.00	245,000.00	14,400.00	
Boone	155,154.11	75,345.73		18,700.00		
Bremser	29,180.55			230,487.88	104,356.88	90,000.00
Buchanan	34,000.61		1,500.61	32,500.00	904.65	
Buena Vista	303,300.00		3,000.00	300,300.00	27,377.70	
Butler	80,500.00			80,500.00	80,000.00	3,000.00
Calhoun	69,500.00		7,875.00	61,625.00		
Carroll	120,000.00	30,000.00	3,000.00	125,000.00	67,000.00	5,000.00
Cass	125,000.00			182,000.00	20,000.00	
Cedar	91,250.00	72,378.74		72,378.74		
Cerro Gordo	349,486.08	63,500.00	2,000.00	97,250.00	57,087.27	
Cherokee	75,500.00			430,988.08	55,511.92	16,500.00
Chicago	32,000.00	79,132.18		75,500.00		
Clay	231,470.43		15,000.00	111,132.18	30,000.00	
Clayton	41,000.00			236,470.43	58,298.02	
Clinton	92,000.00		10,000.00	41,000.00		10,000.00
Crawford	484,000.00	72,000.00	5,000.00	82,000.00		
Dallas	237,000.00	9,000.00		545,000.00	291,000.00	33,000.00
Davis	45,000.00	105,000.00	5,000.00	736,000.00	52,000.00	
Decatur	78,781.80	74,050.39	10,000.00	142,000.00	7,947.35	34,730.56
Delaware		56,000.00	2,000.00	56,000.00		
Des Moines	2,000.00			12,000.00	36,400.00	7,000.00

## SUMMARY TABLE NO. 25—Continued

284

IOWA STATE HIGHWAY COMMISSION

County	Bridge				County Roads			
	Bonds out- standing Jan. 1, 1921	Bonds issued 1921	Bonds paid 1921	Bonds out- standing Jan. 1, 1922	Bonds out- standing Jan. 1, 1921	Bonds issued 1921	Bonds paid 1921	Bonds out- standing Jan. 1, 1922
Dickinson								
Dubuque	270,000.00		8,000.00	262,000.00	77,300.00			77,300.00
Emmet					170,500.00	48,000.00		218,500.00
Fayette	135,000.00	98,000.00	36,000.00	137,000.00				
Floyd	153,412.97			153,412.97	17,486.49			17,486.49
Franklin	44,100.00	24,875.44		68,975.44	81,744.00	177,125.00		258,869.40
Fremont	372,000.00		22,500.00	349,500.00	38,000.00			38,000.00
Greene	282,000.00	75,000.00		337,000.00	30,000.00	25,000.00		35,000.00
Grundy	226,241.89	74,436.50		300,678.39	48,587.11	28,700.00		77,287.11
Guthrie	190,000.00	66,015.91	9,000.00	256,015.91	35,000.00	27,081.00		62,081.00
Hamilton	135,000.00	15,000.00		148,000.00	235,000.00	135,000.00	22,000.00	398,000.00
Hancock								
Hardin	156,704.22	24,000.00	2,000.00	178,704.22	66,294.10	94,000.00	5,000.00	157,294.10
Harrison	250,725.47			250,725.47	35,299.53			35,299.53
Henry								
Howard	47,300.00		5,000.00	42,300.00	17,300.00			17,300.00
Humboldt	47,000.00			47,000.00	15,500.00	17,500.00		33,000.00
Ia	95,000.00	46,000.00		141,000.00		27,000.00		27,000.00
Iowa	276,978.85		19,000.00	266,978.85	31,185.00	27,000.00		58,185.00
Jackson	181,000.00		7,000.00	177,000.00				
Jasper	211,000.00	43,000.00		254,000.00	119,000.00	60,000.00		185,000.00
Jefferson	50,632.00	31,519.91	5,000.00	82,151.91	43,888.00	600.00	5,000.00	39,488.00
Johnson	25,000.00		5,000.00	30,000.00	34,000.00			34,000.00
Jones		41,445.00		41,445.00		11,565.00		11,565.00
Keokuk								
Kossuth	179,300.00		9,000.00	170,300.00	121,000.00	175,000.00		296,000.00
Lee					22,408.86			
Linn	52,000.00			52,000.00	48,000.00			48,000.00
Louis	50,900.00	22,112.44		79,012.44				
Lucas	132,400.00	48,000.00		181,400.00	21,000.00	25,000.00	5,000.00	41,000.00



Okoboji-Spencer concrete roadway. View in Dickinson county.



Leon	21,426.05	2,000.00	84,456.98	15,543.05	15,543.05	15,543.05
Madison	27,825.77	2,000.00	61,258.25	21,344.37	21,344.37	21,344.37
Mahaska	138,272.77	4,000.00	111,071.71	28,725.81	11,150.83	30,577.58
Marion	215,445.88	9,000.00	30,444.88	35,442.30	45,089.55	30,674.64
Marshall	194,000.00	101,000.00	293,000.00	293,000.00	60,000.00	70,831.94
Mason	134,000.00	34,000.00	27,000.00	27,000.00	4,000.00	150,000.00
Mitchell	70,444.00	2,000.00	67,444.00	52,506.00	88,484.08	141,980.08
Monroe	11,000.00	12,000.00	968,885.00	16,000.00	20,000.00	110,000.00
Montgomery	213,885.00	155,000.00	38,452.96	19,653.00	29,842.03	29,842.03
Muscatine	83,482.75	45,110.00	128,592.75	5,291.25	15,000.00	29,291.25
O'Brien	15,000.00	2,000.00	32,700.00	30,000.00	52,000.00	90,000.00
Pack	95,300.00	120,000.00	168,300.00	81,300.00	101,300.00	175,300.00
Palo Alto	140,300.00	52,800.00	134,000.00	135,000.00	165,000.00	248,000.00
Plymouth	68,000.00	67,000.00	684,000.00	611,000.00	124,285.00	734,805.00
Pocahontas	548,000.00	109,000.00	650,800.00	88,500.00	11,000.00	75,500.00
Polk	412,000.00	258,850.00	11,000.00	11,000.00	12,000.00	12,000.00
Port Washington	13,000.00	20,000.00	13,000.00	20,000.00	20,000.00	20,000.00
Pottawattamie	18,000.00	20,000.00	130,450.00	11,000.00	5,000.00	30,800.00
Ringgold	120,500.00	40,000.00	140,800.00	74,800.00	20,000.00	74,800.00
Sac	77,000.00	77,000.00	66,000.00	20,000.00	20,000.00	20,000.00
Scott	20,000.00	20,000.00	30,000.00	132,000.00	150,000.00	282,000.00
Shelby	20,000.00	20,000.00	20,400.11	20,001.40	2,000.20	20,001.40
Sioux	20,000.00	20,000.00	15,000.00	5,000.00	5,000.00	5,000.00
Story	20,000.00	20,000.00	143,000.00	143,000.00	82,000.00	82,000.00
Taylor	40,000.00	5,000.00	292,500.00	90,000.00	15,000.00	15,000.00
Union	60,000.00	5,000.00	42,500.00	20,000.00	2,000.00	15,000.00
Van Buren	216,500.00	77,000.00	61,000.00	30,254.71	40,000.00	30,254.71
Wapello	42,500.00	4,000.00	37,138.00	170,000.00	40,000.00	210,000.00
Warren	65,000.00	4,000.00	227,000.00	134,000.00	60,000.00	60,000.00
Washington	27,138.00	118,000.00	134,000.00	87,000.00	154,822.98	210,000.00
Wayne	27,138.00	118,000.00	134,000.00	87,000.00	154,822.98	210,000.00
Winnebago	227,000.00	118,000.00	134,000.00	87,000.00	154,822.98	210,000.00
Winnebake	25,000.00	118,000.00	134,000.00	87,000.00	154,822.98	210,000.00
Woodbury	92,000.00	5,000.00	87,000.00	154,822.98	210,000.00	210,000.00
Worth	92,000.00	5,000.00	87,000.00	154,822.98	210,000.00	210,000.00
Total	\$11,022,248.01	\$1,217,804.01	\$11,871,052.72	\$1,268,085.19	\$1,268,085.19	\$7,470,473.20

## SUMMARY

Total Indebtedness of Counties for County Roads and

County	Bridge				Total
	Outstanding bills	Warrants issued and stamped	Warrants outstanding not stamped	Roads outstanding	
Adair	\$ 1,735.32		\$ 136.90	\$ 44,000.00	\$ 45,872.21
Adams		12,677.18		85,000.00	97,677.18
Albany	620.00			119,000.00	119,620.00
Appanoose	6,902.77	5,560.71		54,869.52	67,333.00
Audubon	500.00		250.00	87,000.00	87,750.00
Benton		40,062.34		245,000.00	285,062.34
Black Hawk	149.96		50.80	187,000.00	187,200.76
Boone	1,200.00			230,497.86	231,697.86
Bremer	638.42	10,309.49		28,189.55	39,137.46
Buchanan		5,871.51	191.11	37,200.00	38,562.62
Bureau				300,500.00	300,500.00
Butler	2,136.39		1,896.87	80,500.00	84,533.26
Calhoun		19,870.87		61,625.00	81,495.87
Carroll		17,197.29		125,000.00	142,197.29
Cass				182,000.00	182,000.00
Cerro	551.28	31,920.82	18.79	73,378.74	104,869.63
Cerro Gordo	158.52			91,250.00	91,408.52
Cherokee		18,077.43	1,862.28	410,988.08	430,927.79
Chickasaw		86,357.34		75,000.00	161,357.34
Clarke	500.00	1,500.00	1,400.00	111,132.18	114,532.18
Clay				236,470.43	236,470.43
Clayton	1,500.00		1,172.33	41,000.00	43,672.33
Clinton	3,000.00	16,736.44		82,000.00	101,736.44
Crawford	700.00	2,682.96	1,068.53	548,000.00	552,451.49
Dallas		19,372.52	1,845.05	136,000.00	157,217.57
Davis	13,082.41	38,906.05	118.32	142,000.00	194,106.78
DeWaver	2,000.00			142,832.19	144,832.19
Delaware		29.35		56,000.00	56,029.35
Des Moines	300.00		144.80		444.80
Dickinson				338,000.00	338,000.00
Dubuque	350.00		820.74		1,170.74
Emmet	180.80		627.02		807.82
Fayette	600.00		400.00	157,000.00	158,000.00
Floyd	651.74	18,024.39	507.83	155,410.97	174,594.93
Franklin		17,000.00		68,975.44	85,975.44
Frederick	300.00	90.16		349,500.00	349,790.16
Greene	254.28			237,000.00	237,254.28
Grundy	300.00	50.00	35.00	300,878.39	301,663.39
Guthrie				256,916.91	256,916.91
Hamilton			57.31	148,000.00	148,057.31
Hancock	500.00			500.00	1,000.00
Hardin	15,000.00	49,317.26		178,704.22	242,021.48
Harrison	100.00			250,725.47	250,825.47
Henry					
Howard	537.19	4,183.96	511.59	42,300.00	47,432.74
Humboldt	182.00			47,000.00	47,182.00
Ia		44.40		141,000.00	141,044.40
Iowa	512.94		178.43	206,078.85	206,769.22
Jackson				177,000.00	177,000.00
Jasper	1,400.00	51,707.23	2,098.05	254,000.00	309,805.28
Jefferson	88.78		2,410.56	82,151.91	84,651.25
Johnson	1,000.00			30,000.00	31,000.00
Jones			4,365.55	41,445.00	45,810.55
Keokuk					
Kossuth	2,177.11	22,237.39	85.59	170,500.00	195,000.09

TABLE NO. 29

Bridges Jan. 1, 1922—Annual Report of County Engineers.

County	Road				Total	Total county road and bridge indebtedness
	Outstanding bills	Warrants issued and stamped	Warrants outstanding not stamped	Roads outstanding		
Adair	\$ 1,808.35			\$ 132.60	\$ 2,070.95	\$ 47,943.56
Adams		500.00			500.00	95,177.18
Albany	700.00			14,000.00	14,700.00	134,389.00
Appanoose	10,904.73			86,195.96	97,099.69	184,432.69
Audubon			100.00		100.00	88,100.00
Benton				14,400.00	14,400.00	300,032.34
Black Hawk	1,808.35			769.16	2,577.51	189,775.27
Boone	4,000.00	45,774.78		410.37	50,185.15	244,541.80
Bremer	2,806.13	15,637.17		904.05	18,347.35	58,004.81
Buchanan		19,395.82	86.63	27,377.70	46,859.15	85,399.79
Bureau		9,475.63		258,500.00	267,975.63	608,475.63
Butler	1,439.78		1,300.70	17,000.00	19,740.48	10,830.48
Calhoun				232,000.00	232,000.00	343,619.44
Carroll		30,323.57			30,323.57	179,562.25
Cass		37,594.99		47,000.00	84,594.98	222,000.00
Cerro	1,074.18		60.38		1,134.56	100,004.19
Cerro Gordo	2,329.46	11,013.03		57,037.27	70,380.76	182,502.18
Cherokee			1,007.81		1,007.81	73,049.73
Chickasaw						503,997.52
Clarke						100,867.34
Clay				200.00	200.00	303,298.30
Clayton	300.00			287,029.57	287,329.57	569,600.00
Clinton	1,800.00		1,888.80		3,688.80	47,150.13
Crawford	4,300.00	37,226.95			41,526.95	142,130.39
Dallas	4,000.00	11,472.37	2,048.07	344,000.00	362,520.44	914,902.13
Davis		36,432.17	5,514.85	55,000.00	111,947.02	271,164.97
DeWaver	1,138.00		187.00		1,325.00	1,379.80
Delaware				23,667.81	23,667.81	177,800.00
Des Moines		18,722.91		36,400.00	55,122.91	108,769.25
Dickinson	100.00		365.54	7,000.00	7,465.54	7,468.54
Dubuque		4,083.54			4,083.54	4,083.54
Emmet	850.00		1,484.04	77,300.00	79,634.04	348,804.78
Fayette	222.14	17,865.14		218,500.00	236,587.28	237,471.10
Floyd	1,147.29		1,071.78		2,219.07	160,632.44
Franklin		45,316.41		17,486.49	62,802.90	238,547.23
Frederick		34,000.00		258,800.00	292,800.00	378,844.44
Greene	500.00	2,879.30	237.00	38,000.00	41,616.30	201,406.30
Grundy	2,000.00	11,006.78		55,000.00	74,006.78	413,214.96
Guthrie		32,633.01	40.50	77,287.11	110,460.62	411,324.01
Hamilton				62,083.00	62,083.00	319,000.00
Hancock		26,897.45		368,000.00	394,897.45	568,446.11
Hardin	1,000.00	10,241.46			11,241.46	11,241.46
Hardison	30,000.00	62,430.01		157,394.10	249,794.11	473,814.50
Henry	300.00			35,229.53	35,529.53	286,225.00
Howard	595.05	18,030.94			18,625.99	84,864.73
Humboldt	879.71	34,005.56			34,885.27	114,564.95
Ia		34.70		27,000.00	27,034.70	168,079.10
Iowa	283.87	5,775.23	247.30	58,185.00	64,391.40	331,869.41
Jackson						177,000.00
Jasper	800.00		2,194.97	185,000.00	187,994.97	497,800.25
Jefferson	1,222.39			30,498.00	31,720.39	125,281.84
Johnson	1,300.00			24,000.00	25,300.00	56,509.00
Jones			6,029.14	11,555.00	17,584.14	6,392.69
Keokuk						
Kossuth	10,498.63	18,296.87	322.50	296,000.00	314,717.40	320,000.00

## SUMMARY TABLE

County	Bridge				
	Outstanding bills	Warrants issued and stamped	Warrants outstanding not stamped	Bonds outstanding	Total
Ice	500.00			22,498.86	22,998.86
Linn	2,500.00	44,362.20	3,500.00	52,000.00	102,362.20
Louisa	954.00			79,012.44	80,966.44
Lucas		45,682.82		181,000.00	226,682.82
Lyon	1,472.26	12,245.74	184.02	84,456.08	98,358.08
Madison				61,228.25	61,228.25
Mahaska	225.35	1,800.40		112,974.71	115,000.46
Marion	5,500.00	51,256.27		300,448.88	357,205.15
Marshall		9,185.56		406,000.00	415,185.56
Mills		90,693.97		217,000.00	307,693.97
Mitchell				67,444.00	67,444.00
Monona					
Monroe		7,000.00	944.76		7,944.76
Montgomery				368,885.00	368,885.00
Muscatine	200.00	22,797.39	1,000.97	35,452.96	59,510.32
O'Brien	1,417.00		273.22	98,633.75	100,323.97
Oswego	300.00			167,500.00	167,800.00
Page	2,794.91	191,355.15	7,834.32	239,700.00	441,784.28
Palo Alto	1,500.00	22,367.75	436.11	168,300.00	192,603.86
Plymouth	1,500.00		2,278.41		3,778.41
Pocahontas	14,318.00		342.25	154,000.00	168,660.25
Polk	500.00	1,000.00		634,000.00	635,500.00
Pottawattamie		10,400.00		656,550.00	666,950.00
Poweshiek		39,376.75		205,000.00	244,376.75
Ringgold		6,794.41		105,423.49	112,217.90
Sac			2,339.10	160,200.00	172,539.10
Scott	5,080.76	25,127.00	9,419.40	77,000.00	116,627.16
Shelby	3,810.00	32,527.81		95,000.00	131,337.81
Sioux					
Story	650.00			39,000.00	39,650.00
Tama				223,468.51	223,468.51
Taylor	1,041.79	18,402.62		35,694.19	55,138.60
Union		2,305.83	312.49	143,000.00	145,718.32
Van Buren	3,940.00			2,940.00	6,880.00
Wapello		25,658.99	5,822.94	256,990.00	328,471.93
Warren	556.96	9,688.90	2,663.00	42,500.00	54,748.86
Washington		1,802.25		61,000.00	62,802.25
Wayne	1,200.00			27,138.00	28,338.00
Webster	4,000.00			4,000.00	8,000.00
Winnebago					
Winnebush		44,206.88		237,000.00	281,206.88
Woodbury	2,500.00	14,505.54		134,000.00	151,005.54
Worth					
Wright	861.00	59,685.16	2,644.84	87,000.00	150,191.00
Total	\$117,027.37	\$1,179,460.00	\$63,537.37	\$13,871,663.72	\$15,251,688.46

## NO. 29—Continued.

County	Road					Total county road and bridge indebtedness
	Outstanding bills	Warrants issued and stamped	Warrants outstanding not stamped	Bonds outstanding	Total	
Ice		60.11	2,382.36		3,451.37	36,480.23
Linn	1,000.00	15,110.00	5,500.00	48,000.00	69,110.00	171,472.20
Louisa	400.00	3,308.95			3,708.95	82,965.20
Lucas		6,422.75	3,001.18	41,000.00	50,423.93	275,538.20
Lyon	1,839.81		445.08	15,543.02	17,387.91	116,220.88
Madison	2,600.00			39,557.58	42,157.58	101,385.83
Mahaska	922.50	2,541.50		39,674.64	43,138.64	158,229.10
Marion	500.00	65,414.86		70,531.04	136,446.90	502,660.95
Marshall		323.81		396,000.00	396,323.81	799,569.37
Mills		37,185.91		170,000.00	207,185.91	517,849.88
Mitchell		33,454.80		141,040.08	174,494.88	241,958.88
Monona						
Monroe		444.87	105.62		550.49	8,196.25
Montgomery				110,635.00	110,635.00	479,920.00
Muscatine	2,000.00	6,018.25	2,083.06	39,943.06	49,044.37	90,454.28
O'Brien	12,016.00		50.00	30,291.25	42,357.25	132,681.82
Oswego	500.00				500.00	168,360.00
Page	2,930.85	41,068.41	4,114.57	90,000.00	138,113.83	479,858.09
Palo Alto	2,000.00	50,590.47	6,799.40	175,200.00	234,590.87	427,163.73
Plymouth	10,000.00	13,509.39			23,509.39	27,387.80
Pocahontas	5,007.00	77,231.91	1,780.00	398,000.00	581,018.91	551,679.22
Polk	1,000.00	3,500.00		724,825.00	729,325.00	1,364,825.00
Pottawattamie		66,000.00		75,500.00	141,500.00	897,750.00
Poweshiek		11,615.19		31,500.00	43,115.19	272,491.94
Ringgold			1,102.66	39,902.45	41,005.11	135,000.25
Sac			2,577.56	74,800.00	77,377.56	247,472.78
Scott	1,013.11			24,100.00	25,113.11	149,817.83
Shelby	5,300.00	7,221.56			12,521.56	143,859.37
Sioux						
Story	3,500.00		33,000.00	283,000.00	319,500.00	350,150.00
Tama		28,756.73		29,001.49	57,758.22	272,256.73
Taylor	839.63	17,309.21		21,306.81	39,455.65	94,223.21
Union		7,502.24	234.57	5,000.00	12,736.81	158,535.13
Van Buren						3,940.00
Wapello		6,041.36		82,000.00	88,041.36	415,022.39
Warren	508.54		8,079.52		8,588.06	63,866.02
Washington				18,000.00	18,000.00	80,822.25
Wayne	1,700.00			20,354.71	22,054.71	59,322.70
Webster		26,481.72	200.00	40,000.00	66,681.72	70,681.72
Winnebago		2,632.10		219,000.00	221,632.10	212,362.10
Winnebush			94.85		94.85	281,361.73
Woodbury	1,000.00	93,102.65		60,000.00	154,102.65	275,108.00
Worth						
Wright	5,836.10	92,290.43	650.00		98,776.53	422,661.54
Total	\$ 152,431.32	\$ 1,251,183.32	\$ 130,240.91	\$ 7,470,473.10	\$ 9,013,328.65	\$ 24,245,017.61



SUMMARY TABLE NO. 30  
Financial Statement Primary Road Fund.

County	Primary Road Fund				Primary Road Bond Fund			
	Bal. or overdrft Jan. 1, 1931	Appropriations 1931	Total	Disbursements 1931	Bal. or overdrft Jan. 1, 1932	Receipts 1931	Total	Disbursements 1931
Adair	122,985.78	80,753.72	203,739.50	132,814.54	\$ 20,002.05			
Adams	32,565.21	90,177.74	90,177.74	95,851.28	43,106.43			
Albany	169,045.31	94,565.03	90,412.34	79,388.69	184,254.05			
Alamakee	77,800.94	72,297.85	160,098.79	38,773.24	107,871.85			
Anderson	125,035.34	62,432.64	185,467.98	185,467.98	131,875.86			
Benton	100,542.00	100,542.00	100,542.00	306,802.58	*128,923.14			
Black Hawk	100,135.15	100,135.15	100,135.15	57,453.44	44,491.74			
Boone	82,453.27	157,056.64	157,056.64	270,500.30	43,536.96			
Butler	61,161.55	169,227.82	169,227.82	74,598.34	94,031.48			
Buena Vista	79,998.01	112,701.35	112,701.35	13,121.20	225,390.81			
Calhoun	129,181.33	230,000.00	230,000.00	154,398.45	41,097.10			
Carroll	14,121.41	230,000.00	230,000.00	117,653.97	49,944.45			
Cedar	234,770.23	234,770.23	234,770.23	188,170.56	45,590.68			
Cerro Gordo	81,485.37	240,539.61	240,539.61	71,391.23	153,606.22			
Cherokee	147,280.08	80,753.72	*70,747.61	19,897.35	230,681.90	\$ 5,456.11	\$ 419,000.00	\$ 419,000.00
Chickasaw	36,897.04	70,042.95	228,042.80	129,744.25	90,288.98			
Clarke	62,275.27	62,275.27	107,011.99	107,011.99	64,315.61			
Clay	152,991.30	111,712.49	231,554.81	47,940.96	183,204.05			
Clayton	117,931.97	231,887.13	231,887.13	130,135.19	201,581.94			
Crawford	107,116.65	109,768.08	297,885.36	23,901.22	274,080.94		425,000.00	425,000.00
Dallas	68,901.58	81,431.44	200,410.27	201,532.03	*50,890.81			
Davis	134,662.64	70,747.61	300,410.27	117,077.10	47,118.09			
Decatur	16,944.69	70,747.61	139,013.41	51,343.44	147,667.02			
Delaware	118,535.61	89,471.35						

Des Moines	166,727.17	60,409.41	167,106.71	164,035.62	75,511.54			
Dickinson	101,484.27	32,052.75	180,656.56	135,459.31	46,650.43			
Dubuque	67,653.31	58,785.45	120,401.74	79,718.53	107,197.60			
Emmet	652,004.00	652,004.00	399,400.40	15,000.00	384,400.40			
Fayette	119,274.44	69,761.10	42,813.24	30,761.10	107,011.99			
Floyd	17,718.49	71,568.41	107,011.99	269,714.45	*111,439.35			
Franklin	66,522.42	31,176.52	147,729.04	185,725.00	87,904.90			
Grundy	127,380.61	79,690.68	107,060.69	120,425.17	67,591.62			
Guthrie	140,730.33	84,130.07	244,872.40	294,412.15	16,490.35			
Hamilton	129,787.84	80,280.02	259,118.79	121,040.92	60,077.84			
Hancock	134,822.40	80,730.72	228,860.12	103,100.84	*67,713.41			
Harmon	129,787.84	100,343.30	228,860.12	47,712.22	174,993.01			
Harrison	88,013.47	60,377.75	148,101.43	81,885.01	64,306.41			
Howard	82,391.59	95,965.00	145,547.52	106,965.69	29,398.83			
Humboldt	52,369.16	81,164.35	113,708.41	95,075.72	15,829.69			
Ia	79,065.48	60,000.00	129,268.00	100,975.65	37,390.35			
Iowa	141,588.49	82,453.27	228,860.12	122,154.09	36,628.05			
Jackson	165,457.40	104,879.98	266,357.38	88,410.26	213,927.12			
Jefferson	55,139.49	88,891.17	55,713.47	55,713.47	63,167.79			
Johnson	135,886.53	86,109.12	241,065.65	294,709.41	16,896.54			
Jones	79,181.99	81,431.44	235,802.58	77,591.22	161,277.36			
Keokuk	294,397.15	137,000.00	116,640.00	37,820.93	120,831.43			
Leake	131,526.00	101,877.55	200,725.75	257,258.68	134,866.38			
Lee	131,526.00	101,877.55	200,725.75	257,258.68	134,866.38			
Linn	131,526.00	101,877.55	200,725.75	257,258.68	134,866.38			
Louis	131,526.00	101,877.55	200,725.75	257,258.68	134,866.38			
Lucas	95,252.14	60,395.20	159,134.33	187,048.69	*80,993.27			
Lyon	129,065.65	80,022.11	177,835.12	177,835.12	*12,068.64			
Madison	134,578.50	79,994.42	333,025.92	109,711.99	131,975.78			
Mahaska	134,578.50	79,994.42	333,025.92	109,711.99	131,975.78			
Marshall	10,688.45	80,412.82	117,269.45	229,265.97	965,035.20			
Mills	80,343.56	42,960.27	152,303.83	257,945.64	94,703.71			
Mississippi	119,829.81	65,251.25	115,891.03	176,541.28	*480.23			
Monroe	130,025.35	80,779.48	280,844.23	46,479.76	284,324.07			
Montgomery	30,010.90	41,022.32	91,034.23	62,580.54	28,030.69			
Monroe	30,010.90	41,022.32	91,034.23	62,580.54	28,030.69			
O'Brien	100,500.81	89,189.69	189,739.48	140,383.23	31,290.25			
Osceola	90,482.71	55,675.64	146,130.45	95,271.91	50,728.74			
Page	142,775.50	74,804.62	217,620.12	130,091.62	83,918.19			
Palo Alto	7,506.24	80,412.82	77,968.79	280,855.16	*194,951.37			

SUMMARY TABLE NO. 30—Continued

County	Primary Road Fund			Primary Road Bond Fund			Primary Road Bond Fund		
	Bal. of overdrft Jan. 1, 1921	Disbursements 1921	Total	Receipts 1921	Total	Disbursements 1921	Receipts 1921	Total	Bal. of overdrft Jan. 1, 1922
Plymouth	255,300.40	121,342.01	350,648.41	171,040.96	184,088.45	244,235.47	51,754.00	295,989.47	
Pocahontas	110,770.21	81,740.27	192,510.48	244,235.47	51,754.00	244,235.47	51,754.00	295,989.47	
Polk	82.21	81,060.15	81,142.36	75,250.75	8,891.61	75,250.75	8,891.61	84,142.36	
Pottawattamie	503,012.07	125,012.07	628,024.14	328,551.04	328,551.04	328,551.04	328,551.04	328,551.04	
Rawlins	175,700.00	75,700.00	251,400.00	100,000.00	151,400.00	100,000.00	151,400.00	151,400.00	
Regis	61,440.00	61,440.00	122,880.00	122,880.00	122,880.00	122,880.00	122,880.00	122,880.00	
Scott	34,564.33	68,112.66	102,677.00	102,677.00	102,677.00	102,677.00	102,677.00	102,677.00	
Shelby	105,319.04	86,008.40	191,327.44	191,327.44	191,327.44	191,327.44	191,327.44	191,327.44	
Sioux	60,305.00	107,107.00	167,412.00	167,412.00	167,412.00	167,412.00	167,412.00	167,412.00	
Story	114,000.00	79,000.00	193,000.00	193,000.00	193,000.00	193,000.00	193,000.00	193,000.00	
Tama	141,000.00	141,000.00	282,000.00	282,000.00	282,000.00	282,000.00	282,000.00	282,000.00	
Taylor	148,520.00	148,520.00	297,040.00	297,040.00	297,040.00	297,040.00	297,040.00	297,040.00	
Union	110,012.65	60,112.65	170,125.30	170,125.30	170,125.30	170,125.30	170,125.30	170,125.30	
Van Buren	82,311.41	60,000.41	142,311.82	142,311.82	142,311.82	142,311.82	142,311.82	142,311.82	
Wapello	154,113.07	61,729.00	215,842.07	215,842.07	215,842.07	215,842.07	215,842.07	215,842.07	
Warren	154,713.25	80,471.85	235,185.10	235,185.10	235,185.10	235,185.10	235,185.10	235,185.10	
Washington	141,151.81	78,789.71	219,941.52	219,941.52	219,941.52	219,941.52	219,941.52	219,941.52	
Wayne	255,000.00	255,000.00	510,000.00	510,000.00	510,000.00	510,000.00	510,000.00	510,000.00	
Webster	66,200.00	53,200.00	119,400.00	119,400.00	119,400.00	119,400.00	119,400.00	119,400.00	
Winnebago	178,731.67	96,673.89	275,405.56	275,405.56	275,405.56	275,405.56	275,405.56	275,405.56	
Woodbury	130,800.18	123,727.84	254,528.02	254,528.02	254,528.02	254,528.02	254,528.02	254,528.02	
Worth	116,800.00	116,800.00	233,600.00	233,600.00	233,600.00	233,600.00	233,600.00	233,600.00	
Wright	112,600.00	81,400.00	194,000.00	194,000.00	194,000.00	194,000.00	194,000.00	194,000.00	
Total	\$ 10,467,314.04	\$ 7,912,870.92	\$ 18,380,184.96	\$ 18,380,184.96	\$ 18,380,184.96	\$ 18,380,184.96	\$ 18,380,184.96	\$ 18,380,184.96	\$ 10,467,314.04

\*Overdrft.

SUMMARY TABLE NO. 31  
Financial Statement Primary Road Funds.

County	Special Assessment Funds				
	Balance or Overdrft Jan. 1, 1921	Receipts 1921	Total	Disburse- ments 1921	Balance or Overdrft Jan. 1, 1922
Benton		\$ 110,882.80	\$ 110,882.80	\$ 110,882.80	
Cerro Gordo	\$ 40,301.80	125,000.45	165,302.25	165,302.25	
Clinton					
Des Moines					
Dickinson		50,000.00	50,000.00	50,000.00	
Floyd	43,000.38	55,220.12	98,220.50	98,220.50	
Greene		70,544.80	70,544.80	70,544.80	
Hancock		105,121.35	105,121.35	105,121.35	
Johnson		45,380.15	45,380.15	45,380.15	
Lincoln		91,311.67	91,311.67	91,311.67	
Marshall		61,440.14	61,440.14	61,440.14	
O'Brien					
Palo Alto		109,629.97	109,629.97	109,629.97	
Polk		166,882.24	166,882.24	166,882.24	
Scott		305,750.38	305,750.38	305,750.38	
Sioux		54,417.48	54,417.48	54,417.48	
Woodbury		215,063.00	215,063.00	215,063.00	
Total	\$ 83,007.24	\$ 1,221,435.18	\$ 1,304,442.42	\$ 1,304,442.42	\$ 83,007.24

SUMMARY TABLE NO. 32

Showing Bond Indebtedness of Counties for Primary Road Con-  
struction.

County	Primary Road Bonds				
	Bonds Outstanding Jan. 1, 1921	Bonds Issued 1921	Total	Bonds Paid 1921	Bonds Outstanding Jan. 1, 1922
Cerro Gordo	\$ 340,000.00	\$ 410,000.00	\$ 750,000.00		\$ 750,000.00
Clinton		425,000.00	425,000.00		425,000.00
Floyd	335,000.00	200,000.00	535,000.00		535,000.00
O'Brien		750,000.00	750,000.00		750,000.00
Polk	285,000.00	280,000.00	565,000.00		565,000.00
Scott	285,000.00	480,000.00	765,000.00		765,000.00
Woodbury		500,000.00	500,000.00		500,000.00
Total	\$ 1,410,000.00	\$ 1,410,000.00	\$ 2,820,000.00	\$ 2,820,000.00	\$ 2,820,000.00

SUMMARY TABLE NO. 33

Classification of Township Road Work—Annual Report of County Engineers.

County	No. of townships in county	No. of townships reporting	Construction	Maintenance	Special cases (rail-road crossings)	Total
Adair	16	16	\$ 44,807.74	\$ 12,541.23		\$ 57,348.97
Adams	12	12	32,228.94	22,228.94		54,457.88
Allamakee	18	8	2,037.05	28,150.37		30,187.42
Appanoose	17	17	42,887.30	42,887.30		85,774.60
Audubon	12	8	4,165.90	27,000.40		31,166.30
Benton	20	14	56,980.76	56,980.76		113,961.52
Black Hawk	18	16	2,442.81	50,505.34		52,948.15
Boone	17	15	49,902.49	19,021.50	\$ 16,456.16	\$ 85,380.15
Bremmer	14	10	2,035.25	27,968.72		29,003.97
Buchanan	16	15	10,306.36	43,009.73		53,316.09
Bureau	17	11	24,966.63	31,435.61		56,402.24
Butler	16	14	2,785.82	47,809.31	7,252.44	57,847.57
Calhoun	16	16	53,204.87	16,801.06		70,005.93
Carroll	16	14	5,727.15	49,504.14		55,231.29
Cass	16	16	60,600.30	60,600.30		121,200.60
Cedar	17	15	12,228.68	71,779.02		84,007.70
Cerro Gordo	16	15	23,450.22	64,027.86		87,478.08
Cherokee	16	14	7,805.39	40,601.37		48,406.76
Chickasaw	12	12	5,300.43	51,233.43		56,533.86
Clarke	12	12	4,627.84	29,769.59		34,397.43
Clay	16	14	111,304.90	24,136.68		135,441.58
Clayton	22	18	71,902.58	71,902.58		143,805.16
Clinton	20	19	345.20	91,109.36		91,454.56
Crawford	20	20	74,386.64	74,386.64		148,773.28
Dallas	16	16	73,882.32	51,809.78		125,692.10
Davis	15	15	45,347.39	45,347.39		90,694.78
Decatur	18	9	17,635.64	17,635.64		35,271.28
Delaware	16	14	16.00	50,818.52		50,834.52
Des Moines	13	13	7,430.94	36,347.32		43,778.26
Dickinson	12	9	18,559.01	15,447.15	4,240.71	38,246.87
Dubuque	17	9	31,334.12	31,334.12		62,668.24
Emmet	12	12	25,405.28	27,133.01		52,538.29
Fayette	20	19	73,538.21	73,538.21		147,076.42
Floyd	12	10	2,708.55	52,817.02		55,525.57
Franklin	14	13	15,705.34	44,622.27		60,327.61
Fremont	13	13	57,797.37	57,797.37		115,594.74
Greene	15	13	22,002.27	28,318.27		50,320.54
Grundy	14	14	17,889.85	35,975.32	2,613.56	56,478.73
Guthrie	17	17	7,086.25	67,349.62	5,775.50	79,100.13
Hamilton	14	14	23,138.49	42,869.70	545.25	66,553.44
Hancock	16	10	14,302.40	35,314.21		49,616.61
Hardin	15	12	22,462.23	25,045.27	5,469.53	52,977.03
Harrison	20	15	6,781.44	44,094.30		50,875.74
Henry	12	8	31,674.12	31,674.12		63,348.24
Howard	12	10	9,813.74	25,801.80		35,615.54
Humboldt	12	12	48,781.06	14,587.03		63,368.09
Ida	12	10	5,583.93	30,301.74		35,885.67
Iowa	18	16	7,490.34	58,342.50	2,908.18	68,741.02
Jackob	18	18	54,697.12	54,697.12		109,394.24
Johnson	20	12	7,946.45	56,184.66	3,588.09	67,719.20
Jefferson	22	22	61,140.11	61,140.11		122,280.22
Johnson	21	10	165.72	43,231.45		43,397.17
Jones	16	13	5,329.26	42,969.29		48,298.55
Keokuk	17	14	29.50	52,161.53	2,304.08	54,595.11
Kossuth	28	12	43,900.34	95,925.50		139,825.84

SUMMARY TABLE NO. 33—Continued.

County	No. of townships in county	No. of townships reporting	Construction	Maintenance	Special cases (rail-road crossings)	Total
Lee	15	14	41,773.34	41,773.34		83,546.68
Lea	20	20	20,415.21	14,948.18		35,363.39
Lehigh	12	8	25,380.71	25,380.71		50,761.42
Leban	12	10	10,564.09	20,448.53		31,012.62
Lyon	18	14	5,150.34	25,835.87		30,986.21
Madison	16	11	34,380.08	1,007.39		35,387.47
Mahaska	18	18	9,256.26	59,369.82	4,708.20	73,334.28
Marion	15	11	75,288.10	44,300.37		119,588.47
Marshall	19	16	14,869.09	4,266.75		19,135.84
Mills	13	11	1,486.16	44,162.52	1,710.25	47,368.93
Mitchell	16	15	8,919.06	38,230.30		47,149.36
Monona	19	12	4,908.53	22,258.37	888.56	28,055.46
Monroe	12	11	27,307.18	27,307.18		54,614.36
Montgomery	12	12	5,985.90	26,800.71	5,381.52	37,168.13
Muscatine	14	14	2,140.04	41,006.56	4,585.41	49,731.01
O'Brien	16	16	13,765.62	47,852.94		61,618.56
Oceola	11	8	9,202.72	20,135.70		29,338.42
PAGE	16	16	5,771.78	43,139.09	2,307.20	51,218.07
Palo Alto	16	7	7,876.12	15,568.44	2,699.12	26,143.68
Plymouth	24	18	71,447.25	71,447.25		142,894.50
Pocahontas	19	16	28,289.83	41,989.54		70,279.37
Polk	19	18	61,416.71	61,416.71		122,833.42
Pottawattamie	28	18	92,842.50	92,842.50		185,685.00
Poweshiek	16	12	51,379.74	4,712.74		56,092.48
Ringgold	16	6	33,430.41	33,430.41		66,860.82
Sac	16	16	20,172.00	67,390.57		87,562.57
Scott	15	15	10,057.10	30,156.20	13,300.67	53,513.97
Shelby	16	16	4,022.06	65,054.13	6,900.77	76,076.96
Sioux	22	22	424.30	74,815.35		75,239.65
Story	18	16	25,556.61	52,958.58		78,515.19
Tama	21	19	79,372.92	79,372.92		158,745.84
Taylor	17	16	47,164.78	47,164.78		94,329.56
Union	12	12	38,543.29	38,543.29		77,086.58
Van Buren	14	12	27,337.36	27,337.36		54,674.72
Vashti	14	14	6,782.27	42,418.34		49,200.61
Warren	16	12	44,307.71	44,307.71		88,615.42
Washington	15	8	150.33	45,636.15	353.53	46,140.01
Wayne	16	16	34,769.06	34,769.06		69,538.12
Webster	23	21	25,437.10	79,561.09	748.71	105,746.90
Winnebago	12	12	14,869.69	37,121.10		51,990.79
Winnebago	17	17	64,538.41	64,538.41		129,076.82
Woodbury	23	19	10,900.11	5,048.80		15,948.91
Worth	12	11	9,618.02	22,078.90		31,696.92
Wright	16	14	33,676.12	44,668.80		78,344.92
Total	361	272	\$ 140,976.71	\$ 865,389.17	\$ 28,896.38	\$ 1,035,262.26
Total reported	1,906	1,329	\$1,076,691.86	\$1,444,489.56	\$125,518.97	\$ 2,646,699.39
Not reported, estimated		247	105,090.13	302,736.13	22,813.24	1,035,262.26
Grand total	1,906	1,576	\$1,272,381.99	\$1,747,225.69	\$148,332.21	\$ 3,679,989.89





SUMMARY TABLE NO. 34—PART I—Continued

County	Tractors Estimated		Trucks Estimated		Concrete Mixers Estimated		Pile Drivers Estimated		Blade Graders Estimated		Wheeled Scrapers Estimated		Sip Scrapers Estimated	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Pocahontas.....	7	7,000							9	500	20	100	3	30
Polk.....	3	7,000			4	1,000	2	100			16	700	21	100
Pottawattamie.....							2	250			11	30	42	5
Poweshiek.....	1	2,400			3	150	2	100	3	1,750	19	323	15	75
Ringgold.....			3	1,300	2	600	1	20	3	1,300	15	200	8	75
Sac.....	2	1,500			1	25					7	15	13	75
Scott.....	3	2,200	4	4,800							12	100	6	12
Shelby.....									2	1,700			21	510
Sioux.....	4	7,950	1	1,000	1	600			10	2,150	7	350	8	60
Story.....	2	4,500	2	350			1	75	4	3,000	1	25	4	20
Tama.....	4	11,400							7	6,050	13	306	18	107
Taylor.....	1	1,000			2	1,100	1	60	2	1,700	16	340	16	120
Union.....					3	600			8	1,500	25	350	28	150
Van Buren.....	2	4,500			2	200	1	150	4	1,500			2	15
Wapello.....	2	1,000							1	400	4	50	6	35
Warren.....	1	500	3	1,050	3	100	1	40			6	5	10	20
Washington.....	2	6,200			1	171	1	100			6	400	14	168
Wayne.....	1	2,000	1	1,000	1	100	1	150	1	500	24	500	18	120
Webster.....	4	2,800	1	300			1	25	2	500			13	40
Winnebago.....									3	1,500	3	60	2	15
Winneshiek.....	2	4,400							1	600	7	415	12	105
Woodbury.....	2	2,000	1	300	4	600	4	375	4	1,500	7	130	27	120
Worth.....	3	2,500	1	200	2	575					12	165	12	84
Wright.....	2	2,200	1	1,000					2	900	35	250		
Total.....	221	\$ 315,450	89	\$ 104,242	117	\$ 21,861	75	\$ 5,275	351	\$ 143,830	7,069	\$ 24,139	1,272	\$ 8,137

SUMMARY TABLE NO. 34—PART II

Inventory of Machinery and Equipment Showing Estimated Value Jan. 1, 1922—Owned by Counties—Annual Report of County Engineers.

County	Drags Estimated		Fresnoes Estimated		Maintainers Estimated		Plows Estimated		Camp Outfits	Small Tools and Misc. Estimated	Total Estimated
	No.	Value	No.	Value	No.	Value	No.	Value	Value	Value	Value
Adair.....	31	\$ 500.00	26	\$ 200.00	1	\$ 450.00			\$ 1,600.00	\$ 2,554.00	\$ 11,739.00
Adams.....					2	1,000.00				140.00	1,400.00
Allamakee.....	23	300.00			1	1,000.00	12	\$ 250.00		236.00	12,336.00
Appanoose.....	22	500.00	1	25.00	15	1,640.00	12	180.00	450.00	2,000.00	19,135.00
Audubon.....	60	500.00			2	320.00	4	40.00			3,065.00
Benton.....	71	1,572.00	2	30.00	3	2,000.00	3	15.00	300.00	100.00	18,517.00
Black Hawk.....	49	540.00			9	1,125.00	1	10.00		3,380.00	19,055.00
Boone.....	25	80.00			5	220.00	3	8.00	125.00	490.00	3,417.00
Bremner.....	28	498.00			12	1,649.00	11	235.00		1,871.00	8,272.00
Buchanan.....	41	500.00			14	2,300.00	13	75.00		1,327.00	11,402.00
Buchanan.....	24	175.00	4	100.00	9	1,105.00	1	20.00	440.00	2,841.00	8,621.00
Buena Vista.....	23	100.00			9	1,675.00	11	150.00	90.00	1,442.00	13,983.00
Butler.....	43	287.00	6	75.00	23	4,600.00	9	135.00	600.00	1,100.00	12,097.00
Calhoun.....	4	125.00	5	140.00	3	1,570.00				185.00	2,125.00
Carroll.....					7	1,000.00				855.00	3,605.00
Cass.....	41	200.00			8	1,000.00	2	18.00			4,150.00
Cedar.....	30	340.00			2	400.00				647.00	4,327.00
Cerro Gordo.....	47	913.00	2	30.00	12	2,300.00	3	35.00		873.00	5,819.00
Cherokee.....	25	300.00			17	2,550.00	8	30.00	325.00	5,921.00	12,056.00
Chickasaw.....	42	200.00	3	25.00	8	2,330.00	6	30.00	700.00	148.00	7,573.00
Clarke.....	13	250.00			7	820.00	1	10.00		710.00	3,610.00
Clay.....	53	900.00			23	1,220.00	8	90.00	40.00	745.00	15,315.00
Clayton.....	87	1,400.00			17	3,500.00				1,915.00	12,945.00
Clinton.....	49	830.00			10	420.00	1	15.00		121.00	2,285.00
Crawford.....	49	450.00			3	895.00	5	75.00	300.00	5,875.00	28,526.00
Dallas.....	55	500.00	5	55.00	10	1,500.00	5	20.00	50.00	3,797.00	20,607.00
Decatur.....	90	529.00	9	200.00	12	1,250.00	13	235.00	80.00	1,404.00	11,728.00
Delaware.....					11	1,150.00	10	100.00	100.00	4,725.00	12,625.00
Des Moines.....	27	250.00			8	390.00	10	100.00	600.00	75.00	3,155.00

SUMMARY TABLE NO. 34—PART II—Continued

County	Drags Estimated		Fresnoes Estimated		Maintainers Estimated		Plows Estimated		Camp Outfits	Small Tools and Misc. Estimated	Total Estimated
	No.	Value	No.	Value	No.	Value	No.	Value	Value	Value	Value
Dickinson	25	550.00			12	1,450.00					6,100.00
Dubuque	9	128.00			17	1,807.00	1	15.00		5,080.00	15,230.00
Emmet	29	206.00			18	1,634.00	3	60.00	1,314.00	1,288.00	5,800.00
Fayette	30	230.00			11	1,465.00	8	138.00		9,278.00	13,146.00
Floyd	11	75.00			12	1,500.00	5	18.00	100.00	10,125.00	30,441.00
Franklin	54	1,225.00			6	800.00	8	75.00		4,485.00	7,315.00
Fremont	26	300.00			16	1,300.00	3	13.00			3,350.00
Greene	33	400.00								770.00	5,408.00
Grundy	29	130.00			19	1,940.00	7	160.00	140.00	1,844.00	5,900.00
Guthrie	69	770.00			9	1,700.00	4	80.00	200.00	700.00	10,273.00
Hamilton	52	500.00			6	240.00				111.00	9,370.00
Hancock	48	375.00	1	15.00	6	1,000.00			573.00	3,385.00	14,756.00
Hardin	85	1,000.00			9	1,300.00	1	10.00		11.00	3,389.00
Harrison	19	192.00			5	485.00			50.00	828.00	11,373.00
Henry	20	215.00			9	1,000.00	1	15.00	235.00	918.00	10,617.00
Howard	49	290.00	3	60.00	4	400.00	1	15.00		2,000.00	3,745.00
Humboldt	11	175.00			7	1,840.00			875.00	3,285.00	17,808.00
Iowa	55	600.00	1	15.00	30	2,575.00	6	100.00	125.00	1,100.00	14,325.00
Jackson	60	175.00	4	10.00	7	1,000.00				1,500.00	8,571.00
Jasper	42	210.00			32	4,210.00	3	30.00	351.00	505.00	16,801.00
Jefferson	40	336.00			14	815.00	4	25.00		1,205.00	9,715.00
Johnson	80	375.00			14	1,700.00	5	50.00	250.00	1,810.00	7,070.00
Jones	45	877.00	2	40.00	14	1,055.00	5	37.00			8,478.00
Keokuk	62	655.00			14	2,075.00	6	65.00		135.00	7,410.00
Leasath	44	800.00	1	24.00	5	1,230.00			15.00	3,282.00	5,872.00
Lee	66	100.00			9	1,800.00	3	30.00			10,577.00
Linn	44	800.00	1	24.00	18	3,150.00	5	60.00			6,815.00
Louisia	44	800.00	1	24.00	3	365.00			150.00	1,301.00	7,305.00
Lucas	60	610.00	12	200.00	11	1,100.00	12	145.00			2,905.00
Lyon	25	480.00			5	675.00	3	25.00	400.00	1,830.00	7,158.00
Madison	62	790.00	3	60.00	2	300.00	4	50.00	125.00	1,290.00	11,080.00
Mahaska					13	775.00	4	75.00	240.00	1,315.00	21,000.00
Marion	50	400.00	3	10.00	14	1,220.00	16	150.00	1,025.00	1,020.00	27,806.00
Marshall	48	705.00	1	10.00	10	640.00	14	140.00	230.00	2,715.00	25,733.00
Miller	10	350.00			20	2,900.00	3	60.00		1,825.00	8,865.00
Mitchell	42	400.00			17	1,815.00			100.00	1,611.00	13,687.00
Monona	47	665.00	4	60.00	5	1,800.00	3	30.00		1,120.00	9,678.00
Monroe	50	100.00			15	1,355.00			75.00	2,005.00	4,415.00
Montgomery	41	400.00	1	11.00	16	5,725.00	7	110.00	408.00	2,644.00	16,498.00
Muscatine	5	100.00			6	300.00	1	15.00	600.00	4,175.00	15,740.00
O'Brien	99	600.00			3	350.00				500.00	2,980.00
Oceola	6	60.00	2	20.00	8	600.00	15	130.00		700.00	10,270.00
Palo Alto	51	1,000.00	8	190.00	18	1,905.00	5	75.00	1,875.00	115.00	5,125.00
Plymouth	25	1,100.00			12	1,450.00				2,025.00	18,870.00
Pocahontas	46	300.00			30	2,350.00	7	50.00		1,134.00	11,234.00
Polk	41	100.00			11	1,000.00	7	10.00	125.00	3,000.00	14,000.00
Pottawattamie	96	1,175.00			14	2,125.00	11	125.00	775.00	30.00	1,580.00
Poweshiek	65	800.00			3	225.00	10	175.00		325.00	9,325.00
Ringgold	43	820.00			11	1,105.00	3	30.00		584.00	4,379.00
Sac	23	350.00	22	305.00	15	1,550.00	1	5.00		625.00	5,965.00
Scott	31	750.00	6	60.00	13	2,125.00	6	120.00		2,560.00	13,082.00
Shelby	73	570.00	4	87.00	7	750.00	7	105.00	600.00	2,179.00	5,300.00
Sioux	31	300.00			19	1,525.00	7	30.00	500.00	2,179.00	16,584.00
Story	78	1,519.00	6	175.00	4	914.00	10	179.00		5,740.00	16,095.00
Tama	40	400.00			1	400.00	7	150.00	150.00	150.00	29,890.00
Taylor	82	800.00			7	900.00	4	40.00		750.00	7,962.00
Union	59	1,110.00			21	1,470.00	16	194.00	350.00	4,550.00	4,550.00
Van Buren	32	225.00			4	350.00	3	40.00		300.00	4,459.00
Wapello	85	700.00			15	5,800.00	6	50.00	800.00	1,310.00	4,305.00
Warren	68	440.00	3	20.00	6	400.00	20	300.00		600.00	14,280.00
Washington	63	550.00			18	2,360.00	6	70.00	80.00	1,455.00	9,975.00
Wayne	32	225.00			6	835.00	1	7.00		1,850.00	8,545.00
Winnebago	54	710.00	6	105.00	5	1,800.00	4	40.00	420.00	15.00	3,687.00
Winneshek	4	55.00			30	4,320.00	6	81.00		1,430.00	9,270.00
Woodbury					12	1,000.00	1	5.00		7,730.00	13,775.00
Worth					4	180.00				582.00	5,009.00
Wright							8	54.00	350.00		4,904.00
Total	3,346	\$ 42,675.00	102	\$ 2,647.00	1,947	\$ 45,383.00	507	\$ 6,321.00	\$ 21,304.00	\$ 165,965.00	\$ 1,099,230.00



# INDEX

	Page
Part I. General Work of the Commission.....	5
Part II. County Engineers' Report.....	207

## CHAPTERS

Chapter 1—Summaries of Commission's Work.....	5
Chapter 2—Recommended Legislation.....	14
Chapter 3—Executive Department.....	18
Chapter 4—Bridge Department.....	22
Chapter 5—Railroad Crossing Improvements.....	37
Chapter 6—Department of Road Administration.....	46
Chapter 7—Department of Road Design.....	95
Chapter 8—Department of Road Construction.....	102
Chapter 9—Maintenance Department.....	116
Chapter 10—Work of District Engineers.....	
Chapter 11—Roads at State Institutions.....	124
Chapter 12—Drainage and Investigations.....	129
Chapter 13—Department of Materials and Tests.....	131
Chapter 14—Financial Statement.....	141

## SCHEDULES

Schedule 1—Bridge Designs for Specific Locations.....	31
Schedule 2—Bridge Contracts Submitted for Approval.....	32-35
Schedule 3—Material Contracts Submitted for Approval.....	36
Schedule 4—Detail Statement of Work Accomplished on Railroad Crossing Projects.....	42-45
Schedule 5—Primary Road Projects Approved by Commission..	49-50
Schedule 6—City Primary Projects Approved by Commission..	50
Schedule 7—Plans, Specifications and Estimates on Federal Aid Projects Submitted to Bureau of Public Roads..	51
Schedule 8—Plans, Specifications and Estimates for Primary Road Projects Submitted to Supervisors.....	52-53
Schedule 9—Project Agreements Executed by Secretary of Agri- culture.....	54
Schedule 10—Project Agreements Executed by Secretary and Modified.....	55
Schedule 11—Lettings Held on Federal Aid Primary and City Primary Projects.....	56-61
Schedule 12—Lettings Held, Contracts Awarded, Contracts Ap- proved and Contracts Disapproved on Primary Roads and Federal Aid Projects.....	63-87
Schedule 13—Secondary Road Contracts Approved Aside from Sec- ondary Road District Contracts.....	88-90
Schedule 14—Secondary Road Contracts Approved.....	91-93
Schedule 15—Secondary Road Districts Established by Resolution of Board of Supervisors.....	94

	Page
Schedule 16—Projects on Which Surveys Were Completed in 1921 .....	97-98
Schedule 17—Projects on Which Surveys Were Begun but not Completed .....	99
Schedule 18—Projects on Which Plans Were Completed in 1921 .....	99-101
Schedule 19—Projects on Which Plans Were Begun but Not Completed in 1921 .....	101
Schedule 20—Construction Work Done in 1921 .....	108-110
Schedule 21—Detail of Assignment of Government Equipment .....	111-113
Schedule 22—Government Equipment Released to December 1, 1921 .....	114
Schedule 23—Government Equipment Received to December 1, 1921 .....	114-115
Schedule 24—Road Complaints .....	120-121
Schedule 25—Primary Road Maintenance Budget, 1921 .....	121
Schedule 26—Distribution of District Engineers' Time .....	122-123
Schedule 27—Distribution of District Engineers' Time by Counties .....	123
Schedule 28—Work Done Investigating Material Resources of State .....	135
Schedule 29—Tests of Materials According to Counties .....	136-138
Schedule 30—Tests Made in Laboratories and Test Stations .....	139-140
Schedule 31—Summary of Expenditures .....	145
Schedule 32—Commissioners .....	145
Schedule 33—Executive Department .....	146
Schedule 34—Department of Purchases and Accounts .....	146
Schedule 35—Accounting Division .....	147
Schedule 36—Department of Road Administration .....	148
Schedule 37—Department of Road Design .....	148
Schedule 38—Department of Road Surveys .....	149
Schedule 39—Department of Road Construction .....	154
Schedule 40—Department of Road Construction—Machinery and Equipment Division .....	154
Schedule 41—Department of Road Maintenance .....	155
Schedule 42—Road Department—Traffic Census .....	155
Schedule 43—Bridge Department .....	156
Schedule 44—Drainage Department .....	157
Schedule 45—Women's Drafting Department .....	158
Schedule 46—Department of Materials and Tests .....	159
Schedule 47—Equipment and Supplies .....	161
Schedule 48—District Office No. 1 .....	162
Schedule 49—District Office No. 2 .....	163
Schedule 50—District Office No. 3 .....	164
Schedule 51—District Office No. 4 .....	165
Schedule 52—District Office No. 5 .....	166
Schedule 53—District Office No. 6 .....	167
Schedule 54—District Office No. 7 .....	168
Schedule 55—District Office No. 8 .....	169
Schedule 56—District Office No. 9 .....	170

	Page
Schedule 57—Appropriation—State Highway Commission .....	171
Schedule 58—Comparison of Expenditures for Six Years .....	172
Schedule 59—Appropriation Federal Aid Engineering Fund .....	174
Schedule 60—Statement of Expenditures Federal Aid Engineering Fund .....	175
Schedule 61—Showing Cost of Plans Completed During the Period September 1, 1920, to June 30, 1921, for Federal Aid and Primary Projects, Compared with Estimated Cost of Projects Compiled December 1, 1921 .....	183
Schedule 62—Statement of Primary Road Fund—November 30, 1921 Funds Allotted to Iowa Counties .....	185
Schedule 63—Statement of Primary Road Fund, November 30, 1921 .....	186
Schedule 64—Expenditures for Bridge and Culvert and Road Construction on Primary Roads .....	188
Schedule 65—Classification of Expenditures for Road Construction on Primary Roads .....	196
Schedule 66—Classification of Expenditures for Bridge and Culvert Construction from Primary Road Fund .....	202
Schedule 67—Expenditures from Primary Road Fund Maintenance, July 1, 1920, to November 30, 1921 .....	204

## SUMMARY TABULATIONS FOR ENTIRE STATE

(A number of summary tabulations have been omitted from the annual report. Those desiring to inspect these tables will find complete copies of the tabulations and of the entire report in the office of the Governor, the State Superintendent of Printing and the State Highway Commission.)

Table 1—Expenditures for Bridge and Road Work, Primary, County and Township Roads .....	302
Table 2—Expenditures for Bridges, Culverts, Road Construction and Maintenance, County and Township Road System .....	304
Table 3—Expenditures for Road and Bridge Construction and Maintenance on Primary Road System .....	308
Table 4—Expenditures for Road Construction and Maintenance on Township Road System Shown by Funds .....	311
Table 5—Expenditures for Bridges and Culverts, Primary, County and Township Roads, Classified .....	314
Table 6—Classification of Permanent Bridges and Culverts, Construction for which Warrants were Issued in 1921 .....	317
Table 7—Classification of Temporary Bridges and Culvert Construction for which Warrants were Issued in 1921 .....	323
Table 8—Showing Cost of Repairs on Bridges and Culverts and Culvert Material Purchased for Townships .....	326
Table 9—Bridge Equipment Unused Material—Filling Bridges and Culverts and Special Cases .....	329

	Page
Table 10—Comparison of Bridge and Culvert Construction, 1916, 1917, 1918, 1919, 1920, 1921.....	332
Table 11—Classification of Road Work—County Roads.....	335
Table 12—Classified Road Expenditure—Construction County Roads .....	337
Table 13—Showing Cost of Maintenance—County Roads.....	340
Table 14—Showing Miscellaneous Items County Expenditures— Special Cases .....	343
Table 15—Progress and Condition Report—County Road System.....	346
Table 16—Showing Number and Value of Gravel Pits Owned by Counties January 1, 1922.....	349
Table 17—Classification Road and Bridge Work on Primary Road System January 1, 1922.....	351
Table 18—Classified Road Expenditures—Primary System, January 1, 1922 .....	354
Table 19—Showing Total and Relative Cost of Maintenance of Earth, Gravel and Paved Roads by Counties.....	357
Table 20—Showing Total and Relative Cost of Maintenance of Earth, Gravel and Paved Roads by Counties.....	360
Table 21—Showing Cost of Maintenance.....	363
Table 22—Showing Construction Work Contemplated in 1921 and Condition Primary Road System, January 1, 1922.....	366
Table 23—Classification of Permanent Bridge and Culvert Con- struction Paid from Primary Road Funds in 1921.....	369
Table 24—Amount of Bridge and Road Work Planned by and Con- structed Under Supervision of County Engineers Dur- ing 1921 .....	371
Table 25—Showing County Engineer Cost.....	374
Table 26—Financial Statement .....	377
Table 27—Financial Statement .....	380
Table 28—Bonded Indebtedness of Counties.....	383
Table 29—Total Indebtedness of Counties for County Road and Bridge, January 1, 1922.....	386
Table 30—Financial State Primary Road Fund.....	390
Table 31—Financial State Primary Road Funds.....	393
Table 32—Showing Bond Indebtedness of Counties for Primary Road Construction .....	393
Table 33—Classification of Township Road Work.....	394
Table 34—Inventory of Equipment and Machinery Showing Esti- mated Value January 1, 1922, Owned by County.....	396

## ALPHABETICAL INDEX

	Page
Automobile Head Light Lenses.....	134
Bonds .....	17
Of Contractors .....	17
Bonds Outstanding for Roads and Bridges.....	212
Bridge and Road Work, Total Expenditures.....	210
Bridge Classified, Bridges and Culverts.....	216
Classified Expenditures .....	214
Classified Percentage .....	214
Classified Permanent Bridges and Culverts.....	217
Culvert Material Purchased by Townships.....	218
Expenditures for Entire State.....	213
Expenditures for State, by Funds.....	211
Permanent and Temporary Constructions.....	215
Bridges:	
Approval and Analysis of Designs.....	24
Approval of Contracts.....	27
Approval of Material Contracts.....	28
Average Price Paid for Cement in 1919-20-21.....	30
For Corrugated Culverts in 1919-20-21.....	29
For Lumber in 1919-20-21.....	30
For Piling in 1919-20-21.....	30
For Reinforcing Steel in 1919-20-21.....	29
For Structural Steel.....	30
Complaints on .....	27
Contracts Approved .....	28
Construction .....	8
Current Price of Materials and Construction.....	29
Designs for Specific Locations.....	23
Field Surveys for.....	22
Field Work for.....	26
Railroad Crossing Improvements.....	22
Limitation on Appropriations.....	17
Material Drop in Cost.....	29
Material Lettings .....	28
On Primary Road System.....	24
Plans Checked .....	22
Plans Prepared .....	22
Standard Plans .....	24
Standard Specifications .....	26
Surveys and Plans.....	7
Total Plans Made and Checked.....	22
Value of Plans Prepared.....	22
Cash Balance for State, January 1st.....	211
Contracts:	
Material, Submitted for Approval, Schedule 3.....	36
Submitted for Approval, Schedule 2.....	32-33-34-35



	Page
County Road System:	
Changes in .....	13
Modifications of .....	20
County Summaries:	
Adair .....	221
Adams .....	222
Allamakee .....	222
Appanoose .....	223
Audubon .....	224
Benton .....	224
Black Hawk .....	225
Boone .....	226
Bremer .....	227
Buchanan .....	228
Buena Vista .....	229
Butler .....	229
Calhoun .....	230
Carroll .....	231
Cass .....	232
Cedar .....	233
Cerro Gordo .....	233
Cherokee .....	234
Chickasaw .....	235
Clarke .....	236
Clay .....	237
Clayton .....	238
Clinton .....	238
Crawford .....	239
Dallas .....	240
Davis .....	241
Decatur .....	242
Delaware .....	242
Des Moines .....	243
Dickinson .....	244
Dubuque .....	245
Fayette .....	246
Floyd .....	247
Franklin .....	248
Fremont .....	249
Greene .....	250
Grundy .....	251
Guthrie .....	251
Hamilton .....	252
Hancock .....	253
Hardin .....	254
Harrison .....	255
Henry .....	256
Howard .....	256
Humboldt .....	257

## County Summaries—Continued.

	Page
Ida .....	258
Iowa .....	259
Jackson .....	260
Jasper .....	261
Jefferson .....	261
Johnson .....	262
Jones .....	267
Keokuk .....	264
Kossuth .....	265
Lee .....	265
Linn .....	266
Louisa .....	267
Lucas .....	268
Lyon .....	269
Madison .....	269
Mahaska .....	270
Marion .....	271
Marshall .....	272
Mills .....	272
Mitchell .....	273
Monona .....	264
Monroe .....	275
Montgomery .....	276
Muscatine .....	276
O'Brien .....	277
Osceola .....	278
Page .....	279
Palo Alto .....	280
Plymouth .....	281
Pocahontas .....	282
Polk .....	282
Pottawattamie .....	283
Poweshiek .....	284
Ringgold .....	289
Sac .....	286
Scott .....	287
Shelby .....	287
Sioux .....	288
Story .....	283
Tama .....	290
Taylor .....	291
Union .....	292
Van Buren .....	292
Wapello .....	293
Warren .....	294
Washington .....	295
Wayne .....	295
Webster .....	288

	Page
County Summaries—Continued.	
Winnebago .....	297
Winneshiek .....	298
Worth .....	299
Wright .....	300
District Engineers .....	119
Distribution of District Engineers' Time .....	122-123
Distribution of District Engineers' Time by Counties .....	123
Field Work Classified .....	120
Organization of .....	120
Road Complaints, Schedule 24 .....	120-121
Summary of Work .....	120
Drainage:	
Sale of Lake Beds .....	130
Stream Gaging Work .....	129
Work of Department .....	129
Work of Gaging Stations .....	130
Engineering:	
Average Cost Per Mile .....	11
Cost of .....	10
On Surveys, Plans and Specifications .....	10
Plans, Specifications and Estimates Submitted .....	11
Equipment and Tools on Hand .....	212
Expenditures for Road and Bridge Work .....	210
Reported in County Engineers' Report .....	209
Executive Department:	
Days on Assignments .....	18
Official Communications .....	18
Expenditures on Primary Road System .....	12
Federal Aid:	
Expenditures for Engineering Work .....	142
Federal Funds Obligated .....	11
Lettings Held, Contracts Awarded, Contracts Approved and Contracts Disapproved on Primary Roads and Federal Aid Projects .....	63-87
Lettings Held on Federal Aid, Primary and City Primary Projects .....	56-61
Payments Made by Government .....	7
Plans, Specifications and Estimates on Federal Aid Projects Submitted to Bureau of Public Roads, Schedule 7 .....	51
Projects Approved .....	11
Project Agreements Executed by Secretary of Agriculture, Schedule 9 .....	54
Project Agreements Executed by Secretary and Modified, Schedule 10 .....	55
Projects Completed .....	104-105
Finance:	
Classification of Expenditures .....	141
Cost of Construction Work .....	143

## Finance—Continued.

	Page
County and Township Road Work Supervision .....	141
Equipment Purchased .....	141
Federal Aid Engineering Work .....	142
Fiscal Year Ending June 30, 1921 .....	141
Primary Road Maintenance Expenditures .....	144
Primary Summary Statement .....	144
Receipts, Storage and Repair of War Department Equipment .....	142
Financial Statement for Entire State .....	210
Force Account Projects .....	62
Hard Surfacing:	
Bonds Issued .....	13-14
Counties Voting On .....	13
Highway Commission:	
Amounts Drawn by Commissioners .....	9
Counties Visited by .....	18
Days Spent on Inspection Work .....	18
Employees of .....	21
Force, Organization of .....	20
Formal Meetings of .....	18
Membership of .....	10
Highway Routes:	
Registration of .....	20
Total Number Registered .....	20
Indebtedness for Roads and Bridges .....	211
Lake Beds .....	130
Letter of Transmittal .....	3
Litigation .....	18
Andrew Nelson vs. Scott County Supervisors .....	19
Story County vs. Highway Commission .....	19
Shenandoah Artificial Ice vs. Highway Commission .....	18
Maintenance Department:	
Blank Forms 364-365-367 .....	117
Budget .....	118
Complaints .....	116-117
Contracts Approved .....	118
Inspection Trips .....	118
Primary Road Condition Maps .....	117
Road Complaints, Schedule 24 .....	120-121
Summary of Work .....	116
Use of War Department Equipment .....	118
Materials and Tests Department, Chapter 13 .....	131
Branch Laboratories .....	131
Cost of Department .....	7
Duties of .....	131
Experimental Work .....	133
Field Division of .....	132
Head Light Testing .....	134
Materials and Tests Department, Cost of .....	7



	Page
Materials and Tests—Continued.	
Material Tests Made.....	132
Materials, Tests of.....	6
Organization of Department.....	131
Research Work .....	132
Savings Made by the Department.....	132-133
Surveys of Resources.....	133
Tests Made in Laboratories and Test Stations.....	139-140
Tests of Materials According to Counties, Schedule 29.....	136-138
Work Accomplished .....	131
Work Done Investigating Material Resources of State.....	135
Outstanding Bills for Roads and Bridges.....	212
Bonds for Roads and Bridges.....	212
Warrants for Roads and Bridges.....	212
Part I. General Work of the Commission.....	5
Part II. County Engineers' Report.....	207
Parks, State .....	130
Primary Roads:	
Lettings Held on Federal Aid, Primary and City Primary Projects .....	56-57-58-59-60-61
City Primary Projects.....	47
Comparison of 1920 and 1921.....	6
Complaints, Schedule of.....	120-121
Complaints, Relative to Primary Roads.....	12
Construction Accomplished .....	6
Primary Road System:	
Accounting Anticipation .....	15
Bridge and Culvert Work.....	16
Bridge Work on.....	24
Changes in .....	13
City Primary Projects Approved by Commission, Schedule 6.....	50
Completed Projects .....	104-105
Condition Maps .....	117
Construction Completed .....	12
Contingent Fund .....	15
Contracts Awarded .....	12
Cost of Construction Work.....	143
Expenditures for Maintenance.....	144
Force Account Projects.....	62
Improvement Within Cities.....	16
Improvement Within Towns.....	16
Interest on Road Assessments.....	16
Lettings Held, Contracts Awarded, Contracts Approved and Contracts Disapproved on Primary Roads and Federal Aid Projects .....	63-87
Lettings Held on Federal Aid, Primary and City Primary Projects .....	56-61
Maps of Counties.....	117
Pavement at Boys' Industrial School at Eldora.....	62

	Page
Primary Road System—Continued.	
Plans .....	97
Plans, Specifications and Estimates for Primary Road Projects Submitted to Supervisors, Schedule 8.....	52-53
Maintenance Budget, Schedule 25.....	121
Projects Approved by Commission, Schedule 5.....	49-50
Projects Approved .....	12
Summary of Progress.....	12
Summary Statement of Expenditures.....	144
Surveys Made, Plans Prepared.....	12
System Established .....	12
Prospects for 1922:	
Program for 1921.....	5
Projects Under Way.....	6
Publications .....	19
Railroad Crossings:	
Checking Plans and Estimates.....	22
Detail Statement of Work Accomplished on Railroad Crossing Projects .....	42-45
Dissimilarity of Projects.....	38
Distribution of Dangerous Crossings.....	39
Distribution and Percentage of.....	39
Grade Crossings .....	40
Improvements—Chapter 5 .....	37
Methods of Handling Complaints.....	38
Minimum Standard Requirements.....	40
Modifications of .....	19
Overhead .....	40
Plans for Future Work.....	40
Projects .....	47
Surveys for .....	13
Undergrade Crossings .....	40
Work Accomplished During 1921.....	37
Roads:	
Building Materials .....	7
Construction .....	8
Construction Checked for Approval.....	8
Mileage of Surveys and Plans, Comparison of.....	9
Surveys and Plans.....	8
City Primary Projects.....	47
Road Administration Department.....	46
Lettings Held and Contracts Awarded.....	48
Mileage of Primary Road Projects.....	47
Mileage of Projects Under Way.....	46
Plans, Specifications and Estimates.....	46
Plans, Specifications and Estimates Submitted.....	47
Primary Road Projects.....	47
Project Agreements Executed.....	48
Project Agreements Modified.....	48



	Page
Road Administration—Continued.	
Projects Approved .....	46
Value of Projects Involved .....	46
Road Construction Department:	
Conditions Affecting Work .....	103
Construction Work Done in 1921 .....	108-110
Duties of .....	102
Projects Completed and Retired .....	104
Projects Ready to be Retired .....	105
State Institutional Roads .....	102
War Department Equipment Allotted .....	102
War Department Equipment Received .....	102
Work Carried Over into 1921 .....	102
Road and Bridge Expenditures by Funds .....	211
Road and Bridge Work, Total Expenditures .....	210
Condition of Primary and County System, January 1, 1922 .....	220
Expenditures for Entire State .....	219
Townships Reporting on Road Work .....	220
Township Total Expenditures .....	223
Road Design Department:	
Duties of Department .....	95
Designs for Specific Locations, Schedule 1 .....	31
Method of Handling Work .....	96
Primary Road Plans .....	97
Projects on which Plans were Completed in 1921 .....	99-101
Projects on which Plans were Begun but not Completed in 1921, Schedule 19 .....	101
Projects on which Surveys were Begun but not Completed, Schedule 17 .....	99
Projects on which Surveys were Completed in 1921, Schedule 16 .....	97-98
Secondary Road Plans .....	97
Summary of Work .....	95
Surveys Made During 1921 .....	97
Women's Drafting Department .....	96
Road Legislation:	
Bridge and Culvert Work on Primary Roads .....	16
Construction Bonds .....	17
Improvement of Roads Within Cities .....	16
Improvement on Roads Within Towns .....	16
Interest on Road Assessments .....	16
Limitations on Appropriations for Bridges .....	17
Primary Road Bonds .....	14
Primary Road Contingent Fund .....	15
Primary Road Funds, Anticipation of .....	14
Purchase of Land for Gravel Pits .....	14
Width of Sleighs .....	17

	Page
Secondary Roads .....	49
Contracts Approved .....	49
Contracts Approved, Schedule 14 .....	91-93
Secondary Road Contracts Approved Aside from Secondary Road District Contracts, Schedule 13 .....	88-90
Districts Established .....	49
Secondary Road Districts Established by Resolution of Board of Supervisors, Schedule 15 .....	49
Plans .....	97
Supervision of County and Township Work .....	141
State Fair Exhibit .....	20
State Institutions:	
Boys' Training School—Eldora .....	126
Hospital and Epileptic Hospital—Woodward .....	127
Iowa State College—Ames .....	124
School for the Deaf—Council Bluffs .....	126
State Hospital—Cherokee .....	125
State Hospital—Independence .....	126
State Hospital—Mt. Pleasant .....	127
Methods of Administration on Road Work .....	124
Reformatory—Anamosa .....	125
Summary of Work During 1921 .....	124
State University—Iowa City .....	126
Training School for Girls—Mitchellville .....	127
Women's Reformatory—Rockwell City .....	127
State Parks .....	130
Summary of Annual Reports of County Engineers .....	207
Summary of Financial Statement for Entire State .....	210
Tests of Materials .....	6
Township Road Work Taken Over by County .....	16
War Department Equipment:	
Assignment of Equipment .....	107
Cost of Equipment .....	13
Cost of Equipment to State .....	106
Detail of Assignment of Government Equipment, Schedule 21 .....	111-113
Enumeration of Equipment Received .....	13
Equipment Received .....	106
Equipment Released .....	107
Government Equipment Received to December 1, 1921, Schedule 23 .....	114-115
Government Equipment Released to December 1, 1921, Schedule 22 .....	114
Receipts, Storage and Repair of War Department Equipment .....	142
Storage of Equipment .....	107
Value of Equipment Received .....	13
Warrants Outstanding for Roads and Bridges .....	212